MITSUBISHI

PASSENGER ELEVATOR MODERNIZATION
(Renovation to Series GPS-III)

Changes for the Better

Quality in Motion

ELEVATOR

Series
GPS-IIIMZ

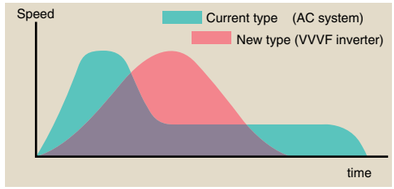
In keeping with the era, elevator technology changes too. Isn't it time to renovate or refurbish your elevators?

Of all modes of transport, it is probably the elevator which starts and stops most frequently. The service life of an elevator depends on several factors, most importantly frequency of use, but also operating conditions, treatment by passengers, maintenance, etc. Generally, the service life can be estimated at between 20 to 25 years. The better the conditions, the longer the life. Service life isn't the only consideration, of course. There are many other reasons to consider Mitsubishi's elevator modernization program to upgrade your building's facilities, especially if the elevator installation is over 20 years old. Mitsubishi's elevator modernization utilizes the advanced technologies and superior designs of the Series GPS-III for the following reasons.

To enhance passenger service

The microprocessor's smooth and precise control of the elevator's movements reduces the running time by approx. 20% compared to the traditional AC two-speed control systems with relays. (See Fig. 1.) For group-control elevators, the average waiting time for passengers at each floor is reduced by between 20% to 40% compared with our previous system.

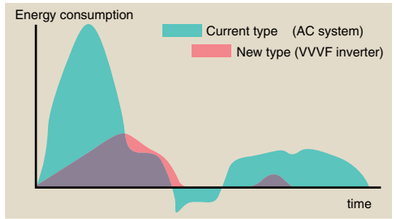
Fig. 1.



To save energy

Mitsubishi VVVF inverters offer more efficient control of the driving motor to save power consumption by between 40% to 50% compared with the AC-2 system. (See Fig. 2.)

Fig. 2.

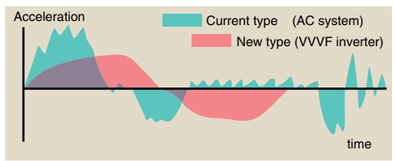


To improve total quality

The advanced system uses the latest electronics components to deliver reliability, flexibility, and precise performance. The comfort of the ride* and the accuracy of leveling can also be refined (see Fig. 3.), while the VVVF door control system provides smoother, more efficient door control.

**The actual grade for the Partial Modernization type differs slightly from the new product because it essentially re-uses the existing traction machine.*

Fig. 3.



To refurbish the elevator image**

There is a wide choice of design menues available to meet your requirements. Choose one of the design variations in accordance with the needs of your building.

***Applicable to Semi-Complete Modernization and Complete Modernization types.*

Memo

Building/Project			
Order/Ref. no.			
General plans for building renovation			
Plan for elevator	Type CM1: Partial/SM1: Semi-Complete/SM2: Semi-Complete/FM1: Complete Modernization		
Traction machine	Machine re-used/Gear-unit replaced/Whole machine replaced		
Elevator no./Qty	No. /TTL units	Service life	(years)
Rated load	(kg)	Rated speed	(m/min)
Control system		Operation system	
No. of stops		Floor name	
Hoistway size	(mm)	M/C room size	(mm)
Pit depth	(mm)	OH height	(mm)
Car int./ext.	(mm)	Type of doors	
Replaced components	(for Type CM1)		
Re-used components	(for Type SM1/SM2/FM1)		
Other specs. (existing)			
Remarks on new specs.			

Basic Specifications

Modernization types available

Type and definition		Contents	Re-used components
CM1	Partial Modernization	Full improvement to control and operation systems, and related functions, without affecting building walls or structure.	Traction machine and others. (The following are replaced: traction motor/control panel(s)/ traveling cables/door motor/car-top station/weighing device/landing devices/hoistway switches/car operating panel(s) with position indicator/car front return panel(s), etc.)
SM1	Semi-Complete Modernization	Semi-complete renovation with image upgrading and re-use of some components, without affecting building walls or structure.	Landing sills/door frames/guide rails/counterweight/buffer footings
SM2	Semi-Complete Modernization	Alternative to SM1.	Landing sills/door frames/guide rails/counterweight/buffer footings/machine beams
FM1	Complete Modernization	Total renovation with image upgrading, enabling a new life cycle.	None.

