# B-CORE
## COMFORT MRL

PAULSCHAAB
ELEVATOR TECHNOLOGY

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Machine Roomless Elevator

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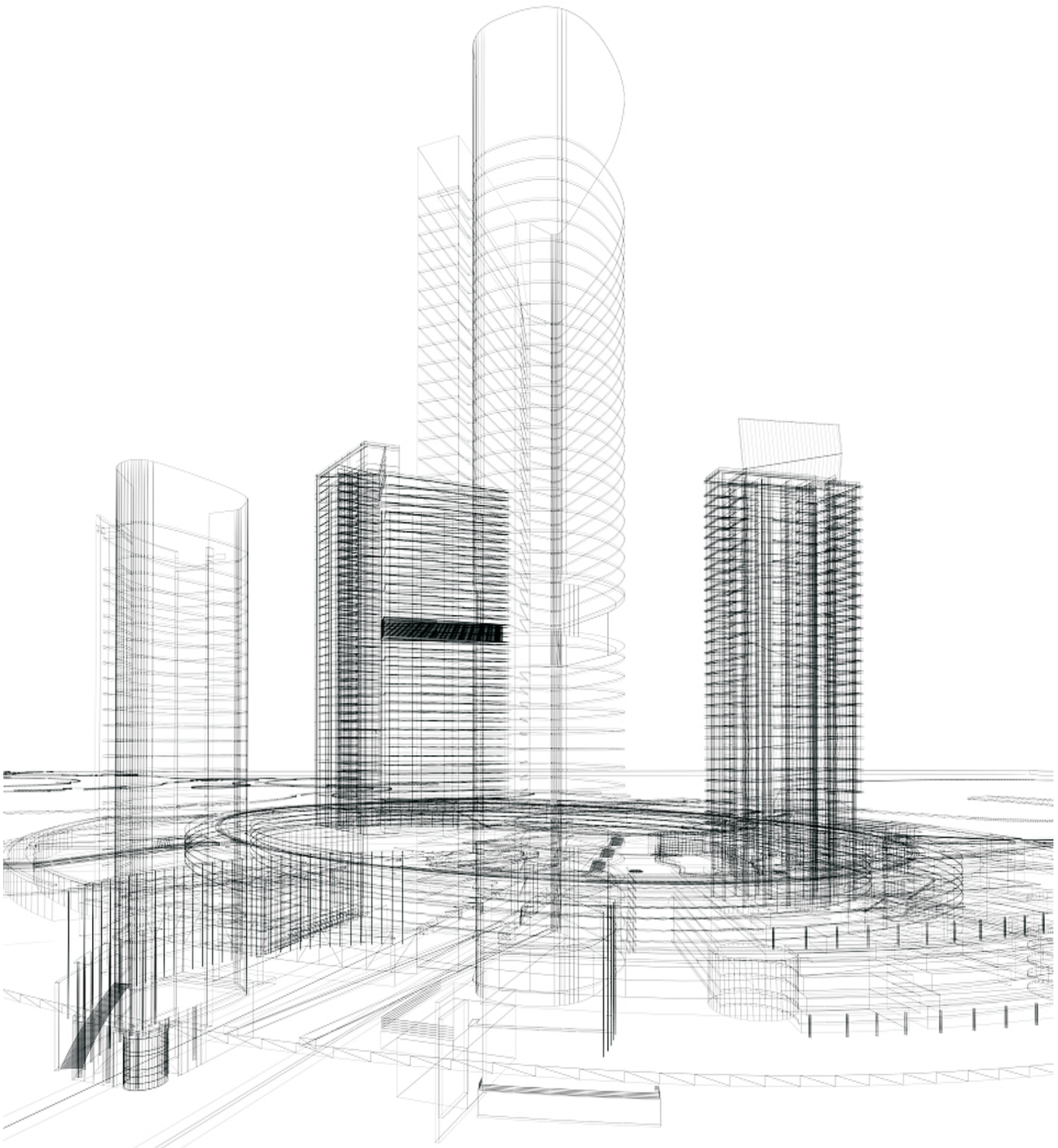



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# Innovation Pays Tribute to Design

## Pay Tribute to Architects for a Better Life

PaulSchaab Elevator Machine Roomless Elevator is a leading technology that combines people-oriented design concepts to improve the utilization of the hoistway, reduce the overhead height and pit depth, meanwhile meeting the requirements of safety and comfort, providing flexible building vertical traffic solutions for architectural design.

# Space Saving, Flexible Layout

## The minimum overhead height is 3500mm, and the smallest pit depth is 1100mm

It meets the minimum overhead height of 3,500 mm and the smallest pit depth of 1,100 mm, saving construction costs and perfecting the architectural space aesthetics.

**3500mm**
Minimum overhead height

**1100mm**
Smallest pit depth

## High hoistway utilization and smaller footprint

The B-CORE COMFORT hoistway has high utilization rate, greatly improving utilization of building space and giving more freedom to building design.

