Changes for the Better

MITSUBISHI ELECTRIC

Quality in Motion

Freight Elevator Series GFC-L2



Elevate Your Efficiency of Material-Handling Tasks



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 of2500kg capacity or more.

ADVANCED TECHNOLOGIES

Energy Saving, Helical Gear Driven Traction Machine

GFC-L2 freight elevator equipped with high efficient helical gear driven traction machine. Through the advanced technology of precision gear cutting and grinding, the traction machine brings more comfortable and quiet riding for the passengers. Moreover, it saves more than 15% electricity compared with the traditional worm gear driven traction machine.

For the large capacity of car, we use worm gear traction machine to transport more goods. (applicable in the range of capacity 1000/2500kg at speed 90/105 min/m and more than 3000kg)



Energy saving, helical gear driven traction machine (applicable in the range of capacity under 1500kg, speed under 105 m/min & capacity under 2500kg, speed under 60m/min)

Varible Voltage Varible 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-L2 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.

CAR DESIGNS



▲ *Type FCD-A*



▲ *Type FCD-B*

Specification

Car Type	FCD-A	FCD-B
Lighting	Fluorescent lighting through embed milky-white resin flat covers	Fluorescent lighting through embed milky-white resin covers
Ventilation equipment	Diffuser	Electric blower with tilt vents
Walls and doors	Painted steel sheet	
	Stainless steel hairline (Optional)	
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 (Optional)	
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, please consult our local agents.

Elevator color shown is slightly different from actual tone.

ENTRANCE DESIGNS

Specification

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





▲ *Type E-102*

Elevator color shown is slightly different from actual tone.

FINISH COLORS AND PATTERNS

Durable Vinyl Tiles *(For Car Flooring)*



501 505 506 507 531 536

Painted Finish

(For Car Walls / Car Doors & Entrance Doors / Door Frames)



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



80G 88GY 92GY 109B 115PB

Color shown is slightly different from actual tone.

FEATURES 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]

Service to specified floors can be restricted by locking out car buttons from the car operating panel.

Repeated Door - Close (RDC)

If the elevator doors cannot fully close because of blocking of an object in the door track (such as a pebble or debris), the doors will repeatedly open and close until the object is removed.

Extended Door - Open Button (DKO-TB)

By pressing this button in the car, the doors will remain open for an extended time to facilitate the loading of materials, luggage, 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 below: 750~1500 kg 45~105 m/min and 2000~2500 kg 45~60 m/min.)

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

OPERATING SYSTEMS & SIGNAL EQUIPMENT

Car Operating Panels



CBF-C511

Specification

Faceplate	Stainless steel hairline
Display panel	Smoky gray plastic, matte surface
Direction light and indicator	Digital LED dot-matrix display (orange color when illuminated)
Call button	Micro stroke click button in gray plastic
Response light	LED (orange color when illuminated)

Elevator color shown is slightly different from actual tone.

Hall Position Indicators



PIH-D330 (Optional)



PID-D330 (Optional)
Assembled into transom panel

Specification

Faceplate	Stainless steel hairline (PIH-D330)
Display panel	Smoky gray plastic, matte surface
Direction light and indicator	Digital LED dot-matrix display (orange color when illuminated)

Hall Buttons



HBF-A210
(Optional)



HBF-C210
(Optional)

Specification

Faceplate	Stainless steel hairline with dark gray plastic case (HBF-A210)
	Stainless steel hairline (HBF-C210)
Call button	Micro stroke click button in gray plastic
Response light	LED (orange color when illuminated)

Hall Position Indicators and Call Buttons



PIF-A210



PIF-A220



PIF-C210
(Optional)



PIF-C220
(Optional)



PIF-C211
(Optional)



PIF-C221
(Optional)

