MITSUBISHI ELECTRIC

Changes for the Better

Quality in Motion

Freight Elevator Series GFC-L3

GFC-L3 The Best Helper to Enhance the Efficiency of your Modern Factory

Comfort

- Smooth riding comfort
- Universal design
- Creating comfortable building environments

Efficiency

- Promoting energy-savings with cutting-edge drive/control technologies
- Improving efficiency of building management and transportation in buildings
- Pursuing space-saving developments

Quality in Motion

Safety

- Ensuring safety during boarding and exiting and at the time of an emergency
- Developing highly durable and safe service systems
- Offering advanced building security

Ecology

- Saving resources through downsizing and weight reduction
- Using environmentally conscious materials
- Promoting eco-factories

* Quality in Motion is a trademark of Mitsubishi Electric Corporation.

ADVANCED TECHNOLOGIES

Energy Saving, Permanent Magnet Motor

GFC-L3 freight elevator equipped with high efficient permanent magnet motor. Through the advanced technology of permanent magnet motor, brings more comfortable and quiet riding for the passengers. Moreover, it saves more electricity compared with the traditional worm gear driven traction machine.

Variable Voltage Variable Frequency (VVVF) Control System

The application of VVVF control to the freight elevator is a great breakthrough of technology. Not only does it provide smooth and steady operation, but also greatly improves the efficiency of energy utilization to achieve more energy saving performance.

Data Network with Artificial Intelligence and Friendly Man-Machine Interfacing

The elevator system configures with a data network. Developed using leading edge technology, it connects with microprocessors at each distributed modules through a serial transmission line. Each module is assigned appropriate intelligent features, resulting in a substantial improvement in man-machine interfacing. A mutual check function ensures further reliability and efficiency in data.

More User Friendly Operating Features

To ensure the safety and smooth riding for both passengers and goods, the new series GFC-L3 freight elevator employs more user friendly features. They have been strictly tested and simulated in the factory before delivery, thus the reliability is greatly improved and possibility of breaking down is reduced.

Energy saving, permanent magnet motor.

CAR DESIGNS

Type FCD-A

Specification

Car Type	FCD-A	FCD-B
Lighting	LED lighting through embed milky-white resin flat covers	LED lighting through embed milky-white resin covers
Ventilation equipment	Diffuser	Electric blower with slit vents
Walls and doors	Painted steel sheet	
	Stainless steel hairline (Opional)	
Entrance columns	Stainless steel hairline	
Car wall protection plate	Stainless steel hairline (for painted steel walls only)	
Flooring	Steel checker plate with black paint	
	Durable vinyl tile (Opional)	
Sill	Extruded hard aluminum (Capacity of 2,000kg or less)	
	Steel plate with black paint (Capacity over 2,000kg)	

Detailed disposing of fan and lighting, plesae consult our local agents.

Type FCD-B

ENTRANCE DESIGNS

Type E-102 (Standard)

Specification

Door frame	Painted steel sheet
	Stainless steel hairline (Opional)
Doors	Painted steel sheet
	Stainless steel hairline (Opional)
Sill	Extruded hard aluminum (Capacity of 2,000kg or less)
	Steel plate with black paint (Capacity over 2,000kg)

Elevator color shown is slightly different from actual tone.

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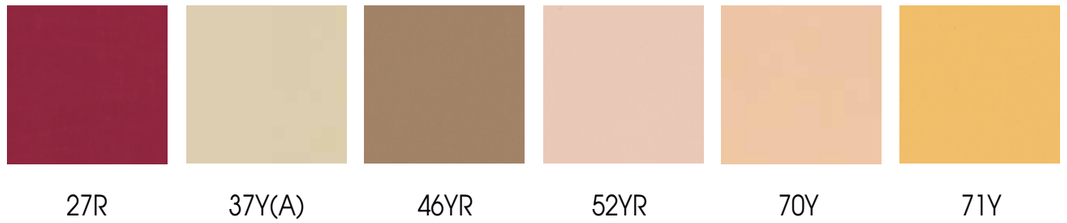
Durable Vinyl Tiles (For Car Flooring)

501 505 506 507 531 536

Painted Finish

(For Car Walls / Car Doors / Door Frames)



27R 37Y(A) 46YR 52YR 70Y 71Y

80G 88GY 92GY 109B 115PB

Color shown is slightly different from actual tone.

FOR COMFORT, CONVENIENCE AND SAFETY

False Call Canceling-Car Button Type (FCC-P)

If the wrong car button is pressed, it can be canceled by quickly pressing the same button again twice.

Non-Service to Specific Floors-Car Button Type (NS-CB) [Optional]

To enhance security, service to specific floors can be disabled using the car operating panel. This function is automatically deactivated during emergency operation.

