

“Parking with
pleasure...”

P Parkolay

Parkonfor 11

M = Multiple grid system = min. 2 grids is 3 cars, max. 10 grids are 19 cars.

Car capacity: max. 2.200 kg, wheel load 550 kg

Option : max. 2.800 kg, wheel load 700 kg

Parkonfor Series



When platform #4 was requested.



Platform #3 and #5 shifts to left.



Then platform #4 lowers to the entrance level.

APPLICATION »

The systems provide independant parking for permanent user.
For movement one empty space on entry level is necessary per system.
The upper platforms are lifted vertically. The lower ones are sliding horizontally.

In lower position the cars can enter/ exit on platform.



office



residence



hotel*



shopping*



public parking*

* In case of short time user, they can park only on lower level.
Additional features are necessary, contact supplier.



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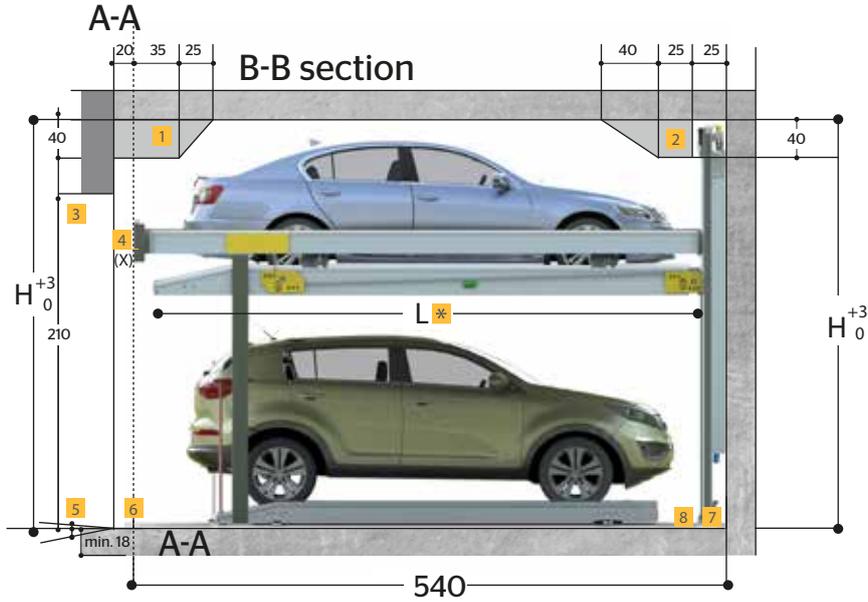


1 2 Free space.

3 Lintel; clear height, min 210 cm or according to regulations.

4 (X) for door, 20 cm; only applicable if doors are fitted!

1 Wall opening in case of partition walls, don't close.



5 300 cm plain, max. slope +3%/ -5%.

6 Yellow/ black marking 10 cm wide on the edge to parking area according to ISO 3864 (by customer).

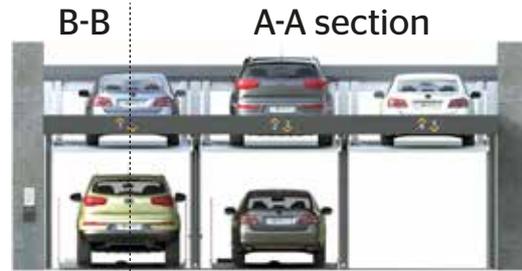
7 No haunches, routes on the joints between ground and walls.

! Drainage channel 10/ 2 cm, pump sump 50/ 50/ 20 cm. Slope 1-2% to drainage channel and pump sump. No water in area allowed.

8 Grounding: Potential equalization from system to foundation grounding according to DIN EN 60204. Foundation earth connector every 10 m (by customer).

