

FOVF

Heavy Duty Elevator



FOVF

160 OTIS



160 YEARS OTIS

160 years of rich history, the No.1 brand in the elevator industry;
 Inventor of the world's first safety elevator;
 Inventor of the world's first escalator;
 Sales and Service operation located in over 200 countries and a service network covering over 1,700 locations worldwide;
 Annual escalator and elevator sales of more than 70,000 elevators in 12 of the world's 20 highest buildings;

OTIS in CHINA

With 15,000 employees, Otis China offers professional consultancy and installation services and world-class maintenance support, operating 6 manufacturing sites in Tianjin, Hangzhou, Guangzhou, and etc., Otis engineer team located at three sites dedicate to new product development and product quality improvement.

OTIS CHINA FACTORY



Hangzhou Factory

Building Area: 45,754m²
 Capacity:



30,000 units/year



6,000 units/year

CNAS (China National Accreditation Service) Lab



Tianjin Factory

Building Area: 66,673m²
 Capacity:



25,000 units/year

USGBC LEED Gold Certification



Guangzhou Factory

Building Area: 48,900m²
 Capacity:



4,000 units/year

OTIS Escalator Quality Test Center



OTIS CHINA INTERNATIONAL BUSINESS

125

Covering more than 125 Countries

80,000

Having provided over 80,000 units of elevator & escalator worldwide

15

Meeting 15 International Codes including EN, JIS, ANSI, AS1735, COP2010, SS550, KC, GB and etc.



EN81 (elevator)
 EN115 (escalator)



KC (ele. & esc.)



GB (ele. & esc.)

Japan



JIS (ele. & esc.)



AS1735 (elevator)



MS2021:2026 (elevator)

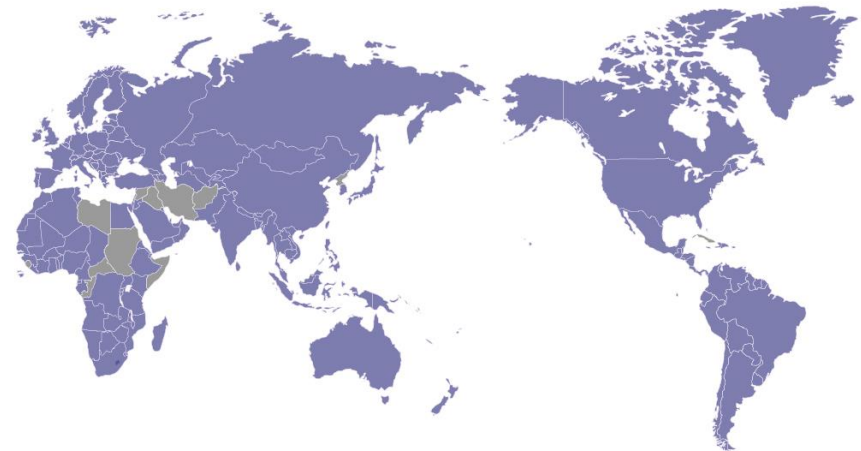
Singapore



SAA (escalator)



ANSI (escalator)



Heavy Duty Elevator FOVF

FOVF



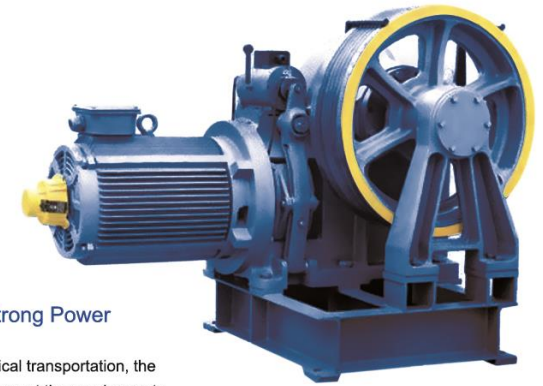
As a matured product, FOVF heavy duty elevator absorbs Otis advanced design technology and fully utilizes the Otis's advanced designing process-PDP process. Through its stability and flexibility, FOVF not only can be used for warehouse and factories, but also can meet the requirements of high usage intensity location.

It conforms the EN81 code and fully complies with the Otis safety standard-WWJSSS, which is applied worldwide to satisfy the Otis' principle-Safety First.

