



for a greener tomorrow



Quality  
inMotion™

HIGH-SPEED PASSENGER ELEVATORS  
For USA

# *Diamond* HS™



# Principle

Based on our policy, “Quality in Motion”, we provide elevators and escalators that will satisfy our customers with high levels of comfort, efficiency, ecology and safety.



Efficiency

Comfort

Ecology

Safety

Mitsubishi Electric elevators, escalators and building management systems are always evolving, helping achieve our goal of being the No.1 brand in quality. In order to satisfy customers in all aspects of comfort, efficiency and safety while realizing a sustainable society, quality must be of the highest level in all products and business activities, while priority is place on consideration for the environment. As the times change, Mitsubishi Electric promises to utilize the collective strengths of its advanced and environmental technologies to offer its customers safe and reliable products while contributing to society.

## We strive to be green in all of our business activities.

We take every action to reduce environmental burden during each process of our elevators' and escalators' lifecycle.



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*Diamond HS*

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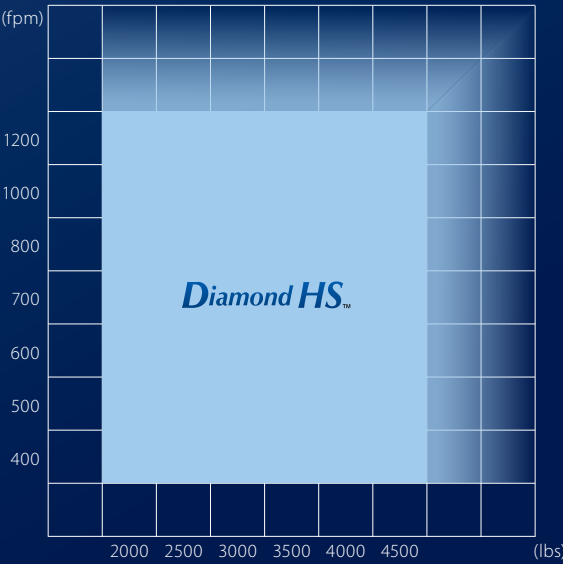
# Always responding to the needs of the next generation – Premium Elevators by Mitsubishi Electric

The source of our evolutionary developments is the voice of the era. Quickly revealing and understanding urban needs, our high-speed elevators are continuously evolving. While ensuring greater comfort, safety, energy savings and original designs, our tailor-made elevators offer a new dimension of response to diverse application demands in the market. We offer premium value for the premium space in high-rise buildings, delivering elegant office and residential environments that are comfortable and safe. The Diamond HS™ passenger elevator sets the next stage for elevator design and functionality.

Custom-made high-quality elevators

*Diamond HS™*

## Application



Contact a Mitsubishi Electric representative for over 1200fpm or over 4500lbs.



# Products You Can Trust

Mitsubishi Electric is proud of the design standards it incorporates to ensure product quality. Stringent design criteria are applied throughout, from traction machines and speed governors to safety and door devices that interact closely with the user. Superior quality, realized through strict inspections and quality testing, ensures advanced safety and reliability.

## Reliability & ecology

We utilize the utmost care in elevator design, even for items that are never seen. Attention to detail that leaves users assured our elevators can be used safely for many years to come. Once experienced first-hand, passengers can appreciate the quality that has led to consistently high reviews from our customers.

### Uncompromised reliability

The majority of elevator accidents occur near the doors. That is why we design the area so that breakdowns and the entrapment of passengers are unlikely to happen; and even if they do, the impact of such occurrences is kept to a minimum. As a result, you can expect the number of callbacks, the burden of restoration work, and the negative impact from interrupted service to be significantly reduced. Everyone can look forward to a safe and trouble-free ride.

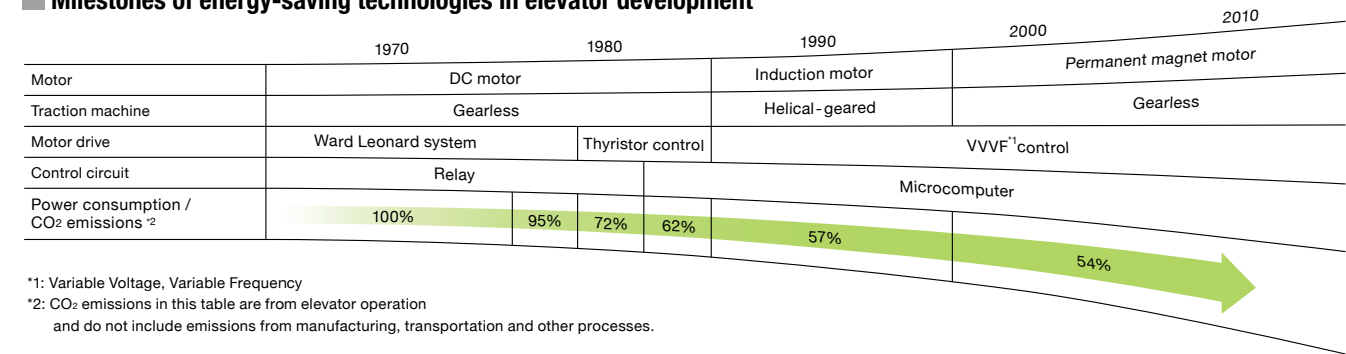
### Sustainable performance

With the passage of time, elevator performance can become degraded, leading to slight vibration, operating noise or inaccurate landing. Our elevators are built with high standards of quality - with proper maintenance, customers can expect “like new” operation over the life of the product.

### Using energy wisely

Our long-term commitment to developing energy-efficient elevators has created systems and functions that make intelligent use of power.

#### Milestones of energy-saving technologies in elevator development

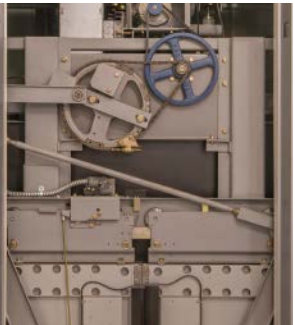


## Safety & comfort

Considering that elevators are part of society’s infrastructure, their safety and comfort are vital. Diamond HS™ is packed with functions and considerations to ensure an anxiety-free ride.

### Smooth door operation

Smooth and quiet door operation has been achieved using a highly efficient Reduced Instruction Set Computer (RISC) and Variable Voltage, Variable Frequency (VVVF) inverters. Our intelligent door systems detect the constant variation in door load on each floor, the strength of the wind in the elevator shaft, and even the sediment in the door tracks, and the RISC automatically adjusts the door speed and motor torque via an automatic tuning function. Furthermore, our robust door operating equipment is structurally isolated from the car to prevent the transmission of noise and vibration to the car.



### Safe boarding

Our primary concern is for users to safely step across the threshold. Equipped with an infrared sensor and a retractable safety door edge, the doors stop closing immediately and reopen if a passenger or object is detected.

### Comfortable ride - So smooth a coin on edge won't fall

Leading-edge control systems and devices, along with highly skilled installation technology, assure that even when traveling at high speeds, the ride will be smooth and quiet from start to stop. And, when reaching your floor, you can count on perfect floor alignment.

### Safe and quick emergency evacuation

The Occupant Evacuation Operation (OEO) enables safe and quick evacuation of occupants from multi-floor buildings at the time of an emergency, such as a fire, by shuttle operation between the evacuation block and the discharge level.

OEO is an optional function.



# Achieving Optimum Speed, Safety and Comfort

## Permanent Magnet (PM) Traction Machine Produced by Unique Technology

Mitsubishi Electric was the first in the world to introduce the PM gearless traction machine. Thanks to the implementation of our proprietary technologies, such as unique joint-lapped cores built into the motor, we have created a high-performance traction machine with a reputation for comfortable and reliable operation.

