MITSUBISHI ELECTRIC

Changes for the Better

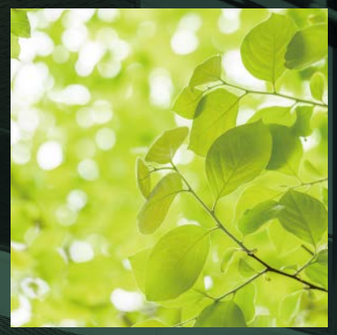
for a greener tomorrow eco Changes

Quality in Motion

ESCALATORS

S series

Enhancing energy-efficiency, pursuit of even higher levels of safety and commitment to a design harmonized with the surroundings – these are the factors driving forward our mission to create the escalators of the future utilizing our advanced technologies



Principle

Based on our policy, "Quality in Motion", we provide elevators and escalators that will satisfy our customers with high levels of comfort, efficiency, ecology and safety.

Efficiency

Comfort

Quality in Motion

Ecology

Safety

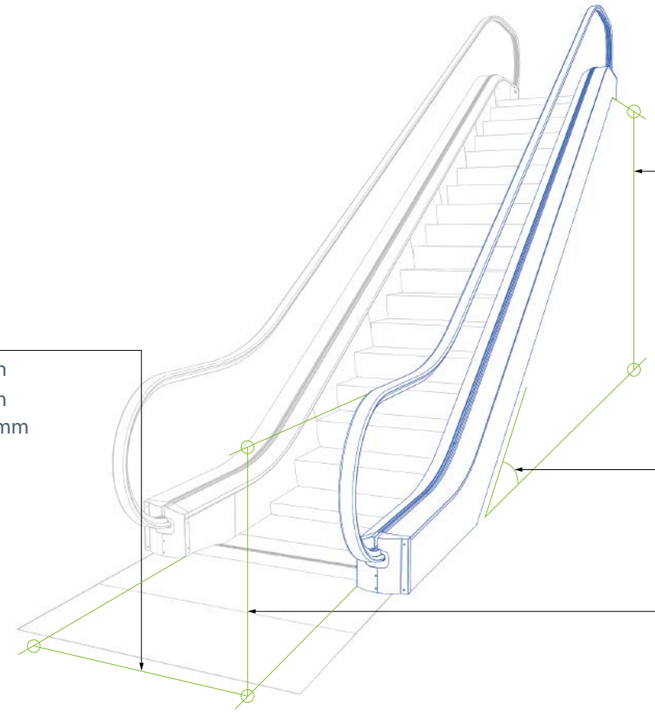
Mitsubishi Electric elevators, escalators and building management systems are always evolving, helping achieve our goal of being the No.1 brand in quality. In order to satisfy customers in all aspects of comfort, efficiency and safety while realizing a sustainable society, quality must be of the highest level in all products and business activities, while priority is place on consideration for the environment. As the times change, Mitsubishi Electric promises to utilize the collective strengths of its advanced and environmental technologies to offer its customers safe and reliable products while contributing to society.

We strive to be green in all of our business activities.

We take every action to reduce environmental burden during each process of our elevators' and escalators' lifecycle.

Contents

Dimensions



Step width

Type S600: 604mm
Type S800: 804mm
Type S1000: 1004mm

Rise

30°: 2200 to 9000mm
35°: 2520 to 6000mm

Inclination

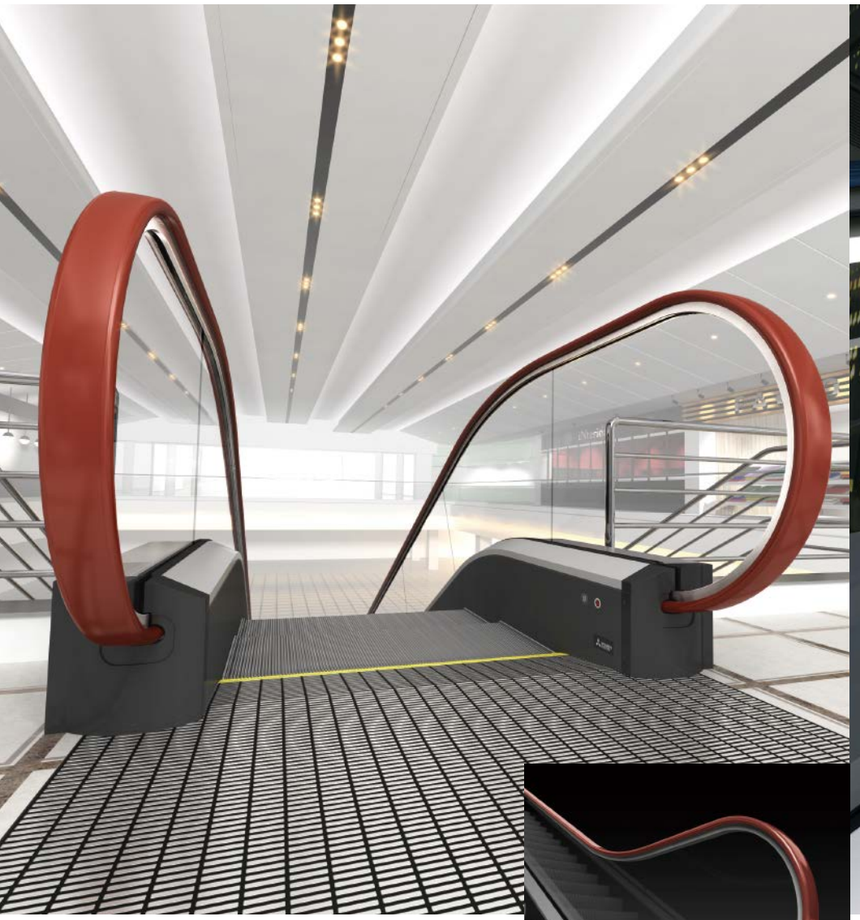
30° or 35°

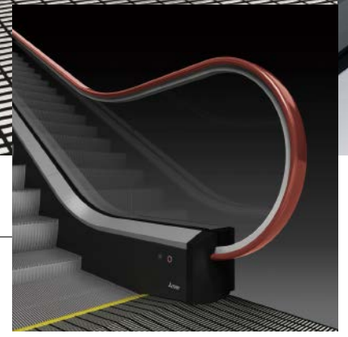
Moving handrail height

1000mm

Models for Various Scenes

Simple designs and stylish curves matched to diverse settings



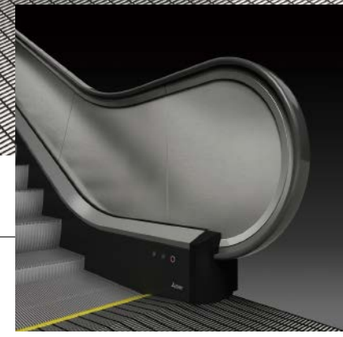


Glass Panel

SAS

Glass Panel with Under-handrail Lighting

SAL



Stainless-steel Panel

SAP

Moving Handrails*1,*2

Rubber **Standard**

No.0001 Black	No.0502 Vermilion	No.0503 Red	No.0504 Yellow	No.0505 Green	No.0506 Blue	No.0507 Light gray	No.0508 Brown

Standard — Optional

Polyurethane **Optional**

Moving Handrails made of polyurethane are highly resistant to dirt on their surface and create a shiny and brighter look.