Standard Specification

Load (kg) \ Speed (m/s)	630	1000	2000	3000	4000	5000
1	50m/16F	50m/16F	50m/16F	/	/	/
0.63	30m/8F	30m/8F	30m/8F	/	/	/
0.5	/	/	30m/8F	30m/8F	30m/8F	30m/8F
0.25	/	/	/	/	16m/8F	16m/8F

*CBO up to 5000kg@1.0m/s



Advanced Technology, Strong Power

According to the character of vertical transportation, the forceful traction machine can fully meet the requirements of all kinds of loadings and locations. Diversiform types of traction machine can be used for different kinds of locations.

FOVF heavy duty elevator adopts Otis micro-processor based VVVF control system to achieve a perfect combination with the traction machine and variable-frequency technology.

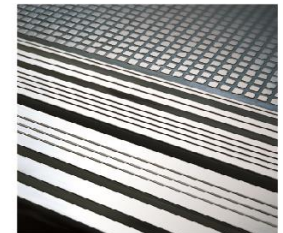


Smooth Leveling Superior Riding

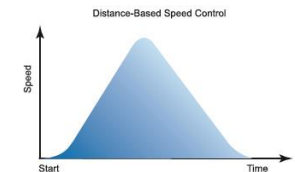
The excellent performance of traction machine makes the elevator running calmly with less magnetic noise and vibration.

FOVF heavy duty elevator adopts SIEI Vary Frequency System to ensure operating preciseness and smooth leveling enables passengers to enjoy riding experience without unconscious vibration.

The special optimized graphic speed curve generated by Otis control system makes FOVF running more stably in acceleration as well as deceleration.



Leveling Accuracy (mm)	
maximal	general
±5	±3



FOVF

Leading Technology, Innovative Door System

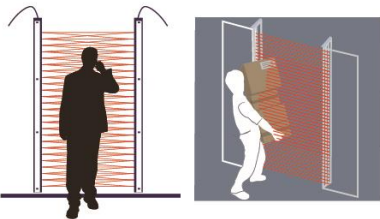


Door Opening Design

FOVF is equipped with door operator system especially designed for cargo lifts to satisfy the wide range opening size for varied conditions. Two-panel side-sliding opening or four-panel center opening can be selected as standard option based on different car size. Door operator system represents a passengers' first interface with a vertical transport system. Superior reliability enhances a building's overall lift performance and passengers' riding experience.

Door Protection Device

The CEDES door protection device adopts the matured European technology to comply with high safety standard. It offers a broad entrance detection area and gives a prompt response while any passenger or goods (or vehicle) coming into its detection area.



CEDES door protection device



Four panel center opening Two panel side opening

Reliable Elevator Safety System



Governor

Safety components comply with E3 policy—passed 25 times tripping test without component replacement.



Safety Gear

Safety components comply with E3 policy—passed 25 times freefall and runaway test without component replacement.



Buffer

Safety components comply with E3 policy—passed 100 times strike test without component replacement.

E3 Policy

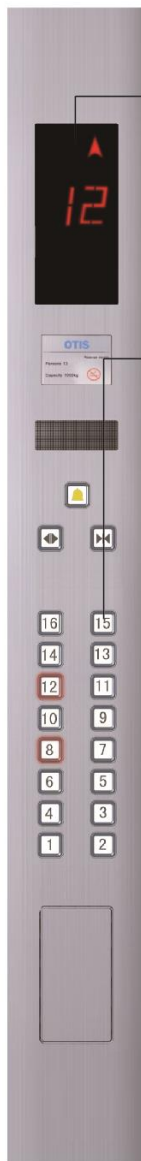
E3 policy is an Otis global policy for safety components. The requirement which capture the most severe requirements among all major international elevators codes and industry requirements, covers safety components design, manufacturing, qualification and traceability. E3 compliance audit is led by Otis Worldwide Engineering, and approved by Otis world headquarter.

	OTIS E3 Policy	European & China Code
Governor	25 times tripping test	20 times tripping test
Safety Gear	25 times freefall and runaway test	4 times freefall test
Buffer	100 times strike test	6 times strike test

Note: All presented safety device pictures are only configuration for partial specification

FOVF

Optional Display



Interface



6.4"STN-LCD



7" TFT-LCD

Configuration :

Wall: 2130 Painted steel
 Door: Painted steel
 Ceiling: B4090
 Car Floor Type: 4901AM
 Optional Floor: 4901PVC

COP:

Standard COP: COP1
 Optional COP: COP2
 Faceplate: Hairline stainless steel®
 Optional Faceplate: Mirror stainless steel/ Ti-Mirror stainless steel
 Standard Interface: Segment LED
 Optional Interface: 7" TFT-LCD/
 6.4"STN-LCD
 Standard Button: BS34C



BS34C



HBP2



HBP2-Duplex

HBP:

Standard HBP: HBP2
 Optional HBP: HBP11-STN/
 HBP11-TFT/ HBP11-B
 Standard Interface: Segment LED
 Optional Interface: 4.3" TFT-LCD/
 4.3"STN-LCD
 Standard Button: BS34C



NOTE:

①. When car panel is 2130, the default finish of COP faceplate is in the same as car panel's finish.
 ②. More aesthetics choices, please refer to Aesthetics Brochure.