### 1 High efficiency

The world's highest level of efficiency and power factor for traction machines have been achieved via high-density, high-precision winding of the joint-lapped cores. An intense magnetic field produced around the cores reduces the use of energy, and thereby CO<sub>2</sub> emissions.

### 2 Safety

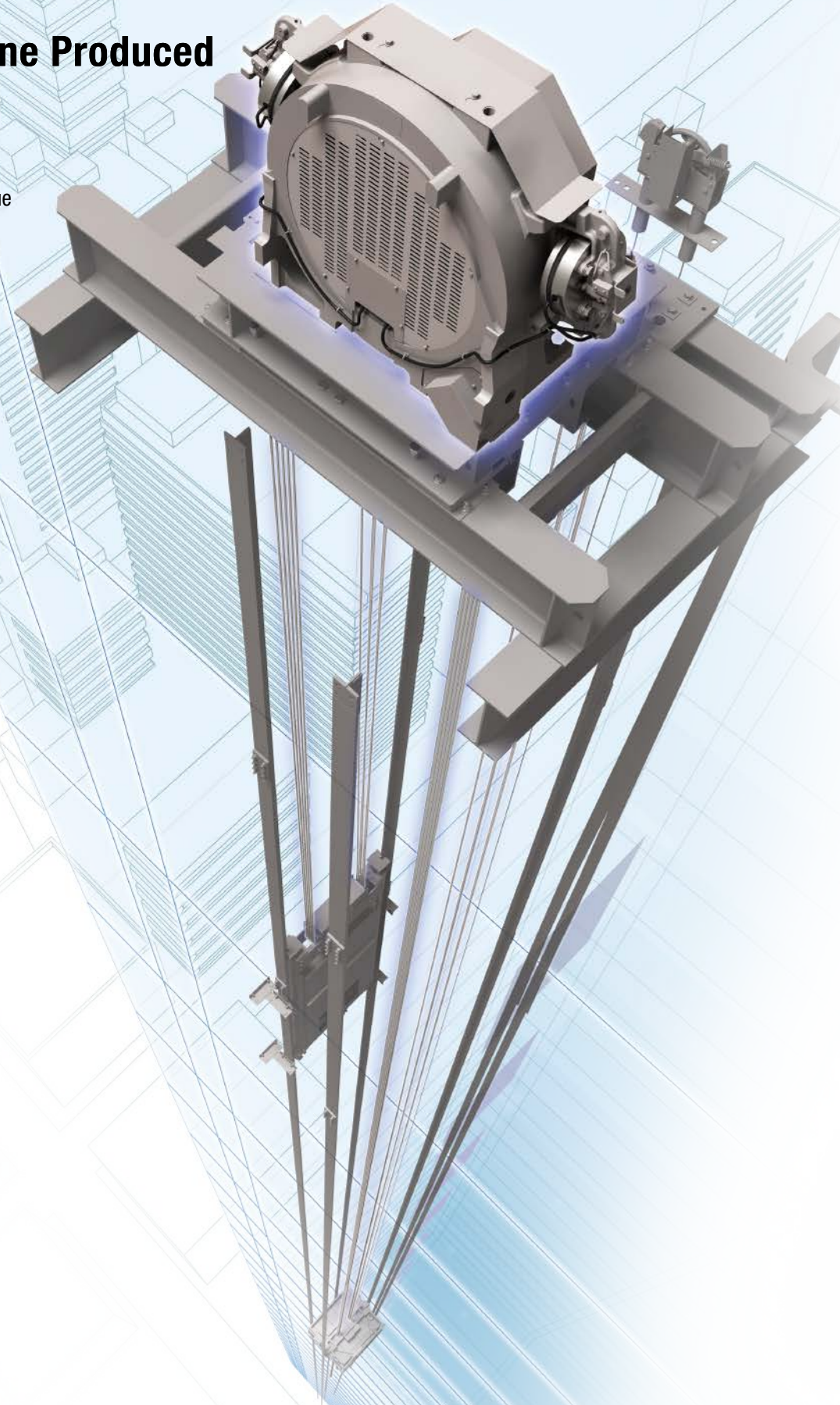
The brake system incorporated in the traction machine employs a double-brake configuration to stop the elevator securely. Additionally, a high-resolution motor encoder maintains superb landing precision for safe boarding and maximum passenger comfort.

### 3 Comfort

Through our ingenious motor design, torque ripple is reduced and a quiet, smooth ride is assured. Our traction machine also features one of the world's quietest brakes as a result of advanced noise-reduction technology, which enables changes in electrical current to be detected during brake operation.

### 4 Streamlined design

While delivering very powerful output, our traction machines are quite compact due to the high-density winding technology.



## Proprietary Mechanism Underlying High-strength sfleX-rope®

Mitsubishi Electric's new sfleX-rope® is comprised of bundles of high-intensity steel wire strands, each covered with plastic, offering higher intensity than conventional rope for safe operation despite the greater weight of longer ropes. Each wire has a higher density and wider cross-sectional area than conventional rope, which helps to reduce rope stretching caused when passengers step into the elevator.

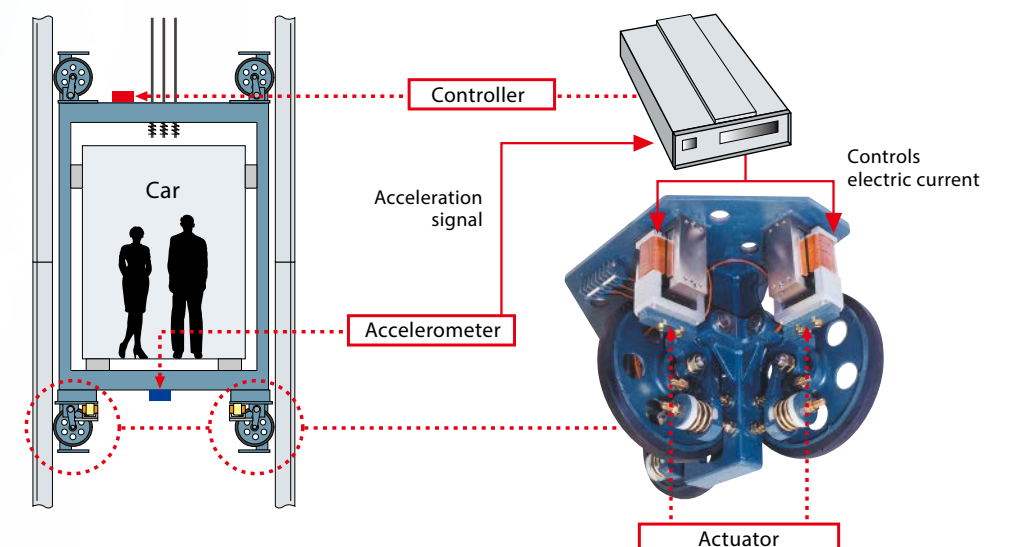
Application of the sfleX-rope® depends on travel, speed, etc.

### For Super High-speed

## Ride Quality Increased by Active Roller Guide

The amount of lateral vibration generated by high-speed elevator cars can be tremendous. As a world's first innovation in the industry, Mitsubishi Electric's Active Roller Guide technology reduces this vibration by approximately 50%. It works via an accelerometer that detects car vibration during operation, along with actuators that cancel the vibration through a controlled electromagnetic force. Mitsubishi Electric Active Roller Guides ensure a more comfortable ride than elevators employing conventional roller guides.

