

ISO 9001











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N:EX-1

H-BELT DRIVE SYSTEM

**ELEVATOR CO., LTD.** 



1. Product images have been modified to help viewers' understanding. Design and colors depicted may differ from the actual products'.

C-NEX\_1 E01 / Ver1

4. S Please recycle this brochure to protect the environment.

Publication date: Oct. 2024

# SMART MANUFACTURING IS THE KEY TO SAFER AND MORE RELIABLE MANUFACTURING

Full automatic manufacturing ensures high product quality

#### **Real-time manufacturing monitoring**

Enables accurate delivery schedule projections for easier project management.

#### **Automation**

A closed-loop control system (an automatic system that regulates processes for desired goals without human interaction) manages raw material stock, storage, production, loading, and shipping automatically for the highest possible efficiency.

#### **Lean Manufacturing**

Smart manufacturing minimizes waste and achieves maximum productivity.

#### **Flexibility**

Advanced and cutting-edge manufacturing machines can help meet customers' customized requirements.

- 03 Intro
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Installation Layout Plan Functions Work to be done by others How do we make an elevator that is both efficient and eco-friendly?

We rely on elevators every day.

How can we elevate the experience,
making it smarter, cleaner and safer?

How can we harmonize aesthetic design with rigorous engineering requirements?

N:EX-1 is the solution.

#### N:EX-1

New + Experience + X(Everything) + 1(to the Global No.1)

N:EX-1 is a next generation elevator with environmentally friendly belt and latest mobility technology.

HYUNDAI ELEVATOR presents a new elevator experience.

HYUNDAI ELEVATOR



# **Eco-Friendly Innovation:**

Experience the most advanced belt drive system, powered by next-generation green technology.

The H-BELT Drive System is HYUNDAI ELEVATOR's innovative, next-generation, eco-friendly technology that utilizes belts instead of the traditional steel wire ropes. The belt has longer life span, saves energy and enhances performance.

# 85% smaller

# **Compact**

#### Small but powerful TM

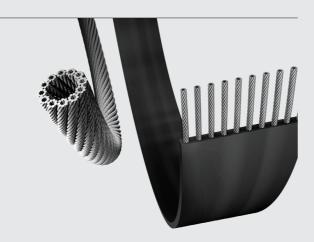
The compact design of our TM, made possible by H-BELT's smaller bending radius compared to the wire rope, reduced the overall size by 85%.

This space-saving feature allows for higher, more comfortable elevator cabins.

# Lifespan x3

# The high-quality steel belt drive ensures a smooth and stable operation.

H-BELT offers three times the lifespan of steel wire ropes and weighing 40% less. It is highly corrosion resistant and lubrication-free. The belt break detection system guarantees safety and reliability.



#### **Efficient use of hoistway**

Our innovative H-BELT Drive System reduces elevator shaft size by up to 8%, allowing for more flexible building design and increased usable space.

# Smooth Riding & Safety

#### Innovative crown shape drum designing

The key to a smooth and safe riding experience lies in the traction machine's crown shaped drum. This unique design ensures the belt constantly returns to the center automatically.





smaller

# **Eco-Friendly**

# **Environmentally sustainable and lubricant-free**

While steel ropes require regular oil maintenance due to their material properties,
H-BELT eliminates the need for oil,
offering easier maintenance
and a more environmentally friendly solution.

# **N:EX-1 CAR DESIGN**

Introducing the all-new N:EX-1 Car Design.

N:EX-1 combines elegant design with eco-friendly technology.

Available in a range of colors and materials,

it offers a visually appealing and energy-efficient solution.

URBAN GREY

#DARK GREY & GREY # MODERN #CHIC



#### **SOFT ROSE**

#PALEROSE&WHITE #SOFT #WARM



#### **IVORY HARMONY**

#GOLD&IVORY #WARM #COZY



#### **MODERN MARBLE**

#MARBLE&SILVER #MORDEN #STYLISH



#### CLASSIC SILVER

#SILVER&ETCHING #CLASSIC #ELEGANT



#### **GLAM BRONZE**

#TITANIUM BRONZE #GLAMOROUS #GORGEOUS



# 01 URBAN GREY

**#DARK GREY & GREY # MODERN # CHIC** 

#### **CAR DESIGN**





#### **SPECIFICATION**

CEILING	CD-S14A
FRONT WALL	PAINTED STEEL (P021)
SIDE WALL	PAINTED STEEL (P021, P038)
REAR WALL	PAINTED STEEL (P038)
CAR DOORS	PAINTED STEEL (P021)
HANDRAILS	HR-01W
CAR OPERATIONG PANEL	OPP-D564T
FLOORING	PVC (H07)

