

From the
DOUBLE-DECK PARKING SYSTEM
to the third level

So many bikes, so little space: The solution!



www.orion-bausysteme.de





High class bike parking!

We are one of the pioneers in Germany when it comes to double-deck bike parking.

This underscores our core expertise as a leading manufacturer of functional bike parking systems. DOUBLE-DECK PARKING SYSTEMS have been complementing our portfolio for over 20 years! In the meantime we have supplied DOUBLE-DECK PARKING SYSTEMS in the 6-figure range to customers at home and abroad.

We manufacture exclusively in Germany at our two sites in 64584 Biebesheim and in 01844 Neustadt in Saxony. Our DOUBLE-DECK PARKING SYSTEMS with gas spring as lifting aid has been tested and certified by the ADFC in accordance with TR 6102 and is manufactured corresponding to DIN 79008 'Stationary bike parking systems'.

The bike market is subject to constant change, with innovation cycles becoming ever shorter while the range of geometries for special applications is increasingly diverse. Besides mere 'bicycles', nowadays you are likely to encounter city bikes, trekking bikes, mountain bikes, lifestyle bikes, retro bikes, urban bikes and many more

types, plus everything for women and men, children and adults, in the frame sizes S, M, L, XL and tyre sizes from e.g. 26 inch, 27.5 inch, 28 inch, 29 inch...

All these bikes call for a common denominator that can form a basis on which to develop as ideal a bike parking system as possible.

A somewhat tricky task!

We have been confronting this challenge for almost 40 years. Every new development must be accompanied by numerous measuring series and practical tests until we have come crucially close to our intended goal.

So far we have always succeeded. The DOUBLE-DECK PARKING SYSTEM is no exception either. Yet this does not entail the end of our developments: above and beyond a double-deck parking system, a THIRD LEVEL can also be designed.

We have the solution!



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The following applies for all products shown in our catalogues:

Subject to technical modifications. Illustrations do not basically correspond to the standard programme. In cases of doubt, we can provide information on request. Order numbers and prices refer to the standard programme. We reserve the right to adapt prices, insofar as necessary. Also applicable for all published data: Errors excepted. Subject to modifications. Prices ex works, plus VAT.



Double-deck bicycle parking system 5R+ TOP

Optimal space utilisation in 3D

Minimum space requirement!

Bikes are parked vertically offset to one another (low/high position) to prevent the handlebars from touching. Standard spacing: 400/500 mm; the bike spacing can optionally be adapted to the required circumstances.

Downwards!

Tilt limiter for controlled lowering of the adjustment rail. Plastic cover serves as protection against knocks at the same time..

Stability!

Stable design allows standard support spacing up to 3.00 m. There is no need for ground an-choring to ensure stability here, though this is recommended to fix the position.

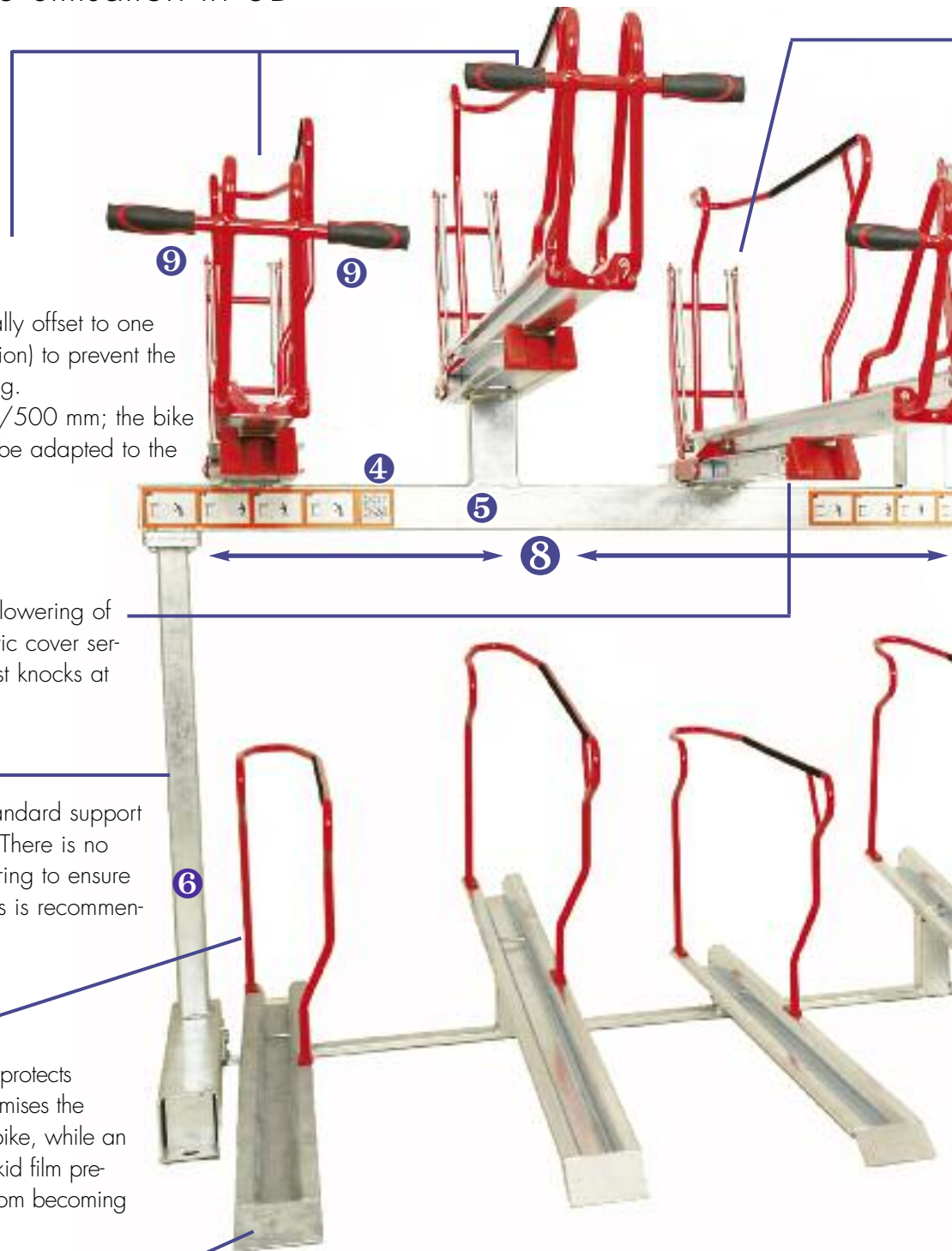
Security!

The support bar not only protects against theft but also optimises the structural stability for the bike, while an optionally attached anti-skid film prevents the bicycle frame from becoming scratched.

Rail geometry enables the bike to be guided in.