No.5001 Black	No.5002 Vermilion	No.5003 Red	No.5004 Yellow	No.5005 Green	No.5006 Blue	No.5007 Light gray	No.5008 Brown	No.5009 Mild black	No.5010 Warm gray

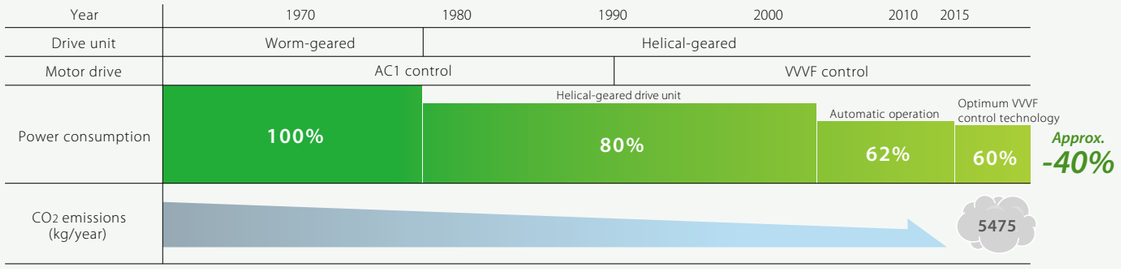
Notes:
*1: Handrail colors for outdoor use are different from those shown. Please contact our local agents for details.
*2: Actual handrail colors may differ slightly from those shown.

Ecology&Efficiency

Environmental Performance Considering People and the Planet

Escalators with advanced environmental features including inverter control and LED lighting

Milestones of Energy-saving Technologies in Escalator Development



[Calculation conditions]
Calculated from the power consumption with coefficient of 0.6kg/kWh. The amount of CO_2 emissions varies depending on operation conditions.

Variable-voltage Variable-frequency (VVVF) Inverter Control Optional

VVVF Inverter Control provides efficient escalator operation.

Automatic Operation (Optional)

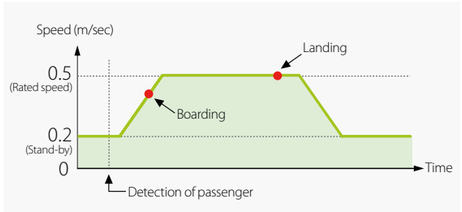
Escalators with automatic operation improve the energy efficiency by running slowly or halting in stand-by mode. When passenger sensors detect no passengers for a predetermined period of time, the escalator goes into the stand-by mode.

Operation Type

Slow operation in stand-by

The escalator runs at 0.20m/sec in stand-by mode. When the sensors detect a passenger, the escalator gradually accelerates to the rated speed. As the escalator runs even when there are no passengers aboard, people approaching the escalator can recognize the travel direction.

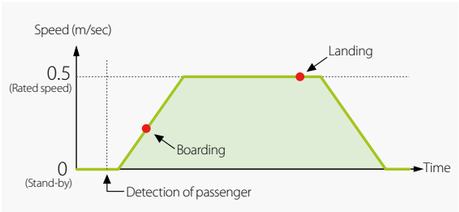
Approx. 25%[*2] reduction in energy consumption



Stationary in stand-by[*1]

The escalator remains stationary in stand-by mode. When the sensors detect a passenger, the escalator accelerates to the rated speed. This operation saves the energy consumed by the escalator significantly.

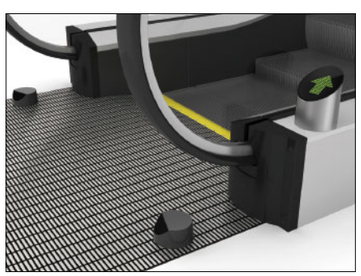
Approx. 35%[*2] reduction in energy consumption



Time during which energy is used

Passenger Sensors

Without posts

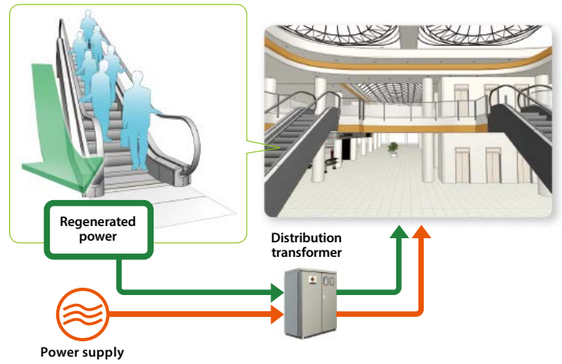


With posts

Notes:
*1: Direction indicators are required for this operation. This operation is also available for AC1 control.
*2: Conditions
Rise: 5m, inclination: 30°, type: S1000, number of passengers: 100 persons/hour, stand-by time per hour: 20 to 30 minutes

Regenerative Converter (Standard when VVVF Inverter Control is chosen)

The regenerative converter has the effect of reducing energy consumption by transmitting the power generated when the escalator runs downward with a certain passenger load or more to other facilities in the building.



Variable-speed Operation (Optional)

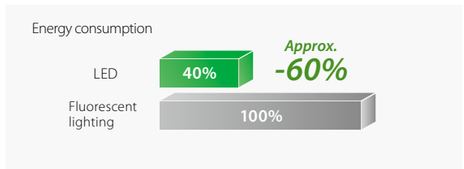
Two speeds, not exceeding the rated speed, can be selected using a key switch installed on the skirt guard at a side of the comb plate, thereby allowing you to select the best speed depending on the traffic conditions.

Example of setting:
High (0.5m/sec) for upward operation
Low (0.35m/sec) for downward operation

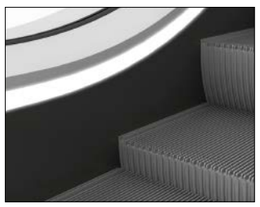
Introduction of LED Lighting Standard / Optional

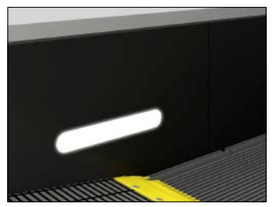
LEDs, which have long service life and excellent energy efficiency, have been introduced in under-handrail lighting, skirt guard lighting, comb light and step demarcation lighting. The LED lighting consumes approximately 60% less energy than the conventional fluorescent lighting.