#### **ENTRANCE**



JAMB	PAINTED STEEL (P038)
TRANSOM PANEL	PAINTED STEEL (P038)
HALL DOORS	PAINTED STEEL (P038)
HALL BUTTON	HPB-J21
INDICATOR	DI \$700



JAMB	PAINTED STEEL (P038)
HALL DOORS	PAINTED STEEL (P038)
HALL BUTTON	HIP-SJ21

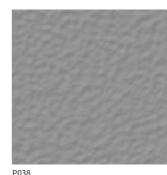


PC		

JAMB	PAINTED STEEL (P038)
HALL DOORS	PAINTED STEEL (P038)
HALL BUTTON	HIP-SJ21

#### **MATERIAL**



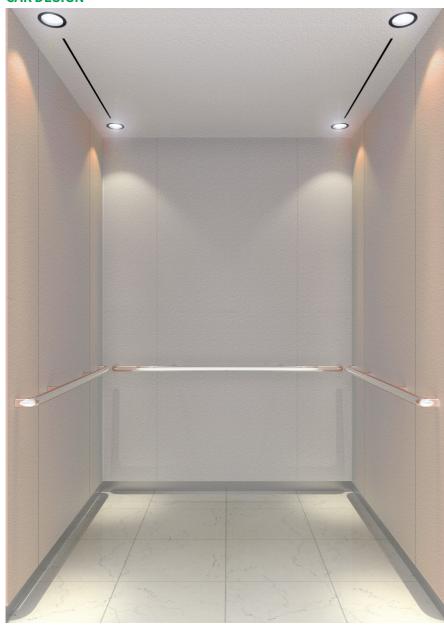


- $\hbox{-} The standard \hbox{ Car Height is 2,300mm. The car indicator can only be applied for a \hbox{ Car Height 2,400mm or more.} \\$
- Product and design images are for illustrative purposes only. Actual product colors may vary.
- Ceiling and wall divisions may vary according to passenger capacity.
- The pattern arrangement may vary according to passenger capacity. - An emergency elevator cabin is equipped with a ladder hatch.
- Ceiling emergency trap door are fabricated only for firefighting and rescue purposes.

# 02 **SOFT ROSE**

#### **#PALEROSE&WHITE #SOFT #WARM**

#### **CAR DESIGN**





Front View

#### **SPECIFICATION**

CEILING	CD-S14A
FRONT WALL	PAINTED STEEL (P040)
SIDE WALL	PAINTED STEEL (P034)
REAR WALL	PAINTED STEEL (P040)
CAR DOORS	PAINTED STEEL (P040)
HANDRAILS	HR-01W
CAR OPERATIONG PANEL	OPP-D521
FLOORING	PVC (H01)

#### **ENTRANCE**



	10
PAINTED STEEL (P040)	 J/

 TRANSOM PANEL
 PAINTED STEEL (P040)
 HALL DOO

 HALL DOORS
 PAINTED STEEL (P040)

 HALL BUTTON
 HPB-J21



00 Type

JAMB	PAINTED STEEL (P040)
HALL DOORS	PAINTED STEEL (P040)
HALL BUTTON	HIP-SJ21



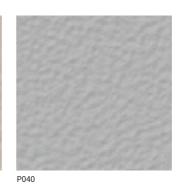
50 Type

JAMB	PAINTED STEEL (P040)
HALL DOORS	PAINTED STEEL (P040)
HALL BUTTON	HIP-SJ21

#### **MATERIAL**

JAMB





P034

- The standard Car Height is 2,300mm. The car indicator can only be applied for a Car Height 2,400mm or more.

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- Ceiling and wall divisions may vary according to passenger capacity.
- The pattern arrangement may vary according to passenger capacity.
- An emergency elevator cabin is equipped with a ladder hatch.
- Ceiling emergency trap door are fabricated only for firefighting and rescue purposes.

