WD800MRL ⊙ Steel belt machine-room-less passenger elevator

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SWORD
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SWORD

The manufacturing base of SWORD in Hangzhou ⊙

- An investment of 150 million US dollars
- An area of 270,000 square meters
- An annual output of 100000 units
- One of the most advanced elevator testing towers in China, over 120m in height, with the testing ability of 10m/s

The excellence of quality originates from capability ⊙

HANGZHOU SWORD ELEVATOR CO., LTD. was established in 2009 and is located at the National Economic and Technological Development Zone in Hangzhou, China. We are an international comprehensive manufacturer and service provider which integrate the R&D, design, production, sales, installation and after-sales maintenance of elevators and escalators. Our annual production capacity is up to 100,000 units, of which the comprehensive strength ranks top in the industry.

Our products cover small machine room passenger elevator, machine-room-less passenger elevator, high-speed elevator, hospital elevator, freight elevator, panoramic elevator, escalator, moving walk and vehicle elevator, totally nine series, among which our environment-friendly products with high precision and high standard have went through German TÜV certification, European Union CE, Russian CU-TR certification, JKKP Malaysian certification, Algerian ENACT certification and successfully joined in the North American CSA and ASME certification systems. We have provided service and solutions for more than 70 countries and regions worldwide by now. All these have contributed to the unceasing enhancement of our brand image and influence.

INNOVATIVE

Steel belt machine-room-less passenger elevator

HANGZHOU SWORD ELEVATOR CO., LTD

WD800MRL

Steel belt machine-room-less passenger elevator

By researching market demand, HANGZHOU SWORD ELEVATOR CO., LTD. decides to provide our customers with products which have better performance and better adaptability to building system. With innovative traction technology and excellent running performance, WD800MRL steel belt MRL elevators have been widely used in residential houses, shopping malls, office buildings and other kinds of places.

The Only Double-Sided Traction Technology In The Industry

Hangzhou SWORD WD800MRL steel belt machine-room-less elevators use double-sided steel belts as the traction media. This double-sided traction technology is unique in the elevator industry, which can avoid excessive traction force, extend the service life, and effectively prevent steel belts from deviation. Thus, WD800MRL makes the riding experience more smooth and comfortable.

Plane side for traction

The plane side of the steel belt is adopted for connecting the motor. Its smooth plane surface is in direct contact with the motor's traction sheave. Compared with tooth surface traction, the frictional force of plane surface traction is moderate, which can avoid excessive traction force, reduce the ineffective wear of the steel belt in the long-term use process, and extend the service life of the steel belt to the maximum.

Tooth side for guiding directions

The tooth side of the steel belt is used for connecting the car. Its tooth-shape surface is in direct contact with the crosshead sheave. This design can prevent the steel belt from deviation, make the riding smoother and more comfortable, and reduce the running noise at the same time.

Brand-New Composite Steel Belt

The double-sided steel belt used in WD800MRL elevator is imported from Germany. The double-sided design increases the contact area, improves the driving force, and also prevents sliding. Meanwhile, same as ordinary steel belt, the belt surface is formed by polyurethane polymer, which is free of lubrication and maintenance, and hence saves the maintenance costs. The service life of the steel belt used in WD800MRL is 2 or 3 times of the traditional steel wire rope.

Free of maintenance

It is made of polyurethane polymer materials and no need for lubrication.

Long service life

The service life is 2 or 3 times of the traditional steel wire rope, which is up to 15 years.

Highly efficient

More flexible, more contact area, more efficient and more energy-saving.

Permanent Magnetic Synchronous Gearless Steel Belt Motor

The permanent magnetic synchronous gearless steel belt motor is matched with the composite steel belt. This motor is a dedicated design for WD800MRL steel belt MRL elevators, which has made a number of technical and structural improvements, such as the motor structure, brakes, etc. to make the motor safer, smaller and more efficient.

Safety
New built-in fold-type brake is adopted. The brake area is larger and the braking safer.

Reliable
Traction sheave and brake are integrated, which is more reliable and stable when the motor starts and brakes.

Small and exquisite
The motor is arranged in a bar structure, small and exquisite, which is 70% smaller than the regular.

Roller Guide Shoe Configuration

No need for lubrication

Prevent the steel belt from skidding

Reduce running noise

Prevent oil dirt from polluting the environment

In order to provide passengers with better riding experience and to improve the elevator's running comfortableness, the WD800MRL steel belt machine-room-less elevators have configured roller guide shoes on the car side. Compared with slider guide shoe, the roller guide shoe requires no lubrication and avoids the chance of skidding caused by oil. The roller guide shoe and the tooth surface of the steel belt together make the running noise lower.