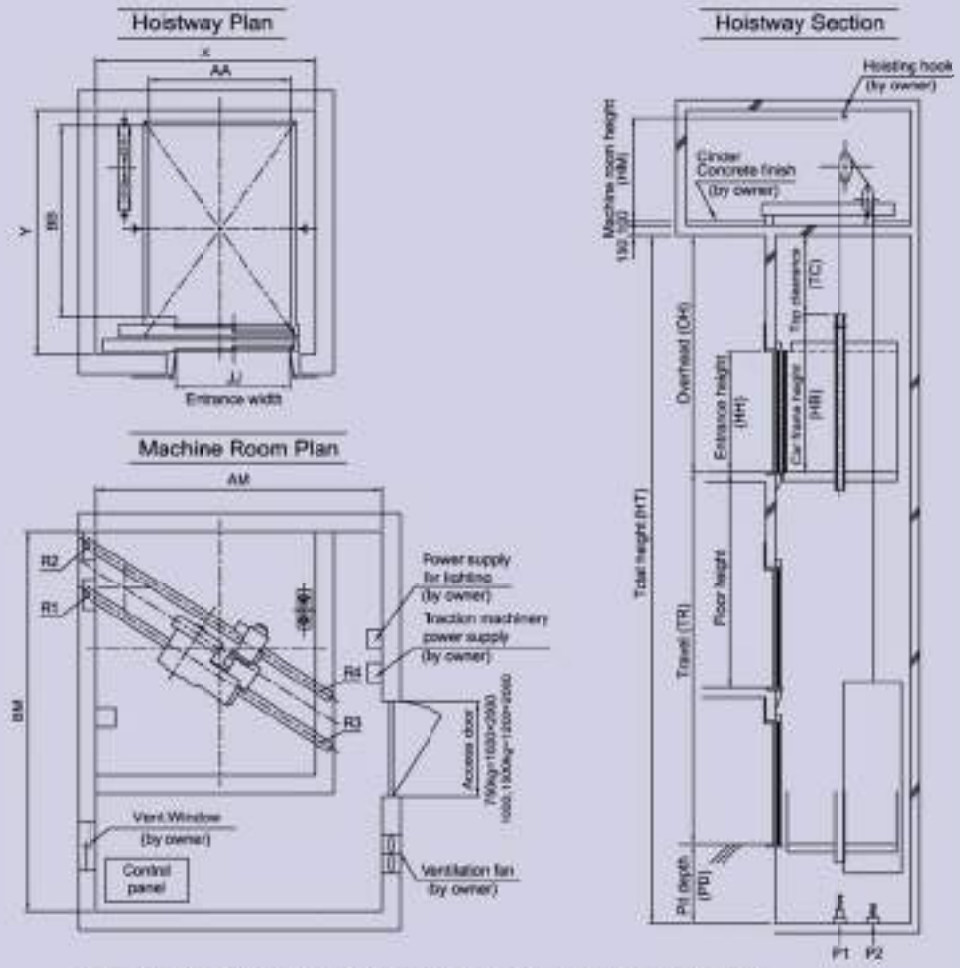
Specification

Faceplate	Stainless steel hairline with dark gray plastic case (PIF-A210 / PIF-A220)
	Stainless steel hairline (PIF-C210 / PIF-C220 / PIF-C211 / PIF-C221)
Display panel	Smoky gray plastic, matte surface
Direction light and indicator	Digital LED dot-matrix display (orange color when illuminated)
Call button	Micro stroke click button in gray plastic
Response light	LED (orange color when illuminated)

Elevator color shown is slightly different from actual tone.

