



**mitsubishi
ELECTRIC**

Changes for the Better

ESCALATORS

SERIES Z

For USA

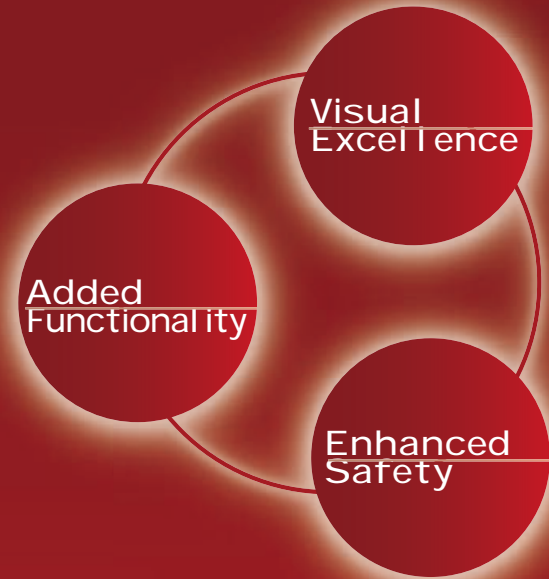
for a greener tomorrow



*Quality
inMotion*



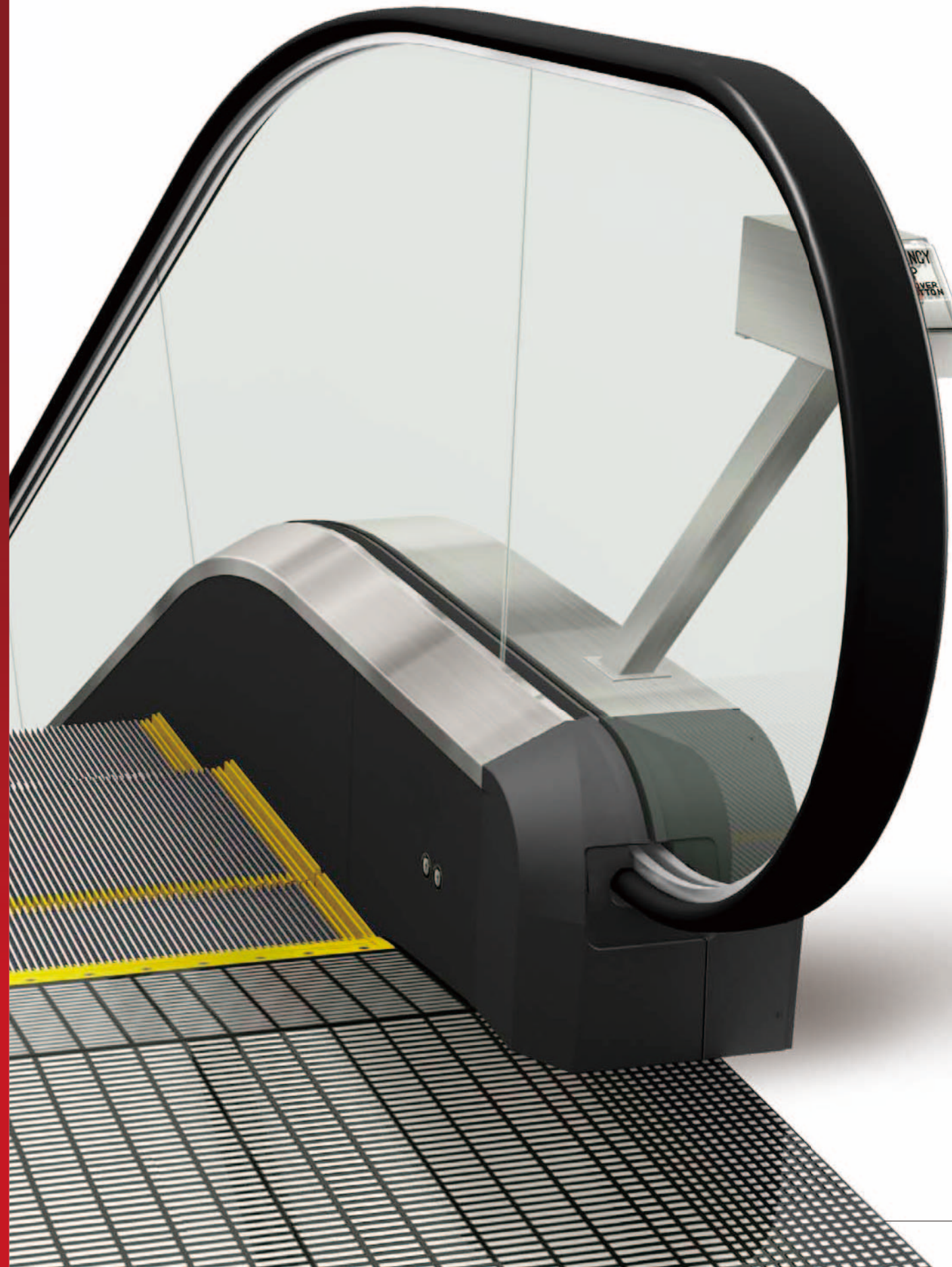
Our new escalator **Series Z** offers more than just a way to **carry passengers**



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 Excellence

Features that blend with architecture

5-6

Brings elegance and sophistication to your building

STANDARD

Enhanced Safety

Safety-oriented and customer-friendly designs

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Offers enhanced safety and comfort