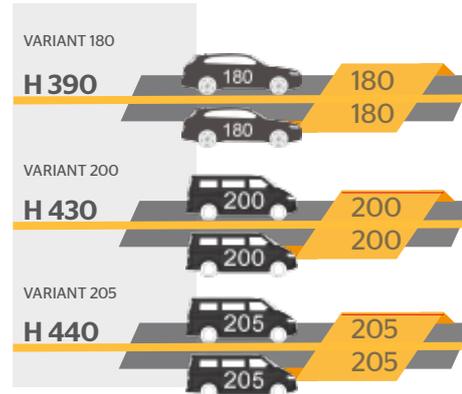
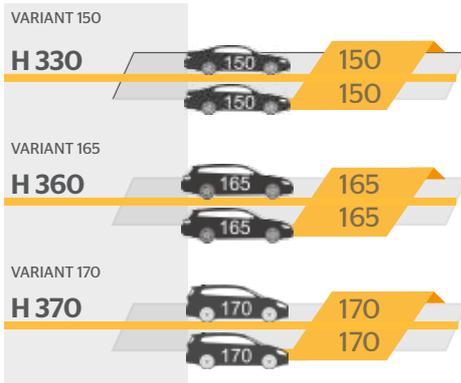
* Upper Platform length: In long and short version (503/ 458 cm) available.

Points 1 et seq. are the responsibility of customer and must be noted. Unless otherwise stated they are executed, supplied and/ or connected by customer.

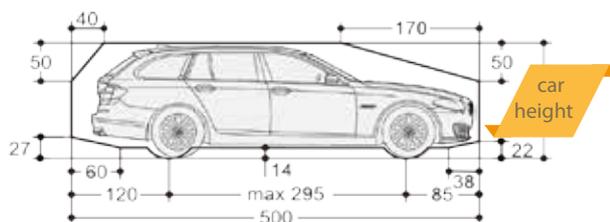


B-B Example shows 3 grids, 5 spaces. 1 empty space on entrance level is necessary for movement. 4 grids = 7 spaces, 5 grids = 9 spaces, etc. Each grid is enter/exit.

Variant For Car Height



Car Profile Dimension



The "car height" including roof rails, antenna and others must not exceed the mentioned max car height dimension.

Electrical Supply »

Supplier

7.1. Operation Terminal with push button function, when possible lefthand side (cars left wheel) outside movement range. Cable feed in from below.

6.1. Control cable to valve.

6.2. Control cable to operation terminal .

6.3 Control Cable to lock.

5.1. Control cable to next systems.

Customer

1.1. Electric meter

1.2. Fuse or automatic circuit breaker 3 x 16 A slow blow per switch cabinet and pump set.

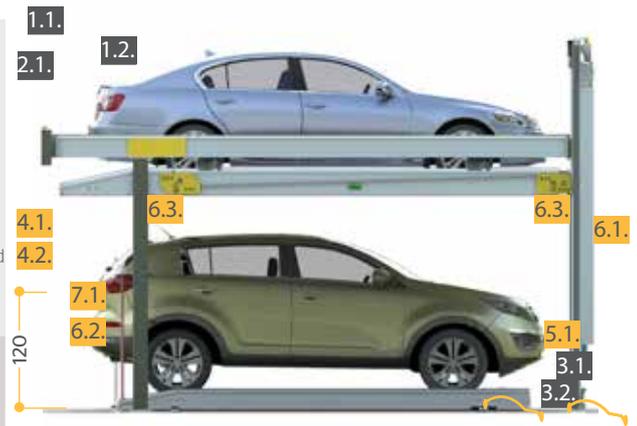
2.1. Supply line 5 x 1,5 /5 x 2,5 (3 PH + N + PE) with marked wire and protective conductor to/ connection of main switch per switch cabinet and pump set.

