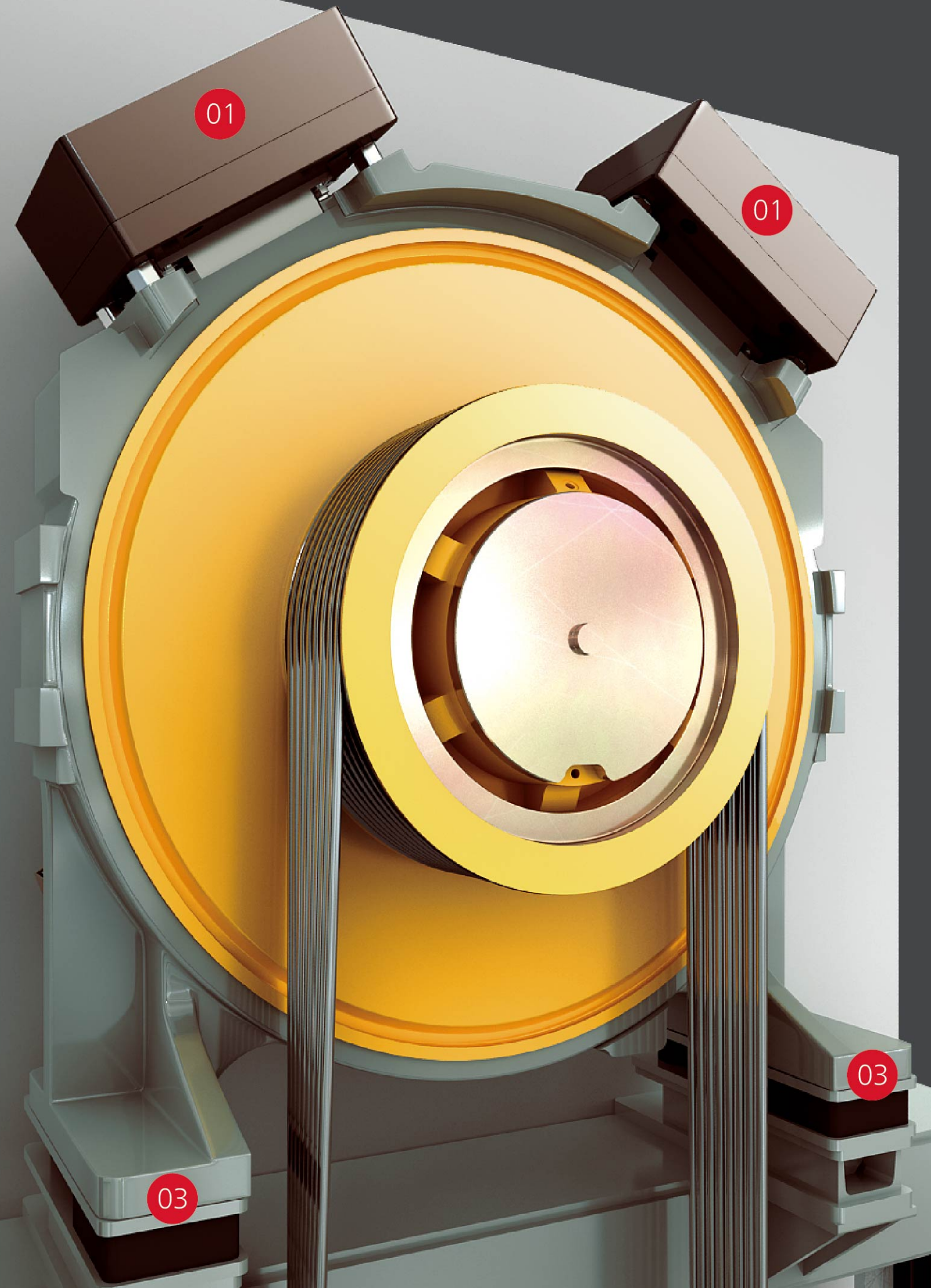


Machine Room-less Elevator

Model LCA

Contact Address:

The information in this catalogue is subject to change without notice. The information and diagram used at this catalogue reflect the technical feature and configuration of elevator model at press time (refer to the version number). In line with the principle of continuous development of products, our company reserves the right to change the selection of product technical parameters and color at any time. The existing image technology cannot accurately reproduce the elevator component structure and decoration color. Therefore, this catalogue only provides general information, not as a contract document. The specific configuration parameters are subject to the formal agreement. If you need detailed information, please contact us.



Safety and Comfort

01 Brake with High Braking Torque

- The tractive capacity is designed as Hitachi standard which is higher than industry standard to ensure that the elevator runs more reliably;
- The braking torque is designed as Hitachi standard which is higher than industry standard to ensure that the elevator brakes more reliably;
- The brake is subject to rigorous life test conducted by Hitachi to ensure safety and reliability for long-term running.

02 Motor with Low Temperature Rise

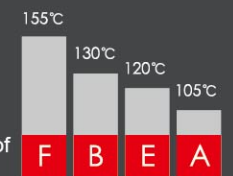
The temperature rise of motor is below the value restricted by industry standard and that of other permanent magnet synchronous motor. The life of the motor can be greatly extended with the low temperature rise technology. And the malfunction cause by motor overheat can be avoided to raise the safety and reliability of the elevator.

03 High-efficiency Damper for Traction Machine

The effects of the vibration of the motor on the guide rail is minimized through the designing of a highly efficient damper for the traction machine to improve the comfort of the elevator.

04 Class-F Insulation of Motor

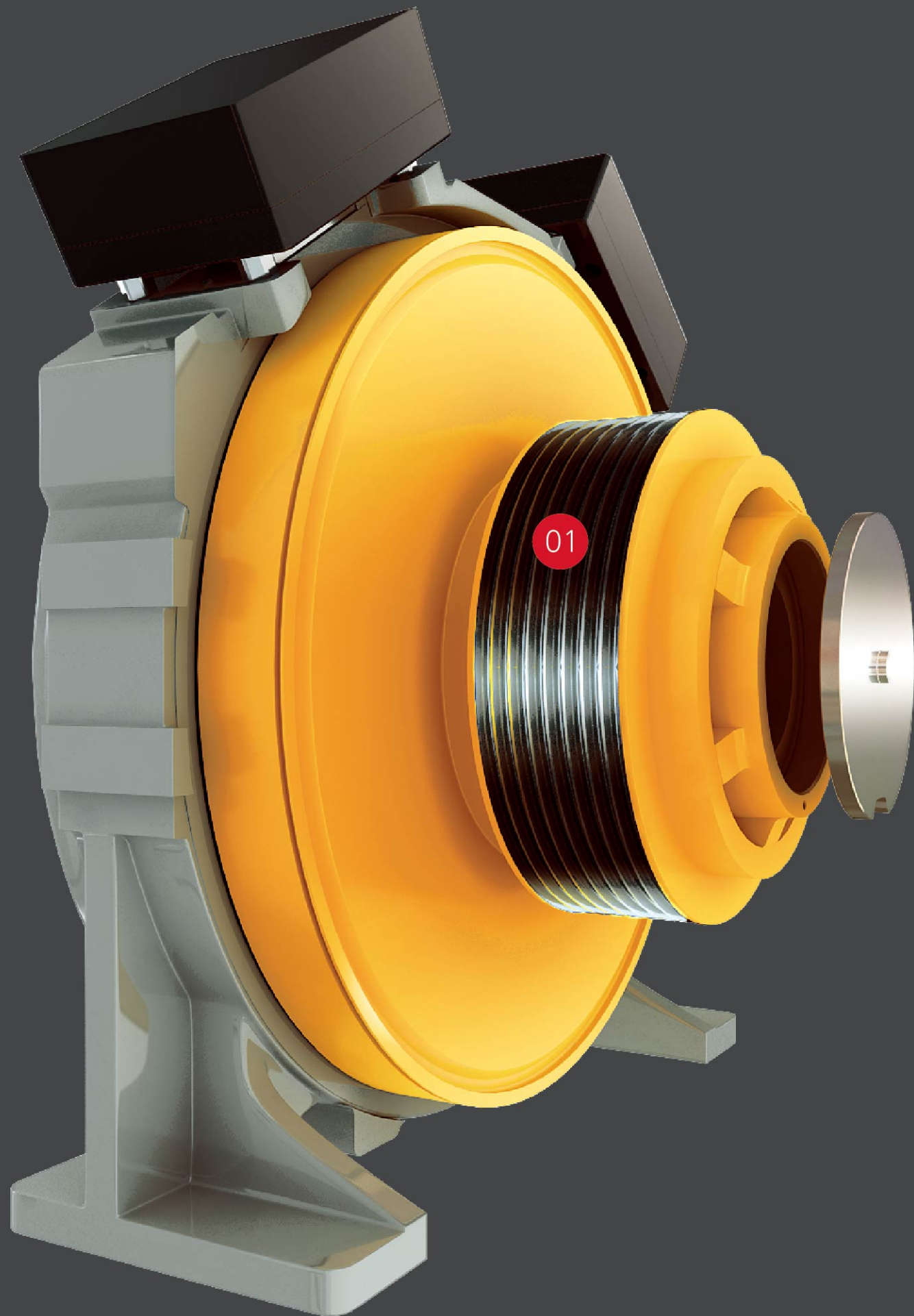
The motor is designed as the high insulation class so that it can withstand a high temperature of up to 155°C. The running of the elevator is much more reliable.



05 Minor Torque Pulsation of Motor

To provide low torque ripple motor achieving the comfortable ride quality.

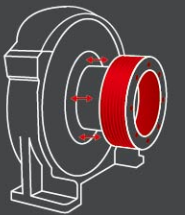
Note: The 'Industry Standard' means GB standard.



Representative Patent Design

01 Separable Traction Sheave Design

Unique separable traction sheave design can decrease the maintenance time and reduce the maintenance cost of motor.