OPTIONAL

Added Functionality

Versatile functions to select from

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Enables customization for uniqueness

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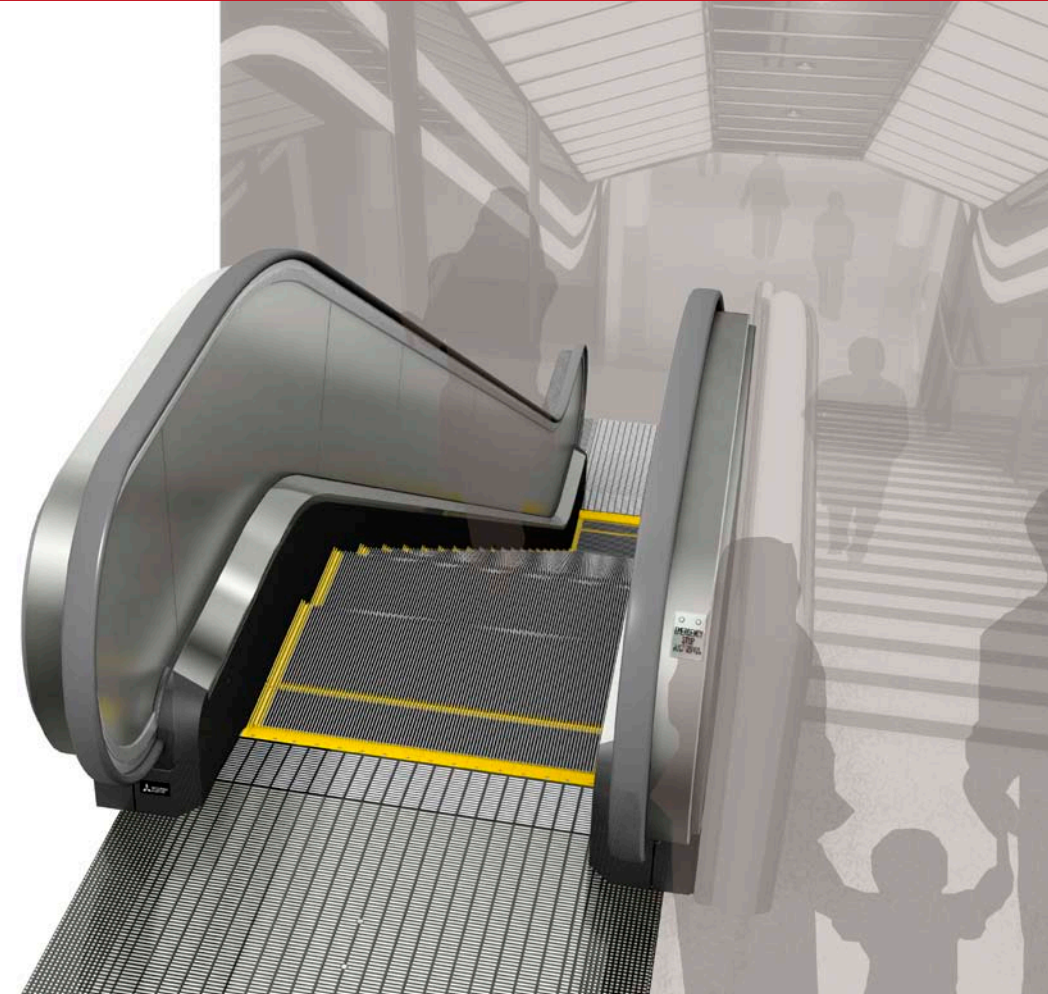
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Models for various scenes

GLASS PANEL ZS



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



STAINLESS PANEL ZP



Stainless steel panel that exudes strength and durability.

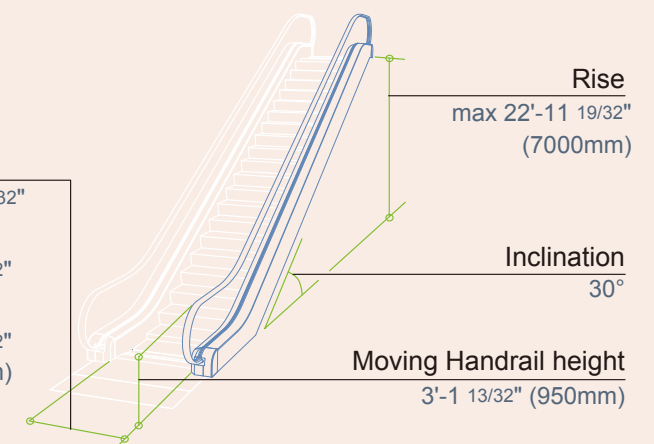
Dimensions

Step width

Type S24" : 1'-11 25/32"
(S600 : 604mm)

Type S32" : 2'-7 21/32"
(S800 : 804mm)

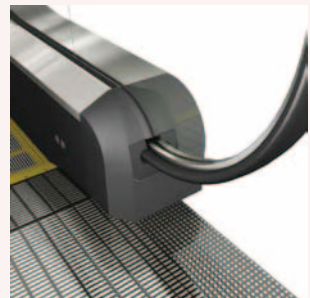
Type S40" : 3'-3 17/32"
(S1000 : 1004mm)



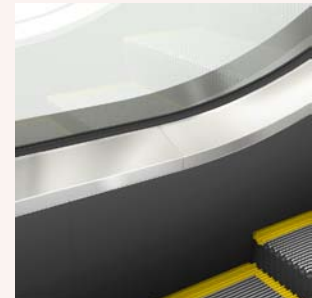
Visual Excellence

Features that blend with architecture

Our new Escalator Series Z serves passengers naturally and peacefully.



