XO-508 Escalator

OTIS

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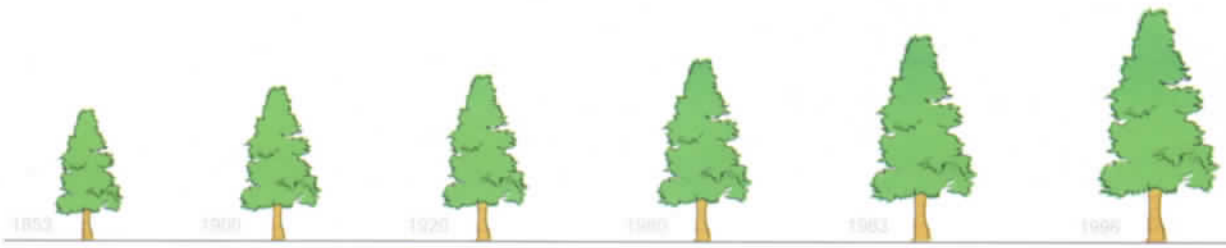


Elisha Graves Otis invents a safety mechanism for a lifting platform.

Escalator introduced at the World Trade Exhibition in Paris.

World's first modern escalator

506

510

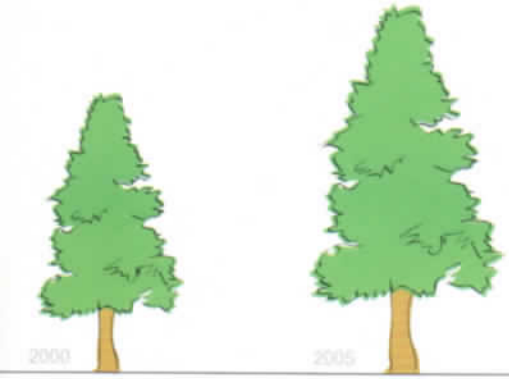
513 NPE

XIZI OTIS

Otis holding company in China with the fastest development, highest cost efficiency, and greatest potential.

Xizi Otis has the largest escalator production center of the Otis family, boasting a production capacity of 5000 units annually, and currently holds the shipping record of 119 units in one week.

The annual elevator & escalator production (new equipment) is more than 66,000.



The XO-508 escalator system combines an energy efficient modular design with new safety features and an elegant look. A maximum rise of 8m (standard) makes the XO-508 adaptable to a wide range of customer applications.

Safety

The escalator's structure, safety devices and even all components are all designed complying with EN115 strictly. In European Union, we could provide escalators with EN115-2008 which presents the highest level requirements on safety for escalators. Also, we could supply XO-508 escalators comply with EN115-2008 for other districts as option.

Emergency Stop

Emergency stop switch locates on the upper and lower leveling and close to the skirt panel of the handrail entrance. In case of emergency, escalator could be stopped when the red emergency stop button is pressed.

Operational Brake

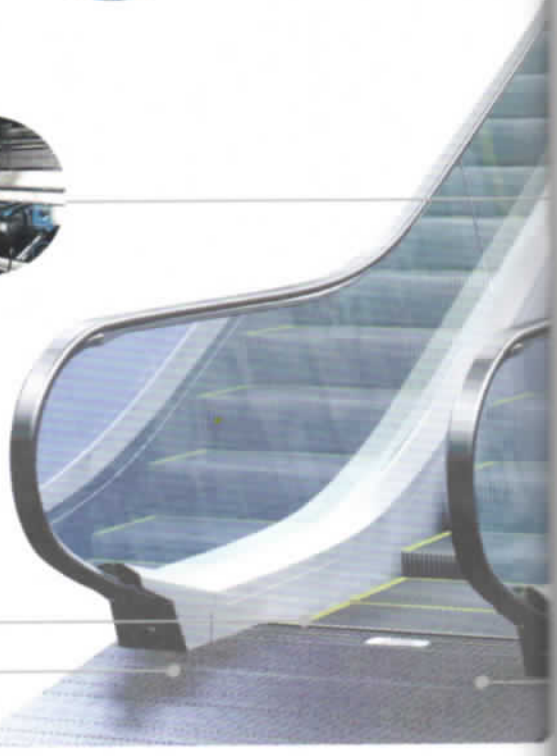
Operational brake switch is integrated with the escalator driving machine and between the motor and gearbox. Escalator safety brake can be activated through electromagnetic braking.

Motor Thermic Protection

The thermal protection switch is located in the motor coil. If the motor temperature exceeds 155°C, the thermal protection sensor will automatically shut down the escalator.

Step Broken Protection Device

The broken step protection device is located at the machine section close to the upper and lower leveling. If the step or its roller breaks, the safety switch will automatically engage. The switch can be reset by manual.



Comb Plate Contact

The comb panel protection switches are located on two sides of each comb panel. If foreign matter lodges the comb and steps, the comb panel will automatically lift upwards initiating the safety switch and stopping escalator from operation.

Floor plate Safety Contact

A safety switch is installed under the floor plate to ensure proper floor plate positioning. If the floor plate is not properly closed, the safety switch will initiate, stopping escalator operation until the floor plate is properly closed.