3.1. Equipotential bonding lead out connection. All 10m.

3.2. Equipotential bonding according to DIN EN 60204.

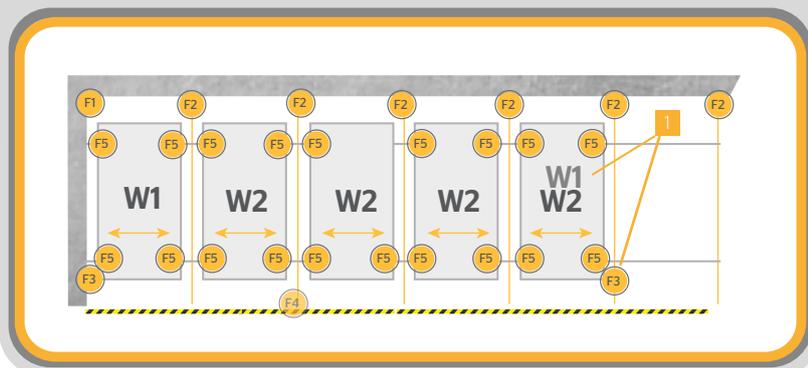
4.1. Locable main switch per switch cabinet and pump set.

4.1. Switch cabinet and hydraulic pump set with three-phase motor 1,5 kW/ 3 kW, 400 V, 50 Hz according to car capacity per pump set.

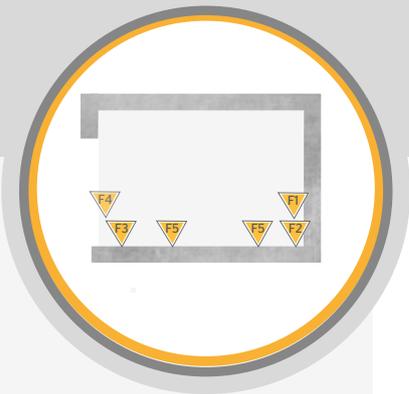


Switch cabinet: The switch cabinet must placed outside the movement range of the system. The position should be adjacent to the system and provide overview to it. The size of switch cabinet is about 80 x 120 x 25 cm and in front of the cabinet must be 100 cm free space and fixed area for door opening and service operator.

Structural Forces »



1 Comment: In case of 5-Grid 5-span version this is outer Grid W1 and column F3, support F4 then is not valid.



Forces kN**	Grid	Grid*
car version kg	2.200	2.800
F1	14	19
F2	25	33
F3	23/34/45/56	30/45/58/72
F4	F3r+F3l	F3r+F3l
F5	7	10

* Option

** With car load

F3 for front span 2/3/4/5 raster.

F4 only when two span rasters are combined, then F4 moves to front and is force of left span F3 right + force right span F3 left (eg. span 2 + span 3).

FOUNDATION »

Systems are fixed by heavy duty anchor bolts with a drilling drilling depth of approx. 14 cm. Floor plate made of reinforced concrete, min thickness 18cm, quality minimum C20/ 25. Chemical anchors are option for water-proof concrete.



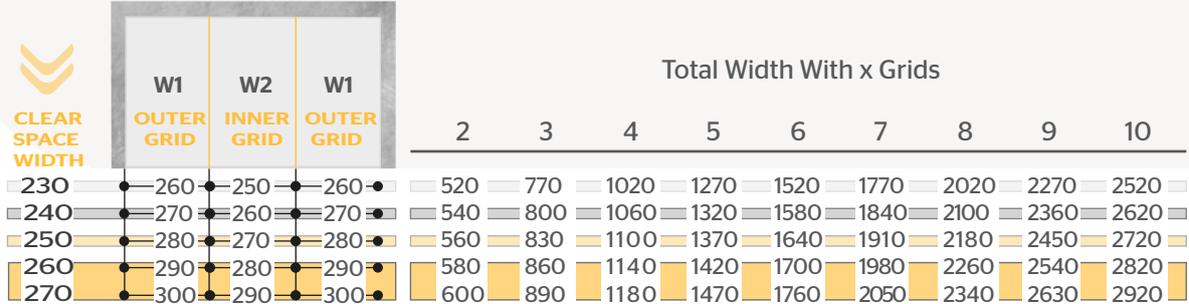
“ Parking with pleasure...”