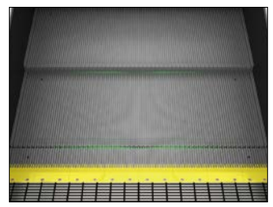
Approx. 60% reduction in energy consumption




Under-handrail lighting
(Standard when SAL is chosen)


Skirt guard lighting
(Optional)

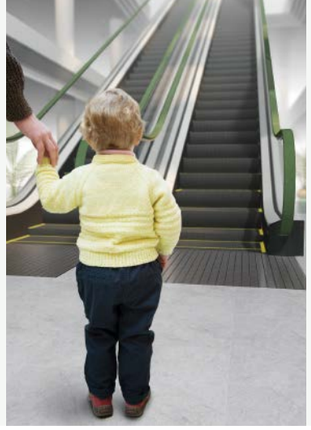

Comb light
(Optional)


Step demarcation lighting
(Optional)

Safety

Features Supporting the Safety of All Users

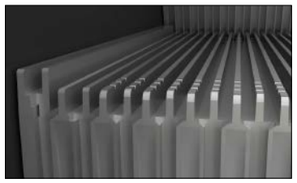
Various features that ensure the safety of all users from the elderly to children and support users in boarding and getting off escalators smoothly

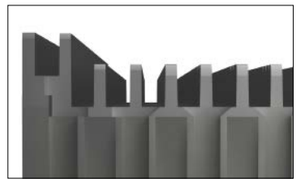


Tiered Demarcation Line

Standard

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.

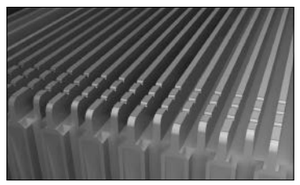




Step with Anti-slip Grooves

Standard

Grooves along the corner edge of each step improve anti-slip performance and the visibility of each step for further passenger safety.



Brighter Demarcation Color *1

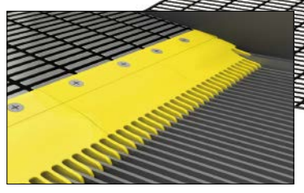
Optional *2

The brightness of the yellow demarcation lines has been improved to provide better visibility.

Comb with Smaller Angle

Standard

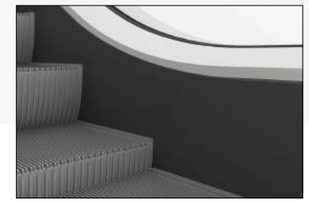
We have made the angle the smallest it can be to keep passengers from stumbling at boarding and landing areas.



Low-friction Material on Skirt Guard

Standard

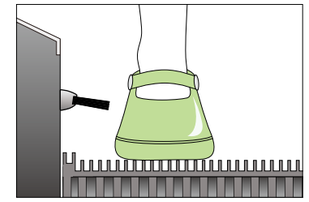
The skirt guards have a special painting/coating on the surface, ensuring a low coefficient of friction and minimizing the risk of items getting caught.



Skirt Brush

Optional *3

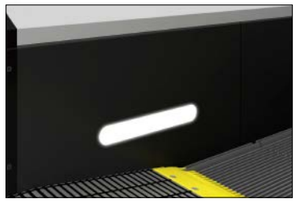
Skirt brushes installed on the skirt guard prevent passengers' clothes or shoes from getting caught between the step and the skirt guard.

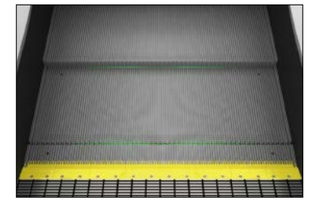


• Comb Light
• Step Demarcation Lighting

LED Optional
LED Optional

Lighting provided at comb level and under the steps improves passenger safety at boarding and landing areas.





Three Horizontal Steps

Optional *4

Three horizontal steps at boarding and landing areas help passengers safely board or get off the escalator.

Notes:
*1: The color of steps is changed from light gray (standard color) to black when the brighter demarcation color is requested.
*2: Please consult our local agents for standard application.

Notes:
*3: Standard feature for EN115
Please note that passengers' clothes or shoes may be dirtied if the brushes get dirty after a long period of use.
*4: Standard feature for escalators with a rise exceeding 6000mm complying with EN115
Not applicable to escalators with inclination of 35°.

Comfort

Functional Beauty Inspired by Users

Universal designs that pursue true user-friendliness and smart design features based on maximum consideration of users

Direction Indicator

LED Optional

LEDs form an arrow to indicate the travel direction of the escalator at the boarding area, or a no-entry sign at the landing area.

SAS/SAL

SAP

Hairline-finished stainless steel

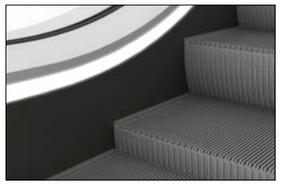
At boarding area

At landing area

Skirt Guard Lighting*

LED Optional

Lighting can be provided along the entire length of the skirt guard, lighting up the step demarcation for both visual effect and passenger safety.



Floor Name

Optional

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

Fault Indicator

LED Optional

If a fault occurs on the escalator, the fault indicator displays the fault code, and the operation manager can judge whether the operation can be resumed by the color of the lamp indicated next to the fault code.
The indicator displays the operation speed in normal operation.

Example of indication:

At fault occurrence

(Fault code)

At normal operation

(Operation speed; for example, 50 when the operation speed is 0.5m/sec)

Note:
* The skirt guard lighting is not applicable to SAL (glass panel with under-handrail lighting).

Standard Specifications

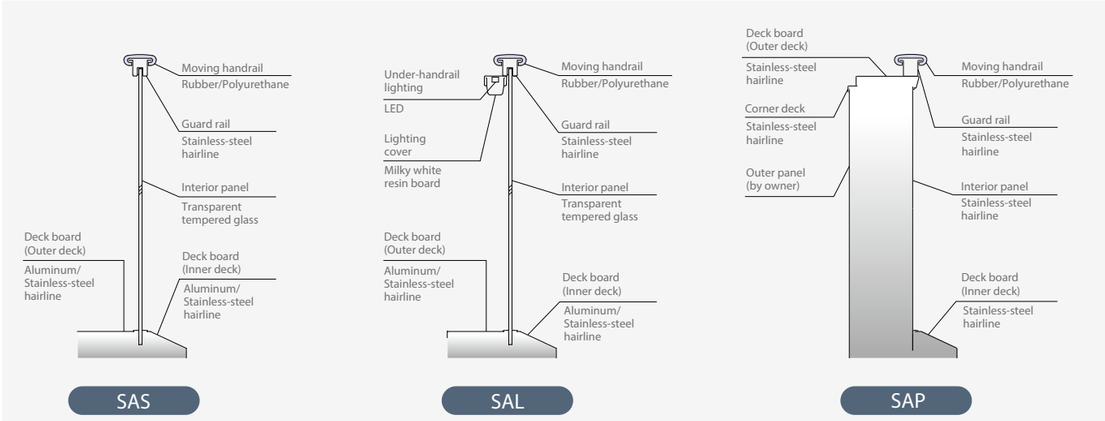
Basic specifications

Please refer to the following pages for the EN115 code and Mitsubishi Electric Standard.

