HBC enc.®

[HONGBO CO., LTD]

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Automated Parking Systems

HBC enc.®

History

1995 Company establishment [CEO – Mr. Kim Sung Han]
Russian market entry

1999 Corporation registration - Hongbo Co., Ltd. [CEO – Mr. Kim Sung Han]
Industrial equipment supply to a Russian market

2000 Registration as a member of the Korea International Trade Association [KITA]

2004 Opening of sales representative in Russia
[Moscow, Novosibirsk, Irkutsk, Khabarovsk, Vladivostok]
Economic cooperation and advanced technology project implementation MOU signing with Administrative office of Novosibirsk city
[Daejon city Culture center and Business center construction projects]

2007 Awarded by the Ministry of Trade, Industry and Energy [MOTIE]
Engineering of Automated Parking Systems for Russia

2008 Registration as a member of the Korea Plant Industries Association [KOPIA]
Registration as a member of the Advisory committee for Korea Trade-Investment Promotion Agency [KOTRA]

2010 Automated Parking Systems supply to the Russian market [Tower parking in Novosibirsk city]

2014 CSR project [Presentation seminar on APS at Novosibirsk State Technical University, scholarship granting]

Gimpho city plant ▲
APS manufacturing

Chonan city plant ▶
Construction plant manufacturing

Company certificates

KOPIA Member certificate

Company state registration certificate

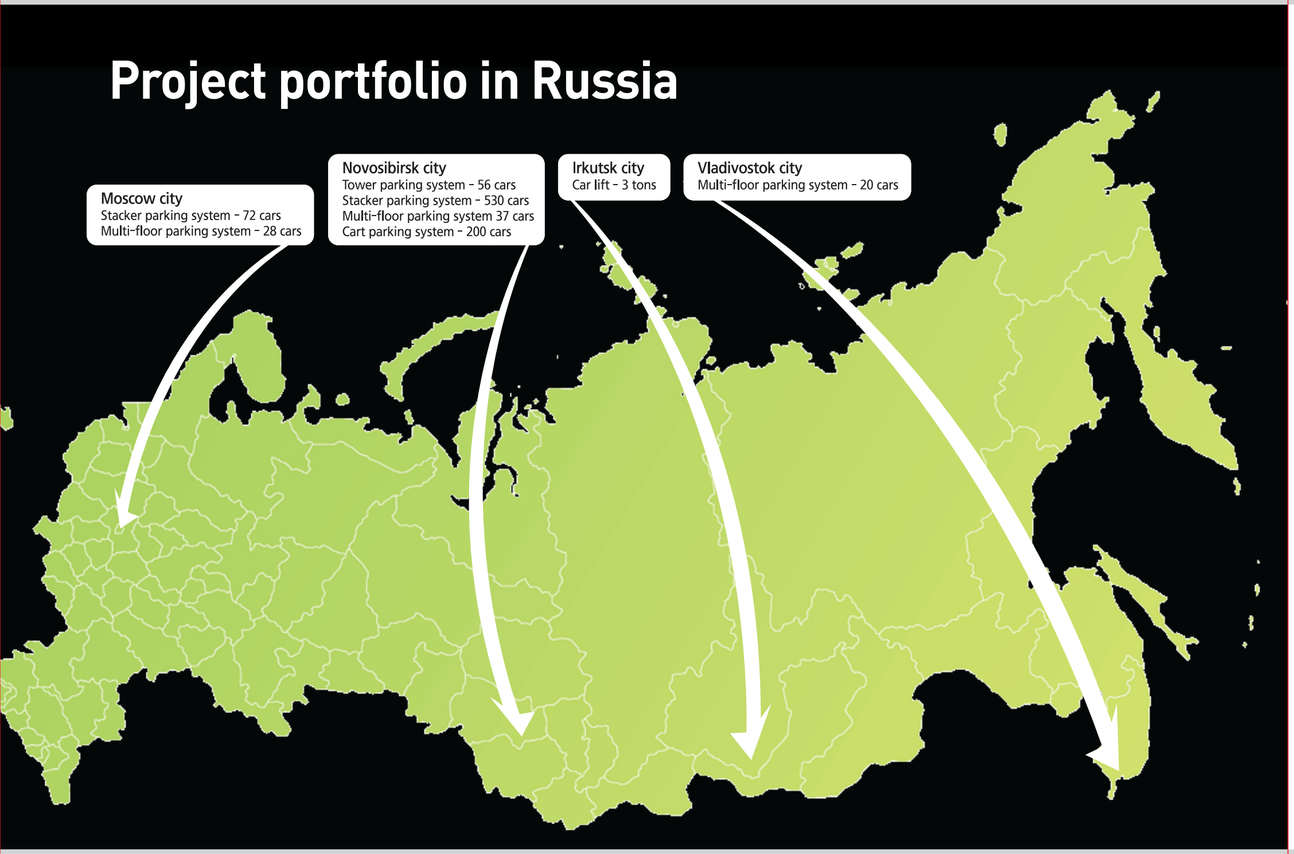
KITA Registration certificate

ISO Registration certificate

Trade mark registration certificate

Automated Parking Systems GOST certificates

Project portfolio in Russia



Clearance portfolio

Large touring sedan

Classification	Type L	Type S
Lengt h, mm	5,160	5,050
Width, mm	2,160	2,040
Height, mm	1,550	1,550
Weight, kgs	2,200	1,850

RV / SUV

Classification	Type R [standard]
Length, mm	5,160
Width, mm	2,160
Height, mm	2,000
Weight, kgs	2,800

※ Width: width is calculated including the space for side mirrors.
※ Non-standard size vehicles parking systems are designed and engineered upon prior customer's request.

TOWER PARKING SYSTEM [HBC-TW]

Description

○ Tower parking – Multilevel structure equipped with vertical lift, pallet horizontal transfer devices designed to secure smooth movement of a vehicle into the empty spot.
○ Simplicity, high speed of entry and retrieval, space efficiency.

Specifications

○ Space efficiency : the area of 50m² [space for 3 vehicles parking] is sufficient to accommodate up to 70 cars.
○ Maneuring quality : turntable [convenience in pulling in and out of a box, possibility of choosing the side of entering into the box considering the particulars of an installation site].
○ Surveillance: computer and touch screen operation [vehicle entry and retrieval process surveillance].
○ High-end operation system [no defects, no breakdowns, low power consumption and low exploitation cost].
○ Options : standard/cross-sectional type, separately standing/built-in type, bottom/middle/top entrance etc.

Types

Single unit [separately standing]
Single unit with bottom entrance
Double unit with bottom entrance
Single unit with bottom pass through entrance
Double unit with bottom pass through entrance
Single unit with bottom side entrance
Single unit with middle entrance

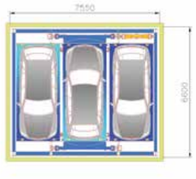
Built-in unit
Single unit with bottom entrance
Double unit with bottom entrance
Single unit with bottom pass through entrance
Double unit with bottom pass through entrance
Single unit with bottom side entrance
Single unit with middle entrance

※ All questions related to non-standard types must be addressed to an equipment manufacturer

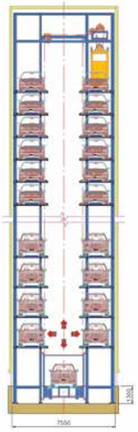
Tower parking system / Individual type [HBC-TW-I]

Single unit with bottom entrance

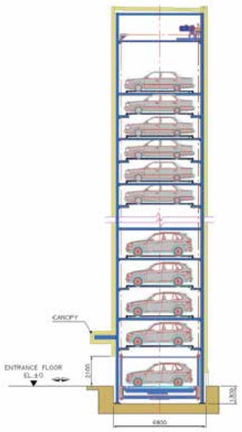
Entrance plan



Floor plan

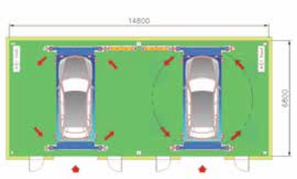


Front view

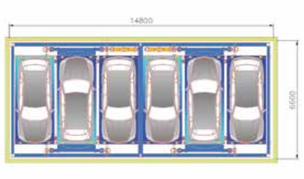


Side view

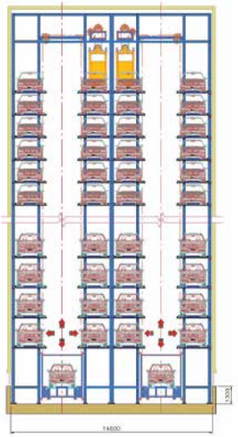
Double unit with bottom entrance



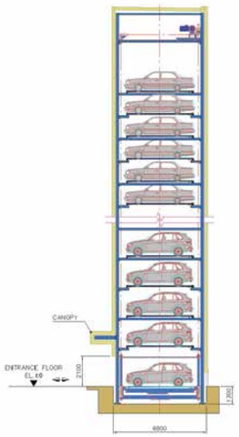
Entrance plan



Floor plan



Front view

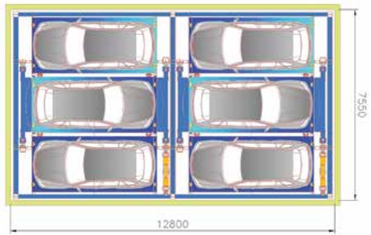


Side view

Tower parking system/ Individual type [HBC-TW-I]

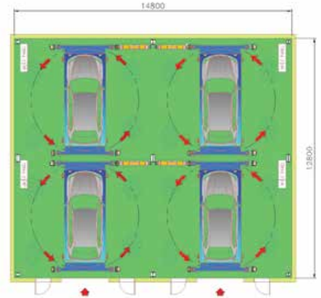
Single unit with bottom pass through entrance

Entrance plan

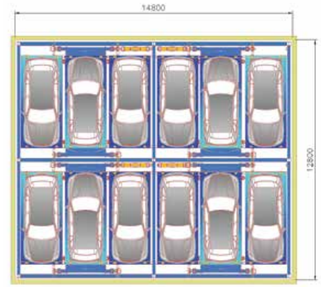


Floor plan

Double unit with bottom pass through entrance



Entrance plan

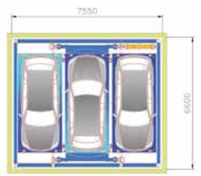


Floor plan

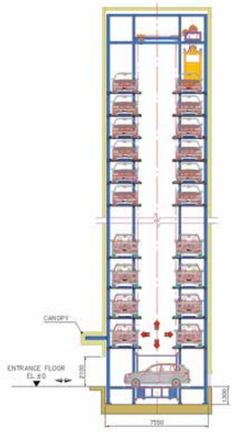
Tower parking system / Individual type [HBC-TW-I]