Standard Safety Devices

Auxiliary Brake (Rise>6m)

The auxiliary brake is located at the upper landing. It can be realized via action of the wedge and brake disc installed at the main shaft drive, and is the standard configuration for rise>6m
Optional for rise below 6m

Safety Grounding

All electrical components on the escalator are safely grounded, and directly connected to the ground via the escalator truss.

Non-reversal Device

A rotation sensor is located on the machine that monitors motor rotation speed and direction. If the motor rotates in reverse, the sensor will send a corresponding signal to the main controller to activate the escalator brake.

Missing Step Monitoring Device

Two metal acquisition sensors are located at the turning position of the upper and lower steps. If the step is missing or installed incorrectly, the sensor will send a signal to the control system, to shut down the escalator.

Handrail Entry Safety Guard

The handrail entry safety guard is in the handrail entry box of the upper and lower landing, and meets the code. If foreign matter lodges in the handrail or rubber head, the safety switch installed behind the rubber head will automat.

Step Chain Control Contact

The safety switch is located on the tensioning carriage of the lower landing. If the step chain breaks or stretches abnormally, the safety switch will initiate stopping the escalator.

• The XO-508 complies with EN115. Any requirement, please firstly confirm with local OTIS.

Optional Safety Devices

Option	Description
Dry Contact	The client can monitor the escalator by collecting running state signals in the microcomputer panel in the escalator controller.
Handrail Speed Monitor Device	When the handrail running speed becomes abnormally (too fast or too slow), the sensor for monitoring handrail speed will send a signal to the control system to stop the escalator.
Loose or Broken Handrail Protection Device	If the handrail stretches or breaks, the safety switch will initiate, stopping the escalator.
Main Drive Chain Control Contact (only for EN115-1995)	Main drive chain control contact, which includes main drive chain tension device, locates in the upper landing. In case of excessive sagging or breaking of main drive chain, the auxiliary will be activated by mechanical safety switch.
Brake Lifting Monitoring Device	The brake operation switch can be used to protect the escalator from being activated without opening the brake.
Skirt Panel Safety Contact	If foreign matter lodges between the skirt panel and steps, the skirt panel switch will initiate stopping the escalator.
Skirt Panel Brush	Located on both sides of the skirt panel, the skirt panel brush protects passenger's clothing from getting snagged.

Quality and Reliability

Otis' unique PDP(Product Development Process) establishes strict checkpoints from planning and development through manufacturing and eventual handover.This process requires a stringent approval system at each stage, ensuring product quality and reliability.

The XO-508 is available with both, a stainless steel step and a one piece die cast aluminum step option. To ensure greater reliability both step options have gone through the rigorous Otis Test Procedure for Escalators (OTPE) 20 million dynamic test cycles, far exceeding the code requirement.

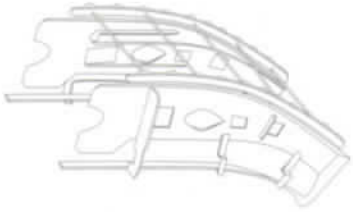
The truss adopts a unique rectangular steel tube structure, introduced to the industry by Otis, which gives the escalator greater stability and reliability

GECB Board

As new generation escalator control system platform, GECS controller with 32 bit microprocessor can be configured for different functional requirement. GECS is used as standard configuration for all the escalators and travolators of Xizi Otis.

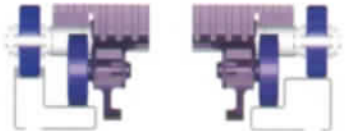
EM-W1

- High efficient worm gear box
- Integrated Non-Reversal Device/ Motor thermal device/ Motor cover control; Optional Control contact for lifted brake/ brake lining wear/ mechanical over speed governor
- Compact design and small size
- Low noise and smooth operation
- Flender gearbox, most mature gearbox in escalator industry
- Indoor/ Outdoor application



Pre-welded upper and lower landing track system guarantee the manufacturing precision. And welding by robots ensures high precision.

CE certified controlling system ensures passenger a stable and comfortable riding experience.



One-side guide track system safeguards in advance the non deviation of steps while in operation.

XO-508 Escalator

Flexibility

A range of options to choose from that can be customized to individual specifications. In addition, with a maximum rise of 8m, the XO-508 escalator can meet a wide range of customer needs, from retail and office to heavy traffic locations such as airports, exhibition centers and railway stations.

Various kinds of step width and incline are optional for customers according to different applications.

Shopping mall

Exhibition centre

Business centre

Airport

Restaurant and hotel

Standard Specification

Indination	30° / 35°
Rise	1.5- 8m
Step Width	600,800,1000mm
Speed	0 .5m/s
Flat Steps	2/3
Arrangements	Single Scissor Side-by-side

Outdoor

Package	Location	Ambient Temperature	Limitations	Humidity
A1	With canopy and side cladding	2°C~40°C	No	<80%
A2	With canopy but no side cladding	2°C~40°C	No	<80%
B	Part or whole directly expose to the open air	2°C~40°C	No	<80%
C	Part or whole directly expose to the open air	-10°C~40°C	No	<80%

Notes:

Package A1: Be close to indoor escalator, with canopy and side cladding, only humidity caused by shoes or umbrellas.