## Flexible layout reduces construction costs

Flexible layout reduces overhead height and pit depth, making civil construction more flexible, effectively reducing construction costs, modern architecture wisdom preferred.

## Easy installation and improved efficiency

The B-CORE COMFORT machine roomless elevator is structurally compact and light, easy to install and maintain, improves installation efficiency.

**Car height: 2.2 meters (1.0m/s)**




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# Careful and Comfortable

Intelligent light curtain

Direct docking

Noise reduction device

## Intelligent light curtain configuration to protect passengers safely on delivery

Adhering to the "people-oriented" design philosophy, barrier-free concept is subtly influenced by industrial details. JOYMORE-7 forms a dense infrared cross-light curtain at the entrance of elevator, which can respond sharply to people or objects entering its detection area to protect passengers boarding safely.

## Direct docking technology for smooth and comfortable operation

Passengers walk out of car as on flat land, direct docking, accurate positioning, to ensure elevator stay in optimal operation at all times, creating a free and comfortable living space.

## Noise reduction device, quiet and comfortable ride experience

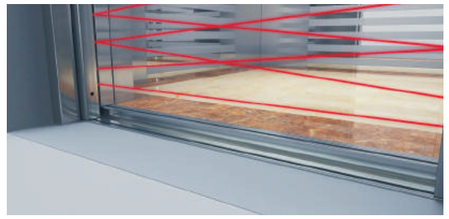
Strictly selected materials, innovative technology, non-contact magnetic induction technology, eliminate collision noise of terminal station switches, achieve forced speed change without noise and vibration, noise reduction device to create quiet and comfortable ride.



# Safety Escort, Human Experience

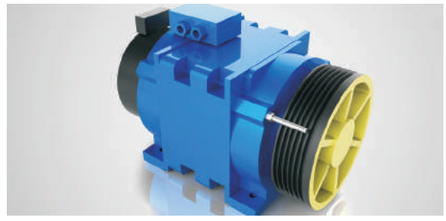
## UCMP function to prevent accidental movement of car

Car accidental movement protection device prevents car from accidentally moving without command in door opening area to protect passengers safely.



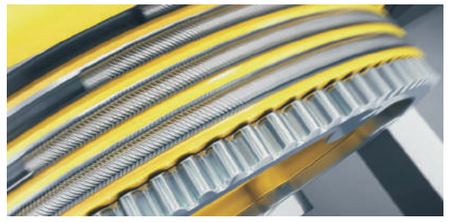
## CANBUS serial communication to improve elevator stability

Extensive application of CANBUS communication technology in aviation and automotive industries, comprehensively enhance the system response speed and stability, and control system efficiently and stably.



## Traction rope anti-loose detection, provides better security guard

Traction rope anti-loose detection device detects whole process timely, when the traction rope is slack, elevator stops running immediately to ensure safe ride.



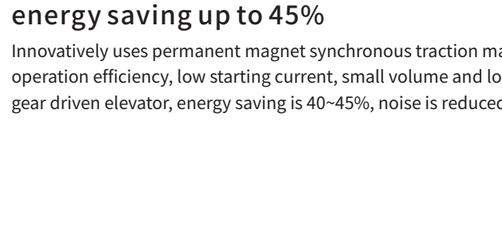
## Intelligent maintenance, safe medical examination

Detect elevator operation and provides protection in whole process. Intelligent safety system accurately records fault and informs fault code to improve maintenance efficiency and bring convenience to maintenance staff.

# Energy Efficient, Green Living

## German TüV energy efficiency certification, leading low carbon life

German TüV energy-saving energy efficiency test and evaluation, obtained VDI 4707 PART1 highest level A-level energy-saving certification, achieved elevator energy-saving pioneer, leading low-carbon life.




## EU electromagnetic compatibility EMC standard, safety and intimate protection

Electromagnetic compatibility means that electronic equipment does not cause electromagnetic interference to other equipment during operation. EU CE certification, meet EMC's electromagnetic compatibility and environmental protection standards, low radiation without electromagnetic pollution, offering passengers green security protection.

## Intelligent control system saves more energy

PaulSchaab Elevator GmbH responds to green environmental protection requirement. When no one is taking the elevator, the intelligent control system can automatically switch the lighting and ventilation to standby mode to create a green-driven elevator.

## Energy feedback system (Optional)

Energy feedback system can be customized to input electric energy from the motor into grid or to other electrical equipment to use, which can save more than 30% energy. Meanwhile, energy feedback system extends service lifespan of elevator other electrical equipments and can reduce temperature of machine room.