Single unit with bottom side entrance

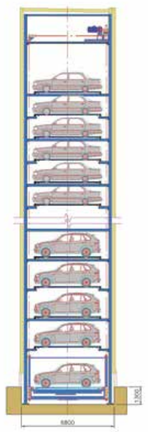
Entrance plan



Floor plan

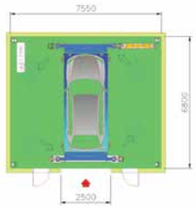


Front view



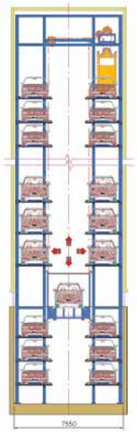
Side view

Single unit with middle entrance

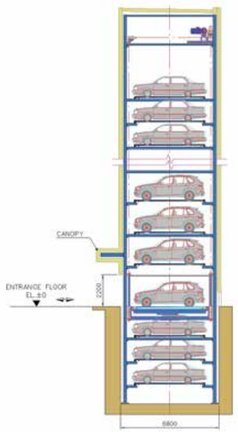


Entrance plan

Floor plan



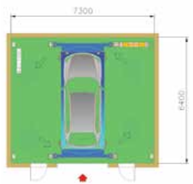
Front view



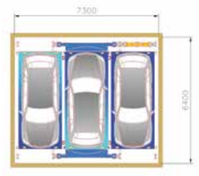
Side view

Tower parking system / Built-in type [HBC-TW-B]

Single unit with bottom entrance

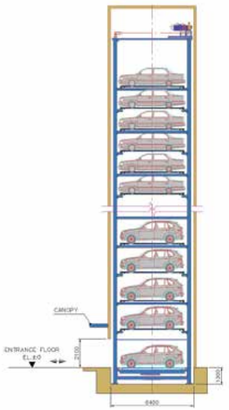


Entrance plan



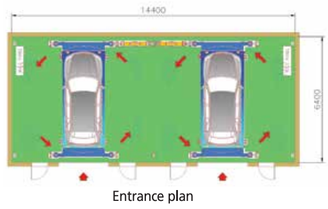
Floor plan

Front view

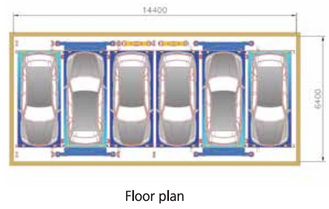


Side view

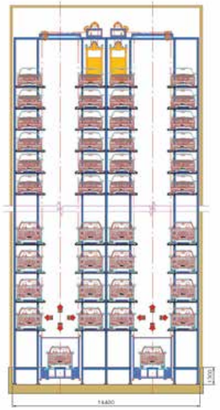
Double unit with bottom entrance



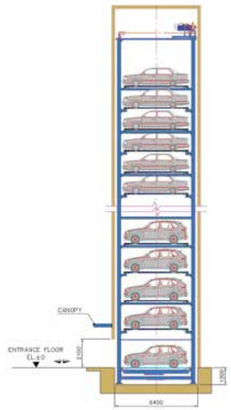
Entrance plan



Floor plan



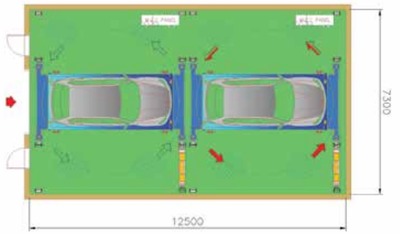
Front view



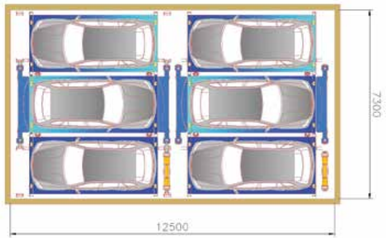
Side view

Tower parking system / Built-in type [HBC-TW-B]

Single unit with bottom pass through entrance

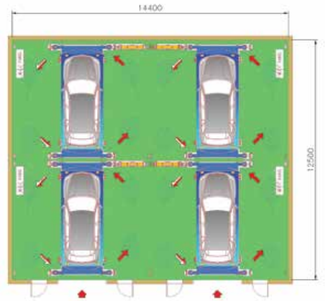


Entrance plan

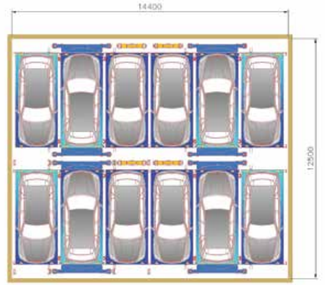


Floor plan

Double unit with bottom pass through entrance



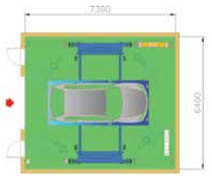
Entrance plan



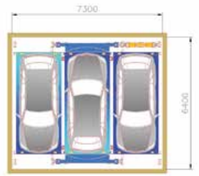
Floor plan

Tower parking system / Built-in type [HBC-TW-B]

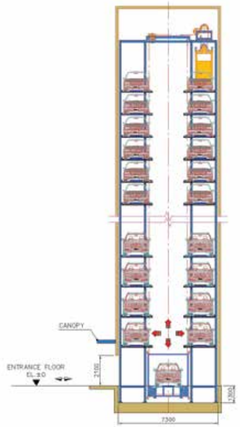
Single unit with bottom side entrance



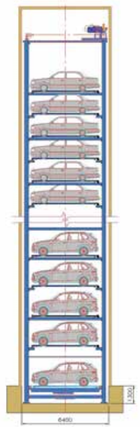
Entrance plan



Floor plan

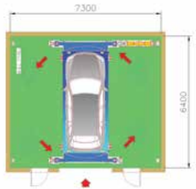


Front view



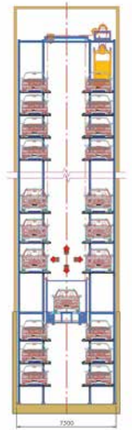
Side view

Single unit with middle entrance

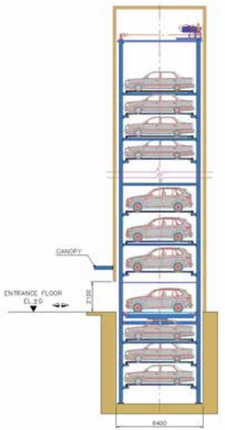


Entrance plan

Floor plan



Front view



Side view

CART PARKING SYSTEM [HBC-CA]

Description

○ Cart Parking System is a multilevel construction for parking with vertical lift feature and horizontal movement on the built-in carts.
○ Parking system may be equipped with one or more vertical lifts, horizontal movement carts at each level providing simultaneous functioning and as a result fast speed of vehicle entry and retrieval. Such parking is more suitable for large scale construction objects providing the maximum of parking space, what makes this type the most popular in the world due to its convenience and safety.

Specifications

○ Three-axis simultaneous functioning of vertical lift and carts providing short time of vehicle entry and retrieval.
○ Various configuration are implemented in order to provide the maximum parking capacity. Suitable for large scale construction projects.
○ Depending on land size standard or cross-sectional types may be applied. The vertical lift and entrance positioning may be designed according to a customer request.

Types

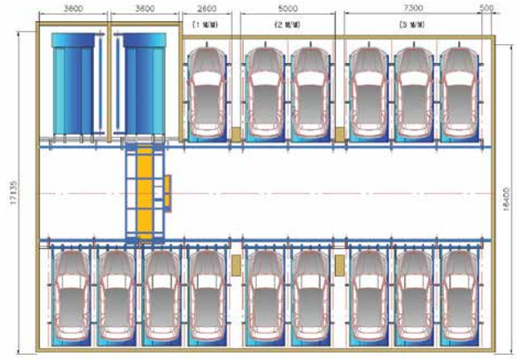
Standard type [HBC-CA-V]

Cross-sectional type [HBC-CA-H]

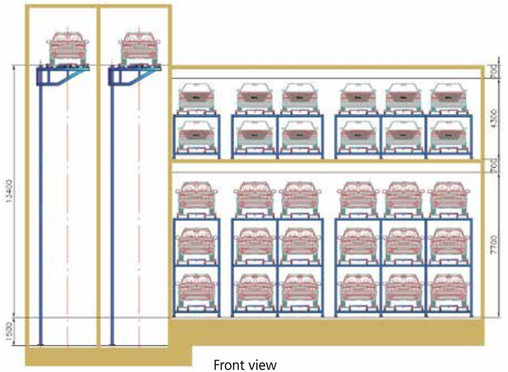
※ All questions related to non-standard type must be addressed to an equipment manufacturer

Cart parking system / Standard type [HBC-CA-V]

Standard type with top entrance



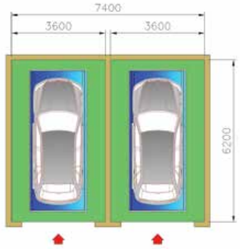
Floor plan



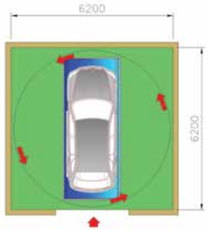
Front view

Entrance plan

Vertical lift, 1 ea.



Vertical lift, 2 ea.