Item	S600	S800	S1000
Models	SAS / SAL (*1) / SAP		
Codes	EN115 code (EN115-1: 2008 + A1: 2010) / Mitsubishi Electric Standard (*2)		
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, Optional: VVVF (*3)		
Theoretical transport capacity (*4) (persons/hr)	4500	6750	9000
Inclination	30° / 35°		
Environment	Standard: Indoor, Optional: Semi-outdoor / Outdoor (*5)		
Min. rise (mm)	30°: 2200, 35°: 2520		
Max. rise (mm)	30°: 9000, 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)	608	808	1008
Truss width (mm)	1100	1300	1500
Floor opening (mm)	1250	1450	1650

Notes:
*1: Not applicable to outdoor use.
*2: Based on, but not fully complying with the Building Standard Law of Japan, 2009.
*3: Please contact our local agents for VVVF control.
*4: Transport capacity varies depending on actual traffic conditions, so some dimensions and the motor capacity may have to be changed.
Please contact our local agents for details if the number of passengers during peak time may equal or exceed the following numbers:
S600: 500 persons per 10 minutes
S800: 750 persons per 10 minutes
S1000: 1000 persons per 10 minutes
*5: Please contact our local agents for semi-outdoor and outdoor use.
For outdoor use, please refer to "Cautions for Outdoor Use" on page 13.

Sections of the balustrade



Additional Product Data (Mitsubishi Electric Standard Specification)

Specifications Max. rise (mm): 9000 (30°), 6000 (35°)

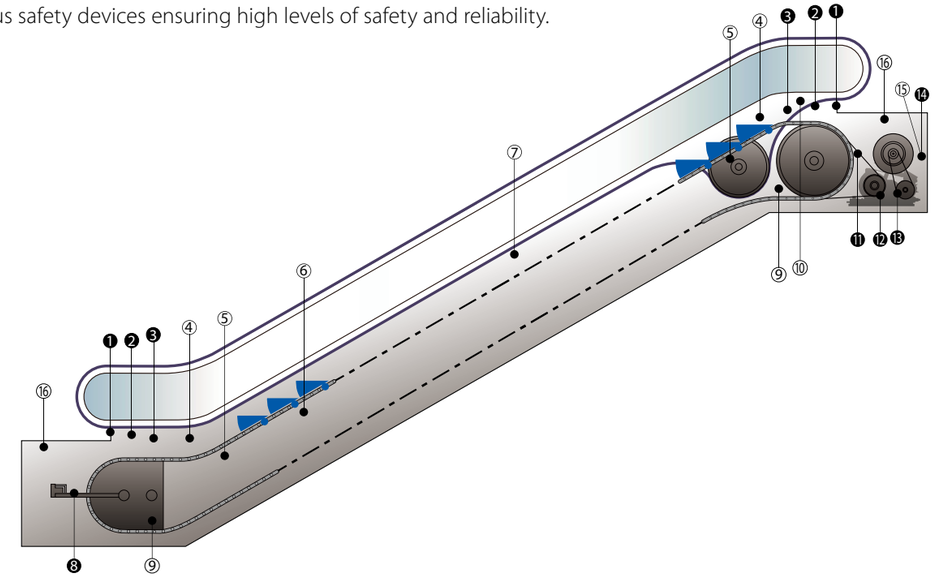
●: Standard, ○: Optional N/A: Not applicable

Division		Specification			Indoor / Semi-outdoor (*1)		
					SAS	SAL	SAP
Control system	AC1	Manual key switch operation				●	
		Automatic operation with posts (stationary in stand-by)				○	
	Inverter [VVVF]	Automatic operation without posts	Low-speed operation in stand-by (passenger sensor: 2D)			○	
			Low-speed operation in stand-by (passenger sensor: 3D)			○	
			Stationary and low-speed operation in stand-by (passenger sensor: 3D)			○	
			Stationary in stand-by (passenger sensor: 3D)			○	
		Automatic operation with posts	Low-speed operation in stand-by			○	
			Stationary and low-speed operation in stand-by			○	
			Stationary in stand-by			○	
		Variable-speed operation (2 speeds)				○	
Horizontal steps		1.5 horizontal steps (nominal)	30°			●	
			35°			N/A	
		2 horizontal steps	30°			N/A	
			35°			●	
		3 horizontal steps	30°			○	
			35°			N/A	
Lighting fixture		Under-handrail lighting (LED)			N/A	●	N/A
		Comb light (LED)				○	
		Step demarcation lighting (LED)				○	
		Skirt guard lighting (LED)			○	N/A	○
Indicator		Direction indicator (LED)				○	
		Fault indicator (LED)				○	
Finish and decorative components		Interior panel (See page 12 for the sections of the balustrade.)	Transparent tempered glass		●		N/A
			Stainless-steel, hairline-finish		N/A		●
		Skirt guard	Low-friction paint finish (black)			●	
			Skirt brush			○	
		Deck board	Inner deck	Aluminum	● (*2)		N/A
				Stainless-steel, hairline-finish	○		●
			Outer deck	Aluminum	● (*2)		N/A
				Stainless-steel, hairline-finish	○		●
		Step	Aluminum alloy step tread (light gray)			●	
			Aluminum alloy cleat riser (light gray)			●	
			Step with anti-slip grooves			●	
			Yellow demarcation line (*3)			○ (*4)	
		Floor plate	Embossed stainless-steel plate (with black-paint grooves)			●	
			Floor name (with black-paint grooves)			○	
			Extension of floor plate			○	
			Connection of adjacent floor plates			○	
		Comb	Molded resin (yellow)			●	
		Moving handrail (See page 5 for the colors.)	Rubber	No. 0001 (black)		●	
				No. 0502 to 0508		○	
			Polyurethane	No. 5001 (black)		○	
				No. 5002 to 5010		○	
		Handrail inlet cap	Resin (black)			●	
Others		MelEye				○	
		Automatic oiler			○: Indoor, ●: Semi-outdoor		

Notes:
*1: Please contact our local agents for outdoor use.
*2: The aluminum-finish deck board may not be available depending on the factory.
*3: When yellow demarcation line is applied, the color of the step tread and cleat riser is changed to black.
*4: The yellow step demarcation line may come as standard depending on the factory.

Safety Devices

Various safety devices ensuring high levels of safety and reliability.