System Width »

Between walls

Picture shows 3 Grids
3 Grids = 5 spaces, min. is 2 Grids



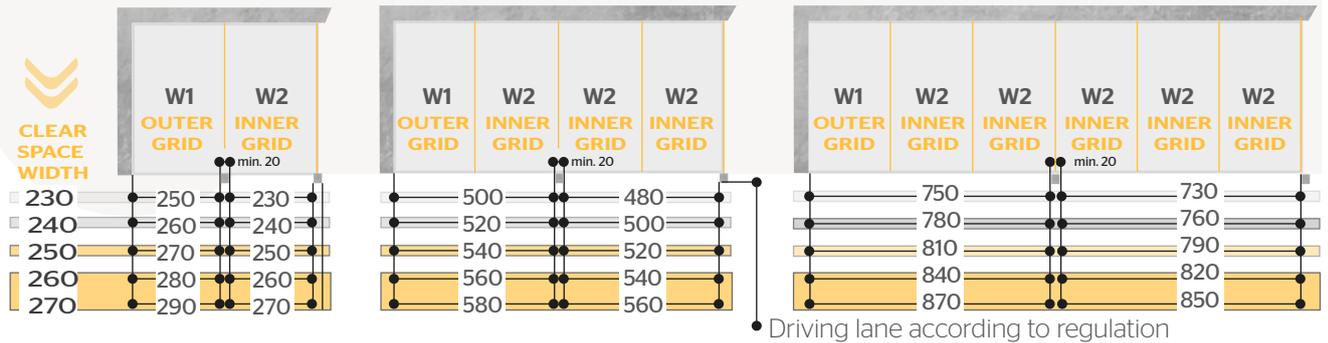
Driving lane according to regulation.

Pillars in front of parking area

Picture shows +2 Grids
2 Grids = 3 spaces

Picture shows + 4 Grids
4 Grids = 7 spaces

Picture shows + 6 Grids
6 Grids = 11 spaces



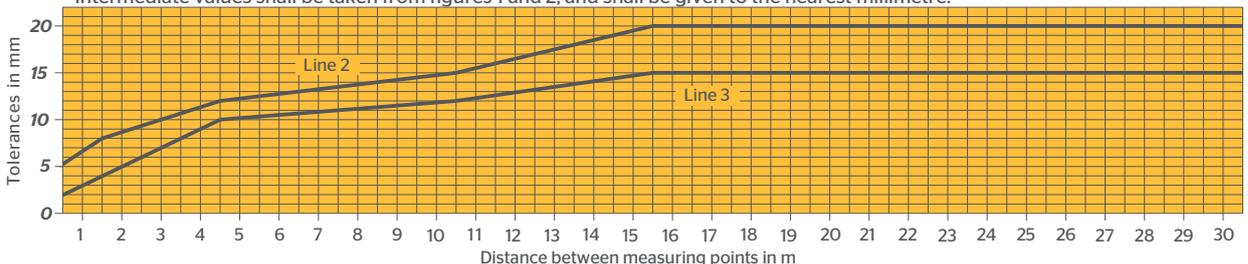
Driving lane according to regulation

Evenness and Tolerances (extract from DIN 18 202, table 3)

The distance between the lower flange of the pallets and the garage ground must therefore not exceed 2 cm. To adhere to the safety regulations and DIN EN 14010 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.

Column	1	2	3	4	5	6
Line	Applicable to					
2	Unfinished upper surfaces of floors, subfloors and concrete bases subject to more stringent requirements. (e.g. to receive floating screed, industrial floors, tile flooring and bonded screed), and finished surfaces for minor purposes (e.g. in storerooms or basements)					
3	Finished floors (e.g. screed as wearing courses or screed to receive a flooring, trowelled or bonded floorings)					

* Intermediate values shall be taken from figures 1 and 2, and shall be given to the nearest millimetre.



Women like it comfortable.

Plain platform design.

More than ever the user requests comfort. We are proud of our platform design. The sheets are plain and this finally means very comfortable to walk and to drive on. Whatever our clients are: Old or young, male or female, they like it.



High heels of women - no problem.