Note:

Connecting the bike via a chain or U-lock in the upper layer is ideally done when the adjustment rail is extended and lowered. This makes handling much easier. It is possible to connect the bike to the support bar at all points. This geometry ensures that the pedals cannot be hooked onto the support bar during correct operation.





+ manufactured according to the requirements of DIN 79008.

Type 5R+TOP



Little effort required!

Thanks to the principle of the lever, it is pretty easy to lift the extended rail loaded with a bike. Power assistance by gas springs helps here!

Comfort!

Rail for adjustment in the upper level can be pulled out and lowered via a smooth-running 5-roller system. This latches into the 'parking position'.

Modularity!

Design consists of series components that can be extended to suit requirements.

Anti-roll protection!

The bike is parked safely by the holding device in the adjustment rail.

Ground clearance!

The distance between the holding device with extended adjustment rail, no matter whether in the high or low position, is 35 cm. There is no need to lift the bike higher! This presupposes even ground surface.

- ① Holding device
- ② Adjustment rail
- ③ Support bar
- ④ Operating instructions
- ⑤ Cross member
- ⑥ L-support (1-sided loading), T-support (2-sided loaded)
- ⑦ Anti-skid film for protection against scratching (optional)
- ⑧ Support spacing 3 m as standard. For data on the number of bike adjustments, see page 19.
- ⑨ Rubber handles for pleasant feel. Suitable for right-handed and left-handed persons alike or for two-handed operation!



1 Following operating instructions, if necessary scan the QR code using your smartphone and watch video clip.



Starting packing procedure ...



... by pulling out the adjustment rail.

It is unimportant whether operation is right-handed

2

The mobile upper adjustment rails can be lowered with complete control.

The lowering must be performed deliberately owing to the counteracting force of the gas springs.

This prevents the rails from falling down unexpectedly!

A real safety aspect



... left-handed.... ...or with both hands! Select the most comfortable handle position for you. The rubber handles feel good to hold.

3 Lift front wheel and park in the adjustment rail in the area of the holding device.



4 Hold bicycle on the handlebar and saddle ...



A lifting height of approx. 350 mm* offers optimum comfort!

Lowering the adjustment rail right down to the ground could damage the rail or the ground surface. The resultant extremely low holding position would mean users having to bend down low, thereby putting extreme strain on their back. Moreover the traffic area would be enlarged by the long rail.

*applies for an even ground surface / terrain.

- 5** ... and push upwards until the rear wheel sits firmly in the holding device. The front area of the bike rests against the so-called 'support bar', to which an optional 'anti-skid film' can be attached for protection against scratching.



6 Connecting the bike via a conventional chain or U-lock is best done during the actual parking phase when the adjustment rail is tilted downwards.

The lug integrated in the support bar prevents the lock from unthreading!

Another safety aspect 



- 7** The integrated gas springs ensure that the force needed to lift the adjustment rail is so low that two fingers are often enough to guide the lowered rail back into the horizontal position when the bike is parked.



Lifting aid in the form of two gas springs parallel to each other.

- makes it much easier to lift an adjustment rail loaded with a bike.
- prevents uncontrolled lowering of the extended adjustment rail.
- only allows a procedure performed deliberately, both when parking and removing a bike.
- prevents an adjustment rail from falling down suddenly when extended.



Measured value at height of 7.38 kg refers to:
Women's bike 28 inch, length 180 cm, weight approx. 16 kg.



No matter whether high or low position, the lifting height* is always approx. 35 cm.

* Lifting height: = Distance between ground surface and holding device, to which the front wheel is first to be adjusted, for initiating the parking procedure. The front wheel must be lifted correspondingly by approx. 35 cm. An even ground surface is a prerequisite.

Parking with (and without) bulky parts attached to the bicycles



Even child seats or bike baskets are not a problem. So as not to prevent lowering of the upper adjustment rail, bikes with child seats should ideally be parked in the upper level.

- 1 It is just as easy to collect the bike:
Pull out adjustment rail as far as it will go. Even if you now let go of the handle, the adjustment rail will not tip uncontrolled downwards thanks to the effect of the gas springs!



- 3 It is most convenient to undo the lock when the adjustment rail is lowered and tilted.

- 2 Actively press the extended adjustment rail downwards via the handle. This ensures the low-ering procedure is fully controlled!



- 4 Remove bike from the adjustment rail and guide lowered adjustment rail back into the parking position.



- 1 Plastic impact protection. This equipment elements offers protection, especially for the sensitive head area, when using the bike alignment in the lower level.



Thanks to the integrated gas springs, the extended adjustment rail remain in the horizontal position. Lowering to remove a parked bike is performed actively by the user and not abruptly without control.

- 2** The support bar ensures the parked bike remains held firmly at the sides. The optionally at-tached anti-skid film also ensures that neither bike frame nor the support bar are scratched due to mechanical loads during parking and removal.



- 4** To connect and disconnect the bike, the user does not have to move in the constricted space between the structure. Instead the lowered, tilted adjustment rail provides an optimum position to connect the bike ideally. The connection lugs integrated in the support bar are used for this. A conventional bike lock can be used to connect the front wheel and frame of the parked bike at the same time.



Formula for calculating the number of bike adjustments for planning with double-deck parking systems ¹⁾:

$$RE_{es} = \frac{IM - 650}{a} + 1 = (\text{Round off result!}) \times 2$$

$$RE_{dps}^{1)} = \frac{IM - 650}{0,5 \times a} + 1 = (\text{Round off result!}) \times 2$$

one-sided = es

double-sided = dps

Bike adjustments = RE

Axis spacing: = a

Clear dimensions = IM

All dimensions in mm

¹⁾ Calculation of the number of bike adjustments with this formula is only possible approximately for double-deck parking system with double-sided bike adjustment (RE_{dps}). If you require exact data we shall be pleased to help you determine this.

ORION double-deck bike parking systems can be provided for both one-sided and double-sided loading.