Function	Functions Name	Functions Descriptions	(S)
EN-CK	Door hold cancel	Under automatic conditions, while the door is fully open, and in delay closing stage, it can be closed in advance by pressing the EN-CK button constantly.	
EN-CCO	Calls in opposite direction auto-clear	Calls in opposite direction can be cleared automatically while the car moves up and down.	
DCP	Delayed Car Protection	If the door opened for a predetermined time due to constantly pressing the hall call button or other reasons, the elevator will be forced to close to respond other signals. And in case the elevator fails to carry out DCP force-closure, the elevator will stop and the inside or outside calls will be cancelled automatically. And the elevator will recover to normal operation till it detects the door is closed naturally.	
DTO	Door Time Protection - Open	If the car door does not open completely within an adjustable time (default 20s) after the door open command due to some mechanical problems or any other reasons, the elevator will cancel all the signals (including external and internal) and go to the floor nearby to release passengers.	
DTC	Door Time Protection - Close	If there is no door closing signal, the elevator will automatically enter protection mode after the third door closing demand when it is blocked and exceeds the predetermined time limit due to some mechanical problems or any other reasons. It will resume normal operation only if the door closes successfully.	
LNS	Load Non Stop	When a car is loaded to a predetermined percentage of its capacity, it is considered 'full'. Additional passengers would be unable to enter.	
PKS	Parking Operation	Park Stop function, when it's set to action on the park stop floor, the elevator will come back to the Park floor automatically after responding calls registered before the PKS function. Then it will stay in energy saving mode, and cut off all lighting inside the car and light hall call systematically.	
PRK	Parking	That is stop ready switch, after the key which is installed at the predetermined floor starts action elevator will move to the predetermined floor after finishing response to all commands. At the same time, energy saving mode will start, cutting off all in car lighting and turning on all stop-lift switch indicator.	
LOBBY	Floor of Lobby	Lobby can be set according to various requirements. If no registration of calls or operations after preset timeout, the car will return to lobby and wait there. Lobby should be the floor with maximum passenger flow or the first floor.	
EDP	Electron light curtain door protection	Light red unit for special purpose enhanced the safety of elevator, a infrared curtain can be formed in front of the car door, A quick response will be acted when something entered this area.	
TCI	Top of Car Inspection	The inspection operation switch and its push buttons and an emergency stopping device 'TES' shall be placed on the car roof that they are readily accessible.	
ERO	Electrical Recall Operation	If there is an ERO device in the controller, ERO is available for emergency operation.	
LR	Light and Ventilation in car	After a preset timeout, the car will suspend in a minor power consuming mode, the light and ventilation device in the car will be shut down if no operations are registered.	
LWS	Overload protection	If the load exceeds the rate load, the sound signal will be given out by speaker, and 'OVER LOAD' will be displayed, the car door will not close, the elevator will not start.	
DOB/DCB	Door Open/Close Button	The door open button in the car operating panel permits to open or re-open an automatic door, and to keep it open/close it by constant pressure.	
DDT	Independent control of car door and landing door	Refer to the statistical information, the waiting time of door opening by hall call is longer than that by car commands. The system performance can be raised by adjusting the door hold time for both car door and landing door separately.	
HDI/CDI	Hall/Car Direction Indicator	To inform the passengers about the operation direction, there should be a Direction Indicator on car operational board or in the jamb of the car entrance.	
HPI/CPi	Hall/Car Position Indicator	Persons both in car and at landings (generally main landing) may see, where the elevator(s) are.	
ICU-3	Intercommunication Unit	The intercom system is primarily an emergency alarm device, which by definition is required to call for outside assistance if necessary. It shall be activated by the alarm button in the car operating panel.	