02 Higher Rotation Accuracy

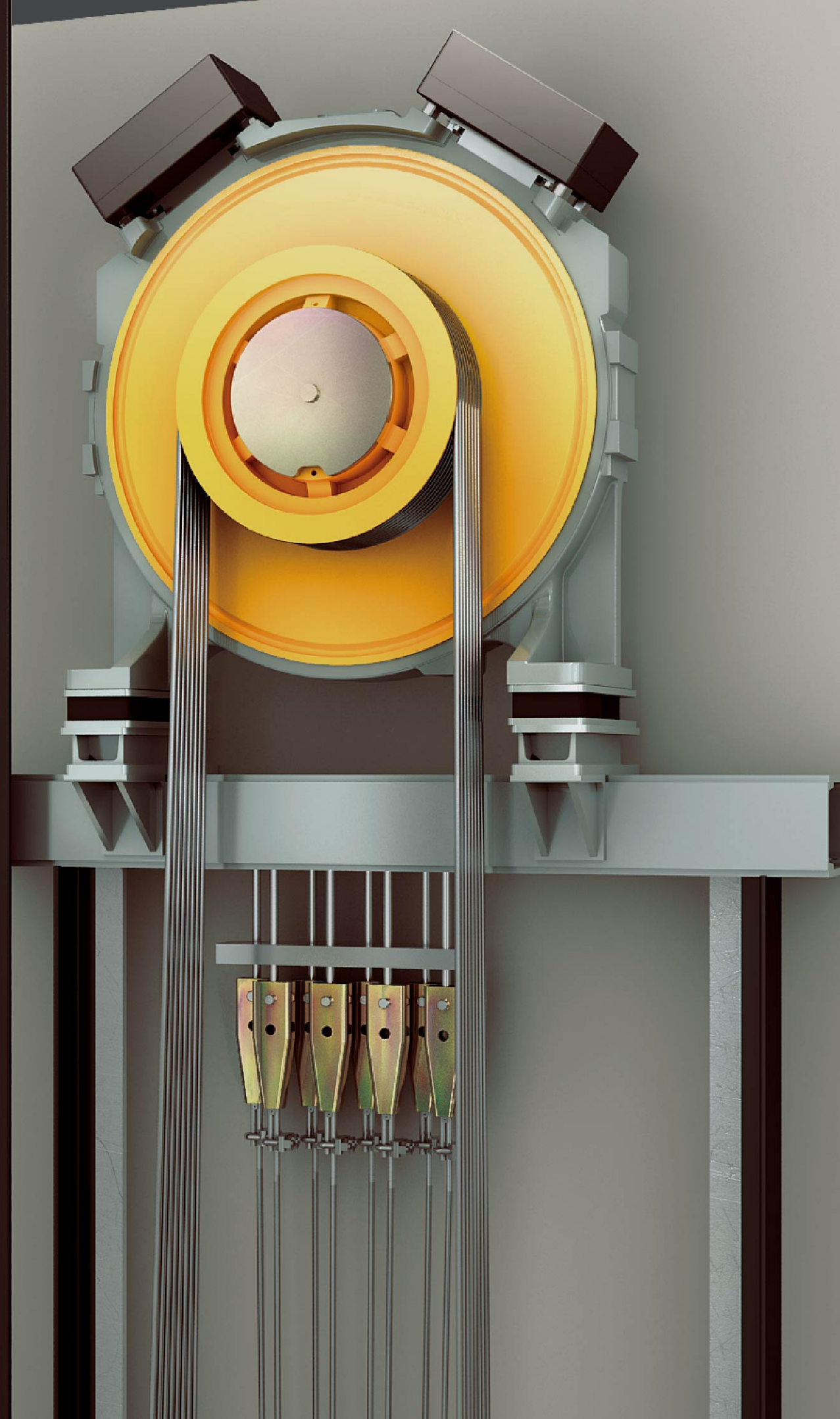
The traction machine of LCA adopts taper roller bearing characterized by higher bearing capacity, longer lifespan and higher rotation accuracy. With the taper roller bearing the vibration of rope-groove is restricted to 1/3 of the value specified in the industry standard so that the comfort of the elevator is higher.

03 Magnet Steels Dropout-Proofing Patent of the Motor

As compared with conventional practice to fix magnet steel with adhesion agent, the patented holding-down mechanism designed by Hitachi secures the magnet steels onto the rotor so as to avoid dropout of magnet steels which caused by failure of the adhesion agent.



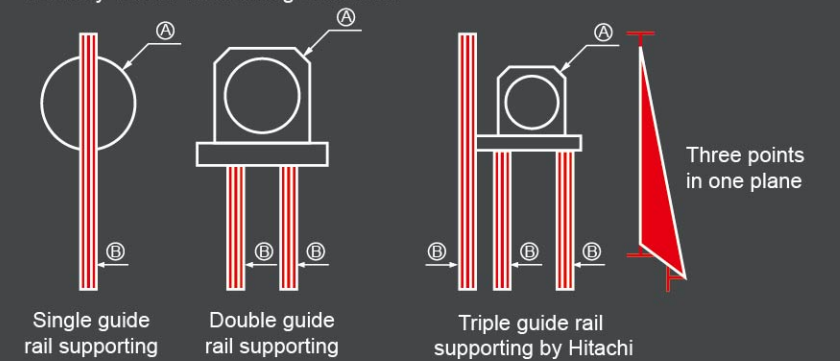
Note: The 'Industry Standard' means GB standard.



Self-Supporting Structure and Anti-Quake Design

01 Self-Supporting Traction Machine Installation

The traction machine of LCA is supported by triple guide rail directly on the top of the hoistway. It is unnecessary to reserve support beam or installation hole in the hoistway wall for the building contractor.



Note: Part ① is traction machine.
Part ② is guide rail.

02 Anti-Quake Design

The traction machine is equipped with an anti-toppling device which can prevent falling of machine in case of earthquake. In addition, the anti-dropout design is also adopted in counterweight and car frame. All these can reduce the earthquake damage to the elevator and protect the passengers further.

Intelligent Door System

01 Intelligent Light Curtain Protection

Auto energy-saving

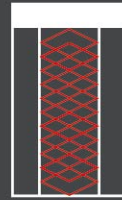
It can judge whether the elevator is unoccupied. When the elevator is unoccupied, the light curtain will be powered off so as to reduce the energy consumption and extend the lifespan of light curtain.

Auto detection

It can judge the specific location of light curtain malfunction and provide reference for quick settlement.

Automatic shielding

If a single point of light curtain is obstructed or damaged, the system will shield the bad point, record the fault and then close the door normally on the premise of safety.



02 High-Performance Processor

High-performance processor(32-bit DSP) serves as kernel control in LCA. The four-layer control board is provided with high interference-killing features and the highly-integrated module technology is adopted in the control system. All these completely improve the response speed and reliability of the control system.



Note: 32-bit DSP processor

03 The Latest IPM Module Based on SVPWM

Double closed-loop vector(current and speed) control method which is based on SVPWM tuning control technology and vector control algorithm, is adopted. The latest IPM module serves as the inverter power module. As a result, door opening/closing features smoothness and low noise.



04 Intelligent Features

Door-width self-learning

Door-weight self-adaption

Malfunction self-detection and self-protection

1. Door-width self-learning

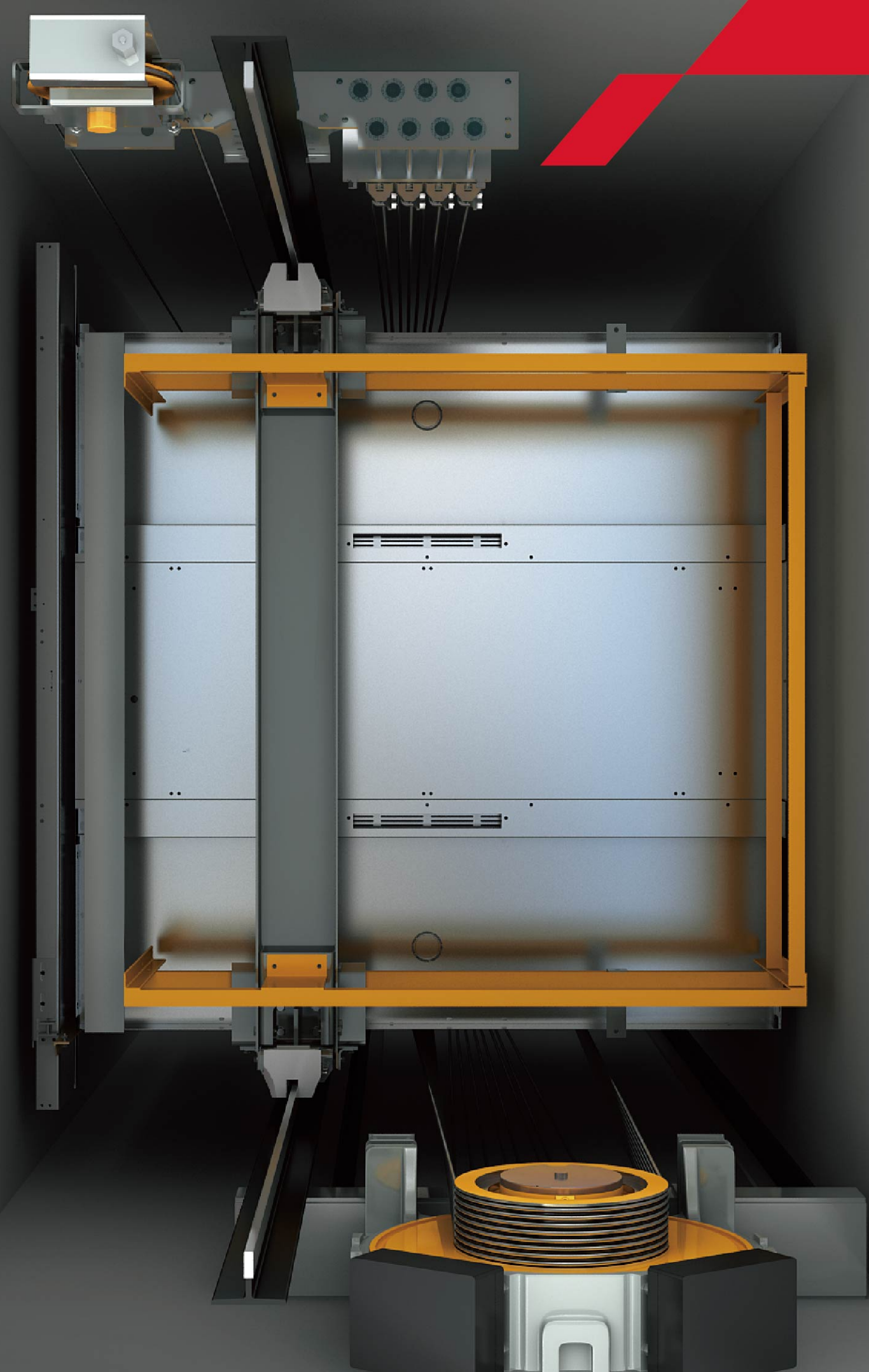
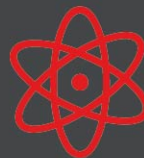
The system can learn the specification and adjust the door opening and closing curve according to the door width data collected by itself automatically. The data is saved at EEPROM, the data is still saved after power off.

2. Door-weight self-adaption:

The system can adjust different door-weight each floor within standard.

3. Malfunction self-detection and self-protection:

The system can judge when there is breakdown through running by itself. And the elevator stop as needed.