# 03 IVORY HARMONY

#GOLD&IVORY #WARM #COZY

#### **CAR DESIGN**





Front View

#### **SPECIFICATION**

FLOORING	PVC (H07)
CAR OPERATIONG PANEL	OPP-D521
HANDRAILS	HR-01W
CAR DOORS	PAINTED STEEL (P036)
REAR WALL	PAINTED STEEL (P036)
SIDE WALL	PAINTED STEEL (P040)
FRONT WALL	PAINTED STEEL (P036)
CEILING	CD-S54A

#### **ENTRANCE**





 JAMB
 PAINTED STEEL (P036)

 TRANSOM PANEL
 PAINTED STEEL (P036)

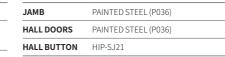
 HALL DOORS
 PAINTED STEEL (P036)

 HALL BUTTON
 HPB-J21

 INDICATOR
 PI-S700



100 Type



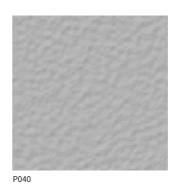


50 Type

JAMB	PAINTED STEEL (P036)
HALL DOORS	PAINTED STEEL (P036)
HALL BUTTON	HIP-SJ21

#### MATERIAL





P036

Note

 $- The standard \, Car \, Height \, is \, 2,300 mm. \, The \, car \, indicator \, can \, only \, be \, applied \, for \, a \, Car \, Height \, 2,400 mm \, or \, more.$ 

- Product and design images are for illustrative purposes only. Actual product colors may vary.

- Ceiling and wall divisions may vary according to passenger capacity.

- The pattern arrangement may vary according to passenger capacity.

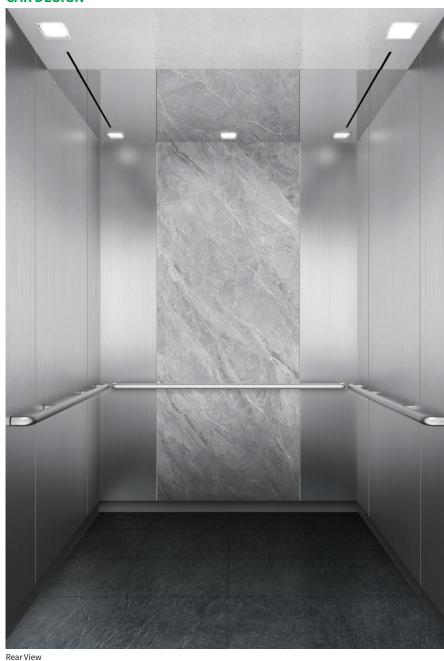
- An emergency elevator cabin is equipped with a ladder hatch.

- Ceiling emergency trap door are fabricated only for firefighting and rescue purposes.

# 04 MODERN MARBLE

#### #MARBLE & SILVER #MORDEN #STYLISH

#### **CAR DESIGN**





#### **SPECIFICATION**

CEILING	CD-S54A
FRONT WALL	STS HAIRLINE, STS MIRROR
SIDE WALL	STS HAIRLINE
REAR WALL	STS HAIRLINE, VCM (SW12)
CAR DOORS	STS HAIRLINE
HANDRAILS	HR-01W
CAR OPERATIONG PANEL	OOPP-L521/STS MIRROR
FLOORING	PVC (H02)

#### **ENTRANCE**



200 ., pc		
JAMB	STS HAIRLINE	
TRANSOM	CTC LIAIDLINE	

STS HAIRLINE PANEL HALL DOORS STS HAIRLINE HALL BUTTON HPB-J21



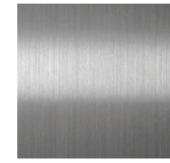
100 Type

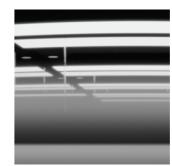
JAMB	STS HAIRLINE
HALL DOORS	STS HAIRLINE
HALL BUTTON	HIP-SJ21



JAMB	STS HAIRLINE
HALL DOORS	STS HAIRLINE
HALL BUTTON	HIP-SJ21

#### **MATERIAL**







STS HAIRLINE

STS MIRROR

VCM (SW12)

- $\hbox{-} The standard \hbox{ Car Height is 2,300mm. The car indicator can only be applied for a \hbox{ Car Height 2,400mm or more.} \\$
- Product and design images are for illustrative purposes only. Actual product colors may vary.
- Ceiling and wall divisions may vary according to passenger capacity.
- The pattern arrangement may vary according to passenger capacity.
- An emergency elevator cabin is equipped with a ladder hatch.
- Ceiling emergency trap door are fabricated only for firefighting and rescue purposes.