Repeated Door-Close (RDC)

Should an obstacle prevent the doors from closing, the doors will repeatedly open and close until the obstacle is cleared from the doorway.

Extended Door-Open Button (DKO-TB)

When the button inside a car is pressed, the doors will remain open longer to allow loading and unloading of baggage, a stretcher, etc.

Door Load Detector (DLD)

When excessive door load has been detected while opening or closing, the doors immediately reverse.

Mitsubishi Emergency Landing Device (MELD) [Optional]

Upon power failure, a car equipped with this function automatically moves and stops at the nearest floor using a rechargeable battery, and the doors open to ensure passenger safety.

(Maximum allowable floor-to-floor distance is 10 meters.)

(MELD is only applied bellow: 750~1000 kg 60~105 m/min, 1500~2500 kg 45~105 m/min.)

* See page 21-24 for details of other features.

Car Operating Panel

CBV2-C710E

Buttons accented with LED halo illumination

Tactile and flat buttons (stainless-steel with non-directional hairline-finish) are available in three illumination colors: yellow-orange, white and blue.

Selecting button type

Input the number corresponding to the button type as the fourth digit (shown as # in this brochure) in the car operating panel type (CBV#-XXXX) and hall button type (PIV#-XXXX or HBV#-XXXX).

*1 Segment LED indicators cannot display some letters of the alphabet. Please consult our local agents for details.

*2 •The largest car operating panel corresponds to the 20 stops, when the height is same of cage (CH) and Enteance (HH) in 2100.
•The standard car operating panel in this image has no service cabinet. A similar car operating panel with service cabinet is available as an option.

*3 Please select a button type, and enter the number in the space shown as # .

Specification

Faceplate	Stainless steel hairline
Display panel	Smoky gray plastic, matte surface
Direction light and indicator	Segment LED indicator
Call button	Micro stroke click button
Respones light	LED (Buttons accented with LED halo illumination)

Hall Position Indicators

PIH-D417(Optional)

PID-D417(Optional)

Assembled into transom panel

Specification

Faceplate	Stainless steel hairline (PIH-D417)
Display panel	Smoky gray plastic, matte surface
Direction light and indicator	Segment LED indicator (orange color when illuminated)

Hall Buttons

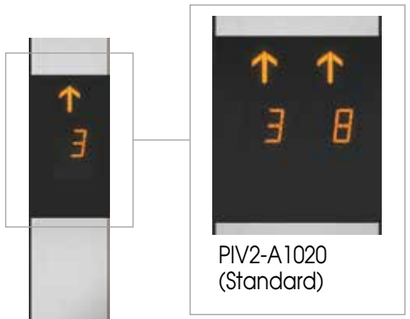
HBV2-A1010 (Optional)

HBV2-C710 (Optional)

Specification

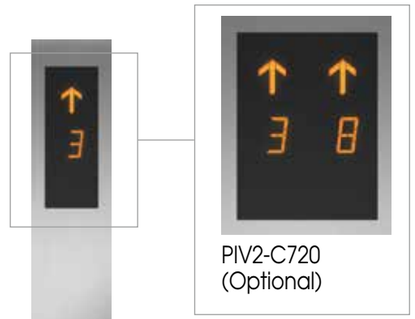
Faceplate	Stainless steel hairline with button base (HBV2-A1010)
	Stainless steel hairline (HBV2-C710)
Call button	Micro stroke click button
Respones light	LED (Buttons accented with LED halo illumination)

Hall Position Indicators and Call Buttons



PIV2-A1020 (Standard)

PIV2-A1010 (Standard)



PIV2-C720 (Optional)

PIV2-C710 (Optional)

Specification

Faceplate	Stainless steel hairline with button base (PIV2-A1010 / PIV2-A1020)
	Stainless steel hairline (PIV2-C710 / PIV2-C720)
Display panel	Smoky gray plastic, matte surface
Direction light and indicator	Segment LED indicator
Call button	Micro stroke click button
Respones light	LED (Buttons accented with LED halo illumination)

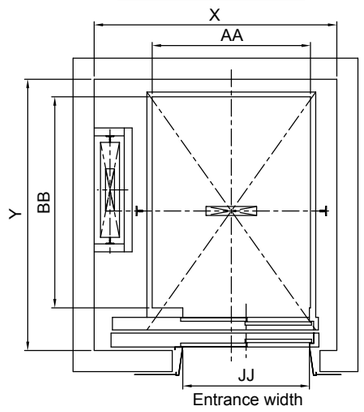
Elevator color shown is slightly different from actual tone.

Elevator color shown is slightly different from actual tone.