Axis spacing of the parking spaces: 400 mm or larger*
 Construction length: row arrangements can be created in a theoretically infinite length via the modular system
 Support spacing of supporting structure Standard: max. 3.00 m
 Special structure: after consultation as per local circumstances

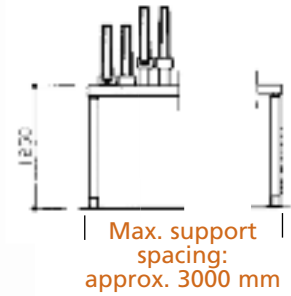
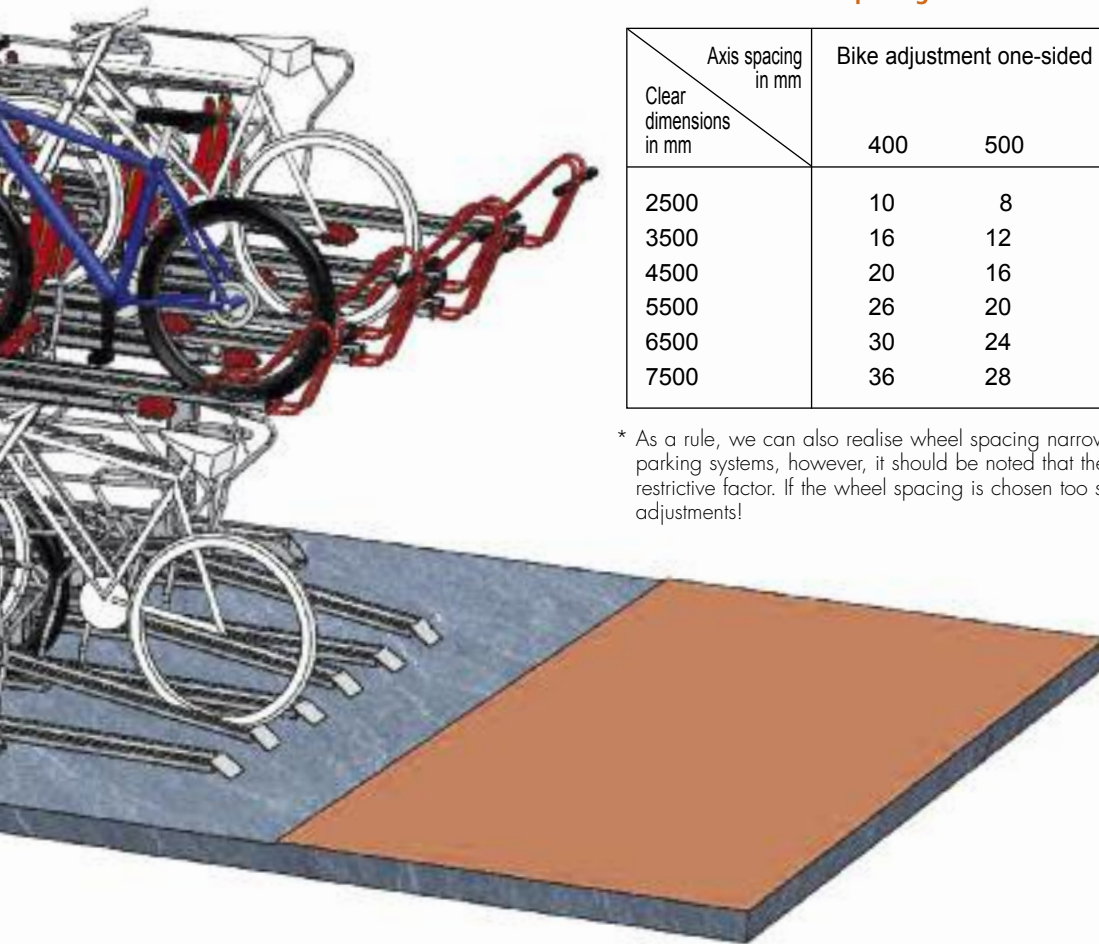


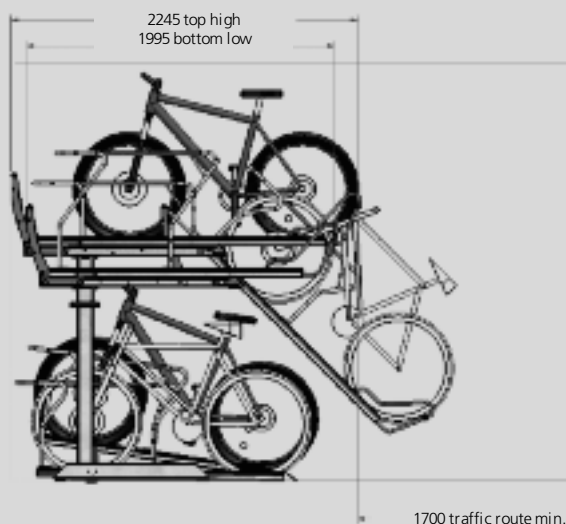
Table with examples for determining the mass with different axis spacing

Clear dimensions in mm \ Axis spacing in mm	Bike adjustment one-sided		Bike adjustment double-sided	
	400	500	400	500
2500	10	8	20	16
3500	16	12	28	24
4500	20	16	38	32
5500	26	20	48	40
6500	30	24	58	46
7500	36	28	68	54

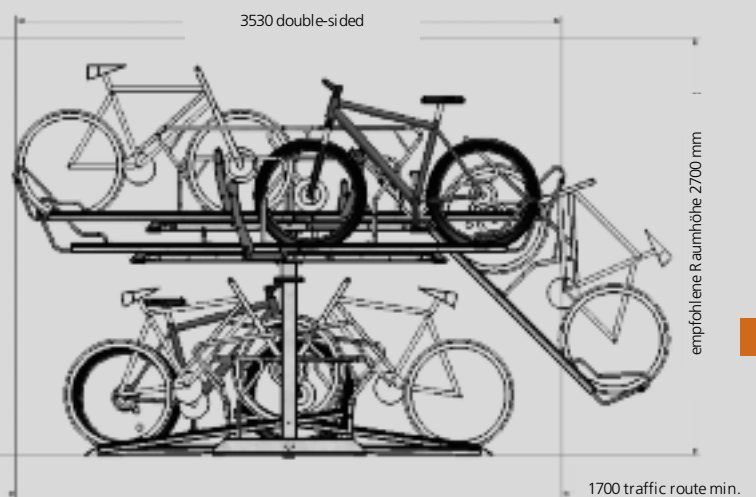
* As a rule, we can also realise wheel spacing narrower than 400 mm. When planning such bike parking systems, however, it should be noted that the handlebar width of the bike represents the restrictive factor. If the wheel spacing is chosen too small, it might not be possible to use all adjustments!



One-sided loading



Double-sided loading





Innovation is an essential element in our corporate structure

That means continuous further development is perfectly normal to us. After all, we only want the best for our customers!

To this end, we regularly exchange information and ideas with professional associations, explore the supplier market for new production so as to further optimise design-relevant details and utilise our inhouse resource pool, itself testament to the inventive spirit of our staff! The **DOUBLE-DECK PARKING SYSTEM 5R+TOP** is a good example of this.

This system is far superior to most competitor products available in the market in terms of function and design. Our customers showed great interest in the 5R+TOP as soon as its was launched on the market. It was not without good reason that the City of Frankfurt/Main spontaneously decided to purchase this system and install it at prominent sites in the city centre. On behalf of the city on behalf, we provided roofing of **Type OPTURA** and DOUBLE-DECK

PARKING SYSTEM **Type 5R+TOP** directly at the entry to the most lucrative shopping street in Germany, the Zeil. We have published press reports on this with sources on the following page.