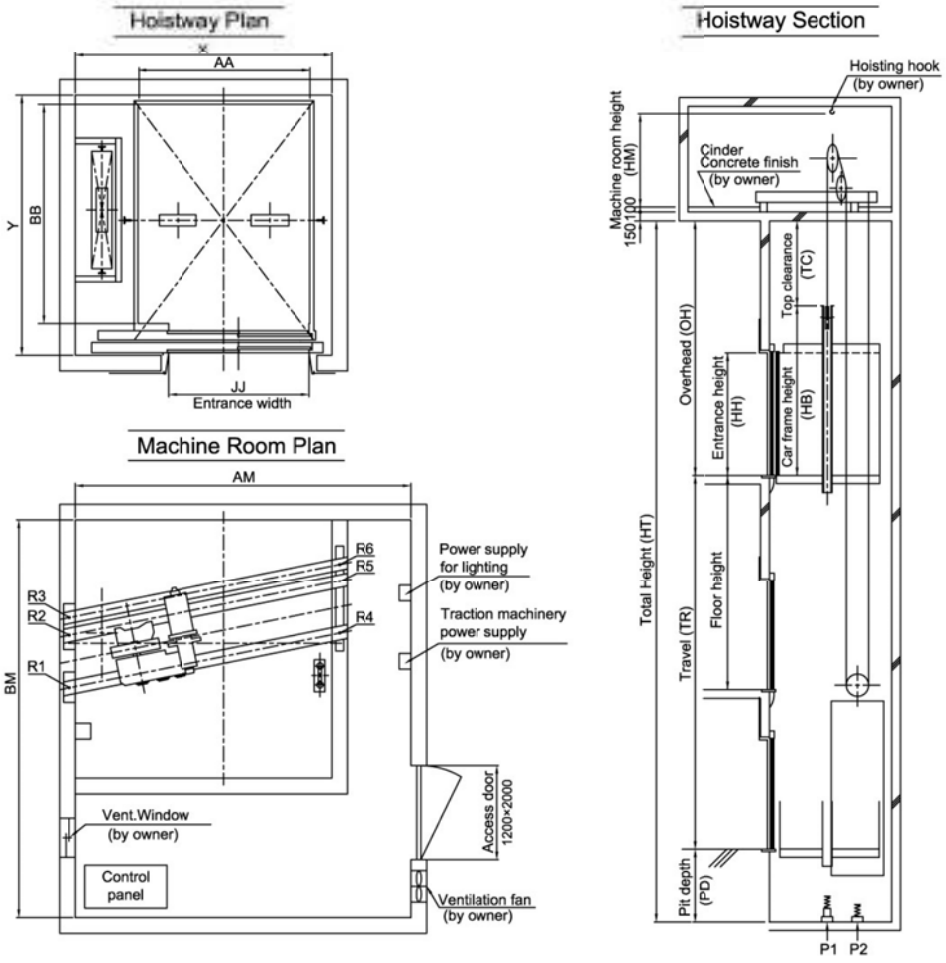
INSTALLATION DRAWINGS

Capacity 750Kg~1500Kg (45,60,90,105m/min)



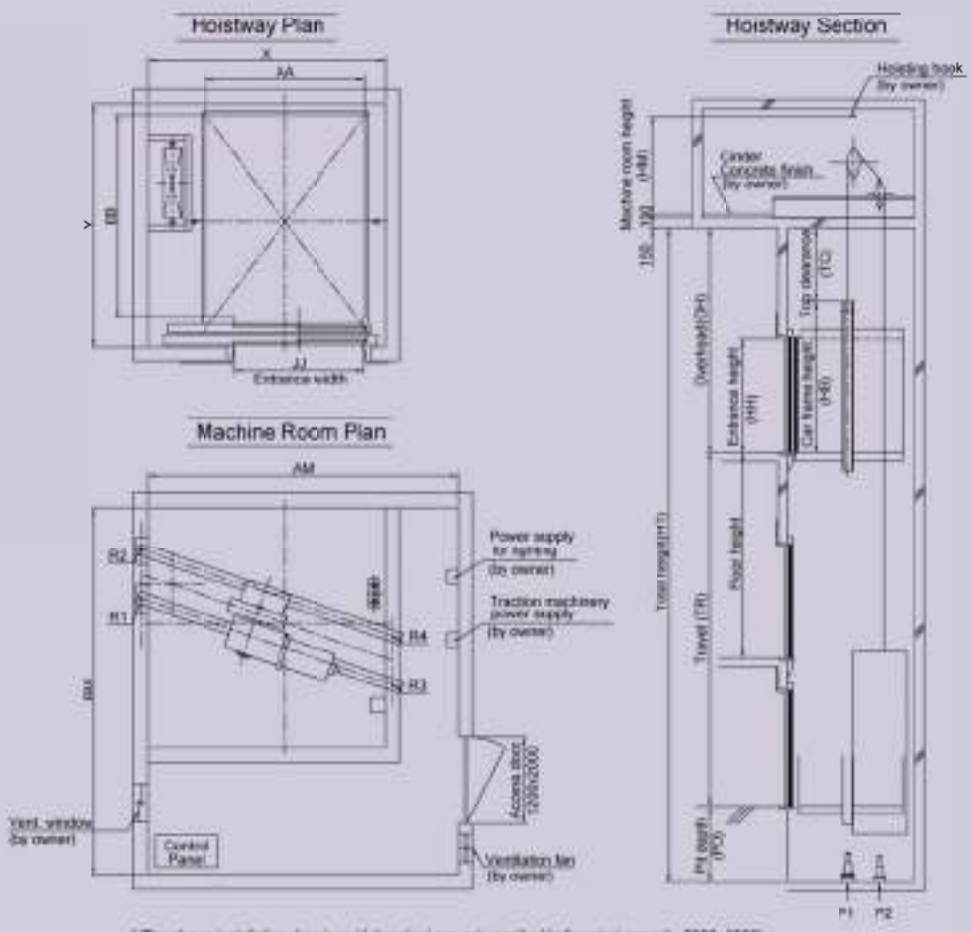
* The above installation drawings (1:1 roping) are only applicable for rated capacity under 1500kg.