Package A2: Approximate outdoor, with canopy but no side cladding, rains can wave to escalator from two sides.

Package B: Outdoor escalator, directly expose to environment, at ambient temperate above 2°C.

Package C: Outdoor escalator, usually installed in cold regions, directly expose to environment, at ambient temperate above -10°C.

All-weather Surface Treatment

Hot-dipped galvanizing and outdoor surface anticorrosion spray techniques, such as Dacromet, are used to meet a long-term anticorrosion requirements.

Machine Room Heating

Heating device adopts radiator, prevent the lubrication and machine from freezing.

Handrail Heating

Handrail heating adopts cable-type heater, could be used to melt the ice on the handrail.

Comb Heating

Comb heating adopts underlay-type heater, installed under the upper and lower landing, ensure the normal operation of escalators.

Chain Cover

Chain cover will protect the chain drive and keep the rain water away from the chain drive.

Water Levels Switch

Monitor the water level of pit, and activate when the water exceed the preset limitation.

Water-oil Separator

The device, installed in the lower landing, prevent scrap lubricating oil from discharging directly and protect the environment.

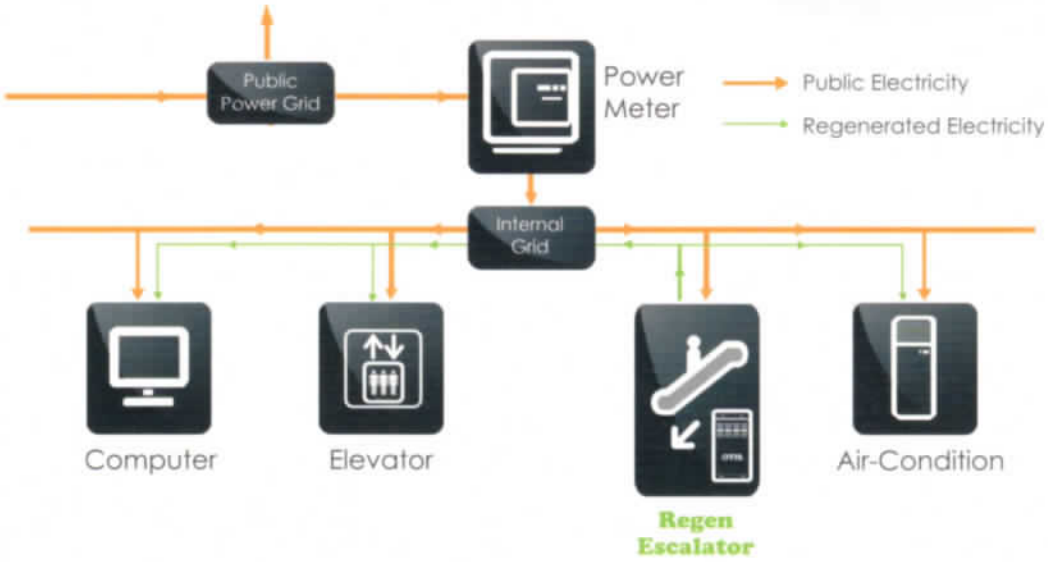
Energy Saving

Regen Technology

XO-508 escalator introduces OTIS energy regenerative technology as option. OTIS Regen technology could convert the reduced system potential energy to electricity energy. Regen technology can also filter the regenerated electricity energy and make it clean enough to be re-used.

Benefits

- Increase the geard Permanent Magnet machine efficiency by 6%
- Save energy about 40% in average
- OTIS regenerative drives save and regenerate energy by following 3 approaches:
  - Energy saving by means of idle speed running escalator when no passenger on the escalator
  - Energy saving by high efficiency of permanent magnetic machine over all passenger load in VF mode
  - Energy regenerating by the down running mode when generating power