Active Roller Guide is an optional device.





# Ensuring Elevator Comfort

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## ΣAI® Group Control System: ΣAI-22 and ΣAI-2200C

### Intuitive & comfortable

Incorporating the latest advancements in fuzzy-logic, our group control system utilizes intuitive control to provide reliable dispatching and a stress-free ride. The moment a hall call button is pressed, the optimal car to respond to the call is selected based on factors such as waiting time, travel time, current car occupancy and energy consumption.

ΣAI-22 and ΣAI-2200C control multiple elevators optimally according to the building size.

### Performance

Group control systems	Suitable building size	Number of cars in a group
ΣAI-22 system	Small to medium	3 to 4
ΣAI-2200C system	Large (especially buildings with dynamic traffic conditions)	3 to 8

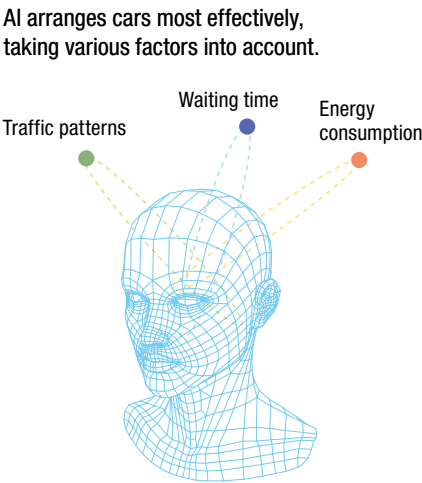


### Forecasting a near-future hall call to reduce long waits

When a hall call is registered, the artificial intelligence predicts a near-future call that could require long waits. Through evaluation of the registered hall call and the forecasted call, the best car is assigned. All cars work cooperatively for optimum operation.

### Selects optimum car allocation through “rule-set” simulation

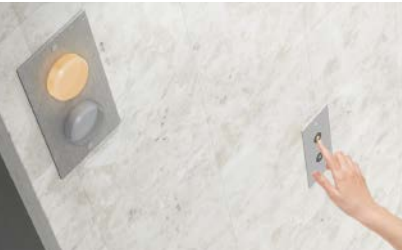
The neural network technology has enabled the system to continually and accurately predict the passenger traffic within intervals of several minutes. A high-speed RISC runs real-time simulations using multiple rule-sets and the predicted passenger traffic to select the rule-set which optimizes transport efficiency.



## Immediate Prediction Indication (AIL)

### Easing stress of waiting at elevator hall

When a passenger has registered a hall call, the best car to respond to that call is immediately selected and the corresponding hall lantern lights up, a chime sounds, and the light starts flashing just before car arrival to indicate which doors will open.



AIL is an optional function.

## Destination Oriented Allocation System (DOAS™)

### Allocating passengers to cars depending on destination floors

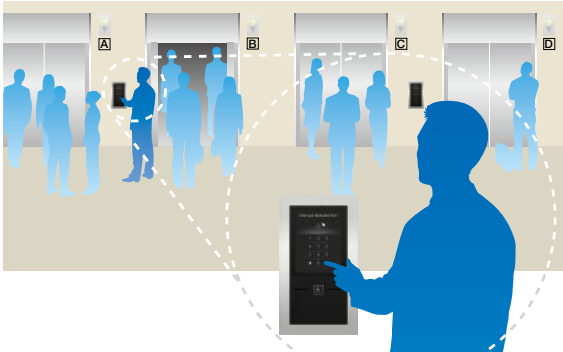
When a passenger enters a destination floor at a hall, the hall operating panel immediately indicates which car will serve the floor. Because the destination floor is already registered, the passenger does not need to press a button in the car. Furthermore, dispersing passengers by destination prevents congestion in cars and minimizes waiting and traveling time.



DOAS™ is an optional function.

### Enhanced convenience

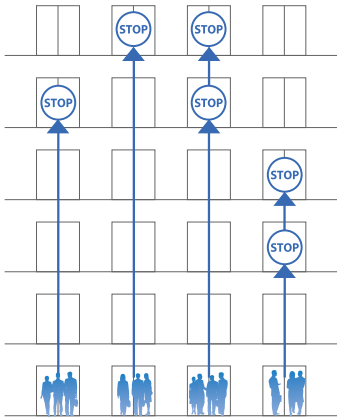
When passengers enter a destination floor at a hall, the hall operating panel indicates which elevator to take. As passengers proceed to the assigned elevator, the car is on its way and there is no hurry when the car arrives.



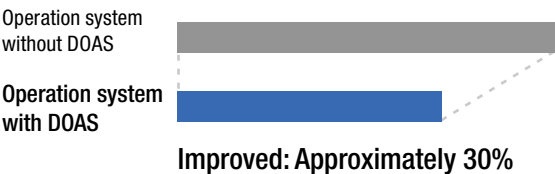
Compared to group control system without DOAS, this system reduces the average waiting time at the time of congestion and long-wait.

### Individualized car allocation based on travel time

The individualized car allocation based on the destination floors leads to shorter travel time and fewer intermediate stops.



### Average waiting time at the time of congestion



### Long-wait rate (60 seconds or longer)



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CAR FIXTURES

Car Operating Panels

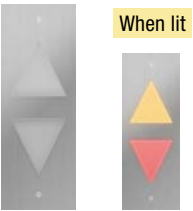


**CBF-US112**  
Plastic round-type  
micro stroke click button



**CBV-US112**  
Stainless steel round-type  
micro stroke click button

Car Lanterns<sup>\*2</sup>



**CLV-US110** Yellow orange (UP)  
Frosted clear Red (DOWN)  
acrylic lens

Lighting color selections



Yellow orange (UP & DOWN) White (UP & DOWN)

**CBF-US111/  
CBV-US111<sup>\*1</sup>**



Design and lighting color selections

Full-face Illumination



Yellow orange



White  
(California code compliant)

Halo Illumination



Yellow orange



White

HALL FIXTURES

Diamond HS™

Hall Lanterns



**HLV-US220** Frosted clear  
acrylic lens  
Orange  
(UP & DOWN)



**HLV-US120** Frosted clear  
acrylic lens  
Orange  
(UP & DOWN)



**HLVD-US20** Milky white  
acrylic lens  
without faceplate<sup>\*3</sup>



Yellow orange (UP)  
Red (DOWN)

Hall Position Indicator with Lantern



Position indicator: LED dot display

- Lantern lighting color: See Hall Lanterns.
- Not applicable to ΣAI-2200C, excluding on the main floor.

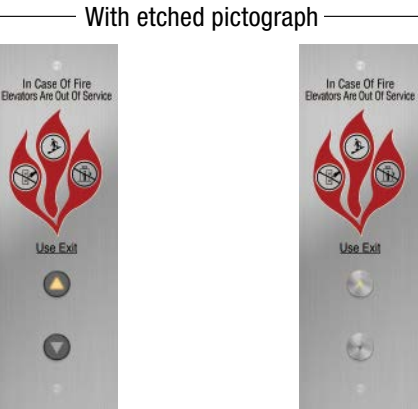
Hall Buttons



**HBF-US110** Plastic round-type  
micro stroke click button



**HBV-US110** Stainless steel round-type  
micro stroke click button



**HBF-US210** Plastic round-type  
micro stroke click button

**HBV-US210** Stainless steel round-type  
micro stroke click button

Lighting color selections



Yellow<sup>\*4</sup> orange  
(UP & DOWN)



White<sup>\*4</sup>  
(UP & DOWN)

Design selection



Vandal  
resistant



Green (UP)  
Red (DOWN)

Design and lighting color selections

Full-face Illumination



Yellow orange



White  
(California code compliant)

Halo Illumination



Yellow orange



White

Notes

- <sup>\*1</sup>: This design is for California and other states and regions where compliant with a previous version of ASME code is required.
- <sup>\*2</sup>: Car lanterns are not applicable to elevators equipped with ΣAI-2200C group control system.
- <sup>\*3</sup>: Wall finish is not included in elevator contract.
- <sup>\*4</sup>: The custom colors are applicable to hall lanterns regardless of their shape.