# 05 CLASSIC SILVER

#### **#SILVER&ETCHING #CLASSIC #ELEGANT**

#### **CAR DESIGN**





#### **SPECIFICATION**

CEILING	CD-199A
FRONT WALL	STS HAIRLINE
SIDE WALL	STS HAIRLINE
REAR WALL	STS HAIRLINE, STS HAIRLINE ETCHING (SE4556)
CAR DOORS	STS HAIRLINE ETCHING (SE4556)
HANDRAILS	HR1NSS0
CAR OPERATIONG PANEL	OPP-L521
FLOORING	PVC (H01, H06)



**ENTRANCE** 

JAMB	STS HAIRLINE
TRANSOM PANEL	STS HAIRLINE
HALL DOORS	STS HAIRLINE ETCHING (SE4556)
HALL BUTTON	HPB-J21
INDICATOR	PI-S700

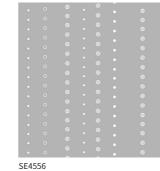


JAMB	STS HAIRLINE
HALL DOORS	STS HAIRLINE ETCHING (SE4556)
HALL BUTTON	HIP-SJ21



JAMB	STS HAIRLINE
HALL DOORS	STS HAIRLINE ETCHING (SE4556)
HALL BUTTON	HIP-SJ21

#### **MATERIAL**





- $The standard \, Car \, Height \, is \, 2,300 mm. \, The \, car \, indicator \, can \, only \, be \, applied \, for \, a \, Car \, Height \, 2,400 mm \, or \, more.$ 
  - Product and design images are for illustrative purposes only. Actual product colors may vary.
  - Ceiling and wall divisions may vary according to passenger capacity.
  - The pattern arrangement may vary according to passenger capacity.
  - An emergency elevator cabin is equipped with a ladder hatch.
  - Ceiling emergency trap door are fabricated only for firefighting and rescue purposes.

# 06 GLAM BRONZE

#### **#TITANIUM BRONZE #GLAMOROUS #GORGEOUS**

#### **CAR DESIGN**





Front View

#### **SPECIFICATION**

CEILING	CD-S21A
FRONT WALL	TI-BRONZE BEAD BLAST
SIDE WALL	TI-BRONZE BEAD BLAST
REAR WALL	TI-BRONZE BEAD BLAST, TI-BRONZE MIRROR
CAR DOORS	TI-BRONZE BEAD BLAST
HANDRAILS	HR1NSS0
CAR OPERATIONG PANEL	OPP-L521
FLOORING	PVC (H07)

#### **ENTRANCE**



e			

JAMB	TI-BRONZE BEAD BLAST
TRANSOM PANEL	TI-BRONZE BEAD BLAST
HALL DOORS	TI-BRONZE BEAD BLAST
HALL BUTTON	HPB-B21
INDICATOR	PI-DC



JAMB	TI-BRONZE BEAD BLAST
HALL DOORS	TI-BRONZE BEAD BLAST
HALL BUTTON	HIP-DB21



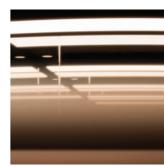
50 Type

TI-BRONZE BEAD BLAST
TI-BRONZE BEAD BLAST
HIP-DB21

#### MATERIAL







TI BRONZE MIRROR

#### Note - The standard Car Height is 2,300mm. The car indicator can only be applied for a Car Height 2,400mm or more.

- Product and design images are for illustrative purposes only. Actual product colors may vary.
- Ceiling and wall divisions may vary according to passenger capacity.
- The pattern arrangement may vary according to passenger capacity.
- An emergency elevator cabin is equipped with a ladder hatch.
- Ceiling emergency trap door are fabricated only for firefighting and rescue purposes.

#### **CLEAN MOVING SOLUTION**

#### **MOTION CALL BUTTONS**



#### **Touchless Call Buttons**

Reduce the spread of germs with our touchless call buttons.
Simple hand gestures activate the buttons without physical contact.

**SMART INDICATOR** 

#### The Smart Indicator provides comprehensive insights into all aspects of an elevator's operation.

Newly developed by Hyundai Elevator, it provides a wide range of smart functions that optimize the safety and cleanliness of an elevator, ranging from a comprehensive display unit that shows the elevator's current floor, power saving, and CCTV operations to ultrasonic pest control and ozone-free anion air cleaning.





**Surveillance Monitoring** 



Ultrasonic Pest Repellent Function



Power-saving Operation (Regenerative Drive)



Ozone-free Anion Air Purifier

#### **AIR TOUCH**

## Keep Your Elevators Clean and Safe with Touchless Control.

In a time that demands spaces to remain virus free, keep your elevators cleaner and smarter with Air Touch, Hyundai Elevator's exclusive position sensor system.



