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HOSPITAL BED ELEVATORS

Moving solutions with safety, reliability and efficiency

HYUNDAI ELEVATOR

Hospital Bed Elevators

Hyundai Hospital Bed Elevators, a right choice for your hospital needs are designed to greatly contribute to provide the most secure and reliable ambience that your hospital requires.



1 2 Asan Medical Center, Seoul, Korea 3 Seoul National University Bundang Hospital, Gyeonggi-do, Korea

Integrated into the system is such an advanced technology as VVVF (Variable Voltage Variable Frequency) inverter drive which serves the purpose of great cost reduction by innovative energy saving, as well as excellent riding comfort of elevators. Bascially, Hyundai Hospital Bed Elevators are planned, designed and manufactured, bearing passengers' security and convenience first in mind. The elegant designs and various features that these elevators show off are the key to enhancing the dignity of hospital facilities in addition to providing the amenities that hospital pursues.

| Main advantages |

- Superior riding
- Enhanced function of signal fixtures
- Remote monitoring system(optional)
- Self-checking system built in computer
- 50% energy saving (Compared to conventional AC control system)
- 50% reduction in building power requirement (Compared to conventional AC control system)
- Excellent security of door for wheelchair and hospital bed (A gap between car sill and hatch sill is 25mm)

BU72

REAR

CAR DESIGN

Ceiling	CD569A (Aluminium), Acrylic, Sheet, LED Light, Anion air cleaner
Wall	Hairline-Finished Stainless Steel, Hairline-Etched Stainless Steel (SE2302), Wall Protector (Hairline-Finished Stainless Steel)
Transom	Hairline-Finished Stainless Steel
Car Doors	Hairline-Etched Stainless Steel (SE2302)
Operating Panel	OPP-N241B (Hairline-Finished Stainless Steel)
Indicator	Deluxe Type (PI-D110)
Handrail	Stainless Bar, Hairline
Flooring	Polyvinyl Tile (TN2224C, TN2227C)

Note : Finished product may vary slightly from these prints.

BU73

REAR

CAR DESIGN

Ceiling	CD519D (Aluminium), Indirect Lighting, Convective Air Sterilization System
Wall	Dull Stainless Steel, Mirror-Etched Stainless Steel (SE2308), STS Mirror Trim (30mm)
Transom	Dull Stainless Steel
Car Doors	Dull Stainless Steel
Operating Panel	OPP-N290A (Touchless Button, Return Panel)
Indicator	Deluxe Type (PI-D110)
Handrail	1DV (Anti-viral 1 Pipe, Ivory)
Flooring	Polyvinyl Tile (TN2224C, TN2211C)

Note : Finished product may vary slightly from these prints.

BU74

REAR

CAR DESIGN

Ceiling	CD469B, Painted Steel (P016), Acryl
Wall	Pattern Blast Stainless Steel, Pattern Blast Etched Stainless Steel (SE2306), Wall Protector (Pattern Blast Stainless Steel)
Transom	Pattern Blast Stainless Steel
Car Doors	Pattern Blast Etched Stainless Steel (SE2306)
Operating Panel	OPP-D290A, OPP-290W (For the disabled) / Pattern Blast Stainless Steel, Touchless Button, Return Panel
Handrail	1DW (Anti-viral 1 Pipe, Wood Pattern)
Flooring	Polyvinyl Tile (TN2423C, TN2426C)

Note : Finished product may vary slightly from these prints.

BU75

REAR

CAR DESIGN

Ceiling	CD516C, Painted Steel (P021), Indirect Lighting, Convective Air Sterilization System
Wall	Pattern Blast Stainless Steel, Pattern Blast Etched Stainless Steel (SE2311), Wall Protector (Pattern Blast Stainless Steel)
Transom	Pattern Blast Stainless Steel
Car Doors	Pattern Blast Etched Stainless Steel (SE2311)
Operating Panel	OPP-N240B, OPP-N240W (For the disabled) / Pattern Blast Stainless Steel
Indicator	Deluxe Type (PI-D110)
Handrail	1DV (Anti-viral 1 Pipe, Ivory)
Flooring	Polyvinyl Tile (TN2302C, TN2412C)

Note : Finished product may vary slightly from these prints.