Standard cabin decoration ⊙

Human interface ⊙

Standard Cabin ⊙

Ceiling: XO–Z3311(L)
         (hairline stainless steel + LED lamps)
Wall: Hairline stainless steel
Car door: Hairline stainless steel
Floor: XO–Z0471(PVC)
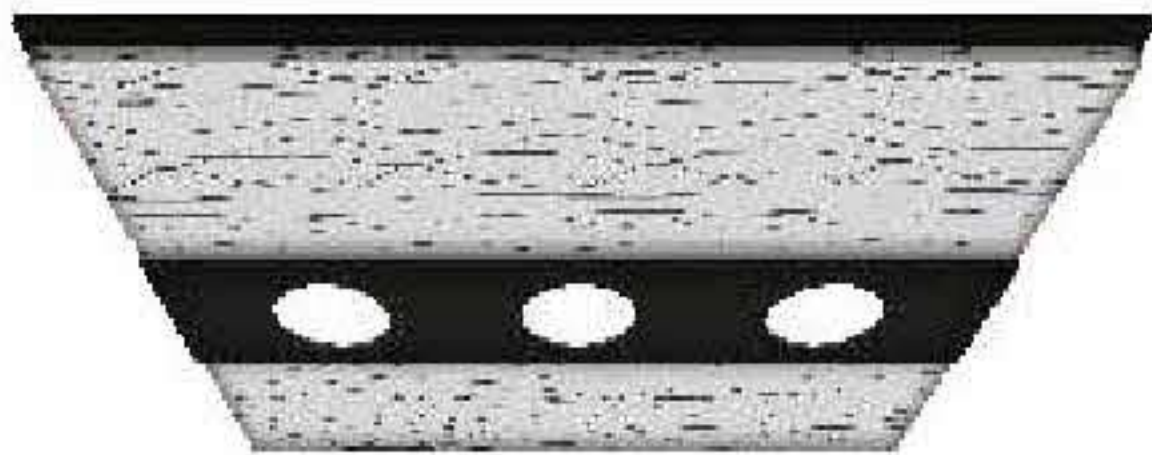
Standard Ceiling ⊙

XO–Z3311(L)
Wide ripple (laminated steel) + LED lamps

Note: The pictures are all computer effect drawing, please refer to the real object.

Car Operation Panel ⊙

▶ Standard Display

6.4" BND–LEDW
black screen liquid crystal display

▶ Standard Button

BR36D
Shimmery hairline stainless
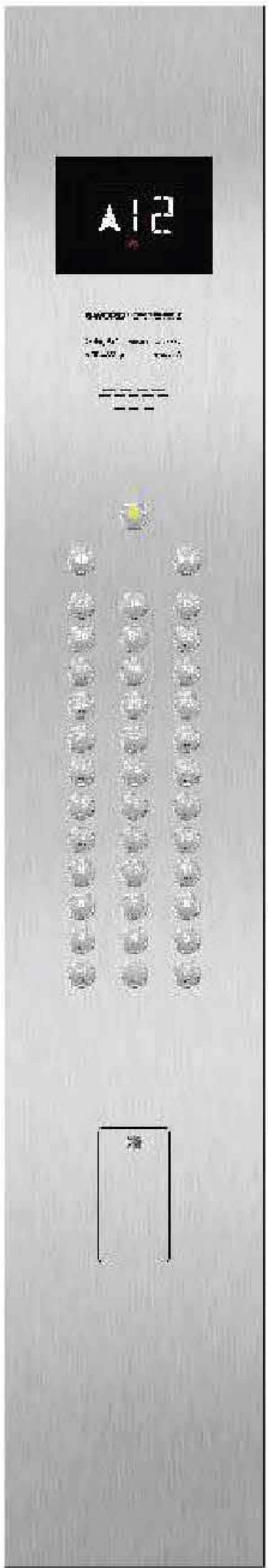steel braille button

Hall-Call Box ⊙

Hall call: XHB16–A Bottomless hall–call box,
with 4.3" BND–LEDW white LED
segment display and BR36D hairline
stainless steel braille button