The DOUBLE-DECK PARKING SYSTEM 5R+TOP can also be found in the historically significant Speyer. For press report see:

https://www.morgenweb.de/schwetzingen-zeitung_artikel,-speyer-fahrraeder-parken-jetzt-doppelstoeckig-_arid,1121234.html



The pilot system was put into service in Kaufering about half way between the Bavarian capital Munich and the Fugger City Augsburg.

For press report see:

<https://www.kreisbote.de/lokales/landsberg/neue-parkplaetze-kaufinger-radlfahrer-6961891.html>



We have illustrated further references below.

96 Plätze auf zwei Ebenen

Abstellanlage für Fahrräder an der Konstablerwache eröffnet

Die erste doppelstöckige Fahrradabstellanlage der Stadt ist gestern an der Konstablerwache von Oberbürgermeister Peter Feldmann und Verkehrsdezernent Klaus Oesterling (beide SPD) eröffnet worden. Sie bietet auf zwei Ebenen Platz für 96 Fahrräder und hat rund 49 000 Euro gekostet.

Die Anlage steht gegenüber der Tramhaltestelle an der Kurt-Schumacher-Straße. Zwei separate Edelstahlstrukturen sind rechtwinklig angeordnet und zum Schutz der Räder überdacht. Um ein Fahrrad auf der oberen Ebene abzustellen, können Nutzer eine Schiene ausfahren, in die Diagonale kippen, das Fahrrad auf dieser platzieren und die Schiene wieder in die obere Ebene einfahren. Eine Hydraulikanlage hilft dabei. Die Anlage ist für Räder bis zu einem Gewicht von 25 Kilogramm geeignet, also auch für die relativ schweren E-Bikes.

Die Anregung für die Anlage sei vom Allgemeinen Deutschen Fahrrad-Club gekommen, sagte der Oberbürgermeister. Sie sei „ein guter Schritt zu mehr Fahrradfreundlichkeit in Frankfurt“. Seit Jahren bemühe sich die Stadt, mehr Radfahrern geordnete Abstellplätze zu bieten. Das Durcheinander an der Konstablerwache werde fortan der Vergangenheit angehören.

Die Nachfrage nach Fahrradstellplätzen an dieser Stelle sei mit einer einstöckigen Anlage nicht zu decken gewesen, fügte Oesterling hinzu. In Frankfurt gibt es nach Angaben der Stadt 8400 Abstellmöglichkeiten für Fahrräder, 1000 davon seien



Kein Kraftakt: Die Räder werden mit Hydraulikhilfe angehoben.

Foto: Wenge Bergmann

überdacht. Man bemühe sich, vor allem in der Innenstadt und an Verkehrsknotenpunkten weitere Fahrradabstellplätze einzurichten, so der Dezernent. Es werde außerdem überprüft, welche Anlagen aufgestockt werden könnten.

Feldmann sieht außer genügend Abstellmöglichkeiten auch Mieträder als ein wichtiges Element, um Fahrradmobilität zu fördern. Er habe sich auch in den Partnerstäd-

ten Frankfurts nach Anregungen für den Radverkehr umgesehen, berichtete Feldmann. Vorbildlich sei Tel Aviv, das bei einer geringeren Einwohnerzahl als Frankfurt mit 200 Mietradstationen etwa doppelt so viele wie Frankfurt habe. Dort sei die Nutzung in der ersten halben Stunde unentgeltlich. In Frankfurt gebe es knapp 100 Stationen von „Call a Bike“, dem Mietradsystem der Deutschen Bahn. *klei*

You can find further press reports under the following links:

<http://www.fr.de/rhein-main/verkehr/radverkehr-in-frankfurt-rad-parken-im-zweiten-stock-a-1327923>

<http://www.metropolnews.info/mp274496/frankfurt-erste-doppelstoeckige-fahrradabstellanlage-fuer-frankfurt-am-main>



Source: BILD Frankfurt vom 8. 8. 2017
Photo: Vincenzo Mancuso







DOUBLE-DECK PARKING SYSTEM 5R+ TOP

- Tyre width: to 70 mm
- Wheel spacing: ADFC recommendation 500 mm
Practical from > 400 mm
- Total depth: approx. 2245 mm for one-sided
loaded/approx. 3530 mm for double-sided
loading
- Recommended room height: 2700 mm
- Material: Steel, hot-dip galvanised according to DIN
EN ISO 1461 and therefore suitable without
restrictions for external use exposed to the
weather
- Fastening: recommended by ground anchoring for fixing
position
- Delivery: in individual components, preassembled
- including screws and fasteners for assembling the steel structure plus
assembly instructions
- with gas springs as lifting aid
- suitable for permanent use in public areas
- space-saving parking of bikes by alternating low/high position
- unlimited extendibility, as modular
- suitable for almost all common tyre and frame sizes



+ manufactured according to the requirements of DIN 79008.