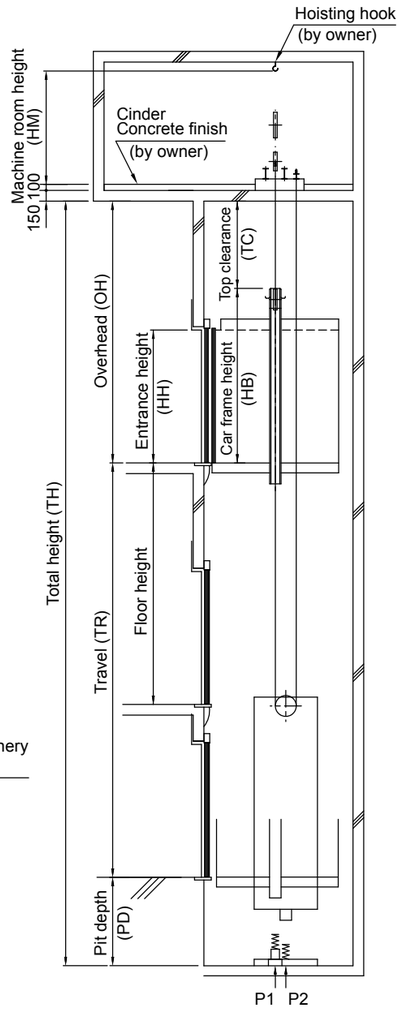
INSTALLATION DRAWINGS

750kg (60,90,105m/min)

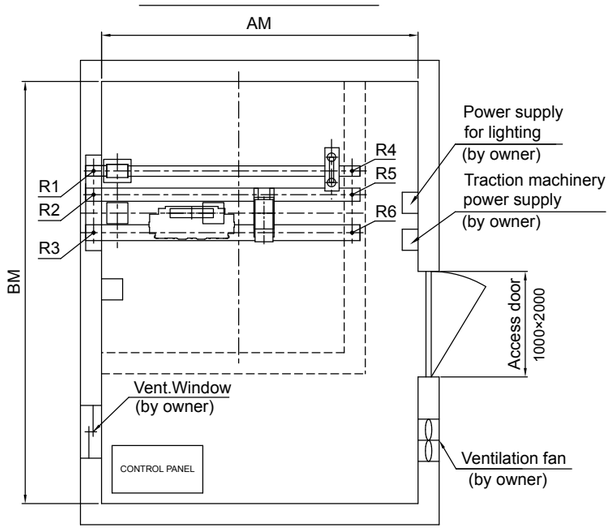
Hoistway Plan



Hoistway Section



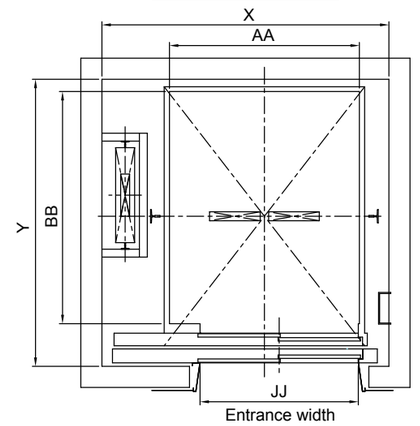
Machine Room Plan



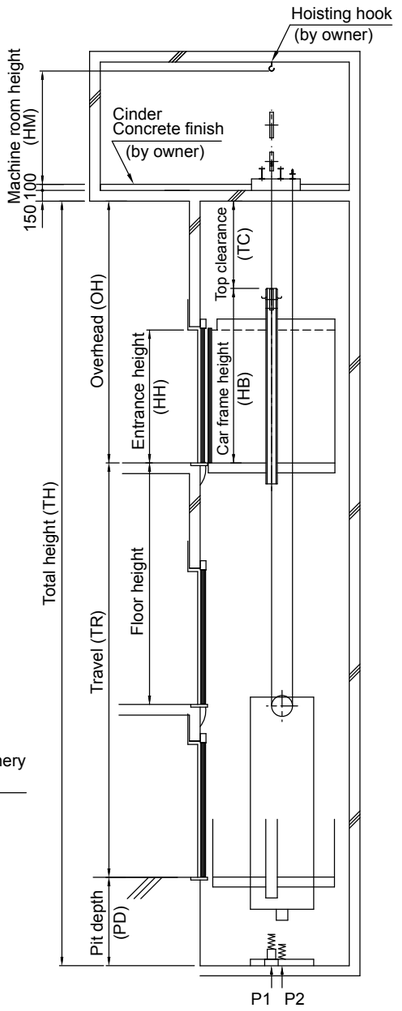
* The above installation drawings (2:1 roping) are only applicable for rated capacity under 750kg.