The Design of Safety & Comfort



STRONG BUT SOFT. LOW BUT STABLE »

Our soft inclination of the side sheet, which is bended out of one long piece and thus stable, lowers risks of car and wheel collision and is excellent for the safety. Even the side sheets, they are designed low and even stable, not to collide with car doors. We took orientation on the experience of guard boards, which have been lowered due to collision reasons.

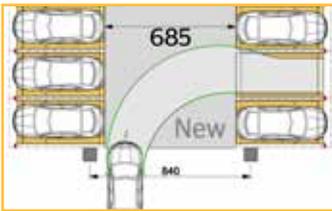


WE OFFER WHAT YOU NEED »



CAR CAPACITY AND WHEEL LOAD »

Cars with overweight. The biggest Switzerland motorcyclist association remeasured the weight of cars, which is figured out in the car registration certificate according to regulation 92/21/EEC. In most of the cases the car was heavier than stated on document. Often individual options are not calculated. Sliding roof, bigger wheels, hifi systems, motors for seats, etc. might increase the weight, which can be up to 150 - 200 kg higher on a car like Mercedes E-Class, BMW 5-Series, Audi A6. Therefore the supplier offers a standard parking space capacity of 2.200 kg and 550 kg wheel load, option 2.800 kg and 700 kg wheel load.



MORE COMFORT FOR PARK IN PROCESS »

The design offers recessed system columns to take profit from an increased driving lane. The driving lane and platform entry width are the deciding factors for the parking comfort. A plus of 50 cm driving lane can be equated with 10 cm parking space width. Practically the special design can increase the driving lane up to 100 cm. This can be valued like 20 cm parking place width on the left and right side of the driving lane.

Undoubtedly, this valuable effect will increase the profit in the driving curve radius and thus will make the drive in process onto the parking space more convenient and comfortable.



CONTROL SOUND EMISSIONS »

Car parking systems are sustainable, but also produce sound emissions that can affect health and care during use and operation. Compliance of sound emissions is important and effects R&D, planning and execution. We differ between air borne and body sound emission. For the latter the heavy duty support as well as the hydraulic insulation are of importance. Driving noise from the platform are part of the subjective perception and affect the quality impression.



CLEANING AND VALUE PRESERVATION »

A car parking system represents a major investment financially. Cleaning and care services can ensure a proper appearance, value preservation, function, availability and might lengthen the life time cycle. In reality one main reason for the poor and sometimes rusty look is, that the platform design is exceptionally difficult to clean and thus the necessary processes often are neglected. The supplier has developed a user friendly platform design, that provides the possibility to clean and maintain professionally.

Parking Comfort Advantage »

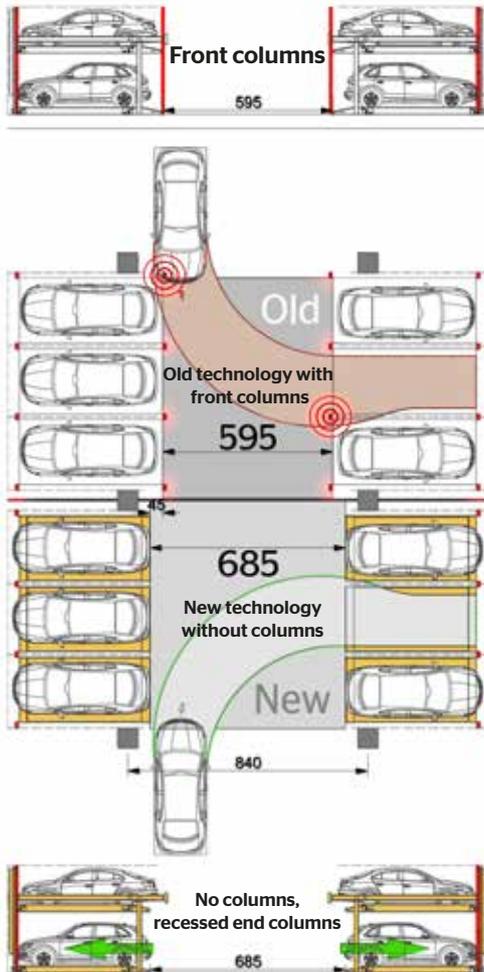
RECESSED SYSTEM COLUMNS FOR THE SYSTEM BLOCK

The most valuable feature on this system is the recessed system columns. The system columns limits the units only in the end of the width. The system's front span can be from 2 to 5 grids, without having difficulties by adding front columns.