#### Safe and Sanitary Operation

Touchless floor Swi selection with ope Position Sensors eve



#### Fast and Accurate A Recognition F

Swift and reliable operation, even with gloves



#### Advanced Error Prevention

Protects against unintentional button presses



#### How it works

Air Touch's advanced infrared sensors, positioned at precise 2mm intervals, enable accurate detection of hand gestures.

This sophisticated technology allows users to select their desired floor with ease.

te - A virtual image has been used to illustrate the sensor's detection area, which is invisible to the naked eye.

#### **FOOT BUTTON**

## Call the elevator without using your hands with a touchless foot button

Our innovative foot button sensor offers a touchless and hygienic way to call the elevator, especially when your hands are full. This advanced technology ensures a safer and more convenient experience for all users.



How it works

Our patented foot button sensor utilizes advanced technology to detect foot movements.

By simply stepping on the laser shot foot symbol on the floor, you can easily call the elevator.





Note

- Applicable inside the car only.

#### **FIXTURE DESIGN**

#### **CAR OPERATION PANELS**

N:NOINDICATOR TYPE/D:DOT TYPE/L:LCD TYPE

Please refer to the

LCD design when selecting an LCD applicable model

#### STANDARD TYPE



#### **SWING TYPE**



LCD DESIGN



7 inch LCD

#### **FOR THE DISABLED**





 $^\star$  These two panels do not comply to EN81-70 requirements.

OPP-N521W

OPP-N221BW

#### **HALL BUTTONS**

#### STANDARD TYPE



HIP-SJ21/ HPB-J21

HIP-DB21/

HPB-B21

HIP-SK21/ HPB-K21

**GLASS TYPE** 



HIP-SM21B/ HPB-M21B

#### **FOOT BUTTON TYPE**



HIP-DB6F/ HPB-B64F

#### **MOTION CALL**



HIP-DDS1D/ HPB-DS1D

#### **INDICATORS**

#### STANDARD TYPE



#### **SMART INDICATOR**



PI-L210 (Built-in Type)

**Note** - Indicators inside the car is only applicable when the car height is 2,400mm or higher.

#### **BUTTONS**











^



#### **GLASS TYPE**



PI-SM0B

**LCD TYPE** 



LCD (10.4, 12.1, 15.1, 17 inch available)

#### \* Available buttons may vary based on the specific car operation panels or hall buttons selected. For more information or to discuss your specific needs, please contact us directly.

#### EN 81-70





EN 81-72





22\_23

#### **FIXTURE DESIGN**

#### **CEILINGS**



#### **HANDRAILS**

# STANDARD TYPE **ANTI VIRUS TYPE** HR-01W HR1NSS0 1FW (Korea) HR-BAR (FA)

#### HALL LANTERNS



#### **FLOORING**



Fixture Design

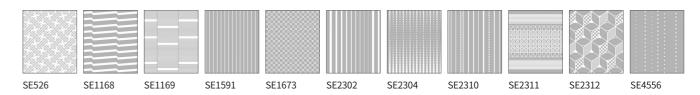
24\_25

#### **MATERIAL**



 $<sup>^\</sup>star$  Four SC type colors are not recommended for sites on a coastal area.

#### **ETCHING**



<sup>\* ■: ▲</sup> Embossed / □: 🖺 Intaglio etching part

<sup>\*</sup> Availability of emergency trap door on the ceiling is dependent on the car size.

\*\* Only these types comply with EN81-20/50 requirements with double entrance type car.

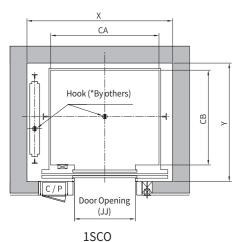
 $<sup>^*</sup>Only HR-01W and HR1NSSO complies with EN81-70 and GB/T24477-2009 \\ ^*1C type is also available with STSMIR and STSHL_Ti (three colors available, Antique Copper, Black Titanium, Titanium Gold) \\$ 

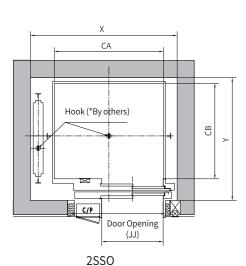
#### **INSTALLATION LAYOUT PLAN**

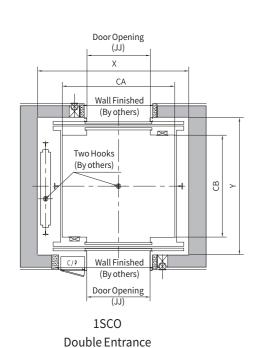
N:EX-1 MRL, Counterweight Side Drop Type