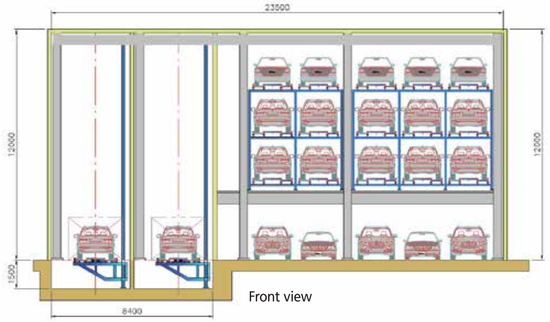


Built-in Turntable

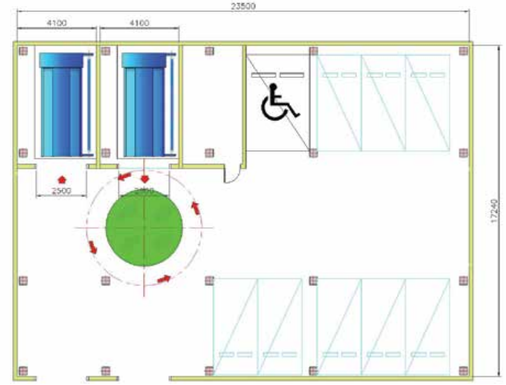
Cart parking system / Standard type [HBC-CA-V]

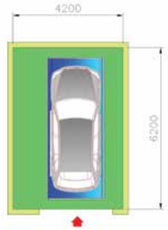
Standard type with bottom entrance

Floor plan

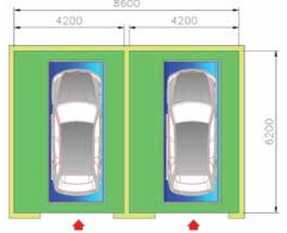


Front view





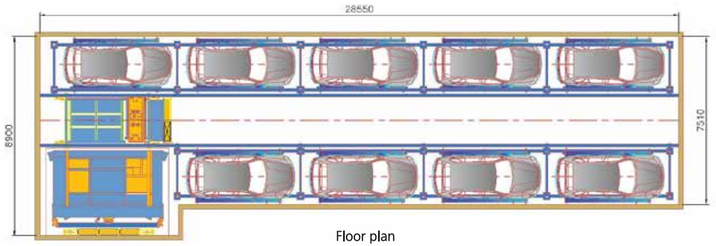
Vertical lift, 1 ea.



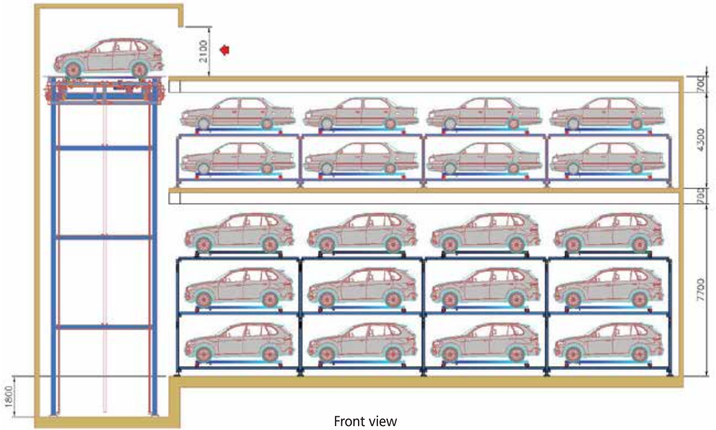
Vertical lift, 2 ea.

Cart parking system / Cross-sectional type [HBC-CA-H]

Cross-sectional type with top entrance

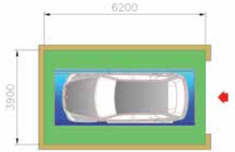


Floor plan

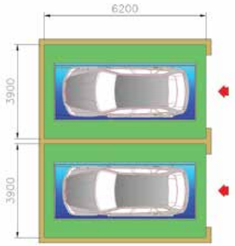


Front view

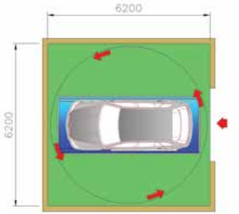
Entrance plan



Vertical lift, 1 ea.



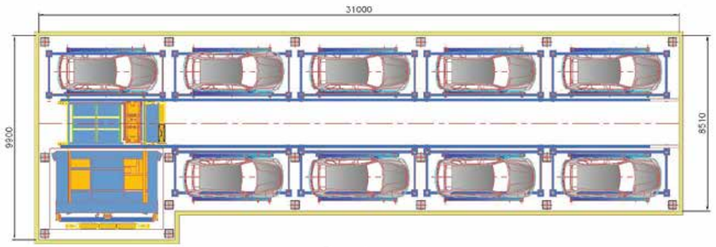
Vertical lift, 2 ea.



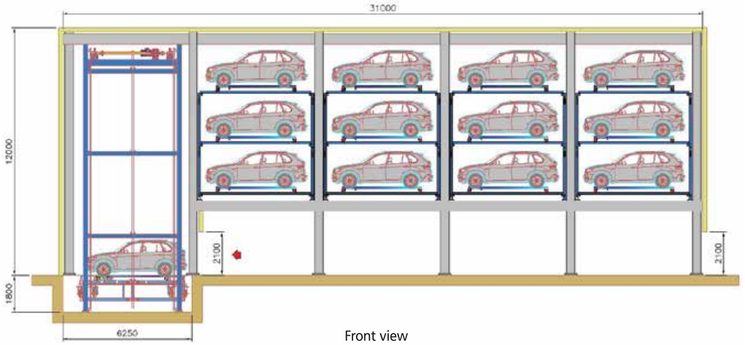
Built-in Turntable

Cart parking system / Cross-sectional type [HBC-CA-H]

Cross-sectional type with bottom entrance

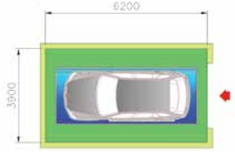


Floor plan

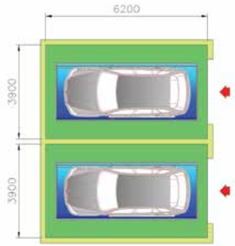


Front view

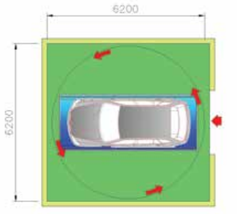
Entrance plan



Vertical lift, 1 ea.



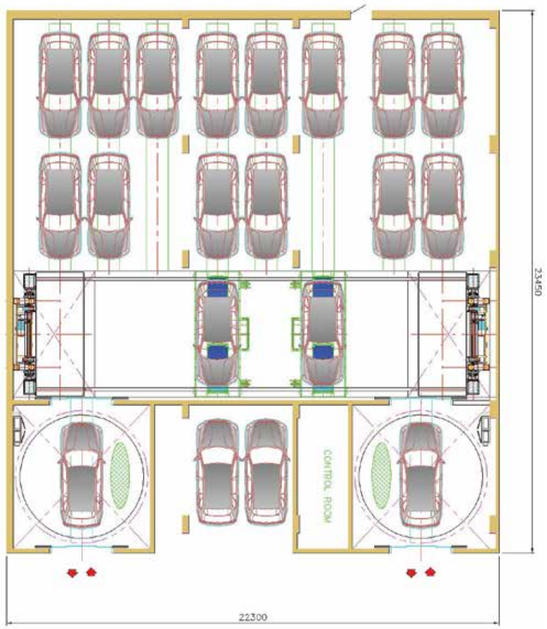
Vertical lift, 2 ea.



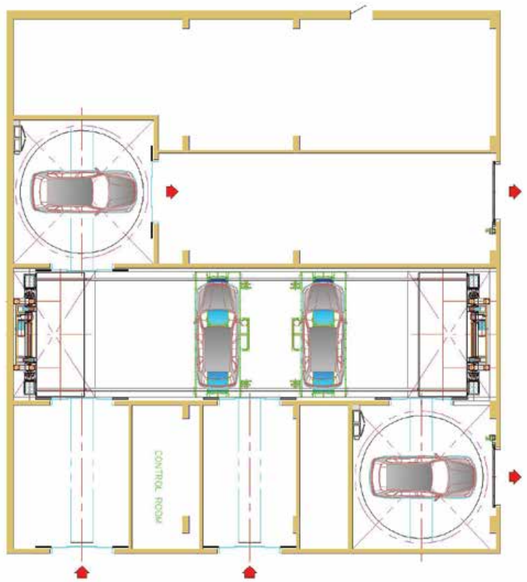
Built-in Turntable

Cart parking system / Special type [HBC-CA-S]

Special type with middle & bottom entrance



Vertical lift, 2 ea / common entrance & exit

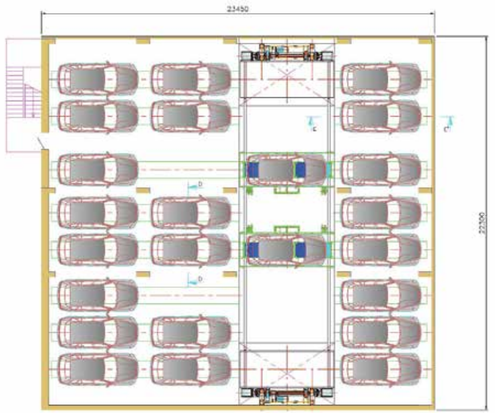


Vertical lift, 2 ea / separate entrance & exit

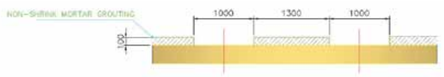
Entrance plan

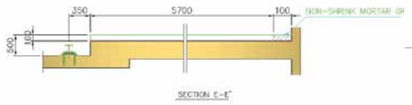
Cart parking system / Special type [HBC-CA-S]

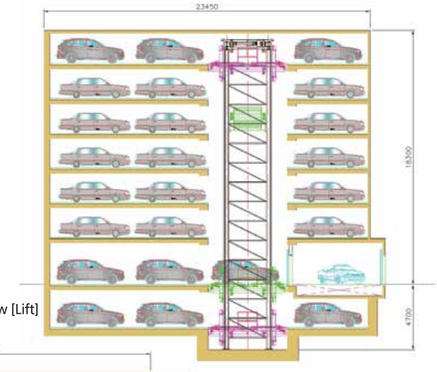
Special type with middle & bottom entrance



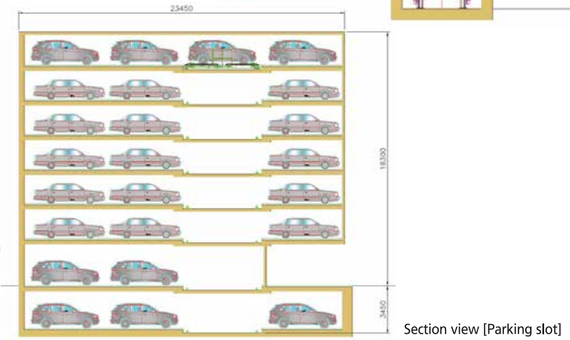
Floor plan [Vertical lift, 2 ea]







Section view [Lift]



Section view [Parking slot]

STACKER PARKING SYSTEM [HBC-ST]

Description

- ○ Stacker type parking system is designed to shorten the time of vehicle entry and retrieval due to simultaneous horizontal and vertical stacker movement.
- ○ One system can accommodate from 50 to 120 vehicles. This type of APS is more effective when installed on mid and large size objects, with 2 stackers.
- ○ Two pallet or pallet free types may be provided depending on exploitation conditions.
- ○ Turntable may be installed in order to provide more convenient conditions for turning and departing.
- ○ Various types of control : sensory touch screen panel, computer, RF-card, allowing smooth operation of whole system.