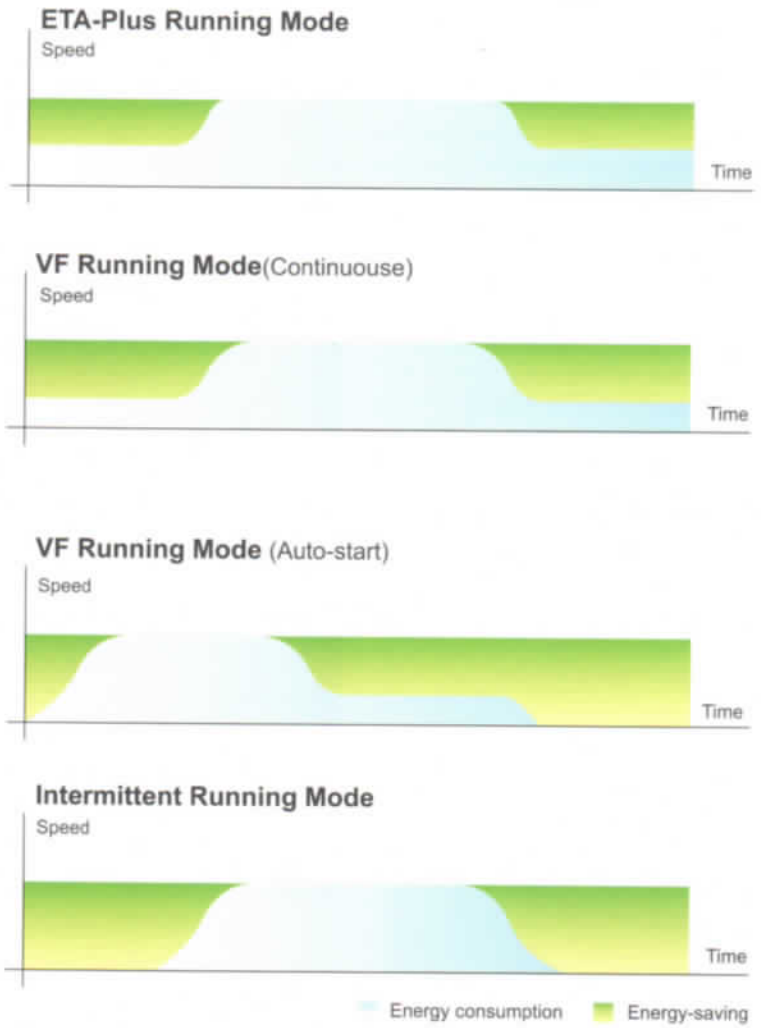


Running Mode

The ETA-Plus Running Mode is standard mode of the operation used under normal circumstances,which is suitable for most of the application.

The VF Running Mode is generally applicable for low traffic flow locations such as hotels and office buildings.
In "Continuouse" Mode, the escalator will slow down while no passenger on it.
In "Auto-start" Mode,once the escalator sense that there is no passenger on the escalator,it will slow down. And moments later, the escalators will stop.
VF mode cuts down on noise levels and can save considerable energy depending on passenger flow.

The Intermittent Running Mode is designed for museum or exhibition center where daily traffic flow is inconsistent with long periods of little or no traffic.



Green Lubrication System

This oil lubrication system is electronically controlled. It is a complete system with consistent pressure, it reliably supplies exact amounts of oil to lubrication points. Each lubrication point can be supplied with a different amount of oil.

- No drip-off oil
- No step and bottom plate contamination
- Less clean-downs on units
- Minimal maintenance efforts
- Maintenance cost reduction
- Extended Lifetime of chains
- Reduced wear of step chain, main drive chain and handrail drive chain

Stylish Design

To satisfy the customization from different users, XO-508 offers many options to choose. With the stylish design, while satisfying customers' requirements; it can reach a perfect harmonious combination with the building environment in vicinity. Thus besides bringing passenger a safe and quiet riding, it renders a graceful aesthetics appreciation as well.

Lighting options include LED handrail lighting, under step lighting, handrail lighting and skirt panel lighting. An attractive traffic direction light can be housed on the inner decking.

LED Handrail Lighting

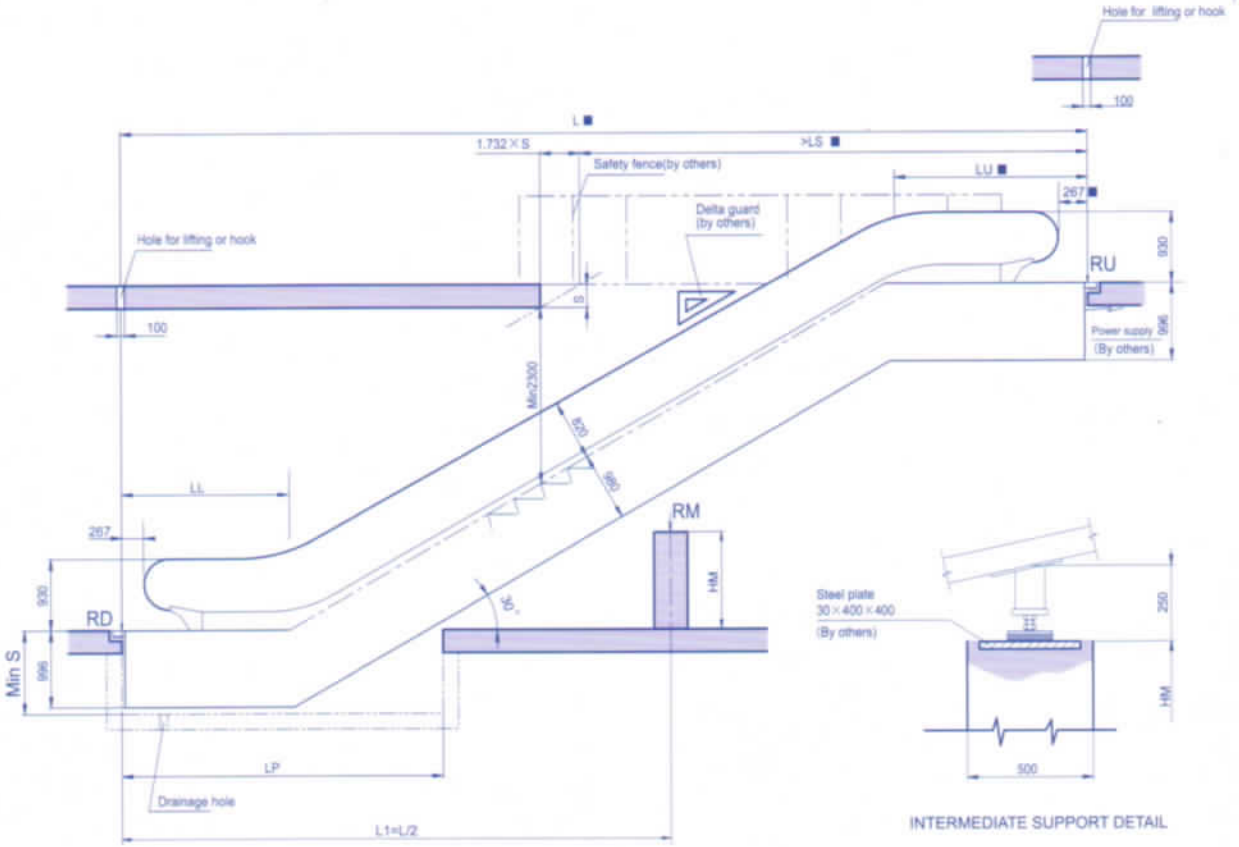
Three colors (blue, green and white) are available at present. And we can provide other designs according customers' requirement, even customers' Logo shown on the glass balustrade.