●: Standard, ○: Optional

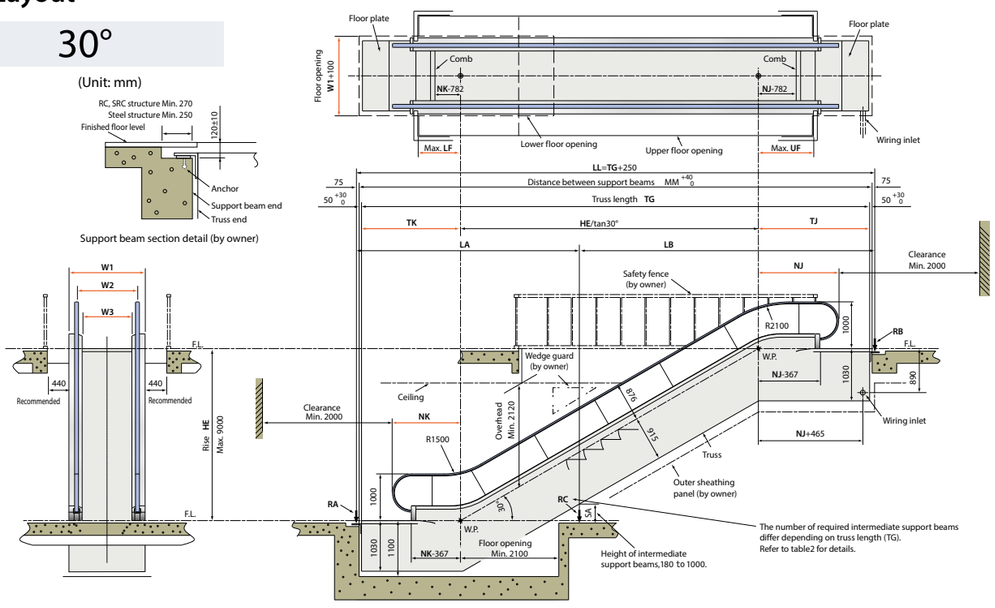
	Safety device	Description	Application
❶	Handrail Guard Safety Device (HGS)	1) Inlet Guard A guard made of soft rubber, which fits over the outside of the moving handrail where it enters the balustrade to keep fingers, hands or foreign objects away from the moving handrail opening 2) Inlet Guard Switch A safety device that stops the escalator when physical contact is made with the inlet	●
❷	Emergency Stop Button (E-STOP)	A button to immediately stop the escalator in emergency situations	●
❸	Comb-step Safety Switch (CSS)	A safety device that stops the escalator if a foreign object becomes trapped in the gap between the step and comb	●
④	Skirt Guard Safety Device (SSS)	A safety device to stop the escalator if a shoe or other item becomes trapped in the gap between the step and skirt guard	○
⑤	Step Motion Safety Device (CRS)	A safety device to stop the escalator when a step has been dislocated on its riser side because of 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	○
⑥	Step Level Device (SRS)	A safety device that stops the escalator if the horizontal level of a step has dropped	○
⑦	Skirt Brush	A safety device to prevent passengers' shoes or clothes from getting caught between steps and skirt guards	○
❽	Step Chain Safety Device (SCS)	A safety device that stops the escalator if the step chain breaks or stretches beyond an allowable limit	●
⑨	Missing Step Device (SMS)	A safety device that stops the escalator if it detects a missing step(s) before it is visible to passengers	○
⑩	Handrail Speed Safety Device (HSS)	A safety device that stops the escalator if the moving handrails fail to synchronize with the steps because of slippage, loosening or breakage of the moving handrails	○
⑪	Drive Chain Safety Device (DCS)	A safety device that stops the escalator if the drive chain breaks or stretches beyond an allowable limit	●
⑫	Speed Governor (GOV)	A safety device that stops the escalator before the operating speed exceeds 120% of the rated speed or if the operation speed becomes unusually slow	●
⑬	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	●
⑭	Overload Detection Device	A safety device that stops the escalator if overload has been detected	●
⑮	Three Elements (3E)	A safety device that stops the escalator if any of the three abnormal conditions is detected: open phase (wire breakage), phase reversal or overload	○
⑯	Door Open Switch (DOS)	A safety switch that stops the escalator when the floor plate is opened	○

Additional Product Data
(Mitsubishi Electric Standard Specification)

Layout

30°

(Unit: mm)



35°

(Unit: mm)

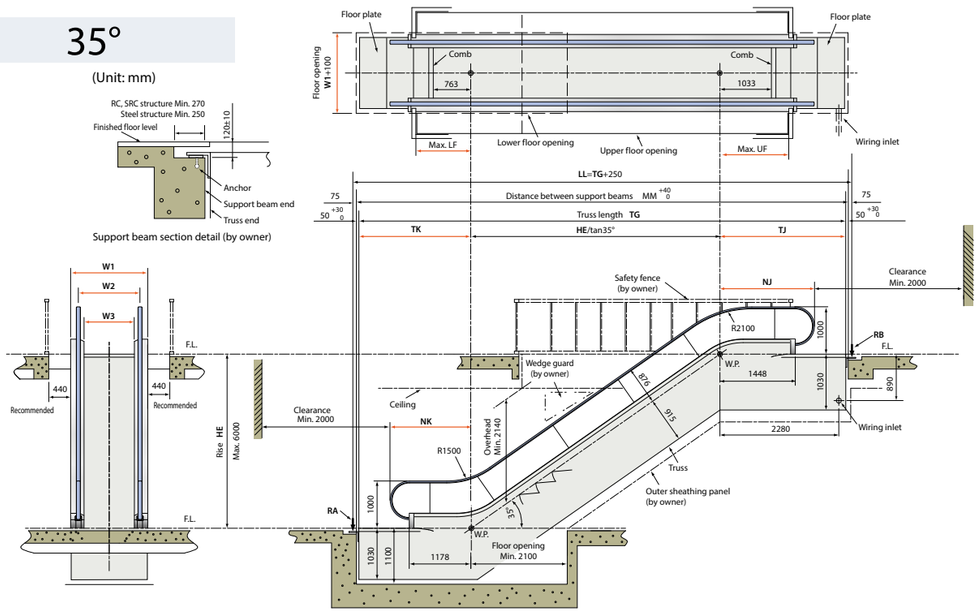


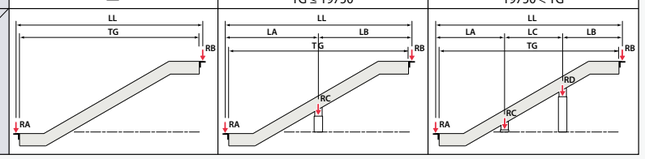
Table 1: Standard dimensions

Width	Type		
	S600	S800	S1000
W1 (escalator width)	1150	1350	1550
W2 (between moving handrails)	840	1040	1240
W3 (between skirt guards)	608	808	1008

Horizontal steps	Type	TJ		TK	NJ	NK	UF	LF
		HE≤7000	7000<HE					
1.5 steps (nominal)*	S1000	2225	2425	2025	1560	1360	1023	820
	S800							
	S600	2425						
3 steps	S1000	2825	3025	2625	2160	1960	1623	1420
	S800							
	S600	3025						

Table 2: No. of intermediate support beam

Type	Environment	Without	1 beam	2 beams
S1000	Indoor Semi-outdoor	TG ≤ 14850	14850 < TG ≤ 21750	21750 < TG
	Outdoor	—	TG ≤ 19750	19750 < TG
S800	Indoor Semi-outdoor	TG ≤ 15100	15100 < TG ≤ 21750	21750 < TG
	Outdoor	—	TG ≤ 19750	19750 < TG
S600	Indoor Semi-outdoor	TG ≤ 15500	15500 < TG ≤ 23150	23150 < TG
	Outdoor	—	TG ≤ 19750	19750 < TG