Capacity 2000Kg~2500Kg(45,60m/min)



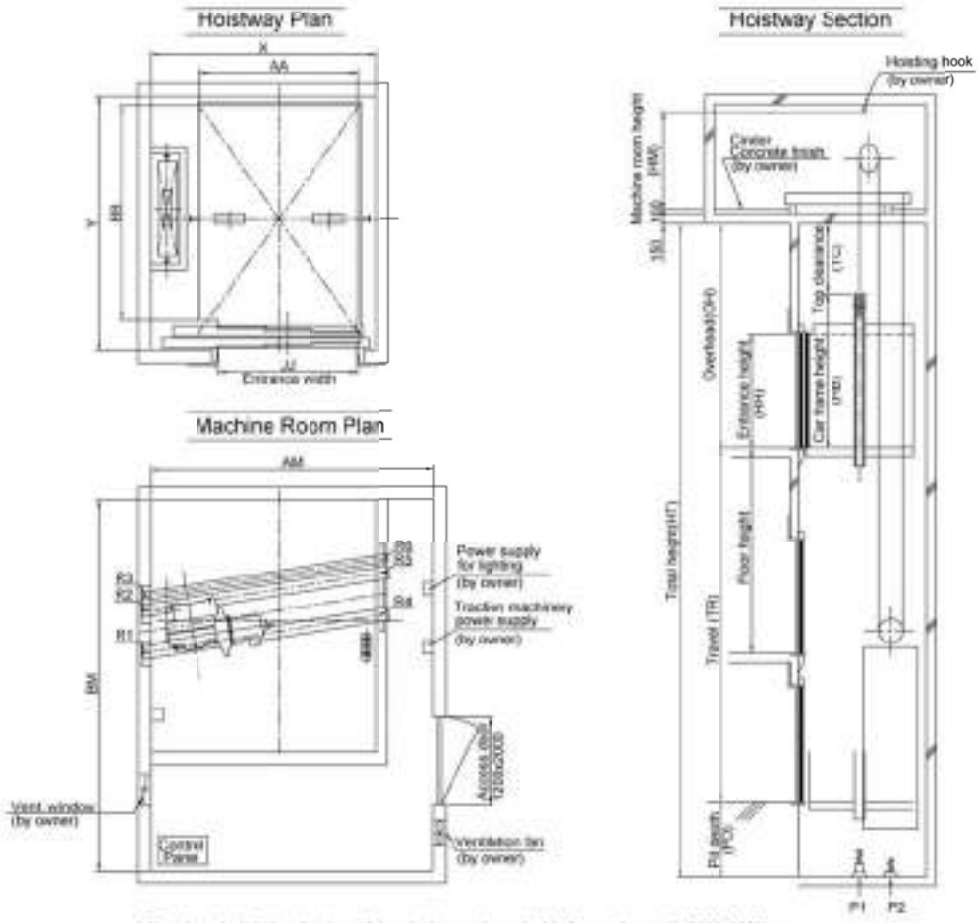
* The above installation drawings (2:1 roping) are only applicable for rated capacity 2000~2500kg.

Capacity 2000Kg~2500Kg(90,105m/min)



