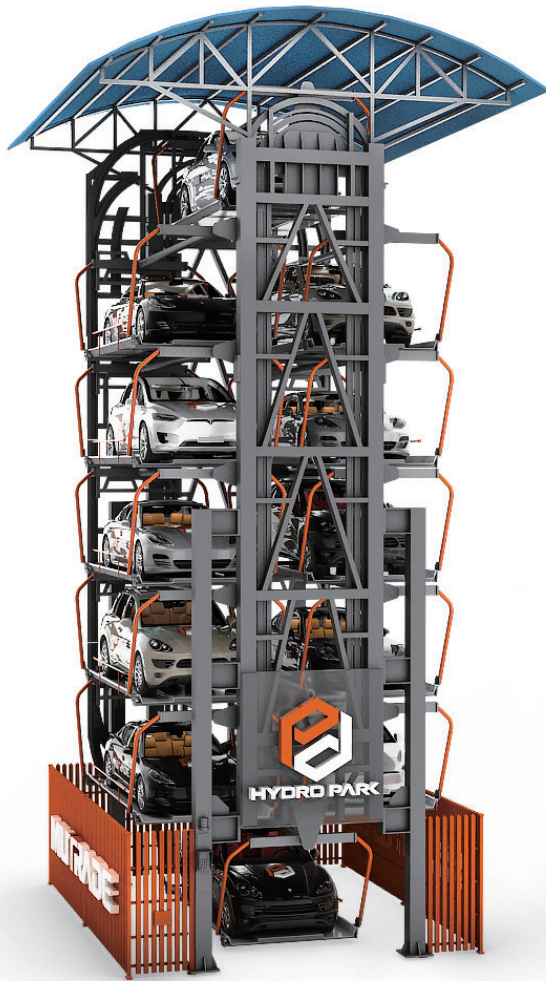


MUTRADE
MUTRADE INDUSTRIAL CORP.



ARP Series

Automatic Rotary Parking system



> Introduction

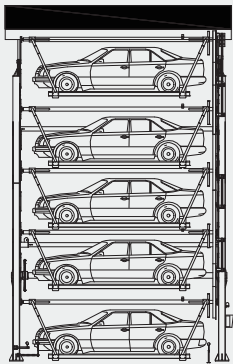
Rotary parking system is one of the most space-saving systems that allows you to park up to 16 SUVs or 20 sedans in only 2 conventional parking spaces. The system is independent, no parking attendant is required. By inputting a space code or swiping a pre-assigned card, the system can recognize your vehicle automatically and find the faster path to deliver your vehicle down to ground either clockwise or counterclockwise.

Features:

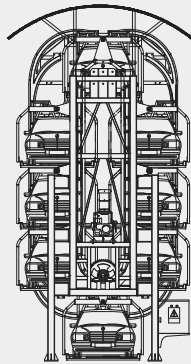
- Suitable for all types of vehicles
- Least cover area than other automated parking systems
- Up to 10 times space saving than traditional parking
- Quick time of car retrieval
- Easy to operate
- Modular and simpler installation, averaging 5 days per system
- Quiet operation, low noise to neighbors
- Car protection against dents, weather elements, corrosive agents and vandalism
- Reduced exhaust emissions driving up & down aisles and ramps looking for a space
- Optimal ROI and short payback period
- Possible relocation & reinstallation
- Wide range of applications including public areas, office buildings, hotels, hospitals, shopping malls, and car showrooms, etc.