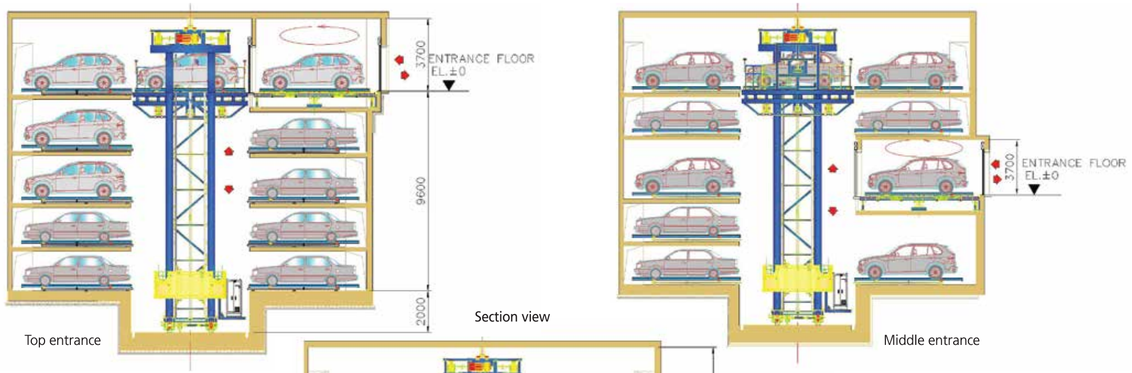
Types

Standard type with top entrance
Standard type with middle entrance
Standard type with bottom entrance
Standard type with additional vertical lift and top entrance
Standard type with additional vertical lift, built-in turntable and top entrance
Standard type with built-in turntable and top entrance
Cylindrical type with bottom entrance
Cylindrical type with middle entrance
Cylindrical type with top entrance

※ All questions related to non-standard types must be addressed to an equipment manufacturer.

Stacker parking system / Standard type [HBC-ST-LS]

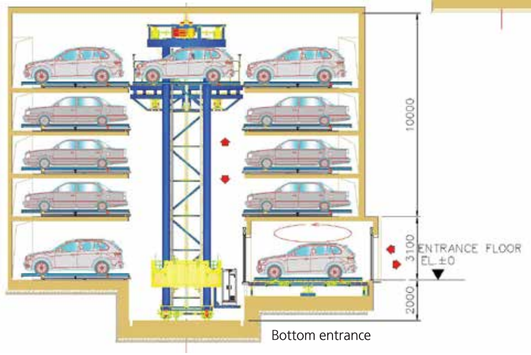
Standard type with top / middle / bottom entrance



Top entrance

Section view

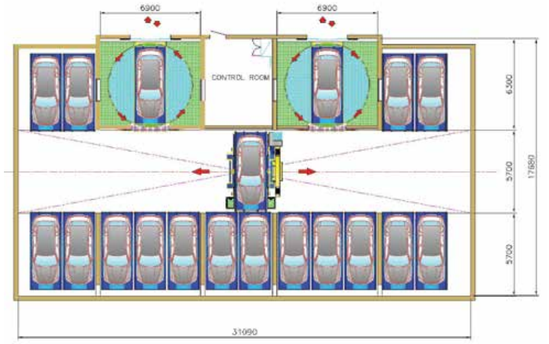
Middle entrance



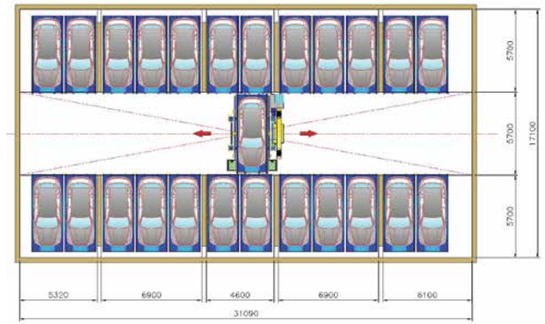
Bottom entrance

Stacker parking system / Standard type [HBC-ST-LS]

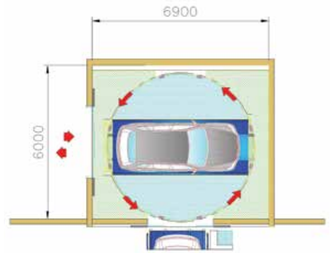
Standard type with top / middle / bottom entrance



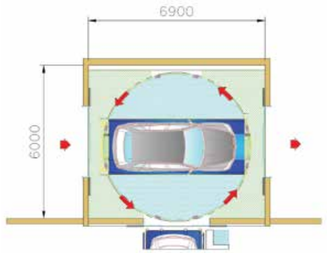
Entrance plan



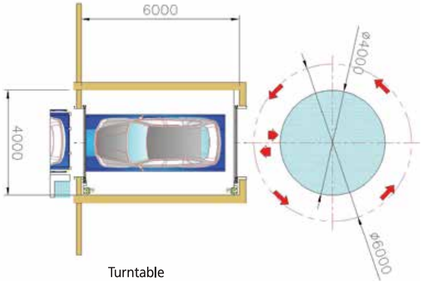
Floor view



Cross-sectional entrance



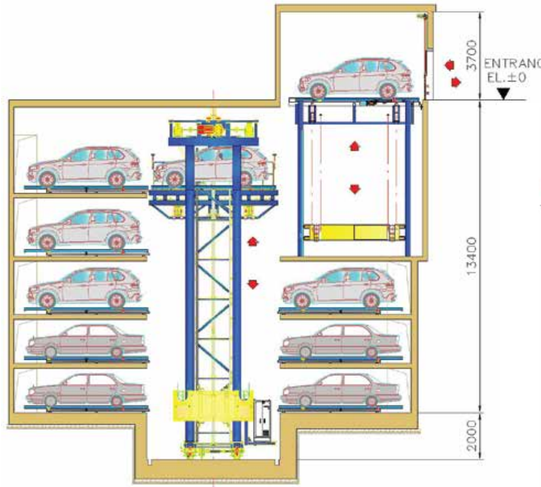
Pass though entrance



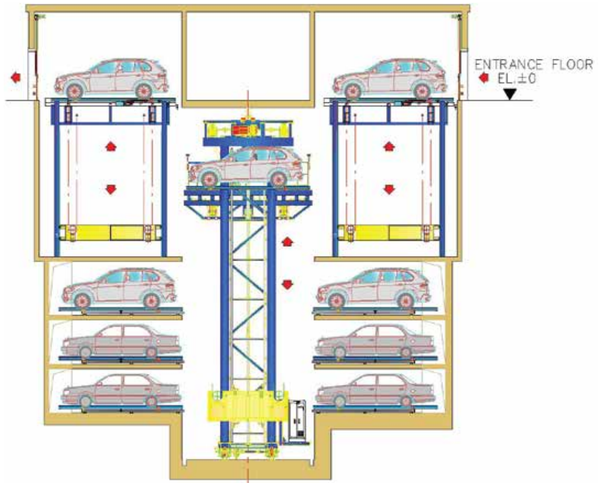
Turntable

Standard type with additional vertical lift and top entrance

- Vertical lift installation for efficient entrance level exploitation.
- Vertical lift is more efficient under conditions when vehicle can not be placed into parking spot immediately.
- One and more vertical lifts may be installed.



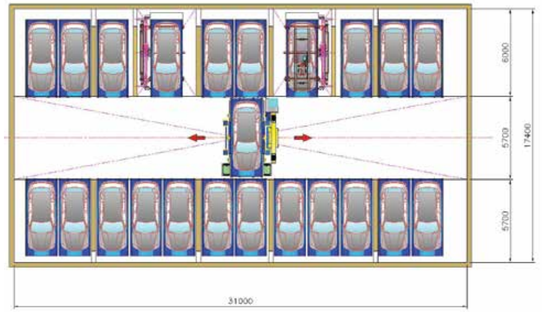
Section view [with vertical lift]



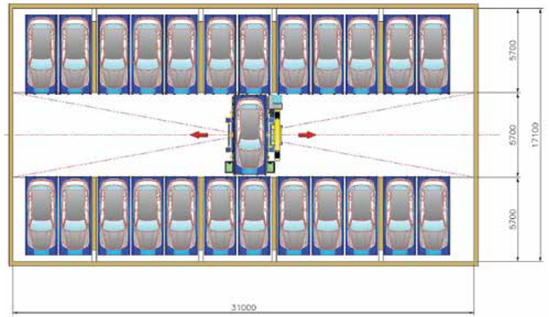
Section view [with vertical lift]

Stacker parking system / Standard type [HBC-ST-LSL]

Standard type with additional vertical lift and top entrance

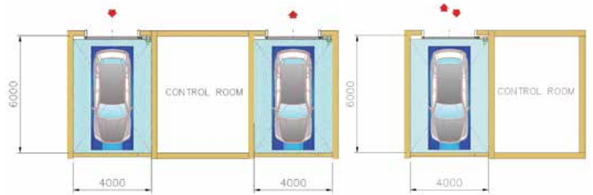


Floor plan [S1~S2]

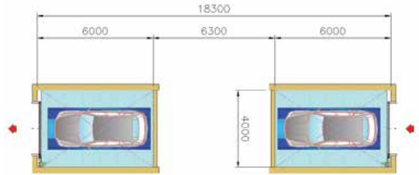


Floor plan [S3~S5]

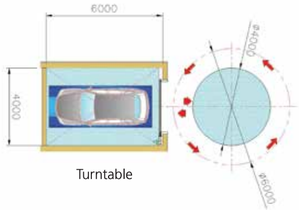
Entrance plan



Vertical lift, 2ea. Vertical lift, 1ea.



