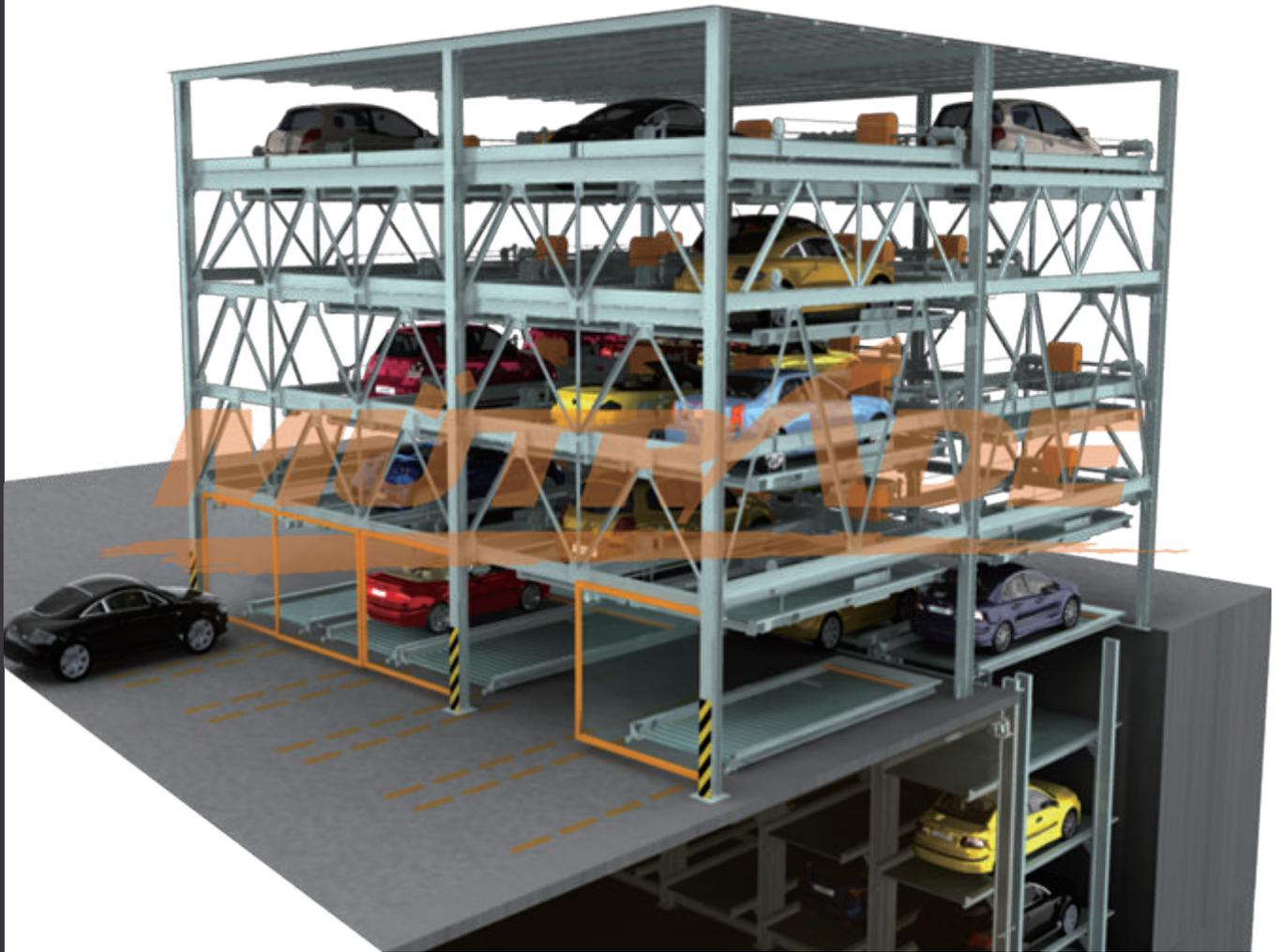


BDP

Bi-Directional Parking System

PROFESSIONAL PARKING SOLUTION PROVIDER!



WE PLAN , DESIGN, MANUFACTURE AND INSTALL...



QINGDAO MUTRADE CO., LTD.