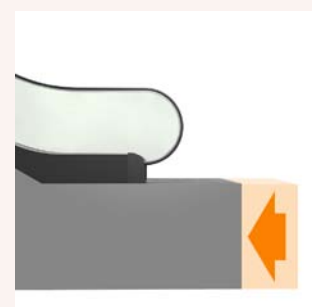
Rounded Handrail Inlet Cap
Our rounded Handrail Inlet Cap streamlines with the Moving Handrails, lending a silent elegance to the boarding and landing areas.



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 1 25/32" (45mm)* requires less escalator installation space and increases freedom in building layout.
* Compared with the Mitsubishi Electric Series J Escalator (for ASME A17.1).

Colors available for Moving Handrails (rubber)

Only "No. 0001 Black" is standard. Other colors are optional.



Handrail colors for outdoor use are different from these shown on this page. Please contact your Mitsubishi Electric representative for details. Handrail colors shown in photos may differ slightly from the actual colors on products.

Moving Handrail

Screw-free Inner Deck

Handrail Inlet Cap

Floor Plate

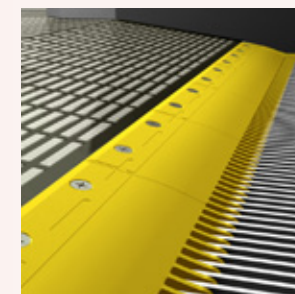




Safety-oriented and customer-friendly designs

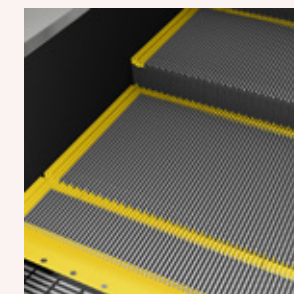
Enhanced Safety

You'll truly feel the difference.
Safety and ride comfort are the ultimate goals for Mitsubishi.



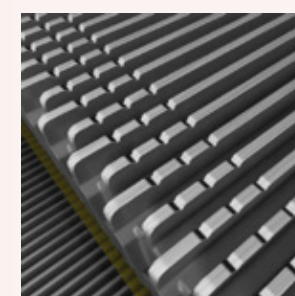
Comb with Smaller Angle

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.



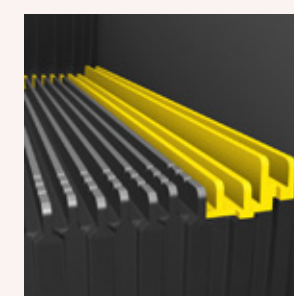
Brighter Demarcation Color

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.



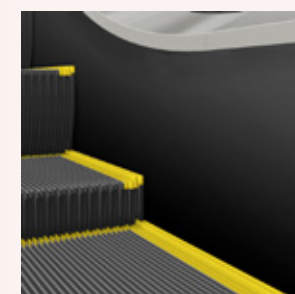
Step with Anti-Slip Grooves

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.



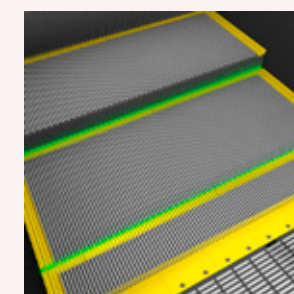
Tiered Demarcation Line

Demarcations along both sides of a step are raised from the step surface, thereby preventing passengers from getting too close to the skirt guards and preventing clothes from getting caught between a step and skirt guard.



Fluoropolymer Coating on Skirt Guard

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.



Step Demarcation Lighting

Lighting provided under the Steps around the landing areas. This improves passenger safety by giving passengers clear indication of borders of green light emitted from the gap between Steps, Step and Skirt Guard.





Added
Functionality

Versatile functions to select from

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



Handrail Inlet Cap LED Indicator^{*1}

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



Inlet Sensor^{*1}

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.



Floor Name

Floor names can be engraved on each floor plate to help passengers quickly identify which floor they are on.



Inlet Sensor

Handrail Inlet Cap LED Indicator

Floor Name

^{*1}: Not applicable to outdoor use.

Basic specifications

Item	S24" (S600)	S32" (S800)*1	S40" (S1000)
Models	ZS / ZP		
Codes	ASME A17.1		
Power supply	AC 3-phase, 60Hz		
Lighting power supply	AC single-phase, 60Hz		
Rated speed	100fpm (0.5m/sec)		
Control system	Standard: AC1		
Theoretical transport capacity *2 (persons/hr)	4500	6750	9000
Inclination	30°		
Environment	Standard: Indoor Option: Semi-outdoor / Outdoor *3		
Automatic oiler	Standard: None Option: Available		
Min. rise	Indoor / Semi-outdoor: 7'-2 23/32" (2203mm) Outdoor: 8'-3 1/32" (2515mm)		
Max. rise	22'-11 19/32" (7000mm)		
Step width	1'-11 25/32" (604mm)	2'-7 21/32" (804mm)	3'-3 17/32" (1004mm)
Escalator width	3'-9 9/32" (1150mm)	4'-5 5/32" (1350mm)	5'-1 1/32" (1550mm)
Between Moving Handrails	2'-9 1/16" (840mm)	3'-4 15/16" (1040mm)	4'-0 13/16" (1240mm)
Between Skirt Guards	2'-0 1/32" (610mm)	2'-7 7/8" (810mm)	3'-3 3/4" (1010mm)
Truss width	3'-7 5/16" (1100mm)	4'-3 3/16" (1300mm)	4'-11 1/16" (1500mm)
Floor opening	4'-1 7/32" (1250mm)	4'-9 3/32" (1450mm)	5'-4 31/32" (1650mm)