Actual colors may differ slightly from those shown.

Hall Operating Panels

[DOAS requires hall operating panels instead of hall buttons for conventional group control.]

Touchscreens



**HSP-C13**  
10.4-inch touchscreen



**HSP-C18**  
10.4-inch touchscreen  
with card reader

Custom keypads



5.7-inch LCD display  
& vertical face button



**For California**  
(California code compliant)  
5.7-inch LCD display  
& slant face button



Hall Lanterns

Triangle flag



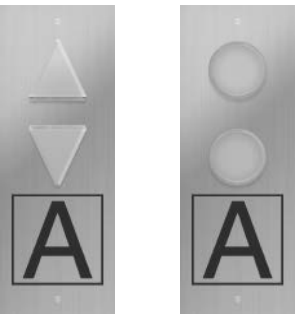
**HLF-A10B**  
**HLF-A11B** (with chime)  
Lighting: Yellow orange when lit

Custom rectangle flag



Lighting: Yellow orange when lit

Elevator number appended



Elevator number: - Stainless steel #4  
- Black etched letter in frame  
Lighting color: See Hall Lanterns on page 12

Elevator number illuminated



Faceplate: Stainless steel #4  
Lighting: White when lit

Actual colors may differ slightly from those shown.



Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C Σ AI-22	3C to 8C Σ AI-2200C
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Standard Features

■ EMERGENCY OPERATIONS AND FEATURES

Earthquake Emergency Operation	EER-DS	In case of earthquake detection, the elevator stops at the nearest available floor and shuts down with the door open. (Detailed operation conforms to the local code.)	✓	✓	✓
Firefighters' Emergency Operation	FE	In case of fire, the elevator performs firefighters' emergency operation (Phase I and Phase II) conforming to the local code.	✓	✓	✓

■ DOOR OPERATION FEATURES

Automatic Door-open Time Adjustment	DOT	The amount of time that doors are open will automatically adjust depending on whether the stop was called from the hall or the car, to allow smooth boarding of passengers or loading of baggage.	—	—	✓
Automatic Door Speed Control	DSAC	Door load on each floor, which can depend on the type of hall door, is monitored to adjust the door speed, thereby making it consistent throughout all floors.	✓	✓	✓
Door Load Detector	DLD	When excessive door load has been detected while opening or closing, the doors immediately move in the reverse direction.	✓	✓	✓
Door Nudging Feature — With Buzzer	NDG	The doors slowly close when they have remained open for longer than the preset period with alarm sound.	✓	✓	✓
Door Sensor Self-diagnosis	DODA	Failure of non-contact door sensors is checked automatically, and if a problem is diagnosed, the door-close timing is delayed and the closing speed is reduced to maintain elevator service and ensure passenger safety.	✓	✓	✓
Multi-beam Door Sensor	—	Multiple infrared-light beams cover some height of the doors as they close to detect passengers or objects.	✓	✓	✓
Reopen with Hall Button	ROHB	Closing doors can be re-opened by pressing the hall button corresponding to the traveling direction of the car.	✓	✓	✓
Repeated Door-close	RDC	Should an obstacle prevent the doors from closing, the doors will repeatedly open and close until the obstacle is removed.	✓	✓	✓
Safety Door Edge	SDE	The sensitive door edge detects passengers or objects during door closing.	✓	✓	✓

■ OPERATIONAL AND SERVICE FEATURES

Automatic Bypass	ABP	A fully loaded car bypasses hall calls in order to maintain maximum operational efficiency.	✓ <sup>#1</sup>	✓	✓
Automatic Hall Call Registration	FSAT	If one car cannot carry all waiting passengers because it is full, another car will automatically be assigned for the remaining passengers.	✓	✓	✓
Backup Operation for Group Control Microprocessor	GCBK	An operation by car controllers which automatically starts to maintain elevator operation in the event that a microprocessor or transmission line in the group controller has failed.	✓ <sup>†</sup>	✓	✓
Car Call Canceling	CCC	When a car has responded to the final car call in one direction, the system regards remaining calls in the other direction as errors and clears them from the memory.	✓	✓	✓
Car Fan Shut Off — Automatic	CFO-A	If there are no calls for a specified period, the car ventilation fan will automatically turn off to conserve energy.	✓	✓	✓
Car Light Shut Off — Automatic	CLO-A	If there are no calls for a specified period, the car lighting will automatically shut off to conserve energy.	✓	✓	✓
Continuity of Service	COS	A car which is experiencing trouble is automatically withdrawn from group control operation to maintain overall group performance.	✓	✓	✓
False Call Canceling — Automatic	FCC-A	If the number of registered car calls does not correspond to the car load, all calls are canceled to avoid unnecessary stops.	✓	✓	✓
Car Call Erase	FCC-P	If a wrong car button is pressed, it can be canceled by quickly pressing the same button again twice.	✓	✓	✓
High Accuracy Landing Feature	HARL	The car landing level is adjusted to a high level of precision in order to ensure a landing accuracy of ±5mm under any conditions.	✓	✓	✓
Independent Service	IND	Exclusive operation where a car is withdrawn from group control operation for independent use, such as maintenance or repair, and responds only to car calls.	✓	✓	✓

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C Σ AI-22	3C to 8C Σ AI-2200C
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■ OPERATIONAL AND SERVICE FEATURES

Landing Open	LO	Doors start opening right before the car has completely stopped at a floor.	✓	✓	✓
Next Landing	NXL	If the elevator doors do not open fully at a destination floor, the doors close and the car automatically moves to the next or nearest floor, where the doors will open.	✓	✓	✓
Overload Holding Stop	OLH	A buzzer sounds to alert the passengers that the car is overloaded; the doors remain open and the car does not leave that floor until enough passengers exit the car.	✓	✓	✓
Rope Replacement Alarm	RRA	This self-diagnosis function gives an alert when rope replacement timing has approached.	✓	✓	✓
Safe Landing	SFL	If a car has stopped between floors due to an equipment malfunction, the controller checks the cause, and if it is considered safe to move the car, the car will move to the nearest floor at a low speed and the doors will open.	✓	✓	✓