BDP

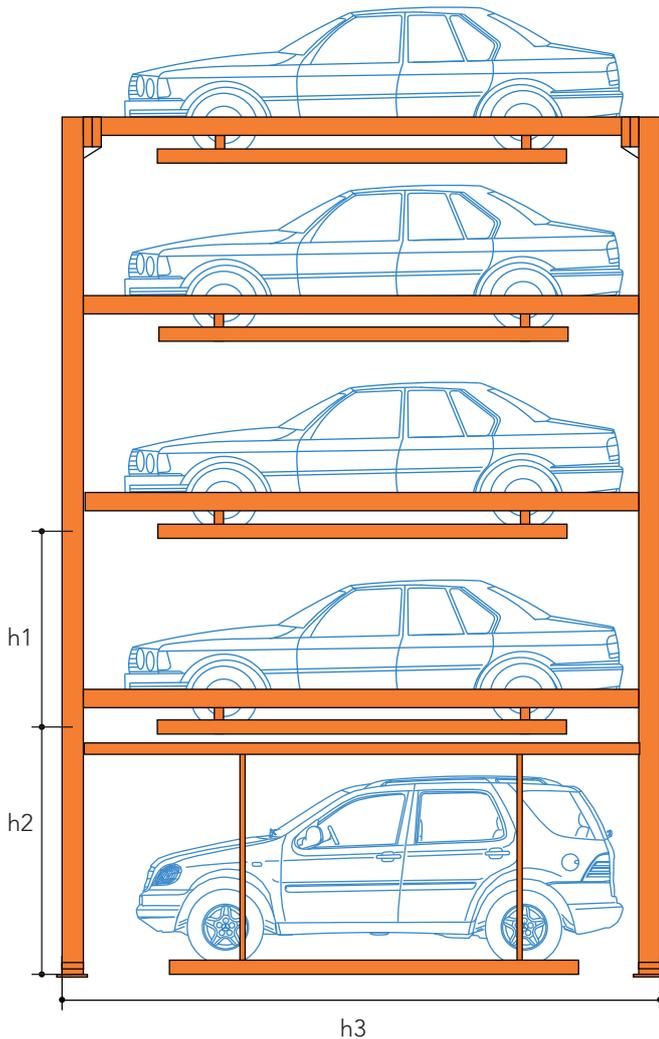
Bi-Directional Parking System

Introduction

BDP Series is a kind of automatic parking equipment. It is suitable for both commercial and residential parking purposes. It moves vertically & horizontally with the platform to park & retrieve car freely. BDP series of product can be combined together with MUTRADE PFP series of product to increase parking spaces. It is driven by hydraulic.

- Commercial grade design
- Galvanized platform with wave plate for better parking
- 15 levels above ground for all sedan maximum or 5 levels above ground for all SUV maximum
- Can be mixed with 3 levels underground
- Galvanized platform with wave plate for better parking
- Hydraulic cylinder with steel rope drive
- Fast lifting and descending speed
- Patented Hydraulic variable frequency speed control technology to smoothly approaching ground
- Central hydraulic power pack and control panel, with PLC control system inside
- Code, IC Card and manual operation available
- 2000kg capacity for sedan system, and 2500kg capacity for SUV system
- Patented anti-falling frame protection
- Hydraulic overloading protection

| | BDP-2 | BDP-5 | BDP-15 |
|----|----------|----------|----------|
| h1 | 1650(mm) | 1800(mm) | 1800(mm) |
| h2 | 2500(mm) | 2500(mm) | 2500(mm) |
| h3 | 5700(mm) | 6500(mm) | 7400(mm) |



- 1 Wire ropes
- 2 Wire rope pulley
- 3 Cylinder
- 4 Platform
- 5 Sliding rail
- 6 Post
- 7 Stringer
- 8 Beam

Advantages

1.Speed

Hydraulic system is 2-3 times faster than the motor type, for the puzzle system more than 4 floors high, the speed different is significant.

2. Smooth

Hydraulic system runs much smoother than motor type.

3. Higher Floor

With our new technology, we could build puzzle system 15 floors high over the ground and 3 floor deep under the ground.

4. Flexible Parking Solutions

Mutrade BDP system could be placed from 3 cars wide, up to 15 floors high. Combined with PFPP series, Mutrade could provide 15 levels above ground and 3 levels underground integrate parking solutions.

5. Energy Saving

With hydraulic system, it doesn't consume any electricity when the platform come down to the ground level, it saves half energy cost.

6. Low And Fast Maintenance

Instead of changing motors, for hydraulic system, you usually change cylinder seals.

