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

1854 1868 1898 1906 1913
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 locate on the upper and lower leveling and close to the skin 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

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Contact</td>
<td>The client can monitor the escalator by collecting running state signals in the microcomputer panel in the escalator controller.</td>
</tr>
<tr>
<td>Handrail Speed Monitor Device</td>
<td>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.</td>
</tr>
<tr>
<td>Loose or Broken Handrail Protection Device</td>
<td>If the handrail stretches or breaks, the safety switch will initiate, stopping the escalator.</td>
</tr>
<tr>
<td>Main Drive Chain Control Contact (only for EN115-1995)</td>
<td>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.</td>
</tr>
<tr>
<td>Brake Lifting Monitoring Device</td>
<td>The brake operation switch can be used to protect the escalator from being activated without opening the brake.</td>
</tr>
<tr>
<td>Skirt Panel Safety Contact</td>
<td>If foreign matter lodges between the skirt panel and steps, the skirt panel switch will initiate stopping the escalator.</td>
</tr>
<tr>
<td>Skirt Panel Brush</td>
<td>Located on both sides of the skirt panel, the skirt panel brush protects passenger’s clothing from getting snagged.</td>
</tr>
</tbody>
</table>
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 XQ-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.

As new generation escalator control system platform, GECB controller with 32 bit microprocessor can be configured for different functional requirement. GECB 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
- Fiender gearbox, most mature gearbox in escalator industry
- Indoor/ Outdoor application

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

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

<table>
<thead>
<tr>
<th>Standard Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indination</td>
</tr>
<tr>
<td>Rise</td>
</tr>
<tr>
<td>Step Width</td>
</tr>
<tr>
<td>Speed</td>
</tr>
<tr>
<td>Flat Steps</td>
</tr>
<tr>
<td>Arrangements</td>
</tr>
</tbody>
</table>
Outdoor

<table>
<thead>
<tr>
<th>Package</th>
<th>Location</th>
<th>Ambient Temperature</th>
<th>Limitations</th>
<th>Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>With canopy and side cladding</td>
<td>2°C-40°C</td>
<td>No</td>
<td>&lt;80%</td>
</tr>
<tr>
<td>A2</td>
<td>With canopy but no side cladding</td>
<td>2°C-40°C</td>
<td>No</td>
<td>&lt;80%</td>
</tr>
<tr>
<td>B</td>
<td>Part or whole directly expose to the open air</td>
<td>2°C-40°C</td>
<td>No</td>
<td>&lt;80%</td>
</tr>
<tr>
<td>C</td>
<td>Part or whole directly expose to the open air</td>
<td>-10°C-40°C</td>
<td>No</td>
<td>&lt;80%</td>
</tr>
</tbody>
</table>

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 geared Permanent Magnet machine efficiency by 6%
- Save energy about 40% on 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 "Continuous" 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.

<table>
<thead>
<tr>
<th>Items</th>
<th>LED handrail lighting</th>
<th>Common handrail lighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual effect</td>
<td>Excellent</td>
<td>Common</td>
</tr>
<tr>
<td>Color purity</td>
<td>High</td>
<td>Common</td>
</tr>
<tr>
<td>Lifetime</td>
<td>100,000 hours</td>
<td>8,000 hours</td>
</tr>
<tr>
<td>Annual energy consumption</td>
<td>438 kilowatt-hour</td>
<td>2452 kilowatt-hour</td>
</tr>
<tr>
<td>(Operating, 12 hours/day)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lighting up time</td>
<td>Instantaneous</td>
<td>0.5–2 seconds</td>
</tr>
<tr>
<td>Failure rate</td>
<td>Extremely low</td>
<td>High</td>
</tr>
</tbody>
</table>
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.
XO-508 Escalator

STEEL PLATE STANDARD SUPPORT

ARRANGEMENT WITH PIEZO CONTACT MAT

NOTE: DO NOT SCALE THIS DRAWING UNLESS OTHERWISE STATED.
Done by the owner & builder

1. The layout only for V/4.6m. The permitted tolerance is ±15mm—15mm.
2. When H=6.1m, Flat step No. is 2. When H=6.9m, Flat step No. is 3.
3. For 600mm step, size marked [ ] should be added by 500mm.
4. For 1000mm & 800mm step, while both ECO electrical controller and V/F (Variational Frequency) Energy Saving Motor are configured, size marked [ ] should be added by 500mm.
5. For 800mm step outdoor escalator, while ECO electrical controller is configured, the size marked [ ] should be added by 300mm.
6. While L=15.24m, please add a support, the position is in middle of span.
7. Safety protection planer with enough strength where is not less than 1.2m in height 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 protective conductor should always be separated, and the ground resistance should be no more than 4Ω.
10. (1) Indoor Escalator
    not less than 10mm2 soft wire cable should be used for the main power supply.
    (2) Outdoor Escalator (for MRL300 package)
    not less than 10mm2 waterproof soft wire cable should be used for the main power supply.
    (3) Outdoor Escalator (for 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.
11. All support noted in the drawing is the reaction only for single escalator.
12. When the distance between the centerline of the landing and any obstacle is less than 0.5m, a vertical obstruction of not less than 0.3m in height, not preventing any sharp cutting edges should be placed above the balustrade decking.
13. Any special requirement, please contact XOED before signing contract.