FOVF

Function	Functions Name	Functions Descriptions	(S)
BELL	Alarm Bell	An alarm sound signal will be given out to the outside in specific conditions	
OHT	Drive Overheat Protection	Self-protection mode will be achieved if the temp of the motor exceeds the preset value due to the heat made by motor itself or the high temp in the environment. The car stops at the nearest floor, unload and shut down the light and ventilation device; once the temp falls down to normal, the car will recover.	
CCM	Passing Chime in car	On the top of the car, a bell ring will be given out when the car reaches the destination floor.	
CBC	Cancel Error Calls	Before the car starts, the registration of a call or operation can be canceled by double click of this button. After the car starts, registration cancel will not allowed for the sake of passengers' safety.	
RE-OP	Hall door re-open	This function allows the door to reopen while there is a call in the same direction of the car during door closing process.	
RIN	Reinitiate	When the power recovered from a cut, position signals have not reserved or the position can not be detected, the car will move to lobby and reinitiate. After that the floor info can be displayed and the elevator backs to normal.	
NTSD	End protection	If the speed is not slowed to the preset value while the car reach the end floor, a forced deceleration will be carried out by system in order to protect the safety of the car.	
SE	Start Equalize	For better comfort at the car's start, computing the load in the car by system will make start equalization.	
ELTU	Emergency Light	Emergency light in the car will start whenever there is a power cut.	
DCBL/DOBL	Door Close/Open Button Light	Door Close/Open Button will highlighted if the buttons are pressed as a success echo.	

Function	Functions Name	Functions Descriptions	(O)
ATT	Attendant Service Operation	The Attendant Operation feature allows semi-automatic operation with manual control.	
DHB	Door Hold Button	Pressure on the Door Hold button 'DHB' in the car operating panel opens the door, reverses the door, and keeps the door open for a specified adjustable door hold time.	
EFO	Emergency Fireman Operation	If there is a fire in a building, the system will cancel all commands, control the elevator back to the fireman's floor to evacuate the passenger and wait for the fireman's operation after receiving a fire alarm signal. The control system will send the signal to the fire center when the forced homing has been done successfully.	
ISC	Independent Service	In order to satisfy and cater for the customers' special requirements, independent service state is set up to make the elevator operation & its gate operation being controlled manually only.	
SGS	Light eye and safety gear protection	Utilizing reliable leveling indicator plate and sensitive infrared, this double detection will ensure the passengers' safety. .	
EPO	Emergency Power Operation	In case that regular power supply shuts down, the power supply of cars turns to Emergency Power ,then cars in group run to defined landings (or next landings) one by one. After arrival to rescue position, the cars open doors and let passengers out. It's available to define a part of cars in group for normal service during EPO which is needed by some users. The return to full normal operation is done automatically when regular power supply is reestablished.	
EQO	Earthquake Operation	Once an earthquake has happened, all the calls and operations will be cleared after the earthquake signal. The car will stop at the nearest floor to unload passengers.	