## Environmentally friendly drive system, energy saving up to 45%

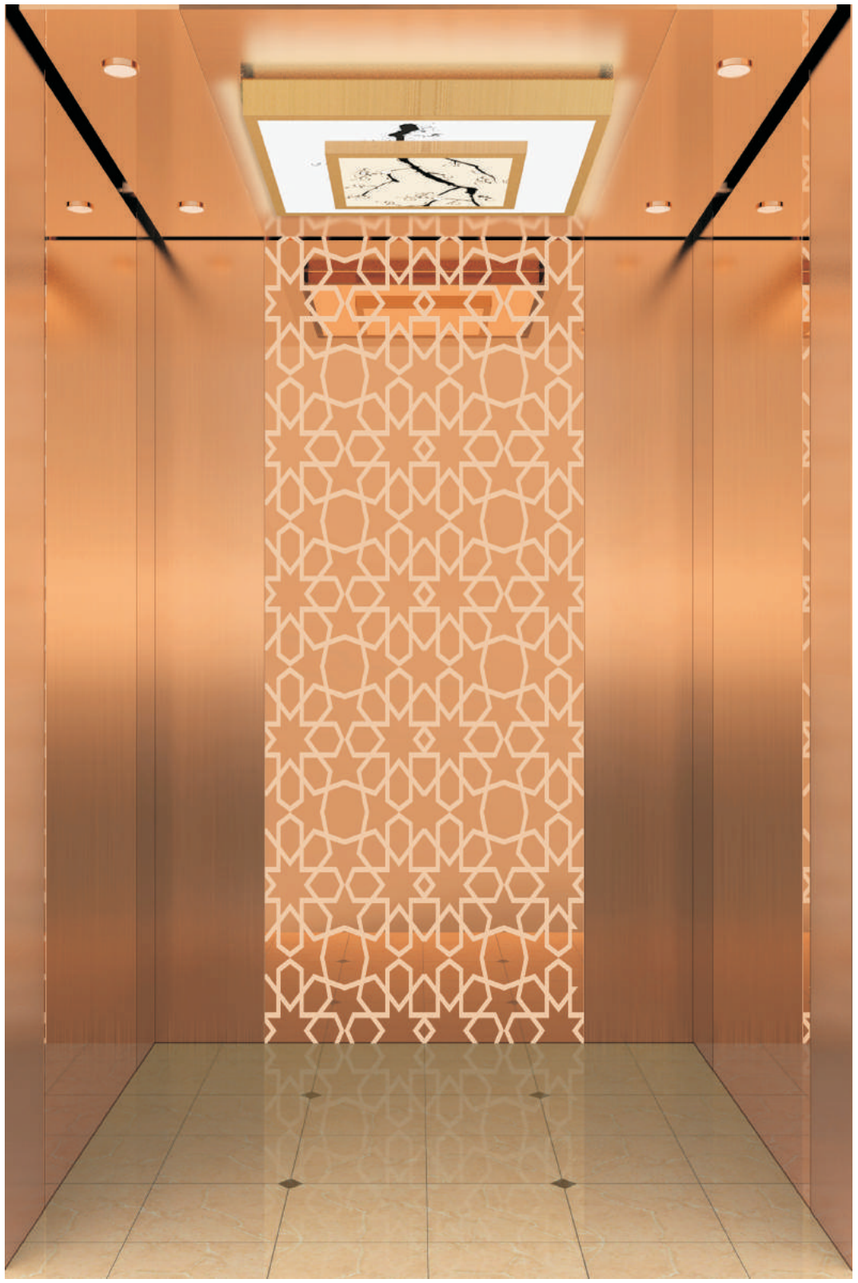
Innovatively uses permanent magnet synchronous traction machine to drive elevator to improve operation efficiency, low starting current, small volume and low noise. Compared with the worm gear driven elevator, energy saving is 40~45%, noise is reduced by 5~10dB(A).

# Standard Configuration

Enjoy a different space experience while being comfortable and warm, clean, tidy and easy to maintain.

## CAR 0711

COP：COP34-00 Hairline stainless steel / dark gray plexiglass / white dot matrix display
Ceiling：C60-00 Hairline stainless steel / LED ceiling light
Car wall：CW03-00 Hairline stainless steel
Car door：L01-00 Hairline stainless steel
Floor：F01-00 Wear-resistant PVC



## CAR90-06(Optional)

Ceiling: C61-05 Hairline stainless steel plated rose gold / mirror stainless steel plated rose gold / LED ceiling light / antique ceiling lamp
Car wall: CW04-08 Hairline stainless steel plated rose gold on both walls of side wall/ intermediate mirror stainless steel plated rose gold
Hairline stainless steel plated rose gold on both walls of back side/ intermediate mirror stainless steel etched rose gold on both sides of the back wall
Front wall hairline stainless steel plated rose gold
Car door: L01-09 Hairline stainless steel plated rose gold
Floor: F01-10 Wear-resistant PVC

Note: Antique ceiling lamps are seasonal and popular products. Specific styles are subject to popular styles in the current market.
There is a slight difference between the physical objects and the effects. The final interpretation right belongs to our company.



