

for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management.

Through a wide range of businesses, we are helping contribute to the

### MITSUBISHI ELECTRIC CORPORATION HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

Visit our website at: http://www.mitsubishi

▲ Safety Tips: Be sure to read the instruction manual fully before using this product.

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# Our new escalator Series Z offers more than just a way to carry passengers



Aesthetic elegance and flexibility are concepts expected more than ever. Our new escalator Series Z comes in a simple, yet sophisticated design, offering the utmost in flexibility to blend with any building decor. Our years of experience in safety-oriented production, based on a strong belief in the importance of safety, have led to a variety of safety features, as well as a wide range of value-added functions that help you customize your own escalators, creating uniqueness in and incomparable value for your building properties.

The Mitsubishi Electric Series Z Escalator fulfills and indeed exceeds customer expectations, through the collaboration and utmost performance of visual, functional and safety elements.

Feel the elegance, high quality and comfort of the Series Z in your building.



Models for various scenes 3-4

STANDARD

VISUAL

Features that blend with architecture

Brings elegance and sophistication to your building

STANDARD

ENHANCED

Safety-oriented and 7-8 customer-friendly designs

Offers enhanced safety and comfort

OPTIONAL

ADDED FUNCTIONALIT Versatile functions to select from

nables customization for uniqueness

OPTIONAL

Automatic Operation / Variable-Speed Operation

Standard specifications

Cautions for outdoor use / 1:

Escalators in the graphics are based on the Japan Code, with optional Fluoropolymer Coating on Skirt Guard.

Remote monitoring

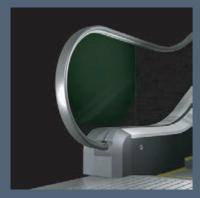
ESCALATOR SERIES

2

11

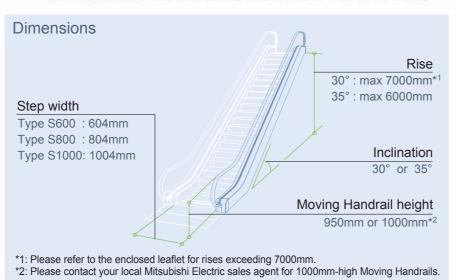
# odels for va<mark>rious scenes</mark>

GLASS PANEL ZS

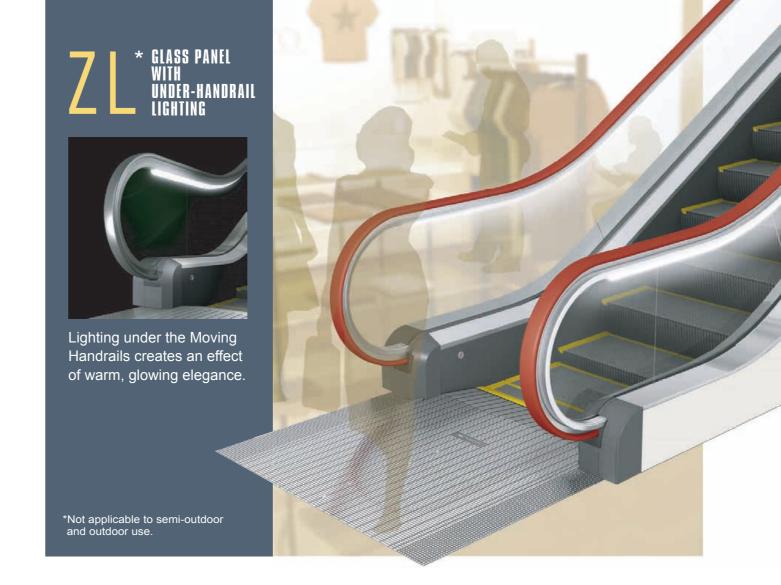


The simplest of designs blends with any building decor, adding a quiet, sophisticated air to your architecture.





Escalators in the graphics are based on the Japan Code, with optional Fluoropolymer Coating on Skirt Guard.









Stainless steel panel that exudes strength and durability.







## eatures that blend with architecture

Our new Escalator Series Z serves passengers naturally and peacefully.



#### **Rounded Handrail Inlet Cap**

Our rounded Handrail Inlet Cap streamlines with the Moving Handrails, lending a silent elegance to the boarding and landing areas.



#### **Screw-free Inner Deck**

Removing screws from the Inner Deck side face not only presents an even softer, more simple look, but also removes the danger of passengers snagging their clothes.