Entrance Designs

EB100 ESA

ENTRANCE

Landing Doors	Hairline-Etched Stainless Steel (SE2302)
Jambs	Hairline-Finished Stainless Steel / 100TYPE
Hall Button With Indicator	HIP-D641 / Hairline-Finished Stainless Steel

EB100 DS

ENTRANCE

Landing Doors	Dull Stainless Steel
Jambs	Dull Stainless Steel / 100TYPE
Hall Button With Indicator	HIP-D290 (Touchless Button) / Hairline-Finished Stainless Steel

Note : Finished product may vary slightly from these prints.

EB200 PSA

ENTRANCE

Landing Doors	Pattern Blast Etched Stainless Steel (SE2306)
Jambs	Pattern Blast Stainless Steel / 200TYPE
Hall Button	HPB-290 (Touchless Button) / Pattern Blast Stainless Steel
Indicator	Deluxe Type (PI-D600)

EB200 PSB

ENTRANCE

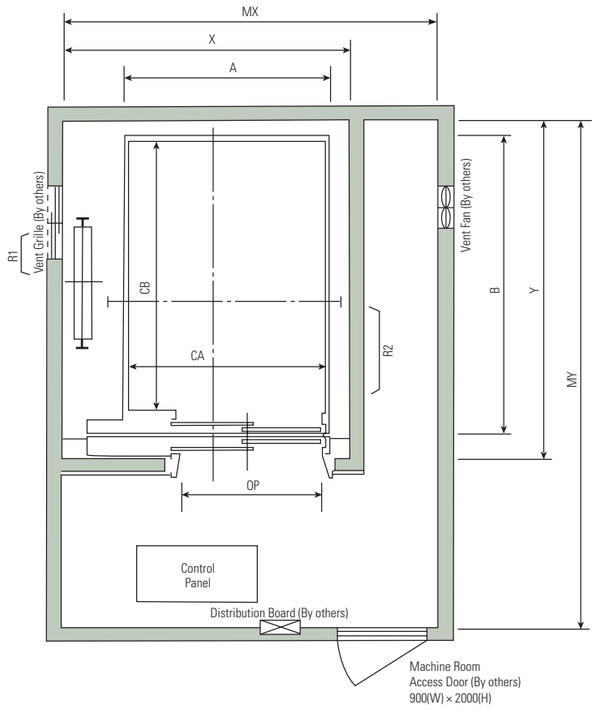
Landing Doors	Pattern Blast Etched Stainless Steel (SE2311)
Jambs	Pattern Blast Stainless Steel / 200TYPE
Hall Button	HPB-640 / Pattern Blast Stainless Steel
Indicator	Deluxe Type (PI-D110)

Note : Finished product may vary slightly from these prints.

Installation Layout Plan

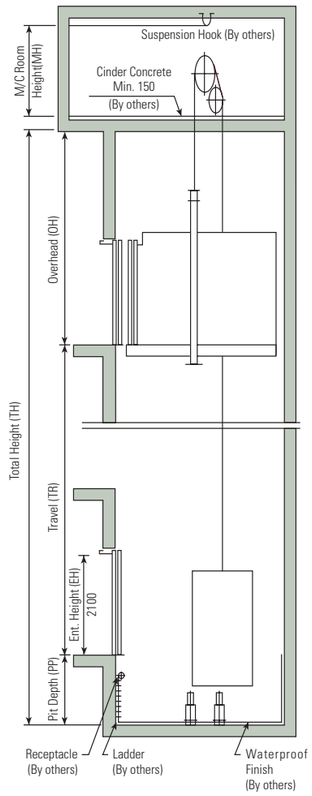
General Traction Type

Plan of Hoistway & Machine Room



Note : Machine room temperature should be maintained below 40℃ with ventilating fan and /or air conditioner(if necessary) and humidity below 90%.