## CAR80-02(Optional)

Ceiling: C99-09 Hairline stainless steel / LED ceiling light / mirror stainless steel etching
Front wall: Hairline stainless steel
Side wall: CW01-05 Two-sided hairline stainless steel / intermediate mirror stainless steel etching
Rear wall: Two-sided hairline stainless steel / intermediate mirror stainless steel etching
Car door: L01-00 hairline stainless steel
Floor: F01-01 Wear-resistant PVC

# Decoration Configuration

## COP, Display, HOP (Standard +Optional Configuration)


**COP34-00**
**(Standard configuration)**

Panel: Hairline Stainless Steel
Display: White dot matrix


**COP35-00**
**(Optional configuration)**

Panel: Hairline Stainless Steel
Display: White segment code LCD


**LCDP070 (Optional Configuration)**

Picture machine LCD display
Display size: 7 inches (154*86mm)


**HOP37-00**
**(Standard Configuration)**

Panel: Hairline Stainless Steel
Dark grey plexiglass
Display: White dot matrix


**HOP38-00**
**(Optional configuration)**

Panel: Hairline Stainless Steel
Dark grey plexiglass
Display: White segment code LCD


**HOP39-00**
**(Optional configuration)**


**HOP41-00**
**(Optional configuration)**



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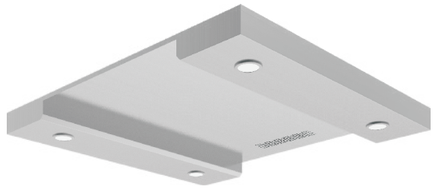
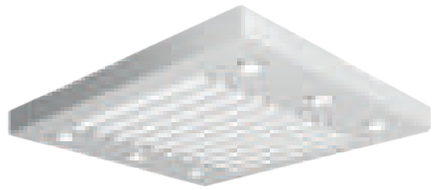
## Ceiling(Standard +Optional Configuration)

Use the following ceiling style, hoistway overhead height should be ⩾3700mm



**C22-00** Hairline stainless steel / LED ceiling light

**C17-00** Hairline stainless steel / Acrylic light transmission column / PC light transmission board



**C08-00** Hairline stainless steel/LED ceiling light /Translucent Acrylic Tubes

**C99-09** Hairline stainless steel/LED ceiling light /mirror stainless steel etching

**C16-00** Hairline stainless steel / PC light plate / LED ceiling light

**C21-00** Hairline stainless steel / Translucent Acrylic Tubes / LED ceiling light

## PVC Floor (Standard +Optional Configuration)

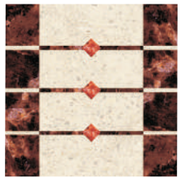


**F01-00(Standard)**

**F01-03(Optional)**

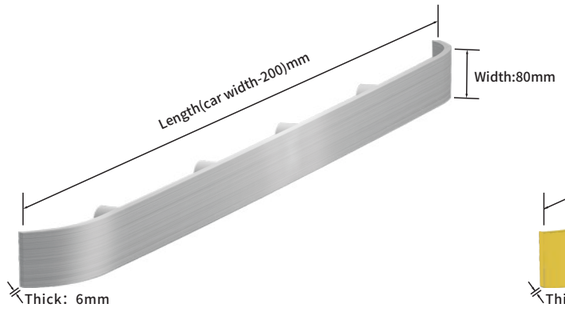
**F01-04(Optional)**

**F01-05(Optional)**

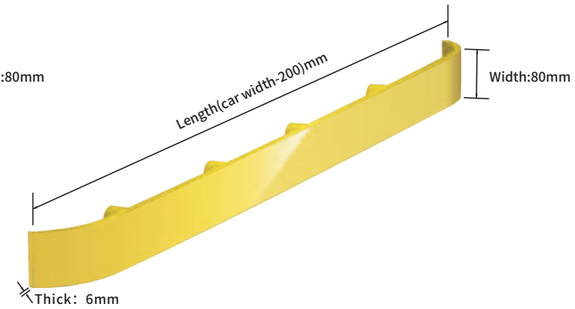


**F01-07(Optional)**

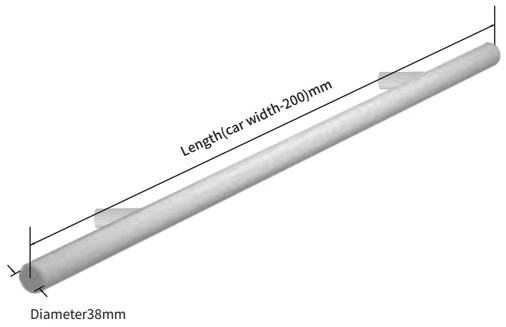
## Handrail (Optional Configuration)