#### **Clearly-contrasted Floor Plate**

For improved visibility and smoother passenger flows, extended areas from the Moving Handrails feature different pattern with a clear contrast



#### **Space Saving**

Shortening the Truss by 205mm\* requires less escalator installation space and increases freedom in building layout.

\* Compared with the Mitsubishi Electric Series J Escalator (for EN115), except for VVVF control.

#### **Colors available for Moving Handrails (rubber)**













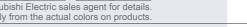


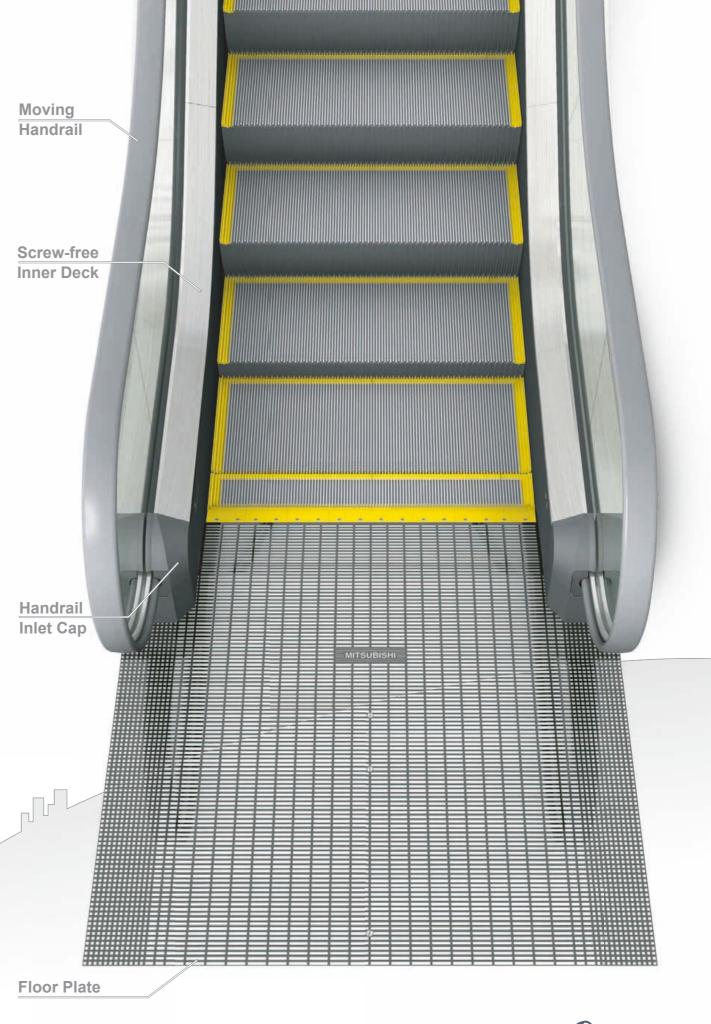












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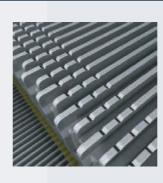


# Safety-oriented and customer-friendly designs

ENHANGED SAFETY

You'll truly feel the difference.

Safety and ride comfort are
the ultimate goals for Mitsubishi.



Step

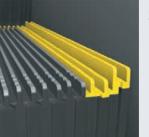
**Stepped Demarcation Line** 

**Demarcation Line** 

Comb

### Step with Anti-Slip Grooves

Grooves along the corner edge of each Step improve anti-slip performance while improving the visibility of each Step for further passenger safety, especially in downward operation.



#### **Stepped Demarcation Line**

Demarcation along both sides of a Step extrudes from the Step surface, thereby preventing passengers from getting too close or coming into direct contact with the Skirt Guard.



#### **Comb with Smaller Angle**

Mitsubishi recognizes how critical the Comb teeth angle is: even a small gap between the Comb and Step can result in a serious accident. Putting our years of experience and research to full use, we have made the angle the smallest it can be (10° to the horizontal) to keep passengers and items such as baggage from stumbling or getting caught between the Comb and Step.



#### **Brighter Demarcation Color**

Attention to the smallest details is the chief theme of Mitsubishi's safety criteria, and the color of the Demarcation Line is no exception. The yellow Step and Comb Demarcation Line comes as standard and its brightness has been improved to provide better visibility of the Step, Comb and Floor Plate than in our other models.