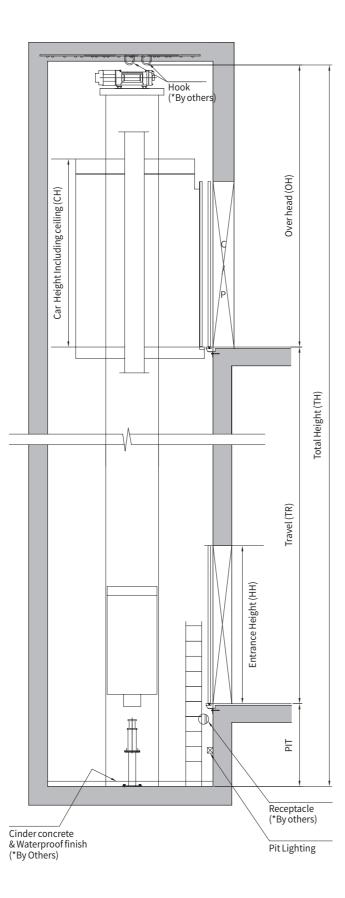
#### **PLAN OF HOISTWAY**

#### **SECTION OF HOISTWAY**









STANDARD DEMENSIONS

(Unit:mm)

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Specification

Opening Type	Capacity			Car Insize			- JJ	ЛЛ НН	Hoistway Insize	Max Decoration Weight (kg)
	Persons	kg	Speed (m/s)	CA × CB	СН	X×Y				
-	P6	450		1100×1150		700	2100	1700×1550		
	P7	550		1100×1300	- - - - 2300	800		1775×1650	150 (NOTE 1)	
	P8	630		1100×1400				1775×1750		
1SCO	P9	700	1.0	1250×1400				1850×1750	200	
Single	P10	800	1.5	1350×1400				1900×1750		
Entrance	P12	900	1.75	1500×1400	_	900		2100×1750		
	P13	1000		1600×1400				2150×1750		
	P15	1150		1800×1400		1000	_	2350×1750		
	P6	450	1.0 - 1.5 - 1.75	1100×1100		800		1650×1570	105 (NOTE 1)	
	P7	550		1100×1300			2100	1650×1700		
	P8	630		1100×1400				1650×1800		
	P9	700		1200×1400		900		1750×1800	155	
2SSO -	P10	800		1300×1400				1850×1800		
Single	P12	900		1300×1600				1850×2000		
Entrance				1600×1400	_			2150×1800		
	P13	1000		1100×2100	_			1650×2500		
-	545	4450		1800×1400		1200		2350×1800		
	P15	1150		1200×2100		1000	_	1800×2500		
	P7	550	1.0	1100×1300				1775×1800	105 (NOTE 1)	
	P8	630		1100×1400	_	800		1775×1900	105 (NOTE 1)	
1SCO Double Entrance	P9	700		1250×1400				1850×1900		
	P10	800	1.5	1350×1400	2300		2100	1900×1900		
	P12	900	1.75	1500×1400			-	2100×1900	155	
	P13	1000	_	1600×1450		900		2150×1950		
	P15	1150	_	1800×1450		1000	_	2350×1950		

- **NOTE:** 1. When capacity is 550kg, with travel distance of TR≤25m, there is no additional car weight allowance
  - for interior decoration. If additional weight is required (up to 150kg) additional belt must be applied.

    2. Standard Entrance Height(HH) range: 2000mm≤HH≤2200mm.
  - Standard Car Height(CH) range : CH≤2700mm.
  - 3. If required Car Height (CH) exceeds 2300mm and additional car weight for car interior decoration is expected, please consult with us for maximum allowable weight.

#### OH & PIT Depth (EN81-20/50)

(Unit:mm)

Camasitu/ka)	Support (m/a)	он(	PIT(mm)		
Capacity(kg)	Speed(m/s)	Balustrade Height 700	Balustrade Height 1100	PH (IIIIII)	
	1.0	3900	4300	1100	
450	1.5	4050	4450	1250	
	1.75	4100	4500	1300	
	1.0	3550	3950	1100	
550 - 1150	1.5	3700	4100	1250	
	1.75	3750	4150	1300	

#### OH & PIT Depth (EN81-1)

Capacity(kg)	Speed(m/s)	он(	PIT(mm)		
Capacity(kg/	Speed(iii/s)	Balustrade Height 700	Balustrade Height 1100	()	
	1.0	3550	3950	1100	
450-1150	1.5	3700	4100	1250	
	1.75	3750	4150	1300	

NOTE: 1. Above table is based on CH=2300mm and HH=2100mm.