Vertical lift, 2ea.

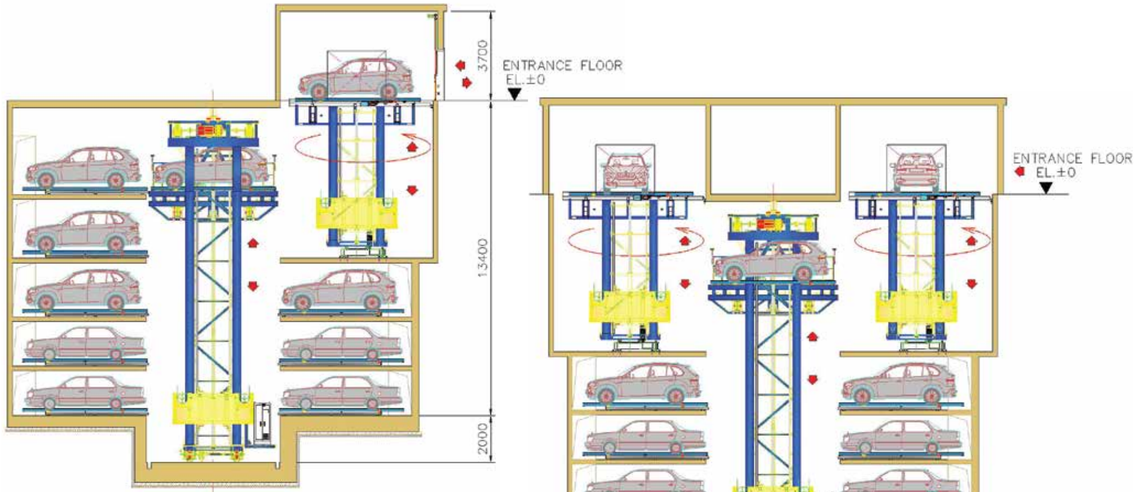


Turntable

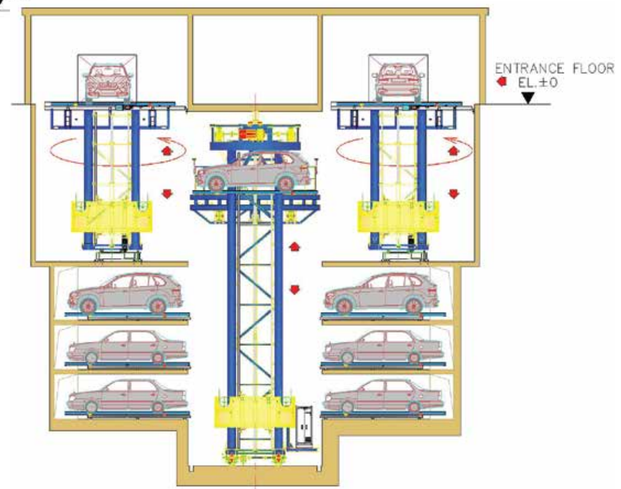
Stacker parking system / Standard type [HBC-ST-LSLT]

Standard type with additional vertical lift, built-in turntable and top entrance

- Vertical lift and built-in turntable installation for efficient entrance level exploitation.
- Vertical lift is more efficient under conditions when vehicle can not be placed into parking spot immediately.
- One and more vertical lifts with built-in turntables may be installed.
- Vehicle turning is performed during the vertical transportation, allowing to choose more optimal angle for entry and retrieval.



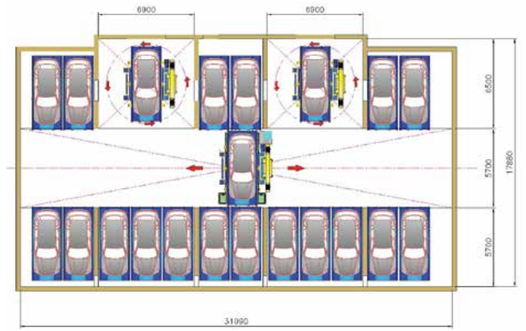
Section view



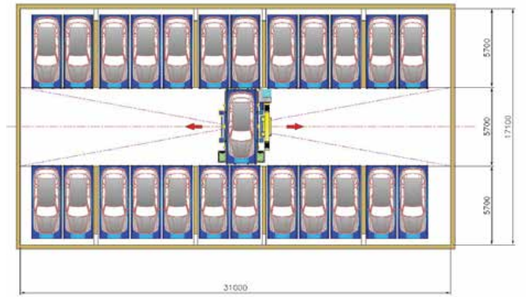
Section view [Vertical lift, 2 ea]

Stacker parking system / Standard type [HBC-ST-LSLT]

Standard type with additional vertical lift, built-in turntable and top entrance

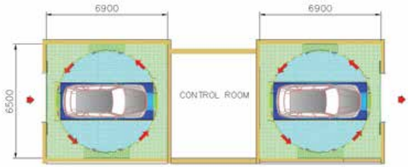


Floor plan [S1~S2]

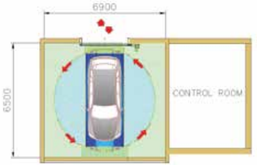


Floor plan [S3~S5]

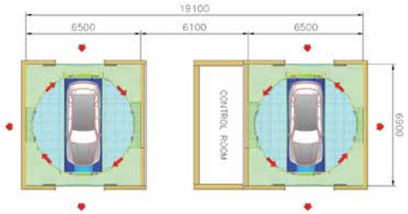
Entrance plan



Side entrance [Vertical lift, 2 ea]



Standard entrance

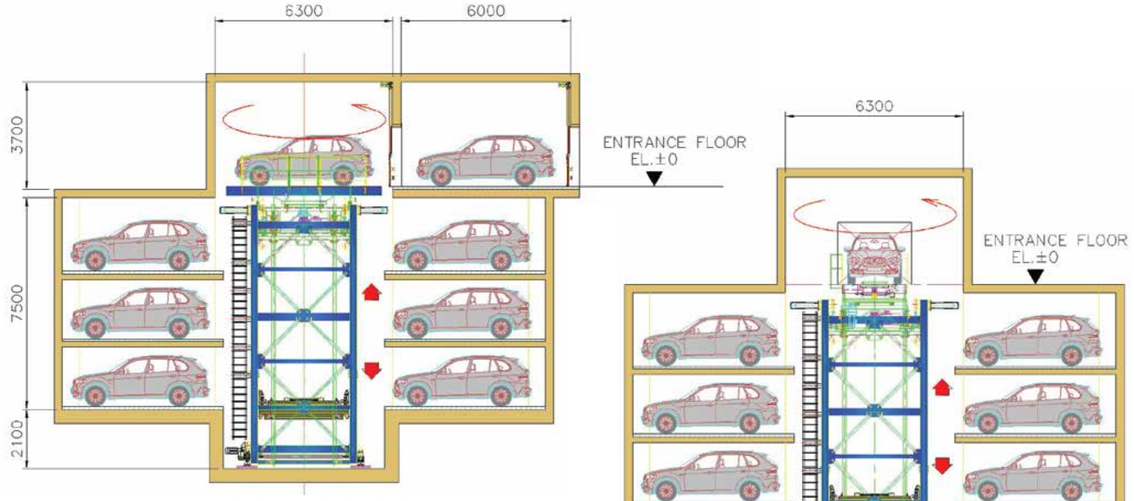


Vertical lift, 2 ea

Side pass through entrance

Standard type with built-in turntable and top entrance

- Turntable built into the stacker doesn't require any additional equipment for direction change.
- This system allows choosing direction for entrance and exit depending on construction features of a building.
- This type is only applicable to the pallet-free type of APS.
- Turntable operates only inside the transfer area.

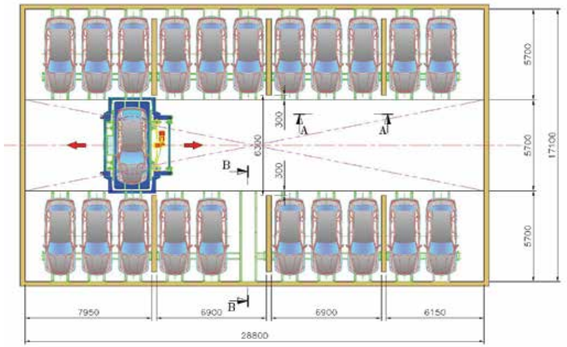


Standard entrance [Section view]

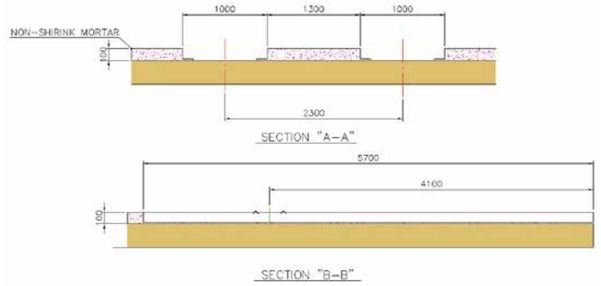
Side entrance [Section view]

Stacker parking system / Standard type [HBC-ST-LSR]

Standard type with built-in turntable and top entrance

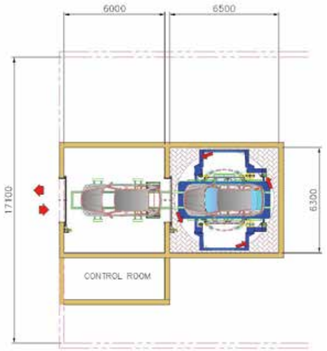


Floor plan



Parking space [Section view]