Items	LED handrail lighting	Common handrail lighting
Visual effect	Excellent	Common
Color purity	High	Common
Lifetime	100,000 hours	8,000 hours
Annual energy consumption (Operating 12 hours/day)	438 kilowatt-hour	2452 kilowatt-hour
Lighting up time	Instantaneous	0.5--2 seconds
Failure rate	Extremely low	High

An elegantly designed handrail with an attractive sheen is available in a choice of long lasting color.

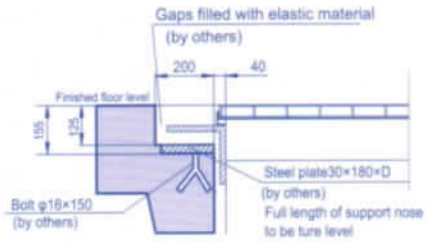
Steps come in black stainless steel and gray or black aluminum. A patterned stainless steel or grooved aluminum floor plate enhance the look and feel of the XO-508.

Enhancing the stylish appearance of the XO-508 is the handrail entry box. Available in powder coated black finish, silver gray painted and stainless steel combine to match the decking so as to blend with the interiors of the building.



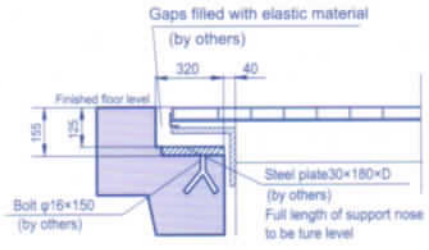
INTERMEDIATE SUPPORT DETAIL

STEEL PLATE STANDARD SUPPORT



U/D SUPPORT DETAIL (Symmetry)

ARRANGEMENT WITH PIEZO CONTACT MAT



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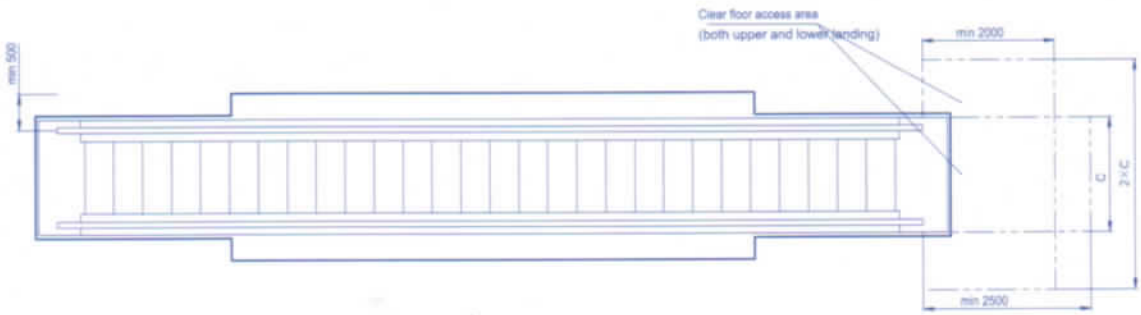
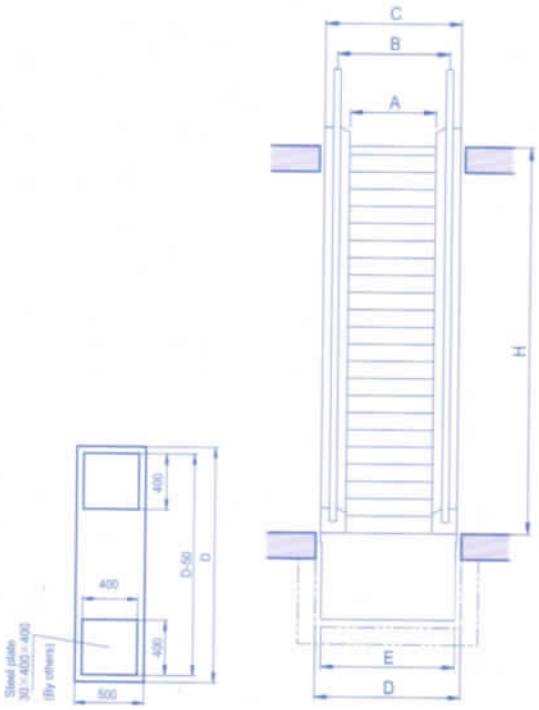


NOTE:DO NOT SCALE THIS DRAWING,UNLESS OTHERWISE STATED.