In case of 10 grids total, there will be 2 x 5 grids span with 19 spaces. There will be only two recessed system columns at both end of the system. And in the middle there will be only one front column (for shifting the sliding platform) instead of 11 in total.

The system width is calculated by span combination as usual with W1, W2, W1 and does not increase total width.

This extraordinary concept is especially favourable, when it is on the open public area or when the building pillars are designed according to the conventional parking. The profit will be taken from the recessed system pillars and people will daily enjoy the parking comfort advantage.



MORE COMFORT FOR PARK IN PROCESS

The design offers recessed system columns to take profit from an increased driving lane. The driving lane and platform width are the deciding factors for the parking comfort.

A plus of 50 cm driving lane can be equated with 10 cm parking space width. Practically the special design can increase the driving lane up to 100 cm. This can be valued like 20 cm parking place width on the left and right side of the driving lane. The system provides:

- More drive in comfort
- Better curve radius
- Faster drive in process
- More safety by less collision risks (missing the front columns)
- More drive in width
- Optical and practical increased driving lane
- User oriented philosophy - Parking with pleasure -

Undoubtely, this valuable effect will increase the profit in the driving curve radius and thus will make the drive in process onto the parking space more convenient and comfortable.

Critical Comment: LIMITED USER COMFORT WHEN COLUMNS IN FRONT.

Drivers still suffer today about the parking spaces had been built decades ago. Whether they are single garages, quarter garages, underground garages or parking lots: The problem is always having too narrow drive in space, either limited by the structure or the pillars. And this problem is now more serious with the today's increased car width. The trend is to build wider pillar spans, without pillars, wide entrances and spaces without limitations.

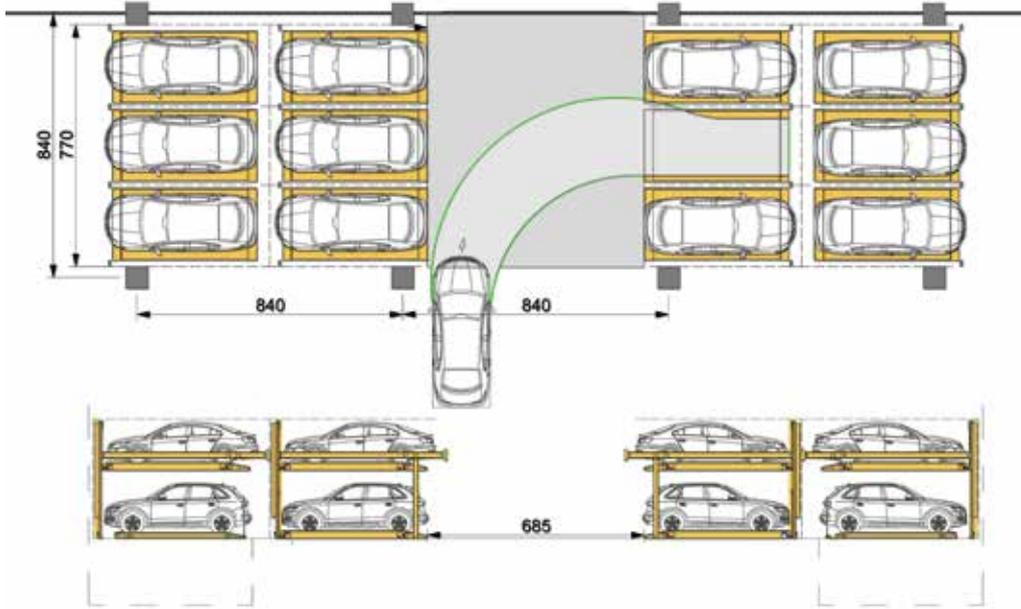
A woman recently said: "Imagine a parking space with 230 cm width and limited on entrance with fixed columns. How to enter daily, when the size of my BMW 3-series with mirrors is just 209 cm. There are just 10 cm left on each side and how to drive in from the driving lane by 90 degrees?"