Allowing you to park up to either

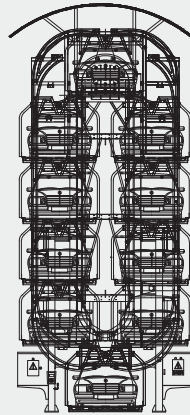
20 sedans / 16 SUVs



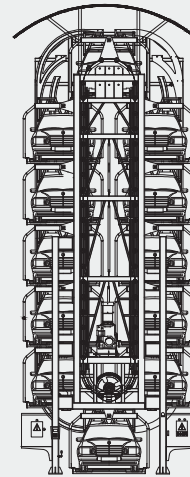
ARP-8



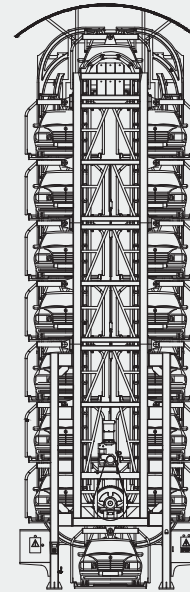
ARP-10



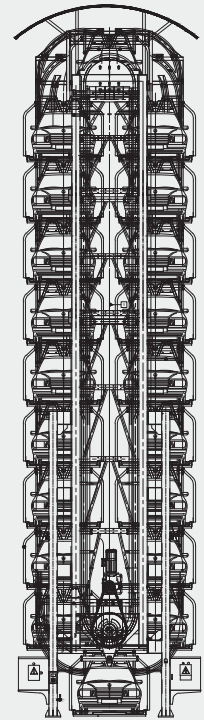
ARP-12



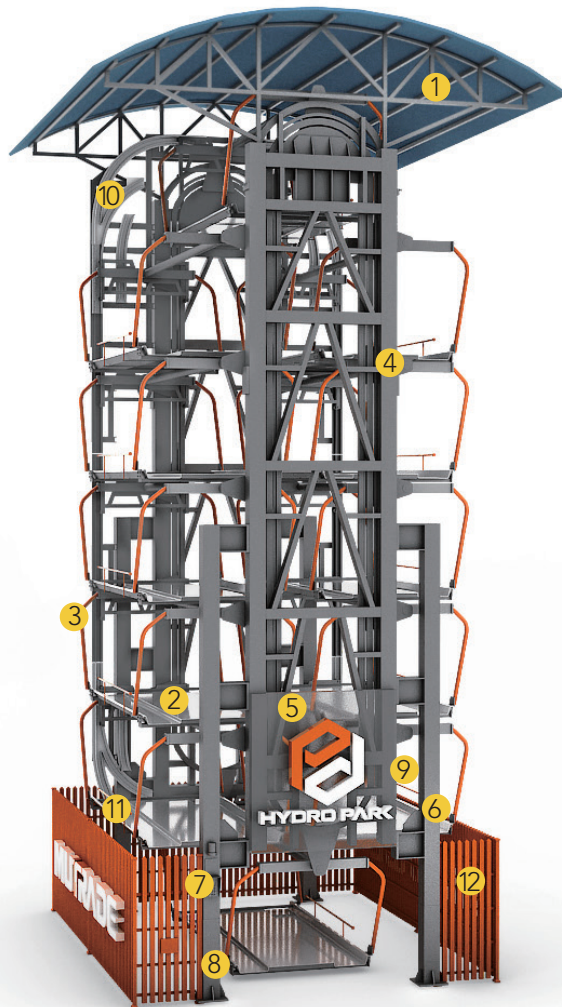
ARP-16



ARP-20



General parts



- 1 Rain shelter
- 2 Platform
- 3 Platform suspension arm
- 4 Rack
- 5 Gear motor
- 6 Post
- 7 Control panel
- 8 Photocell sensor
- 9 Electric box
- 10 Guide rail
- 11 Car door stopper
- 12 Fence

German motor

SEW brand motor, max 24kw, to ensure stable running and long durability

Accurate & stable manufacturing

Modular design and high-precision equipments enable tolerance <2mm in main structure manufacturing.

Robotic welding

Robotic welding machines keep each module standard and accurate, and also increase system safety & stability

Safe and flexible lifting system

Non-lubricated contact between guide rollers & rail achieves flexible rotation and reduces working noise and power consumption.

Three stages & four chains transmission system

This unique transmission system provides stronger support for system safety and smooth running.