1000kg (60,90,105m/min)

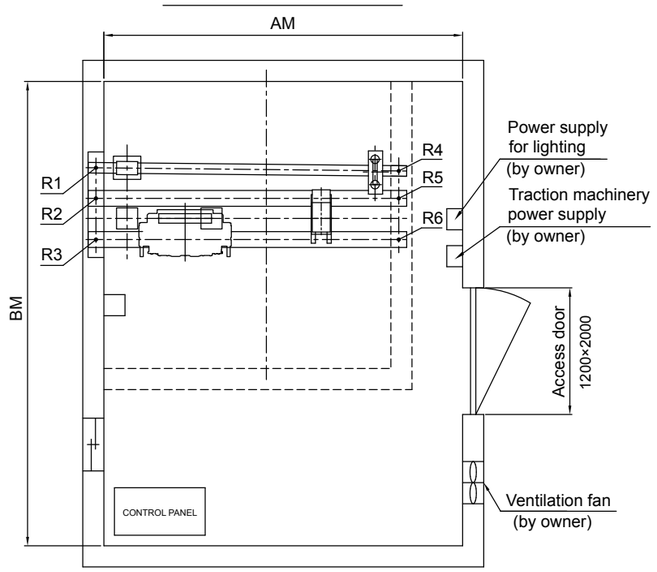
Hoistway Plan



Hoistway Section



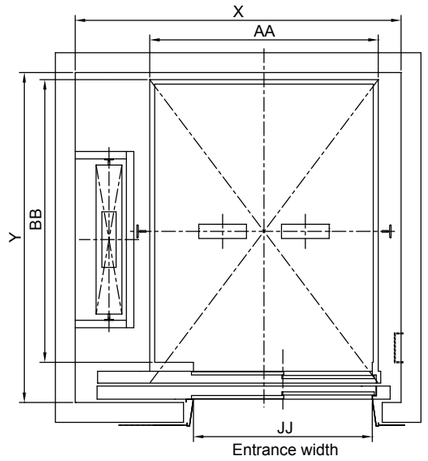
Machine Room Plan



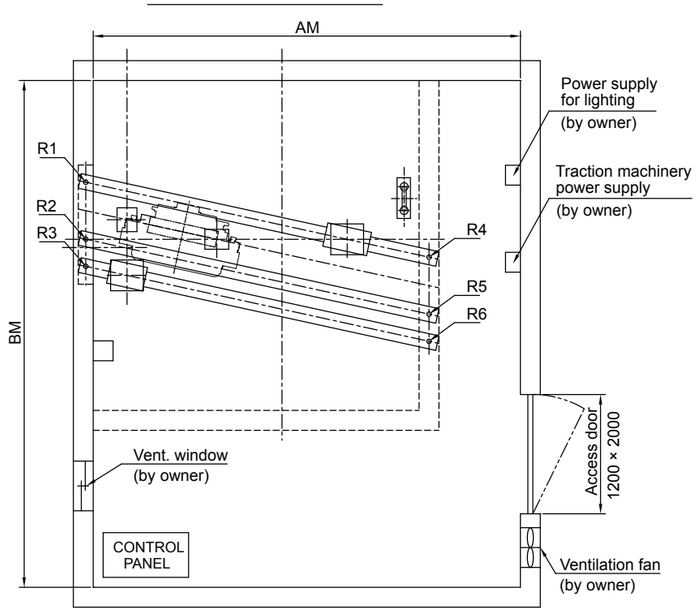
* The above installation drawings (2:1 roping) are only applicable for rated capacity under 1000kg.

1500kg~2500kg (45,60,90,105m/min)

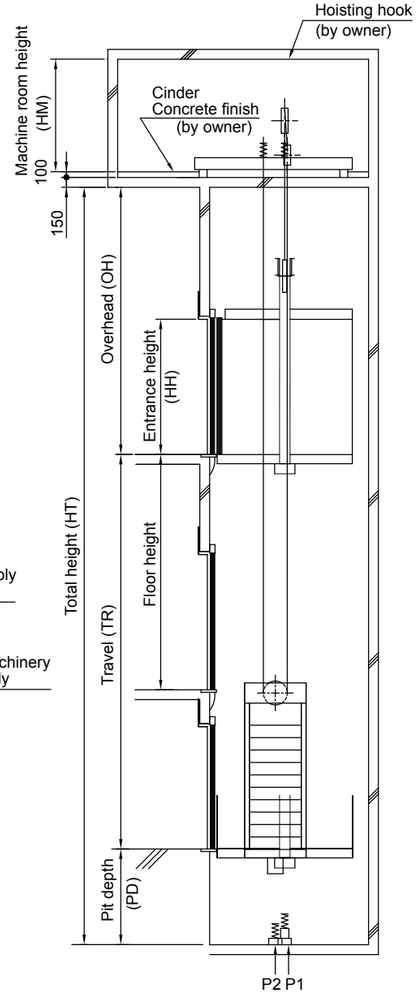
Hoistway Plan



Machine Room Plan



Hoistway Section



* The above installation drawings (2:1 roping) are only applicable for rated capacity 1500~2500kg.