Arrangements increase Efficiency »

WHEN THE PLOT IS SMALL - THERE ARE SOLUTIONS TO INCREASE EFFICIENCY: DOUBLE DEEP.

With the single row arrangement, there are 3 grids and 5 spaces. Mirrored on the driving lane that will be 10 spaces, instead of 6 conventional spaces. With double deep arrangement there will be 2 x 3 grids on left side with 10 spaces and 2 x 3 grids on right side with 10 spaces, created 20 spaces in total. The second row can be also exposed with the Parkonfor 111, 3 levels with pit. Then there are 3 more spaces available per line. In total 26 spaces instead of 6 conventional spaces.

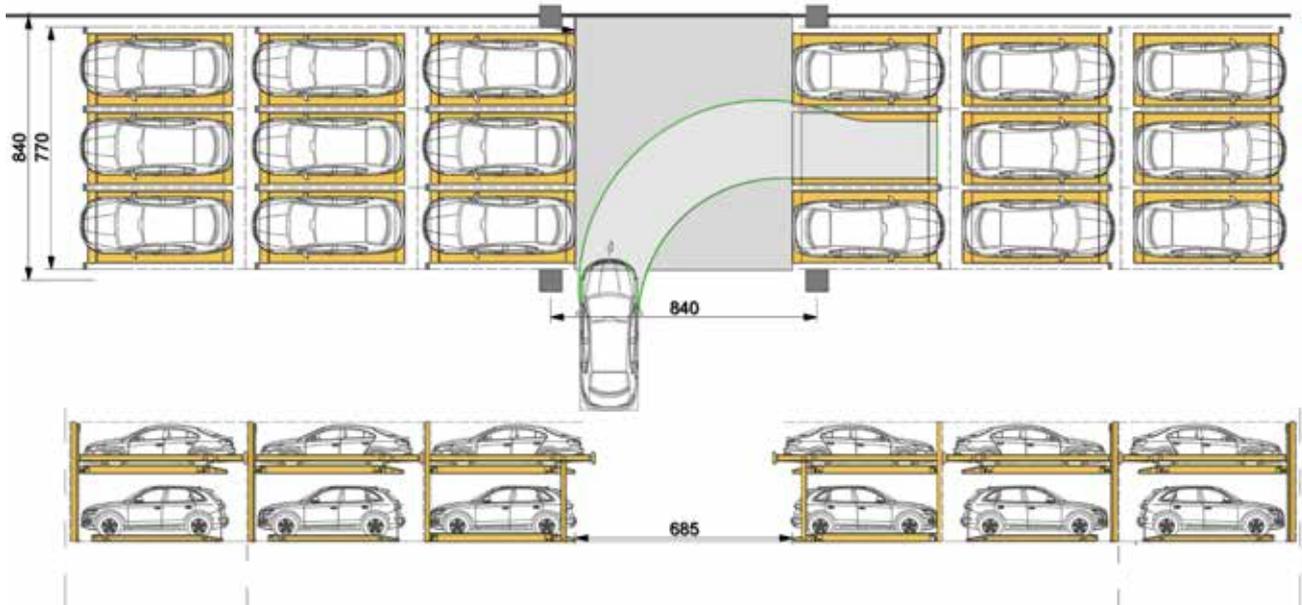
This solution needs additional gates, at least before the second row, to be sure no persons are inside the system.



WHEN THE PLOT IS SMALL - THERE ARE SOLUTIONS TO INCREASE EFFICIENCY: TRIPLE DEEP.