Section of Hoistway



Standard Dimensions & Reactions

(Unit : mm)

Type	Model	Clear Opening	Car		Hoistway	M/C Room	M/C Room Reaction(kg)	
			Internal	External				
		OP	CA × CB	A × B	X × Y	MX × MY	R1	R2
Standard Type	B1350-2S30, 45	1100	1300 × 2300	1400 × 2507	2100 × 2850	2300 × 3500	10500	8500
	B1350-2S60							
	B1600-2S30, 45	1200	1500 × 2300	1600 × 2507	2300 × 2850	2750 × 4000	11500	9500
	B1600-2S60							
	B1750-2S30~60	1200	1600 × 2300	1700 × 2507	2400 × 2850	2850 × 4000		
Double Entrance Type	B1350-2SD30, 45	1100	1300 × 2300	1400 × 2634	2300 × 3000	2300 × 3500	10500	8500
	B1350-2SD60							
	B1600-2SD30, 45	1200	1500 × 2300	1600 × 2634	2500 × 3000	2750 × 4000	11500	9500
	B1600-2SD60							
	B1750-2SD30~60	1200	1600 × 2300	1700 × 2634	2600 × 3000	2850 × 4000		

Notes : 1. When non-standard capacities and dimensions are required, consult Hyundai.
2. Above dimension are applied in case the door is standard. In case fire protection door is applied, hoistway size for 1 car should be applied above X dimention plus 100mm.
3. Consult Hyundai in case the code applied.

(Unit : mm)

Speed (m/min)	Overhead (OH)	Pit (PP)	M/C Room Height (MH)
30/45	4400	1200	2400
60	4600	1500	
90	4800	1800	
105	5000	2100	

Notes : 1. Above is minimum size.
2. In case of special hoistway,machine room height may be higher than above size.
3. The minimum machine room height should be 2800mm in case of the traction machine with double isolation pad.

Standard & Optional Features

Items	Descriptions	Marks
1) Automatic operation (IC2BC)	The whole operation process of elevator is automatically carried out by the calls registered.	○
2) Emergency operation service	A key switch is provided in each car operating panel for urgent carriage of the patient. When the key switch in a car is set to the "Emergency operation" position, it cancels all car calls and hall calls for that car, thereby enabling the car travel straight to the floor with emergency call registered. During the emergency operation the hall indicator of each floor lights "emergency operation", letting passengers waiting in the hall know delay of car arrival.	○
3) Safety edge of door	Contact with a passenger or inanimate object causes the door to stop and reopen automatically. The elevator doesn't start if the door is completely not closed.	○
4) Ventilation fan	Car ventilation is smooth with ventilation fan built in the ceiling.	○
5) Emergency car lighting	In case of the power failure, it lights automatically in the car.	○
6) Automatic interruption of light and ventilation fan	The lights and ventilation fan are automatically turned off to save energy if there is no call registered for a period of time. If there is a call registration again, it works again.	○
7) Overload features	To prevent the overload of elevator, this device sounds a buzzer and the elevator remains stopped at that floor when the number of passengers exceeds the rated capacity. When the excess number of passengers get out of the car, the buzzer stops and the elevator door closes.	○
8) Door interlock switch	When the door is opened, this switch installed at the door operator is activated and keeps the car from moving. During the operation of car, it locks the door completely so as not to open the door from outside.	○
9) Light for disinfection	To sterilize a fungus in the car, light for disinfection will be attached on the ceiling.	○
10) Interphone & emergency call button	In case of emergency, the passenger can communicate with the personnel in control room or in prevention center of disasters by pushing the emergency call button.	○
11) Automatic door opening /closing time control	Door opening / closing time can be automatically adjusted according to the call registered to maximize the efficiency of operation.	○
12) Safety drive	During the operation if the car stops between floors, and safety device doesn't start, the car automatically moves to the nearest floor with the low speed. Then, it opens the door to allow the passengers to exit out.	○