MEMO: MIO support beam by local supplier (mm)
       H=800 H=800 X 50 X 50 X 50 X 50 X 50 = 290
       H=1000 H=1000 X 50 X 50 X 150 X 150 X 150 = 520

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<table>
<thead>
<tr>
<th>Type</th>
<th>s</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDOOR &amp; OUTDOOR</td>
<td>1100</td>
</tr>
<tr>
<td>PACKET A</td>
<td></td>
</tr>
<tr>
<td>OUTDOOR</td>
<td>1350</td>
</tr>
<tr>
<td>PACKET B, C, D</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle</th>
<th>Speed(m/s)</th>
<th>Ribs (mm)</th>
<th>Step width (mm)</th>
<th>Span (mm)</th>
<th>Other dimensions (mm)</th>
<th>Support force (kN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30°</td>
<td>0.5</td>
<td>1200</td>
<td>2349</td>
<td>1240</td>
<td>1240</td>
<td>1240</td>
</tr>
<tr>
<td></td>
<td></td>
<td>800</td>
<td>2249</td>
<td>1150</td>
<td>1150</td>
<td>1150</td>
</tr>
<tr>
<td></td>
<td></td>
<td>600 X 300</td>
<td>2149</td>
<td>1050</td>
<td>1050</td>
<td>1050</td>
</tr>
</tbody>
</table>

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

XO-508-30° Layout
XO-508 Escalator

STEEL PLATE STANDARD SUPPORT
Gaps filled with elastic material
(by others)
Steel plate 30 x 180 x 0.3
(by others)
Full length of support rose to be true level

U/D SUPPORT DETAIL (Symmetry)

ARRANGEMENT WITH PIEZO CONTACT MAT
Gaps filled with elastic material
(by others)
Steel plate 30 x 180 x 0.3
(by others)
Full length of support rose to be true level

U/D SUPPORT DETAIL (Symmetry)
Done by the owner & builder

1. The layout only for H=6m. The permitted tolerance is ±5mm - 15mm.
2. When H 6m, Flat step No. is 2.
3. For 800mm step, size signed " should be added by 500mm.
4. For 1000mm & 800mm step, while both ECI electrical controller and VFI (Variational Frequency) Energy Saving Model are configured, size signed " should be added by 500mm.
5. For 800mm step outdoor escalator, while GECI electrical controller is configured, the size signed " should be added by 330mm.
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 height 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 not be more than 4Ω.
10. (1) Outdoor Escalator: not less than 10mm² soft wire cable should be used for the main power supply.
11. (2) Outdoor Escalator (for A&B outdoor package): not less than 10mm² waterproof soft wire cable should be used for the main power supply.
12. (3) Outdoor Escalator (for C&B outdoor package): need two single wire cables for the main power supply and heater power supply.
13. not less than 10mm² waterproof soft wire cables should be used for the main power supply by others.
14. For C outdoor package, not less than 10mm² waterproof wire cable should be used for the heater power supply by others.
15. For D outdoor package, not less than 10mm² waterproof wire cable should be used for the heater power supply by others.
16. All bracing noted in the drawing is the reaction only for single escalator.
17. When the distance between the centreline of the handrail and any obstacle is less than 0.5m, a vertical obstruction of not less than 0.3m in height, not presenting any sharp cutting edges should be placed above the balustrade docking.
18. The corresponding parameter of machine should refer to SEB.
19. Any special requirement, please contact XQEC before signing contract.

MEMO: MID support beam by local formula (mm)
HM8=1.32x108 + 1250 (wheather=300x300x10)

<table>
<thead>
<tr>
<th>Type</th>
<th>s</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOOR &amp; OUTDOOR</td>
<td>1100</td>
</tr>
<tr>
<td>PACKET A</td>
<td></td>
</tr>
<tr>
<td>OUTDOOR</td>
<td>1350</td>
</tr>
<tr>
<td>PACKET B, C, D</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle</th>
<th>Speed(m/min)</th>
<th>Rise H(mm)</th>
<th>Step width A(mm)</th>
<th>Span L(mm)</th>
<th>Other dimensions</th>
<th>Support force (kN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>35°</td>
<td>0.5</td>
<td>H/6000</td>
<td>1000</td>
<td>4200</td>
<td>1.428H+7835+H</td>
<td>5.11±.7 1.51±.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1005</td>
<td>5781+H</td>
<td>1005</td>
<td>4.41±.7 1.41±.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>800</td>
<td>6281+H</td>
<td>802</td>
<td>3.78±.7 1.38±.3</td>
</tr>
</tbody>
</table>

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

XO-508-35° Layout