

Hitachi  
**LF** Series

Freight Elevator

**HITACHI**  
Inspire the Next

Contact Address:

**Extention  
Button**



## CONTENTS

- 1 Excellent Performance
- 3 Professional & Considerate Design
- 5 Complete Specification
- 7 Planning Guide

We are committed to create a high quality vertical logistics transportation system for the storage spaces of factories and supermarkets, your freight turnover can get easier and more efficient.



# EXCELLENT PERFORMANCE

Hitachi LF freight elevator is equipped with a control system integrated with logic control, variable frequency control, and communication processing control. The superior startup control technology ensure high stability of freight in process of vertical transportation.

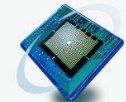
## High-efficiency revolution in the microcomputer control system

The 32-bit microcomputer control system enables full digitalization operation. The module technology highly integrated with microcomputer control system and inverter system completely improves the response velocity and reliability of the system so as to provide a stable and safe environment for freight transportation.



## Superior serial communication technology

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.



## Reliable components

The key components are designed, produced and inspected by Hitachi according to strict standards which is superior to industrial standards.





# PROFESSIONAL & CONSIDERATE DESIGN

In addition to the practicality of Hitachi LF freight elevator, the humanized design of car operation panel, hall buttons, indicator gives a concise and decent space with a brand-new lift car roof design.

## Reliable and durable digital indication

The hairline-finished stainless-steel face sheets of car operation panel and calling board are corrosion and rusting resistant.



## Door-opening extension button

The elevator is equipped with a special door-opening extension button. When the elevator is required to stay for some time to allow people to handle cargos in and out many times, it is unnecessary to specially assign a person to press the door-opening button, so as to ensure convenient operation and improve efficiency.



## Special design for forklift accessing

The freight elevator LF-C3000/5000 is specially designed for ultra-large type heavy-duty forklift accessing. It is furnished a high-strength carbon-steel sill and the interior decoration is still more durable.



## Concise and decent calling board

The brand-new calling board has no box and requires only a wall-through hole instead of construction holes, easily installed.





# COMPLETE SPECIFICATION

Hitachi freight elevator is developed as an ultra-large type freight elevator allowing forklift accessing, so as to meet the particular requirements of cargo movement and improve the working efficiency.

## Wide range of selections

Hitachi LF freight elevator is available with 2 speed thresholds, 5 heavy-duty series and 20 car specs, the applicable scope is still wider from performance to details to satisfy all requirements of the customers.



## Ultra-large freight elevator allowing forklift accessing

Hitachi LF-C3000/5000 allowing forklift accessing is a type of ultra-large type freight elevator specially designed to satisfy particular demands. The elevator is characterized by high carrying capacity and transporting quantity of cargos at one go. The handling factors are taken into account in process of design, so the freight elevators are manufactured as strict standards so as to guarantee their durability and that they may allow heavy-load loading equipment (for instance cargo carriage forklift) to access the lift car. Considering the functional requirements of the forklifts, the pure light curtain protection and inching leveling are particularly adopted as standard configuration.



# 1000~3000kg Normal Freight Elevator

# 3000kg Freight Elevator for Forklift



## Car

Car wall: Painted sheet steel  
 Ceiling: Painted sheet steel  
 Lighting: Fluorescent tube  
 Ventilation: Circular fan  
 Car door: Painted sheet steel  
 Floor: Patterned steel plate  
 Sill: Extruded hard aluminum



## Car Operation Panel

GOP-612  
 Panel Material: Stainless steel hairline  
 Button: GL-POA

## Car

Car wall: Painted sheet steel  
 Ceiling: Painted sheet steel  
 Lighting: Fluorescent tube  
 Ventilation: Circular fan  
 Car door: Painted sheet steel  
 Floor: Patterned steel plate  
 Sill: Extruded hard aluminum



## Car Operation Panel

GOP-612  
 Panel Material: Stainless steel hairline  
 Button: GL-POA

LF-C3000 Freight elevator allows heavy-load loading equipment (for instance cargo carriage forklift) to access the car and the user should note that:

- 1.Ensure that the total weight (contains all the cargo and the forklift) in the car should be less than 3000kg.
- 2.The Forklift should stop and go back at once when overload chiming.