- 2. Car & CWT runby is 120mm.
- 3. For capacity 450kg with above standard car size, the refugee type in accordance with EN81-20
- (5.2.5.7 ~ 5.2.5.8) is "crouching" on car and "Laying" in pit respectively.

  4. For stretcher elevator, please check with your local authorities for the required car and door dimension.
- 5. Only apply to steel belt number  $\leq 3$ : When ceiling is CD-199A and apply car exit, if CA≥1100mm and CB≥1600mm: [OH] is standard values.
- 6. The minimum floor height is 2,600mm for HL2 door operator and 2,720mm for W1L door operator.
- Please consult with us if your height is less than 2,720mm.
   Required OH may be increased if you need to position the ventilation fan in the middle of the ceiling or emergency trap door is applied on the ceiling. Please consult with us for more details.

#### **FUNCTIONS**

#### **STANDARD & OPTIONAL FEATURES**

Feature	Description	Standard	Optional
Simplex Selective Collective Operation	Operation is carried out completely automatically when a call is registered.	•	
Car Door Safety Edge with Single Side	A safety edge that runs down the full height of the door causes the door to reopen when it detects a person or obstacle while closing.	•	
Automatic Car Light & Fan Turn-off	$Carillumination \ and \ fan \ are \ turned \ of fautomatically \ when \ the \ car is \ idle \ to \ save \ energy.$	•	
Landing Door Interlock Switch	A switch integrated into the door operator prevents the car from moving when the doors are open. It locks doors completely while the car is operating to impede the opening of doors from the outside.	•	
Interphone (Intercom)	An interphone system provides emergency communication between passengers in the car and personnel in the machine room, maintenance room, or security office.	•	
Overload Holding Stop	A buzzer sounds and the car does not operate when passenger load exceeds maximum capacity. The buzzer stops, doors close, and the elevator starts to operate when passengers get off and weight is brought below the limit.	•	
Safety Drive Operation	If a car stops between floors during normal operation and the safety device does not work, the car will automatically move to the nearest floor at a low speed, open its doors, and allow passengers to get off.	•	
Parking Operation	$\label{thm:continuous} Elevators  can  be  automatically  parked  at  a  predetermined  floor  with  doors  closed  and  lights  and  ventilation  turned  off.$		•
Multi-beam Device for Car Doors	$\label{thm:multi-beams} Multi-beams from the top to the bottom of the door detect obstructions and force the door to remain open or to reopen before it hits the obstruction.$		•
Anti-nuisance Operation	When there is a significantly larger number of calls registered than the number of passengers, the elevator prevents unnecessary operation by canceling all calls entered after it arrives at the nearest floor.		•
Emergency Fire Operation	Cars return to a predetermined floor in the event of fire to help evacuate passengers safely.		•
Voice Synthesizer	A voice synthesizer directs passengers with audible operational information, such as car direction, floor landed, and emergency alerts.		•
Self-generated Power Operation	Power is supplied from the building's power generator and elevators operate under emergency power mode during power outages.		•
Emergency Fireman's Service	Firemen can use elevators parked at a specific floor to support fire-fighting operations in the event of a fire.		•
ELD (Emergency Landing Device)	$Elevators\ are\ sent\ to\ the\ nearest\ floor\ using\ power\ from\ a\ rechargeable\ battery\ when\ power\ outages\ occur\ and\ there\ is\ no\ emergency\ power\ in\ order\ to\ prevent\ trapping\ passengers.$		•
Attendant Operation	The elevator's operating mode can be switched from its regular automatic mode to manual mode using the attendant's switch on the COP.		•
Emergency Earthquake Operation	An earthquake sensor detects tremors and forces the elevator to stop at the nearest floor with its door fully open, preventing further operation.		•

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#### **WORK TO BE DONE BY OTHERS**

#### **CONSTRUCTION WORK**

#### HOISTWAY

- Forming holes on the wall surrounding the entrance on each floor. (entrance, hall button, hall lantern, etc.), and finishing the walls and floors after installation of the elevator. (including mortar filling)
- 2. Installation of steel frame to fix the left / right jambs on the entrance.
- 3. Installation of ladder for pit inspection where there the pit depth not exceeding 2.5m.
- 4. Installation of Pit access door where the pit depth exceeds 2.5m. Access door size: Min. 600mm (W) imes Min. 2000mm (H)
- 5. Waterproofing work inside the pit and finishing work after installation of the buffer.
- 6. Installation of hoistway partitions or separating beams. (If necessary)
- 7. Removing various tie pins and molds.
- 8. Others. (items indicated on the layout plan)

- Construction of concrete structures (thickness of 150 mm or above) or steel structures to fix the rail brackets.
- 10. Destruction and finishing of concrete structures that are not constructed as indicated on the layout plan.
- 11. Installation of lifting beam or hook that is designed to lift the machine to the top of hoistway.