High strength alloy steel chains

The self-developed giant chains, made of alloy steel, have superior high strength, safety factor is no less than 10; and they adopt tin-bronze shaft sleeve and Teflon finishing for smoother rotation and better corrosion performance.

ARP Series

Windproof & anti-seismic performance

Our unique design achieves stability under 10th grade wind and magnitude 8.0 earthquake even when platform moves to top position.

Extra safety preventing door open

A special developed car door stopper is equipped on platforms to protect the ARP system and vehicles from door open during system running in case people are left inside.

Intelligent ground loop detector

Open or shut the door automatically as per system operation status and prevent unauthorized entrance.

Retrieval at blackout or power off

A manual parking & retrieval device are equipped to take your cars safely even at blackout or power off situations.

E-charging optional

Intelligent and uninterruptible fast electric charging system is optional, and super easy to operate.

Powder coating

One of the best rustproof finishing, and rich colors are optional

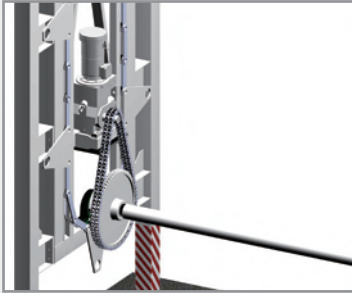
Specifications

> Sedan type systems

| Model Number | ARP-8 | ARP-10 | ARP-12 | ARP-16 | ARP-20 |
|-----------------------|-----------------------------------|--------|--------|--------|--------|
| Car spaces | 8 | 10 | 12 | 16 | 20 |
| Motor power (kw) | 7.5 | 7.5 | 9.2 | 15 | 24 |
| System height (mm) | 9,920 | 11,760 | 13,600 | 17,300 | 20750 |
| Max retrieve time (s) | 100 | 120 | 140 | 160 | 140 |
| Rated capacity (kg) | 1800kg | | | | |
| Car size (mm) | Sedans only; L*W*H=5300*2000*1550 | | | | |
| Cover area (mm) | W*D=5,500*6,500 | | | | |
| Power supply | AC Three phases; 50/60hz | | | | |
| Operation | Button / IC Card (optional) | | | | |
| Finishing | Powder coating | | | | |

> SUV type systems

| Model Number | ARP-8S | ARP-10S | ARP-12S | ARP-16S |
|-----------------------|------------------------------------|---------|---------|---------|
| Car spaces | 8 | 10 | 12 | 16 |
| Motor power (kw) | 9.2 | 9.2 | 15 | 24 |
| System height (mm) | 12,100 | 14,400 | 16,700 | 21,300 |
| Max retrieve time (s) | 130 | 150 | 160 | 145 |
| Rated capacity (kg) | 2300kg | | | |
| Car size (mm) | SUVs allowed; L*W*H=5300*2100*2000 | | | |
| Cover area (mm) | W*D=5,700*6500 | | | |
| Operation | Button / IC Card (optional) | | | |
| Power supply | AC Three phases; 50/60hz | | | |
| Finishing | Powder coating | | | |

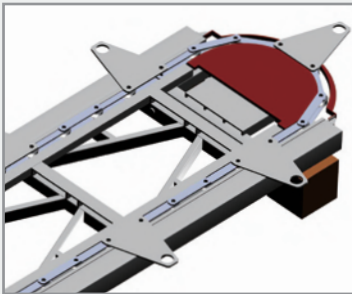


> Safety door

The door can be installed in front of system. It automatically shuts during system running to prevent entrance by mistake and protect the cars from theft and vandalism. It can also detect vehicles access and open intelligently.

> Emergency stop button

It can be activated to stop the system at any time and cut off power in case of any emergencies or system malfunctions.

