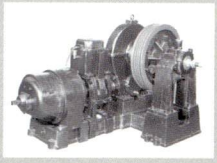

HITACHI
Inspire the Next
Hitachi
HIGH-SPEED & ULTRA HIGH-SPEED
ELEVATOR

Hitachi was founded in 1910 and commenced the development of elevator in 1920. The first elevator was installed in 1932. Hitachi has delivered 300 m/min elevators to the Kasumigaseki building, first Japanese skyscraper, in 1968. Until now, Hitachi has been continuously providing elevators to the various skyscrapers throughout the world.

1930



First elevator is delivered.
Freight elevator for TOKYO Electric Co. (1932)

300 m/min elevator is delivered to Japan's first skyscraper building.
Kasumigaseki Building (1968)

Several 540 m/min elevators and other equipment are delivered to skyscraper buildings in Shinjuku.
Shinjuku Sumitomo Building (1974)

1990

Power-saving inverter controlled ultra high-speed elevator commences operations.
Tokyo metropolitan Government Building No.1 (1991)

2000

300 m/min double-deck elevator is delivered.
Roppongi Hills Mori Tower (2003)

480 m/min, 2850kg high-rise shuttle elevator is delivered.
Tokyo Midtown, Midtown Tower (2007)

480 m/min double-deck elevator is delivered.
Shanghai World Financial Center (2008)

2010

600 m/min ultra high-speed elevator for the Middle East.
Al Hamra Mixed-use Complex (2011)

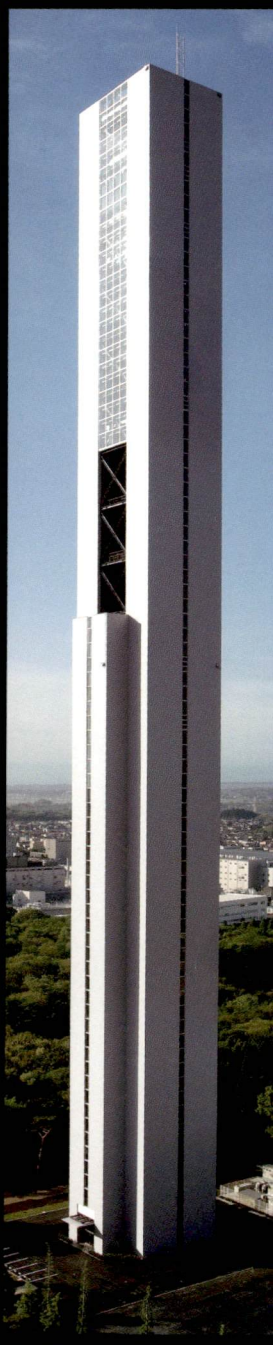
Research and Development by four R&D centers in cooperation

G1TOWER

In 2010, Hitachi completed the construction of the "G1TOWER", one of the world's tallest elevator research towers at 213m. (*1)
To create and provide elevators for the world's tallest and largest buildings, Hitachi will continue to improve our levels of technology and quality with the use of this new test tower.

*1 Hitachi internal data as of 2015

Japan, MITO Works



G1TOWER

With an aim to becoming number one in the world, Hitachi is making effort to develop safe comfortable, and highly efficient products by four R&D centers in Japan, China and Singapore.

Guangzhou, China

Shanghai, China

Singapore

The World's Fastest[*1] Ultra High-Speed Elevators

Hitachi will deliver the world's fastest ultra high-speed elevators with a speed of 1,200 m/min (20 m/s) to the Guangzhou CTF Finance Centre (530 meters tall), a mixed-use skyscraper currently under construction in Guangzhou, China, for the full opening of the building in 2016. The elevator will feature technologies that support safe and comfortable elevator operation, in addition to the drive and control technologies needed to attain the world's fastest speed. Through these technologies, Hitachi will ensure that the elevator will provide passengers with a comfortable ride even when operated at high speeds.