## Landing Door

Basic

Opening Type:\*2S-2P  
 Opening Width:1300~1800mm  
 Material: Painted sheet steel  
 Jamb: AS-1X(Painted sheet steel)

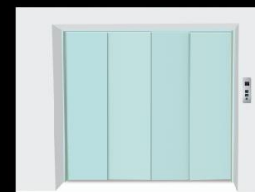
\*2S-2P means side opening with two door sheets.

## Hall Button

Basic



VIB-612(No Box)  
 Panel Material: Stainless steel hairline  
 Button: GL-POA



## Landing Door

Basic

Opening Type:\*4C-CO  
 Opening Width:2200mm  
 Material: Painted sheet steel  
 Jamb: MD Narrow Type(Painted sheet steel)

\*4C-CO means center opening with four door sheets.

## Hall Button

Basic



VIB-612(No Box)  
 Panel Material: Stainless steel hairline  
 Button: GL-POA



# 5000kg Freight Elevator for Forklift

# Car & Entrance Configuration



## Car

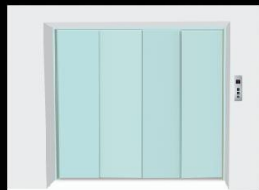
Car wall: Painted sheet steel  
 Ceiling: Painted sheet steel  
 Lighting: Fluorescent tube  
 Ventilation: Circular fan  
 Car door: Painted sheet steel  
 Floor: Patterned steel plate  
 Sill: Extruded hard aluminum



## Car Operation Panel

GOP-612  
 Panel Material: Stainless steel hairline  
 Button: GL-POA

LF-C5000 Freight elevator allows heavy-load loading equipment (for instance cargo carriage forklift) to access the car and the user should note that:  
 1. Ensure that the total weight (contains all the cargo and the forklift) in the car should be less than 5000kg.  
 2. The Forklift should stop and go back at once when overload chiming.



## Landing Door

Basic

Opening Type: \*4C-CO  
 Opening Width: 2200mm  
 Material: Painted sheet steel  
 Jamb: MD Narrow Type (Painted sheet steel)

## Hall Button

Basic

VIB-612(No Box)  
 Panel Material: Stainless steel hairline  
 Button: GL-POA



\*4C-CO means center opening with four door sheets.

## Car Design

Item	Type/Design/Finishes	Basic	Option
Car wall	Painted sheet steel*	●	
	Stainless steel hairline		○
Ceiling	Painted sheet steel*	●	
Lighting	Fluorescent tube	●	
Ventilation	Circular fan	●	
Car door	Painted sheet steel*	●	
	Stainless steel hairline		○
Floor	Patterned steel plate	●	
Operation panel	GOP-612(Stainless steel hairline panel)	●	
Sill	Extruded hard aluminum	● (Normal model)	
	Steel	● (Forklift model)	

## Entrance

Item	Type/Design/Finishes	Basic	Option	
Landing door	Painted sheet steel*	●		
	Stainless steel hairline		○	
Jamb	Normal model	AS-1X(Narrow type)—Painted sheet steel	●	
		AS-1X(Narrow type)—Stainless steel hairline		
		SS-1(Wide type)—Stainless steel hairline		
		TS-1X(Wide type)—Stainless steel hairline		
	Forklift model	MD Narrow type—Painted sheet steel	●	
		MD Narrow type—Stainless steel hairline		○
Sill	Extruded hard aluminum	● (Normal model)		
	Steel	● (Forklift model)		
Hall button	VIB-612(Stainless steel hairline panel)	●		
	VIB-M(Formed resin panel)		○	

Note: The basic colour of the call wall, ceiling, car door, landing door and jamb, which is marked by "\*" in the table above, is CP30(light cyan).

# Operating System & Function

Operating Systems				
No.	Function	Description	Basic	Option
1	Collective control(CCTL)	This is a fully automatic operation used for a single elevator system.Hall calls in the direction in which the elevator is travelling are responded to sequentially and when all calls in that direction are cleared, calls in opposite direction will be responded to. When there are no more calls, the elevator will stay on the last floor served.	●	
2	Duplex collective control(DCTL)	This is a fully automatic operation used for a two-elevator system. Hall calls are responded to by whichever elevator that can serve the hall call faster. When there are no more calls, one of the elevators will stand-by at the start floor while the other elevator will stay on the last floor served.		○
3	Down collective control (DWCC)	For this system, all floors have "down" call only, Except for the start floor, Where there is "up" call only. The other operations are the same as in "Collective Control" and "Duplex Collective Control".		○
4	Attendant operation(ATT)	For this system,the stop floor is manually set by an attendant, such as in a department store.		○
5	Independent operation(INOC)	This operation system is used when there is a need to serve special passengers. Under this operation, no one is allowed to use the elevator from the hall call and the elevator is meant for exclusive use.		○