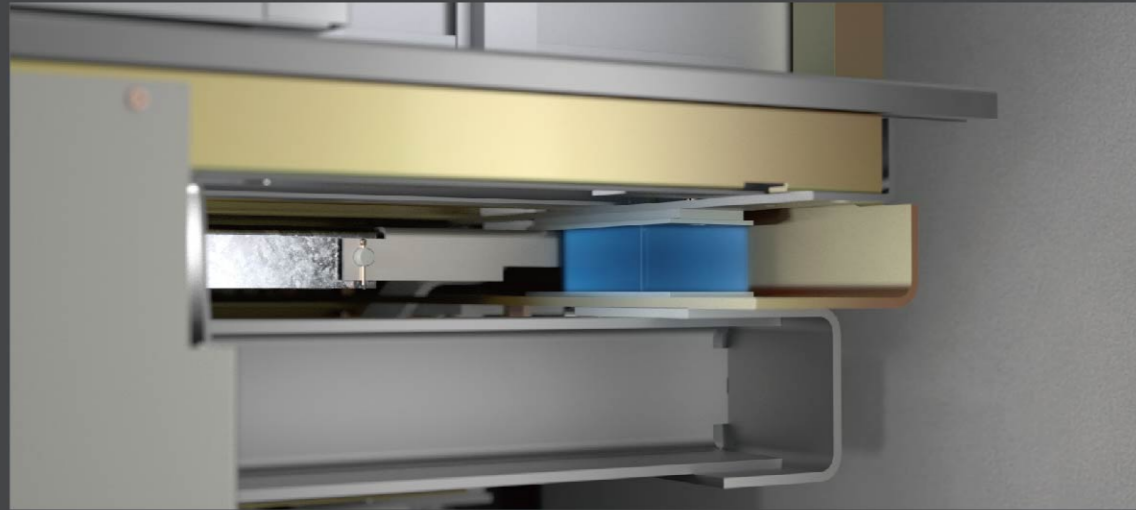


Innovative and Environmentally Conscious Design

01 Non-welded Car Frame and Double-layer Car Platform

- Non-welded car frame
Non-welded car frame requires no manual welding in the site and that will reduce the environmental pollution, improve the strength of car frame and achieve higher safety and reliability.
- Double-layer car platform
Double-layer car platform is characterized by vibration-proof materials are set between the car platform and the car platform frame. The elevator with double-layer car platform will travel much more smoothly and comfortably than other elevator with single-layer car platform through isolating the vibration of the car platform frame from the car platform.

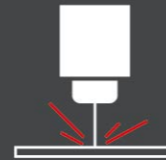
Car frame image:



Note: Details, please contact us.

02 Laser Cutting Technology

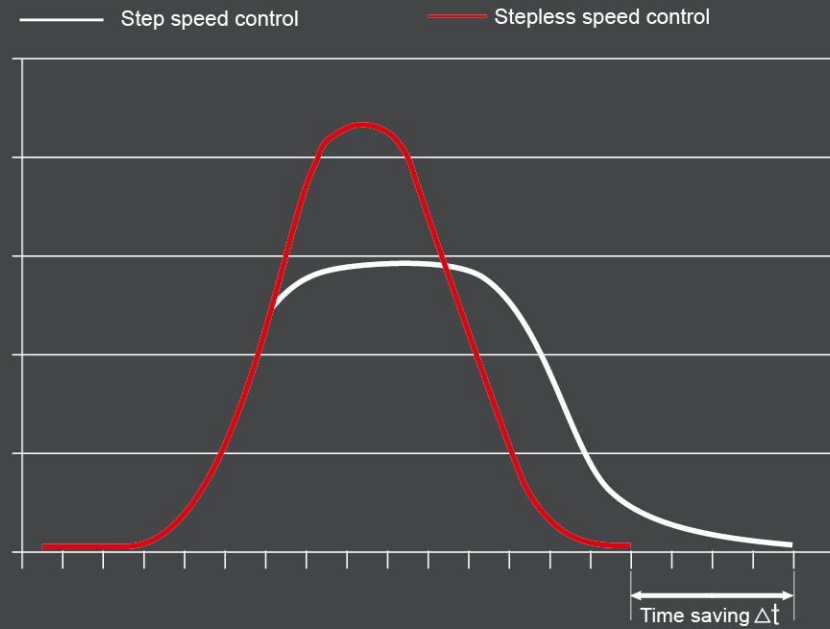
Laser cutting technology is applied in Hitachi elevator. As compared with conventional methods, laser cutting technology have obvious advantages in both cutting quality and accuracy.



High Efficiency and Energy Saving

01 Stepless Speed Control

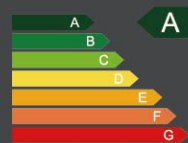
Hitachi elevator has been adopting stepless speed control for many years while Step speed control is still the most conventional method in other elevator company. With Hitachi's high efficient control system, the precise optimum travelling speed curve can be directly calculated and output according to the distance from the car location to the destination floor so that the travelling efficiency is improved.



02 Energy-saving and Environmental Protection Certification

The new-generation machine-roomless elevator LCA has gained the VDI 4707 energy efficiency certification Class A.

Energy Efficiency Class A



Model: LCA-1600-CO150
 Test location: China
 Nominal load: 1600kg
 Nominal speed: 2.5m/s
 Operating days per year: 365
 Nominal demand per year for nominal values: 4326 kWh
 Note: The measured class differs depending on the usage conditions.

Industrial-Leading Technology

01 Reliable High-frequency Impulse Voltage Transformer Communication

Hitachi elevator adopts high-frequency impulse voltage transformer serial communication technology exclusively while others adopting RS485 or CANBUS serial communication technology. It's mainly applied in some special industries such as telecommunication and military communication due to its stronger resistance to interference and higher velocity.

| | |
|----------------------------|--|
| Content | Hitachi standard |
| Communication mode | High-frequency impulse voltage transformer |
| Reliability | High |
| Resistance to interference | Strong |
| Max.Speed | 125kb(increase by 25%) |

02 Improved Control System

Multi-processor, Smaller size, Higher integration level
 Higher running speed and representative processing capacity improve the efficiency and energy conservation effect;



Note:32 bit processor

03 High-precision Digitized Starting Torque Compensation

The high-precision load transducer can accurately calculate the load of the car so that the traction machine is able to compensate the startup torque precisely and achieve a more comfortable start .





Humanization Design

01 Environmentally Conscious Design Lighting with LED

LED lighting is adopted popularly in Hitachi elevator to create a cozy environment for the passengers. LED is DC-powered, flicker-free, energy-efficiency. LED lighting is environmentally conscious design.



02 Button with Braille(option)*

Button with braille is available as an option, as an integral part of the Hitachi elevator's humanitarian care.

03 Operation Panel for Persons with Disability (option)*

Operation panel is available to provide the disabled with an easy elevator-taking environment.



*Please refer to the latest technical specifications, or consult us.

Basic Car Series & Car Decorations

Standard (Normal Car)

Basic

Ceiling height: 2300mm

Rated load: 450-2000kg

Car ceiling: RF-018

Center: LED panel light with milky white acrylic

+ Painted steel_HP65 (matte black) with 2 air outlets

+ LED spotlight

Left & right: Painted steel_YM47 (matte champagne)

Car front return panel: Stainless steel hairline

Car transom: Stainless steel hairline

3 side walls: Stainless steel hairline

Car door: Stainless steel hairline

Car floor tile: A-26 (vinyl tile)

Car operating panel: GOP-658 (standard for 450kg load range)

GOP-18N (standard for 630~2000kg load range)

The picture shows GOP-18N.

Operating panel button: FL-PW

Car position indicator: Monochrome LCD



Standard (Deep Car)

Basic

Ceiling height: 2300mm

Rated load: 1050kg

Car ceiling: RF-18

Center: LED panel light with milky white acrylic

+ Painted steel_HP65 (matte black) with 2 air outlets

+ 2 LED spotlights

Left & right: Painted steel_YM47 (matte champagne)

Left front wall: Stainless steel hairline

Right front wall: Stainless steel hairline

Car transom: Stainless steel hairline

3 side walls: Stainless steel hairline

Car door: Stainless steel hairline

Car floor tile: A-26 (vinyl tile)