*1 Hitachi internal data as of 2015

Artist's rendition of the completed Guangzhou CTF Finance Center

Features of World's Fastest Elevator

1. Drive and control technologies to attain world's fastest speed of 1,200 m/min

- Developed a permanent magnet synchronous motor that achieves both a thin profile and the high output needed to attain a speed of 1,200 m/min.
- Successfully developed a compact traction machine by lightening the load on the traction machine, through reducing the weight of the system by reducing the main rope diameter while increasing the rope's strength.
- Installed inverters that possess one of the world's highest capacities for use in elevators to control the output of the large-capacity motor. At the same time, Hitachi has successfully conserved space as regards the control panel.

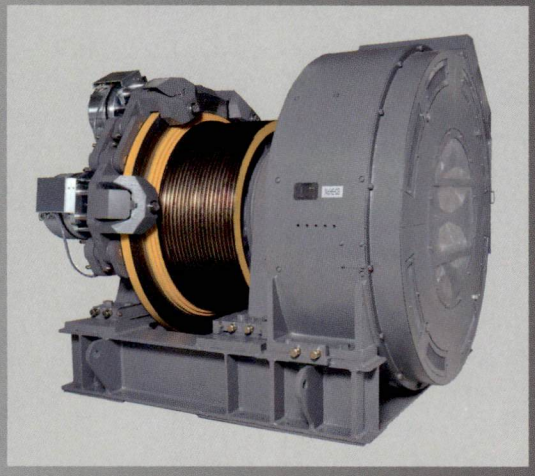
2. Safety features supporting ultra high-speed elevator operation

- Developed brake equipment using braking materials with outstanding heat resistance to safely stop the elevator car in the unlikely event that an elevator malfunction is detected during ultra high-speed operation.
- Thoroughly ensure safety and save space by using a single governor that can control different rated speeds during elevator ascent and descent. *2

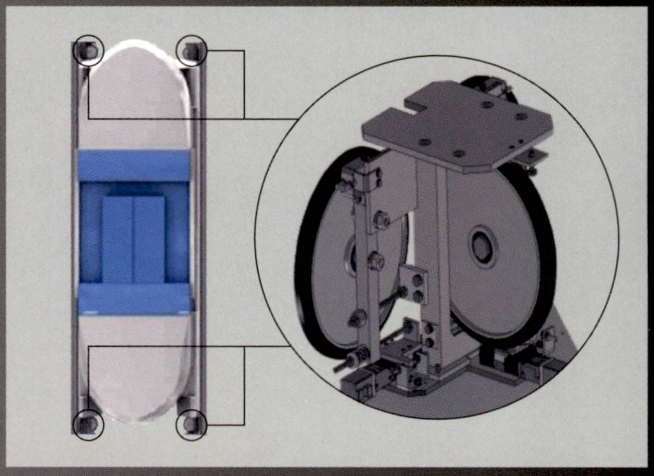
*2 The rated speed during descent is 600 m/min.

3. Elevators can be used comfortably with safety even over long travel

- Installed active guide rollers that detect minute warping in the guide rails and lateral vibration due to wind pressure, in the four corners (top and bottom, left and right corners) of the elevator car. This gives elevator passengers a comfortable ride even during high-speed operation.
- Reduced the sensation of ear blockage by developing Hitachi's proprietary air pressure adjustment technology, which reduces the changes in air pressure inside the elevator car that would otherwise be caused by the vertical movement through long travel.



Traction machine for 1,200 m/min



Active guide rollers (by 3D modeling)