Escalators in the graphics are based on the Japan Code, with optional Fluoropolymer Coating on Skirt Guard.

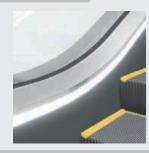
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ADDED **FUNCTIONALITY** 

### ersatile functions to select from

A wide range of optional features help you customize your own escalators, contributing to increased property value.

#### Lighting\*1



#### Skirt Guard Lighting<sup>2</sup>

Lighting can be provided along the entire length of the Skirt Guard, lighting up the Step Demarcation for both passenger safety and visual effect.



#### **Comb Light**

Lighting provided at Comb level increases illumination, which further improves passenger safety around the Step as well as visual effect.

#### **Directional Indicators at boarding and landing areas**\*1\*3



#### **Handrail Inlet Cap LED Indicator**

LED lamps form an arrow to indicate the escalator's traveling direction for boarding, or a No-Entry sign at the landing areas.

#### Warning System\*3



#### Outer Deck Sensor<sup>4</sup>

When a sensor on the Outer Deck detects a passenger leaning outside the Moving Handrail, a buzzer and voice sound to alert the passenger to the potential danger of bumping against an adjacent escalator or wall.



#### **Inlet Sensor**

This sensor keeps any passengers or foreign objects away from the Handrail Inlet, a warning buzzer and voice sounding when a person or object comes close to the Inlet.

#### **More Options**



#### Floor Numbers on **Floor Plates**

Floor Numbers can be engraved on each Floor Plate to help passengers quickly identify which floor they are on. Anti-slip patterns on the surface also provide increased safety.



#### Fluoropolymer Coating on Skirt Guard\*5

The Skirt Guard can be coated with a friction-reducing resin to reduce the chance of passengers stumbling when their shoes come in contact with the Skirt Guard.



- \*1: For available combinations of optional features, please refer to the Specifications on the enclosed leaflet \*2: Not applicable to semi-outdoor and outdoor use.
- \*3: Not applicable to outdoor use \*4: Not applicable to model ZP.
- \*5: Standard feature in countries where EN115 or ANSI applies



# utomatic Operation / Variable-Speed Operation

#### **Inverter-controlled Automatic and Variable-Speed Operations**

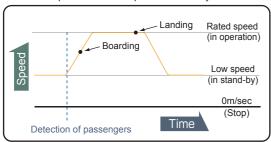
#### **VVVF Control (Variable Voltage, Variable Frequency)**

Our newly-developed, innovative escalator inverter enables a unique way of controlling the escalator speed in Automatic and Variable-Speed Operations. In Variable-Speed Operation, the escalator speed can be selected according to the frequency of use, number of passengers, and more. Please contact your local Mitsubishi Electric sales agent for VVVF control.

#### Post-Free Automatic Operation

Sensor Posts are no longer needed, as the sensors embedded in the Handrail Inlet Cap detect passengers and control Automatic Operation. The escalator operates at a low speed in stand-by, and gradually increases speed to the rated speed after detecting a passenger approaching the boarding area.

Escalators operate at a low speed in stand-by.





- \*1: Handrail Inlet Cap LED Indicator:
- Remains the same regardless of the operating speed during Automatic Operation.
- A separate option, and not included in Post-Free Automatic Operation.

#### **Automatic Operation with Posts**



Sensor Posts located on both sides of the landing and boarding areas incorporate traditional Beam Sensors, with or without\*2 Directional Indicators allowing or denying passenger entry.

Control by AC1, instead of inverter control, can be adopted in Automatic Operation with Posts, whereby the escalator remains stationary on stand-by.

\*2: For escalators stationary in stand-by, Directional Indicators are required in countries where EN115 applies.

#### Variable-Speed Operation

Two more speeds\*3, not exceeding the rated speed, can be added to your escalator to make it possible to operate at three different speeds. The speeds are selected using a key switch, set at Low or Middle for the added speeds and High for the rated speed, thereby allowing you to select the best speed for each set of traffic conditions.



<sup>\*3:</sup> For an escalator with a rated speed of 0.6m/sec, for example, additional speeds of 0.5m/sec and 0.3m/sec can be set. For more information, contact your local Mitsubishi Electric sales agent.