Items	Descriptions	Marks
13) Automatic operation for 2 cars(2C2BC)	2 units of elevator provide the effective service for the common hall calls.	★
14) Group control for 3~8 cars	3~8 units of elevator provide the effective service for the common or dual hall calls by combining each other systematically.	★
15) Multi-beam door protection	Multi-beam from the top of the door to the bottom of the door senses any obstruction caught in the door. It makes the door reopen, or keep open/close before the door touches such obstruction.	★
16) Fire emergency service	When a fire breaks out, all cars activated by the switch or fire detector are immediately called to a specified rescue floor for the passengers' safety.	★
17) Voice synthesizer	A voice synthesizer with micro-processor makes announcements to inform passengers of various conditions, including landing floor and operation direction, etc.	★
18) Emergency power	During normal power failure, elevator service continues with the help of the building's emergency power source.	★
19) Fireman's emergency service	When the fireman's switch located at the main floor lobby and operating panel on the car is activated during a fire or other emergency, a designated car can be called back to a specified floor for fire fighting service.	★
20) Remote monitoring system(RMS)	At the heart of every control panel of elevator is a computer capable of constantly keeping tabs on the operation of elevator for 24 hours a day and 365 days a year. The operation of elevators with RMS can be monitored in a central station from the far distance by telephone line and computer.	★
21) HELMON(Hyundai Elevator computer monitoring) system	This system has various functions like elevator monitoring and control by personal computer or modem.	★
22) Emergency landing device(ELD)	In the event of the power failure, the elevator power automatically switches to a rechargeable battery built in controller that moves the car to the nearest floor and allows passengers to safely exit. This can be used when no emergency power source in the building is available.	★
23) Attendant service / Return to main floor(over 2 cars) / Earthquake operation / Rear door operation / Hall lantern / Signal fixtures of dot matrix type (moving direction) / Parking		★

Notes : 1. ○ : Standard, ★ : Optional
2. Consult Hyundai if you need the specific features except the above items.

Signal Fixtures

Car Operating Panels

OPP-D241B

OPP-N241B

OPP-N240W
For the disabled

Position Indicators

PI-D600
Dot Matrix Type, No Face Plate

PI-D110
Dot Matrix Type, No Face Plate

PI-D400

Hall Buttons

- For the disabled

HIP-D241

HIP-D641
Boxless Type

HPB-241

HPB-641
Boxless Type

Note : 90 type button is not available for boxless type.

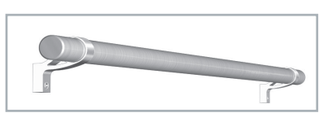
Type of Buttons

40 Type

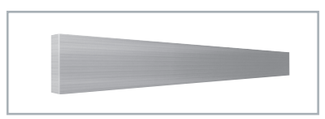
41 Type

*90 Type
Touchless Button

Handrail



1C
1 Pipe Hairline-Finished Stainless Steel, Chrome Bracket



FL
Hairline-Finished Stainless Steel Flat Bar

1DV
Anti-viral 1 Pipe, Ivory

Notes : 1. Finished product may vary slightly from these prints.
2. *means optional feature.

Works to be done by others

The followings are based on the general type, consult Hyundai for the MRL(Machine-Room-Less) elevators.

Electric Power Requirements (By Others)

(60Hz, 380v)

Capacity (kg)	Speed (m/min)	Motor (kW)	N.F.B Rated Current (A)		Transformer Capacity (kVA)		Power Feeder (mm^2)		Earth Wire (mm^2)	
			1Car	2Cars	1Car	2Cars	1Car	2Cars	1Car	2Cars
1350	30	11	30	60	11	19	6	16	6	10
	45	11	30	60	11	20	6	16	6	10
	60	15	30	60	12	21	6	16	6	10
	90	18.5	50	100	17	31	16	25	10	16
	105	22	60	100	20	37	16	25	10	16
1600	30	15	40	75	13	23	10	25	6	10
	45	15	40	75	13	24	10	25	6	10
	60	15	40	75	14	25	16	25	10	16
	90	22	60	100	21	37	16	35	16	25
	105	22	60	125	24	43	16	35	16	25

Notes : 1. The above power feeder sizes are based on its maximum length 50m. In case the feeder length from the transformer to the elevator machine room exceeds 50m, apply the following formular.

$$\text{Power feeder sizes}(mm^2) = \frac{\text{Feeder length}(m)}{50} \times \text{size shown above}$$

2. The feeder sizes are based on using copper conductors and metallic conduit.
3. For power requirement of 3 cars or more, consult Hyundai.
4. Consult Hyundai if you need electric power requirements for 220V.

The following works are not included in the contract, and shall be done by other contractors in accordance with the Hyundai Elevator's drawings and the applicable codes and regulations. The reference rules shown are from Code ANSI.