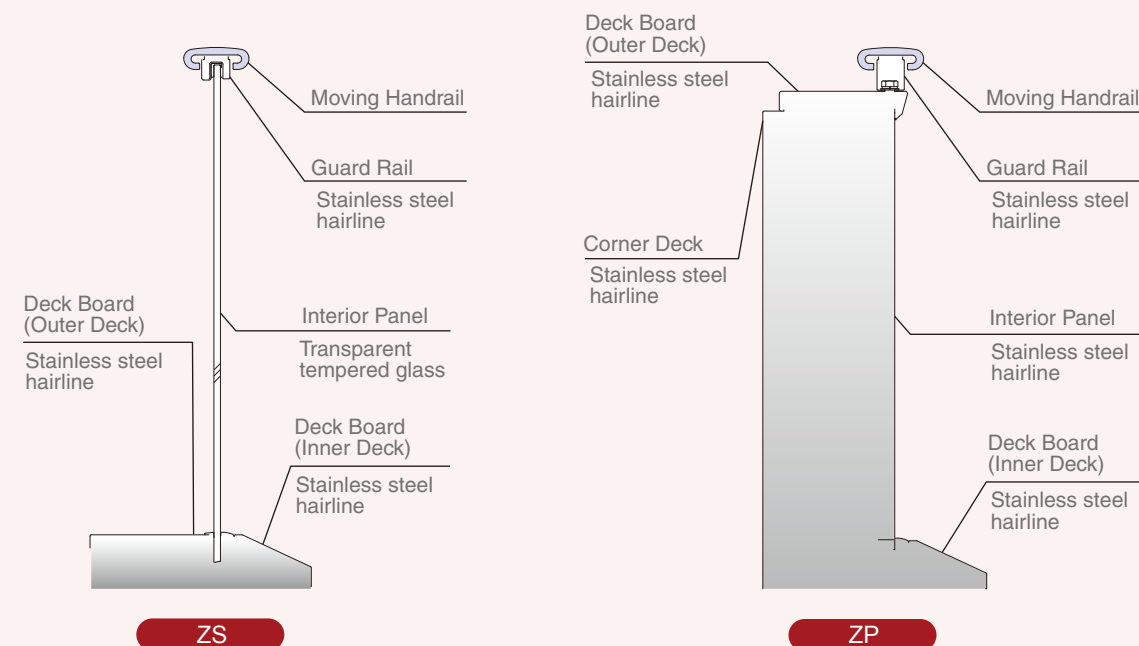
*1: Not applicable to semi-outdoor and outdoor use.

*2: Transport capacity varies depending on actual traffic conditions, so some dimensions and the motor capacity may have to be changed. Please consult your Mitsubishi Electric representative for details if the number of passengers during peak time may equal or exceed the following numbers:

S24" (S600): 525 persons per 10 minutes
 S32" (S800): 785 persons or more per 10 minutes
 S40" (S1000): 1050 persons per 10 minutes

*3: Please contact your Mitsubishi Electric representative for semi-outdoor and outdoor use. For outdoor use, please refer to "Cautions for outdoor use" on page 17.

Sections of Balustrade



●...Standard ○...Optional N/A Not applicable

Division	Specification	Specification		
		ZS	ZP	
Control system	AC1	●		
Safety features	Stop-Buzzer Key Switch	●		
	Anti-Slip Floor Plate	●		
	Step with Anti-Slip Grooves	●		
	Demarcation Line	●		
	Tiered Demarcation Line	●		
	Step Demarcation Lighting	●		
	Two Horizontal Steps	●		
	Warning System on Moving Handrail Inlet (Inlet Sensor)	○*1		
	Directional Indicator on Handrail Inlet Cap (Handrail Inlet Cap LED Indicator)	○*1 *2		
	Finish and decorative components	Balustrade (See page 11 for sections.)	Transparent tempered glass panel	●
Stainless steel hairline panel			N/A	●
Skirt Guard		Fluoropolymer Coating	●	
Deck Board		Stainless steel hairline	●	
		Aluminum alloy Step Tread	●	
Step		Aluminum alloy Cleat Riser	●	
		Yellow Demarcation Line	●	
		Decorative Panel (Embossed stainless steel)	●	
Floor Plate		Floor Name	○	
		Comb Yellow molded resin	●	
		Comb Aluminum alloy	○	
		Extension of Floor Plate	○	
		Connection of adjacent Floor Plates	○	
Moving Handrail (See page 5 for colors.)	Rubber	No. 0001 (Black)	●*1	
		No. 0502 to 0508	○	
Handrail Inlet Cap	Resin	●		
Others	MelEye	○		
	Automatic oiler	○		

*1: Not applicable to outdoor use.

*2: Installed only on the right-side Handrail Inlet Cap (when viewed from the boarding and landing areas).



1 Emergency Stop Button (E-STOP)

A button to immediately stop the escalator in emergency situations.

2 Step Up Thrust Device (CRS) (Step Motion Safety Device)

A safety device to stop the escalator when a Step has been dislocated on its riser side due to an object caught between the Steps, or between the Skirt Guard and the Step, or if an abnormality has been observed in the Step motion.