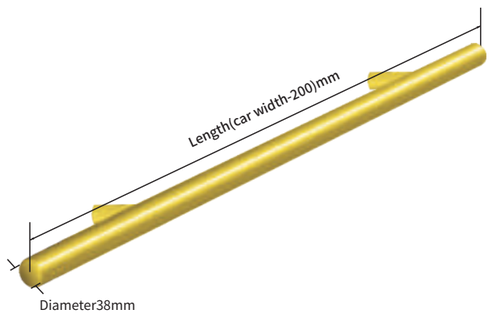

**H01-00 (Flat elbow handrail)** Hairline stainless steel
**H01-01 (Flat elbow handrail)** Mirror stainless steel



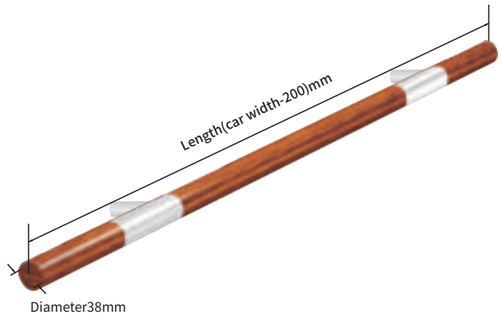

**H01-02 (Flat elbow handrail)** Titanium mirror stainless steel



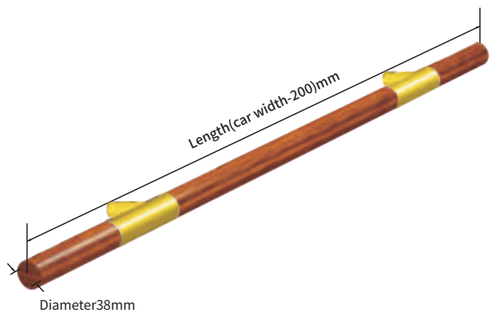

**H05-00 (Cylindrical handrail)** Hairline stainless steel
**H05-01 (Cylindrical handrail)** Mirror stainless steel




**H05-02 (Cylindrical handrail)** Titanium mirror stainless steel




**H06-00(Wooden cylindrical handrail)**
Black walnut wood cylinder+ Mirror stainless steel bracket




**H06-01(Wooden cylindrical handrail)**
Black walnut wood cylinder + titanium mirror stainless steel bracket



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## Landing Door and Jamb (Standard+ Optional Configuration)

Landing door:**L01-00 (Standard)** Hairline stainless steel (first floor )
**L01-05 (Standard)** Steel plate sprayed matt grey(other floor)
Jamb: **LDJ01-00(Standard)** Hairline stainless steel (first floor)
**LDJ01-01(Standard)** Steel plate sprayed matt grey (other floor)

Landing door: **L02-02 (Optional)** Mirror stainless steel etching
Jamb: **LDJ01-00 (Standard)** Hairline stainless steel

Landing door: **L02-06 (Optional)** Mirror stainless steel etching
Jamb: **LDJ01-00 (Standard)** Hairline stainless steel

Landing door: **L02-02(Optional)** Mirror stainless steel etching
Jamb: **LDJ01-00(Standard)** Hairline stainless steel

# BASIC FUNCTION

## Operation Function

| | | |
|---|---|---|
| 01 | Full Selective Collection | Collect at the calling signals to answer selectively based on the signal control system |
| 02 | Full Load By-pass | No response to the hall calling signal when the lift is at full load in automatic mode, but only answers the car calling signal |
| 03 | Car Call Reset | Double click the COP button to cancel the wrong command to achieve car call reset |
| 04 | Door Open / Close Button | Micro buttons on the cop to control the door open/close so that passengers could handle the open /close timing flexibly |
| 05 | Door Open /Close Button Light | Door open/close button light lights up to indicate the successful answer |
| 06 | Resume Operation in Power Supply | When the position signal is failed to retain or not sure about the elevator position after a power failure, the elevator would go to the end floor to re-position and be back to normal running |
| 07 | Automatic Home Landing | The elevator would be back to base floor to stand by under automatic condition if there is no calling command within the setting time |
| 08 | Anti-nuisance Car Call Protection | The computer detects the load and number of car calling registration then judges the command by logic. All signals will cancel if the command is not quite normal |
| 09 | Door Reopening by Landing Call | Push the HOP button same as the elevator going direction when the door is closing, then the door will reopen |
| 10 | Torque Compensation in Start | The system will calculate as per the load in elevator and optimize the torque compensation to give more comfort when the elevator starts |
| 11 | Direct Landing Technology | Micro-computer controller automatically calculates the optimum speed profile according to the target floor distance and directly lands without crawling |

## Safety Function

| | | |
|---|---|---|
| 12 | Safety Loop Protection | When the elevator falls, elevator microcomputer control system will report the fault code based open the preset fault code to bring convenience to maintenance staff |
| 13 | Absent or Mistaken Epsilon Phase Device | When the power supply is off phase or phase sequence is wrong, system safety circuit will be disconnected and the elevator will stop running |
| 14 | Overload Protection | When the car is loaded beyond the rated load, overloading buzzer will sound to alert. At this moment, the door is not closing and the elevators is not working |
| 15 | Safety Curtain with Multiple Light Beams | System forms dense infrared across the door. When a person or object enters the detection area, the system will response sharply in order to protect passengers from the risk of door |
| 16 | Door Reverse | The door is subjected to a reverse resistance exceeding the preset torque value when it is closing, the elevator will reopen |