Safety Functions				
No.	Function	Description	Basic	Option
1	Overload return door system (ORS)	In the event of door overload, such as when passengers get their fingers, hands or personal belongings caught in the door, this system automatically senses this and either re-closes or re-opens the door to prevent injury.	●	
2	Interphone system(INPS)	An interphone system between the elevator and the master unit is provided for emergency communication between the elevator car and the master unit (in the supervisory panel,etc.).	●	
3	Car emergency lighting (CEML)	In the event of a power failure, and emergency light inside the elevator will be automatically activated.	●	
4	Nearest landing operation (NLNO)	In the unlikely event of temporary trouble during operation,the elevator automatically goes to the nearest floor at a low speed and doors will open to prevent passengers from being trapped inside.	●	
5	Overload detection system (OLDS)	In the event of overloading,this system will activate an audio/visual alarm and prevent the elevator from moving.	●	
6	Abnormal speed protection function (ASPF)	In the event that the elevator is moving downwards at an abnormally high speed,the brakes will be automatically engaged and the elevator will cease operation.	●	
7	Alarm for stopping out of open zone (ASOZ)	In the event that the elevator stops out of the door-open zone of a selected floor,doors will not open,and an alarm will be sounded in the elevator car.	●	
8	Door safety edge(DSE)	Mechanical safety units are installed on the elevator doors. In the event of passengers coming into contact with the safety edges of closing doors,the doors will immediately reopen.	●	
9	Multi-beam door sensor (MBDS)	In the event that the beam paths are obstructed,this sensor,installed at the edge of the doors,will keep the doors open.		○

Services Functions				
No.	Function	Description	Basic	Option
1	Mischievous call cancellation (MCCC)	In the event that a large number of calls is registered by a small number of passengers,the calls are determined to be mischievous and will be automatically cancelled upon responding to the next call.This thus eliminates unnecessary stops.	●	
2	Automatic door open time adjustment (DTAD)	The duration of the door open timing is tailored to usage conditions,substantially improving operational efficiency.	●	
3	Automatic return function (ARTF)	After all the calls have been served,the elevator will return to the start floor for stand-by.	●	
4	Automatic bypass operation (ABPO)	In the event that the elevator is fully loaded,this operation will not respond to any hall calls and will only respond to the car calls.	●	
5	Floor "deselect" function (FDSF)	This function allows passenger to cancel the selection of a floor from the car operation panel which is accidentally pressed by pressing the button again for a few seconds.(This thus eliminates unnecessary stops.)		○
6	Door open prolong button (DOPB)	In the event that this button on the car operation panel is pressed,the elevator doors remain open for a pre-set period of time.		○
7	Sub-operatiing pannel (SOPB)	Additional floor selection and door open/close buttons are located on the front wall of the sub-door in the elevator.This will be extremely convenient for passengers.		○
8	Voice synthesizer(VSYS)	Preset standard messages are announced to the passengers by a voice synthesizer.		○
9	Interfacing with BGM speaker (BGMS)	A speaker for background music and public announcements for the building can be installed in the elevator.(Music and announcement systems,including wiring,is to be provided by others)		○

Emergency Operations				
No.	Function	Description	Basic	Option
1	Fire emergency operation (FEMO)	In the event of fire,the elevator is automatically brought to the designated floor where it remains inopertvefor passengers's safety.	●	
2	Emergency operation for power failure(EPFO)	In the event of building power failure,the elevator can be operated by the building standby generator to move the elevator to the designated floor.		○
3	Earthquake emergency operation (EEMO)	In the event that an earthquake is detected. The elevator will stop at the nearest floor.		○
4	Automatic rescue device for power failure(ALP/ARD)	In the event of power failure the elevator automatically switches to battery power to bring the elevator to the nearest floor.		○
5	Fireman operation (FMNO)	In the event that the fireman switch is turned on,the elevator returns to the designated floor and will be ready for firemen's use.		○