ORION DOUBLE-DECK PARKING SYSTEM 5R+ TOP

Item	Description	Quantity	Unit price	Total price
1	<p>Orion DOUBLE-DECK PARKING SYSTEM 5R+ TOP Adjustment angle \square 90 °/\square 45 ° Axis spacing of the parking spaces: 500 mm. It is mandatory for the double-deck parking system to be manufactured according to the requirements of DIN 79008-1.</p> <p>For optimal utilisation of the existing parking area, the bikes must be arranged vertically offset to one another (low/high position). This is meant to prevent the handlebars from touching one another.</p> <p>Modularity: The structure must comprise series components that can be used to create row arrangements in any length. A subsequent extension of the system with the same components must be ensured. The free-supporting steel structure with a maximum support spacing of 3000 mm serves for holding the upper bike adjustments. This must be made from horizontal and vertical tubular profiles arranged according to static requirements. The longitudinal tubular profiles must be equipped with connecting brackets in low/high arrangement for holding the upper bike adjustments. The vertical tubular profiles must be angular in shape (one-sided version) or T-shaped (double-sided version) for the ground connection. Fastening options must be provided in the angular or T-shaped profiles for fixing the position on the base plate. The substructure must be designed so that a structural engineering validation can be provided concerning the dimensional stability of the complete double-deck parking system. Operating instructions must be attached to the beam.</p> <p>In the upper level, the low/high connecting brackets must be designed with an adjustment rail guided by a supporting tube including an integrated front, internal nylon guide roller. The supporting tube must be equipped with two external guide rails and one stable tilt limiter located in the direction of the operator side. The stable tilt limiter made from steel is covered with a plastic matching element from prevention against (head) injuries due to inattentive movement in the lower level. The plastic matching element must be made from UV-resistant, impact-proof PA6.6, colour similar to RAL 3020, which must ensure a tilt angle of maximum 45° of the adjustment rail. The guide carriage of the 5R+TOP system must be designed with four maintenance-free, nylon rollers mounted on ball bearings and protected from dust.</p> <p>The adjustment rails must be designed as tray-shaped stamped profile bowls so that 24"-29" bikes are focussed in this themselves. Adjustment rails and guide carriages are connected to one another so as to rotate but not become detached.</p> <p>The structure must ensure that the upper retraction rails can move out mechanically and easily, and move back into the parking position in the same way. The pull-out adjustment rail must engage in the parked position. The lowered adjustment rails must exhibit an adjustment angle of 45° so as to make it easy to park and remove the bike. When lowered, the adjustment rail must not touch the ground so as to prevent damage to the ground surface and the adjustment rail or injuries to the user.</p> <p>On the operator side, the adjustment rail is provided with a holding device in RAL 3020 (traffic red) powder coated, for the rear wheel with side mounted anti-slide handles, which enables operation of the adjustment rail for right-handed and left-handed users alike. The holding device must be strictly fastened at points with non-detachable connections so that a unit with the adjustment rail results which cannot be disassembled with conventional tools. The holding device on the adjustment rail allows the distance between the ground and adjustment rail to be reduced to 350 mm and therefore corresponds to DIN 79008-1, Clause 6.8. For easier operation of the upper adjustment rail, this is provided with a lifting aid in the form of two gas springs in the front area. These must be designed so that it is easy to lift a parked bike (e.g. a Pedelec) weighing approx. 25 kg without any problem and the adjustment rail does not accidentally fall down when pulled out. This represents a significant safety aspect.</p> <p>The lifting aid and holding device must be made completely from steel structural parts hot-dip galvanised according to DIN EN ISO 1461.</p> <p>The adjustment rails of the lower level must also be designed as tray-shaped stamped profile bowls so that 24"-29" bikes are focussed in this themselves. Anti-roll devices must be integrated in the high arrangement. The lower adjustment rails must also be designed in low/high position. The adjustment rails must be suitable for holding almost all common 24" - 29" bikes with tyre width up to 70 mm.</p> <p>The adjustment rails must strictly be designed with a support bar plus integrated connection lug with a length of approx. 1000 mm. The support bar must strictly extend over approx. half the length of the adjustment rail so it can be ensured that bikes of 24"-29" can be connected theft-proof to the frame and 1 wheel at the same time. The above support bar must be strictly fastened at points with so-called 'non-detachable connections' so that a unit with the adjustment rail results which cannot be disassembled with conventional tools. This represents an indispensable safety aspect!</p> <p>The double-deck parking system must be made completely from steel structural parts that are hot-dip galvanised in strict compliance with DIN EN ISO 1461 in order to ensure optimally sustainable corrosion protection. The combined use of steel and aluminium profiles is not permitted in order to prevent otherwise imminent contact corrosion. This aspect represents a real hazard, as the structure comes into contact with wet or salty moisture in corresponding weather conditions, e.g. due to water dripping off the parked bike.</p>			
2	Additional price for additional powder coating of the guide carriage including flank profiles of the lifting aid in the colour RAL 3020 – traffic red.			
3	Additional price for additional powder coating of the support bar in the colour RAL 3020 – traffic red.			
4	Additional price for additional design of the support bar with an anti-skid film within the support range of the bike frame.			
5	Additional price for auditable, structural engineering validation for the double-deck parking system. Validation for the structural stability without additional ground anchoring is mandatory. Inspection of the structural engineering by the customer or for an additional price by our company via an independent engineering office.			
	<p>Editorial note: Divergent from DIN 79008, wheel spacings of \square 400 mm or \square 450 mm can be realised with alternating low/high position. The number of attainable bike parking spaces can be increased on this way. The spatial height should be approx. 2.70 m at alternating low/high position.</p>			
	<p>Make: ORION, Type DOUBLE-DECK 5R+ TOP or absolutely equivalent visually and functionally.</p> <p>We reserve the right to make to technical modifications.</p>			

Subject 'traffic area'

When things are tight at the rear.



1 Rigid handle with anti-roll protection through combined use of a stop wedge 1a and a recess 1b in the adjustment rail, into which the rear wheel is immersed for stable positioning.



The **5R COMPACT system** sets an advantageous trend especially when space is limited. In combination with our all-round enclosed bicycle roofing **BIKE-HOSTEL**, we therefore recommend the double-deck parking system model **5R COMPACT**!



3 Optional: The integrated **gas springs** ensure that the force needed to lift the adjustment rail loaded with a bike is so low that two fingers are often enough to guide the lowered rail back into the horizontal position.



4 Carriage guided via external, smooth-running nylon rollers and therefore easy to maintain and clean when required.



2 Optional: Telescopic handle

This makes the double-deck parking system **5R COMPACT** more convenient to use. The pull-out handle reduces the distance the ground when the adjustment rail is lowered and thereby minimises the lifting height by which the front wheel has to be lifted in order to position it in the gripping recess. To reduce the volume generated by operating moving steel parts, the telescopic handle is equipped with a noise insulation. Telescopic handle, in retracted state, with integrated noise insulation at front **2a**; in extended state, with integrated noise insulation at rear **2b**

DOUBLE-DECK PARKING SYSTEM 5R COMPACT

- Tyre width: to 58 mm
- Wheel spacing: ADFC recommendation 500 mm
Practical from > 400 mm marginal 375 mm,
but only one-sided bike adjustment can be realised
- Total depth: approx. 1950 mm for one-sided
loaded/approx. 3180 mm for double-sided
loading
- Recommended room height: 2700 mm
- Material: Steel, hot-dip galvanised according to DIN EN
ISO 1461 and therefore suitable without
restrictions for external use exposed to the
weather
- Fastening: recommended by ground anchoring for fixing
position
- Delivery: in individual components, preassembled
- including screws and fasteners for assembling the steel structure plus
assembly instructions
- with gas springs as lifting aid (optional)
- suitable for permanent use in public areas
- space-saving parking of bikes by alternating low/high position
- unlimited extendibility, as modular
- suitable for almost all common tyre and frame sizes



+ manufactured according to the requirements of DIN 79008.