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# BASIC FUNCTION

## Safety Function

| | | |
|---|---|---|
| 17 | Door Interlock Protection | When the landing door and car door are both in normally closed status, the elevator will operates normally only when the control system judges the elevator is normal |
| 18 | Landing Zone Guard | For safety reason, the car door cannot open in the non-leveling area |
| 19 | Downward Over Speed Protection | When the downward speed of elevator exceeds a specified speed, the governor will take action and the safety circuit will be cut off while safety gear brakes, then the car stops on the guide-rail |
| 20 | Upward Over Speed Protection | When the upward speed of elevator exceeds a specified speed, the governor will take action and the safety circuit will be cut off while the action machine brakes, then the car stops |
| 21 | Reversal Movement Guard | When the system detects the actual running direction is inconsistent with the specified direction, the car stops immediately and alarms |
| 22 | Brake Guard | Brake relay signals are being monitored in the entire process, when the brake relay finds the actual states is inconsistent with the specified command, the system will stop the elevator operating |
| 23 | Contractor Non-releasing Protection | No matter the elevator is running to the terminal station and the operating speed is not reduced to a preset value, the system will be forced to slow down to ensure the safe operation of elevator |
| 24 | Speed Limited Switching in Terminator | When the elevator passes over the terminal nation and the operating state, the system will output the contractor condition. Once, the contractor is in abnormal state, the system will stop the elevator operating |
| 25 | Buffer Safety Protection | When the elevator passes over the terminal floor for some reason, car buffer and counterweight buffer will star the protection and the safety circuit will be cut off in the meantime |
| 26 | Microcomputer self-check Protection | The system scans the input and output points of controller before the start of elevator. The elevator will stop starting if the data is abnormal |
| 27 | Anti-locked-rotor Feature of Motor | If the traction machine does not run due to mechanical jamming when the elevator is starting operating and it exceeds the preset timing, the system will stops the elevator operating |
| 28 | Fault Storage | The computer stores the accidental record of elevator. It can be supplied to elevator manufacturers and maintenance staff for statistical analysis |
| 29 | Star Closure Method | When the brake fails and leads to an unintended movement of elevator, the three-phase winding of the permanent magnetic synchronous motor will be in short circuit and turn to power generation state. It drives the elevator running at the speed of 0.1m/s and eliminates the risk of high-speed slip to ensure the safety of passengers |
| 30 | Hoisting Rope Anti-loose Detection | The hoisting rope is under real-time detection during the elevator operation and when single or multiple hoisting ropes are detected to be stack relaxation, the elevator stops immediately |
| 31 | Hoisting Rope Anti-loose Detection | The hoisting rope is under real-time detection during the elevator operation and when single or multiple hoisting ropes are detected to be stack relaxation, the elevator stops immediately |
| 32 | Brake Monitoring Device | Brake monitoring device detects if the left and right sides of the brake action are consistent or reliable If they are inconsistent or unreliable, the control system will automatically report to the brake fault detection , so that the motor stops running to prevent the traction machine brake failure |
| 33 | UCMP | When the elevator is stopping at the leveling floor and the landing door or the car door is not totally closed, the car is unintended moving t and leaves the lock open area, then the elevator is forced to stop if the UCMP dashboard detects danger signals so that it protects the passengers |

# BASIC FUNCTION

## Special Operation

| | | |
|---|---|---|
| 34 | Attendant Operation | By opening the switch in COP, the elevator will be turned into the attendant operation state so the driver may manage the number of passengers in the car, hall call response and opening/closing doors |
| 35 | By-pass Switch | After entering the driver operation state, pressing by-pass button before the start, the elevator does not respond external call in the next course of operation, and goes straight to the floor with the registration by drivers operating instructions in the car |
| 36 | Buzzer | When the elevator is the drive operation state, buzzer will sound to alert the drives that someone is calling if it is registered by external call |
| 37 | Independent Service | The dedicated operation function, when the elevator no longer responds to the call signal outside the hall, but can only be manually controlled to open and close the door |
| 38 | Main Floor Setting | According to site requirements by setting the main station based on basic parameters, the elevator will return to the preset floor when it exceeds a specified timing without any operations |
| 39 | Firefighting Floor Settings | According to site requirements by setting fire man service floor based on the basic parameters, the elevator will land to the preset floor when inputting the fireman service signal |
| 40 | Inspection Operation | Pressing direction buttons on the junction box at car top to control the elevator to go forwards the direction selected or opening 、 closing buttons to control the operation of doors makes the maintenance faster and more convenient |
| 41 | Flexible Car Park Set | Clients can decide the elevator stops or not on a specified floor |