7. Better Finishing

Our systems come with zinc spray finishing for anti-rust, so you don't have to spend more money on that.

8. Lower Cost On Equipment

With hydraulic tower system, the only similar product is auto tower system with is 2 times more expensive, it is easier for you to convince your investors and get your investment back faster.

9. Less noise

The only hydraulic pump, supporting around 30 parking spaces in a system, could be placed underground to eliminate noise from motor.

10. Experience

We have experience of building big projects more than 1, 000 parking lots and we install every year more than 30, 000 spaces all over the world. We send out mechanical & electric engineer to provide onsite instruction services.

Safety Features



1. Photoelectric detection device for car over height and accidentally entrance of the people and cars.
2. Fixed style anti-falling frame device
3. Sound and light warning device
4. Electromagnetic style anti-falling device
5. Safety warning plate
6. Oil cylinder top limit switch device
7. Car blocking device on platform
8. Phase order protection device
9. Limit switch device
10. Sudden stop device
11. Grounding protection device of over curreny,over loading, over or under voltage.
12. Lifting and sliding combined locking device
13. Hydraulic protection device

Specifications

| | | | |
|------------------------|--|------------|------------|
| Model | BDP Series | | |
| Levels | 2 | 5 | 15 |
| Available Vehicle Size | 5000mm x 1850mm x 1550mm (LxWxH) *can be customized to fit for SUV | | |
| Drive mode | Hydraulic Cylinder + Steel Cable | | |
| Lifting capacity | 2000kg *can be customized to fit for SUV | | |
| Hydraulic pump power | 4Kw | 11Kw | 15Kw |
| Lifting speed | 8-12m/min | 15-18m/min | 22-28m/min |
| Sliding speed | 7.5m/min | | |
| Control | Omron PLC system | | |
| Operation | Button, IC cards, or manual, with LED display | | |
| Finishing | Sand blasting, Zinc spray, then Surface painting for protection | | |

Operation and Control

There are two ways to operate the lift:

Manual by button: enter the Num. of parking space and "RUN"

IC card: Per space is equipped with a specific IC card. Swipe the card on the control panel to park or retrieve your own car.



The system is controlled by PLC system. Component is mainly from OMRON or Schneider. It can control several units and park or retrieve cars automatically.

Container Loading



Model
BDP Series

Container Loading
17 parking spaces/40ft Open Top Container



Sandblast

Zinc Spray

Paint Spray

Drawing

BDP-2

MUTR ADE
QINGDAO MUTR ADE CO., LTD.