Orion DOUBLE-DECK PARKING SYSTEM 5R COMPACT

Item	Description	Quantity	Unit price	Total price
1	<p>Orion DOUBLE-DECK PARKING SYSTEM 5R COMPACT Adjustment angle <input type="checkbox"/> 90 ° / <input type="checkbox"/> 45 ° Axis spacing of the parking spaces: 500 mm.</p> <p>It is mandatory for the double-deck parking system to be manufactured according to the requirements of DIN 79008-1.</p> <p>For optimal utilisation of the existing parking area, the bikes must be arranged vertically offset to one another (low/high position). This is meant to prevent the handlebars from touching one another.</p> <p>Modularity: The structure should comprise series components that can be used to create row arrangements in any length. A subsequent extension of the system with the same components must be ensured.</p> <p>The free-supporting steel structure with a maximum support spacing of 3000 mm serves for holding the upper bike adjustments. This must be made from horizontal and vertical tubular profiles arranged according to static requirements. The longitudinal tubular profiles must be equipped with connecting brackets in low/high position for holding the upper bike adjustments. The vertical tubular profiles must be angular in shape (one-sided version) or T-shaped (double-sided version) for the ground connection. Fastening options must be provided in the angular or T-shaped profiles for fixing the position on the base plate. The substructure must be designed so that a structural engineering validation can be provided concerning the dimensional stability of the complete double-deck parking system. Operating instructions must be attached to the beam.</p> <p>In the upper level, the low/high connecting brackets must be designed with an adjustment rail guided by a supporting tube with an integrated front, internal nylon guide roller. The supporting tube must be equipped with two external guide rails and one stable tilt limiter located in the direction of the operator side. The tilt limiter is provided with side plastic guides. The guide carriage of the 5R COMPACT system must be designed with four maintenance-free, nylon rollers mounted on ball bearings and protected from dust.</p> <p>The adjustment rails must be designed as tray-shaped stamped profile bowls. Adjustment rails and guide carriages are connected to one another so as to rotate but not become detached.</p> <p>The structure must ensure that the upper retraction rails can move out mechanically and easily, and move back into the parking position in the same way. The pull-out adjustment rail must engage in the parked position. When lowered, the adjustment rail must not touch the ground so as to prevent damage to the ground surface and the adjustment rail or injuries to the user.</p> <p>The adjustment rail is provided with a telescopically designed pull-out handle on the operator side. The pull-out handle can be used to minimise the distance between the ground and adjustment rail corresponding to DIN 79008-1, Clause 6.8. The design of the telescopically formed pull-out handle enables an especially favourable lever effect for easy operation of the upper adjustment rail. The pull-out handle is noise-insulated to reduce the sound level resulting from use.</p> <p>The adjustment rails of the lower level must also be manufactured from tray-shaped stamped profile bowls. The rail geometry must be designed so that the bike is guided during parking. Anti-roll devices must be integrated in the high arrangement. The lower adjustment rails must also be designed in low/high position. The adjustment rails must strictly be designed with a support bar, on side, with a length of approx. 1300 mm. The support bar must strictly extend over approx. 2/3 the length of the adjustment rail so it can be ensured that bikes can be connected theft-proof to the frame and 1 wheel at the same time.</p> <p>The double-deck parking system must be made completely from steel structural parts that are hot-dip galvanised in strict compliance with DIN EN ISO 1461 in order to ensure optimally sustainable corrosion protection. The combined use of steel and aluminium profiles is not permitted in order to prevent otherwise imminent contact corrosion. This aspect represents a real hazard, as the structure comes into contact with wet or salty moisture in corresponding weather conditions, e.g. due to water dripping off the parked bike.</p>			
2	<p>Additional price: For easier operation of the upper adjustment rail, this can be provided with a lifting aid in the form of 2 gas springs in the front area. These must be designed so that it is easy to lift a parked bike (e.g. a Pedelec) weighing approx. 25 kg without any problem and the adjustment rail does not accidentally fall down when pulled out. This represents a significant safety aspect. The lifting aid and holding device must be made completely from steel structural parts hot-dip galvanised according to DIN EN ISO 1461 and in RAL 3020 - traffic red - powder coated.</p>			
3	Additional price for additional design of the support bar with an anti-skid film within the support range of the bike frame.			
4	Reduced price for version with rigid handle			
5	Additional price for version with telescopic handle with a touch-friendly plastic covering			
6	Reduced price for front wheel holder (omission of support bar!)			
7	Additional price for focus element. Serves for stabilising the bike in the parked position.			
8	Additional price for additional powder coating of the support bar in the colour RAL 3020 – traffic red.			
9	Additional price for auditable, structural engineering validation for the double-deck parking system. Validation for the structural stability without additional ground anchoring is mandatory. Inspection of the structural engineering by the customer or for an additional price by our company via an independent engineering office.			
	<p>Editorial note: Divergent from DIN 79008, wheel spacings of less than 500 mm can be realised with alternating low/high position. The number of attainable bike parking spaces can be increased on this way.</p> <p>The spatial height should be approx. 2.70 m at alternating low/high position.</p>			
10	Make: ORION, Type DOUBLE-DECK 5R COMPACT or absolutely equivalent visually and functionally.			

Starter model

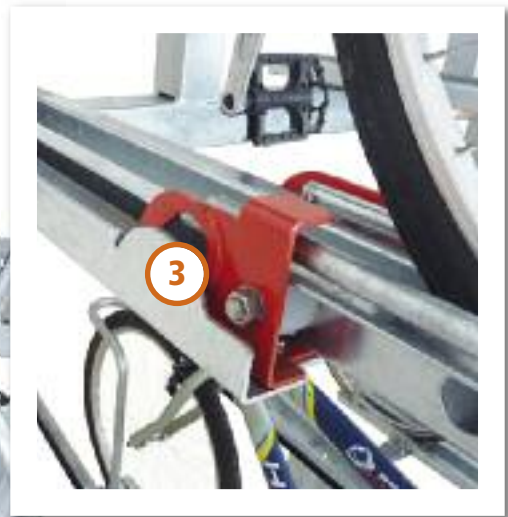


Special equipment:



1 Rigid handle
welded onto adjustment rail

2 Front wheel holder



3 Tilt limiter

4 Combined anti-roll protection consisting of **4a** stop wedge and **4b** recess, for locking the rear wheel.

Optional (5-7):

5 Support bar ensures that the parked bike remains stable and offers ideal connection option for chain or U-lock.

6 Anti-skid film for preventing scratches on the bike frame.



7 Telescopic handle This makes the double-deck parking system 4R START more convenient to use. The pull-out handle reduces the distance the ground when the adjustment rail is lowered and thereby minimises the lifting height by which the front wheel has to be lifted in order to position it in the gripping recess. To reduce the volume generated by operating moving steel parts, the telescopic handle is equipped with a noise insulation. Telescopic handle, in retracted state, with integrated noise insulation at front **7a**; in extended state, with integrated noise insulation at rear **7b**

DOUBLE-DECK PARKING SYSTEM 4R START

- Tyre width: to 58 mm
- Wheel spacing: ADFC recommendation 500 mm
Practical from > 400 mm marginal 375 mm,
but only one-sided bike adjustment can be
realised
- Total depth: approx. 1950 mm for one-sided loaded/approx.
3180 mm for double-sided loading
- Recommended room height: 2700 mm
- Material: Steel, hot-dip galvanised according to DIN EN
ISO 1461 and therefore suitable without restric-
tions for external use exposed to the weather
- Fastening: recommended by ground anchoring for fixing
position
- Delivery: in individual components, preassembled
- including screws and fasteners for assembling the steel structure plus
assembly instructions
- suitable for permanent use in public areas
- space-saving parking of bikes by alternating low/high position
- unlimited extendibility, as modular
- suitable for almost all common tyre and frame sizes

Model fulfils the test criteria of TR6102 and receives under Q0505 I 12/2005 the grade recommended ADFC quality

+ manufactured according to the requirements of DIN 79008.