4.3"BND–LEDW
White LED
segment display

BR36D
Hairline stainless steel braille button

COP2
Integrated car operation panel

Optional human interface recommendation ⊘

Car Operation Panel ⊙

▶ Optional Display

6.4" BND–LCD
Black screen LCD

6.4" EOD–LCD
Yellow dot matrix
liquid crystal display

6.4" EOD–LEDY
Yellow LED dot
matrix display

7.0" TFT–LCD
Colorized liquid
crystal display

▶ Optional Button

BS34D
Shimmery hairline stainless
steel braille button

BR34B
Shimmery white mirror stainless
steel braille button

Hall–Call Box ⊙

XHB17–A
Bottomless hall call box

4.3"BND–LEDW
White LED
segment display

BR34B
White mirror stainless
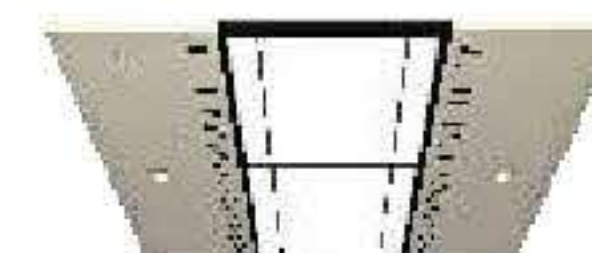steel braille button

▶ Optional Display

4.3" EOD–LEDY
Yellow LED dot matrix
display

* Painted steel plate cabins come standard with COP1 split–type car operation panel,
which cannot be selected for cabins of other materials.

Optional cabin recommendation ⊘

Optional Ceiling ⊙

XO-Z3301(L)

Painted steel plates on both sides (RAL1013) +
LED down lamp; Painted steel plates in central
frame (RAL9004) + LED lighting + silk-screen
acrylic light-passing board

XO-Z0303(L)

White mirror stainless steel frame, LED down
lamp on both sides, acrylic light board for the
middle part (grid)

XO-Z3306(L)

Hairline stainless steel + LED lamps

XO-Z3312(L)

Painted steel plates in the front and back
(RAL 1011), painted steel plate in the middle
(RAL 9004) + LED lamp

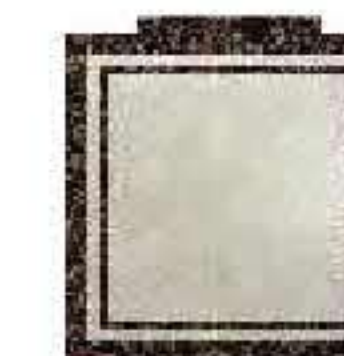## Optional Flooring ⊙

▶ Marble Series

XO-Z0182P

XO-Z0189P

XO-Z0194P

XO-Z0206P

▶ PVC Series

XO–Z0470

XO–Z0472

XO–Z0473

XO–Z0474

Optional Handrail ⊙

XO–Z0506A
Round white mirror stainless steel handrail

XO–Z0509
Flat stainless steel handrail

BASIC FUNCTION ⊙

↓↑ — Operating Functions

Full Collective Operation	On the basis of signal control, elevator call signals are assembled together to make selective response.
Load Non Stop	When the car is fully loaded, the elevator does not respond to the hall call signal but executes the car-internal signal.
Automatic Home Landing	If there's no registration of calls or operations within the set time, the car will automatically return to the preset home floor and wait there.
Error Call Cancel	Before the car starts, the registration of a call or operation can be cancelled by double click of this button.
Floor Space Self-Learning	The system can automatically record each floor's height and make precise distance control when the elevator is operating.
Key Switch	When lock key moves, the system no longer respond to hall call signals. After the elevator finishes responding to all the car-internal instructions, it automatically returns to the home floor.
Door Open Button Door Close Button	Door open and close buttons are set in the cabin. When the elevator is not running, you can press the open button to open the door, or press the close button to cancel the open waiting time and close the door at once, which improves the running efficiency.
Separate Control For Car Door & Hall Door'S Opening Time	The system can set different opening time for hall door and car door.
Auto-Correction Operation	When the elevator loses its position, it auto-corrects itself to the right position.
Nearby Leveling	When the elevator misses the leveling location, no need to return to the bottom floor, only stop at the nearby floor, in order to save the passenger's time.
Door-Closing Waiting Time Cancel	Through clicking the close button, close the cabin door immediately.
Re-Opening For Hall Door	In normal closing process, when pressing the hall button, if the direction of hall call button is the same with the elevator's running direction, the elevator will be re-opened again.
Torque Compensation Without Weighing	When elevator starts, system would compensate torque according to the current weight without weighing, in order to create a comfortable starting feeling.
Operating Direction Reverse Predication	Before the elevator operates to target floor, when the calculation shows there is no command in the same direction after responding to the target floor, the display reverses its direction in advance.
Attendant Service	The attendant service allows semi-automatic operation with manual control.
Independent Service	This function is designed for meeting customers' special needs. When independent service is switched on, the elevator willonly answer the registered car's call instruction and deviate from group control.