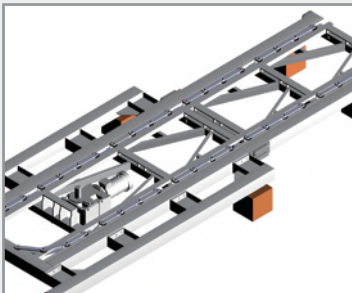


> High strength structural joint

The entire system is manufactured modularly and automatically to ensure perfect performance and smooth operation. And a high strength and precision part for structural connection is one of the key factors to achieve so

> High precision manufacturing

Large CNC universal gantry milling machine, CNC double-sided milling processing, and other CNC machine tools to ensure manufacturing tolerance <2mm



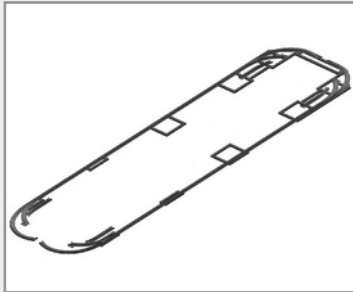
> Giant lifting chains for highest safety

To achieve superior safety, German technology is adopted in developing our own giant lifting chains, with tin-bronze bushing and self-lubricating bearing.

> Rain shed

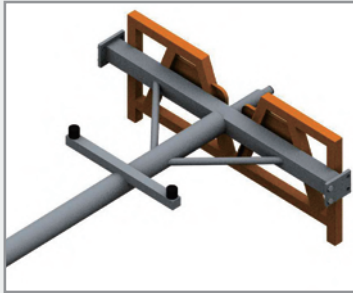
Arc-shaped rain shed is optional on top of system to protect the system and vehicles from hard weathers; without effecting the system stability against strong winds or snows.





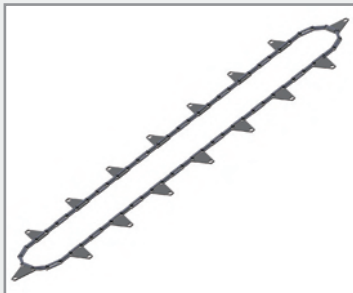
> **Car door stopper**

Car door opening is highly hazardous to both the vehicles and system. A specially made device can be added to prevent such happening during system running.



> **Windproof device**

When system goes up to 20m, wind load is one of potential hazards to structural stability. The wind proof device can keep the whole structure stable under the 10th grade wind even when platforms are moving to the highest position.



> **Seismic resistance**

Our ARP system has been certified by professional third party to be safe at Magnitude 8.0 earthquake, thanks to the high strength structural design and high-precision manufacturing.

> **Automatic car wheel positioner**

The positioner can prevent car moving during system running in case drivers neglect to pull the manual brake before leaving the car, or under the force of strong wind.

> **Dual closed-loop anti-swing system**

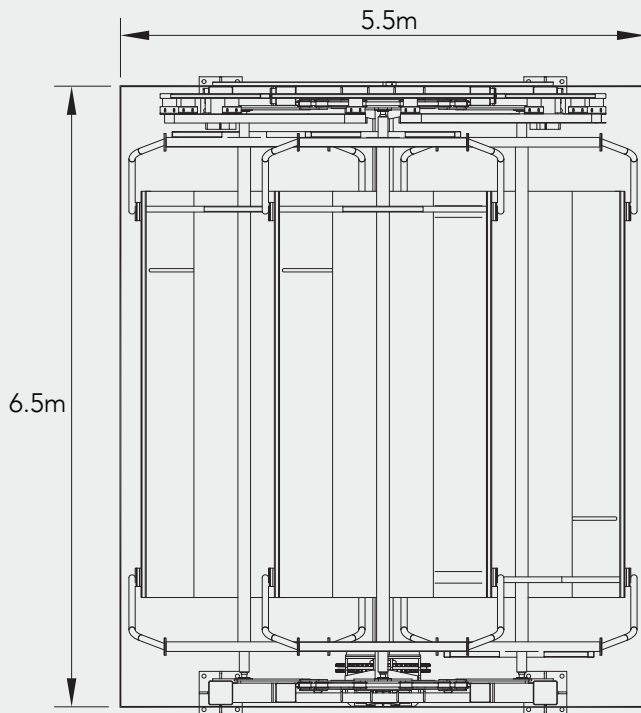
An anti-swing system are arranged on both top & bottom positions to achieve higher safety and stability during system running.