ORION DOUBLE-DECK PARKING SYSTEM 4R START

Item	Description	Quantity	Unit price	Total price
		Bike adjustments		
1	<p>Orion DOUBLE-DECK PARKING SYSTEM 4R START Adjustment angle □ 90 °/□ 45 ° Axis spacing of the parking spaces: 500 mm. It is mandatory for the double-deck parking system to be manufactured according to the requirements of DIN 79008-1. For optimal utilisation of the existing parking area, the bikes must be arranged vertically offset to one another (low/high position). This is meant to prevent the handlebars from touching one another.</p> <p>Modularity: The structure must comprise series components that can be used to create row arrangements in any length. A subsequent extension of the system with the same components must be ensured.</p> <p>The free-supporting steel structure with a maximum support spacing of 3000 mm serves for holding the upper bike adjustments. This must be made from horizontal and vertical tubular profiles arranged according to static requirements. The longitudinal tubular profiles must be equipped with connecting brackets in low/high position for holding the upper bike adjustments. The vertical tubular profiles must be angular in shape (one-sided version) or T-shaped (double-sided version) for the ground connection. Fastening options must be provided in the angular or T-shaped profiles for fixing the position on the base plate. The substructure must be designed so that a structural engineering validation can be provided concerning the dimensional stability of the complete double-deck parking system. Operating instructions must be attached to the beam.</p> <p>In the upper level, guide rails are integrated in the low/high connecting brackets. On the front, four complex multi-functional, maintenance-free nylon rollers mounted on ball bearings and protected from dust are installed in the guide rails. The guide unit must be made completely from steel structural parts hot-dip galvanised according to DIN EN ISO 1461 and in RAL 3020 - traffic red - powder coated. The nylon rollers in the guide units serve as guide rollers at the same time.</p> <p>The adjustment rails must be designed as tray-shaped stamped profile bowls.</p> <p>Pull-out adjustment rails are integrated in the guide rails, these also equipped with nylon rollers mounted on dust-proof ball bearings. The head cover and guide units specify the limitation of the travel distance and the optimal angle of the inclined position for the adjustment rails. The pull-out adjustment handle must be provided with an ergonomically shaped handle on the front for operation.</p> <p>The structure must ensure that the upper retraction rails can move out mechanically and easily, and move back into the parking position in the same way. The pull-out adjustment rail must engage in the parked position. When lowered, the adjustment rail must not touch the ground so as to prevent damage to the ground surface and the adjustment rail or injuries to the user.</p> <p>The adjustment rail is provided with a telescopically designed pull-out handle on the operator side. The pull-out handle can be used to minimise the distance between the ground and adjustment rail corresponding to DIN 79008-1, Clause 6.8. The design of the telescopically formed pull-out handle enables an especially favourable lever effect for easy operation of the upper adjustment rail. The pull-out handle is noise-insulated to reduce the sound level resulting from use. The adjustment rails of the lower level must also be manufactured from tray-shaped stamped profile bowls. The rail geometry must be designed so that the bike is guided during parking. Anti-roll devices must be integrated in the high arrangement. The lower adjustment rails must also be designed in low/high position.</p> <p>The adjustment rails must be equipped with a front wheel holder. The double-deck parking system must be made completely from steel structural parts that are hot-dip galvanised in strict compliance with DIN EN ISO 1461 in order to ensure optimally sustainable corrosion protection. The combined use of steel and aluminium profiles is not permitted in order to prevent otherwise imminent contact corrosion. This aspect represents a real hazard, as the structure comes into contact with wet or salty moisture in corresponding weather conditions, e.g. due to water dripping off the parked bike.</p>			
2	Additional price for equipment of the adjustment rails with a support bar, side, with a length of approx. 1300 mm. The support bar must strictly extend over approx. 2/3 the length of the adjustment rail so it can be ensured that bikes can be connected theft-proof to the frame and 1 wheel at the same time.			
3	Additional price for additional design of the support bar with an anti-skid film within the support range of the bike frame.			
4	Additional price for additional powder coating of the support bar in the colour RAL 3020 - traffic red.			
5	Reduced price for version with rigid handle			
6	Additional price for version with telescopic handle with a touch-friendly plastic covering			
7	Additional price for focus element. Serves for stabilising the bike in the parked position.			
8	Additional price for auditable, structural engineering validation for the double-deck parking system. Validation for the structural stability without additional ground anchoring is mandatory. Inspection of the structural engineering by the customer or for an additional price by our company via an independent engineering office.			
	Editorial note: Divergent from DIN 79008, wheel spacings of less than 500 mm can be realised with alternating low/high position. The number of attainable bike parking spaces can be increased on this way. The spatial height should be approx. 2.70 m at alternating low/high position.			
9	Make: ORION, Type DOUBLE-DECK 4R START or absolutely equivalent visually and functionally.			



Equipment

Type 5R+TOP

Low/High position	✓
Impact protection	✓
Support bar	✓
Anti-skid film for support bar	●
Front wheel holder	✗
Rigid handle	✗
Telescopic handle	✗
Holding device with multifunction handle	✓
Ground clearance/Lifting and parking height in mm	350
Gas spring/Lifting aid	✓
Modularity	✓
Anti-roll protection	✓
Rubber handles	✓
Axis spacing standard 400/500 mm	✓
Tyre width max. in mm	70
Total depth of the structure in mm one/double-sided	2245/3530
Recommended room height 2700 mm	✓
Material: Steel, hot-dip galvanised	✓
Fastening for position fixing	✓
Tyre and frame sizes	up to 29 inch, common sizes
Operating instructions on substructure	✓
ADFC recommendation	✓
Manufactured according to the requirements of DIN 79008	✓

✓ = standard

● = optional

✗ = non-configurable



Type 5R COMPACT



Type 4R START

✓	✓
✗	✗
✓	●
●	●
●	✓
●	●
✓ ¹⁾	✓ ¹⁾
✗	✗
400 ²⁾ / 470 ³⁾ / 670 ⁴⁾	400 ²⁾ / 470 ³⁾ / 670 ⁴⁾
●	✗
✓	✓
✓	✓
●	●
✓	✓
58	58
1950/3180	1950/3180
✓	✓
✓	✓
✓	✓
up to 28 inch, common sizes	up to 28 inch, common sizes
✓	✓
✓ ⁵⁾	✓ ⁵⁾
✓	✓

1) An additional price is charged for the version with rigid handle
 2) Lifting and parking height for telescopic handle
 3) Lifting and parking height for rigid handle, low position
 4) Lifting and parking height for rigid handle, high position
 5) in the version with support bar and telescopic handle

The choice of certain options can result in the exclusion of individual equipment features. Information on request.