⊕ — Safety Functions

Protection For First & Top Floors	If the speed is not slowed down to the pre-set value while the car is reaching the first or top floor, a forced deceleration will be carried out by system in order to protect the safety of the car.
Error Self-Diagnosis	The system can automatically diagnose and record the elevator's error signal, and use special tools to quickly remove the fault.
Motor Overheat Protection	Self-protection mode will be started if the temp of the motor exceeds the pre-set value due to the heat made by motor itself or the high temp in the environment. The car stops at the nearest floor, unloaded, and shuts down the light and ventilation; once the temp falls down to the pre-set value, the car will return to normal work.
Steel Wire Rope Sliding Self-Test	Real-time monitoring of the relative displacement of the traction steel wire rope.
Door-Closing Torque Protection	If the resistance torque reached the pre-set value when closing the door, the door will reopen.
Speed Anomaly Detection	By monitoring and comparing the encoder feedback signal and the system pre-set speed value, the system can master the elevator's running speed. Once the difference value is beyond the scope that the system allows, the system gets into the protection state and the car stops running.
Contactor Anomaly Detection	According to the contact device's control command, the system detects the state of the main contactor and the brake contactor. If anomaly is found, the system will enter a state of protection and the elevator stops running.
Power Grid Anomaly Detection	If the power grid fluctuation is over a certain safety margin, the system gets into the protection state and the elevator stops running.
Light Curtain Protection	Light curtain protection fence is set up at the entrance of the elevator. Every scan loop has 154 bunches of infrared rays, and the reaction time is one second.
Overload Alarm	When the load of the car exceeds rated capacity, overload alarm is triggered. This operation includes opening the door, sounding the buzzer, illuminating the overload lamp and cancelling all the COP commands. The overload condition is removed when the weight of the car falls below the rated load.
Door Open/Close Protection	When the elevator reaches a floor, the door isn't opened completed in the setting time because of obstacle or other reasons, the elevator will enter the open protection mode - after opening the door in this floor unsuccessfully three times, it runs to the next floor to open the door; When the door isn't closed completely in the setting time because of obstacle or other reasons, the elevator will enter the close protection mode and not respond to any call commands.
Brake Anomaly Detection	If difference is discovered between the actual braking state and the system command, the elevator will get into protection state and stop running.
Emergency Home Landing (In Case Of Fire)	When fire breaks out in the building, after the system receiving the fire alarm, the elevator will cancel all the commands and call signals, and drive the elevator to return to the fire-fighting floor, open the door and evacuate the passengers.
Hall Door Self-Learning	When adding floors and stops, carry out the hall door self-learning to ensure the safety and then the elevator can operate normally.
Safety Rescue	When the elevator detects anomaly, under the premise of safety assurance, it enters the safety rescue operation mode, issues voice message to appease and prompt, and stops at the nearest floor to open the door and release passengers, after which, according to the actual situation after the accident, determines whether the elevator can run again or not.

☝ — Emergency Functions

Five-Way Intercom	There is an intercom device around car, car bottom, car roof, machine room and monitor room.
Cabin Alarm	In case of emergency, the alarm bell will be activated by pressing the alarm button on the car operation panel.
Emergency Electric Operation In Machine Room	An emergency electric operation device is installed in machine room. When an emergency happens, it can be operated by the professional maintenance staff in the machine room.
Cabin Emergency Light	Emergency light in the car will start whenever there is a power cut.

☰ — Energy-Saving Functions

Lighting & Fan Auto-Control In Car	If the lift does not receive any instructions within the pre-set time, the elevator automatically shuts off the cabin lighting and fan, in order to save energy.
Energy-Saving Display	After a pre-set time, if there is no hall call registration, display will turn off for energy-saving.

▲▼ — Human Interface

Car Passing Chime	When the elevator arrives at the target station, the car passing chime will remind the passengers with a loud bell.
Hall & Car Direction Indicator	Both car and hall screens will display the elevator's running direction.
Car & Hall Display	The indicator in the car operation panel or in the hall call panel will display the elevator's floor position and running direction by arrow signals.
Customized Floor Info Display	Based on customer's demand, the elevator can set a different floor info display. This information can be a combination of numbers 0-9, letters A-Z or any of the two characters and also can be set to a three-digit display beginning with 1, such as 13A etc. Note: segment code display cannot distinguish the number 0 from the letter O, the letter S from the number 5.
Cabin Fire Status Indicator	When fire breaks out, through the indicator in the cabin, remind the passengers to leave and do not take the elevator.
Shimmery Button	When not pressed, the COP buttons keep shimmery as an indicator for passengers; when pressed, the COP buttons turn full-lighted as a command registration.
COP Registration Tone	When the floor call in the cabin is successfully registered, the elevator gives the "ding" sound feedback, so it is more humanized and facilitates the operation of special groups.