Entrance plan



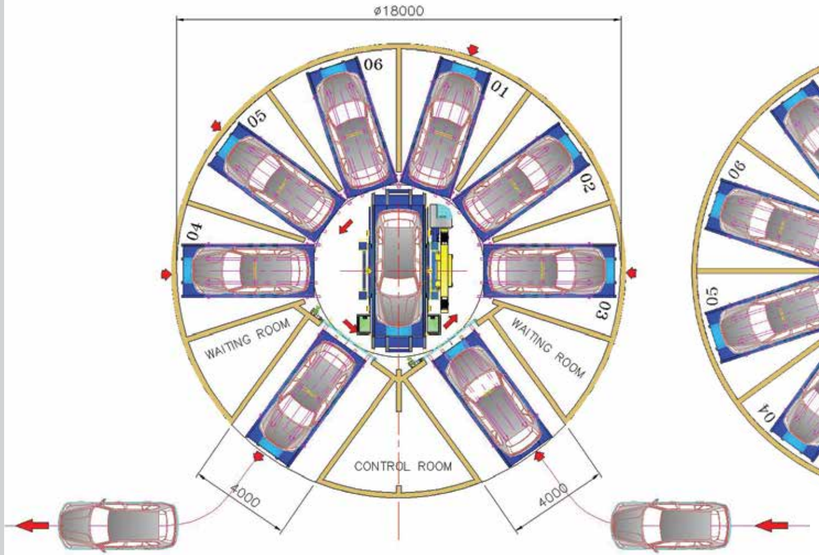
Side entrance

Standard entrance

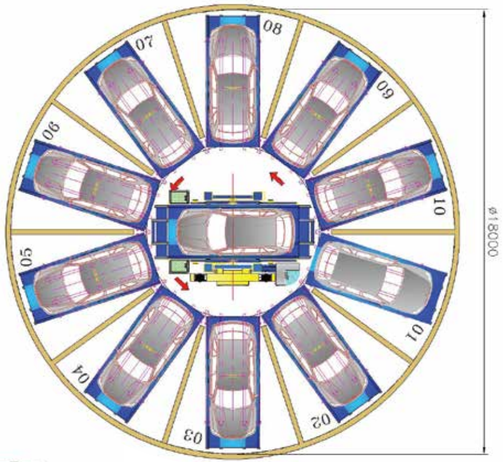
Stacker parking system / Cylindrical type [HBC-ST-LT]

Cylindrical type with bottom entrance

- Stacker simultaneously moves within three axes [vertical movement with 360 degree turn] allowing parking within short period of time.
- Unique architectural design.
- One stacker capacity may cover up to 126 vehicles.



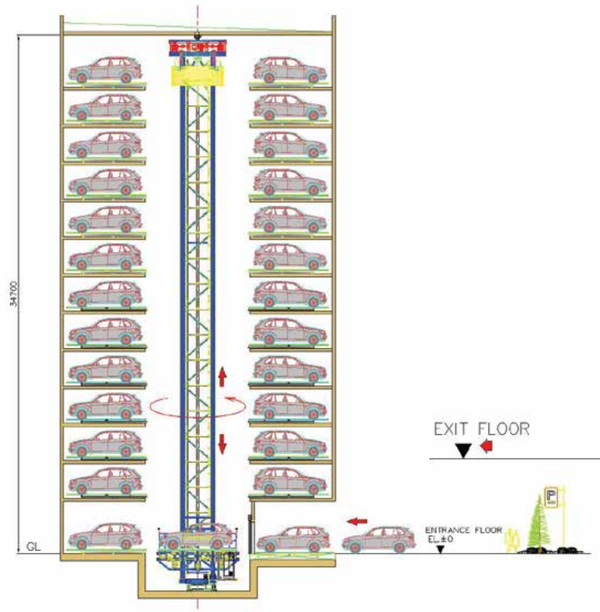
Entrance plan



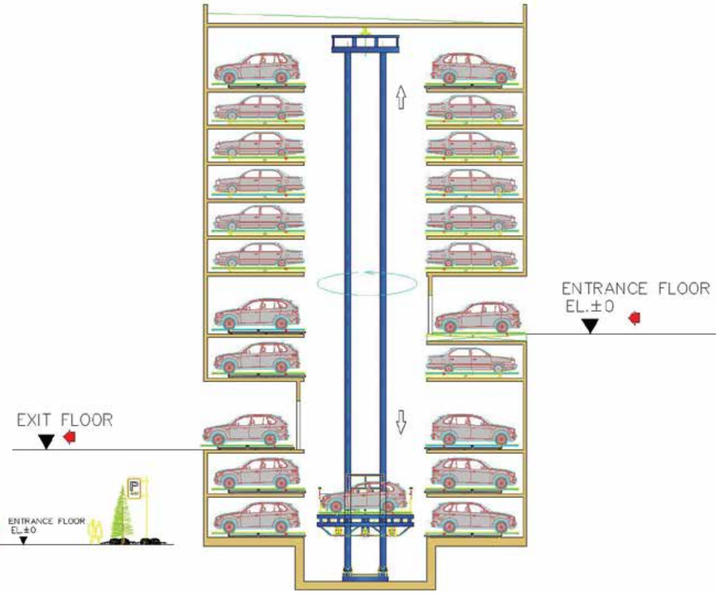
Floor plan

Stacker parking system / Cylindrical type [HBC-ST-LT]

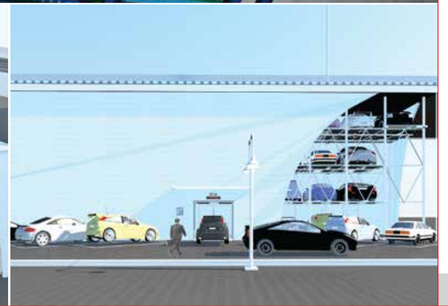
Cylindrical type with bottom entrance



Cylindrical type with bottom entrance
[Section view]



Cylindrical type with middle entrance
[Entrance and exit may be performed on different levels of construction object]



MULTI-FLOOR PARKING SYSTEM [HBC-MF]

Description

- Multi-floor parking system [mostly applicable to an underground facility] is efficient in small space utilization.
- Parking system is equipped with vertical lifts on both sides of metallic structure, main vertical lift for vertical transportation and conveyor carrier for horizontal transportation. Movement is performed simultaneously circle-wise.
- This type is ideal for narrow and long area.

Specifications

- This construction may consist of 5 levels, utilizing given space to the maximum extent.
- This parking system does not require any additional area for entrance being more efficient than any other parking system.
- Entrance and exit area may be appointed at any level depending on building's features.
- Ideally suitable for narrow type buildings.

Types

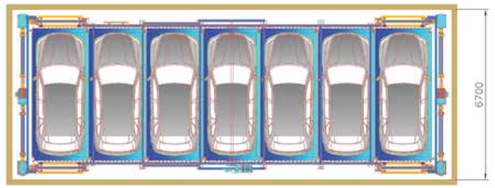
Multi-floor parking system with top entrance [HBC-MF-U]

Multi-floor parking system with bottom entrance [HBC-MF-D]

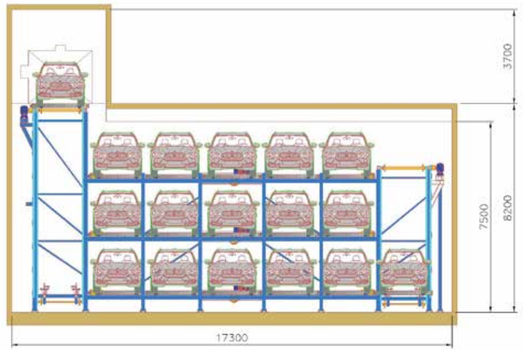
※ All questions related to non-standard types must be addressed to an equipment manufacturer.

Multi-floor parking system [HBC-MF-U]

Multi-floor parking system with top entrance

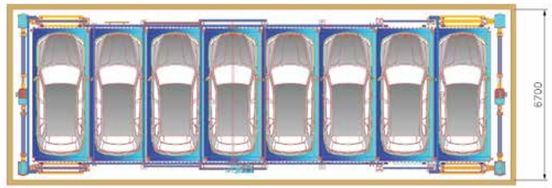


Top view

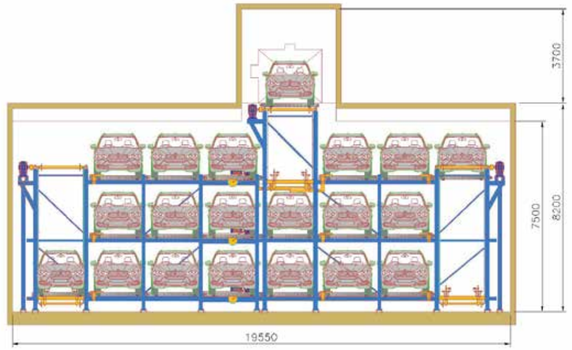


Front view

Multi-floor parking system with top entrance and main vertical lift



Top view

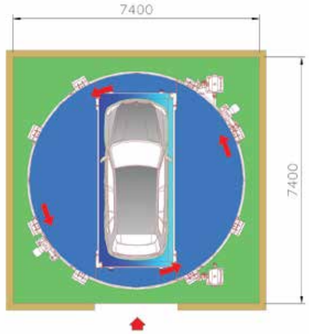


Front view

Multi-floor parking system [HBC-MF-U / D]

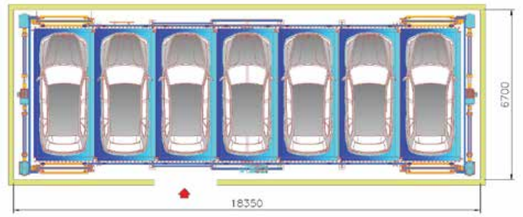
Multi-floor parking system with top entrance