3 Overload Detection Device

A safety device that stops the escalator if overload has been detected by abnormal current or temperature of the drive motor.

4 Speed Governor/Reversal Stop Device (GOV)

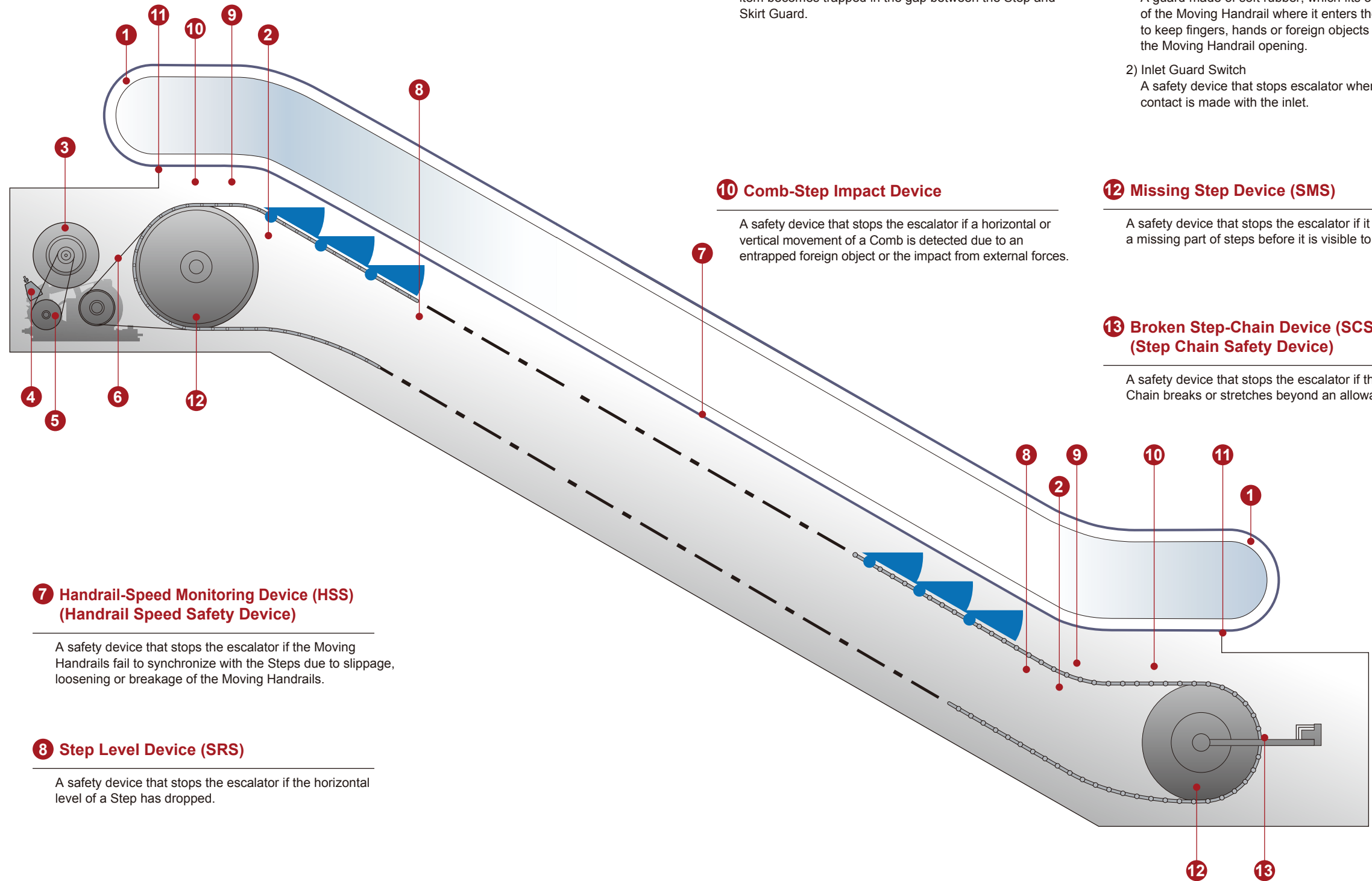
A safety device that stops the escalator if the speed significantly decreases or increases to 120% of the rated speed.

5 Electromagnetic Brake

A safety device that stops the escalator in the case of power failure, or if any safety device or the Emergency Stop Button has been activated.

6 Broken Drive-Chain Device (DCS) (Drive-Chain Safety Device)

A safety device that stops the escalator if the Drive Chain breaks or stretches beyond an allowable limit.



9 Skirt Obstruction Device (SSS) (Skirt Guard Safety Device)

A safety device to stop the escalator if a shoe or other item becomes trapped in the gap between the Step and Skirt Guard.

10 Comb-Step Impact Device

A safety device that stops the escalator if a horizontal or vertical movement of a Comb is detected due to an entrapped foreign object or the impact from external forces.

11 Handrail Entry Device (HGS) (Handrail Guard Safety Device)

- 1) Inlet Guard
A guard made of soft rubber, which fits over the outside of the Moving Handrail where it enters the Balustrade to keep fingers, hands or foreign objects away from the Moving Handrail opening.
- 2) Inlet Guard Switch
A safety device that stops escalator when physical contact is made with the inlet.

12 Missing Step Device (SMS)

A safety device that stops the escalator if it detects a missing part of steps before it is visible to passengers.