■ GROUP CONTROL FEATURES

Car Allocation Tuning	CAT	The number of cars allocated or parked on crowded floors are controlled not just according to the conditions on those crowded floors, but also on the operational status of each car and the traffic on each floor.	—	—	✓
Car Travel Time Evaluation	—	Cars are allocated to hall calls by considering the number of car calls that will reduce passenger waiting time in each hall and the travel time of each car.	—	✓	✓
Cooperative Optimization Assignment	—	The system predicts a potential hall call which could cause longer waiting time. Car assignment is performed considering not only current and new calls but also near-future calls.	—	—	✓
Distinction of Traffic Flow with Neural Networks	NN	Traffic flows in a building are constantly monitored using neural network technology, and the optimum operational pattern, such as Lunchtime Service or Up Peak Service, is selected or canceled accordingly at the appropriate time.	—	—	✓
Dynamic Rule-set Optimizer	DRO	Traffic flows in a building are constantly predicted using neural network technology, and an optimum rule-set for group control operations is selected through real-time simulations based on prediction results.	—	—	✓
Energy-saving Operation — Allocation Control	ESO-W	The system selects the elevator that best balances operational efficiency and energy consumption according to each elevator's current location and passenger load, as well as predicted congestion levels throughout the day.	—	—	✓
Energy-saving Operation — Power Reduction during Off-peak	ESO-A	To save energy, some elevators are automatically put into sleep mode if there are no calls for a specified period.	—	—	✓
Expert System and Fuzzy Logic	—	Artificial expert knowledge, which has been programmed using "expert system" and "fuzzy logic," is applied to select the ideal operational rule for maximum efficiency of group control operations.	—	✓	✓
Peak Traffic Control	PTC	A floor which temporarily has the heaviest traffic will be served with higher priority than other floors, but not to an extent that interferes with service to other floors.	—	✓	✓
Psychological Waiting Time Evaluation	—	Cars are allocated according to the predicted psychological waiting time for each hall call. The rules evaluating psychological waiting time are automatically changed in response to actual service conditions.	—	✓	✓
Strategic Overall Spotting	SOHS	To reduce passenger waiting time, cars which have finished service are automatically directed to positions where they can respond to predicted hall calls as quickly as possible.	✓ <sup>†</sup>	✓	✓

■ SIGNAL AND DISPLAY FEATURES

Basic Announcement	AAN-B	A synthetic voice (and/or buzzer) that alerts passengers inside a car to the fact that elevator operation has been temporarily interrupted by overloading or a similar cause. (Voice available only in English.)	✓	✓	✓
Car Arrival Chime-Car	AECC	Electronic chimes that sound to indicate that a car will soon arrive. (The chimes are mounted on the top and bottom of the car.)	✓	✓	—
Car/Hall Click Type Call Buttons	—	Call buttons that click softly when touched are fitted as standard.	✓	✓	✓
Flashing Hall Lantern	FHL	A hall lantern, which corresponds to a car's service direction, flashes to indicate that the car will soon arrive.	✓	✓	✓
Inter-communication System	ITP	A system that allows communication between passengers inside a car and the building personnel.	✓	✓	✓

Notes:1C-2BC (1-car selective collective) - Standard, 2C-2BC (2-car group control system) - Optional  
ΣAI-22 (3- to 4-car group control system) - Optional, ΣAI-2200C (3- to 8-car group control system) - Optional  
✓=Applicable    †=Not applicable to 1C-2BC    —= Not applicable  
#1: Optional when the operation system is 1C-2BC.



Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C Σ AI-22	3C to 8C Σ AI-2200C
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Optional Features

■ EMERGENCY OPERATIONS AND FEATURES

Building Management System-GateWay	BMS-GW	Each elevator's status and operation can be monitored and controlled using a building management system which manages various facilities in the building via the interface for the elevator system.	✓	✓	✓
Emergency Car Lighting	ECL	Car lighting which turns on immediately when power fails to provide a minimum level of lighting within the car. (Choice of dry-cell battery or trickle-charger battery.)	✓	✓	✓
MelEye Mitsubishi Elevators & Escalators Monitoring and Control System	WP-W	Each elevator's status and operations can be monitored and controlled using an advanced web-based technology which provides an interface through personal computers. Special optional features, such as preparation of traffic statistics and analysis, are also available.	✓	✓	✓
Occupant Evacuation Operation	OEO	Elevators shuttle between the evacuation block and the discharge level for safe and quick evacuation of occupants from multi-floor buildings at the time of an emergency, such as a fire.	✓ <sup>#1</sup>	✓ <sup>#1</sup>	✓ <sup>#1</sup>
Operation by Emergency Power Source — Automatic	OEPS-AU	In case of power failure, the elevator moves to the designated floor and opens the door to secure the safety of passengers. Then, the elevator will operate by emergency power until normal power recovery. (Detailed operation conforms to the local code.)	✓ <sup>†</sup>	✓	✓
Supervisory Panel	WP	A panel installed in a building's supervisory room, which monitors and controls each elevator's status and operations by remotely using indicators and switches provided on request.	✓	✓	✓

■ DOOR OPERATION FEATURES

Electronic Doorman	EDM	Door open time is minimized using safety ray(s) or multi-beam door sensors that detect passengers boarding or exiting.	✓	✓	✓
Extended Door-Open (Door Hold) Button	DKO-TB	A button located inside a car which keeps the doors open for a longer than usual period to allow loading and unloading of a stretcher, baggage, etc.	✓	✓	—
3D Multi-beam Door Sensor	—	Multiple infrared-light beams cover some height of the doors as they close to detect passengers or objects. The 3D sensor can also monitor the hall by expanding multiple infrared light beams.	✓ <sup>#1</sup>	✓ <sup>#1</sup>	✓ <sup>#1</sup>

■ OPERATIONAL AND SERVICE FEATURES

Attendant Service	AS	Exclusive operation where an elevator can be operated using the buttons and switches located in the car operating panel, allowing smooth boarding of passengers or loading of baggage.	✓	✓	✓
Elevator and Security System Interface	EL-SCA/ EL-SC	Personal authentication by building's security devices can trigger predetermined elevator operation such as permission of access to private floors, registration of a hall call and destination floor and VIP operation.	✓ <sup>#1</sup>	✓ <sup>#1</sup>	✓ <sup>#1</sup>
Motor Drive Mix	MDX	The rate of car acceleration and deceleration is automatically increased according to the car load to reduce passenger waiting and travel time.	—	✓	✓
Non-Service Temporary Release for Car Call - Card Reader Type	NSCR-C	To enhance security, car calls for desired floors can be registered only by placing a card over a card reader. This function is automatically deactivated during emergency operations.	✓ <sup>#1</sup>	✓ <sup>#1</sup>	✓ <sup>#1</sup>
Non-service to Specific Floors — Car Button Type	NS-CB	To enhance security, service to desired floors can be set to disable using the car operating panel. This function is automatically deactivated during emergency operations.	✓	✓	✓
Non-service to Specific Floors — Switch/Timer Type	NS NS-T	To enhance security, service to desired floors can be set to disable using a manual or timer switch. This function is automatically deactivated during emergency operations.	✓	✓	✓
Out-of-service-remote	RCS	With a key switch on the supervisory panel, etc., a car can be called to a specified floor after responding to all car calls, and then automatically be taken out of service.	✓	✓	✓
Return Operation	RET	Using a key switch on the supervisory panel, a car can be withdrawn from group control operation and called to a specified floor. The car will park on that floor with the doors open, and not accept any calls until independent operations begin.	✓	✓	✓
Secret Call Service	SCS-B	To enhance security, car calls for desired floors can be registered only by entering secret codes using the car buttons on the car operating panel. This function is automatically deactivated during emergency operations.	✓	✓	✓

■ GROUP CONTROL FEATURES

Bank-separation Operation	BSO	Hall buttons and the cars called by each button can be divided into several groups for independent group control operation to serve special needs or different floors.	—	✓	✓
Closest-car Priority Service	CNPS	A function to give priority allocation to the car closest to the floor where a hall call button has been pressed, or to reverse the closing doors of the car closest to the pressed hall call button on that floor. (Cannot be combined with Hall Position Indicators.)	—	✓ <sup>#1</sup>	✓
Congested-floor Service	CFS	The timing of car allocation and the number of cars to be allocated to floors where meeting rooms or ballrooms exist and the traffic intensifies for short periods of time are controlled according to the detected traffic density data for those floors.	—	✓	✓