⊖ Intelligence

Communication Monitoring Protection	Real-time monitoring of control system and the communication status in the car. When detecting communication outage in the car, the elevator automatically opens the door and issues voice message to appease and remind passengers to leave the car.
Hall Call Intelligent Registration	In the group control mode, when an elevator fails to pick up all the passengers, the button will automatically re-register and keep the calling, and the system will automatically send another elevator to serve the waiting passengers.
Door Open Time Intelligent Adjustment	The elevator system automatically adjusts the opening time of the door according to the different flows of the entrance and exit of the landing station and the car and hall call instructions.
Control System Temperature Monitoring	Real-time monitoring of the temperature of the control system. If the trend of over-temperature is detected, the elevator will transfer into the safety rescue mode to prevent people from getting stuck.
Intelligent Comfortable Operation	The control system automatically calculates the optimal running curve according to the spacing of different target floors, so that the elevator operates smoothly and comfortably.
Button Sticking Automatic Identification	The control system can automatically identify the sticking or jamming of the hall call buttons, automatically remove the stuck or jammed call command, in order to avoid the failure of closing the door due to the sticking or jamming of the hall call buttons.

⊖ Special Operation

Anti-Nuisance Car Call Protection	If there is only one passenger in the car, and an excessive number of car calls are registered, nuisance is detected and all car calls will be cancelled.
Auto-Parking	Elevators in the same group will park on different floors in its spare time, in order to optimize the using efficiency of the elevators.
Hall Call Cancel	Switch and buttons on the main panel can be dialed up to cancel the outside hall call, in order to facilitate testing and maintenance.
Static Positioning	When doing the motor angle positioning, no need to take the steel wire cable away from the traction machine, which is more convenient for installation at worksite. (2.5m/s, no such function)
Car Top Inspection	Set up the repair switch at the car top which is convenient for maintainers to repair in the hoistway. At this time, the repair switch for the machine room is invalid.
Silent Mode	At hotels, apartments and other places, in a specific period of time (e.g. night), automatically close the sound of the station chime and keep silent for the tenants; at other times, the station chime generator automatically restores the voice and provides voice announcement for the elevator users.

Pacifying Voice	When the elevator is in a special state, the voice will pacify the passengers in the car.
Nearby Leveling	When the elevator loses its leveling position, no need to reach the bottom floor to reset, and just stop at the nearest floor to correct its position, so as to save the waiting time of passengers. (2.5m/s, as a basic function)
Progressive Reduction Of Electric Current	During the stopping of the elevator, the electric current will be gradually reduced to zero, so as to improve the comfortableness of the passenger's riding experience.
Zero Speed Stop Under Repair	When under repair, the elevator stops at zero speed, in order to increase the service life of motor's brake.
Test-Free	By the DIP and repair switch on control panel, the elevator can automatically complete the testing itself.
Auto Re-Leveling	When the elevator's door opens, because of the personnel's entrance, the telescopic steel wire rope leads to the changes of the elevator's leveling position and the elevator will automatically correct its leveling position at a slow speed.