13 Broken Step-Chain Device (SCS) (Step Chain Safety Device)

A safety device that stops the escalator if the Step Chain breaks or stretches beyond an allowable limit.

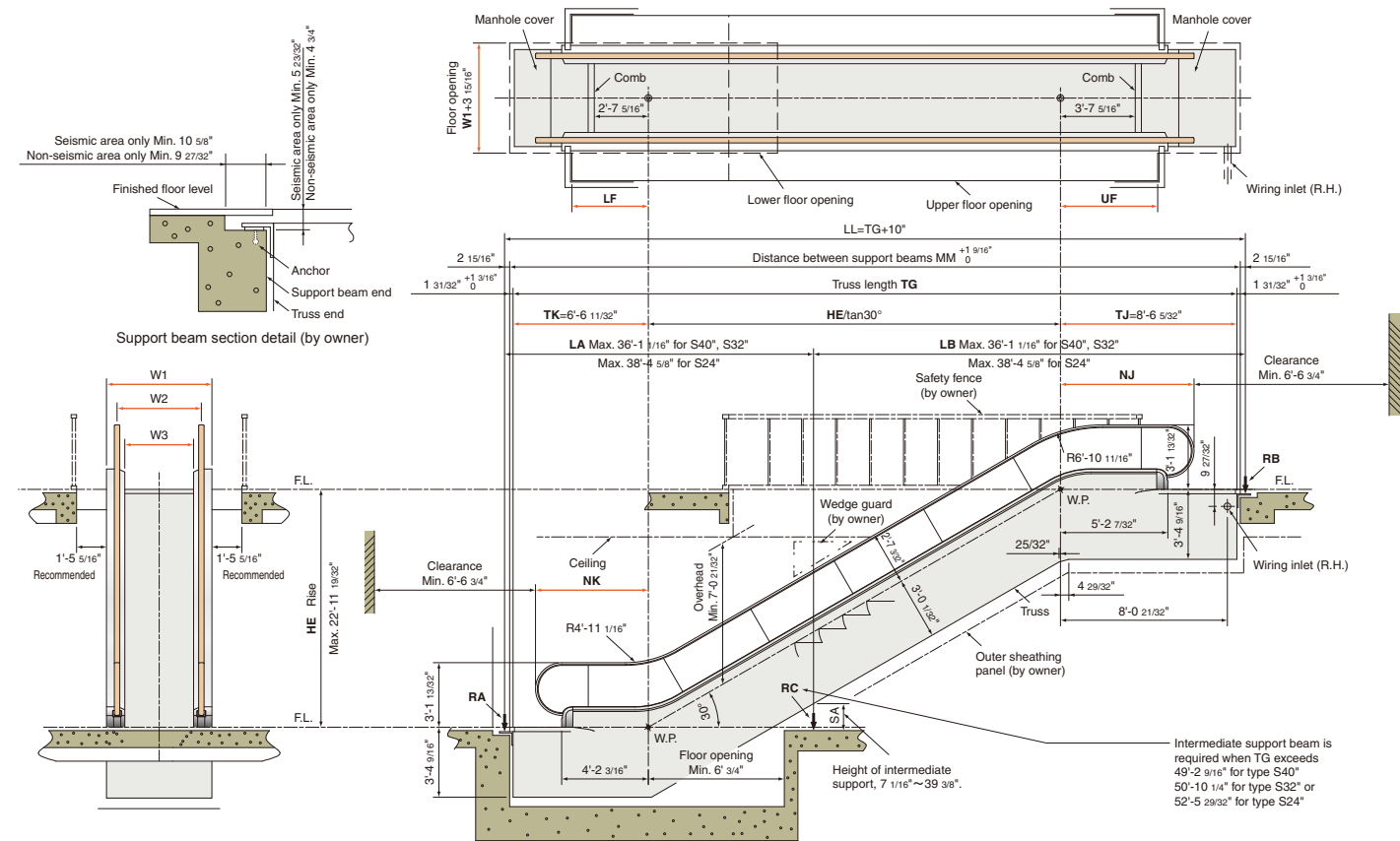
7 Handrail-Speed Monitoring Device (HSS) (Handrail Speed Safety Device)

A safety device that stops the escalator if the Moving Handrails fail to synchronize with the Steps due to slippage, loosening or breakage of the Moving Handrails.