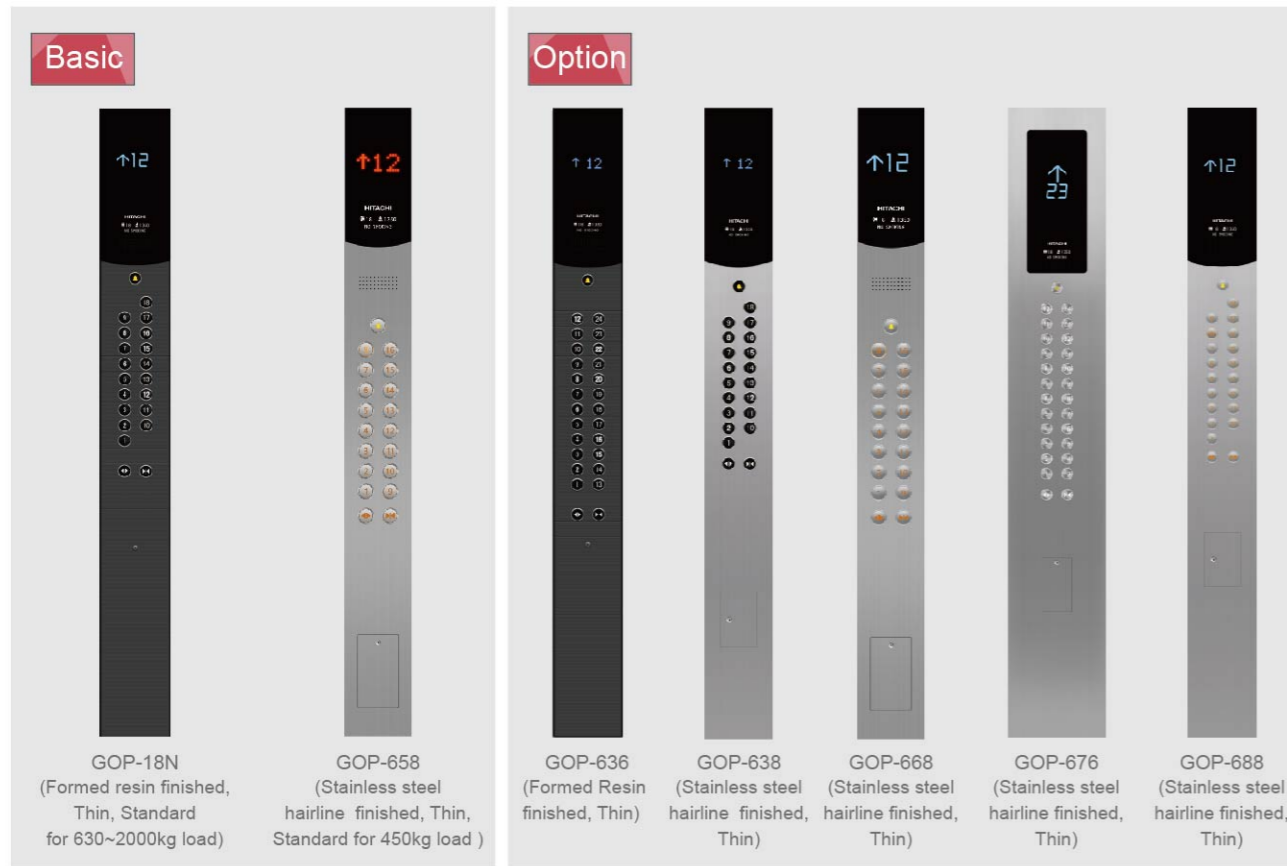
Car operating panel: GOP-18N

Operating panel button: FL-PW

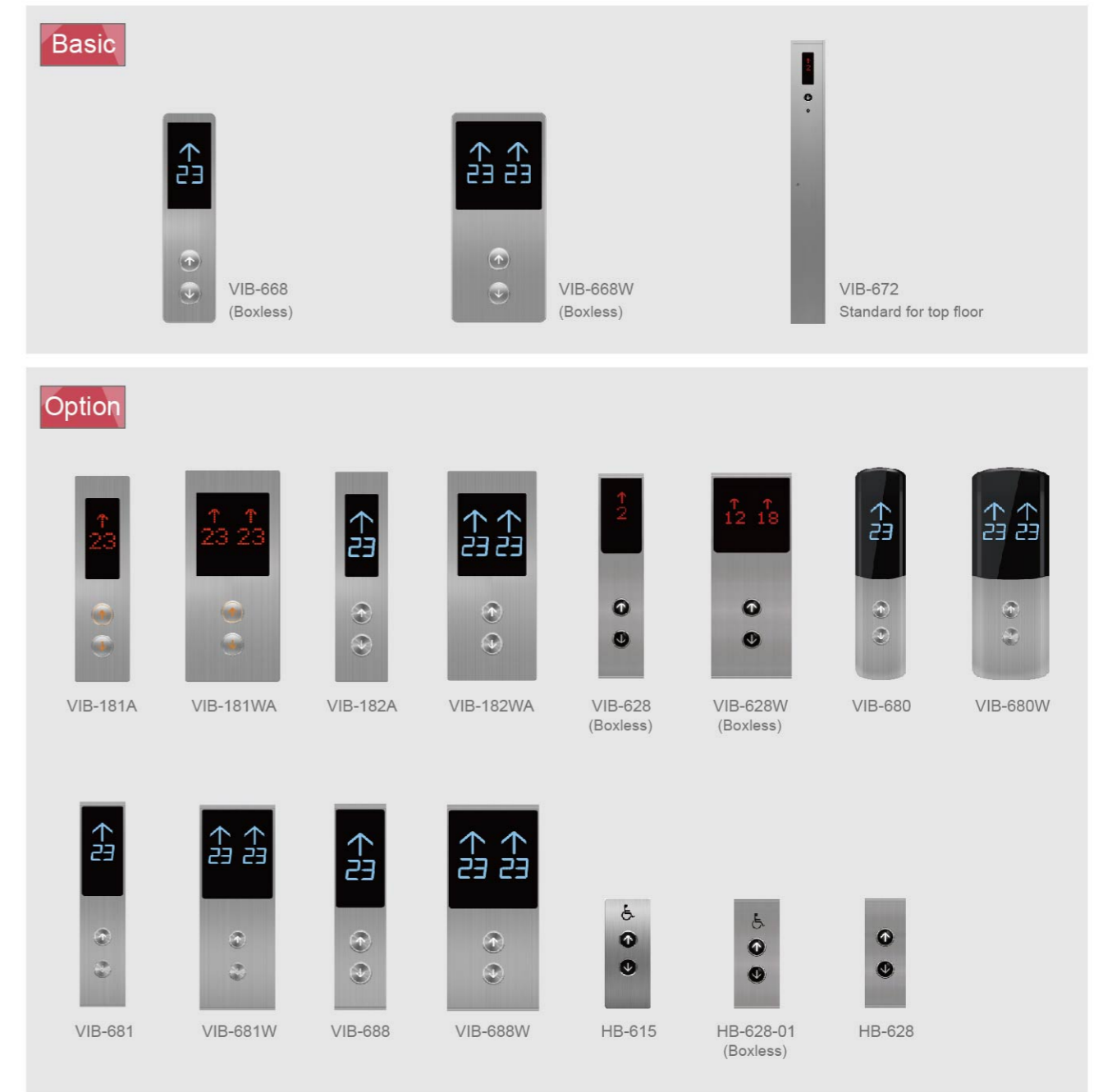
Car position indicator: Monochrome LCD



Car Operating Panel



Hall Operating Panel



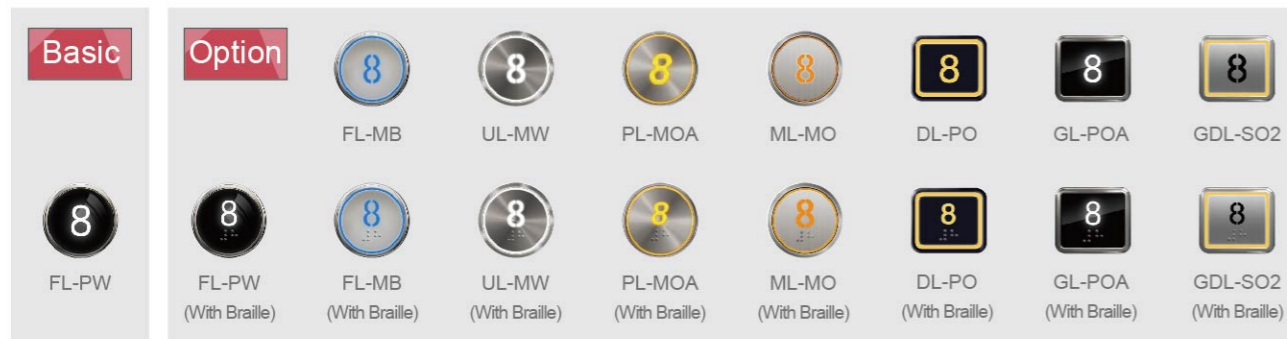
Car Operating Panel for Persons with Disability



Car Position Indicator



Button



Note: The Braille showed above is used at China area. If clients need custom-made Braille, please contact us.

Hall Lantern






HALL DECORATIONS


Entrance

Basic




Jamb frame: AS-1X narrow type (Standard)
Stainless steel hairline finished
Door panel: Stainless steel hairline finished
Door sill: Extruded hard aluminum


Option




Jamb frame: SS-1X wide type
Stainless steel hairline finished
Door panel: Stainless steel hairline finished
Door sill: Extruded hard aluminum



Jamb frame: TS-1X wide type
Stainless steel hairline finished
Door panel: Stainless steel hairline finished
Door sill: Extruded hard aluminum











Jamb frame: SL-2X wide type with transom
Stainless steel hairline finished
Door panel: Stainless steel hairline finished
Door sill: Extruded hard aluminum



Jamb frame: TL-2X wide type with transom
Stainless steel hairline finished
Door panel: Stainless steel hairline finished
Door sill: Extruded hard aluminum

Option Etching Pattern

| | | | | | | | |
|---|--------|---|--------|---|--------|---|--------|
|  | P-009 |  | P-041 |  | MS-104 |  | MS-142 |
|  | MS-162 |  | MS-164 |  | MS-168 |  | MS-177 |

Car Decorations

Car Floor

Basic

vinyl tile



A-26

Option

vinyl tile



A-23



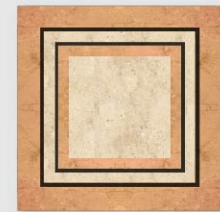
FL-P001



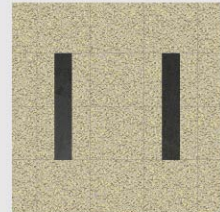
FL-P002



FL-P003



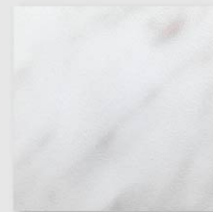
FL-P005



P-008



S-033



D-047



S-014



S-048



S-693



S-133



D-035



S-043

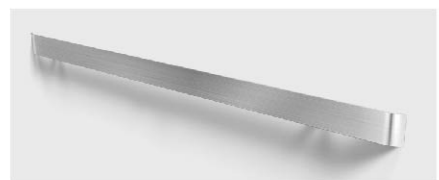
Option Handrail



AA-Y138



HR-M050



AA-BS



HR-M037

Layout

Service Floor

In some cases, only partial elevator is arranged to stop at the basement floor or the roof floor. This is not recommended unless the customers have special request, because of the following reasons.

- (1) Since all the other elevators do not stop at the basement or the roof floor, people in some elevators have to transfer to the elevator that stops at such particular floors.
- (2) Not only the efficiency of service to such particular floors decrease but also the efficiency to all floors decrease.

The Unification of Base Station for the Elevators at the Same Group

When the building exits are set on different floors such as ground floor or B1, please do not set the ground and B1 as the base station at the same time.

Guide the passengers to the ground floor by escalators so as to make it the base station.

Plane Arrangement for Elevator

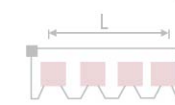
In order to realize a good service in a group of elevators, the following points shall be considered.

- (1) Maximum in-line elevator arrangement is 4 elevators.
- (2) If there are more than four units of elevators, please adopt the face-to-face setting and the distance shall be 3.5m to 4.5m.
- (3) For the convenience of elevators being visible from all positions, avoid placing the elevator entrance near pillars.

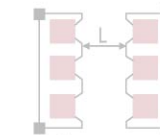
Examples of Plane Arrangement

Multiple Elevators in One Group

Desirable Examples



In-line arrangement
(Not more than 4 units)
Distance, $L \leq 8m$



Face-to-face arrangement
(5~6 units, Distance $L=3.5\sim 4.5m$)

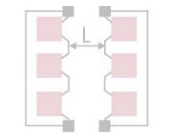
Undesirable Examples



Pillar at lift lobby or entrance



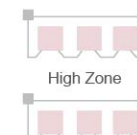
In-line arrangement
(More than 4 units)



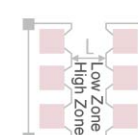
Distance, $L > 5m$

Multiple Elevators in Two or More Groups

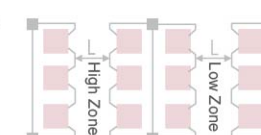
Desirable Examples



High Zone
Low Zone



More than 6m



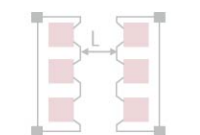
Distance, $L=3.5\sim 4.5m$

Undesirable Examples



High Zone Low Zone

Set the elevators
of different zones in line



Distance $L < 4.5m$

The elevators of different zones should
be set face-to-face with short distance.