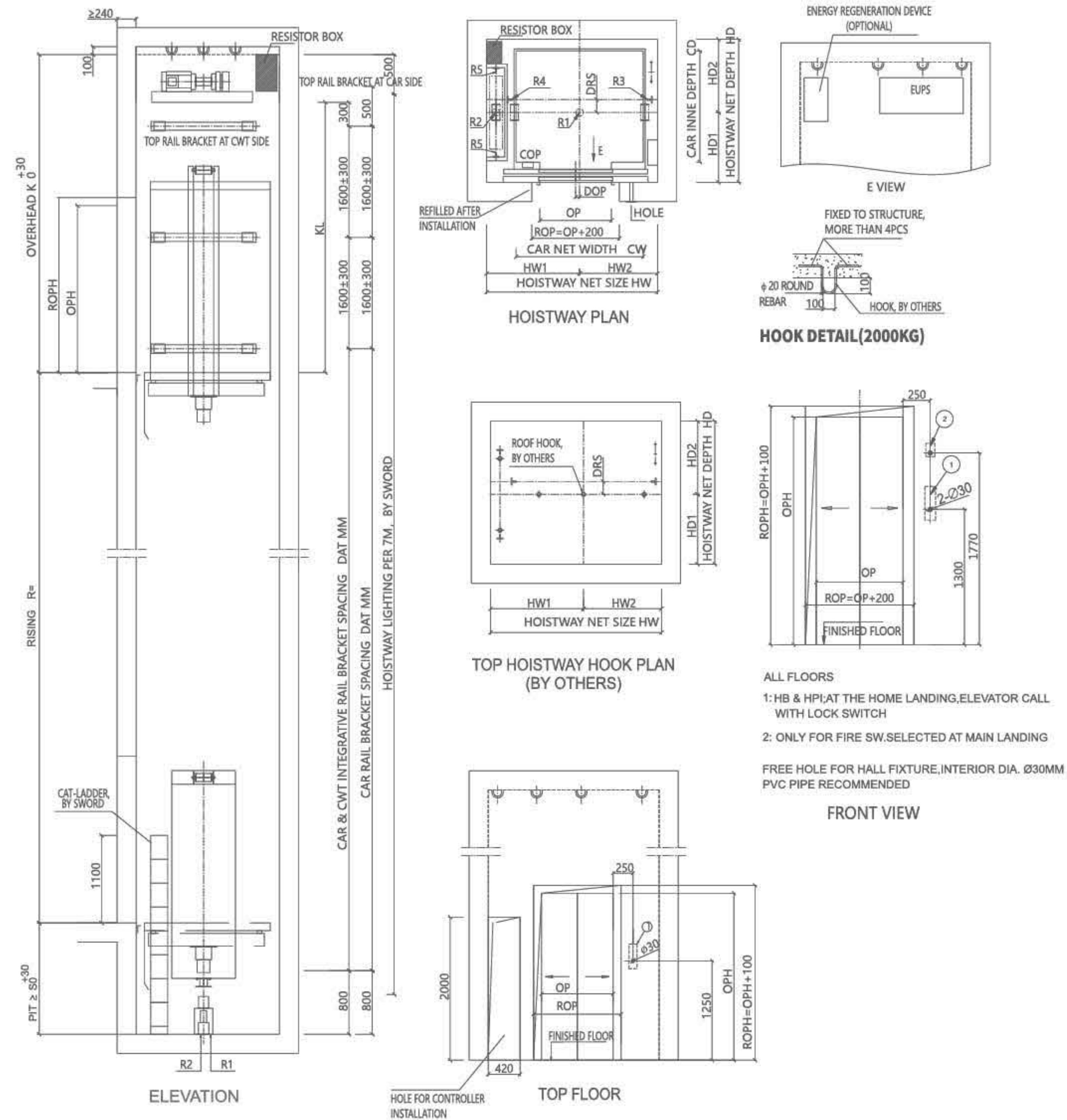# OPTIONAL FUNCTION ⊙

Door Open Standby	This function changes the door close standby function of common elevators. By setting up parameters, make the elevator open the door and stand by, in order to keep the air circulating and fresh.
Anti-Nuisance Hall Call Protection	Hall calls include up call and down call. If the passenger operates wrongly, the elevator will open and close the door twice. This function can reduce the door opening and closing for one time and improve the operating efficiency.
Attendant Non-Stop	When pressing the non-stop button, elevator will move straightly to the target floor, ignoring all the hall calls.
Door Hold Button	The cabin is equipped with the door hold button. When the switch is on, the elevator doesn't close the door for a set period of time. After the set waiting time, the elevator automatically closes its door. During the waiting (door-opening) process, if you press the close button, the door will be closed immediately and cancel the waiting.
Duplex	When there are two elevators, the duplex function can be selected. When in duplex, according to its priority, the system sends the fastest available elevator to serve the hall call command, in order to reduce the passenger's waiting time.
Voice Announcement	The elevator is equipped with the voice announcement device, which tells the passengers the floor that the elevator is stopping at, the state of the door and other information.