> **Car retrieval at power failure**

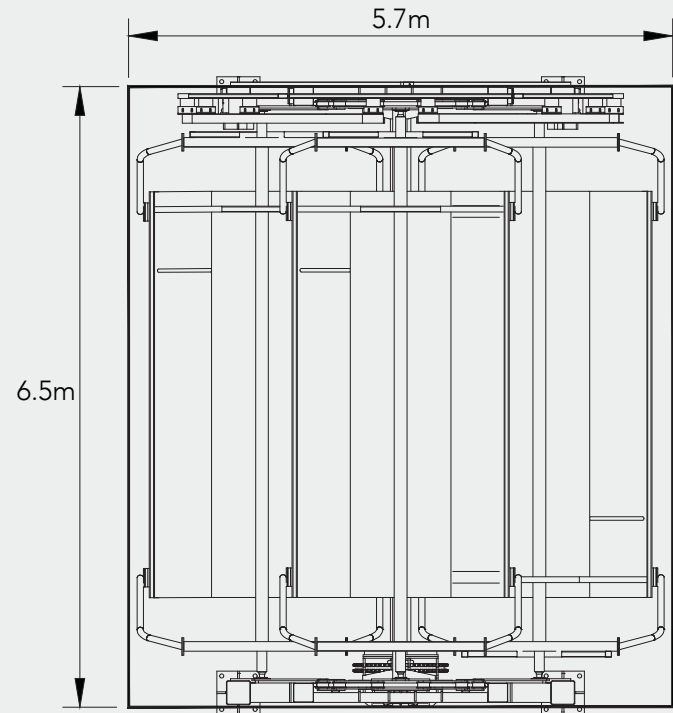
This device allows drivers to retrieve vehicles at power failure scenarios or blackout situations.