Elevator Specification List

| Specification Range | | | | |
|---------------------|--------------------|------|-------------------|------------------------------|
| No | Load | | Speed (m/min) | Type |
| | No. of Passengers* | (Kg) | | |
| 1 | 6 | 450 | 60 | LCA-450-CO60 |
| 2 | 8 | 630 | 60/90/105 | LCA-630-CO60/90/105 |
| 3 | 11 | 825 | 60/90/105/120/150 | LCA-825-CO60/90/105/120/150 |
| 4 | 12 | 900 | 60/90/105/120/150 | LCA-900-CO60/90/105/120/150 |
| 5 | 14 | 1050 | 60/90/105/120/150 | LCA-1050-CO60/90/105/120/150 |
| 6 | 15 | 1150 | 60/90/105/120/150 | LCA-1150-CO60/90/105/120/150 |
| 7 | 18 | 1350 | 60/90/105/120/150 | LCA-1350-CO60/90/105/120/150 |
| 8 | 21 | 1600 | 60/90/105/120/150 | LCA-1600-CO60/90/105/120/150 |
| 9 | 24 | 1800 | 60/90/105 | LCA-1800-CO60/90/105 |
| 10 | 26 | 2000 | 60/90/105 | LCA-2000-CO60/90/105 |

Passenger Numbers calculated at 75 kg per person.

| Load(kg) | Speed (m/s) | Maximum number of stops | Maximum travel (m) | Maximum travel with fireman operation (m) | Minimum floor height (mm) |
|-----------------------------|-------------|-------------------------|--------------------|---|---------------------------|
| 450 | 1 | 8 | 20 | — | 2800 |
| 630/825/900/1050 | 1 | 22 | 60 | 58 | |
| 630/825/900/1050 | 1.5 | 36 | 90 | 86 | |
| 630/825/900/1050 | 1.75 | 36 | 90 | 90 | |
| 1150/1350/1600/1800/2000 | 1 | 22 | 60 | 58 | |
| 1150/1350/1600/1800/2000 | 1.5 | 36 | 90 | 86 | |
| 1150/1350/1600/1800/2000 | 1.75 | 36 | 90 | 90 | |
| 825/900/1050/1150/1350/1600 | 2 | 40 | 120 | 115 | |
| 825/900/1050/1150/1350/1600 | 2.5 | 40 | 120 | 120 | |

Note: When fireman operation is needed, maximum travel is 120m for load 1350kg.

*If the required specification falls outside the above, please contact us.

Elevator Functions

Standard Function

| Control Type | | | | | |
|--------------------|---|------|---|------|---|
| SA1 | Simplex | SA2 | Floor Height Self Measurement | SA3 | On-Cage (Car Top) Maintenance Operation |
| SA4 | In-Cage Maintenance Operation | | | | |
| System Protection | | | | | |
| SB1 | Over Speed Electrical Protection | SB2 | Overspeed Mechanical Protection | SB3 | Motor Idling Rotation Protection |
| SB4 | Motor Overload (Thermal) Protection | SB5 | Automatic Fault Detection | SB6 | Automatic Fault Recording |
| SB7 | Standby Regular Auto-Check | SB8 | Double Brake-Safety Detection Check Operation | SB9 | Synchronous Motor Magnetic Pole Static Test |
| SB10 | Abnormal Position Automatic Correction Function | SB11 | Nearest Landing Door Operation | SB12 | Anti-electromagnetic Interference Function |
| Safe Communication | | | | | |
| SC1 | Interphone System(4 ways) | | | | |
| Safe Riding | | | | | |
| SD1 | Out of Door-Open Zone Alarm | SD2 | Alarm System | SD3 | Door Overload Protection |
| SD4 | Full Load Bypass Operation | SD5 | Overload Detection System | SD6 | Overload Alarm |
| SD7 | Next Drive (Door Open Abnormity Fault) | SD8 | Opening/Closing Door Abnormal Protection | SD9 | Opening Time Automatic Control Functions |
| SD10 | Automatic Door Dwell Time Adjustment | SD11 | Number of Runs Indicator | SD12 | Multi-Beam Door Sensor |
| Emergency Solution | | | | | |
| SE1 | Car Emergency Lighting | SE2 | Fire Emergency Operation (Automatic) | | |
| Design for Comfort | | | | | |
| SF1 | Parking Operation | SF2 | Automatic Return Function | SF3 | Starting Compensation Function |
| SF4 | Door-Stop Function (Maintenance) | SF5 | Micro-leveling Function (lift height \geq 30 meters) | SF6 | Advance Door Opening |
| SF7 | Mischievous Call Cancellation | SF8 | Opposite Car Call Cancellation | SF9 | Automatic Turn-Off of Car Light |
| SF10 | Car Ventilation Automatic Control Function | SF11 | Floor "Deselect" Function (In Car) | SF12 | Abnormal Duration Hall Call Detection |

Optional Function

| Control Type | | | | | |
|--------------------|---------------------------------------|------|---|------|------------------------------------|
| OA1 | Duplex | OA2 | Duplex Down Collective | OA3 | FI-10 |
| OA4 | FI-100 | OA5 | FI-600 (Max: 8 Car per Group) | OA6 | Individual Running |
| OA7 | VIP Service | OA8 | Rush Hour Schedule Operation | | |
| Safe Communication | | | | | |
| OC1 | Interphone System (5 way) | OC2 | Contact at Control Panel (RS485) | OC3 | Twisted Pair Cable |
| OC4 | Audio Cable | OC5 | Contact at Control Panel (Dry Contacts) | | |
| Safe Riding | | | | | |
| OD1 | Overload Indicator (In Car) | OD2 | Safety Shoe | OD3 | Multi-Beam + Safety Shoe |
| Emergency Solution | | | | | |
| OE1 | Fireman Operation① | OE2 | Automatic Rescue Device (ARD) | OE3 | Emergency Power Operation (Manual) |
| OE4 | Emergency Power Operation (Automatic) | OE5 | Earthquake Emergency Operation | | |
| Design for Comfort | | | | | |
| OF1 | Attendant Operation | OF2 | Independent Operation | OF3 | Voice Synthesizer |
| OF4 | Arrival Chime | OF5 | Floor Lock Out Operation | OF6 | Door Opening Prolong Button |
| OF7 | Hall Call Registration (In Car) | OF8 | Destination Car Floor Button Flashing | OF9 | Sub OPB |
| OF10 | Handicapped OPB | OF11 | Regenerative System Function | OF12 | EMC② |
| OF13 | Control Panel Protective Door | OF14 | Micro-leveling function (lifting height < 30 m) | | |

Note: ①The capacity shall be more than 800kg.

②Details, please contact us.

FI System

<FI Series>Implements Group Control in Response to Different Requirements of Different Buildings.

A group control system groups multiple elevators for achieving a well-balanced operation by taking waiting times into account. Such a system requires flexibility so that it can be used in various types and sizes of buildings and be responsive to changing traffic demand.

| (FI-600) | (FI-100) | (FI-10) |
|---|---|--|
| (3-8 cars) | (3-6 cars) | (3-4 cars) |
| Allows a flexible control for elevator car allocation and the required number of cars according to the congestion state in the building and the type of building. | Elevator cars are allocated at equal time intervals according to "Reference-Trajectory Control" for shortening the average waiting times and reducing the probability of a long wait. | Provides a ring control to allocate the elevator car closest to the floor where a new hall call is registered. |

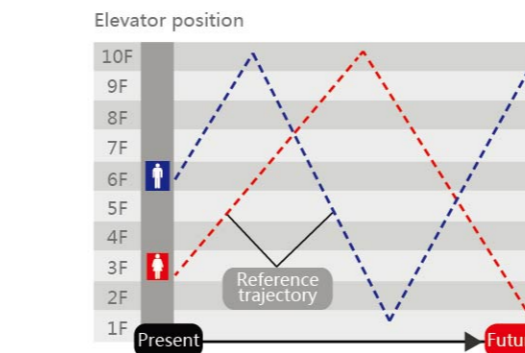
| | | | |
|---------------------------------------|---|--|-------------------------------------|
| Basic specification | Instantaneous reservation and service forecasting | | |
| | Intelligent function | | |
| | Generation of new traffic flow modes Generation of optimum operation programs | | |
| | Congested floor recognition | | |
| | Multi-beam door sensor (with a traffic responsive door control system) | | |
| | Learning function | | |
| | <ul style="list-style-type: none"> Collection of usage data Recognition of traffic flow mode(40/2 mode) Search for optimum operation program | | |
| | Arrival notice indication (hall lantern and chimes) | | |
| | Bunching prevention* | | |
| | | Future reference-trajectory control | Reference-trajectory control |
| | Forecasting dynamic allocation control | Zone distribution control | Fixed floor distribution control |
| System name | FI-600 | FI-100 | FI-10 (Simplified group control) |
| Recommended number of cars in a group | 3-8 cars | 3-6 cars | 3-4 cars |
| Type of building | Large office building Large hotel | Small office building Department store, hotel, hospital | Buildings with small traffic demand |
| Optional specification | VIP service, independent automatic operation | | |
| | Service floor selection | | |
| | Destination floor reservation system Centralized control for special floors Zoning express service | | |

*Bunching prevention: Using the 'future reference-trajectory control' or the 'reference-trajectory control' in the FI-600 or FI-100, elevator cars are operated at equal time intervals to prevent local bunching.

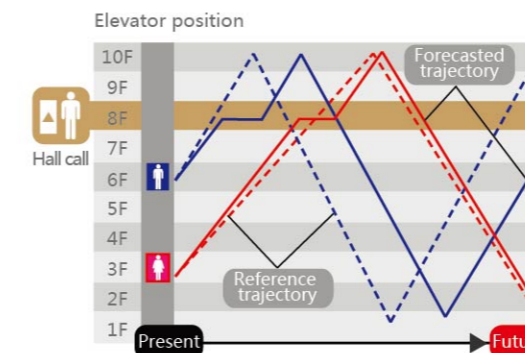
FI-600

Hitachi has evolved its elevator operation control to reduce waiting times, particularly long wait times, which comprises the heart of group control performance.

The future reference-trajectory control is a group control system aiming to minimize the long waiting period by operating elevator cars at equal time intervals while forecasting future trajectory.

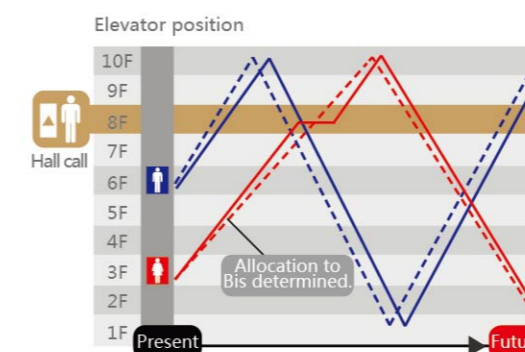


1 Create a "reference trajectory" for allocating future elevator car positions at equal time intervals.



2 Create a "forecasted trajectory" of elevator cars when a hall call is made based on the current traffic demand and results of learning.

3 Calculate the deviation between the "reference" and "forecasted trajectories".



4 Allocate the elevator car which is closest to the "reference trajectory" to the hall call.

5 AS a result, the elevator car is guided according to the "reference trajectory", shortening waiting times and reducing the probability of a long wait as well as preventing local bunching due to heavy traffic.