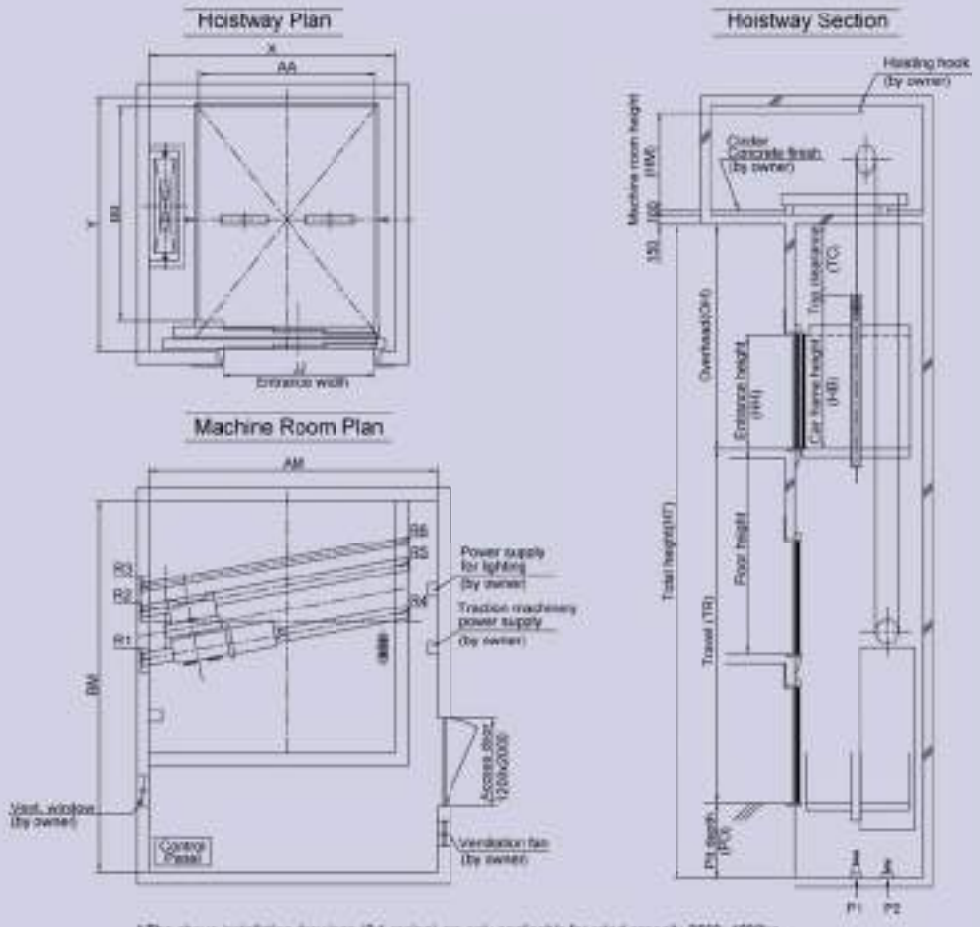
* The above installation drawings (1:1 roping) are only applicable for rated capacity 2000~2500kg

Capacity 3000Kg(30,45,60m/min) 、3500Kg(30,45m/min)



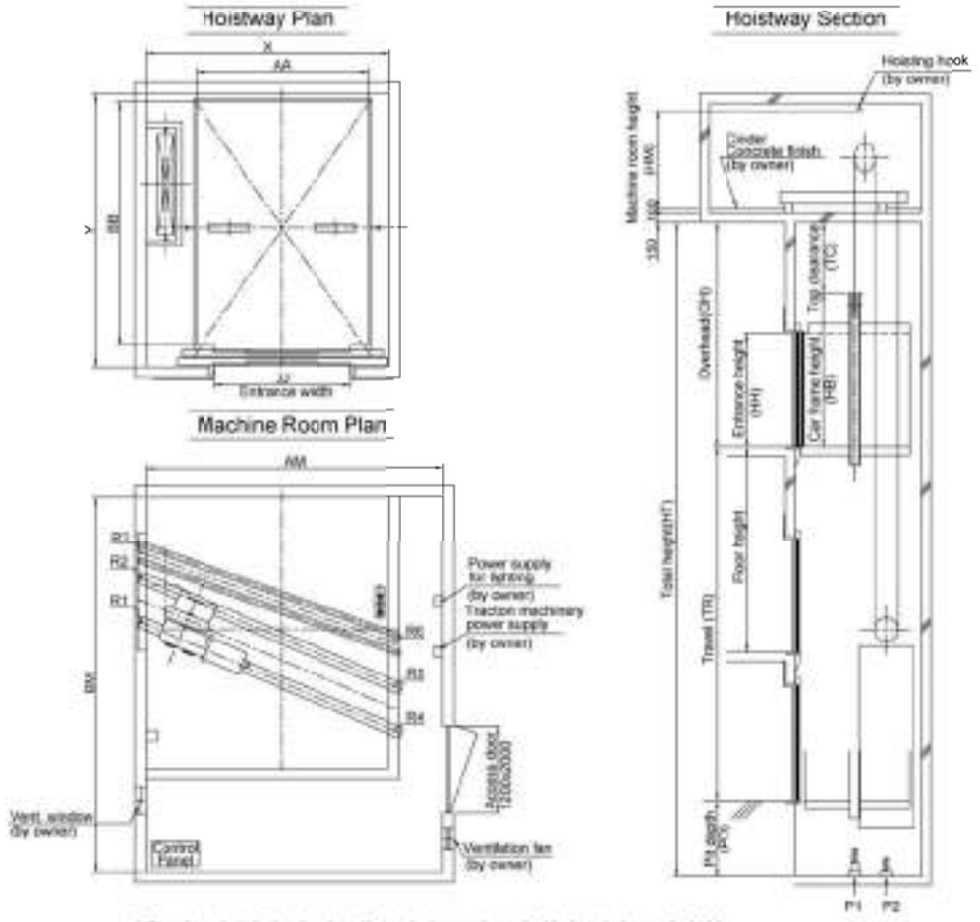
* The above installation drawings (2:1 roping) are only applicable for rated capacity 3000~3500kg