Type	Max. LA, LB or LC	
	Environment	
	Indoor Semi-outdoor	Outdoor
S1000	11000	10000
S800		
S600	11700	

Table 3: Loads (N)

	Without intermediate support beam	With intermediate support beam	
		1 beam	2 beams
RA	$\alpha \cdot LL + \frac{\beta1 \cdot (LL-TK+X1) + \beta2 \cdot (TJ-X2)}{LL}$	$\alpha \cdot LA + \beta1 - \frac{\beta1 \cdot (TK-X1)}{LA}$	
RB	$\alpha \cdot LL + \frac{\beta1 \cdot (TK-X1) + \beta2 \cdot (LL-TJ+X2)}{LL}$	$\alpha \cdot LB + \beta2 - \frac{\beta2 \cdot (TJ-X2)}{LB}$	
RC	————	$\alpha \cdot LL + \frac{\beta1 \cdot (TK-X1)}{LA} + \frac{\beta2 \cdot (TJ-X2)}{LB}$	$\alpha \cdot (LA+LC) + \frac{\beta1 \cdot (TK-X1)}{LA}$
RD	————	————	$\alpha \cdot (LB+LC) + \frac{\beta2 \cdot (TJ-X2)}{LB}$

Factors
α

Type	α (N/mm)
S1000	3.95
S800	3.58
S600	3.20

X1, X2, β1, β2

Horizontal steps	X1	X2	β1	β2
1.5 steps (nominal)*	799	988	3900	13400
3 steps	1399	1588	5100	14400

Note:
* Please contact our local agents for the actual number of steps.

Table 1: Standard dimensions

Width	Type		
	S600	S800	S1000
W1 (escalator width)	1150	1350	1550
W2 (between moving handrails)	840	1040	1240
W3 (between skirt guards)	608	808	1008

Horizontal steps	Type	TJ	TK	NJ	NK	UF	LF
2 steps	S1000	2480	2210	1815	1545	1278	1005
	S800						
	S600	2680					

Table 2: Loads (N)

	Without intermediate support beam
RA	$\alpha \cdot LL + \frac{\beta1 \cdot (LL-TK+X1) + \beta2 \cdot (TJ-X2)}{LL}$
RB	$\alpha \cdot LL + \frac{\beta1 \cdot (TK-X1) + \beta2 \cdot (LL-TJ+X2)}{LL}$

Factors
α

Type	α (N/mm)
S1000	3.95
S800	3.58
S600	3.20

X1, X2, β1, β2

Horizontal steps	X1	X2	β1	β2
2 steps	984	1243	4500	13900

Additional Product Data (Designed to European Standard)

Specifications Max. rise (mm): 9000 (30°), 6000 (35°)

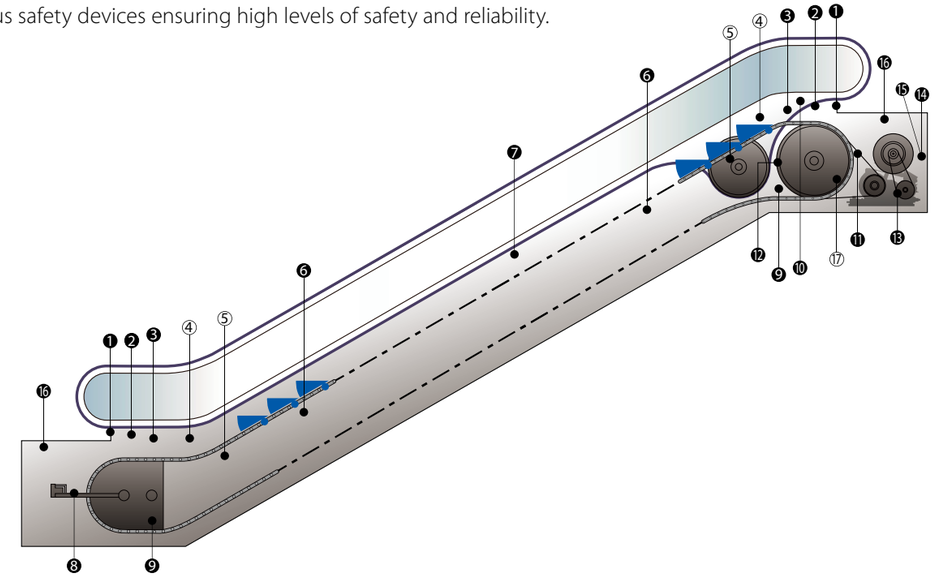
●: Standard, ○: Optional N/A: Not applicable

Division		Specification			Indoor / Semi-outdoor (*1)		
					SAS	SAL	SAP
Control system	AC1	Manual key switch operation				●	
		Automatic operation with posts (stationary in stand-by)				○	
	Inverter [VVVF]	Automatic operation without posts	Low-speed operation in stand-by (passenger sensor: 2D)			○	
			Low-speed operation in stand-by (passenger sensor: 3D)			○	
			Stationary and low-speed operation in stand-by (passenger sensor: 3D)			○	
			Stationary in stand-by (passenger sensor: 3D)			○	
		Automatic operation with posts	Low-speed operation in stand-by			○	
			Stationary and low-speed operation in stand-by			○	
			Stationary in stand-by			○	
		Variable-speed operation (2 speeds)				○	
Horizontal steps		2 horizontal steps	30°			●(N/A when Rise>6000mm)	
			35°			●	
		3 horizontal steps	30°			○: Rise≦6000mm, ●: Rise>6000mm	
			35°			N/A	
Lighting fixture		Under-handrail lighting (LED)			N/A	●	N/A
		Comb light (LED)				○	
		Step demarcation lighting (LED)				○	
		Skirt guard lighting (LED)			○	N/A	○
Indicator		Direction indicator (LED)				○	
		Fault indicator (LED)				○	
Finish and decorative components		Interior panel (See page 12 for the sections of the balustrade.)	Transparent tempered glass			●	N/A
			Stainless-steel, hairline-finish			N/A	●
		Skirt guard	Low-friction paint finish (black)			●	
			Skirt brush			●	
		Deck board	Inner deck	Aluminum		● (*2)	N/A
				Stainless-steel, hairline-finish		○	●
			Outer deck	Aluminum		● (*2)	N/A
				Stainless-steel, hairline-finish		○	●
		Step	Aluminum alloy step tread (light gray)			●	
			Aluminum alloy cleat riser (light gray)			●	
			Step with anti-slip grooves			●	
			Yellow demarcation line (*3)			○ (*4)	
		Floor plate	Embossed stainless-steel plate (with black-paint grooves)			●	
			Floor name (with black-paint grooves)			○	
			Extension of floor plate			○	
			Connection of adjacent floor plates			○	
		Comb	Molded resin (yellow)			●	
		Moving handrail (See page 5 for the colors.)	Rubber	No. 0001 (black)		●	
				No. 0502 to 0508		○	
			Polyurethane	No. 5001 (black)		○	
				No. 5002 to 5010		○	
		Handrail inlet cap	Resin (black)			●	
Others		MelEye				○	
		Automatic oiler				○: Indoor, ●: Semi-outdoor	

Notes:
*1: Please contact our local agents for outdoor use.
*2: The aluminum-finish deck board may not be available depending on the factory.
*3: When yellow demarcation line is applied, the color of the step tread and cleat riser is changed to black.
*4: The yellow step demarcation line may come as standard depending on the factory.