Standard

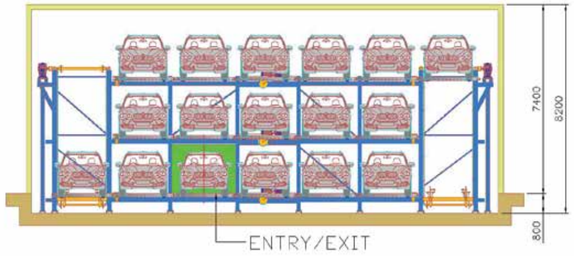


Built-in turntable

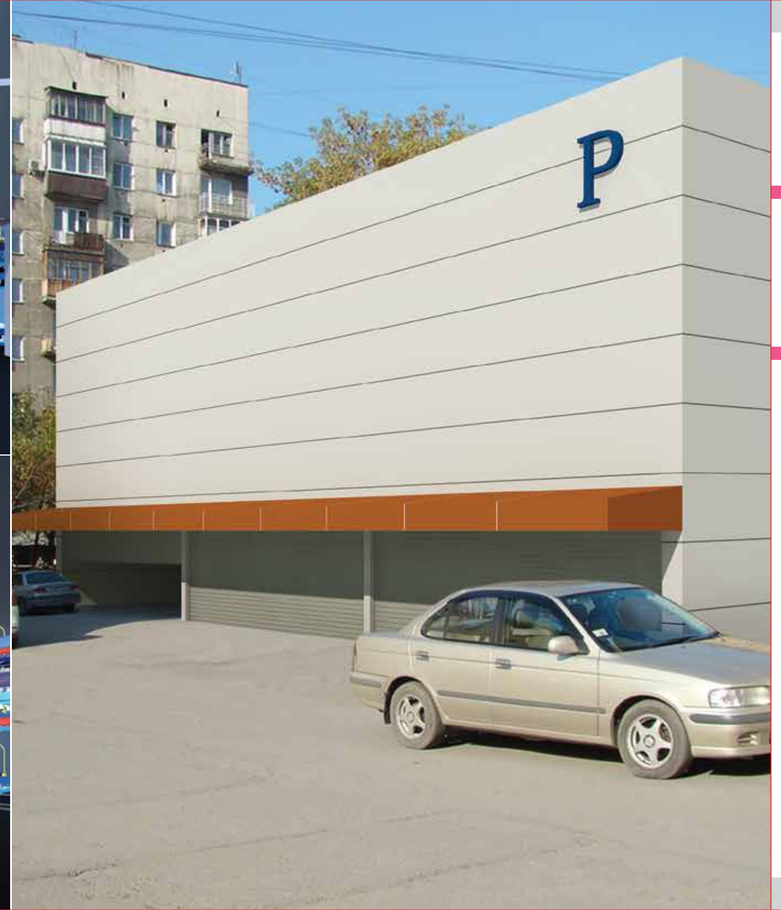
Multi-floor parking system with bottom entrance [HBC-MF-D]



Top view



Front view



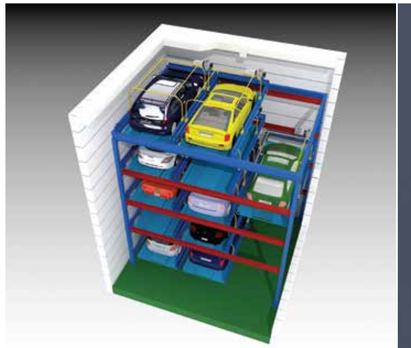
PUZZLE PARKING SYSTEM [HBC-PZ]

Description

- Parking system may consist of 1 and more levels,where each pallet is equipped with drive device for horizontal and vertical transportation.
- During entry and retrieval all pallets move simultaneously in order to secure necessary space for one particular pallet.
- Easy-to-operate. Possibility for several modules installation.
- Equipment manufacturing and installation don't require much time. Simplicity and low possibility of breakdown.

Specifications

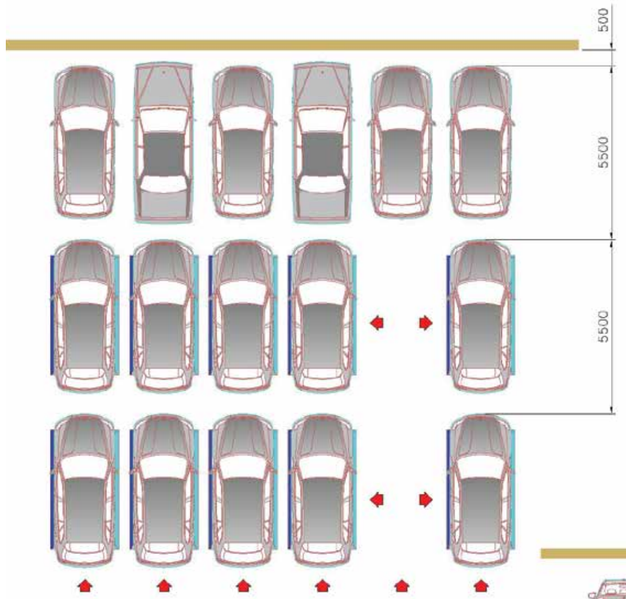
- Construction may consist of 2 and more levels.
  Simple vertical and horizontal transportation, high speed of vehicle entry and retrieval.
- APS is designed for parking space for 3 and more vehicles where adjacent modules can provide up to few hundreds of parking spaces.
- The simplest system of all requiring low level of exploitation cost.
- Module substitutability may be implemented in case of breakdown.



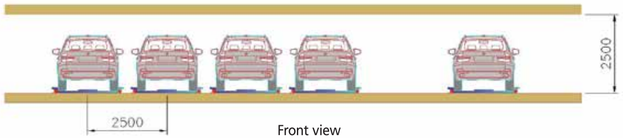
※ All questions related to non-standard types must be addressed to an equipment manufacturer.

Puzzle parking system [HBC-PZ]

Single level type [HBC-PZ-U1]



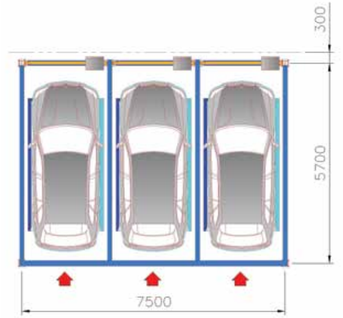
Top view



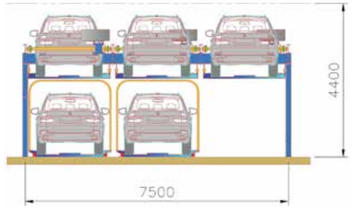
Front view

Puzzle parking system [HBC-PZ]

Two level type [HBC-PZ-U2]

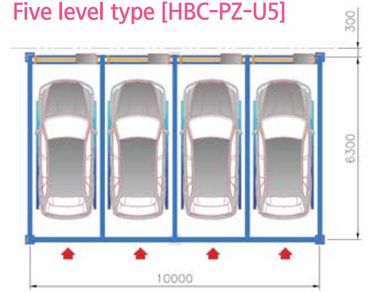


Top view

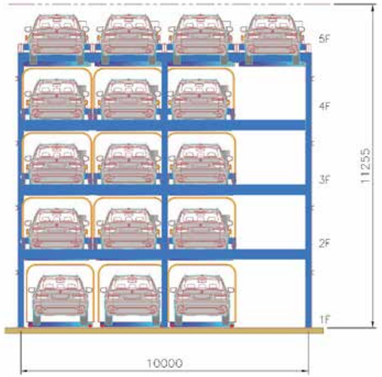


Front view

Five level type [HBC-PZ-U5]



Top view



Front view

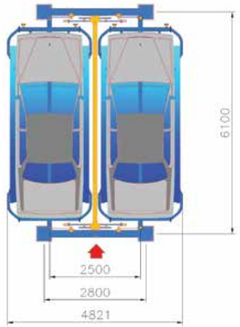
ROTARY PARKING SYSTEM [HBC-RT]

Description

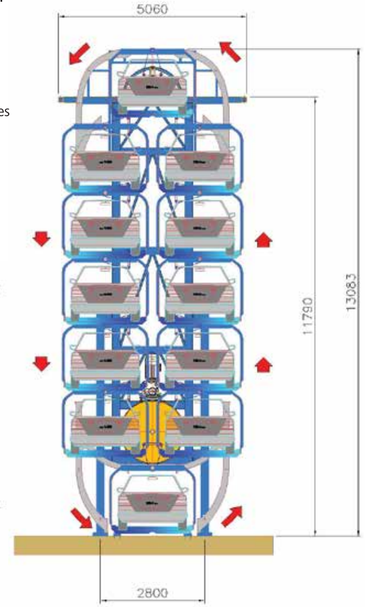
- This parking equipment is designed to provide parking capacity based on pallets' circular movement.
- Efficient land usage in the area within restrained urban conditions.
  Doesn't require operation staff.
  Low level of breakdown occurrence.

Specifications

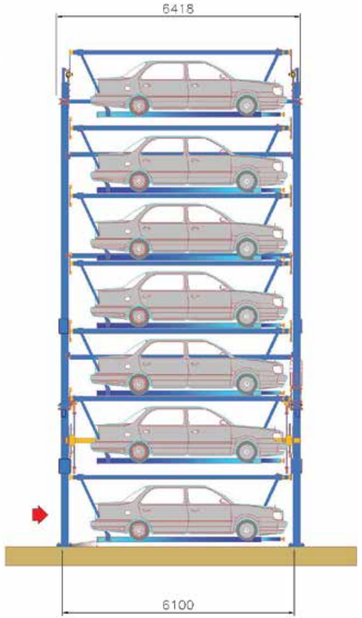
- Designed for small quantity of parking spaces. Therefore it provides short time of vehicle entry and retrieval.
- Efficient space exploitation compared to available parking space.
- Compact size equipment suitable for urban high density development area.
- Up to 12 vehicles may be allocated inside the area for 2.
- Operator free [one-touch] operation.
- Short time parking within the nearest space available.
- High stability due to ≪Palette Drop Control≫.



Top view



Front view



Side view

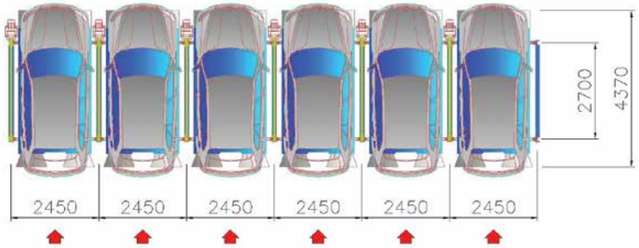
TWO-LEVEL PARKING SYSTEM [HBC-TL]

Description

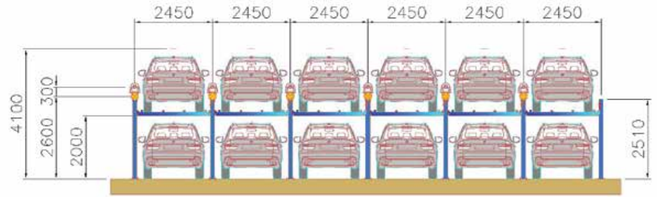
- Required parking capacity may be obtained within two levels extending the length of construction.
- The simple APS construction with minimal time for vehicle entry and retrieval, low exploitation cost and efficient space usage.
- Operator free [one-touch] operation.
- High level safety.