Management Functions				
No.	Function	Description	Basic	Option
1	Automatic turn-off elevator light and fan(ATFL)	In the event that the elevator is not in use,the light and ventilation fan in elevator are automatically turned off to conserve energy.	●	
2	Maintenance operation (MTNO)	In the event that elevator maintenance is being carried out,the elevator operates at a lower speed.	●	
3	Parking operation(PKGO)	The elevator can be parked at the designated floor with a key switch.	●	
4	Travel times indicator function (TTIF)	This indicator at the control panel shows the accumulated travel times of the elevator.	●	
5	Floor lock-out operation(FLLO)	Specific service floors can be locked-out by activating a switch.		○
6	Intelligent operation security system (IPSS)	This function allows controlled access to certain floors by means of a password or ID cards. Note:Keypad or ID card-reader system is to be provided and installed by others.Interfacing shall be by means of dry (voltage-free) contacts.		○
7	Interfacing with closed-circuit TV(CCTV)	This system enables the security personnel to monitor the movement inside the elevator.This will be effective in preventing criminal and mischievous acts inside the elevator.(CCTV system,including wiring,is to be supplied by others.)		○
8	Interfacing to building management system(BMS)	This interfacing shall be done by means of electrical dry contact to the building management system for their monitoring.		○
9	Supervisory panel (SVP)	This system shows the real time situation of the elevators such as the elevator position,movement direction and abnormal operation on the digital supervisory panel.		○
10	Extensible elevator monitoring system(SVPC)	This system shows the real time situation of the elevators such as the elevator position,movement direction and abnormal operation on the digital supervisory panel.		○



# Hoistway & Machine Room Plan

## Shaft & Machine Room Design

Model	Load (kg)	Speed (m/min)	Car Size(W×D)		Door opening			Hoistway Dimension (W×D)(mm) (One unit)	Machine Room Dimension (W×D×H) (mm) (One unit)			Machine Room Reaction(kN)			Pit Reaction (kN)		Drawing Reference
			Internal size(mm)	Type	width (mm)	Height (mm)	R1		R2	R3	R4	R5					
Normal model	1000	30	1400×1600	1300	2100	2400X2300	3000X2600X2500	65	55	10	110	90	Type A				
		60															
	1000	30	1400×1600 *(TTC)	1300	2100	2400X2340	3000X2600X2500	70	55	10	110	90	Type B				
		60															
	1600	30	1600×2100	1500	2100	2700X2800	3300X2800X2500	90	60	10	150	115	Type A				
		60															
	1600	30	1600×2100 *(TTC)	1500	2100	2700X2840	3300X2800X2500	95	65	10	150	115	Type B				
		60															
	2000	30	1600×2500	1500	2100	2700X3200	3300X4200X2500	100	70	10	170	130	Type A				
		60															
	2000	30	1600×2500 *(TTC)	1500	2100	2700X3240	3300X4200X2500	105	75	10	170	130	Type B				
		60															
3000	30	2000×2770	1800	2100	3150X3400	3700X4300X2800	140	95	10	255	195	Type A					
	60																
3000	30	2000×2770 *(TTC)	1800	2100	3150X3510	3700X4300X2800	150	100	10	255	195	Type B					
	60																
*Forklift model	3000	30	2000×2600	2200	2400	3715X3180	3715X4300X2800	175	110	10	280	220	Type C				
		60															
	3000	30	2000×2770 *(TTC)	2200	2400	3715X3250	3715X4300X2800	175	110	10	280	220	Type D				
		60															
										RA	RB	RC	RD	R4	R5		
	5000	30	2400×3600	2200	2400	4000X4335	4000X4335X2900	50	60	180	130	450	350	Type E			
60																	
5000	30	2400×3600 *(TTC)	2200	2400	4000X4340	4000X4340X2900	50	60	180	130	450	350	Type F				
	60																

Note: 1. \*TTC indicates through type car with two car doors.  
 2. \*2S-2P means side opening with two door sheets.  
 3. \*4C-CO means center opening with four door sheets.  
 4. \*Forklift model means freight elevator allowing forklift accessing.  
 5. The minimum floor height is 2800mm for normal model freight elevator and 3200mm for forklift model.