TP1P-2

TPP-2

FSP-4

FPP-2

BDP-3

PPP-3

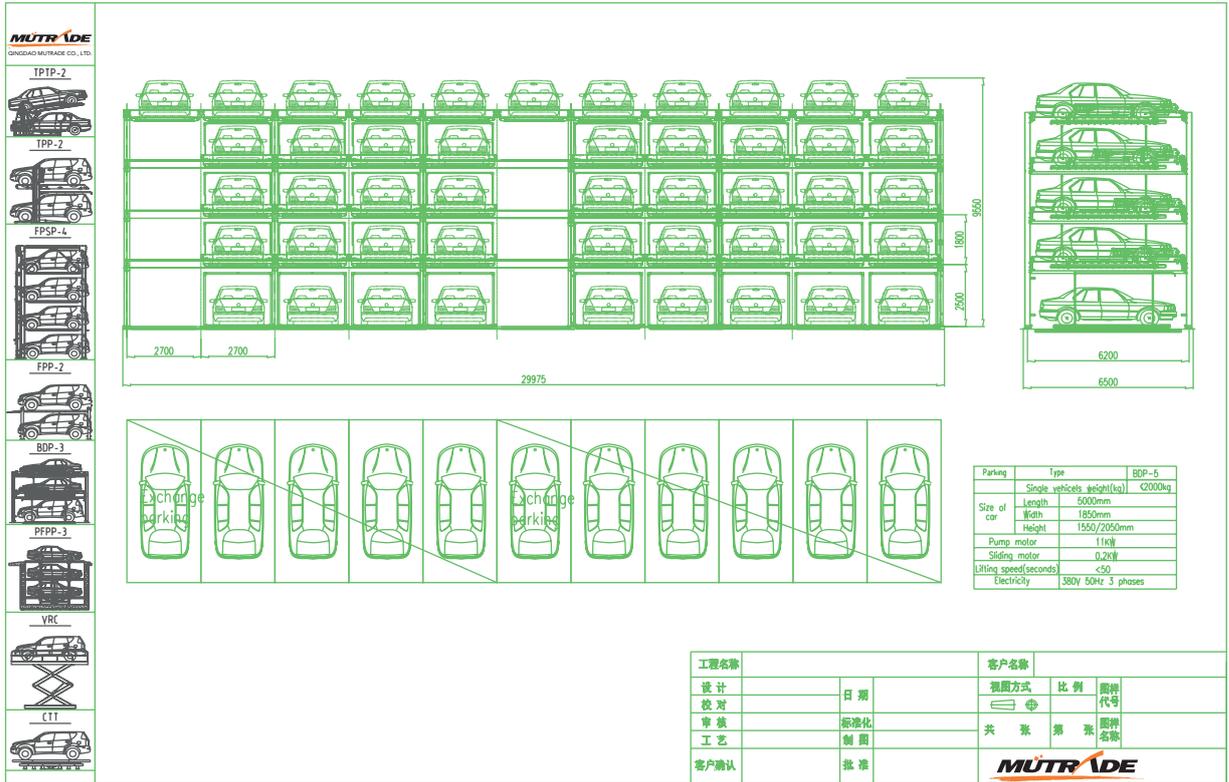
VRC

CTI

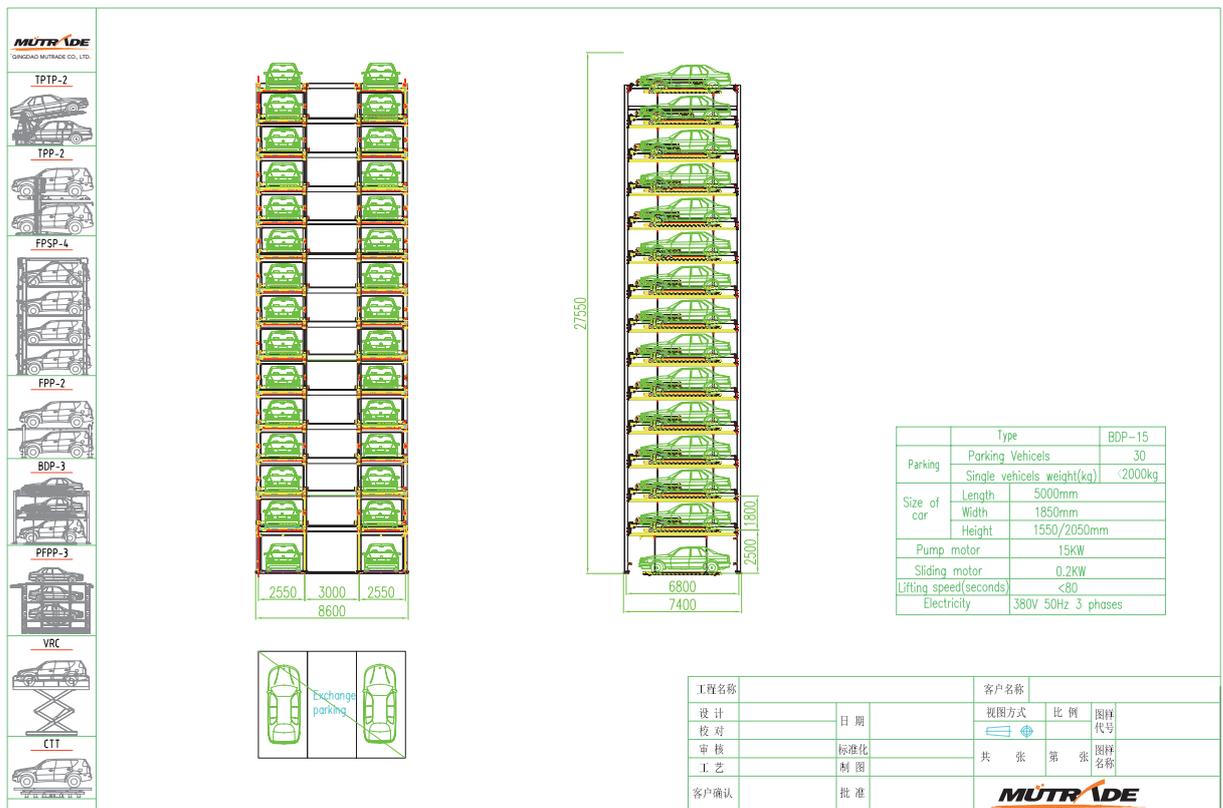
| | | Type | BDP-2 |
|------------------------|----------------------------|--------------------|-------|
| Parking | Parking Vehicels | 5 | |
| | Single vehicels weight(kg) | <2000kg | |
| Size of car | Length | 5000mm | |
| | Width | 1850mm | |
| | Height | 1550/2050mm | |
| | Pump motor | 4KW | |
| | Sliding motor | 0.2KW | |
| Lifting speed(seconds) | | <35 | |
| | Electricity | 380V 50Hz 3 phases | |