Capacity 3500Kg(60m/min)、4000Kg (30.45m/min)



* The above installation drawings (2:1 roping) are only applicable for rated capacity 3500~4000kg

Capacity 5000Kg (30.45m/min)



* The above installation drawings (2:1 roping) are only applicable for rated capacity 5000kg

SUPPLY SCOPE (1)

Horizontal Dimensions and Reaction Loads

Capacity 750Kg ~ 1500Kg (45,60,90,105m/min)

Rated capacity (kg)	Door type	Rated speed (m/min)	Entrance width JJ	Dimensions(mm)			Reaction loads (kN)					
				Car internal (AAxBB)	Minimum hoistway (XxY)	Minimum machine room (AMxBM)	Machine room				Pit	
							R1	R2	R3	R4	P1	P2
750	2S	45	1200	1500x2000	2320x2570	3000x4000	27.5	25.8	19.3	26.9	71.7	61.1
		60									75.3	63.5
		90									87.0	73.1
		105									102.7	86.3
1000	2S	45	1500	1800x2200	2720x2720	3400x4400	39.1	30.0	27.8	33.0	85.7	70.2
		60									95.1	79.0
		90									111.6	92.8
		105									131.7	109.5
1500	2S	45	1700	2200x2400	3130x3136	4000x5100	50.7	39.9	37.5	44.5	126.1	102.7
		60									125.3	100.9
		90									147.0	120.0
		105									173.5	142.0

Capacity 2000Kg ~ 2500Kg (45,60m/min)

Rated capacity (kg)	Door type	Rated speed (m/min)	Entrance width JJ	Dimensions(mm)			Reaction loads (kN)							
				Car internal (AAxBB)	Minimum hoistway (XxY)	Minimum machine room (AMxBM)	Machine room						Pit	
							R1	R2	R3	R4	R5	R6	P1	P2
2000	2S	45	1800	2200x2800	3280x3320	4300x5100	53.1	42.0	38.7	57.3	13.4	5.0	158.2	126.9
		60											166.4	133.7
2500	3S	45	2100	2500x3000	3530x3595	4500x5700	66.8	53.0	50.8	73.4	16.8	6.5	182.0	142.8
		60											218.8	177.7

SUPPLY SCOPE (2)

Capacity 2000Kg ~ 2500Kg (90, 105m/min)

Rated capacity (kg)	Door type	Rated speed (m/min)	Entrance width JJ	Dimensions(mm)			Reaction loads (kN)					
				Car internal (AAxBB)	Minimum hoistway (XxY)	Minimum machine room (AMxBM)	Machine room				Pit	
							R1	R2	R3	R4	P1	P2
2000	2S	90	1800	2200x2800	3280x3360	4300x5100	65.4	53.7	46.2	50.1	187.4	151.0
		105									221.2	178.7
2500	3S	90	2100	2500x3000	3530x3625	4500x5700	88.1	86.8	49.7	75.8	247.6	199.0
		105									292.9	231.4

Capacity 3000Kg ~ 5000Kg (30,45,60m/min)