Done by the owner & builder

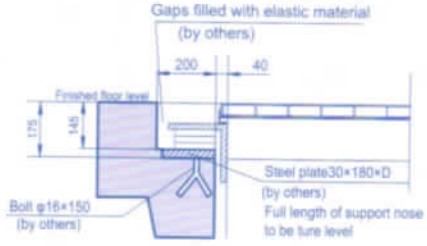
1. The layout only for H≤8m. The permitted tolerance is -15mm~15mm.
2. When H ≤6m, Flat step No. is 2; When H>6m, Flat step No. is 3.
3. For 600mm step, size signed ■ should be added by 500mm.
4. For 1000mm & 800mm step, while both ECB electrical controller and VF(Variational Frequency) Energy Saving Model are configured, size signed ■ should be added by 500mm.
5. For 800mm step outdoor escalator, while GECS electrical controller is configured, the size signed ■ should be added by 300mm.
6. While L > 15.24m, please add a support, the position is in middle of span.
7. Safety protection barrier with enough strength which is not less than 1.2m in hight should be placed around all the holes of escalator before installation.
8. The pit should be impervious to infiltration of water. And the drainage hole should be in the corner of the pit. For outdoor escalator, connect the escalator's drainage with the building's drainage system, by others.
9. According to the requirement of the technical parameter sheet, the power supply (such as soft wire cable) should be placed in the machine room 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 separate, and the ground resistance should be no more than 4 Ω .
   (1)Indoor Escalator
   not less than 10mm2 soft wire cable should be used for the main power supply.
   (2)Outdoor Escalator (for A&B ourdoor package)
   not less than 10mm2 waterproof soft wire cable should be used for the main power supply.
   (3)Outdoor Escalator (for C outdoor package, need two single wire cables for the main power supply and heater power supply)
   not less than 10mm2 waterproof soft wire cables should be used for the main power supply and heater power supply.
10. All loads noted in the drawing is the reaction only for single escalator.
11. When the distance between the centerline of the handrail and any obstacle is less than 0.5m, a vertical obstruction of not less than 0.3m in hight, not presenting any sharp cutting edges should be placed above the balustrade decking.
12. The corresponding parameter of machine should refer to SEB.
13. Any special requirement, please contact XOEC before signing contract.

MEMO: MID support beam by local, formula: (mm)
S<=H≤8 HM=(L1-2649) × tg30°+(980/cos30°+250)
H≤8 HM=(L1-2649) × tg30°+(980/cos30°+250)



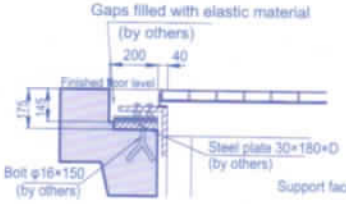
INTERMEDIATE SUPPORT DETAIL

ANTI-VIBRATION SUPPORT

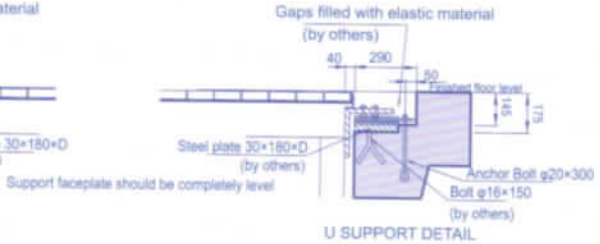


U/D SUPPORT DETAIL (Symmetry)