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C Σ AI-22	3C to 8C Σ AI-2200C
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■ GROUP CONTROL FEATURES

Destination Oriented Allocation System	DOAS	When a passenger enters a destination floor at a hall, the hall operating panel indicates which car will serve the floor. The passenger does not need to press a button in the car. Dispersing passengers by destination prevents congestion in the cars and minimizes waiting and traveling time. (Cannot be combined with some features. Contact a Mitsubishi Electric representative for more information.)	—	—	✓ <sup>#3</sup>
Down Peak Service	DPS	Controls the number of cars to be allocated and the timing of car allocation in order to meet increased demands for downward travel during office leaving time, hotel check-out time, etc. to minimize passenger waiting time.	—	✓	✓
Elevator Call System with Smartphone	ELCS-SP	Using a smartphone equipped with the application, users can change the call setting for their elevator and check the status of the elevator assigned to them. Once inside the secure area, users can call an elevator remotely from anywhere.	—	—	✓ <sup>#1</sup>
Energy-saving Operation — Power Reduction during Off-peak	ESO-A	To save energy, some elevators are automatically put into sleep mode if there are no calls for a specified period.	—	✓	—
Energy-saving Operation — Speed control	ESO-V	To save energy, the car speed is automatically reduced to some extent, but not so much that it adversely affects passenger waiting time.	—	✓	✓
Forced Floor Stop	FFS	All cars in a bank automatically make a stop at a predetermined floor on every trip without being called.	✓	✓	✓
Intense Up Peak	IUP	To maximize transport efficiency, an elevator bank is divided into two groups of cars to serve upper and lower floors separately during up peak. In addition, the number of cars to be allocated, the timing of car allocation to the lobby floor, the timing of door closing, etc., are controlled based on predicted traffic data.	—	—	✓
Light-load Car Priority Service	UCPS	When traffic is light, empty or lightly loaded, cars are given higher priority to respond to hall calls in order to minimize passenger travel time. (Cannot be combined with Hall Position Indicators.)	—	✓ <sup>#1</sup>	✓
Lunchtime Service	LTS	During the first half of lunchtime, calls for a restaurant floor are served with higher priority, and during the latter half, the number of cars allocated to the restaurant floor, the allocation timing for each car and the door opening and closing timing are all controlled based on predicted data.	—	✓	✓
Main Floor Changeover Operation	TFS	This feature is effective for buildings with two main floors. The floor designated as the "Main floor" in a group control operation can be changed as necessary using a manual switch.	✓	✓	✓
Main Floor Parking	MFP	An available car always parks on the main floor with the doors open to reduce passenger waiting time.	✓	✓	✓
Special Car Priority Service	SCPS	Special cars, such as observation elevators and elevators with basement service, are given higher priority to respond to hall calls. (Cannot be combined with Hall Position Indicators.)	—	✓ <sup>#1</sup>	✓
Special Floor Priority Service	SFPS	Special floors, such as floors with VIP rooms or executive rooms, are given higher priority for car allocation when a call is made on those floors. (Cannot be combined with Hall Position Indicators.)	—	✓ <sup>#1</sup>	✓
Up Peak Service	UPS	Controls the number of cars to be allocated to the lobby floor, as well as the car allocation timing, in order to meet increased demands for upward travel from the lobby floor during office starting time, hotel check-in time, etc., and minimize passenger waiting time.	—	✓	✓
Swing Service	SWSV	A car is temporarily split from the group to work as a single car. This dedicates one car to mail deliveries or facility maintenance through certain parts of the day. The swing car is operated from an inconspicuous riser of pushbuttons mounted in the doors jamb.	✓	✓	✓
VIP Operation	VIP-S	A specified car is withdrawn from group control operation for VIP service operation. When activated, the car responds only to existing car calls, moves to a specified floor and parks there with the doors open. The car then responds only to car calls.	—	✓	✓

■ SIGNAL AND DISPLAY FEATURES

Auxiliary Car Operating Panel	ACS	An additional car control panel which can be installed for large-capacity elevators, heavy-traffic elevators, etc.	✓	✓	✓
Car Arrival Chime-Hall	AECH	Electronic chimes that sound to indicate that a car will soon arrive. (The chimes are mounted in each hall.)	✓	✓	✓ <sup>#4</sup>
Immediate Prediction Indication	AIL	When a passenger has registered a hall call, the best car to respond to that call is immediately selected, the corresponding hall lantern illuminates and a chime sounds once to indicate which doors will open.	—	—	✓
Second Car Prediction	TCP	When a hall is crowded to the extent that one car cannot accommodate all waiting passengers, the hall lantern will light up to indicate the next car to serve the hall.	—	—	✓
Voice Guidance System	AAN-G	Information on elevator service such as the current floor or service direction that is heard by the passengers inside a car. (Voice guidance available only in English.)	✓	✓	✓

Notes:1C-2BC (1-car selective collective) - Standard, 2C-2BC (2-car group control system) - Optional  
ΣAI-22 (3- to 4-car group control system) - Optional, ΣAI-2200C (3- to 8-car group control system) - Optional  
✓=Applicable    †=Not applicable to 1C-2BC    —= Not applicable  
#1: Contact a Mitsubishi Electric representative for lead times and details.  
#2: When 2C-2BC, contact a Mitsubishi Electric representative.  
#3: DOAS cannot be combined with BSO, IUP, UPS, TFS, FSAT, FCC-A, DKO-TB or TCP feature.  
#4: Standard when the operation system is 3C to 8C ΣAI-2200C.



# BASIC SPECIFICATIONS

For passenger

CAPACITY: 3000 ~ 4000lbs  
SPEED: 500, 700, 800, 1000 & 1200fpm

## Horizontal dimensions

Rated capacity (lbs)	Rated speed (fpm)	Door type <sup>1</sup>	Car inside clear dimensions		Entrance width: JJ (ft./in.)	Minimum hoistway dimensions		Hoistway width/unit AU (ft./in.) <sup>5</sup>	Minimum machine room dimensions	
			Width (ft./in.)	Depth (ft./in.)		2-unit installation AH: Width x BH: Depth (ft./in.) <sup>3,4</sup>	3-unit installation AH: Width x BH: Depth (ft./in.) <sup>3,4</sup>		2-unit installation AM: Width x BM: Depth (ft./in.) <sup>4</sup>	3-unit installation AM: Width x BM: Depth (ft./in.) <sup>4</sup>
3000	500 700 800	CO or SS <sup>2</sup>	6'-8"	4'-8 3/4"	3'-6"	18'-1" x 7'-4 1/2" (18'-1" x 7'-5")	27'-3 1/2" x 7'-4 1/2" (27'-3 1/2" x 7'-5")	8'-10 1/2"	18'-1" x 13'-10 1/2" (18'-1" x 13'-11")	27'-3 1/2" x 13'-10 1/2" (27'-3 1/2" x 13'-11")
	1000					18'-1" x 7'-5"	27'-3 1/2" x 7'-5"		18'-1" x 14'-3"	27'-3 1/2" x 14'-3"
	1200					18'-1" x 7'-5"	27'-3 1/2" x 7'-5"		18'-3" x 14'-0"	27'-5 1/2" x 14'-0"
3500	500 700 800	CO or SS <sup>2</sup>	6'-8"	5'-4 3/4"	3'-6"	18'-1" x 8'-0 1/2" (18'-1" x 8'-1")	27'-3 1/2" x 8'-0 1/2" (27'-3 1/2" x 8'-1")	8'-10 1/2"	18'-1" x 14'-6 1/2" (18'-1" x 14'-7")	27'-3 1/2" x 14'-6 1/2" (27'-3 1/2" x 14'-7")
	1000					18'-1" x 8'-1"	27'-3 1/2" x 8'-1"		18'-1" x 14'-8"	27'-3 1/2" x 14'-8"
	1200					18'-1" x 8'-1"	27'-3 1/2" x 8'-1"		18'-3" x 14'-8"	27'-5 1/2" x 14'-8"
4000	700 800	CO	7'-8"	5'-4 3/4"	4'-0"	20'-1" x 8'-0 1/2" (20'-1" x 8'-1")	30'-3 1/2" x 8'-0 1/2" (30'-3 1/2" x 8'-1")	9'-10 1/2"	20'-1" x 14'-7 1/2" (20'-1" x 14'-8")	30'-3 1/2" x 14'-7 1/2" (30'-3 1/2" x 14'-8")
	1000					20'-1" x 8'-1"	30'-3 1/2" x 8'-1"		20'-1" x 14'-8"	30'-3 1/2" x 14'-8"
	1200					20'-1" x 8'-1"	30'-3 1/2" x 8'-1"		20'-1" x 14'-8"	30'-3 1/2" x 14'-8"