# **S**tandard specifications

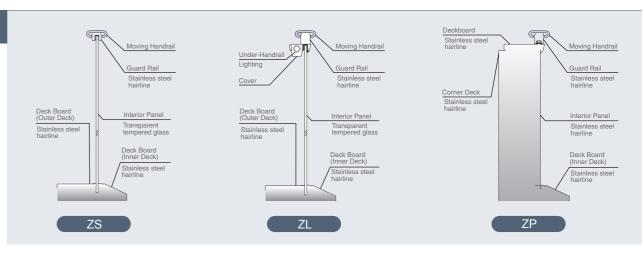
#### Basic specifications

Please refer to the enclosed leaflet for EN115 code or Japan code.

| Item                              | S600   | S800*1 | S1000 |
|-----------------------------------|--|--------|-------|
| Models                            | ZS / ZL*1 / ZP                                     |        |       |
| Codes                             | EN115 code / Japan code                            |        |       |
| Power supply                      | AC 3-phase, 50 or 60Hz                             |        |       |
| Lighting power supply             | AC single-phase, 50 or 60Hz                        |        |       |
| Rated speed                       | 0.5m/sec   |        |       |
| Control system                    | Standard: AC1 Option: VVVF *2                      |        |       |
| Transport capacity*3 (persons/hr) | 4500   | 6750   | 9000  |
| Inclination                       | 30° / 35°  |        |       |
| Environment                       | Standard: Indoor Option: Semi-outdoor / Outdoor *4 |        |       |
| Automatic oiler                   | Standard: None Option: Available                   |        |       |
| Min. rise (mm)                    | 30°: 2203 35°: 2527                                |        |       |
| Max. rise (mm)                    | 30°: 7000 *5 35°: 6000                             |        |       |
| Step width (mm)                   | 604  | 804    | 1004  |
| Escalator width (mm)              | 1150   | 1350   | 1550  |
| Between Moving Handrails (mm)     | 840  | 1040   | 1240  |
| Between Skirt Guards (mm)         | 610  | 810    | 1010  |
| Truss width (mm)                  | 1100   | 1300   | 1500  |
| Floor opening (mm)                | 1250   | 1450   | 1650  |

- \*1: Not applicable to semi-outdoor and outdoor use.
- \*2: Please contact your local Mitsubishi Electric sales agent for VVVF control.
- \*3: Transport capacity varies depending on actual traffic conditions, so some dimensions and the motor capacity may have to be changed. Please contact your local Mitsubishi Electric sales agent for details if the number of passengers during peak time may equal or exceed the following numbers:
  - S600: 525 persons per 10 minutes
  - S800: 785 persons or more per 10 minutes
  - S1000: 1050 persons per 10 minutes
- \*4: Please contact your local Mitsubishi Electric sales agent for semi-outdoor and outdoor use. For outdoor use, please refer to "Cautions for outdoor use" on page 13.
- \*5: Please refer to the enclosed leaflet for rises exceeding 7000mm.

#### Sections of Balustrade





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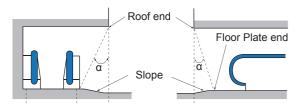
# autions for outdoor use / Remote monitoring

#### Cautions for outdoor use

A roof must be provided over outdoor escalators. In rainy weather without a roof, passengers are in great danger of having their umbrellas blown away by the wind or falling down on the slippery Steps. In hot weather, the Moving Handrails and Deck Boards can easily heat up in the sun to a surface temperature exceeding 50°C, causing the unnecessary chance that passengers could get burnt on the overheated elements. In addition, when not covered by a roof, the life and performance of outdoor escalators seriously deteriorate, leading to shorter product life and higher cost for maintenance

#### 1. How to define outdoor escalators

Outdoor escalators are defined as escalators exposed to environmental factors such as wind, rain, snow or direct sunlight, and they are classified into three categories: outdoor, semi-outdoor and indoor



| Indoor       | α>70°      |
|--------------|------------|
| Semi-outdoor | 70°≥α≥ 30° |
| Outdoor      | α<30°      |

Angle  $\alpha$  in the illustration varies depending on the direction in which the escalator is viewed. Check how the angle varies, take the smallest angle, apply it to the table above and determine the escalator type.