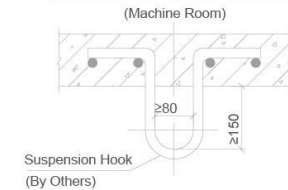
## Overhead height & Pit height Design

Model	Load(kg)	Speed (m/min)	Bare Ceiling Height (mm)	Overhead Height (mm)	Pit Depth (mm)
Normal model	1000-3000	30	2200	4600	1500
		60		4700	1550
Forklift model	3000-5000	30	2400	5500	1600
		60			

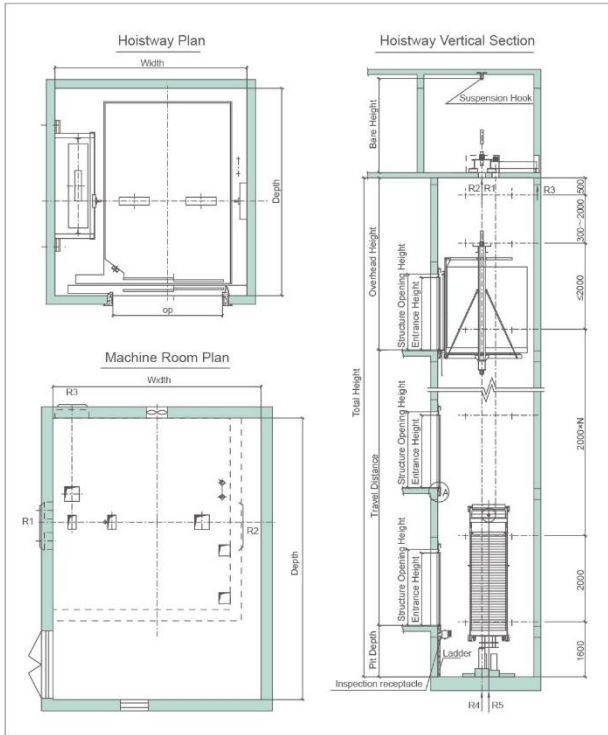
## Suspension Hook Design

Load (kg)	Suspension Hook Capacity (tons)
1000	3
1600-2000	4
3000	5
5000	≥5

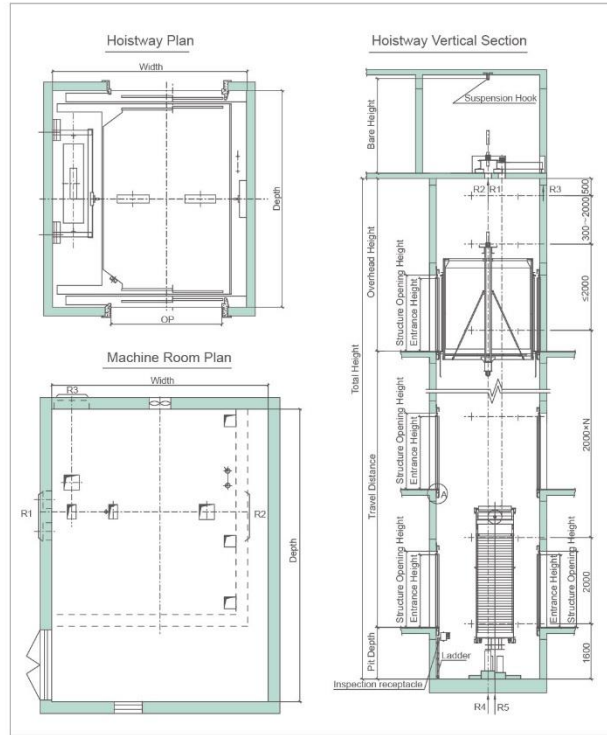
## Suspension Hook Detail



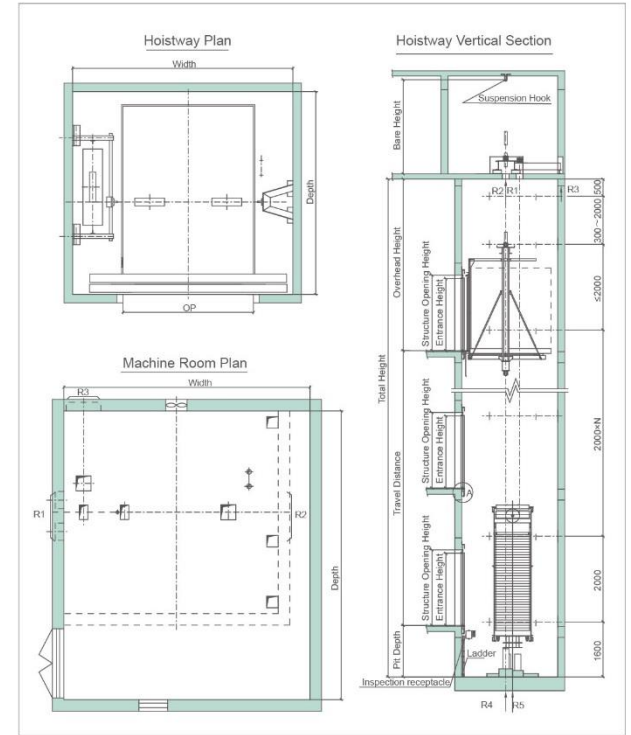
Layout Drawing(Type A)