## Vertical dimensions

Rated capacity: 3000lbs

Rated speed (fpm)	When travel is up to <sup>6</sup> (ft.)	Minimum hoistway dimensions		Machine room height: HM (ft./in.)
		Pit depth: PD (ft./in.)	Overhead: OH (ft./in.)	
500	164'	8'-3"	19'-3"	8'-3"
	328'	9'-10"	19'-3"	
	492'	10'-2"	19'-3"	
700	328'	11'-4"	21'-4"	8'-3"
	492'	11'-8"	22'-4"	
	492'	11'-8"	22'-4"	
800	328'	12'-5"	22'-1"	8'-3"
	492'	12'-5"	22'-1"	
	492'	12'-7"	22'-5"	
1000	328'	10'-11"	20'-7"	8'-3"
	492'	11'-1"	20'-11"	
	492'	11'-1"	20'-11"	
1200	328'	11'-6"	21'-2"	9'-3"
	492'	11'-8"	21'-6"	
	492'	11'-8"	21'-6"	

Rated capacity: 3500lbs

Rated speed (fpm)	When travel is up to <sup>6</sup> (ft.)	Minimum hoistway dimensions		Machine room height: HM (ft./in.)
		Pit depth: PD (ft./in.)	Overhead: OH (ft./in.)	
500	164'	8'-8"	19'-3"	8'-3"
	328'	9'-10"	19'-3"	
	492'	10'-2"	19'-3"	
700	328'	11'-10"	21'-4"	8'-3"
	492'	12'-2"	22'-4"	
	492'	12'-2"	22'-4"	
800	328'	12'-5"	22'-1"	8'-3"
	492'	12'-5"	22'-1"	
	492'	12'-9"	22'-5"	
1000	328'	11'-1"	20'-7"	8'-3"
	492'	11'-3"	20'-11"	
	492'	11'-3"	20'-11"	
1200	328'	11'-8"	21'-2"	9'-3"
	492'	11'-10"	21'-6"	
	492'	11'-10"	21'-6"	

Rated capacity: 4000lbs

Rated speed (fpm)	When travel is up to <sup>6</sup> (ft.)	Minimum hoistway dimensions		Machine room height: HM (ft./in.)
		Pit depth: PD (ft./in.)	Overhead: OH (ft./in.)	
700	328'	11'-10"	21'-4"	8'-3"
	492'	12'-2"	22'-1"	
	492'	12'-2"	22'-1"	
800	328'	12'-6"	22'-1"	8'-3"
	492'	12'-9"	22'-5"	
	492'	12'-9"	22'-5"	
1000	328'	11'-1"	20'-7"	9'-3"
	492'	11'-3"	20'-11"	
	492'	11'-3"	20'-11"	
1200	328'	11'-8"	21'-2"	9'-3"
	492'	11'-10"	21'-6"	
	492'	11'-10"	21'-6"	

## Specifications

Rated speed (fpm)		500	700	800	1000	1200
Maximum number of stops		64				
Travel: TR (ft.)	Minimum	99'	132'	165'	230'	
	Maximum	492' <sup>6</sup>				
Minimum floor height (ft./in.)		8'-6" <sup>7</sup>				

### Terms of these specifications and layouts

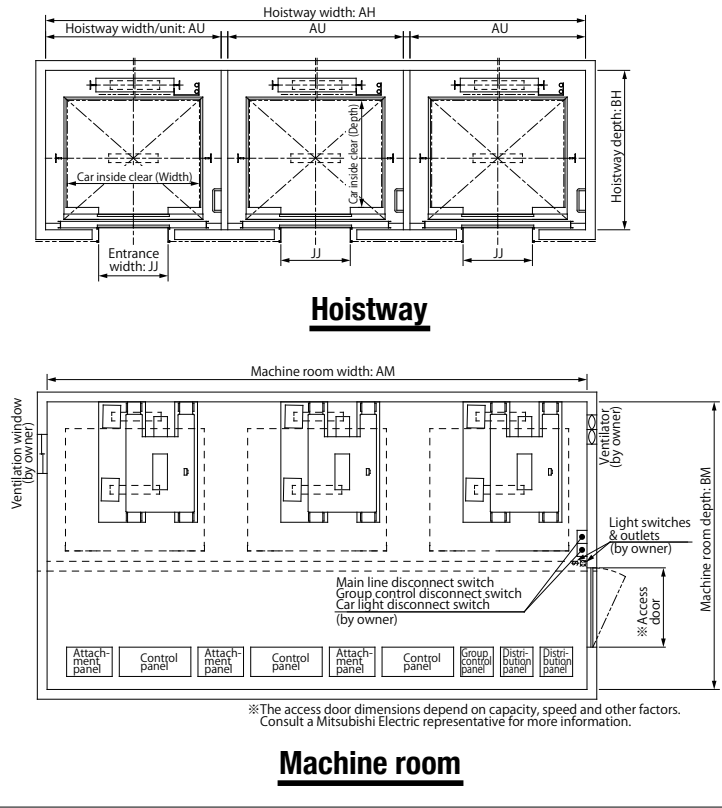
- The contents herein are standard specifications and layouts without counterweight safety. For a special request such as addition of car decoration, contact a Mitsubishi Electric representative as increase in some dimensions may be required.
- These specifications and layouts are based on ASME A17.1 and applicable to a non-seismic zone and seismic zone up to 4, or the equivalent. Contact a Mitsubishi Electric representative for installation in a higher seismic area.