## Interface

| | | |
|---|---|---|
| 42 | LED Display Inside the Car | LED simply on the COP shows the information about floors and directions |
| 43 | Hall LED Display on the First Floor | Hall LED display shows the information about floors and directions |
| 44 | Floor Mark Flexible Set | The type of words special floors can be customized regarding to the requirements |
| 45 | Arrival Chime | Arrival chime will sound when the elevator is arriving at a certain floor |
| 46 | Braille button | Braille buttons are used in the control panel and buzzer of the car for the convenience of the blind and the passengers with poor eyesight |

## Emergency Function

| | | |
|---|---|---|
| 47 | Car Alarm | For passengers to notify outside world in time by connecting alarm button in the car under special circumstances |
| 48 | Emergency Lighting | Emergency lighting devices installed in car will be used when power failure occurs |
| 49 | Inside Call Device | Realize five-way communication among car, bottom pit, car roof, engine room and monitoring center. Customers provide cable from the monitoring center to the first floor of the elevator Specification：4x0.75mm² (for distances less than 1800m) |



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# BASIC FUNCTION

## Emergency Function

| | | |
|---|---|---|
| 50 | Fire Emergency Landing | Elevator will cancel all calling signals and go straight to the fire man service floor after receiving the fire signal. It will also keep the door opening and wait for the operation of fire man. It will return to normal use when the fire signal is canceled |
| 51 | Fire Emergency Landing Feedback | The system will give a signal to the management center to indicate the elevator has received the fire signal and is waiting for the operation of firemen after the elevator receiving the fire signal and being back to the fire man service floor |
| 52 | Emergency Rescue | When the safety gear, oil buffer ,upper limit switch, lower limit switch and governor take action, operating the emergency rescue function in the control panel makes the elevator run slowly in order to swiftly save people |

## Energy Saving Function

| | | |
|---|---|---|
| 53 | Parking Service | The parking stop switch, when the key switch is set on the designated floor, the elevator will return to the lock landing after answering all the instructions, and close the door to enter the energy-saving state |
| 54 | Energy Standby | Under the circumstance without any operation instructions, the elevator will enter automatic turn on/off mode within the preset timing and closing door, turning off the lights and fans inside the car |

# OPTIONAL FUNCTION

## OPTIONAL FUNCTION

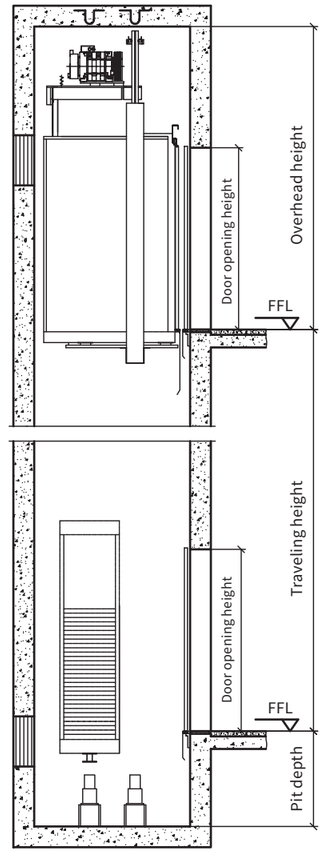
| | | |
|---|---|---|
| 01 | Voice Announcement | Voice announcement will sound when the elevator arriving at station |
| 02 | Auto Rescue Device | When the elevator suddenly stop during normal operation, the device immediately work and drive elevator slowly operate to the nearest floor, then elevator open door to rescue passenger |
| 03 | Power Regeneration Device | Elevators' reciprocating lifting and repeated braking respectively result in an elevator potential energy and kinetic energy released. When using power regeneration device, the release or potential energy and kinetic energy from elevator are converted to electrical energy in phase with the same frequency, then they feedback to the grid so as to achieve energy-saving purpose |
| 04 | Multiple Operation | When two elevators are using together, achieving co-ordination of hall call instructions to improve operational efficiency via serial communication to transfer data |
| 05 | Group Control Operation | Group control system is capable of 3 to 8 elevators for centralized control, so the elevator group can automatically select the most appropriate response, to avoid repeating the stops of elevator and to shorten the waiting time of passengers, improving operational efficiency, saving energy |
| 06 | Monitoring system | A microcomputer intelligent management system that can comprehensively monitor the elevator in community and provide the data to building functional management |
| 07 | IC Card Management | passengers can only call the elevator by swiping the card (authorized by the elevator owner) |
| 08 | Sub-COP | It is convenient for passengers to choose floor in the cabin |