Basic Function

| No. | Item | Content | FI series | | |
|-----|--|--|-----------|-----|----|
| | | | 600 | 100 | 10 |
| 1 | Instantaneous reservation and service forecasting (FI-IRF) | Upon receipt of a hall call, this function activates an elevator to serve this call, and at the same time the call is acknowledged by the hall lantern and chime. | ● | — | — |
| 2 | Arrival notice indication (FI-ANI) | Four to five seconds prior to the arrival of an elevator, this function will activate the hall lantern flickering and the chime sound. | ● | ● | △ |
| 3 | Basic call assignment Control | Future reference-trajectory control (FI-FRTC) | ● | — | — |
| | | Reference-trajectory control (FI-RTC) | — | ● | — |
| | | Ring control (FI-RC) | — | — | ● |
| 4 | Bunching prevention (FI-BP) | This function prevents local bunching of elevator cars using the "future reference-trajectory control" or the "reference trajectory control" for operating cars at equal time intervals. | ● | ● | — |
| 5 | Learning function | Collection of usage data (FI-CUD) | ● | ● | — |
| | | Recognition of traffic flow mode (FI-RTM) | ● | ● | — |
| | | Search for optimum operation program (FI-SOP) | ● | ● | — |
| 6 | Congested floor recognition (FI-CFR) | Identifies congested floors according to the usage data learned in each traffic flow mode. | ● | — | — |
| 7 | Service forecasting for hall call assignment (FI-SFH) | This function assigns elevator cars to hall calls more precisely by forecasting the arrival time and number of passengers in the car according to the learning-based traffic demand. | ● | — | — |
| 8 | Intelligent function | Generation of new traffic flow modes (FI-GNT) | ● | — | — |
| | | Generation of optimum operation programs (FI-GOP) | ● | — | — |
| 9 | Energy saving preference control (FI-ESC) | This system reduces the number of elevator cars in service when traffic demand is low. | ● | — | — |
| 10 | Floor standby control | Forecasting dynamic allocation control (FI-FDA) | ● | — | — |
| | | Zone distribution control (FI-ZD) | — | ● | — |
| | | Fixed floor distribution control (FI-FD) | — | — | ● |
| 11 | Learning based concentrated service | Centralizes the service to the learning-based congested floors during peak times including morning, lunch time and evening peaks while taking the service for other floors into account. | ● | — | — |
| 12 | Automatic door open time control (FI-ADT) | This function automatically controls the duration of the door open time according to the floor and the kind of call (hall call or car call) as well as the elevator condition. | ● | ● | — |

Operating Functions

| No. | Item | Content | FI series | | |
|-----|---|---|-----------|-----|----|
| | | | 600 | 100 | 10 |
| 13 | Centralized control for special floors (FI-CCF) | This function preferentially assigns an elevator to the special floor.(e.g. the director's room). | △ | — | — |
| 14 | Service floor selection (FI-SFS) | Allows the operator to select the service and non-service floors using, for example, the switches on the control panel. | △ | △ | — |
| 15 | Independent automatic operation (FI-IAO) | This operation allows an elevator to be separated from the group supervisory control and operate independently by a separate hall button. | △ | △ | △ |
| 16 | VIP service (FI-VIP) | When welcoming or sending off important guests, this function permits an elevator to be summoned directly to the desired car call floor by pushing a specially provided hall button. | △ | △ | △ |
| 17 | Closest car priority service (FI-CPS) | When a hall call button is pressed, the elevator in the shaft closest to the hall call floor is preferentially dispatched. | △ | △ | — |
| 18 | Scheduled reservation system (FI-SRS) | Allows the operator to schedule various elevator services in the building, including the reassignment of service floors, centralized service and priority service, at a specific date and time(setting through the CRT control panel is also possible). | △ | — | — |
| 19 | Zoning express service (FI-EZS) | Starts a divided express service when the park traffic demand takes place in the preset time zones. | △ | — | — |

Man-machine

| No. | Item | Content | FI series | | |
|-----|---|---|-----------|-----|----|
| | | | 600 | 100 | 10 |
| 20 | Hall information (FI-HI) | General and elevator operation information is indicated on the LED or LCD hall indicator. | △ | △ | — |
| 21 | Car information (FI-CI) | Information useful for passengers is presented on the LED or LCD car indicator. | △ | △ | — |
| 22 | Multibeam door sensor (with a traffic responsive door control system) (FI-TFDC) | Detects passengers getting on and off with multiple infrared light beams that covers the full height and width of elevator doors, and adjusts the time of opening and closing of doors. | ● | △ | △ |

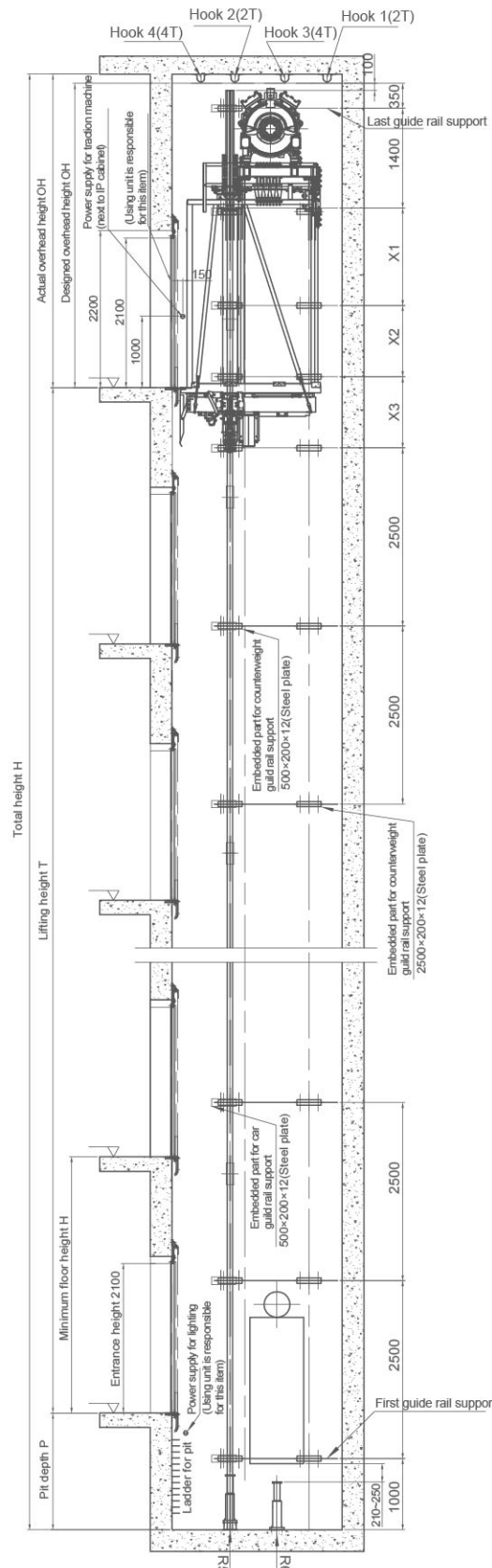
System Backup Operation Functions

| No. | Item | Content | FI series | | |
|-----|--|---|-----------|-----|----|
| | | | 600 | 100 | 10 |
| 23 | Group management A.I. microprocessor malfunction recovery system (FI-AMR) | If the A.I. micro-processor malfunctions, this system will allow hall call assignments to be carried out by choosing from standard modes of traffic flow. | ● | — | — |
| 24 | Group management operation microprocessor malfunction recovery system (FI-OMR) | When the active micro-controller in the dual system fails, the standby micro-controller takes over the group control for continuing operation. | ● | — | — |
| 25 | Hall call circuit malfunction recovery system (FI-HMR) | Even if the associated hall call button is not responsive, other hall call buttons located at the same floor can be used for registering hall calls. | ● | ● | ● |
| 26 | Group management control system malfunction recovery system (FI-GMR) | Even if the associated hall call button is not responsive, other hall call buttons located at the same floor can be used for registering hall calls. | ● | ● | — |
| 27 | Individual signal or control microprocessor malfunction recovery system (FI-SMR) | When individual control microprocessor malfunctions, or when miscommunication is detected, this system isolates the elevator from the group management control immediately. | ● | ● | ● |
| 28 | Individual control malfunction recovery system (FI-CMR) | If the hall call is not responded to for a certain period of time due to, for example, a fault in the mechanical shoe of the door, the failed section is disconnected from the group control until normal operation is resumed. | ● | ● | ● |

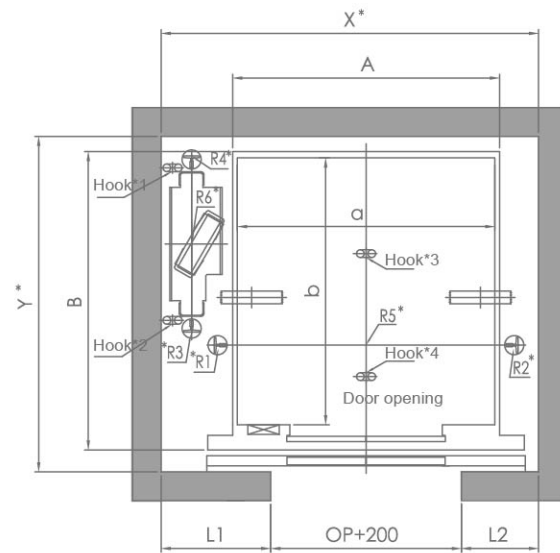
●: Basic specification △: Optional specification —: Not applicable

Hoistway Design

(Standard Car, Counterweight Location:Left)



Hoistway Plan
(Right side counterweight is mirror to Left side)



Note: 1.The hook load-bearing

| Name | Hook1 | Hook2 | Hook3 | Hook4 | Rated load | Speed |
|--------------|-------|-------|-------|-------|------------|--------------|
| load-bearing | 2T | 2T | 3T | 3T | ≤1050kg | ≤105m/min |
| | 2T | 2T | 4T | 4T | | 120/150m/min |
| | 2T | 2T | 4T | 4T | >1050kg | ≤105m/min |

- Note: All the hooks shall be extended to the hoistway within 80mm.
 2.Items with "*" shall be furnished by building contractors;
 3.For hoistway design details, please check with Hitachi;
 4.Hoistway shall not set next to bedroom, classroom, ward, library or any other place where requires low noise;
 5.Please refer to the shaft construction drawing from Hitachi for the dimension of X1 & X2 & X3;
 6.Unit of dimension in the layout shall be mm;
 7.Hoistway shall be made of reinforced concrete;
 8.The data is only for reference, please take the technical drawings as the criteria.