Hall Chime	In general, the hall chime is integrated in the hall call display to remind passengers of the elevator's arrival.
Emergency Fireman Operation	When the key switch preinstalled in the car is turned on, the elevator will cancel all the hall call signals, and only respond to the signals from the car. This function is intended to cooperate with firemen to put out the fire and should be used with the fire elevators.
Fireman Landing Success Feedback	Through a fire-isolated switch, system could feed back fireman landing success signal to the fire-fighting system in the residential district.
Automatic Rescue Device	This device is used for rescue operation in case of power failure. It is powered by a rechargeable battery. When a sudden power cut happens, a sound signal will comfort the trapped passengers, and the car will move towards the nearest floor, keeping the door open to release the passengers.
Reverse Command Cancel	When the elevator is running upward or downward, the command that is in the reverse direction cannot be registered.
Area Elevator System	Computers are carried out for the district monitor system. This function can provide computed monitoring for all the elevators in this district and offer the BA for the intelligent building management system.
Building Management System	The elevator can provide the discrete-type running state signals for the intelligent building management system. The main signals are running direction, floor information, safety information, etc.
CCTV Cable Interface Reservation (Including CCTV Cable)	Cable interfaces are reserved for the installation of the cabin CCTV (including the CCTV cable).
Advanced Door Opening	Start the function and the elevator's speed will be slowed down to a set value to open the door when the elevator enters the door area, which improves the operating efficiency. (When speed≥2.5m/s, this function is a basic function.)
Conference Priority Mode	In the group control mode, if there is a large passenger flow in a certain floor due to the closing of a meeting, this mode can be manually triggered by a dedicated switch or by automatic triggering of the sensor, then the other elevators will automatically come to this floor to serve.
IC Card Automatic Registration	After the user swipes the IC card, the system automatically registers the floor instruction, with no need to press the button. (This function cannot be used together with the IC card open access function.)
Arrival Pre-Remind Button	According to the optimal curve automatically calculated, pre-remind the elevator's next landing floor and the corresponding floor button flashes.
Arrival Pre-Remind Display	According to the optimal curve automatically calculated, pre-remind the elevator's next landing floor and the corresponding floor number flashes.
VIP Priority Service	When the VIP passenger on a certain floor hopes that the elevator can arrive at his floor immediately or preferentially, by pressing the switch, the system will automatically send an elevator to answer this priority call and cancel all the hall calls. The elevator will arrive at the floor at the first time to carry the VIP passenger and at this time it only responds to the cabin instructions and does not reply to any hall call service.

Note: If there is a difference between the real products and the functional list in this catalogue, please refer to the explanation by SWORD sales representatives.

Steel belt machine-room-less passenger elevator

WD800MRL

ELEVATION

HOISTWAY PLAN

REFILLED AFTER INSTALLATION
ROP=OP+200
CAR NET WIDTH CW
HOISTWAY NET SIZE HW

HOOK DETAIL(2000KG)

ENERGY REGENERATION DEVICE (OPTIONAL)
EUPS
E VIEW
FIXED TO STRUCTURE, MORE THAN 4PCS
φ20 ROUND REBAR   HOOK, BY OTHERS

TOP HOISTWAY HOOK PLAN (BY OTHERS)

ROOF HOOK, BY OTHERS
HOISTWAY NET SIZE HW

FRONT VIEW

ROP=OP+200
FINISHED FLOOR

ALL FLOORS
1: HB & HPI;AT THE HOME LANDING,ELEVATOR CALL WITH LOCK SWITCH
2: ONLY FOR FIRE SW.SELECTED AT MAIN LANDING
FREE HOLE FOR HALL FIXTURE,INTERIOR DIA. Ø30MM PVC PIPE RECOMMENDED

TOP FLOOR

HOLE FOR CONTROLLER INSTALLATION
ROP=OPH+100

CAT-LADDER BY SWORD

Duties of Owners and Builders

○ The interior of the hoistway must meet the requirements of fire protection. Do not install any devices rather than the lift.

○ The hoistway must be vertical. The minimum clearance size is considered as the hoistway horizontal size. And the vertical error must within 0~+25mm/0~30m, 0~+30mm/30m~60m, 0+50mm/60.

○ If there is a space under the hoistway pit which is accessible for a person, the counterweight buffer shall be installed on a solid base which is extended to the solid ground, or install the safety gear and enlarge the hoistway size. Please consult elevator supplier about the details.

○ Before installation, set safety protection barriers with enough strength at all rough openings (the height of safety protection barriers is no less than 1.2m).

○ Enclosed hoistway shall be provided with ventilation (at top or bottom of hoistway), and protected by grid guard. The size of ventilation shall be no less than 1% of the hoistway size.

○ The reserved holes on the hall doors and hall call display shall be refilled after the installation of the elevator.

○ Concrete hoistway structure is recommended. If the hoistway is frame structured, the concrete beams of 300mm height shall be made at the installation place for guide rail brackets; in addition, the concrete beams of 300mm height in the same width as the hoistway need to be made on the upper and lower edges of the each floor's hall door holes. If the hoistway is solid bearing brick structured, the concrete beams of 300mm height in the same width as the hoistway should be made on the upper and lower edges of the each floor's hall door holes.