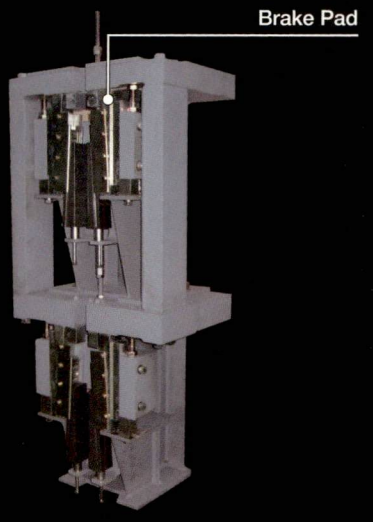
Advanced technologies

Safety Technology

Multiple Emergency Stop Devices

The emergency stop systems on ultra high-speed, large-capacity elevators require functions to bring to a halt heavy elevator cars moving at ultra high speed with total safety. In order to obtain the braking power demanded by this, Hitachi uses materials of superior levels of wear-resistance and heat-resistance and with a high friction coefficient on the braking shoes used in emergency stop systems. Hitachi has also introduced multi-structure emergency braking systems that consist of two parallel devices, as opposed to the single device conventionally used, and this will provide support for the increased capacity and speed that can be expected in future elevators.

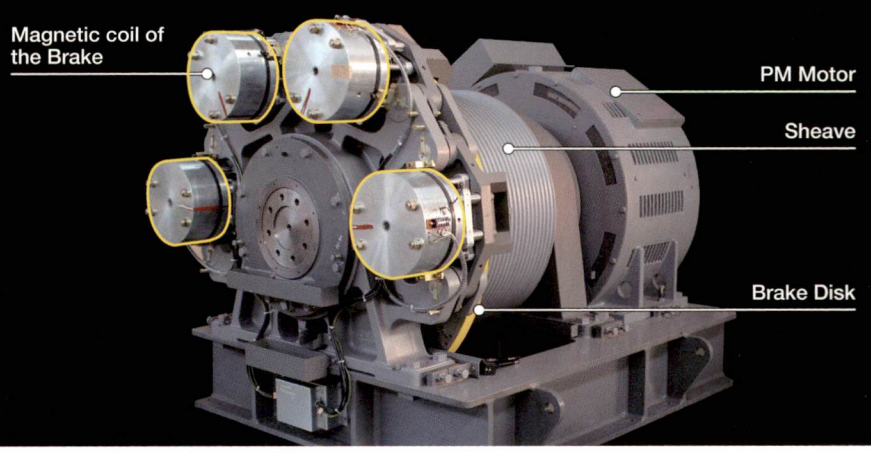
Multiple Emergency Stop Devices



Multiple Disc Brakes

Efficient braking power and swift response is required in the braking systems of ultra high-speed, large-capacity traction machines. Hitachi uses braking materials that are able to withstand high surface pressure at high speeds in order to achieve the levels of braking power required. Conventional brakes operate on a drum system, but the development of technology that provides optimal control over multiple electromagnetic coils on disc systems has led to even greater stopping power and allowed them to be manufactured in a compact size. The placement of the multiple electromagnetic coils in consideration of a fail-safe system has also improved safety.

Traction machine of Multiple Disc Brakes



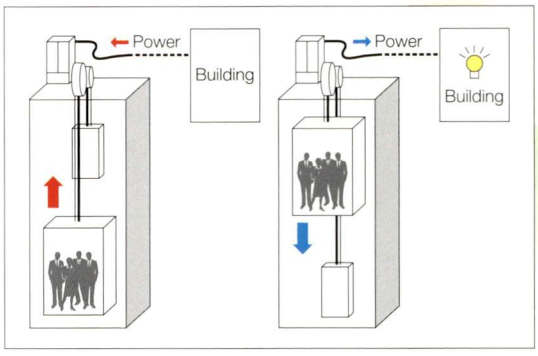
Green Technology

Traction machine and door drive unit with a permanent magnet motor (PM motor)

Highly efficient operation is achieved by incorporation of a gearless traction machine with a PM motor and the latest inverter control. A PM motor is also used in the drive unit for elevator doors to improve energy efficiency and provide smoother door opening and closing motion.

Regenerative system

The motor acts as generator at certain load conditions. The energy generated by the motor is transmitted back to the electrical network in the building, thereby reducing power consumption.