#### MACHINE ROOM (MR)

- 1. Forming holes for machines and ropes on the floor, finishing on cinder concrete, and installation of those indicated on the layout plan.
- Installation of lifting beam or hook on the top of machine room.
   Installation of reinforcement beam on the machine room floor.
- 3. Installation of reinforcement beam on the machine room floor. (If necessary)

#### **CONSTRUCTION WORK**

#### HOISTWAY

- 1. The natural or artificial lighting of the landings in the vicinity of landing doors shall be at least 50 lux at floor level.
- Lighting with an intensity of at least 50 lux at 1.0 m above the pit floor everywhere a person can stand and 1.0 m above the car roof within its vertical projection.
- 3. Lighting with an intensity of at least 20 lux in the whole hoistway.
- Piping and wiring work from monitoring panel to hoistway when monitoring panel is installed. (Wire specifications: UL2919 × 2 EA per one bank(Max. 20 units))
- 5. Piping and wiring work when CCTV is installed.
- 6. Others. (items indicated on the layout plan)
- Wiring work on power system within the hoistway for supplying power and lighting. (Refer to the layout plan for electrical power requirements.)
- 8. Installation of distribution box for elevator (including N.F.B) on electrical room. (Install near the hoistway. Refer to the layout plan for electrical power requirements.)
- 9. Construction for power supply to maintain the voltage regulation of distribution source within  $\pm 5\%$  to and lighting within  $\pm 2\%$ .
- 10. Piping and wiring work on lighting outlet for pit inspection.
- 11. Supplying power needed during installation and commissioning free
- 12. Piping and wiring work on emergency communication device between elevator control panel and central control room. (Wire specifications: UTP × 4P per each elevator)

\*\* Communication device that connects the inside and outside of the elevator should be installed redundantly on the area where the managing personnel is stationed (security office, electric room, and central control room). In case of the facility where the managing personnel is stationed in only one place, only one communication device may be installed.

#### MACHINE ROOM (MR)

- Piping and wiring work outside the hoistway for the installation of emergency call equipment (intercom) in a place other than the machine room.
- 2. Construction of lighting and lighting outlets for inspection in machine room.
- Supplying power needed during installation and commissioning free of charge
- 4. Installation of lighting for power system and car, and construction of machine room incoming panel and its wiring for emergency power.
- Lighting with an intensity of at least 200 lux at floor level everywhere a person needs to work and 50 lux at floor level to move between working areas.

#### MACHINE ROOM LESS (MRL)

 Power supply (Including piping and wiring work) to the control panel and per-manently installed lighting with an intensity of at least 200 Lux from the bottom of the control panel.

#### **MATTERS TO NOTE**

- 1. Exit for machine room should be made of fire-proof material and should be installed in a structure that does not lead to other places.
- 2. Do not install ducts or pipes for other purposes (electricity, water, gas, hydrant) on the hoistway and walls inside the machine room.
- 3. Lower part of pit should not be used as residence, pathway, or for other purposes.
- 4. Power and voltage regulation should be within +5% to -5%.
- Temperature in machine room should be 40°C and humidity should be 90% or below. Be sure to install the entilation window, ventilator, or other air-conditioning facilities to prevent generation of dust or poisonous gas inside the machine room.
- When you wish to build the hoistway in steel frame, please contact us. (Steel frame construction for hoistway is excluded from our supply scope.)
- lpha Construction errors: Inner hoistway size that is indicated on the blueprint of this catalog is the minimum size that is designed to fit the size of the elevator interior. So, the construction error limit for hoistway width and overall height is  $\pm 20$  mm.
- Calculation equation for heat generation in machine room (based on one elevator)
- Q:  $(kcal/H) = W \times V \times F \times N$
- W: Loading capacity (kg)
- N: Number of elevators
- V: Rated speed (m/min.)
- F: Coefficient based on control type (1/42: VVVF)