Specifications

(Normal Car)

| Dimensions and Reactions | | | | | | | | | | | | | | |
|--------------------------|---------------|--------------|--------------|-------------------|-------|-----------------------------|-----------|-------------------------|-----------------|--------|-------|-------|----------|---------|
| Load (kg) | Speed (m/min) | Car Size(mm) | | Door opening (mm) | | Front Wall Arrangement (mm) | | Hoistway Dimension (mm) | Pit Reaction(N) | | | | | |
| | | Internal a×b | External A×B | Type | Width | L1 | L2 | | X×Y | R1 | R2 | R3 | R4 | R5 |
| 450(6) | 60 | 1000×1300 | 1050×1465 | 2P-CO | 700 | 410 | 340 | 1650×1800 | 40000 | 30000 | 30000 | 25000 | 100000 | 90000 |
| 630(8) | 60/90/105 | 1100×1400 | 1150×1565 | 2P-CO | 800 | 470 | 410 | 1850×1800 | 60000 | 45000 | 40000 | 35000 | 110000 | 100000 |
| 825(11) | 60/90/105 | 1350×1400 | 1400×1565 | 2P-CO | 800 | 600 | 400 | 2000×1800 | 65000 | 50000 | 45000 | 35000 | 120000 | 105000 |
| | 60/90/105 | 1250×1500 | 1300×1665 | 2P-CO | 800 | 550 | 400 | 1950×1900 | | | | | | |
| | 60/90/105 | 1300×1500 | 1350×1665 | 2P-CO | 800 | 575 | 425 | 2000×1900 | | | | | | |
| | 60/90/105 | 1200×1600 | 1250×1765 | 2P-CO | 800 | 525 | 425 | 1950×1950 | | | | | | |
| | 60/90/105 | 1350×1300 | 1400×1465 | 2P-CO | 800 | 600 | 400 | 2000×1800 | | | | | | |
| 900(12) | 120/150 | 1350×1400 | 1400×1565 | 2P-CO | 800 | 730 | 470 | 2200×2000 | 85000 | 70000 | 65000 | 55000 | 60000×2 | 50000×2 |
| | 60/90/105 | 1500×1400 | 1550×1565 | 2P-CO | 900 | 620 | 480 | 2200×1800 | 70000 | 55000 | 45000 | 40000 | 130000 | 110000 |
| 1050(14) | 120/150 | 1500×1400 | 1550×1565 | 2P-CO | 900 | 755 | 495 | 2350×2000 | 90000 | 75000 | 65000 | 55000 | 62500×2 | 55000×2 |
| | 60/90/105 | 1600×1400 | 1650×1565 | 2P-CO | 900 | 680 | 500 | 2280×1800 | 75000 | 60000 | 50000 | 40000 | 135000 | 115000 |
| | 60/90/105 | 1500×1500 | 1550×1665 | 2P-CO | 900 | 630 | 470 | 2200×1900 | | | | | | |
| | 60/90/105 | 1400×1600 | 1450×1765 | 2P-CO | 900 | 580 | 470 | 2150×2000 | | | | | | |
| | 60/90/105 | 1500×1600 | 1550×1765 | 2P-CO | 900 | 630 | 470 | 2200×2000 | | | | | | |
| 60/90/105 | 1600×1500 | 1650×1665 | 2P-CO | 900 | 680 | 500 | 2280×1900 | | | | | | | |
| 1150(15) | 120/150 | 1600×1400 | 1650×1565 | 2P-CO | 900 | 805 | 545 | 2450×2000 | 95000 | 75000 | 70000 | 55000 | 70000×2 | 57500×2 |
| | 60/90/105 | 1800×1500 | 1850×1665 | 2P-CO | 1000 | 780 | 570 | 2550×1980 | 90000 | 70000 | 60000 | 50000 | 77500×2 | 65000×2 |
| 1350(18) | 120/150 | 1800×1500 | 1850×1665 | 2P-CO | 1000 | 905 | 595 | 2700×2050 | 105000 | 85000 | 75000 | 65000 | 80000×2 | 70000×2 |
| | 60/90/105 | 2000×1500 | 2050×1665 | 2P-CO | 1100 | 830 | 620 | 2750×1980 | 95000 | 75000 | 60000 | 55000 | 85000×2 | 70000×2 |
| 1600(21) | 120/150 | 2000×1500 | 2050×1665 | 2P-CO | 1100 | 955 | 645 | 2900×2050 | 115000 | 95000 | 80000 | 70000 | 90000×2 | 77500×2 |
| | 60/90/105 | 2000×1700 | 2050×1865 | 2P-CO | 1100 | 830 | 620 | 2750×2100 | 100000 | 80000 | 65000 | 55000 | 87500×2 | 75000×2 |
| 1800(24) | 120/150 | 2000×1700 | 2050×1865 | 2P-CO | 1100 | 955 | 645 | 2900×2150 | 120000 | 100000 | 85000 | 70000 | 100000×2 | 82500×2 |
| | 60/90/105 | 2000×1850 | 2050×2015 | 2P-CO | 1100 | 870 | 630 | 2800×2250 | 105000 | 85000 | 70000 | 65000 | 97500×2 | 80000×2 |
| 2000(26) | 60/90/105 | 2000×2000 | 2050×2165 | 2P-CO | 1100 | 870 | 630 | 2800×2400 | 115000 | 95000 | 75000 | 65000 | 107500×2 | 87500×2 |

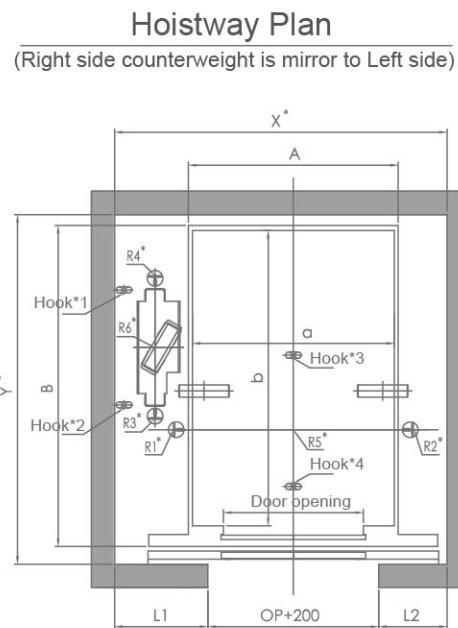
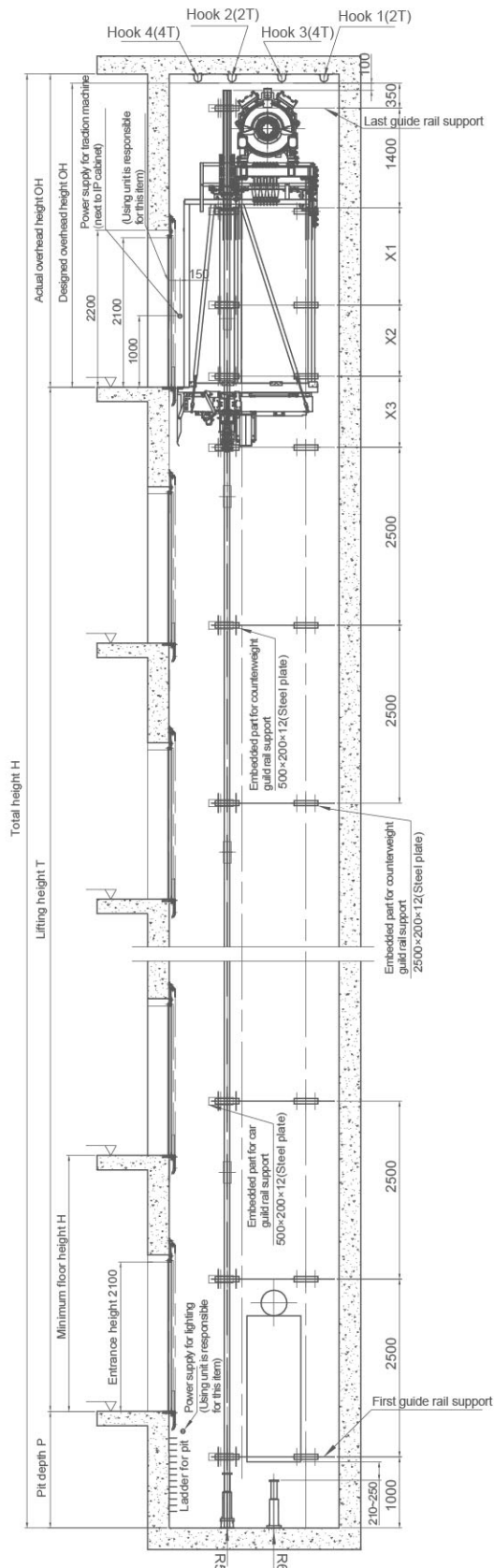
Overhead and Pit Depth

| Load (kg) | Speed (m/min) | Overhead (mm) | Pit Depth (mm) | Load (kg) | Speed (m/min) | Overhead (mm) | Pit Depth (mm) |
|-----------|---------------|---------------|----------------|-----------|---------------|---------------|----------------|
| 450 | 60 | 3750 | 1350 | 1150 | 60 | 3750 | 1450 |
| | 90 | 3750 | 1350 | | 90 | 3950 | 1550 |
| | 105 | 3750 | 1350 | | 105 | 3950 | 1550 |
| | 120 | 3950 | 1450 | | 120 | 4200 | 2200 |
| 630 | 150 | 3950 | 1450 | 1350 | 150 | 4500 | 2400 |
| | 60 | 3750 | 1350 | | 60 | 3750 | 1450 |
| | 90 | 3950 | 1450 | | 90 | 3950 | 1550 |
| | 105 | 3950 | 1450 | | 105 | 3950 | 1550 |
| | 120 | 4200 | 1900 | | 120 | 4200 | 2300 |
| 825 | 150 | 4500 | 2100 | 1600 | 150 | 4500 | 2400 |
| | 60 | 3750 | 1350 | | 60 | 3750 | 1450 |
| | 90 | 3950 | 1450 | | 90 | 3950 | 1650 |
| | 105 | 3950 | 1450 | | 105 | 3950 | 1650 |
| 900 | 120 | 4200 | 2000 | 1800 | 120 | 4200 | 2350 |
| | 150 | 4500 | 2100 | | 150 | 4500 | 2450 |
| | 60 | 3750 | 1350 | | 60 | 3750 | 1550 |
| | 90 | 3950 | 1450 | | 90 | 3950 | 1850 |
| 1050 | 105 | 3950 | 1600 | 2000 | 105 | 3950 | 1850 |
| | 120 | 4200 | 2100 | | 60 | 3750 | 1550 |
| | 150 | 4500 | 2150 | | 90 | 3950 | 1850 |
| | 60 | 3750 | 1600 | | 105 | 3950 | 1850 |
| | 90 | 3950 | 1600 | | 105 | 3950 | 1850 |

- Note: 1. The overhead is the case of car ceiling type RF-018.
 2. If you need detailed information, please contact us.