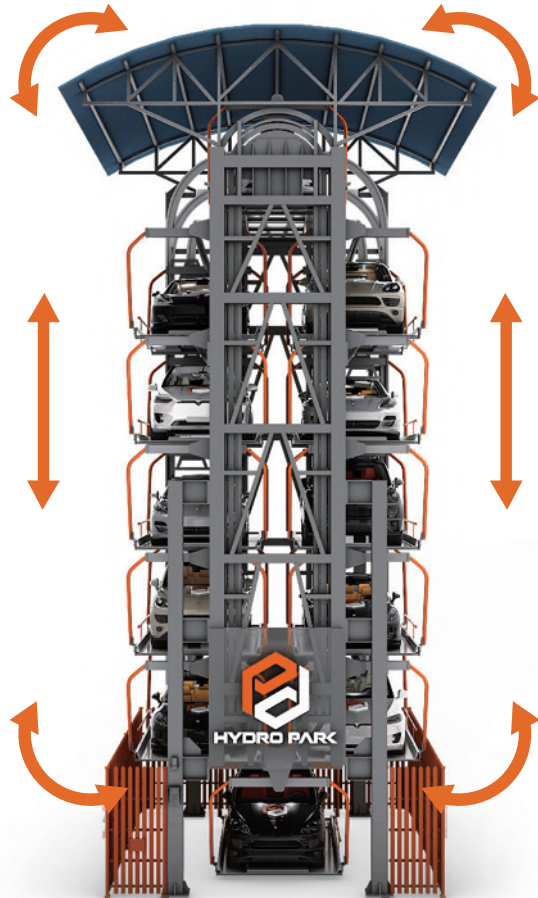
Dimensions

Sedan system



SUV system

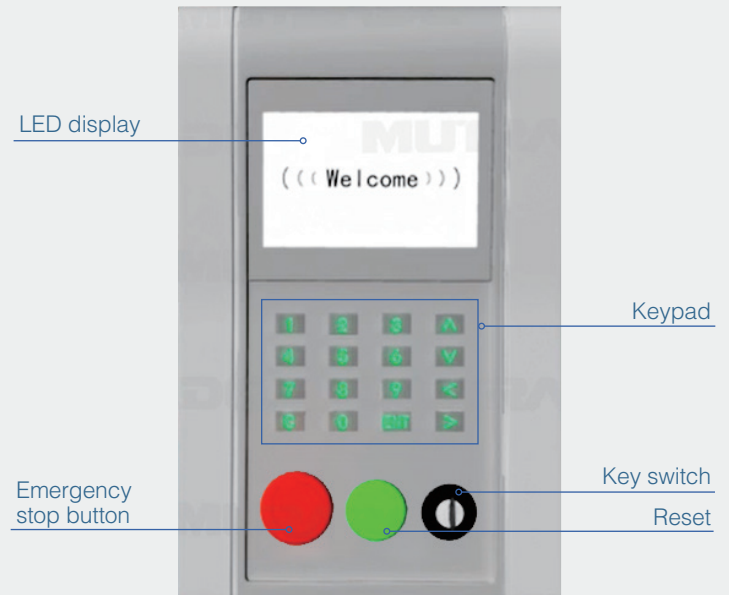




System rotates in both directions to deliver your car to ground

Two ways to operate the system:

- › 1. Code: input the space number of desired platform, then press RUN to start.
- › 2. Card: users can swipe a specific card to get a certain platform down to the entrance level. Each card matches a specific platform.



To ensure proper and stable function of entire ARP system in the long run, regular and periodic inspection & maintenance are also of vital importance:

> Weekly

- 1) All connecting parts and transmission parts shall be working properly free from any bad abrasion and big clearance;
- 2) All bolts shall be tight and fastened
- 3) Lubricate the chains and add lithium grease every 2 weeks.

> Quarterly

- 1) Check the status of all safety devices and electrical system
- 2) Check the whole set of transmission system, including chain wheel, gearing mesh, bearing, etc.

> Monthly

- 1) Conduct comprehensive inspection to lubrication status of whole system
- 2) All steel surface or welding joints shall be free from any cracks
- 3) Check the function of limit switches, photoelectric sensors, etc.
- 4) Lubricate the oil type bearings

> Annually

- 1) Perform overall inspection for ARP system, including mechanical & electrical parts, lubrication status, running status, wearing conditions, etc.
- 2) Lubricate reducer as per reducer manufacturer instruction;
- 3) Lubricate other sliding parts as per actual situations

Scope of application

Suitable for residential buildings, office buildings, hotels, hospitals, and any other commercial areas where vehicles enter & exit frequently.

Temperature

Theoretically the system is designed to operate between -40° and +40c. Atmosphere humidity 50% at +40C. If the local circumstances differ from the above, please contact Mutrade.

Electrical installation preparation

Cabling preparation to be performed by the customer

- To the main switch. Cables shall be in place prior to commence of installation
- Connect to the main switch during installation
- System functional check testing can be performed by the electrician provided by the customer

Grounding and equalization (if applicable): to be done by customer as per local regulations.

Parking

- Input car number or swipe IC card to lower your platform down to ground
- Drive the car forward onto the platform
- Put the brake on after vehicle parked on the platform
- Open the car door and leave the system carefully

Protection against corrosion

Proper maintenance work has to be carried out according to Mutrade Cleaning and Maintenance Instruction regularly. Clean up structural parts and platforms of dirt and road salt as well as other debris.

Fire safety

Each and every fire safety requirement and all possible mandatory item(s) and equipment (fire extinguishing systems and fire alarm systems) are to be provided by the customer as per local laws and regulations

References