ANTI VIBRATION SUPPORT, FIXED UPPER LANDING AND SLIDE LOWER LANDING



D SUPPORT DETAIL

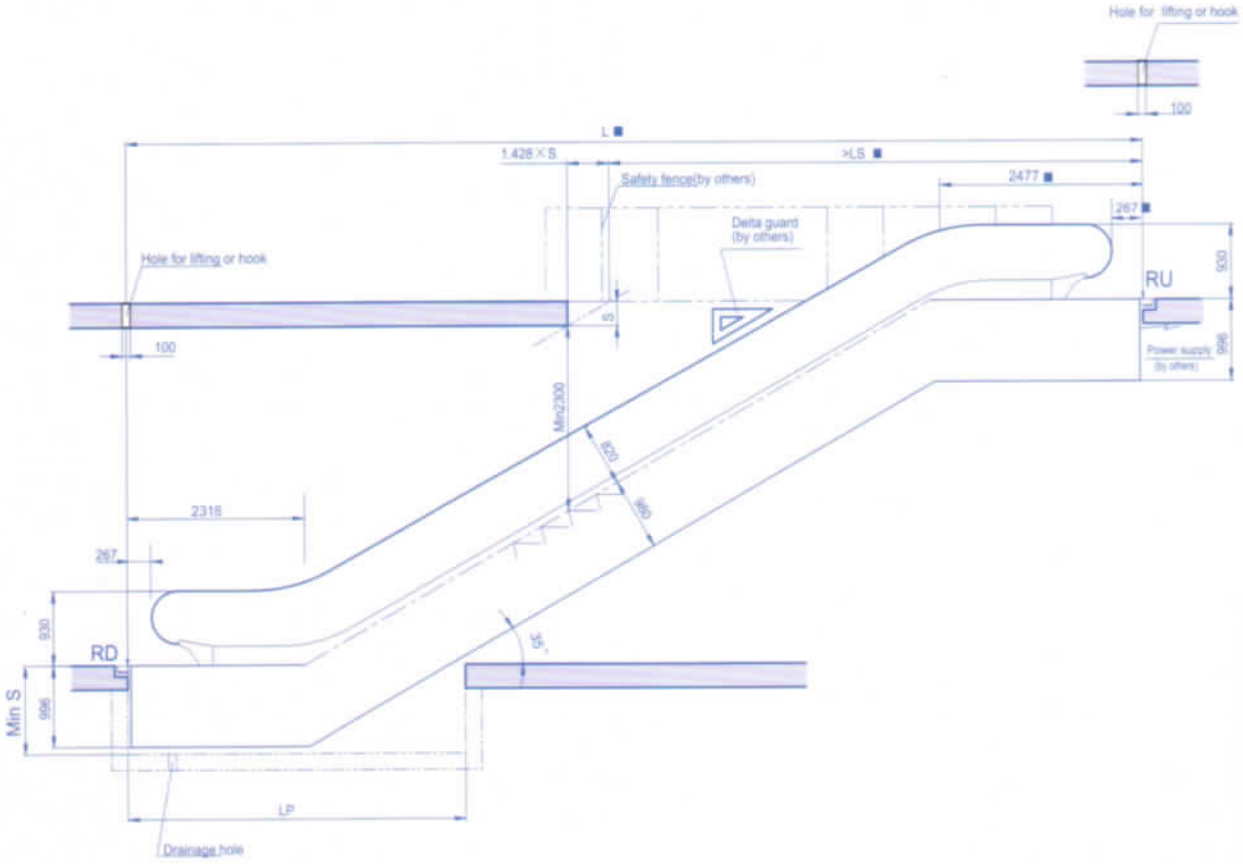


U SUPPORT DETAIL

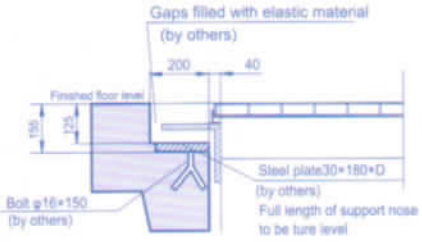
Type	s
INDOOR & OUTDOOR PACKET A	1100
OUTDOOR PACKET B, C, D	1350

Angle	Speed(m/s)	Rise H(mm)	Step width A(mm)	Span L(mm)	Other dimensions(mm)								Support force (KN)		
					min LP	LU	LL	LS	B	C	min D	E	RU	RD	RM
30°	0.5	H≤6000	1000	1.732H+4698+R	4350	2449	2249	6433+R	1208	1550	1630	1500	4.96L+7	4.96L+2.3	---
			800						1005	1347	1430	1297	4.31L+7	4.31L+2.3	---
			600	1.732H+5198+R		2949		6833+R	802	1144	1230	1094	3.66L+7	3.66L+2.3	---
		6000<H≤8000	1000	1.732H+5498+R	4750	2949	2849	6833+R	1208	1550	1630	1500	2.03L+5.7	2.03L+2.3	6.46L+1.4
			800						1005	1347	1430	1297	1.78L+5.2	1.78L+2.2	5.74L+1.3
			600	1.732H+5998+R		3349		7333+R	802	1144	1230	1094	1.53L+4.8	1.53L+2.0	5.02L+1.3

* R: Total length for truss extensions. L in meter.



STEEL PLATE STANDARD SUPPORT



U/D SUPPORT DETAIL (Symmetry)

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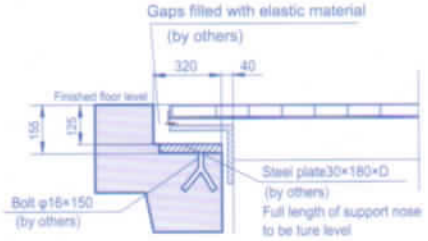

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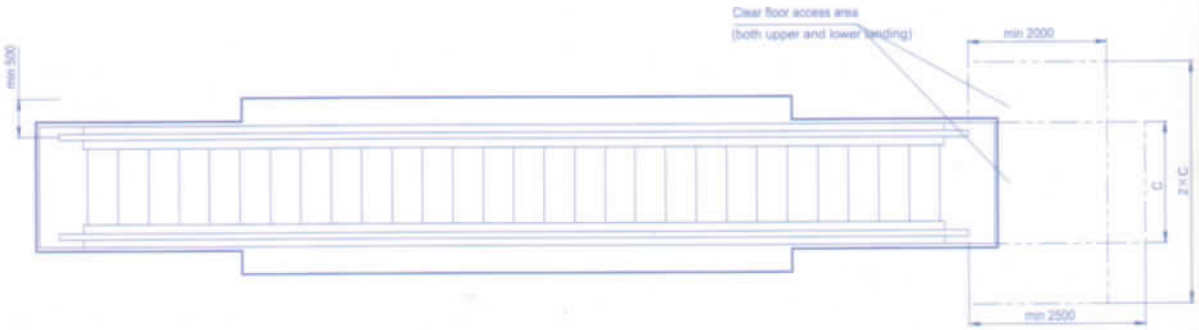