750kg,1000kg (60,90,105m/min)

Rated capacity (kg)	Door type	Rated speed (m/min)	Entrance width JJ	Dimensions (mm)			Reaction loads (kN)							
				Car internal (AA×BB)	Minimum hoistway (X×Y)	Minimum machine room (AM×BM)	Machine room						Pit	
							R1	R2	R3	R4	R5	R6	P1	P2
750	2S	60	1200	1500×2000	2300×2570	3000×4000	20.6	22.6	22.3	2.1	20.3	18.9	74	63.2
		90											98	83.7
		105											102.5	87.6
1000	2S	60	1500	1800×2200	2720×2720	3400×4400	25.8	29.2	31	3	24.4	23.1	101.7	86.8
		90											134.7	114.9
		105											140.9	120.2

When CWT safety gear is required, please consult with the engineering section.

1500kg~2500kg (45,60m/min)

Rated capacity (kg)	Door type	Rated speed (m/min)	Entrance width JJ	Dimensions (mm)			Reaction loads (kN)							
				Car internal (AA×BB)	Minimum hoistway (X×Y)	Minimum machine room (AM×BM)	Machine room						Pit	
							R1	R2	R3	R4	R5	R6	P1	P2
1500	2S	45	1700	2200×2400	3150×3105	4000×5100	47.7	34.4	33.9	48.1	9.7	4.5	132.0	111.5
		60											139.0	117.5
2000	2S	45	1800	2200×2800	3280×3320	4300×5100	50.6	44.1	37.9	57.1	15.5	6.2	157.4	128.5
		60											165.2	135.3
2500	3S	45	2100	2500×3000	3530×3595	4500×5700	65.2	57.0	49.1	69.3	17.5	6.5	202.7	165.6
		60											213.5	174.4

When CWT safety gear is required, please consult with the engineering section.

1500kg~2500kg (90,105m/min)

Rated capacity (kg)	Door type	Rated speed (m/min)	Entrance width JJ	Dimensions (mm)			Reaction loads (kN)							
				Car internal (AA×BB)	Minimum hoistway (X×Y)	Minimum machine room (AM×BM)	Machine room						Pit	
							R1	R2	R3	R4	R5	R6	P1	P2
1500	2S	90	1700	2200×2400	3255×3105	4000×5100	44.8	39.7	33.6	49.5	13.7	5.7	162.0	159.1
		105											190.8	171.7
2000	2S	90	1800	2200×2800	3280×3320	4300×5100	49.2	43.6	35.8	54.2	15.6	6.0	184.0	148.5
		105											216.7	174.8
2500	3S	90	2100	2500×3000	3530×3595	4500×5700	65.2	57.0	49.1	69.3	17.5	6.5	251.6	171.7
		105											271.4	202.2

When CWT safety gear is required, please consult with the engineering section.

SUPPLY SCOPE

Maximum Number Stops,Travel and Minimum Floor Height

Rated capacity (kg)	Rated speed (m/min)	Maximum number of stops	Maximum travel (m)	Minimum floor height (mm)
750~1000	60	30	60	HH+700
	90 105		80	
1500	45 60 90 105			
2000	45 60			
	90 105		60	
2500	45 60 90 105			

Vertical Dimensions

Rated capacity (kg)	Rated speed (m/min)	OH (mm)	PD (mm)	TC (mm)	HH (mm)	HB (mm)	HM (mm)
750	60	4650	1550	1450	2100	3200	2500
	90	4800	1800	1600			
	105	5000	2100	1800			
1000	60	4650	1550	1450	2100	3200	2650
	90	4800	1800	1600			
	105	5000	2100	1800			
1500	45	4450	1250	1250	2100	3200	2500
	60	4650	1550	1450			
	90	4800	1800	1600			2650
	105	5000	2100	1800			
2000	45	4450	1250	1250	2100	3200	2650
	60	4650	1550	1450			
	90	4800	1800	1600			2950
	105	5000	2100	1800			
2500	45	4850	1250	1250	2500	3600	2950
	60	5050	1550	1450			
	90	5200	1800	1600			
	105	5400	2100	1800			

When CWT safety gear is required, please consult with the engineering section.