Rated capacity (kg)	Door type	Rated speed (m/min)	Entrance width JJ	Dimensions(mm)			Reaction loads (kN)							
				Car internal (AAxBB)	Minimum hoistway (XxY)	Minimum machine room (AMxBM)	Machine room						Pit	
							R1	R2	R3	R4	R5	R6	P1	P2
3000	3S	30	2200	2500x3400	3570x4025	4490x5900	67.6	52.5	47.8	78.9	14.1	5.5	188.1	145.9
		45											210.4	163.2
		60											221.5	171.9
3500	3S	30	2400	2800x3400	3885x4025	4555x5900	80.5	63.6	59.0	85.0	16.0	6.3	226.8	177.6
		45											253.8	198.7
		60					97.2	73.9	69.9	97.9	20.6	7.6	308.6	250.6
4000	2CO	30	2400	3000x4000	4175x4550	4555x5900	96.3	73.1	67.9	98.1	20.5	7.4	262.7	205.4
		45											293.9	230.9
5000	2CO	30	2500	3200x4500	4510x5050	5496x5950	95.3	89.1	99.1	23.4	21.9	104.2	315.5	245.0
		45											352.4	273.5

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 or more.

SUPPLY SCOPE (3)

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)
750~2500	45	16	40	HH+700
	60		60	
	90			
	105			
3000、3500	30	8	40	
	45			
	60			
4000、5000	30			
	45			

Vertical Dimensions

Rated capacity (kg)	Rated speed (m/min)	OH (mm)	PD (mm)	TC (mm)	HH (mm)	HB (mm)	HM (mm)
750	45	4450	1250	1250	2100	3200	2200
	60	4650	1550	1450			
	90	4800	1800	1600			
	105	5000	2100	1800			
1000	45	4450	1250	1250	2100	3200	2200
	60	4650	1550	1450			
	90	4800	1800	1600			
	105	5000	2100	1800			
1500	45	4450	1250	1250	2100	3200	2200
	60	4650	1550	1450			
	90	4800	1800	1600			
	105	5000	2100	1800			
2000	45	4450	1250	1250	2100	3200	2200
	60	4650	1550	1450			
2500	45	4850	1250	1250	2500	3600	2200
	60	5050	1550	1450			

SUPPLY SCOPE (4)

Vertical Dimensions

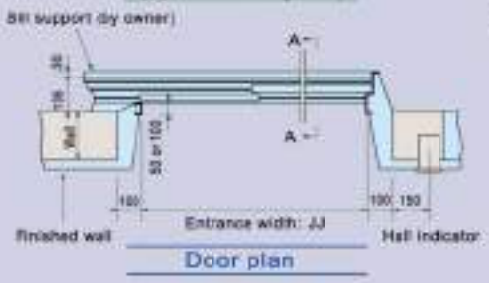
Rated capacity (kg)	Rated speed (m/min)	OH (mm)	PD (mm)	TC (mm)	HH (mm)	HB (mm)	HM (mm)
2000	90	4800	1800	1600	2100	3200	2500
	105	5000	2100	1800			
2500	90	5200	1800	1600	2500	3600	3000
	105	5400	2100	1800			
3000	30	5200	1400	1400	2500	3800	2800
	45	5200	1500	1400			
	60	5400	1800	1600			
3500	30	5400	1500	1500	2500	3900	2800
	45	5400	1600	1500			
	60	5600	1800	1700			
4000	30	5850	1550	1500	2500	4150	2800
	45	5850	1600	1500			
5000	30	5700	1800	1600	2500	4100	2800
	45	6000	1800	1800		4200	

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

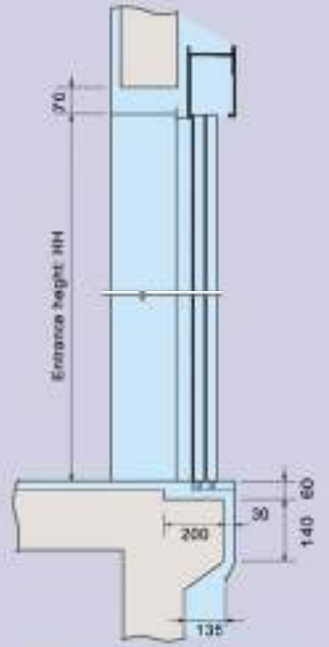
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ENTRANCE LAYOUT

2S Doors
(2-panel side sliding doors)