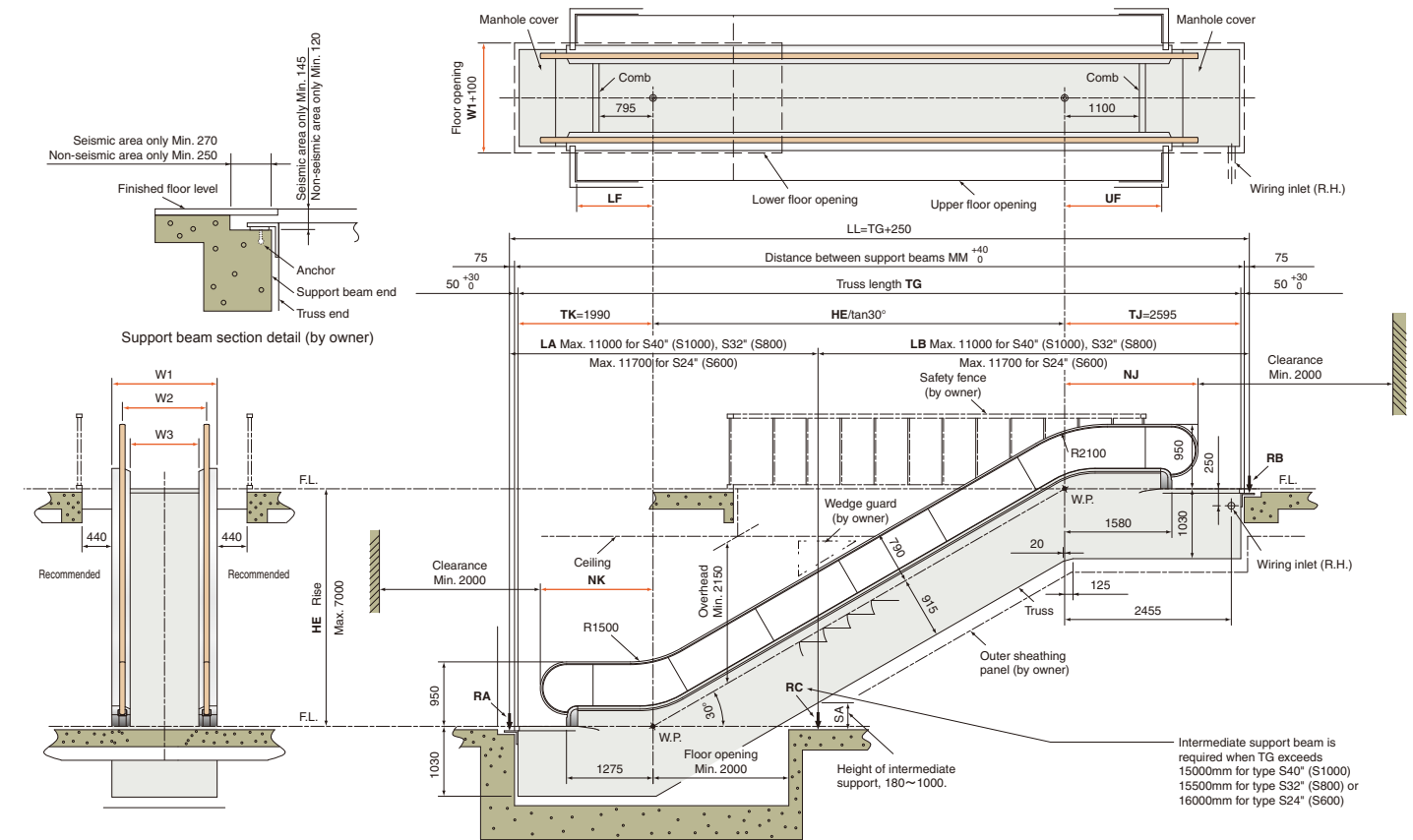
8 Step Level Device (SRS)

A safety device that stops the escalator if the horizontal level of a Step has dropped.

ASME 30° (Unit: ft)



ASME 30° (Unit: mm)



Standard dimensions

Type	S24" (S600)	S32" (S800)	S40" (S1000)
W1 (Escalator Width)	3'-9 9/32"	4'-5 5/32"	5'-1 1/32"
W2 (Between Moving Handrails)	2'-9 1/16"	3'-4 15/16"	4'-0 13/16"
W3 (Between Skirt Guards)	2'-0 1/32"	2'-7 7/8"	3'-3 3/4"

Horizontal Steps	LF	UF	NK	NJ
2 Steps	3'-8 9/32"	4'-8 5/16"	5'-5 11/32"	6'-5 3/8"

Reaction force factors

Type	TG	α (lb/in)	
		Indoor	Outdoor
S40" (S1000)	$TG \leq 44'-3 1/2"$	24.7	24.7
	$44'-3 1/2" < TG \leq 49'-2 9/16"$	25.1	
	$49'-2 9/16" < TG$	24.7	
S32" (S800)	$TG \leq 45'-5 9/32"$	22.2	—
	$45'-5 9/32" < TG \leq 50'-10 1/4"$	22.6	
	$50'-10 1/4" < TG$	22.2	
S24" (S600)	$TG \leq 46'-7 1/16"$	19.7	19.7
	$46'-7 1/16" < TG \leq 52'-5 29/32"$	20.0	
	$52'-5 29/32" < TG$	19.7	

Reaction force on beam (lb)

	Without intermediate support beam	With intermediate support beam
RA	$\alpha \cdot LL + 950 \cdot (LL - TK + 3' - 8 \frac{29}{32}) + 2700 \cdot (TJ - 4' - 8 \frac{1}{2})$ LL	$\alpha \cdot LA + 950 \cdot (TK - 3' - 8 \frac{29}{32})$ LA
RB	$\alpha \cdot LL + 950 \cdot (TK - 3' - 8 \frac{29}{32}) + 2700 \cdot (LL - TJ + 4' - 8 \frac{1}{2})$ LL	$\alpha \cdot LB + 2700 \cdot (TJ - 4' - 8 \frac{1}{2})$ LB
RC	—	$\alpha \cdot LL + \frac{950 \cdot (TK - 3' - 8 \frac{29}{32})}{LA} + \frac{2700 \cdot (TJ - 4' - 8 \frac{1}{2})}{LB}$

Standard dimensions

Type	S24" (S600)	S32" (S800)	S40" (S1000)
W1 (Escalator Width)	1150	1350	1550
W2 (Between Moving Handrails)	840	1040	1240
W3 (Between Skirt Guards)	610	810	1010