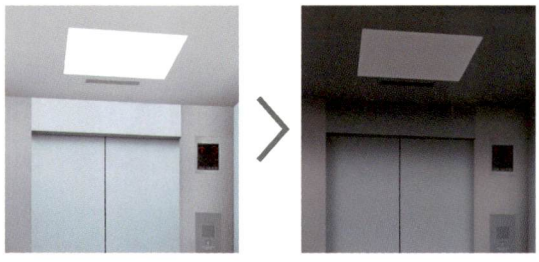


Energy-saving LED devices

In response to customer demands, LED car lights, hall lanterns and hall / car buttons are available for selection. Compared to conventional lights, energy consumption is reduced and service life is prolonged.

Automatic turn-off of elevator light and fan

When the elevator is idle, the car light and ventilation fan are automatically turned off.



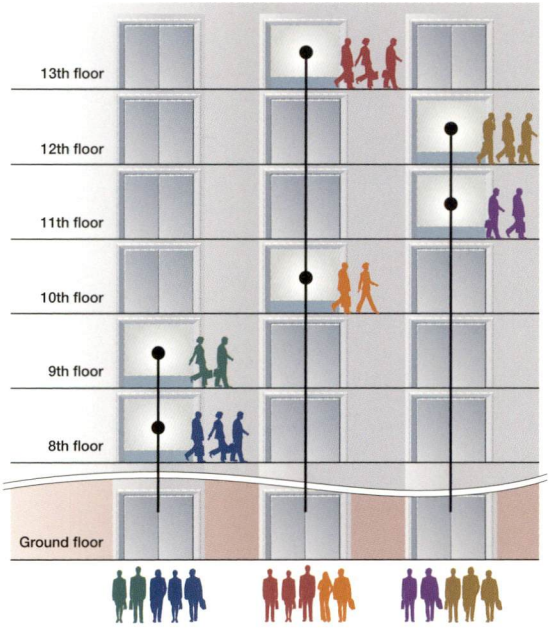
After a preset period of time

Comfort Technology

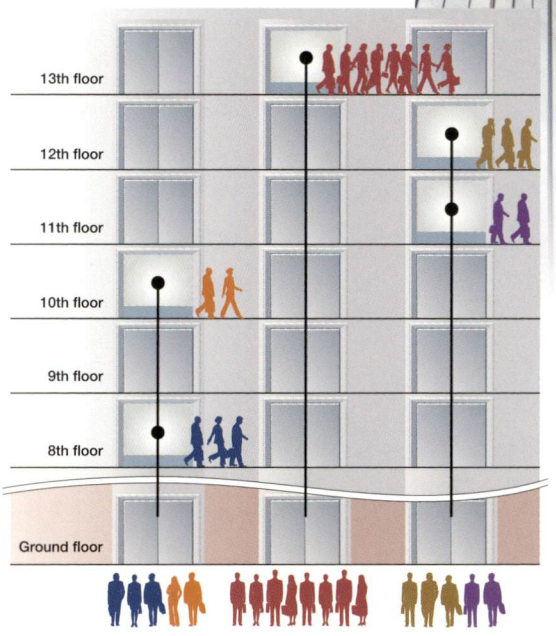
FIBEE-Hitachi Destination Floor Reservation System

"FIBEE" leads passengers more smartly to their destination floors. By learning elevator usage data on a daily basis, FIBEE controls to give priority to handling capacity for congested floors such as morning up peak. Moreover, FIBEE saves energy according to the traffic situation.

Examples of FIBEE car allocation



Allocating elevator cars to equalize the elevators' stopping floors of each unit



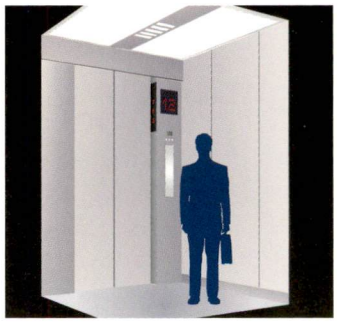
Allocating elevator cars to give priority to the highest demand floor (13th floor)

In FIBEE, the conventional hall buttons (Up and Down arrows) located at the elevator lobby are replaced by the destination floor registration devices. Passengers register their destination floor through these devices at the lobby instead of in the elevator.