Building Work

Hoistway

1. Clear, plumb hoistway with fire resistant hatch walls as required by the applicable code. (Rule 100.1a)
2. 75° bevel guards on all projections, recesses, or setbacks over 50mm except on side used for loading or unloading. (Rule 100.6)
3. Venting of the hoistway as required by the applicable code or responsible authority. (Rule 100.4)
4. Supports for rail brackets at each floor, roof, and machine room. (Rule 200.9)
   Maximum allowable vertical spacing of rail supports without backing. (Rule 200.4 and 301.1)
   Divider beams 100mm between hoistway at each floor and roof, for guide rail bracket supports. (Rule 200.4, 200.9 and 301.1)
5. Recesses supports and patching as required to accommodate hall button boxes, signal fixtures, etc.
6. All barricades either outside elevator hoistways or between inside hoistways as required.
7. Dry pit reinforced to sustain normal vertical forces from rails and buffers. (Rule 106.1b and 109) Consult Hyundai Elevator Company for rail forces and buffer impacts. Where there is space below the pit floor that can be occupied, consult Hyundai Elevator Company for special requirements. (Rule 300.4) Cylinder hole, casings under the pit as required, and backfilling around the cylinder casings when direct plunger type is to be installed.
8. Where access to the pit is by means of the lowest hoistway entrance, vertical iron ladder extending 1060mm minimum above sill of access door. (Rule 106.1d)
9. Entrance walls and finished floor are not to be constructed until after door frames and sills are in place. Door frames are to be anchored to walls and properly grouted in place to maintain legal fire rating.
10. For application as indoor or outdoor observation elevator, a glass enclosure of at least 3.6m in height at the bottom landing is recommended for safety. For use as an outdoor observation elevator, a full-height glass enclosure is required.

Machine Room

11. Enclosed and protected machine room. (Rule 101.1)
12. Access to the machine room and machinery space as required by the applicable code or responsible authority. (Rule 101.3)
13. Reinforced concrete machine room floor slab or grating, as specified, which must not be placed over the hoistway until elevator machinery is set in position. (Rule 100.3 for Traction Elevator)
    Clear access above ceiling or trench in floor, for oil line and wiring duct from machine room, if machine room is remote from elevator hoistway. (For Hydraulic Elevator)
    Cutout through machine room wall, for oil line and wiring duct as required by Hyundai Elevator's shop drawings. (For Hydraulic Elevator)
14. Hoisting beams, trap doors, and other means of access to machine room for maintenance and equipment removal purposes. (Rule 101.3d)
15. Cable guards in the machine room or secondary level. (Rule 104.1)
16. Supports for machine and sheave beams and reactions including wall pockets and patching after beams are set in place. (Rule 105.1 to 105.5)

Electrical Work

Hoistway

1. Light outlet for each elevator, in center of hoistway (or in machine room) as indicated by Hyundai Elevator Company.
2. Convenience outlet and light fixture in pit with switch located adjacent to the access door. (Rule 106.1e)
3. Wiring and piping work of emergency bell, interphone, etc. outside the hoistway and the machine room.

Machine Room

4. Lighting, convenience outlets, ventilation, heating of machine room, and machinery space. (Rule 101.5)
5. Temperature should be maintained below 40℃ by a ventilating fan and/or air conditioner, if necessary, and humidity below 90%.
6. A fused disconnect switch or circuit breaker for each elevator and light switch located per the applicable code and where practicable located adjacent to the door of the machine room. (Rule 210.5 and 306.7)
7. Feeder and branch wiring to the controller, including main-line switch and convenience outlets.
8. Suitable power feeder and branch wiring circuits as required for elevators with power-operated doors, including disconnect switch or circuit breaker.

Emergency Provisions

9. Elevator fireman's and other emergency services wiring and interconnections to automatic sprinkler systems or heat and smoke sensing devices furnished by others and installed to terminal points on the elevator controllers.
10. When emergency power operation of elevators is required, the electrical contractor should coordinate with Hyundai Elevator Company or local distributor for operation requirements.
11. Elevator fireman's and other emergency service requirements may differ from each country. Consult Hyundai Elevator Company or local distributor for other local requirements.
12. When provisions for earthquake protection are required, consult Hyundai Elevator Company for special requirements.

Heat Emission of Machine Room

Q(kcal/H) = W × V × F × N
W : Capacity(kg)
V : Speed(m/min)
F : Factor; 1/40(VVVF)
N : Number of Cars