Safety Devices

Various safety devices ensuring high levels of safety and reliability.



●: Standard, ○: Optional

	Safety device	Description	Application
❶	**Handrail Guard Safety Device (HGS)**	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 the escalator when physical contact is made with the inlet	●
❷	**Emergency Stop Button (E-STOP)**	A button to immediately stop the escalator in emergency situations	●
❸	**Comb-step Safety Switch (CSS)**	A safety device that stops the escalator if a foreign object becomes trapped in the gap between the step and comb	●
④	**Skirt Guard Safety Device (SSS)**	A safety device to stop the escalator if a shoe or other item becomes trapped in the gap between the step and skirt guard	○
⑤	**Step Motion Safety Device (CRS)**	A safety device to stop the escalator when a step has been dislocated on its riser side because of 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	○
❻	**Step Level Device (SRS)**	A safety device that stops the escalator if the horizontal level of a step has dropped	●
❼	**Skirt Brush**	A safety device to prevent passengers' shoes or clothes from getting caught between steps and skirt guards	●
❽	**Step Chain Safety Device (SCS)**	A safety device that stops the escalator if the step chain breaks or stretches beyond an allowable limit	●
❾	**Missing Step Device (SMS)**	A safety device that stops the escalator if it detects a missing step(s) before it is visible to passengers	●
❿	**Handrail Speed Safety Device (HSS)**	A safety device that stops the escalator if the moving handrails fail to synchronize with the steps because of slippage, loosening or breakage of the moving handrails	●
⓫	**Drive Chain Safety Device (DCS)**	A safety device that stops the escalator if the drive chain breaks or stretches beyond an allowable limit	●
⓬	**Step Governor Safety Device (SGS)**	A safety device that stops the escalator before the operating speed exceeds 120% of the rated speed or if the operation speed becomes unusually slow	●
⓭	**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	●
⓮	**Overload Detection Device**	A safety device that stops the escalator if overload has been detected	●
⓯	**Three Elements (3E)**	A safety device that stops the escalator if any of the three abnormal conditions is detected: open phase (wire breakage), phase reversal or overload	●
⓰	**Door Open Switch (DOS)**	A safety switch that stops the escalator when the floor plate is opened	●
⑰	**Auxiliary brake**	A safety device that stops the escalator if the speed exceeds the rated speed, or before the steps' traveling direction changes due to an abnormality such as breakage of the drive chain	○ (*5)

Note:
*5: A standard device for public-use escalators or those exceeding 6m in rise.

Specifications shown here conforms to EN115 (EN115-1: 2008 + A1: 2010)

Additional Product Data (Designed to European Standard)

Layout

30°

(Unit: mm)

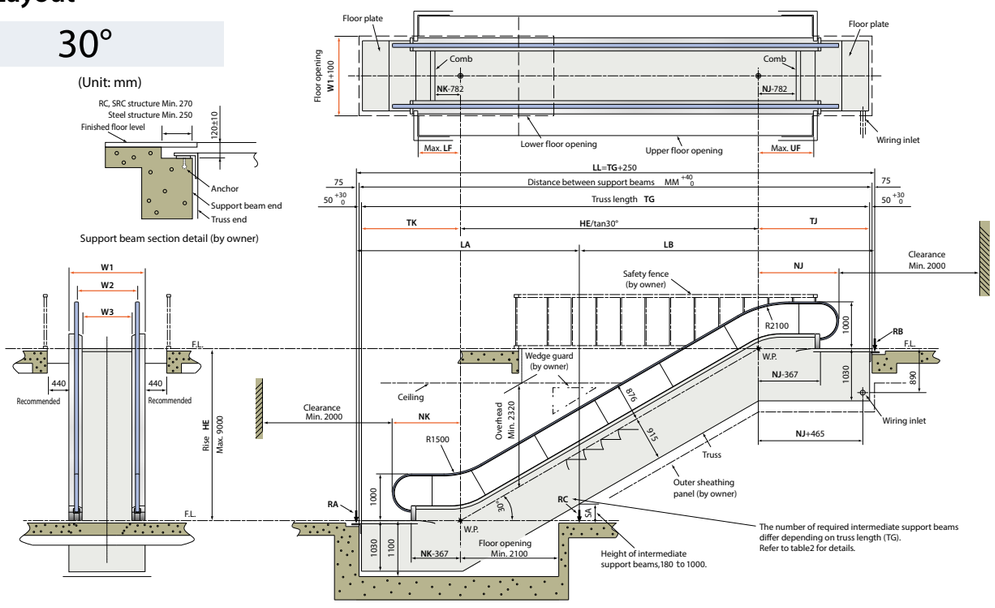


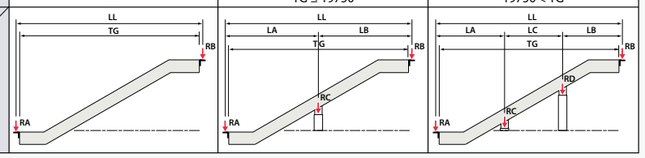
Table 1: Standard dimensions

Width	Type		
	S600	S800	S1000
W1 (escalator width)	1150	1350	1550
W2 (between moving handrails)	840	1040	1240
W3 (between skirt guards)	608	808	1008

Horizontal steps	Type	TJ			TK	NJ	NK	UF	LF
		HE≤6000	6000<HE≤7000	7000<HE					
2 steps	S1000	2425	———	———	2425	1760	1560	1223	1020
	S800	2625							
	S600	3125							
3 steps	S1000	2825		3025	2825	2160	1960	1623	1420
	S800	3025							
	S600	3525		3525					

Table 2: No. of intermediate support beam

Type	Environment	Without	1 beam	2 beams
S1000	Indoor Semi-outdoor	TG ≤ 14850	14850 < TG ≤ 21750	21750 < TG
	Outdoor	—	TG ≤ 19750	19750 < TG
S800	Indoor Semi-outdoor	TG ≤ 15100	15100 < TG ≤ 21750	21750 < TG
	Outdoor	—	TG ≤ 19750	19750 < TG
S600	Indoor Semi-outdoor	TG ≤ 15500	15500 < TG ≤ 23150	23150 < TG
	Outdoor	—	TG ≤ 19750	19750 < TG