| 工程名称 | | 客户名称 | | |
|------|-----|-----------------|----|------|
| 设计 | 日期 | 视图方式 | 比例 | 图样代号 |
| 校对 | | 共 | 张 | 第 |
| 审核 | 标准化 | 共 | 张 | 第 |
| 工艺 | 制图 | 共 | 张 | 第 |
| 客户确认 | 批准 | MUTR ADE | | |

BDP-5



BDP-15



BDP-1+2



BDP-3+5



Maintenance

Maintenance should be according to the working frequency of the parking equipment.

1) Daily maintenance and check: The user or operator should responses the daily maintenance and check.

The platform and parking ground should be kept clean and clear;

Clear the surface of the moving parts;

If there is any abnormal noise, please inform the maintainer;

2) Regular maintenance and check: Professional maintainer should do regular maintenance and check, and details as per the table below.

According to the operation principle of our parking system, the periodical maintenance should be fulfilled as per the following four types:

A. Monthly inspection and maintenance

It should be done every two weeks after project starts to operate within the first three months.

The equipment and safety devices should be clean, lubricated adjusted inspected. Especially, please pay more attention on the working status of main safety devices, careful inspection is necessary and please fix any problem found out in the earliest time.

Do inspection on every lubrication parts, and lubricate it if needed.

B. Quarterly inspection and maintenance

It should be done every three months after first moths end.

All the transmission parts (steel cables, limit switches, motor in power pack, pulleys, guiding rails, etc.), safety devices and electrical control system should be inspected completely, and do necessary adjusting or fixing work if needed.

C. Yearly inspection and maintenance

A technical inspection of whole equipment (including earth connection and withstand voltage of electrical parts, etc.) should be done every year, and customer need make estimation on working status of equipment and annual maintenance plan, fix and replace the worn parts.

D. Adjusting test

The adjusting test with loading should be done every two years. The equipment could start to operate only after careful inspection on whole system if there is long time stop or any earthquake, fire happening.

| Malfunction phenomenon | Reason caused | Eliminated methods |
|---|---|---|
| The whole equipment can't work | <ol style="list-style-type: none"> 1. Unusual electricity supply, wrong voltage or wrong phase order. 2. The photoelectric checking device is covered or blocked. 3. Cross transfer doesn't work. The up terminal stopping switch is not in the position; Falling doesn't work. The cross transfer is not in the regulated position. | <ol style="list-style-type: none"> 1. Check the electricity supply and adjust to a formal status. 2. Remove the obstacles. 3. Find out the unreached terminal stopping position. Adjust it to the regulated position manually. |
| The noise of oil pump is too large | <ol style="list-style-type: none"> 1. The oil collecting pipe is not sealed tightly with air in. 2. The hydraulic pressure oil is not enough in the oil tank. 3. The filter surface is blocked by dusts. | <ol style="list-style-type: none"> 1. Seal the oil entrance pipes. 2. Fill in the oil to the level above the oil standard line. 3. Clear the filter. |
| Unsteady operation of the loading board | <ol style="list-style-type: none"> 1. The air enter into the oil cylinders causes shaking of the cylinders. 2. Improper adjustment of the stabling steel rope causes severe attrition. | <ol style="list-style-type: none"> 1. Find out and remove the malfunctions by air entered. Remove the air releasing bolt of oil cylinder to release the air 2. Adjust the stability steel rope. |
| Inaccurate stop position of the loading board | <ol style="list-style-type: none"> 1. The installation position of the jointing point of the loading board space switch is not correct. 2. The computer controlled time is not in accordance with the car case going time | <ol style="list-style-type: none"> 1. Adjust the journey switch position. 2. Change the lifting speed through adjusting the flow amount of the car case. |
| Slope of the loading board | Improper adjustment of the stability steel rope. | Adjust the stability steel rope |
| The loading board can't lift up | <ol style="list-style-type: none"> 1. The oil pump doesn't work. 2. The lifting steel rope is broken. 3. The oil pump pressure is not enough 4. The pressure limit valve doesn't work or the pressure is adjusted too low. 5. The electromagnetism valve doesn't work. 6. Other reasons. | <ol style="list-style-type: none"> 1. Check if the electric motor works formally and if the coupling is damaged. 2. Change the lifting steel rope. 3. Check the oil pump bearing and check if the sealing surface clearance is too large, then repair them. 4. Check the pressure limit valve and adjust the controlling pressure. 5. Check the direction changing valve. 6. Confirm the loading weight of the car case is not more than 2 ton. |