Subject to technical modifications! Illustrations do not correspond exclusively to the standard equipment! Errors excepted!



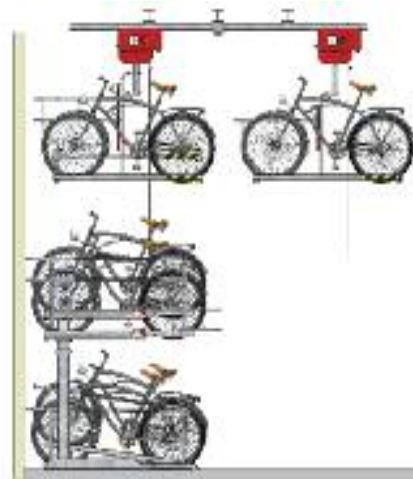


Optimal space utilisation in height, length and width

DREI PLUS

Bike parking system

To optimise the parking capacity of bike stations with large spatial heights, we provide the bike parking system 'DreiPlus', this enabling space-saving, secure and economical bicycle parking on more than two levels in combination with double-deck bike parking systems. The principle of alternating high/low bike arrangement applied here also allows optimum compact density of the parking spaces. The air bodies of higher spaces have so far remained unused. The ORION bike parking system 'DreiPlus' extends the parking capacity in spaces with heights > 4.20 m, with the same floor space requirement solely by utilising a third parking level by approx. 50 %.



The new feature in the ORION bike parking system 'DreiPlus' can be seen from the fact that the bikes can be parked in a third height level by a lifting and pushing system powered by an electric motor in such a way that they are resistant to access and cannot be reached by other users or passers when in the parked position. In combination with double-deck parking systems, the ORION bicycle parking system 'DreiPlus' is integrated in the existing supporting structure. At the same time, it is unimportant at which height, at which inclination or other utilisation the level deck is currently in. 'DreiPlus' is likewise operational without problem as an autonomous bike parking system and can also be installed directly on existing level decks - in other words independently of double-deck parking systems.

Tender text

Bike parking system 'DreiPlus'

Item	Description	Quantity	Unit price	Total price
1	<p>The basic idea behind the conceptual design of the bike parking system 'DreiPlus' is the intention to position bikes over one another on several levels.</p> <p>When using 'DreiPlus' for optimising the parking space capacity in relation to the air body of high rooms, it must be noted that a spatial height of at least 4.20 m is available for loading of the 3rd level.</p> <p>When specifying the structural design, a distinction must be made between the following alternatives:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Loading of the 1st (floor) and 2nd level with so-called double-deck parking systems (for details see page 4-34.) <input type="checkbox"/> Loading from the 3rd level with the bike parking system 'DreiPlus', which is mounted on the room ceiling with anchoring elements with building approval certification. The material structure and load bearing capacity of the relevant room ceiling must be ensured by the client. <input type="checkbox"/> Loading from the 3rd level with the bike parking system 'DreiPlus', which is joined directly to the supporting framework dimensioned with corresponding structural stability on the double-deck parking system located below, independently of the spatial height. <p>For the structures outlined under a) to c), we recommend bike spacings of 700mm in solely <input type="checkbox"/> low position of the bikes or 500mm in case of alternating <input type="checkbox"/> high/low position for convenient operation</p> <p>Description of the design:</p> <p>The complete system 'DreiPlus' lifts and pushes bicycles into a parking position in the upper level or on the level/hall ceiling. It comprises a smooth-running rail/carriage system mounted on ball bearings installed above the bike parking system, with integrated belt winch powered by an electric winch. For safety reasons, the belt winch only lifts a maximum load of 40 kg. In case of an overload, the motor automatically switches off via a so-called 'overcurrent deactivation'. This is meant to prevent persons or other heavy objects from being carried improperly.</p> <p>The holding system for the bike is attached to the supporting belt of the belt winch. An integrated belt guidance ensures the holding system is always guided into the same position.</p> <p>The holding system comprises a horizontal ground rail with vertically connected strut made from a steel tube with curved fall-out end. The ground rail must be made from hot-dip galvanised sheet steel and provided with 2 correspondingly dimensioned recesses for holding the front and rear wheel. The parking position is defined by this.</p> <p>The strut serves as a support bar for the parked bike and must also be provided with an adhesive tape at a suitable point for this purpose. By fixing the adhesive tape on the bike frame, the bike is parked in a stable position thanks to the 3-point holder, which means the parking procedure by means of the electric lift in 'overhead position' can be continued without danger. The bike frame can be attached to a lug of the support bar with a chain or U-lock. The strut above the curved fall-out end also serves as a connection point for the anti-twist lock supporting the lift function. Uneven loads on the bikes (e.g. filled saddle bags) or pendulum movements by the bicycle during travel upwards and downwards are compensated by the positively guided retention system.</p> <p>All bikes placed in the 'DreiPlus' parking position are automatically aligned uniformly.</p> <p>The 'up' and 'down' movements are controlled via an easy-to-operate 3-button panel. Light emitting diodes signal the current function. The splash-protected control with operating buttons and emergency off switches in a vandalism-proof housing complete the 3-button operation. The automatic limit stop switch-off in the lowermost and uppermost point must be provided with adjustable limit switches. The stable parking position of the bike with anti-roll protection is attained by a tilting mechanism acting on the running rail. The DreiPlus users pushes the running carriage via a drag bar. It is necessary to slide the running carriage in order to move the complete holding system out of the parked position and into the loading and, at the same time, also final position. As soon as this position is reached, the holding system can be lowered without collision. The drag bar is spring-balanced and pivoting in design, so that the complete linkage is only pulled down from a height within reach when operated. After use, the linkage returns 'automatically' upwards by the spring effect. This prevents impediments for users of the lower two parking levels.</p> <p>If required, it is no problem to replace all individual components, the encapsulated electronic system components, on site.</p> <p>We reserve the right to make technical modifications.</p>			



Mitglied im
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Förderkreis
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Aktion für den
Touren-Club

+
klimaaktiv
Partner



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