○ If auxiliary concrete ring beam structure is needed to ensure safety of guide rail installation, the strength of concrete should be at least C20.

○ When distance between two adjacent landing door sills is more than 11m, a safety door is required in between and it cannot be opened inside the hoistway. Safety door's width shall be no less than 350mm, and its height shall be no less than 1800mm.

○ Pit shall be waterproof. If there is a sump, it shall be made in the corner.

○ According to the requirements of technical parameters, the elevator's power supply shall be placed in the machine room and be locked with a lockable switch. Voltage fluctuation shall be within ±7%. Null line and ground lead shall be separated and the grounding resistance shall be no greater than 4Ω.

○ All the force marked in the drawing shall bear its load. Hoistway walls and pit shall be strong enough to withstand the load.

○ All the prepared parts (hook, pre-embedded steel plate etc) by users which is marked in the drawing shall be made in advance.

○ Emergency rescue room is required and each elevator shall be equipped with a six conductor cable connected to the machine room. It is recommended to use shielded/twisted pair wire with an area of at least 0.75 mm² per conductor or be replaced by a CAT-5 cable.

○ The temperature in the machine room shall be maintained between 5~40℃.

Load (kg)	Speed (m/s)	Car inner size CW×CD (mm)	Opening net size OP×OPH (mm)	Hoistway net size HW×HD (mm)	HW1 (mm)	HW2 (mm)	HD1 (mm)	HD2 (mm)	Pit S (mm)	Overhead K(mm) Integrated ceiling	Other positioning measurement (mm)			Guide rail & pit reactions (KN)					Max floor (floor)	Max rising (m)
											DRS (mm)	DOP (mm)	DAT (mm)	R1	R2	R3	R4	R5		
400	1.0	1000X1100	700X2100	1600X1500	895	705	730	770	1300	3800	160	50	2500	50	42	23	23	17	16	50
550	1.0	1000X1400	700X2100	1600X1800	895	705	880	920	1300	3800	160	50	2500	64	53	26	26	18	16	50
630	1.0	1100X1400	700X2100	1700X1800	945	755	880	920	1300	3800	160	0	2500	68	55	27	27	19	16	50
680	1.0	1200X1400	800X2100	1850X1800	995	855	880	920	1300	3800	0	0	2500	73	59	28	30	20	16	50
	1.5									3900				73	59	33	35	25	24	75
	1.75									3950				73	59	35	37	27	32	90
800	1.0	1350X1400	800X2100	1950X1800	1070	880	880	920	1300	3800	0	0	2500	86	70	32	33	22	16	50
	1.5									3900				86	70	36	38	26	24	75
	1.75									3950				86	70	39	40	29	32	90
900	1.0	1450X1400	800X2100	2050X1800	1120	930	880	920	1300	3800	0	0	2500	92	74	33	35	23	16	50
	1.5									3900				92	74	37	39	27	24	75
	1.75									3950				92	74	40	42	29	32	90
1000	1.0	1600X1400	900X2100	2200X1800	1195	1005	880	920	1300	3800	0	0	2500	98	78	35	36	23	16	50
	1.5									3900				98	78	39	40	28	24	75
	1.75									3950				98	78	42	43	30	32	90
	1.0	1100X2100	900X2100	2100X2500	1050	1050	1230	1270	1300	3800	0	0	2500	98	78	35	36	23	16	50
	1.5									3900				98	78	39	40	28	24	75
	1.75									3950				98	78	42	43	30	32	90
1150	1.0	1900X1400	1100X2100	2550X1800	1350	1200	880	920	1400	4050	0	0	2000	112	89	54	57	30	16	50
	1.5									1500 4200				112	89	66	68	36	24	75
	1.75									1550 4250				112	89	72	75	40	32	90
1350	1.0	2000X1550	1100X2100	2700X1950	1450	1250	955	995	1400	4050	0	0	2000	126	99	58	60	31	16	50
	1.5									1500 4200				126	99	69	71	37	24	75
	1.75									1550 4250				126	99	76	78	41	32	90
1600	1.0	2000X1750	1100X2100	2700X2150	1450	1250	1055	1095	1400	4050	0	0	2000	140	108	61	63	33	16	50
	1.5									1500 4200				140	108	73	74	39	24	75
	1.75									1550 4250				140	108	79	81	43	32	90

NOTE: DO NOT SCALE THS DRAWING, UNLESS OTHERWISE STATED