Horizontal Steps	LF	UF	NK	NJ
2 Steps	1125	1430	1660	1965

Reaction force factors

Type	TG	α (N/mm)	
		Indoor	Outdoor
S40" (S1000)	$TG \leq 13500$	4.33	4.33
	$13500 < TG \leq 15000$	4.40	
	$15000 < TG$	4.33	
S32" (S800)	$TG \leq 13850$	3.89	—
	$13850 < TG \leq 15500$	3.96	
	$15500 < TG$	3.89	
S24" (S600)	$TG \leq 14200$	3.45	3.45
	$14200 < TG \leq 16000$	3.51	
	$16000 < TG$	3.45	

Reaction force on beam (N)

	Without intermediate support beam	With intermediate support beam
RA	$\alpha \cdot LL + 4220 \cdot (LL - TK + 1141) + 12000 \cdot (TJ - 1435)$ LL	$\alpha \cdot LA + 4220 \cdot (TK - 1141)$ LA
RB	$\alpha \cdot LL + 4220 \cdot (TK - 1141) + 12000 \cdot (LL - TJ + 1435)$ LL	$\alpha \cdot LB + 12000 \cdot (TJ - 1435)$ LB
RC	—	$\alpha \cdot LL + \frac{4220 \cdot (TK - 1141)}{LA} + \frac{12000 \cdot (TJ - 1435)}{LB}$

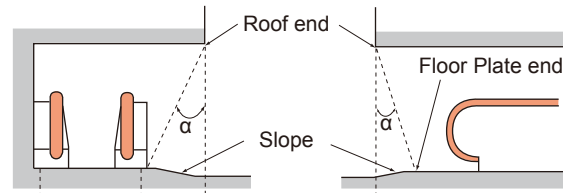
Cautions for outdoor use / Remote monitoring

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 122F (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

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



Indoor	$\alpha > 70^\circ$
Semi-outdoor	$70^\circ \geq \alpha \geq 30^\circ$
Outdoor	$\alpha < 30^\circ$

Angle α 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.

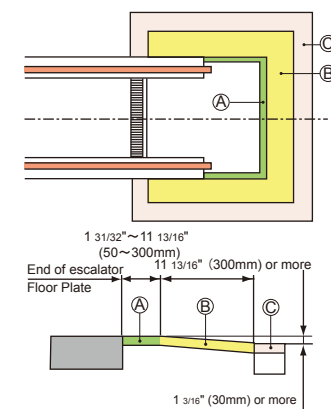
2. Environmental requirements for outdoor escalators

Permissible ambient temperature	Minimum	14F (-10°C) (special measures are required in cold districts where the ambient temperature can drop below 14F (-10°C))
	For escalator operation	32F (0°C) ~ less than 95F (35°C)
Wind pressure	Escalators must not be exposed to direct wind pressure outside the following ranges: 10lb/ft ² (490N/m ²) or less on the windward side, 5lb/ft ² (245N/m ²) or less on the leeward side	
Others	Measures are required for escalators installed within a 656'-2 1/32" (2-kilometer) radius from a shore to protect them from direct exposure to salty wind.	

3. Architectural requirements for outdoor escalators

- Intermediate support beams must be provided.
- 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°, and the surface of (A) must be horizontal to minimize the risk of passengers stumbling.
- Drainage must be provided in the entire area marked (C) and covered with grating to keep away drain water.
- 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 out and down.
- 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.
- 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.
- 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.

Detailed floor plan for outdoor escalators



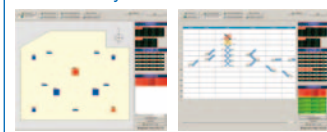
Please contact your Mitsubishi Electric representative for outdoor use.

Remote monitoring OPTIONAL

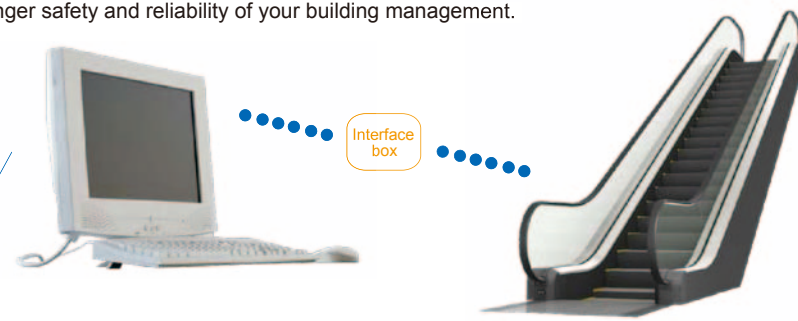
Mel Eye

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.

User-friendly screens



Operational failures and errors will be highlighted for easier recognition on the screen and to improve rapid troubleshooting.



*1: Please note that MelEye is designed for monitoring of escalator operation, not to control the escalators remotely.
*2: Contact your Mitsubishi Electric representative for a brochure or further information.

IMPORTANT INFORMATION

Work not included in the 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 the 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 ZP)
- Escalator type S24" (S600) or S32" (S800) or S40" (S1000)
- 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



Mitsubishi Elevator Asia Co., Ltd. acquired ISO 9001 certification by the International Standards Organization (ISO) based on a review of quality management. The company also acquired environmental management system standard ISO 14001 certification.

Mitsubishi Electric Inazawa Works acquired ISO 9001 certification by the International Standards Organization (ISO) based on a review of quality management. The company also acquired environmental management system standard ISO 14001 certification.



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 realization of a sustainable society.



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Actual products may differ slightly from the graphics in this brochure.

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