OH: Overhead
PD: Pit depth
TC: Top clearance
HH: Enteance height
HB: Car frame height
HM: Machine room height

NOTE:

Freight elevators of less than 2500kg capacity can only be loaded by handtrucks with casters. Goods cannot be loaded by forklift.

Please consult our local agents if you plan to use a forklift to load and unload goods with our traction-type freight elevators of 2500kg capacity.

Power Feeder Data

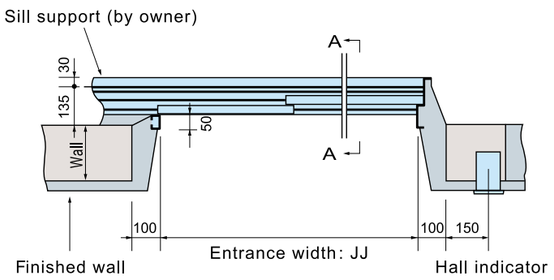
Capacity (KG)	Speed (m/min)	Capacity of Power Supply (KVA)	Breaker Current Rating in M/R	
			(200V)	(400V)
750	60	6	30A	15A
	90	8	50A	30A
	105	9	50A	30A
1000	60	7	40A	20A
	90	10	60A	30A
	105	11	75A	40A
1500	45	8	50A	30A
	60	10	60A	30A
	90	14	100A	50A
	105	16	100A	50A
2000	45	10	60A	30A
	60	13	75A	40A
	90	19	125A	60A
	105	20	150A	75A
2500	45	12	75A	40A
	60	16	100A	50A
	90	23	150A	75A
	105	26	175A	100A

ENTRANCE LAYOUT

2S Doors (E-102)

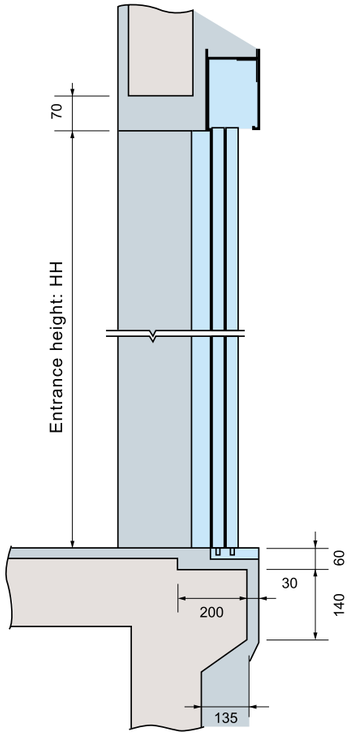
(2-panel side sliding doors)

Door plan



Door elevation

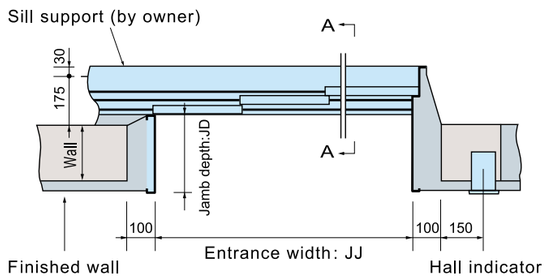
(Section A-A)



3S Doors (E-202)

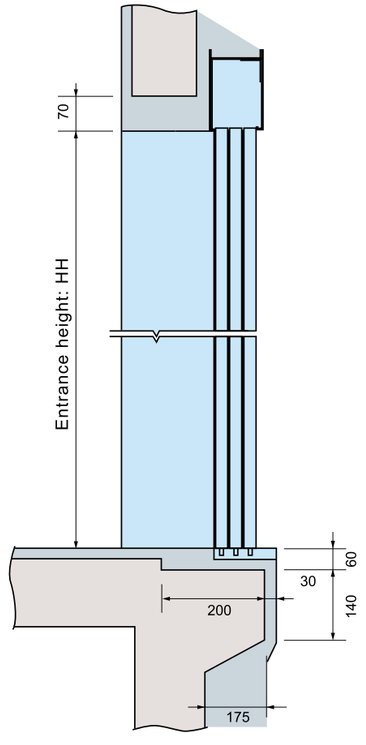
(3-panel side sliding doors)

Door plan



Door elevation

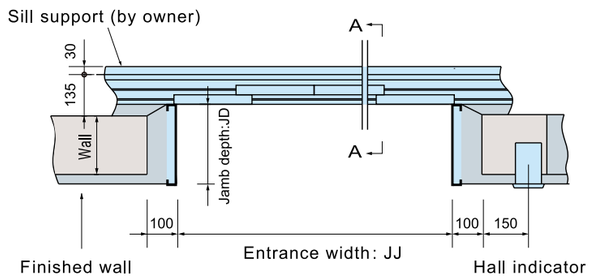
(Section A-A)