1. Register your destination floor

2. Move to the assigned elevator

3. Go to your destination floor



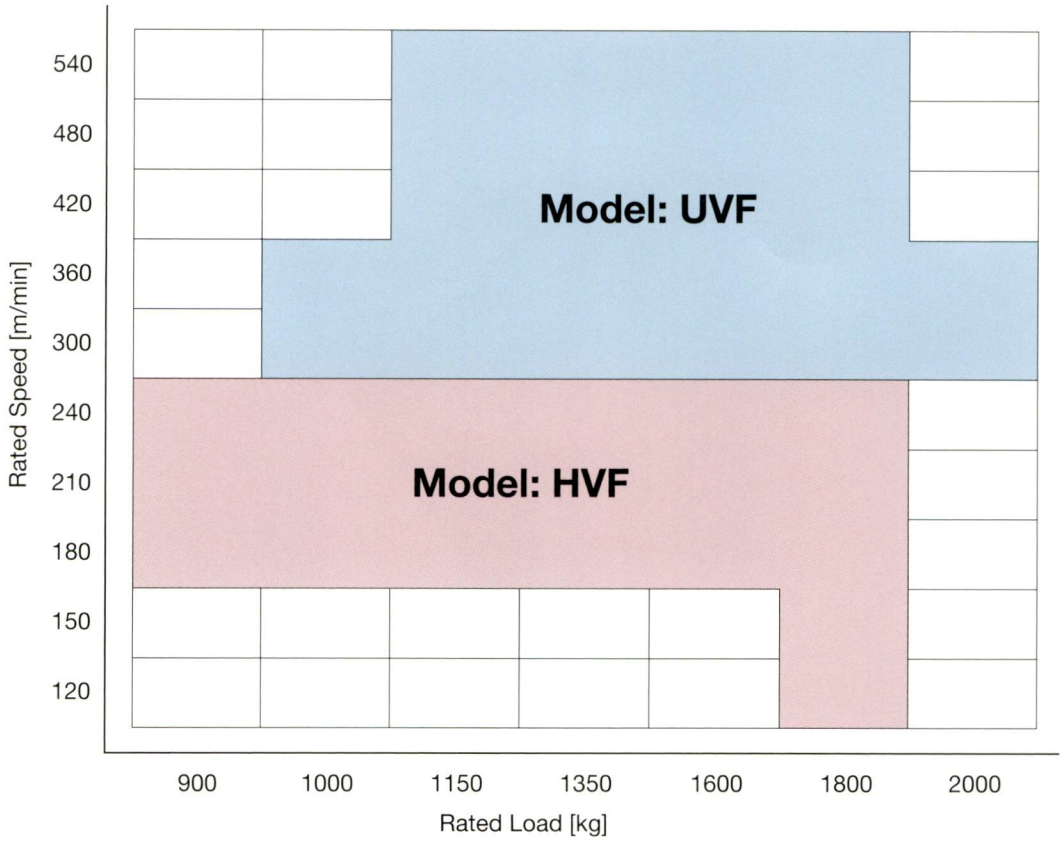
Design

Hitachi's designs continue to evolve to meet contemporary needs of our customers, providing modern designs to suit urban spaces.

Standard applicable range

Specifications

■Rated speed & Rated load



■Travel distance & number of stops

No.	Item		
1	Maximum travel distance	120 (m/min) ≦ SPEED ≦ 360 (m/min)	200 m
		420 (m/min) ≦ SPEED ≦ 540 (m/min)	250 m
2	Maximum number of stops	120 (m/min) ≦ SPEED ≦ 240 (m/min)	48 stops
		300 (m/min) ≦ SPEED ≦ 540 (m/min)	64 stops

* If your request is out of above range, please consult Hitachi or local agent.

HITACHI

Inspire the Next

http://www.hitachi.com/businesses/elevator/index.html

Contact Address:

The information in this catalogue is subject to change without notice.

MIX
Paper from responsible sources
FSC® C015138
www.fsc.org

VEGETABLE OIL INK

Printed in Japan(H) **RE-E220** 0316