1. Could BDP be used outdoor?

Yes. Firstly, the finishing of structure is zinc coating with a better water-proof. Secondly, extra covers could be installed to prevent from rain, snow, and heavy wind.

2. Could BDP series be used for parking SUV?

BDP series could be customized to fit for SUV, for detailed requirements please contact Mutrade sales.

3. What's the voltage requirement?

The standard voltage should be 380v, 3P. Some local voltages could be customized according to clients' request.

4. Can this product still operate if electricity failure happens?

No, if electricity failure happens often in your place, you have to have a back-up generator to supply power.

5. Can BDP series installed by customer themselves?

If you're new for our BDP series, we recommend sending our engineer to guide the installation.

Warranty policy

MUTRADE's parking equipment has a 5 years warranty on structure, and first year warranty on the whole machine. Within the warranty period, Mutrade is responsible for the parts and structure, not including labor nor any other cost unless pre-agreed.

Power units, hydraulic cylinders, and all other assembly components such as slip plates, cables, chains, valves, switches etc, are warranted for one year against defects in material or workmanship under normal use. MUTRADE shall repair or replace at their option for the warranty period those parts returned to the factory freight prepaid which prove upon inspection to be defective. MUTRADE will not be responsible on any labor costs unless pre-agreed. Mutrade will not responsible for the modification or upgrade of the product from the client unless pre-agreed.

These warranties do not extend to...

- defects caused by ordinary wear, abuse, misuse, shipping damage, un-proper installation, voltage or lack of required maintenance;
- damages resulting from purchaser's neglect or failure to operate products in accordance with instructions provided in the owner's manual(s) and/or other accompanying instructions supplied;
- normal wear items or service normally required to maintain the product in a safe operating condition;
- any component damaged in shipment;
- other items not listed but may be considered general wear parts;
- damage caused by rain, excessive humidity, corrosive environments or other contaminants;
- any change or modification made to the equipment without pre-agreed;

These warranties do not extend to any cosmetic defect not interfering with equipment functionality or any incidental, indirect, or consequential loss, damage, or expense that may result from any defect, failure, or malfunction of a MUTRADE product or the breach or delay in performance of the warranty.

This warranty is exclusive and in lieu of all other warranties expressed or implied.

MUTRADE makes no warranty on components and/or accessories furnished to MUTRADE by third parties. These are warranted only to the extent of the original manufacturer's warranty to MUTRADE. Other items not listed but may be considered general wear parts.

MUTRADE reserves the right to make design changes or add improvements to its product line without incurring any obligation to make such changes on product sold previously.

Warranty adjustments within the above stated policies are based on the model and serial number of the equipment. This data must be furnished with all warranty claims.

Important notice

About the customized size:

If the size of the platform need to be customized based on customer require, difficulties might arise when entering or exiting the cars on the parking units. This depends on car type, the access and the individual driving behavior.

Operating device:

The position of the operating device depends on the project (switch post, house wall). From bottom of the shaft to the operating device an empty pipe DN40 with taut wire is necessary.

Temperature:

The installation is designed to operate between -30°to +40°C. Atmospheric Humidity: 50% at +40°C. If the lol circumstances differ from the above please contact MuTrade.

Illumination:

Illumination has to be considered acc. to local requirements by client. Illumination in the shaft for maintenance is required to be minimum 80 Lux.

Maintenance:

Regular maintenance by qualified personnel can be provided by means of an Annual Service Contract.

Protection against corrosion:

Independent of a maintenance workings has to be carried out acc. to MuTrade Cleaning and Maintenance Instruction regularly. Clean up galvanized parts and platforms of dirt and road salt as well as other pollution (corrosion danger)! Pit must be always ventilated well.

Project Reference