With the triple row arrangement, there are 3 x 3 grids and 5 spaces per line, in total 15 spaces. Mirrored on the driving lane that will be 30 spaces, instead of 6 conventional spaces. The third row can be also exposed with the Parkonfor 111, 3 levels with pit. Then there are 3 more spaces available per line. In total 36 spaces instead of 6 conventional spaces.

This solution needs additional gates, at least before the second row, to be sure no persons are inside the system.



Corrosion protection and Prevention



Besides the maintenance, the systems have to be cleaned regularly. This is for the systems, at least for the platforms as well as for all parts being exposed to corrosive substances, e.g. salt water, dirt, car fluids, sand, etc.. Garages also have to be ventilated and deaerated, The base plates have to be dewatered and dry.

Marking band

ISO 3864

According to DIN EN 14010/ ISO 3864 a yellow/ black 10cm wide safety warning band must be placed at the edge of the parking area by customer.



Safety fences DIN EN ISO 13857



According to DIN EN ISO 13857 safety fences have to be provided by customer for pathways directly around the parking boxes (besides or behind the units). Also during construction.

Fire safety

Designing fire safety in the proposed garage or area must comply with local/ regional regulations. The compliance must be managed by customer. Depending on the location and the fire department there might be very different and specific requirements. The supplier has to be informed in advance by the customer.



Dewatering



Dewatering involves controlling water in the system area with possibility of pumping it out of a water collecting pump sump. Water may occur from snow on the car, leaking shell, ground water, wet cleaning the systems (to prevent corrosion) or others. It can be solved by a drainage system with pump sump (50 x 50 x 20 cm).

Car development

The analysis of cars incorporates developments i.a. in more width and height. Even the classes of family cars and SUV are expanding. Reports show that just upper middle class cars can be in total heavier than 2.000 kg. Therefore the supplier recommends a "parking space width" of 250 cm and a min. car height of 160/ 170 cm. The supplier provides for the car capacity a standard of 2.200 kg, wheel load 550 kg (Option 2.800/ 700 kg).



Sound insulation DIN 4109: 2016-07



"Sound insulation in buildings". According to the german norm a value of 30 dB(A) is allowed in living quarters. This can be fulfilled with: option noise protection according to offer supplier. Sound insulation of building R'w = 57 dB. Surrounding walls/ ceilings (e.g. monolithic and rigid) of parking should be made of min m' = 300/ 400 kg/ m².

The adjacent critical building element should be min m' = 580 kg/ m. User noises are created by individual users. These can be from driving up/ down the platforms, slamming of vehicle doors, motor and brake noises. They are not subject to the limit. "Increased sound insulation" is made on special offer and discussion and needs more space.

MINIMUM DIMENSIONS & TOLERANCES »

Shown dimensions are minimum. Tolerances according to VOB part C (DIN 18330 and 18331) and the DIN 18202 have to be considered additionally. Tolerances for space requirements are +3 cm/ 0 cm. Dimensions are in cm.

ENVIRONMENTAL RANGE »

Temperature range -10 to +40° C. Relative humidity 50% at maximum outside temperature of +40° C.

LIGHTING »

There must be sufficient lighting in the parking garage and parking area according to regulations, supplied by customer.

CE AND CONFORMITY »

The systems correspond to DIN EN 14010 and the EC Machinery Directive 2006/42/EC.

RIGHTS TO CHANGE »

The manufacturer reserves the right to change, alter, modify parts, groups or general design in procedures or standards due to technical progress.

HYDRAULIC POWER UNITS »

Several units/block can be operated with one power unit. The power unit(s) need(s) additional space (depth 35 cm), which has to be in/ near the parking area and should be clarified with the drawing approval (e.g. wall recesses, moving with platform, others).

The general planning/supply of the garage with the building structure, statics, tolerances, free spaces, wall cutting, drainage, noise protection, fire demands, electricity, grounding, driveway, illumination, ventilation, numbering of spaces, yellow-black marking band, safety fences and others has to be arranged according to local requirements by the customer and must be also in accordance with the delivery/ requests of the parking system supplier.