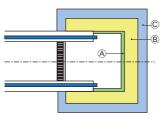
#### 2. Environmental requirements for outdoor escalators

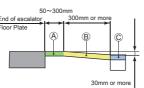
| Permissible ambient temperature | Minimum                 | -10°C (special measures are required in cold districts where the ambient temperature can drop below –10°C)   |  |
|---------------------------------|-------------------------|--|--|
|                                 | For escalator operation | 0°C ∼ less than 35°C   |  |
| Wind pressure                   |                         | Escalators must not be exposed to direct wind pressure outside the following ranges: 490N/m² or less on the windward side, 245N/m² or less on the leeward side |  |
| Others                          |                         | Measures are required for escalators installed within a 2-kilometer radius from a shore, to protect them from direct exposure to salty wind.                   |  |

#### 3. Architectural requirements for outdoor escalators

- (1) Intermediate support beams must be provided.
- (2) The level of the escalator Floor Plate must be higher than the floor finish of the building to minimize the chance of rain or cleaning water running into the escalator truss. Area (B) in the illustrations to the right must be at a slope of at least 10 degrees, and the surface of (A) must be horizontal to minimize the risk of passengers stumbling.
- (3) Drainage must be provided in the entire area marked © and covered with grating to keep away
- (4) The escalator pit must be waterproofed entirely when a whole truss is installed inside the pit. In addition, the upper pit floor must be sloped towards the lower floor, to let any water in the pit drain
- (5) If there is a chance of the lower machine room getting flooded, drainage equipment, such as a drain pump, must be provided to discharge any water.
- (6) Water in the lower pit will contain lubrication oil, so a grease trap should be provided to separate the lubrication oil from the water. The capacity of the grease trap is determined according to the escalator size and maximum amount of expected rainfall
- (7) Water may drip from the exterior panels of the escalator. Take waterproofing measures for equipment or items under the exterior panels if water is likely to cause problems or accidents.

Detail floor plan for outdoor escalators





Please contact your local Mitsubishi Electric sales agent for outdoor use.

#### Remote monitoring

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Mitsubishi Electric's MelEye is a sophisticated Web-based elevator and escalator monitoring and control\*1 system that allows authorized personnel to respond rapidly to changing traffic patterns and other operational conditions. It improves passenger safety and reliability of your building management.



\*2: Contact your local Mitsubishi Electric sales agent for a brochure or further information

### MPORTANT INFORMATION

#### Work not included in escalator contract

The following items are not included in Mitsubishi Electric's escalator installation work, and the responsibility for carrying them out lies with the building owners or general contractors:

- Building construction and alterations associated with escalator installation
- Provision of intermediate support beams (if required)
- Provision of truss-supporting beams, including mounting plates
- Floor finishing after escalator installation
- Provision of fire-proofing and fire-prevention measures for escalator exterior materials and around escalator installation
- Provision of fire-prevention shutters (if required by local codes or regulations)
- Wiring for escalator's main drive and lighting, from around the middle portion of the truss to the escalator's Control Unit in the upper truss
- · Other wiring and electric conduits
- Provision of convenience outlets in the upper and lower truss
- Outer panel sheathing of truss
- Provision of inspection doors (lockable doors if installed in an environment where anyone could access and open the doors)
- All items for which procurement by building owners is instructed (with wording such as "by owner")

#### Notes on building work

- Tolerance in distance between supporting beams: +30mm to 0 or 13/8" to 0"
- Flooring around the escalator must not be finished until the escalator is installed
- Flooring within 300mm or 12" of the escalator Floor Plate must not be finished until the Floor Plates are in place
- Sprinkler pipes or wiring for soffit lights, or any other electric conduits for items other than escalator, must not be laid inside the truss
- No walls or other parts of the building structure must be supported on the truss
- Allowable maximum weight of outer sheathing: 20kg/m² or 0.028 psi

#### **Ordering information**

Please submit the following information when ordering or requesting escalator quotations:

- Name and address of the building
- Escalator model (ZS or ZL or ZP)
- Escalator type (S1000 or S800 or S600)
- Rise (floor height) and number of floors
- Number of escalators
- Voltage and frequency of the power source for escalator's main drive and lighting
- Optional items required
- Whether or not fire-prevention shutters are required

the International Standards Organization (ISO) based on a review of

The company has also acquired environmental management system



standard ISO 14001 certification.









Mitsubishi Fleyator Asia Co. Ltd. has acquired ISO 9001 certification by Mitsubishi Electric Inazawa Works has acquired ISO 9001

certification by the International Standards Organization (ISO) based on a review of quality management. The company has also acquired environmental management

system standard ISO 14001 certification