2CO Doors (E-202)

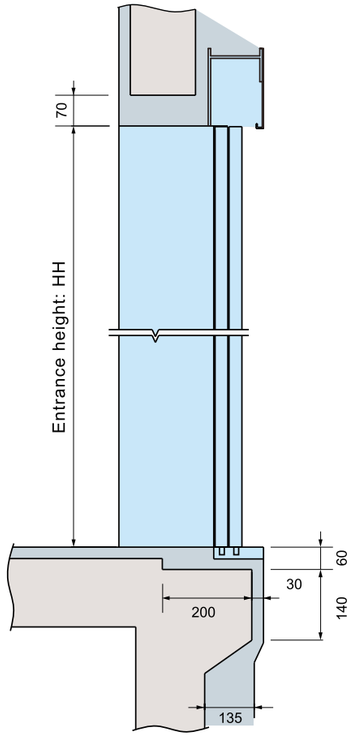
(4-panel center opening doors)

Door plan



Door elevation

(Section A-A)



* For other door types and JD dimension, please contact our local agents for detail.

Table of Features (Standard)

Feature	Description
■ Operation System	
(1C-2BC) **1 CAR Selective Collective**	The system consists of call buttons in the car, and a riser of up and down destination floor buttons installed at each elevator hall (single button at terminal floors), which connect electrically with microprocessors supervising floor selection and direction of travel. A car will respond to those car and hall calls that comply with its direction of service.
■ Operational and Service Features	
(CCC) **Car Call Canceling**	When a car has responded to the final car call in one direction, the system regards remaining calls in the other direction as mistakes and clears them from the memory.
(OLH) **Overload Holding Stop**	A beep, as well as voice guidance, 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.
(SFL) **Safe Landing**	If a car has stopped between floors due to some 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.
(CFO-A) **Car Fan Shut Off Automatic**	If there are no calls for a specified period, the car ventilation fan will automatically be turned off to conserve energy.
(CLO-A) **Car Light Shut Off Automatic**	If there are no calls for a specified period, the car lighting will automatically shut off to conserve energy.
(FCC-A) **False Call Canceling Automatic**	If the number of registered car calls does not correspond to the car load, all calls are canceled to avoid unnecessary stops.
(IND) **Independent Service**	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.
(FCC-P) **Car Call Erase**	If the wrong car button is pressed, it can be canceled by quickly pressing the same button again twice.

Feature	Description
■ Door Operation features	
(DLD) **Door Load Detector**	When excessive door load has been detected while opening or closing, the doors immediately reverse.
(DODA) **Door Sensor Self-diagnosis**	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.
(DOT) **Automatic Door-open Time Adjustment**	The time doors are open will automatically be adjusted, depending on whether the stop was called from the hall or the car, to allow smooth boarding of passengers or loading of baggage.
(DSAC) **Automatic Door Speed Control**	Door load on each floor, which can depend on the type of hall door, is monitored to adjust the door speed, thereby making the door speed consistent throughout all floors. (Cannot be used with some doors.)
(RDC) **Repeated Door-Close**	Should an obstacle prevent the doors from closing, the doors will repeatedly open and close until the obstacle is removed.
(ROHB) **Reopen with Hall Button**	Closing doors can be reopened by pressing the hall button corresponding to the traveling direction of the car.
(SDE) **Safety Door Edge**	Sensitive door edges detect passengers or objects during door closing.
(DKO-TB) **Extended Door-Open Button**	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.
■ Signal and Display Features	
(ITP) **Inter Communication System**	A system which allows communication between passengers inside a car and the building personnel.
■ Emergency Operations and Features	
(ECL) **Emergency Car Lighting**	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.)

Table of Features (Optional)

Feature	Description
■ Operational and Service Features	
(ABP) Automatic Bypass	A fully-loaded car bypasses hall calls in order to maintain maximum operational efficiency. (Optional in case of 1-car 2BC system.)
(AS) Attendant Service	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.
(HOS) Out-of-Service by Hall Key Switch	For maintenance or energy-saving measures, a car can be taken out of service temporarily with a key switch (with or without a timer) mounted in a specified hall.
(NS-CB) Non-Service to Specific Floors – Car Button Type	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.
(NS/NS-T) Non-Service to Specific Floors – Switch/Timer Type	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.
(SCS-B) Secret Call Service	To enhance security, car calls for desired floors can be registered only by entering secret codes using the car buttons on the car control panel. This function is automatically deactivated during Emergency Operations.
■ Door Operation features	
(SR) Safety Ray	One or two infrared-light beams cover the full width of the doors as they open or close to detect passengers or objects. (Cannot be combined with multi-beam door sensor.)
(MBS) Multi-beam Door Sensor	Multiple infrared-light beams cover adoor height of approximately 1800mm tomdetect passengers or objects as the doors close. (Cannot be combined with the SR feature.)