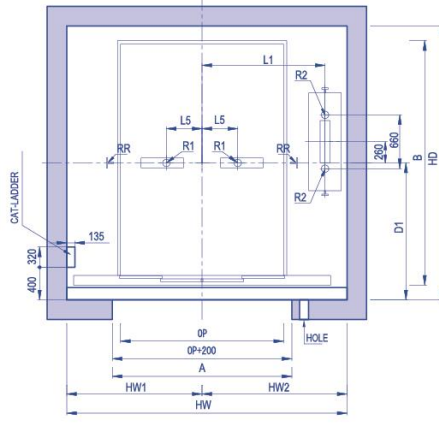
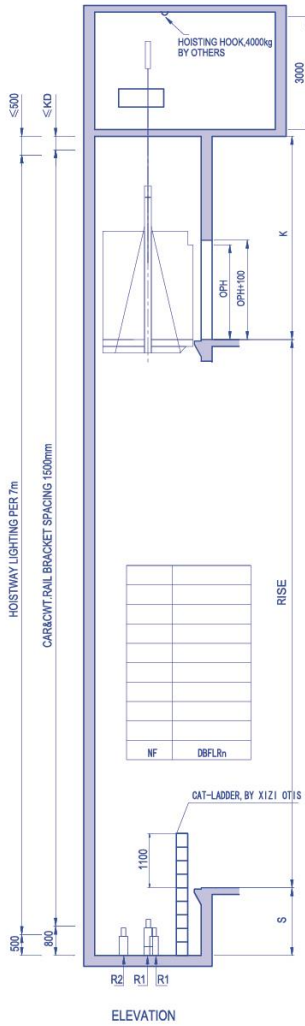
Function	Functions Name	Functions Descriptions	(O)
G2C	Group control	This function is applied to the control of two interconnected elevators of the same model. This makes interconnected elevators can automatically give the most appropriate response , avoiding overlapped stopping of elevators , shortening the passengers' waiting time and raising the efficiency .	
ARED	MSD device	When a sudden power cut happens, the device will act and the car will stop at the lowest floor, and after the leveling action, a sound signal will be given out and the door opens meanwhile for unload. Levelling precision: ±30mm.	
NSB	Non stop button	Once the NSB button is pressed, all calls outside will not be registered, and the car moves directly to the destination floor.	
FSL	Fireman's Service Indicator	Indicates that the car is on any kind of Fireman service.	
REL	Re-leveling Operation	Stopping errors shall be corrected by re-leveling. The size of a possible stopping error depends on the type of drive and the accuracy of the position sensors.	
SSM	Speech Synthesis Module	The speech synthesis option converts car position and direction information into an audible announcement as the elevator arrives at a landing. As the landing is reached the floor name is announced for the benefit of elevator passengers who are visually impaired. As the doors open to the hallway the committed car direction is also announced for the benefit of prospective passengers in the hall who are visually impaired as well as confirmation of direction for existing passengers.	
EFS	Emergency fireman service (automated)	EFS-1 shall automatically place the car on independent service when the elevator is at the designated return landing from Phase I with the doors fully open.	
BA	Building monitor ports	Elevators with BA function can provide scattered elevator status for computed management of the buildings. Contact type BA provides signals such as floor numbers, running directions, fault signals, park signals and safety signals, and it can't display letters; RS485 type BA provides signals such as floor numbers, running directions, fault signals, park signals, emergency fire signals and door signals, it can also provide PKS control and EFK control, it can display letters except "S".	

Function	Functions Name	Functions Descriptions	(O*)
EFS2	Emergency fireman service (manual)	While the switch with lock is positioned start, EFS will be trigged to clear all the hall calls, and the car will only response to the car calls, to go with the fireman elevator.	
AUTO-PKS	AUTO-Parking Operation	AUTO-Parking Operations will be on if this function is enabled. Start/Lock will be carried out automatically.	
AES	District monitor system	Computers carry out district monitor system. This function can provide computed monitoring for all the elevators in this district and offer the BA for the computed management of the building.	
EMS	Elevator Management System	EMS is a self-contained system with its own documentation and order procedure. This description gives only a short summary. The Elevator Management System "EMS" permits to monitor, control, and analyze elevator service and traffic of up to eight groups with up to eight cars per each group. The system ties into ring communication with the OCSS ring car boards, the limited car board or - by means of a parallel / serial interface - even with relay controllers.	
AMS	Area Monitoring Screen	It can be installed in the porter's lodge, simply display the condition signals by LED indicators and lock/unlock the elevator.	

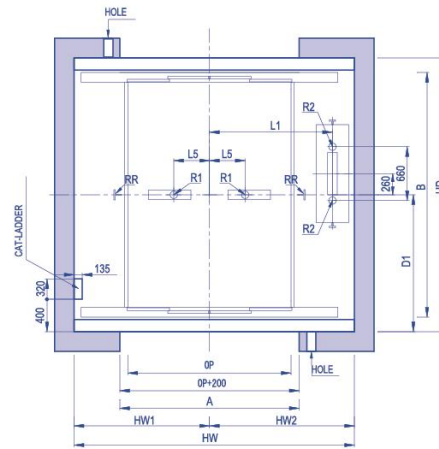
Remarks:

- S=Standard
- O=Option
- O*=Need confirmed by factory

Heavy Duty Elevator FOVF



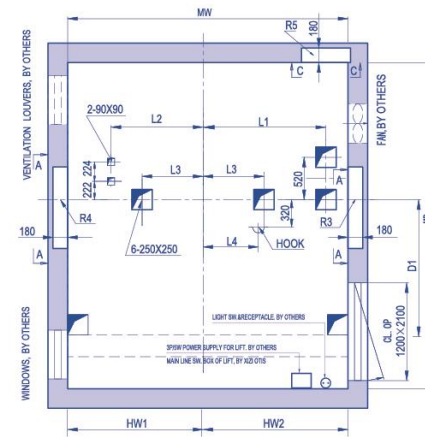
HOISTWAY PLAN



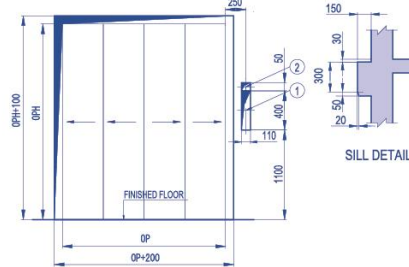
HOISTWAY PLAN

K	KD
K≤6700	300
K>6700	K-6700+300

Load (kg)	Speed (m/s)	Car outside (mm) (A) x (B)	Net opening (mm) (OP) x (OPH)	Net hoistway size (mm) (HW) x (HD)	HW1 (mm)	HW2 (mm)	Machine room size (mm) (MW) x (MD)	S (mm)	K (mm)	Other Size (mm)					Max. Floors	Max. Rise (m)	
										D1	L1	L2	L3	L4	L5		
3000	0.5	2100x3000	2000x2400	3450x3360	1630	1820	3450x4000	1500	4800	1680	1520	1147	760	665	450	8	30



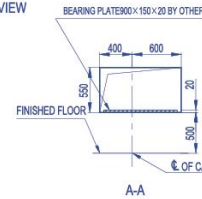
CUTOUTS OF MACHINE ROOM



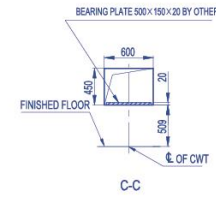
SILL DETAIL

1:HB & HPI
2:FIRE SW ONLY MAIN LANDING

FRONT VIEW



A-A



C-C

Done by the Owner & Builder

- The hoistway should be exclusively used for the lift. It shouldn't contain cables or devices etc., other than for the lift. Hoistway and all parts attached to it should meet the requirement for fire protection.
- The verticality tolerance of the hoistway should be ranged as follows: when rise is 0-30m, 0-±25mm; when rise is 30-60m, 0-±30mm; when rise exceeds 60m, 0-±50mm. And the minimum horizontal dimension of the whole rise is regarded as the hoistway size marked in the layout.
- If accessible space do exist below the car and the counterweight, the base of the pit should be designed for an imposed load of at least 5000N/m², and the counterweight should be equipped with safety gear.
Note: Lift hoistways should preferably not be situated above a space accessible to persons.
- Safety protection barrier with enough strength which height is not less than 1.2 m should be placed in front of all the entrances of hoistway before lift installed.
- Enclose hoistway should be provided with perforated ventilation openings in the upper or lower hoistway, and the ventilation opening should be at least 1% of the available hoistway area.
- The reserved hole for landing door, hall call units etc. should be filled in after the installation.
- We prefer concrete hoistway. If you adopt brick structure, concrete beam of 300mm in height should be made in the hoistway wall where the guide brackets will be fixed. Meanwhile, there should be concrete girder of 300mm in height with the same width as the hoistway's, locating upper and lower the edge of landing door.
- When the distance between consecutive landing doors exceeds 11m, intermediate emergency doors of a minimum width of 300mm and a minimum height of 1800mm should be provided, which should not be open toward inside of the hoistway. And the door should conform to the EN81.1 Standard.
- The pit should be impervious to infiltration of water. If there is a splash, it should be installed in the corner of the pit.
- According to requirement of the technical parameter sheet, the power supply should be placed in the main line box with protection switch and locked off. The fluctuation of the power supply should be less than ±7%. The neutral conductor and the protection conductor should always be separated, and the ground resistance should be no more than 4Ω.
- Hoistway wall and pit should withstand the loads marked in the layout.
- The matters (bearing plate etc.) prepared by users shown in the layout should be pre-embedded.
- The temperature in the machine room should be maintained between 5°C- 40°C. Machine room floor should be approximately level and withstand average load of 7.0kN per square meter.
- User should set up rescue guardhouse. Each lift should be provided with a 3-pair twisted wiring cable or 6-wiring shield cable used as interphone cable (each wiring is not less than 0.75mm²). CAT-5 cable is acceptable if the above two kinds of cable are not available.
- Definition of the door opening way of landing door: the car door runs left means left opening while people face the car door standing inside the car, and vice versa.
- For steel landing floor sill support, the thickness of landing floor decoration should be less than 50mm.
- Liftwell should far away from bedroom & living room. If it's irrealizable, effectual sound insulation and anti-vibration material is required.

	Entrance	RR(m)		PITR(m)		Machine Room Ready(m)				
		RR	R1	R2	R3	R4	R5			
Single	108	132	191	201	102	12				
Two	115	142	201	217	110	10				

FOVF LAYOUT(Duty Load =3000kg)