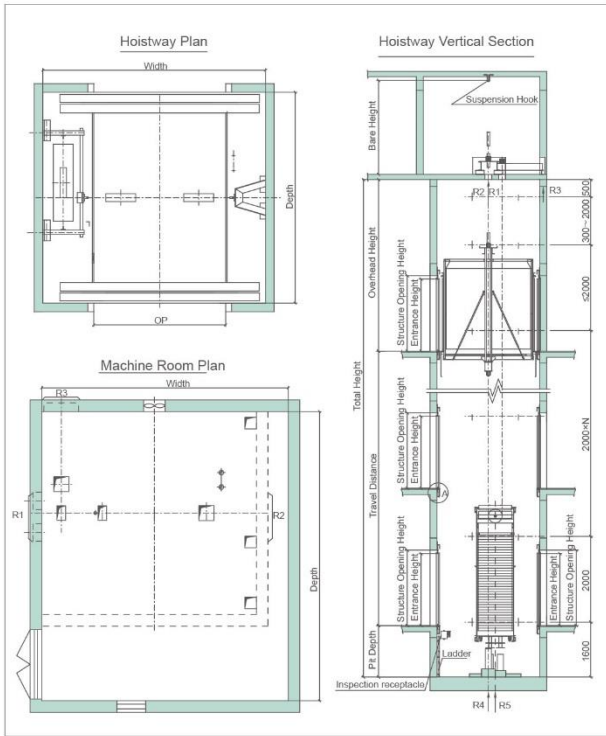
Layout Drawing(Type B)



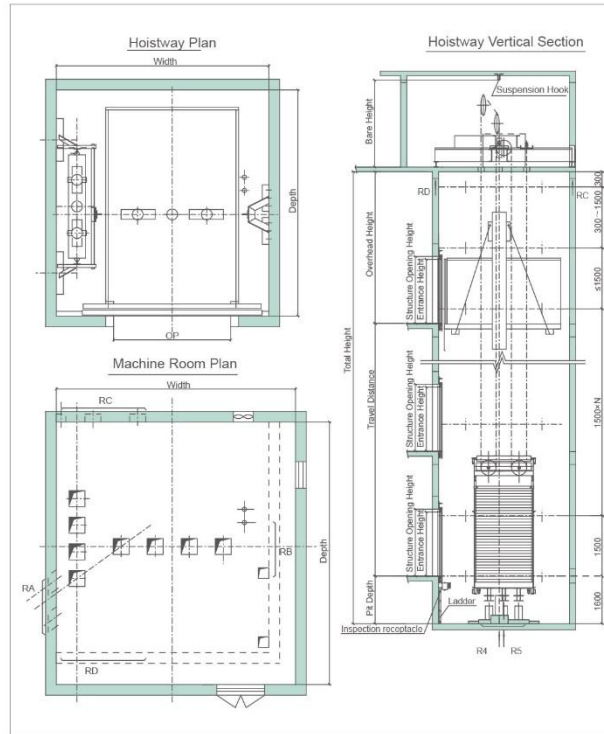
Layout Drawing(Type C)