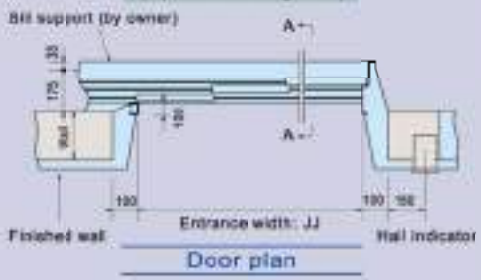


Door plan

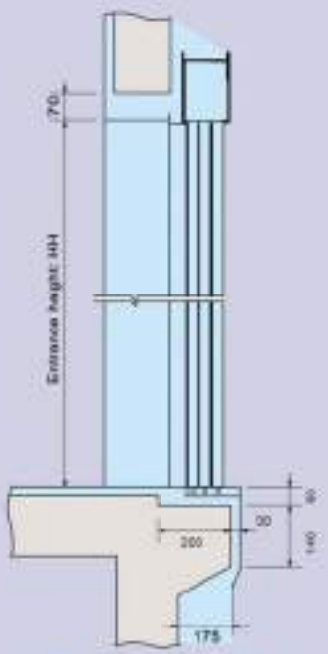


Door elevation
(Section A-A)

3S Doors
(3-panel side sliding doors)



Door plan



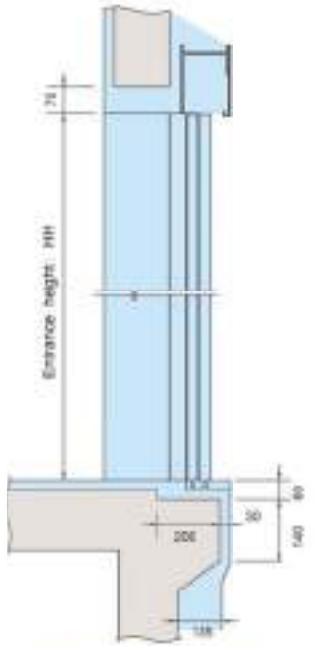
Door elevation
(Section A-A)

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

2CO Doors
(4-panel center opening doors)



Door plan



Door elevation
(Section A-A)

FEATURES

Standard Feature

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 buzzer, as well as voice guidance, sounds to alert the passengers that the car is overloaded. the doors remain open and the car will 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.
(CFC-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.
(CLC-A) Car Light Shut Off – Automatic	If there are no calls for a specified period, the car lighting will automatically be turned off to conserve energy.
(FCC-P) False Call Canceling – Car Button Type	If the wrong car button is pressed, it can be canceled by quickly pressing the same button again twice.
(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.

Standard Feature

Feature	Description
■ Door Operation Features	
(DLD) Door Load Detector	When excessive door load has been detected while opening or closing, the doors immediately reverse.
(RDC) Repeated Door -Close	Should an obstacle prevent the doors from closing, the doors will repeatedly open and close until the obstacle is cleared from the doorway.
(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	When a button inside a car is pressed, the doors will remain open longer 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, providing a minimum level of lighting within the car. (Choice of dry-cell battery or trickle-charge battery.)

Optional Feature

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 1C - 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/HOS-T) 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-C8) Non-Service to Specific Floors – Car Button Type	To enhance security, service to specific floors can be disabled using the car operating panel. This function is automatically deactivated during emergency operation.
(NS/NS-T) Non-Service to Specific Floors – Switch/Timer Type	To enhance security, service to specific floors can be disabled using a manual or timer switch. This function is automatically deactivated during emergency operation.
■ 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.
(USDS) Ultrasonic Door Sensor	Sound waves are used to scan a 3D area near the open doors to detect passengers or objects.

Optional 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.
■ Emergency Operations and Features	
(EER-P/EER-S) Earthquake Emergency Return	Upon activation of primary and/or 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, predetermined car(s) use the building's emergency power supply to move to a specified floor, where the doors then open to facilitate the safe evacuation of passengers. After all predetermined car(s) have arrived at the floor, normal operation will be available with only pre-determined car(s).
(WP) Supervisory Panel	Each elevator's status and operation can be remotely monitored and controlled through a panel installed in building's supervisory room, etc.
(MELD) Mitsubishi Emergency Landing Device	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. (Max. allowable floor-to-floor distance is 10 meters.) (MELD is only applied bellow: 750~1500 kg 45~105 m/min and 2000~2500 kg 45~60 m/min.)

NOTES ON INSTALLATION 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 concrete 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 Mitsubishi Electric's 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 building materials for grouting in of brackets, 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 Mitsubishi Electric's 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