# Technical Specification

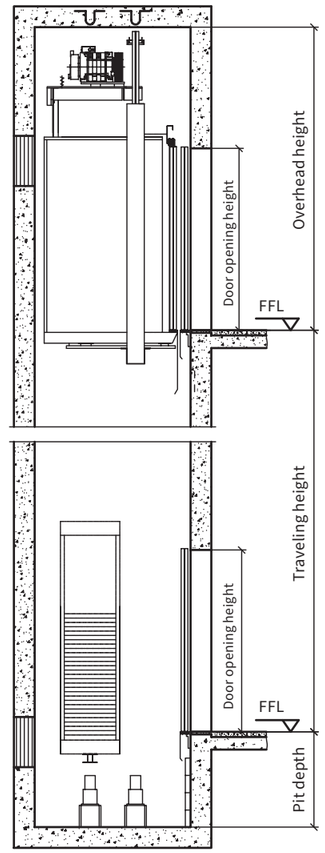
| NO. | Specification | | 450 | | | 630 | | | 800 | | | 1050 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | Capacity(kg) | | 450 | | | 630 | | | 800 | | | 1050 | | |
| 02 | Speed(m/s) | | 1.0 | 1.6 | 1.75 | 1.0 | 1.6 | 1.75 | 1.0 | 1.6 | 1.75 | 1.0 | 1.6 | 1.75 |
| 03 | Operation System | | Full collective selection operation | | | | | | | | | | | |
| 04 | Driving System | | VVVF Driving | | | | | | | | | | | |
| 05 | Door Operator System | | VVVF Door Control | | | | | | | | | | | |
| 06 | Traction machine | | PM/Gearless | | | | | | | | | | | |
| 07 | Control System | | CTRL80 | | | | | | | | | | | |
| 08 | Communication | | Serial Communication | | | | | | | | | | | |
| 09 | Central Opening Width Car | Car Size(mm) (width*depth*height) | unsuitable | | | 1100*1400*2200 | | | 1350*1400*2200 | | | 1400*1600*2200 | | |
| | | Opening Size(mm) (width*height) | unsuitable | | | 800*2100 | | | 800*2100 | | | 900*2100 | | |
| | | Shaft Size(mm) (width*depth) | unsuitable | | | 1770*1800 | | | 1920*1800 | | | 2000*2000 | | |
| 10 | Central Opening Deep Car | Car Size(mm) (width*depth*height) | unsuitable | | | unsuitable | | | unsuitable | | | 1100*2100*2200 | | |
| | | Opening Size(mm) (width*height) | unsuitable | | | unsuitable | | | unsuitable | | | 800*2100 | | |
| | | Shaft Size(mm) (width*depth) | unsuitable | | | unsuitable | | | unsuitable | | | 1800*2500 | | |
| 11 | Side Opening | Car Size(mm) (width*depth*height) | 1000*1200*2200 | | | 1100*1400*2200 | | | 1350*1400*2200 | | | 1100*2100*2200 | | |
| | | Opening Size(mm) (width*height) | 800*2100 | | | 800*2100 | | | 900*2100 | | | 900*2100 | | |
| | | Shaft Size(mm) (width*depth) | 1570*1600 | | | 1670*1800 | | | 1920*1800 | | | 1700*2500 | | |
| 12 | Travel Height(m) | | ⩽45 | ⩽75 | | ⩽45 | ⩽75 | | ⩽45 | ⩽75 | | ⩽45 | ⩽75 | |
| 13 | Motor Position | | Inside the shaft | | | | | | | | | | | |
| 14 | Overhead Height(mm) | | 3500 | 3700 | | 3500 | 3700 | | 3500 | 3700 | | 3500 | 3700 | |
| 15 | Pit Depth(mm) | | 1100 | 1230 | | 1100 | 1230 | | 1100 | 1230 | | 1100 | 1230 | |
| 16 | Power Supply & Min.Wiring Requirement | | 380V,50Hz，3-phase 5-wire,zero wire and ground separated，Grounding resistance⩽4Ω，see requirements on hoistway plan drawing | | | | | | | | | | | |
| | | | 3*6mm²+2*6mm² | 3*10mm²+2*6mm² | | 3*6mm²+2*6mm² | 3*10mm²+2*6mm² | | 3*6mm²+2*6mm² | 3*10mm²+2*6mm² | | 3*6mm²+2*6mm² | 3*10mm²+2*6mm² | |

Note: 1.Deep car is used for specified application, such as for stretcher delivery in evacuation occasions.
2.Car height is 2200mm, Refers to the height of the car floor to the car roof. Optional rest of the ceiling to be increased accordingly tall top
3.If dual opening, cover plate needed in the pit

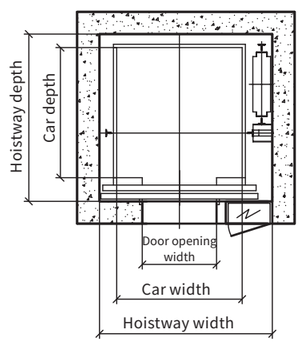
Center opening hoistway plan



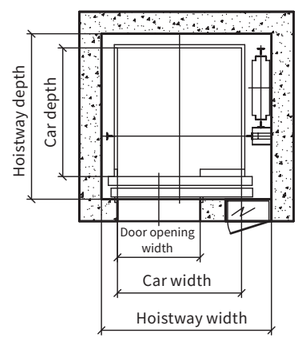

Side opening hoistway plan




center opening hoistway layout profile




Side opening hoistway layout profile



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