### Notes:

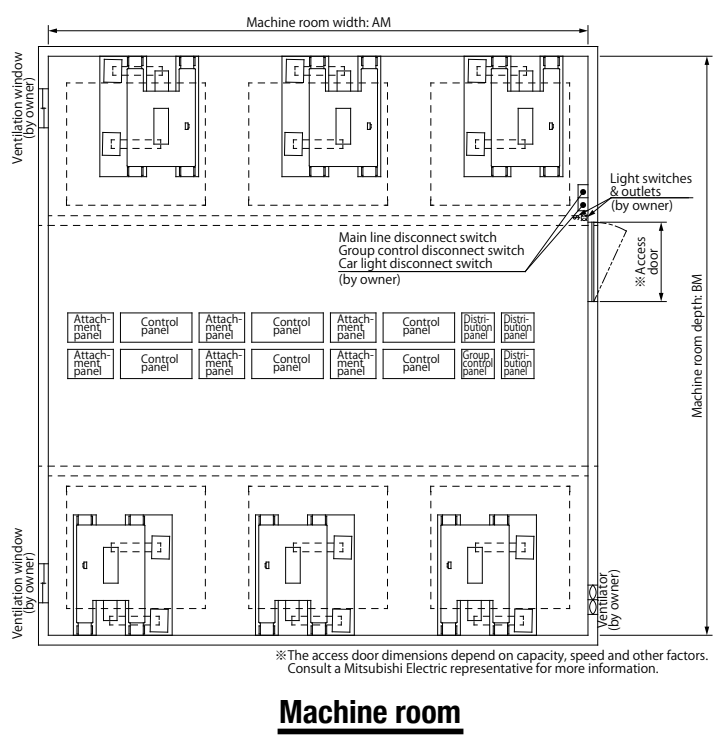
- \*1. SS: Single-slide door, CO: Center-open doors
- \*2. The maximum canopy height for SS is 9'-6". (The maximum canopy height for CO is 10'-0".)
- \*3. These hoistway dimensions are on condition that the width of a separator beam is 4".
- \*4. The dimensions in parentheses apply to the elevators having a travel of 328' or more.
- \*5. This hoistway width per car is for reference. A single hoistway is not recommended.
- \*6. If travel exceeds 492', contact a Mitsubishi Electric representative.
- \*7. This minimum floor height is on condition that the door height is 7'-0".

# BASIC LAYOUTS

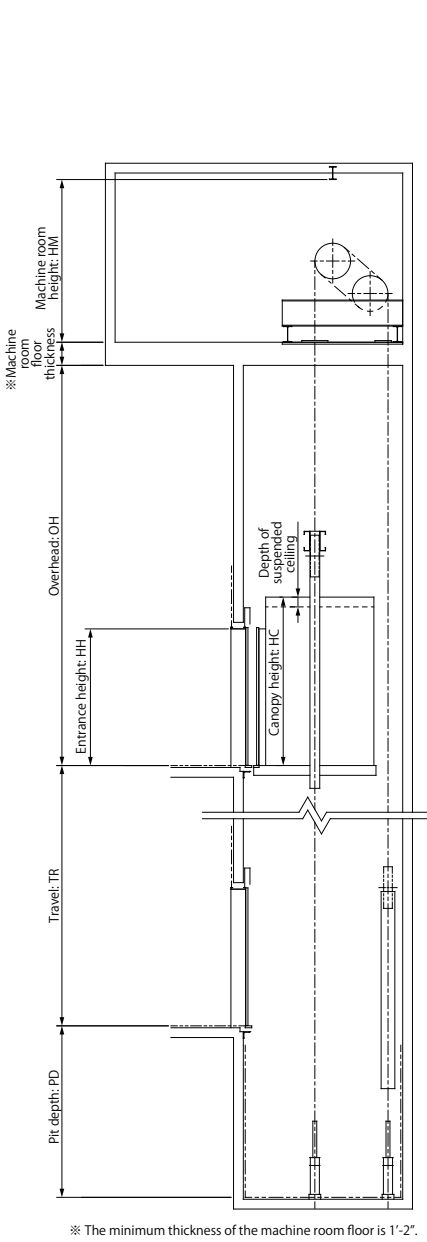
## Example of 3-car Layout



## Example of 6-car Machine Room Plan



## Hoistway Section



## Elevation



# IMPORTANT INFORMATION ON ELEVATOR PLANNING

## Work Not Included in Elevator Contract

- The following items are excluded from the elevator installation work conducted by Mitsubishi Electric. Details and conditions must conform to local laws and regulations and the elevator requirements stipulated by Mitsubishi Electric, and are therefore the responsibility of the building owner or general contractor.
- Construction of the elevator machine room with proper beams and slabs, equipped with a lock, complete with illumination, ventilation and waterproofing.
  - Access to the elevator machine room sufficient to enable passage to the control panel and traction machine for maintenance.
  - Architectural finishing of the machine room floor, and walls and floors in the vicinity of the entrance hall after installation has been completed.
  - Construction of an illuminated, ventilated and waterproofed hoistway.
  - The provision of a ladder to the elevator pit.
  - The provision of openings and supporting members as required for equipment installation.
  - Guide rail support, including separator and intermediate support beams.
  - The provision of an emergency exit door, inspection door and pit access door, when required, and access to the doors.
  - All other work related to building construction.
  - Three-phase, horsepower-rated, lockout-type, fused disconnect or circuit breaker, including provision of 3-phase electrical service to elevators.
  - Elevator group control disconnect switch, if applicable.
  - Power source for seismic switch, if applicable.
  - The provision of the main power and power for illumination, electrical switch boxes for the power in the machine room, and laying of the wiring from the electrical room.
  - The provision of outlets, laying of wiring in the machine room and hoistway, and providing power from the electrical switch box.
  - The laying of conduits and wiring between the elevator pit and the terminating point for the devices installed outside the hoistway, such as the emergency bell, intercom, and monitoring and security devices.
  - The power consumed during installation work and test operations.
  - All of the necessary building materials for grouting in of brackets, bolts, etc.
  - Testing and subsequent alterations as required, eventual removal of scaffolding as required by the elevator contractor, and any other protection required during the installation process.
  - The provision of a suitable, locked space for the storage of elevator equipment and tools during elevator installation.
  - A security system, such as a card reader, connected to Mitsubishi Electric’s elevator controller, when supplied by the building owner or general contractor.
  - Smoke detectors in the hoistway near the machines, as required by code.

Note: Work responsibilities during installation and construction shall be determined according to local laws.

## Elevator Site Requirements

- The temperature of the machine room and elevator hoistway shall be above 23°F (-5°C) and below 104°F (40°C).
- The following conditions are required for maintaining elevator performance:
  - a. The relative humidity shall be below 90% on a monthly average and below 95% on a daily average.
  - b. Prevention shall be provided against icing and condensation occurring due to a rapid drop in the temperature in the machine room and elevator hoistway.
  - c. The machine room and the elevator hoistway shall be finished with mortar or other materials so as to prevent concrete dust.
- Voltage fluctuation shall be within a range of +5% to -10%.

## Ordering Information

Please include the following information when ordering or requesting estimates:

- The desired number of units, speed and loading capacity
- The number of stops or number of floors to be served
- The total elevator travel and each floor-to-floor height
- Operation system
- Selected design and size of car
- Entrance design
- Signal equipment
- A sketch of the part of the building where the elevators are to be installed
- The voltage, number of phases and frequency of the power source for the motor and lighting

Contact a Mitsubishi Electric representative for more information such as coordination of related work items, site requirements, and ordering.

### Trademark Rights

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## State-of-the-Art Factories... For the Environment. For Product Quality.

Mitsubishi Electric elevators and escalators are currently operating in approximately 90 countries around the globe. Built placing priority on safety, our elevators, escalators and building system products are renowned for their excellent efficiency, energy savings and comfort. The technologies and skills cultivated at the Inazawa Works in Japan and 12 global manufacturing factories are utilized in a worldwide network that provides sales, installation and maintenance in support of maintaining and improving product quality. As a means of contributing to the realization of a sustainable society, we consciously consider the environment in business operations, proactively work to realize a low-carbon, recycling-based society, and promote the preservation of biodiversity.

### ISO9001/14001 certification

Mitsubishi Electric Corporation Inazawa Works has acquired ISO 9001 certification from the International Organization for Standardization based on a review of quality management. The plant has also acquired environmental management system standard ISO 14001 certification.



**for a greener tomorrow**

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.



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**⚠ Safety Tips:** Be sure to read the instruction manual fully before using this product.