Capacity and speed range

For type CM1

	400kg*1	450kg*1	500kg*1	550kg*1	600kg	650kg*1	680kg	700kg*1	750kg	780kg*3	820kg*3	900kg	1,100kg	1,150kg*2	1,350kg*2	1,650kg*2
30mpm	●	—	●	●	●*1	●	●*1	—	●*1	—	●*2	●*2	●*2	●	●	●
45mpm	●	●	●	●	●	●	●*1	●	●	—	●*2	●*2	●*2	●	●	●
60mpm	●	●	●	●	●	—	●	●	●	●*1	●	●	●	●	●	●
75mpm	●	●	●	●	●	—	●*1	—	●*2	—	—	●*2	—	●	●	●
90mpm	●	—	●	●	●	—	●*1	●	●	—	●	●	●	●	●	●
96mpm*4	—	—	—	●	●*1	—	●*1	—	●	—	—	●	●	●	●	●
105mpm	—	—	—	●	●	—	●*1	●	●	—	●	●	●	●	●	●
120mpm*5	—	—	—	—	—	—	—	—	●*2	—	●*2	●*2	●*2	●	●	—

Note: The current capacity and speed remain unchanged as shown in the table.
Key : ●: Applicable ranges —: Not applicable
*1: Applicable when the existing elevator is Standardized type only.
*2: Applicable when the existing elevator is Customized type only.
*3: For Taiwan only
*4: For Hong Kong only
*5: Applicable when the existing elevator is DC-Geared type only.

For type SM1, SM2 & FM1

	410~450kg	525~700kg	750kg	820kg*1	885~1,050kg	1,150~1,360kg	1,600~2,450kg
45mpm	●	●	●	●#	●#	●#	●#
60mpm	●	●	●	●	●	●	●#
90mpm	●#	●	●	●	●	●	●#
105mpm	●#	●	●	●	●	●	●#
120mpm*2	●#	●#	●	●	●	●	—
150mpm*2	●#	●#	●	●	●	●	—

Note: The current capacity and speed are changed to the figures in the table according to the existing building conditions.
Key : ●: Applicable ranges —: Not applicable
#: When ordering or inquiring about these capacities, please consult our local subcontractor.
*1: For Taiwan only
*2: Not applicable when the existing elevator is DC-Gearless type.

Considerations for Modernization

Main points of the modernization process

Step	Items to discuss/confirm	Data flow			Remarks
		Customer	Local	Melco	
1	General plan for building renovation	◎	◇	◇	*For equipment **For installation
2	Type of modernization, budget range	◎	◇	◇	
3	Components to replace or re-use	◎	◇	◇	
4	Details of existing specifications	◇	◎	◇	
5	Measurement of existing dimensions	◇	◎	◇	
6	Full details of new specifications	◎	◇	◇	
7	Quotations for equipment and installation	◇	◎**	◎*	
8	Details of components replaced or re-used	◇	◇	◎	
9	Terms for production and shipment	◇	◇	◎	
10	Terms for installation	◇	◎	◇	
11	Purchasing order with specs., drawings	◎	◇	◇	
12	Required hand-over date	◎	◇	◇	
13	Production schedule	◇	◇	◎	
14	Installation schedule	◇	◎	◇	
15	Product shipment	◇	◇	◎	
16	Preparation of hoisting equipment	◎	◇		
17	Installation work	◇	◎		
18	Inspection and testing for approval	◇	◎		
19	Finishing structural work	◎	◇		
20	Completion of elevator modernization	◇	◎		

Notes: 1. Local: Our local subcontractor; Melco: Mitsubishi Electric
2. This table shows the typical items and flow required for modernization. The actual process depends on the type of modernization and the condition of the building.
3. Please consult our local subcontractor for more details as to method, minimum installation period, etc.

Countermeasures for the Building Structure

•Building contracting

Elevator halls and hoistways
1. Finishing of walls and floors of elevator halls after installation of elevator hall fittings.
2. Hoistway repair work.
3. Installing intermediate beams (where existing ones cannot be used).
4. Drilling holes for jambs and transom panels, hall indicators, hall buttons, etc., in the entrance halls on each floor (where existing ones cannot be used).
5. Installing steel backing plates for the jambs and transom panels, hall buttons, hall indicators, etc., in the entrance halls on each floor where steel-frame construction is used (where existing ones cannot be used).
6. Installing fasteners for the mounting of rail brackets on floors where steel-frame construction is used (where the existing ones cannot be used).

Machine rooms

1. Removing of machine-room floor (breaking up cinder concrete).
2. Laying conduits in the machine-room floor before laying and finishing cinder concrete.
3. Drilling holes in machine-room floor.
4. Providing a temporary aperture to introduce machinery and restoration work.
5. Transporting machinery from outside the building.

Temporary installation work

1. Providing temporary hall enclosures.
2. Disposing of removed parts, cleaning up and disposing of broken glass and scrap.
3. Providing a place for storage of removed or to-be-installed elevator parts.
4. Supplying electric power for the work and illumination.

•Installation period cautions

1. Security guards should be deployed throughout the installation period.
2. It should be remembered that a certain amount of vibration and noise is inevitable during the installation period.
3. It should be noted that flammable materials will be used during the installation period.

Note: Actual items will depend on the type of modernization and the condition of the building. (Please consult our local subcontractor for details.)

Examples of Car and Entrance Designs

(For Complete and Semi-Complete Modernization)

SS-21S Car Ceiling (optional)

Arch-type indirect full-lighting through milky-white resin with painted trim lines in black.

E-312 Splayed Door Frame with Transom Panel (optional)

•For details of designs and specifications, please refer to the Series GPS-III catalog.

Notes: 1. Elevator color shown differs slightly from actual tone.
2. The suitability of car ceiling design models depends on factors such as door type, car size, etc.