Specifications

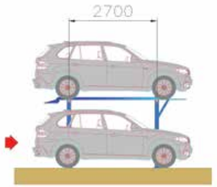
- Button control system.
- Spare parts change simplicity.



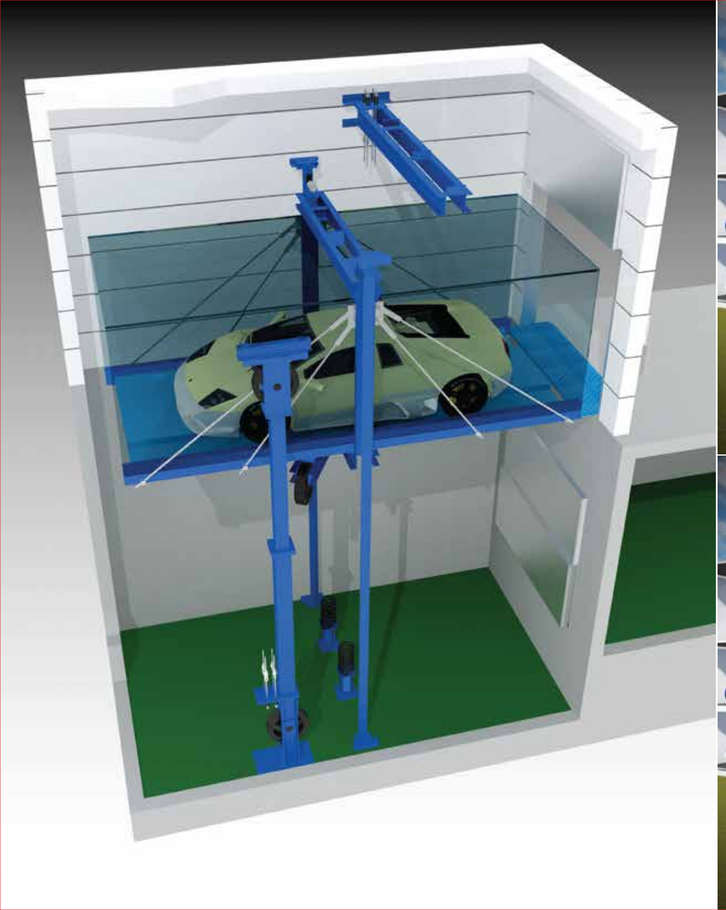
Top view



Front view



Side view



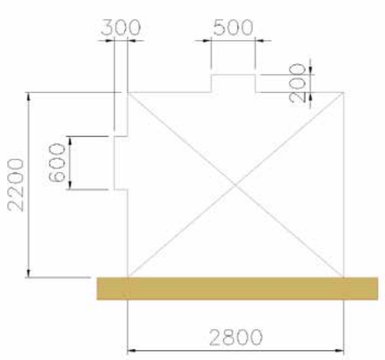
CAR LIFT SYSTEM [HBC-CL]

Description

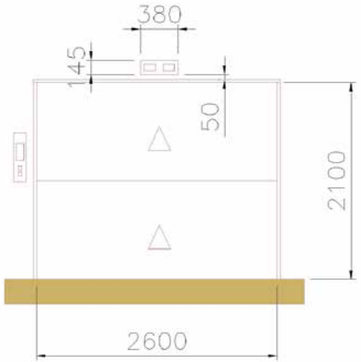
- High density urban area usage.
- Vibration and noise free. Simple operation.
- Vehicle parking inside high density development areas or obstructed entrance areas using hydraulic lifts helps to reduce unnecessary construction work for entrance area development providing additional economical and other convenience benefits.
- Hydraulic type : smooth movement, vibration and noise free.
- Machine compartment may be placed at the bottom part of lift shaft designed for hydraulic gear.
- The case when vertical lift shaft exceeds 18 m height may require additional cable equipment installed in the top area of the shaft.

Specifications

- Vehicle transportation lift.
- Hydraulic lift cost efficiency is higher than of that of mechanical, considering the high lifting capacity feature.



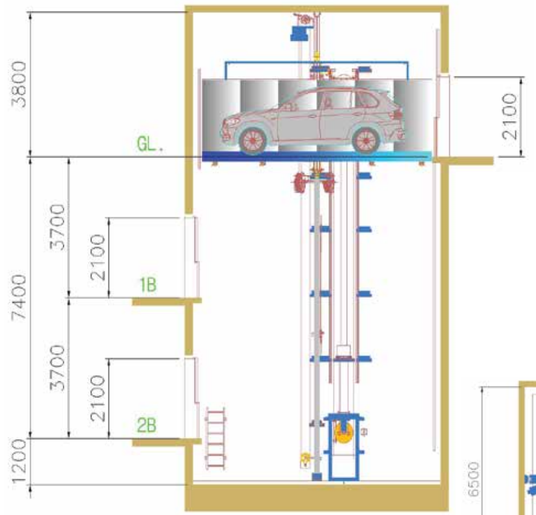
Concrete opening



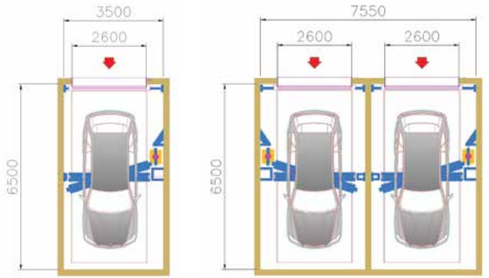
Entrance level [Detailed plan]

Car lift system / Hydraulic type [HBC-CL-H]

Hydraulic type with top / middle / bottom entrance



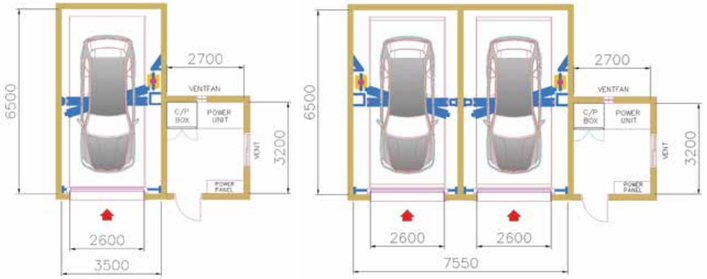
Entrance plan



Single unit

Double unit

Machine room [B2, top view]

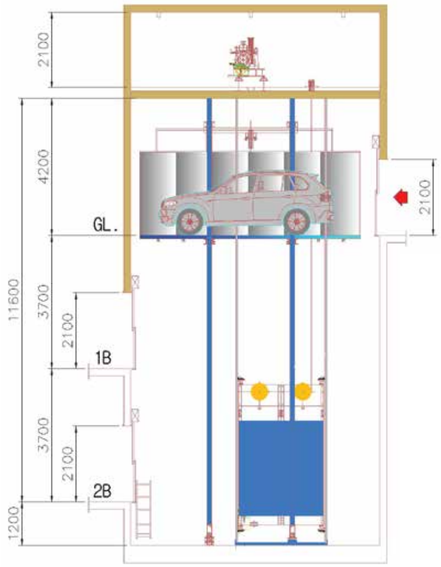


Single unit

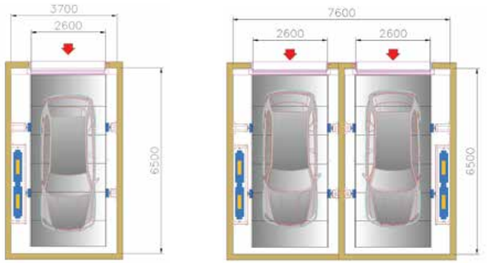
Double unit

Car lift system / Wire rope type [HBC-CL-R]

Wire rope type with top / middle / bottom entrance



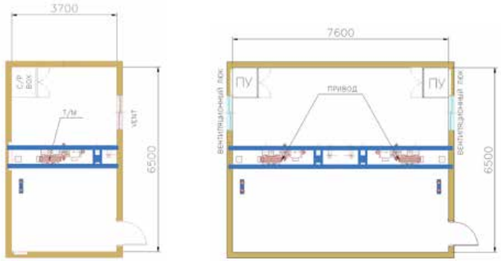
Entrance plan



Single unit

Double unit

Machine room [top pit, top view]

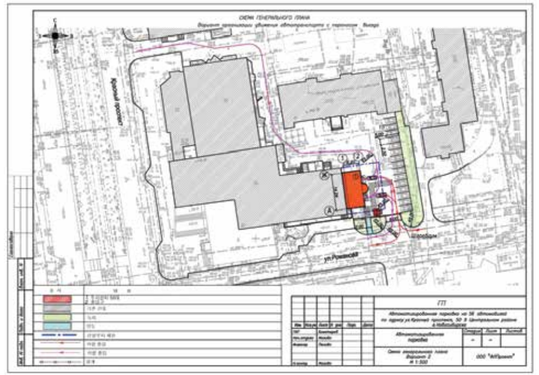


Single unit

Double unit

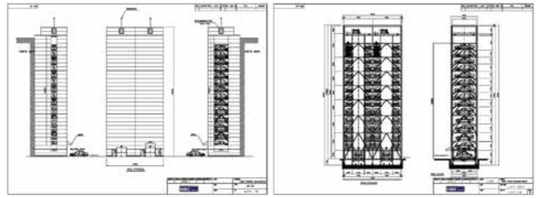
APS construction project implementation procedure
[Tower parking system in Russia]

Project review and master plan drawing up

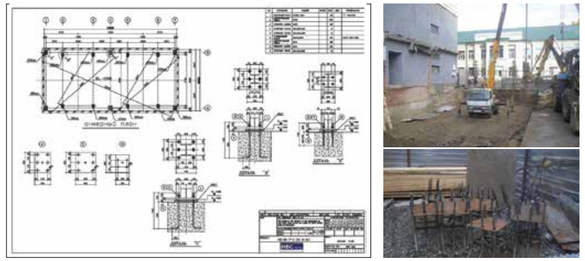


- Site selection for APS
- Selection of APS, according to site conditions
- Master plan drawing up

Technical analysis of contractor's master plan and requirements Contract for designing and manufacturing of APS



Site foundation works [in Russia]



System designing and equipment manufacturing [Factory in Korea]

Equipment delivery to a client's warehouse. Steel structure installation work

Equipment delivery to a installation site
Equipment installation and other exterior works

Complete Installation