## Layout Drawing(Type D)

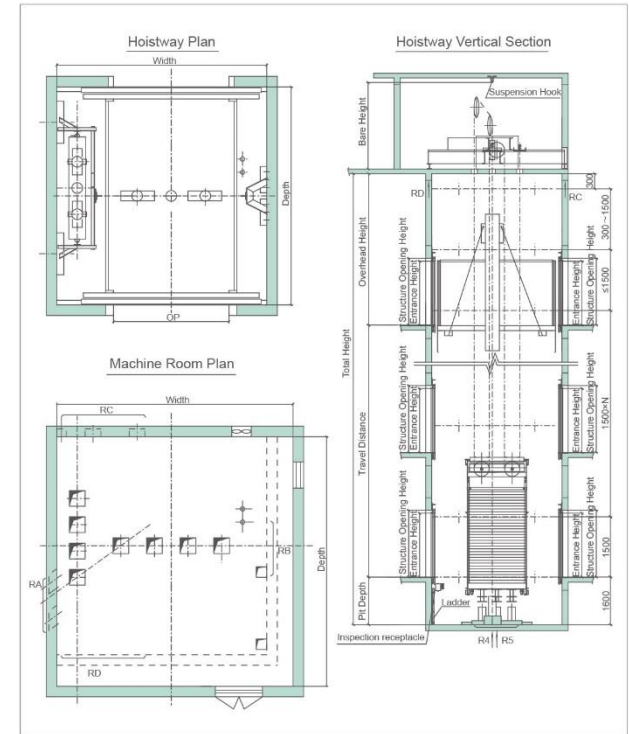


## Layout Drawing(Type E)



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## Layout Drawing(Type F)



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## Electrical Information for the Others

Model	Voltage	Machine power (kw)	Circuit Breaker Capacity (A)	Main Power Wire Size(mm <sup>2</sup> )	EarthWire Size(mm <sup>2</sup> )	Transformer Capacity(KVA)	Machine Room Ventilation (For Per Unit)		
			1 unit	1 unit	1 unit	1 unit	Caloric value/unit (J.10 <sup>6</sup> /h)	Ventilating Fan Size (Φmm)	
Normal model	3Φ380V 1Φ220V 50Hz	LF-1000-2S30	7.5	20	6	6	6.3	31.5	200
		LF-1000-2S60	11	40	10	10	10	6.29	250
		LF-1600-2S30	11	32	8	8	8	5.03	250
		LF-1600-2S60	15	50	25	16	16	10.06	300
		LF-2000-2S30	11	40	10	10	10	6.29	250
		LF-2000-2S60	18.5	63	25	16	20	12.57	300
		LF-3000-2S30	15	50	16	16	16	9.43	300
		LF-3000-2S60	30	75	30	16	31.5	18.85	350
Forklift model		LF-C3000-4C30	15	50	16	16	16	9.43	300
		LF-C3000-4C60	30	75	30	16	31.5	18.85	350
		LF-C5000-4C30	30	63	25	16	20	15.71	350

Note:

1.The wire length shall be less than 150m. If wire length is more than 150m,please calculate the wire size using the formula below:

Wire Size(mm<sup>2</sup>)=[Actual wire length/150]X[Wire size in above tabulation]

2.Hoistway and machine room ventilation should be provide to maintain the hoistway temperature at below 40℃

The Ventilating fan sizes(based on the Hitachi pressure type fan) are shown below, along with the amount of air ventilated by each fan size.

Ventilating Fan Size(Φmm)	Amount of Air to be Ventilating(m <sup>3</sup> /hr)
200	540
250	930
300	1740
350	2460
400	3720

## Civil Works Matters

### A.Working environment of the elevators shall be as follows:

- Ambient temperature shall be between 5℃ to 40℃
- Monthly average humidity shall be between 25%-90%.
- Supply voltage fluctuation shall not be more than 7%.
- Surrounding environment shall be free from explosive & corrosive hazard, anti-insulation and conductive particles atmosphere.

### B.Notes on hoistway

- Hoistway walls (including layers ring beam) should be vertical, and channel wall perpendicular to the allowable deviation 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 Hitachi Elevator (China) Co.,Ltd..
- If elevator hoistway is of steel structure construction, please contact Hitachi Elevator (China) Co.,Ltd..
- Machine room and hoistway walls, floors and roofs should be able to absorb a large number of elevator operation noise. Machine room and 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.

### C.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 and ventilated machine room of adequate size with concrete floors, access doors, ladders and guards as required.
- Provide and/or cut all necessary holes, chases, and openings and finish after equipment installation.
- Supply and secure all supports, reinforced concrete slabs, ect. necessary for installation of the machinery, doors, buffers, etc.
- Furnish all necessary cement and/or concrete for grouting-in of brackets, bolts, machine beams ect.
- 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 machine room, 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 machine room.