Feature	Description
■ Signal and Display Features	
(AECC/AECH)) Car Arrival Chime – Car or Hall	Electronic chimes sound to indicate that a car will soon arrive. (The chimes are mounted either on the top and bottom of the car, or in each hall.)
(EXCL) Excluding Operation Signal Light	As the Reserved Operation for Emergency (HE-B) function is started, hall indicator instructs the lantern fair to light special-purposely, remind and take advantage of hall passenger's changing to take other lifts
(FHL) Flashing Hall Lantern	A hall lantern, which corresponds to a car’s service direction, flashes to indicate that the car will soon arrive.
■ Emergency Operations and Features	
(EER-S/P) Earthquake Emergency Return	Upon activation of secondary wave seismic sensors, all cars stop at the nearest floor, and park there with the doors open to facilitate safe evacuation of passengers.
(FER) Fire Emergency Return	Upon activation of a key switch or a building's fire sensors, all calls are canceled, all cars immediately return to a specified evacuation floor and the doors open to ensure safe passenger evacuation.
(OEPS) Operation by Emergency Power Source – Automatic/Manual	Upon power failure, the building's emergency power moves and stops pre-determined car(s) to a specified floor, and the doors open to ensure passenger safety. After all predetermined car(s) have arrived at the floor, normal operation will be available with only pre-determined car(s).
(WP) Superviosry Panel	A panel installed in a building’s supervisory room, etc., which monitors and controls each elevator’s status and operations by remote, using indicators and switches which are provided on request.
(MELD) Mitsubishi Emergency Landing Device	Upon power failure,a car equipped with this function automatically moves and stops at the mearest floor using a rechargeable battery,and the doors open to ensure passenger safety.(Max. allowable floor-to-floor distance is 10 meters.)(MELD is only applied bellow:750~1000 kg 60~105 m/min, 1500~2500 kg 45~105 m/min.)
(WP-W)MelEye Mitsubishi Elevators & Escalators Monitoring and Control System	Each elevator’s status and operation 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.
(HE-B) Reserved Operation for Emergency – Block Sign Type	In the state of emergency, the lift can discontinue the service for other floors temporarily, transport the urgent patient directly.

NOTES ON INSTALLANTION PLANNING

Elevator Site Requirements

- The temperature of the machine room and elevator shall be below 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. The machine room and the elevator hoistway shall be free of dust or harmful gas.
  c. The walls, floors, and ceiling of the machine room shall be finished with mortar or other materials so as to prevent concerte dust.
- Voltage fluctuation shall be with in a range of +5% to -10%.

Work Not Included in Elevator Contract

The following items are excluded from our elevator installation work, 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 allow passage of the control panel and traction machine. Suspension hook facilities and ladders in the machine room.
- Architectural finishing of the machine-room floor and the walls and floors in the vicinity of the entrance hall after installation has been completed.
- Construction of an illuminated, ventilated, and waterproofed elevator hoistway.
- A ladder to the elevator pit.
- Provision for the cutting of necessary holes and joists and for making good thereafter as required.
- Separate beams, when the hoistway dimensions markedly exceed the specifications, and intermediate beams when two or more elevators are installed.
- All other work related to building construction.
- The machine-room power-receiving panel and the elevator wiring for illumination, plus the power from them to the electrical room.
- 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, monitoring and security devices,etc.
- The power consumed in installation work and test operation.
- All the necessary buiding materials for grouting in of bracktes, bolts, etc.
- The test provision and subsequent alteration as required, and eventual removal of the scaffolding as required by the elevator contractor, and any protection of the work as may be required during progress.
- The provision of a suitable, locked space for the storage of elevator equipment and tools during elevator installation.
- The security system, such as a card reader, connected to our elevator controller, when supplied by the building owner or general contractor.

* Work responsibilities in installation and construction shall be determined according to the local laws.
  Please consult our local agents for details.

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 floor-to floor height.
- Operation system.
- Selected design and size of car.
- Entrance design.
- Signal equipment.
- A sketch of 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.

MEMO

MIRDC ISO 9001

MIRDC ISO 14001

bsi ISO 45001 職業安全衛生管理 CERTIFIED

Taiwan Mitsubishi Elevator Co., Ltd. has acquired ISO 9001 certification based on a review of quality management.
The plant has also acquired environmental management system standard ISO 14001 certification and occupational health & safety management system standard ISO 45001 certification.

MITSUBISHI ELECTRIC BUILDING SOLUTIONS CORPORATION
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www.MitsubishiElectric.com/elevator

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

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