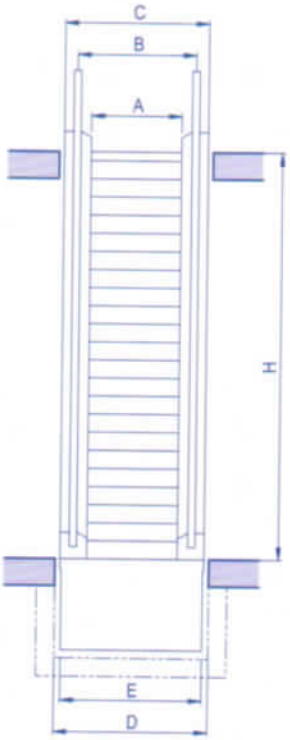

Done by the owner & builder

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2. When H ≤6m, Flat step No. is 2.
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5. For 800mm step outdoor escalator, while GECS electrical controller is configured, the size signed ■ should be added by 300mm.
6. While L > 15.24m, please add a support, the position is in middle of span.
7. Safety protection barrier with enough strength which is not less than 1.2m in hight should be placed around all the holes of escalator before installation.
8. The pit should be impervious to infiltration of water. And the drainage hole should be in the corner of the pit. For outdoor escalator, connect the escalator's drainage with the building's drainage system, by others.
9. According to the requirement of the technical parameter sheet, the power supply (such as soft wire cable) should be placed in the machine room 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 separate, and the ground resistance should be no more than 4 Ω.
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   not less than $10mm^2$ soft wire cable should be used for the main power supply.
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   not less than $10mm^2$ waterproof soft wire cable should be used for the main power supply.
   (3)Outdoor Escalator (for C & D outdoor package, need two single wire cables for the main power supply and heater power supply)
   not less than $10mm^2$ waterproof soft wire cables should be used for the main power supply by others.
   For C outdoor package, not less than $10mm^2$ waterproof wire cable should be used for the heater power supply by others
   For D outdoor package, not less than $16mm^2$ waterproof wire cable should be used for the heater power supply by others
10. All loads noted in the drawing is the reaction only for single escalator.
11. When the distance between the centerline of the handrail and any obstacle is less than 0.5m, a vertical obstruction of not less than 0.3m in hight, not presenting any sharp cutting edges should be placed above the balustrade decking.
12. The corresponding parameter of machine should refer to SEB.
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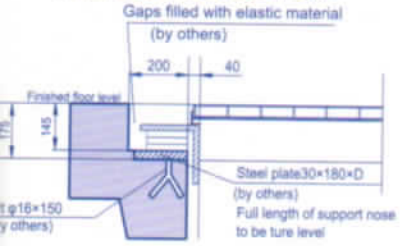
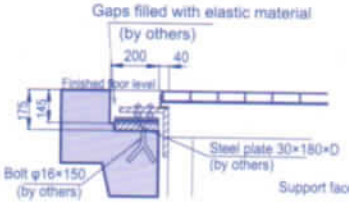
MEMO: MID support beam by local, formula: (mm)
HM=(L1-2249) * tg30°-(980/cos30°+250)

ANTI-VIBRATION SUPPORT

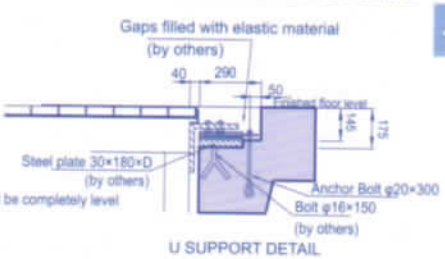


U/D SUPPORT DETAIL (Symmetry)

ANTI VIBRATION SUPPORT, FIXED UPPER LANDING AND SLIDE LOWER LANDING



D SUPPORT DETAIL



Support faceplate should be completely level

U SUPPORT DETAIL

16

Type	s
DOOR & OUTDOOR PACKET A	1100
OUTDOOR PACKET B, C, D	1350

Angle	Speed(m/s)	Rise H(mm)	Step width A(mm)	Span L(mm)	Other dimensions(mm)						Support force (KN)	
					min LP	LS	B	C	min D	E	RU	RD
35°	0.5	H≤6000	1000	1.428H+4793+R	4200	5781+R	1208	1550	1630	1500	5.11L+7	5.11L+2.3
			800				1005	1347	1430	1297	4.41L+7	4.41L+2.3
			600	1.428H+5293+R		6261+R	802	1144	1230	1094	3.76L+7	3.76L+2.3

* R: Total length for truss extensions. L in meter.

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