Hoistway Design

(Deep Car/ Suitable for the Stretcher)



Note: 1.The hook load-bearing

| Name | Hook1 | Hook2 | Hook3 | Hook4 | Rated load | Speed |
|--------------|-------|-------|-------|-------|--------------|-----------|
| load-bearing | 2T | 2T | 3T | 3T | ≤1050kg | ≤105m/min |
| | 2T | 2T | 4T | 4T | 120/150m/min | |
| | 2T | 2T | 4T | 4T | >1050kg | ≤105m/min |

- Note: All the hooks shall be extended to the hoistway within 80mm.
 2.Items with "*" shall be furnished by building contractors;
 3.For hoistway design details, please check with Hitachi;
 4.Hoistway shall not set next to bedroom, classroom, ward, library or any other place where requires low noise;
 5.Please refer to the shaft construction drawing from Hitachi for the dimension of X1 & X2 & X3;
 6.Unit of dimension in the layout shall be mm;
 7.Hoistway shall be made of reinforced concrete;
 8.The data is only for reference, please take the technical drawings as the criteria.

Specifications(Deep Car)

PARAMETERS

| Dimensions and Reactions | | | | | | | | | | | | | | |
|--------------------------|---------------|--------------------------|-----------------------|-------------------|-------|-----------------------------|-----|-------------------------|-----------------|-------|-------|-------|------------------|------------------|
| Load (kg) | Speed (m/min) | Car Size(mm) | | Door opening (mm) | | Front Wall Arrangement (mm) | | Hoistway Dimension (mm) | Pit Reaction(N) | | | | | |
| | | Internal $\phi \times B$ | External $A \times B$ | Type | Width | L1 | L2 | | X \times Y | R1 | R2 | R3 | R4 | R5 |
| 1050 (14) | 60 | 1100X2100 | 1150X2265 | 2P-CO | 900 | 650 | 450 | 2200X2500 | 75000 | 60000 | 50000 | 40000 | 135000 | 115000 |
| | 90 | | | | | | | | 95000 | 75000 | 70000 | 55000 | 70000 \times 2 | 57500 \times 2 |
| | 105 | | | | | | | | | | | | | |
| | 120 | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | |
| 1050 (14) | 60 | 1300X1900 | 1350X2065 | 2P-CO | 900 | 640 | 460 | 2200X2300 | 75000 | 60000 | 50000 | 40000 | 135000 | 115000 |
| | 90 | | | | | | | | 95000 | 75000 | 70000 | 55000 | 70000 \times 2 | 57500 \times 2 |
| | 105 | | | | | | | | | | | | | |
| | 120 | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | |

Overhead and Pit Depth

| Load (kg) | Speed (m/min) | Overhead (mm) | Pit Depth (mm) |
|-----------|---------------|---------------|---|
| 1050 | 60 | 3750 | 1350 |
| | 90 | 3950 | 1450/1600 (Additional weight≤65kg, Pit depth=1450mm, Additional weight > 65kg, Pit depth=1600mm) |
| | 105 | 3950 | 1450/1600 (Additional weight≤65kg, Pit depth=1450mm, Additional weight > 65kg, Pit depth=1600mm) |
| | 120 | 4200 | 2100 |
| | 150 | 4500 | 2150 |

- Note: 1. The overhead is the case of car ceiling type RF-018.
 2. If you need detailed information, please contact us.

Specification Parameters

| Load(kg) (Number of Persons) —Speed(m/min) | Voltage | Transformer Capacity (KVA) | | Circuit Breaker Capacity(A) | | Main Power Wire Size(mm ²) | | Earth Wire Size(mm ²) | |
|--|--------------|-------------------------------|-----------|--------------------------------|---------|---|---------|--------------------------------------|---------|
| | | 1 Unit | 2 Units | 1 Unit | 2 Units | 1 Unit | 2 Units | 1 Unit | 2 Units |
| | | 1 | 450(6)-60 | 4 | 6 | 20 | 32 | 6 | 8 |
| 2 | 630(8)-60 | 5 | 8 | 20 | 32 | 6 | 8 | 6 | 8 |
| | 630(8)-90 | 7 | 10 | 20 | 40 | 6 | 10 | 6 | 16 |
| 3 | 630(8)-105 | 8 | 12 | 32 | 40 | 6 | 10 | 6 | 10 |
| | 825(11)-60 | 6 | 9 | 20 | 40 | 6 | 8 | 6 | 8 |
| | 825(11)-90 | 8 | 13 | 32 | 40 | 6 | 16 | 8 | 16 |
| | 825(11)-105 | 10 | 14 | 40 | 50 | 8 | 16 | 8 | 16 |
| 4 | 825(11)-120 | 11 | 16 | 40 | 50 | 10 | 25 | 10 | 16 |
| | 825(11)-150 | 13 | 20 | 40 | 63 | 16 | 30 | 16 | 16 |
| | 900(12)-60 | 7 | 10 | 20 | 40 | 6 | 8 | 6 | 8 |
| | 900(12)-90 | 9 | 14 | 32 | 50 | 8 | 16 | 8 | 16 |
| | 900(12)-105 | 10 | 16 | 40 | 50 | 8 | 16 | 8 | 16 |
| 5 | 900(12)-120 | 11 | 17 | 40 | 63 | 16 | 25 | 16 | 16 |
| | 900(12)-150 | 14 | 21 | 40 | 80 | 16 | 30 | 16 | 16 |
| | 1050(14)-60 | 7 | 11 | 20 | 40 | 6 | 10 | 6 | 10 |
| | 1050(14)-90 | 10 | 16 | 40 | 50 | 8 | 16 | 8 | 16 |
| | 1050(14)-105 | 12 | 18 | 40 | 63 | 10 | 25 | 10 | 16 |
| 6 | 1050(14)-120 | 13 | 20 | 40 | 63 | 16 | 25 | 16 | 16 |
| | 1050(14)-150 | 16 | 24 | 50 | 80 | 16 | 30 | 16 | 16 |
| | 1150(15)-60 | 8 | 12 | 32 | 40 | 6 | 10 | 6 | 10 |
| | 1150(15)-90 | 11 | 17 | 40 | 63 | 10 | 25 | 10 | 16 |
| | 1150(15)-105 | 13 | 19 | 40 | 63 | 16 | 25 | 16 | 16 |
| 7 | 1150(15)-120 | 14 | 22 | 40 | 80 | 25 | 30 | 16 | 16 |
| | 1150(15)-150 | 17 | 26 | 50 | 100 | 25 | 35 | 16 | 16 |
| | 1350(18)-60 | 9 | 14 | 32 | 50 | 8 | 16 | 8 | 16 |
| | 1350(18)-90 | 13 | 19 | 40 | 63 | 16 | 25 | 16 | 16 |
| | 1350(18)-105 | 14 | 22 | 50 | 80 | 16 | 30 | 16 | 16 |
| 8 | 1350(18)-120 | 16 | 25 | 50 | 80 | 25 | 35 | 16 | 16 |
| | 1350(18)-150 | 20 | 30 | 63 | 125 | 30 | 50 | 16 | 25 |
| | 1600(21)-60 | 10 | 16 | 40 | 50 | 8 | 16 | 8 | 16 |
| | 1600(21)-90 | 15 | 22 | 50 | 80 | 16 | 30 | 16 | 16 |
| | 1600(21)-105 | 17 | 26 | 50 | 100 | 25 | 30 | 16 | 16 |
| 9 | 1600(21)-120 | 19 | 29 | 63 | 100 | 25 | 35 | 16 | 16 |
| | 1600(21)-150 | 23 | 36 | 80 | 125 | 30 | 50 | 16 | 25 |
| | 1800(24)-60 | 11 | 17 | 40 | 63 | 10 | 25 | 10 | 16 |
| 10 | 1800(24)-90 | 16 | 25 | 50 | 80 | 16 | 30 | 16 | 16 |
| | 1800(24)-105 | 19 | 29 | 63 | 100 | 25 | 30 | 16 | 16 |
| | 2000(26)-60 | 13 | 19 | 40 | 63 | 10 | 25 | 10 | 16 |
| | 2000(26)-90 | 18 | 27 | 63 | 100 | 25 | 30 | 16 | 16 |
| | 2000(26)-105 | 21 | 32 | 63 | 125 | 25 | 35 | 16 | 16 |

Note:

1.The mentioned 'Transformer Capacity' shall be the actual elevator capacity. The air switch / circuit breaker, main power wire and earth wire shall be offered by client.

2.The mentioned main power wire specification length is suitable for copper wire of which length is less than 150m. If the length is more than 150m, please calculate the wire size using the formula below.

$$\text{Wire Size (mm}^2\text{)} = [\text{Actual wire length}/150] \times [\text{Wire size in above tabulation}]$$

3.If the temperature around hoistway and machine room is over 40°C, the necessary cooling measure shall be adopted.

4. If you need detailed information, please contact us.

Civil Works Matters

Working environment of the elevators shall be as follows:

- Ambient temperature shall be between 5°C to 40°C.
- Maximum relative humidity is 90%, in the meanwhile the monthly mean minimum temperature should be below 25°C.
- Supply voltage fluctuation shall not be more than ±7%.
- Surrounding environment shall be free from explosive & corrosive hazard, anti-insulation and conductive particles atmosphere.

About Hoistway

- Hoistway walls (including perimeter beam) should be vertical, and the allowable deviation for the wall's verticality is:
Hoistway height ≤30m:0~+25mm
30m< Hoistway height≤60m:0~+35mm
Hoistway height>60m:0~+50mm
- Hoistway walls shall be 200mm concrete walls.
- Elevator hoistway is preferably not located in the space above accessible area. If the actual situation can not meet the regulations, please consult us.
- If elevator hoistway is of steel structure construction, please contact us.
- Hoistway walls, floors and roofs should be able to absorb a large number of elevator operation noise. Hoistway should not be located directly adjacent to low noise bedrooms, classrooms, wards, library spaces. Where such arrangements need to be imposed, the building contractors must be responsible for taking measures of sound insulation and cushioning.

Work to be done by building contractors

The preparatory work for elevator installation outlined below should be undertaken by building contractors in accordance with Hitachi drawing and applicable national or local codes and regulation.

- Prepare hoistway with proper framing and enclosure, suitable pit of proper depth with drains and water-proofing if required, properly lighted.
- Provide and/or cut all necessary holes, chases, and openings and finish after equipment installation.
- Supply and secure all supports, reinforced concrete slabs, etc., necessary for installation of the machinery, doors, buffers, etc.
- Furnish all necessary cement and/or concrete for grouting-in of brackets, bolts, machine beams etc.
- Prepare and erect suitable scaffolding and protective measures for the works in progress.
- Furnish mains for three-phase electric power and single-phase lighting supply to hoistway, following the instructions of the elevator contractors on outlet position and wire size.
- Provide, free of charge, a suitable theft-proof storage area for materials and tools during erection work.
- Supply electric power for lighting of work area, installation work, elevator testing and spray painting.
- Suspension hook for loading shown in this catalogue at top of the hoistway.