Type	Max. LA, LB or LC	
	Environment	
	Indoor Semi-outdoor	Outdoor
S1000	11000	10000
S800		
S600	11700	

Table 3: Loads (N)

	Without intermediate support beam	With intermediate support beam	
		1 beam	2 beams
RA	$\alpha \cdot LL + \frac{\beta1 \cdot (LL-TK+X1) + \beta2 \cdot (TJ-X2)}{LL}$	$\alpha \cdot LA + \beta1 - \frac{\beta1 \cdot (TK-X1)}{LA}$	
RB	$\alpha \cdot LL + \frac{\beta1 \cdot (TK-X1) + \beta2 \cdot (LL-TJ+X2)}{LL}$	$\alpha \cdot LB + \beta2 - \frac{\beta2 \cdot (TJ-X2)}{LB}$	
RC	———	$\alpha \cdot LL + \frac{\beta1 \cdot (TK-X1)}{LA} + \frac{\beta2 \cdot (TJ-X2)}{LB}$	$\alpha \cdot (LA+LC) + \frac{\beta1 \cdot (TK-X1)}{LA}$
RD	———	———	$\alpha \cdot (LB+LC) + \frac{\beta2 \cdot (TJ-X2)}{LB}$

Factors α

Type	α (N/mm)
S1000	5.16
S800	4.57
S600	3.97

X1, X2, β1, β2

Horizontal steps	X1	X2	β1	β2
2 steps	999	1188	4500	13900
3 steps	1399	1588	5100	14400

35°

(Unit: mm)

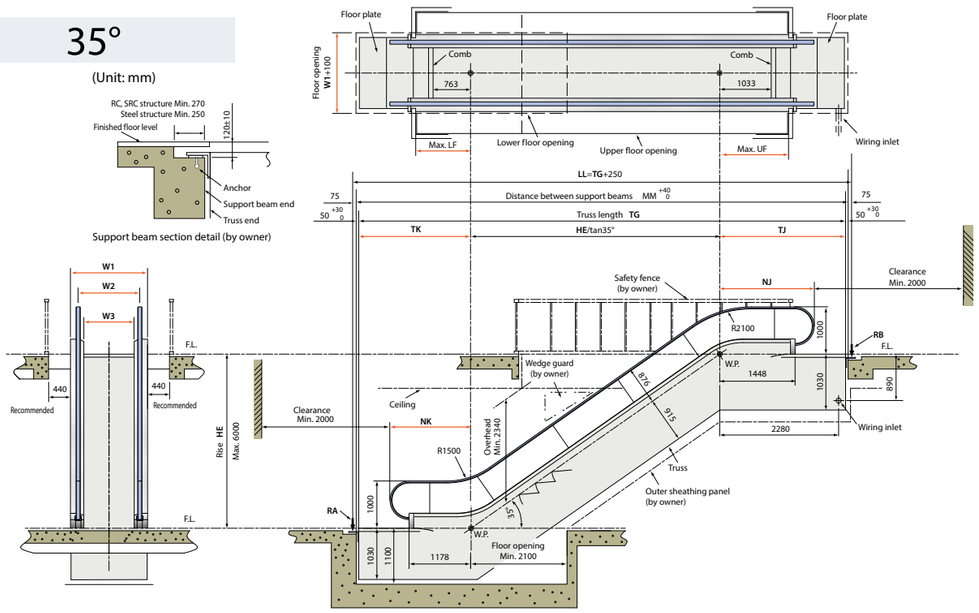


Table 1: Standard dimensions

Width	Type		
	S600	S800	S1000
W1 (escalator width)	1150	1350	1550
W2 (between moving handrails)	840	1040	1240
W3 (between skirt guards)	608	808	1008

Horizontal steps	Type	TJ	TK	NJ	NK	UF	LF
2 steps	S1000	2480	2410	1815	1545	1278	1005
	S800	2680					
	S600	3180					

Table 2: Loads (N)

	Without intermediate support beam
RA	$\alpha \cdot LL + \frac{\beta1 \cdot (LL-TK+X1) + \beta2 \cdot (TJ-X2)}{LL}$
RB	$\alpha \cdot LL + \frac{\beta1 \cdot (TK-X1) + \beta2 \cdot (LL-TJ+X2)}{LL}$

Factors α

Type	α (N/mm)
S1000	5.16
S800	4.57
S600	3.97

X1, X2, β1, β2

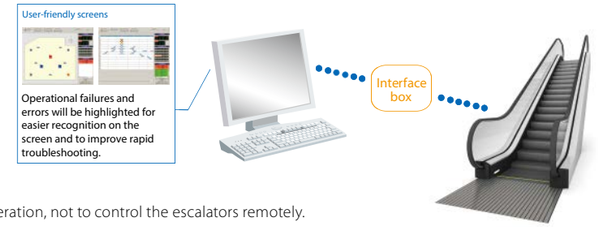
Horizontal steps	X1	X2	β1	β2
2 steps	984	1243	4500	13900

Dimensional information shown here conforms to EN115 (EN115-1: 2008 + A1: 2010)

Remote Monitoring

MelEye

Mitsubishi Electric's MelEye is a sophisticated Web-based elevator and escalator monitoring and control* 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.



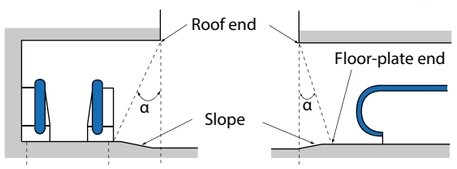
Note:
* Please note that MelEye is designed for monitoring of escalator operation, not to control the escalators remotely.

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

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	α>70°
Semi-outdoor	30°≤α≤70°
Outdoor	α<30°

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	-10°C (Special measures are required in cold districts where the ambient temperature can drop below -10°C.)
	For escalator operation	0°C to 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 radius of 2 km 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 Ⓑ in the illustrations to the right must be at a slope of at least 10°, and the surface of Ⓐ 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 drain water.

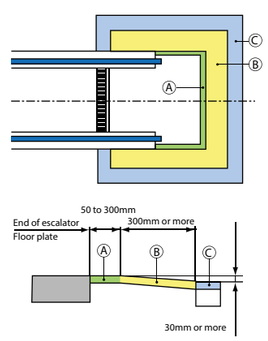
(4) The escalator pit must be waterproofed entirely when a whole truss is installed inside the pit. In addition, the upper pit floor must be sloped towards the lower floor to let any water in the pit drain out and down.

(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.

Detailed floor plan for outdoor escalators



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 0.028psi

Ordering information

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

- Name and address of the building
- Escalator model (SAS, SAL or SAP)
- Escalator type (S1000, 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

State-of-the-Art Factories…
For the Environment. For Product Quality.

Mitsubishi Electric elevators and escalators are currently operating in approximately 90 countries around the globe. Built placing priority on safety first, our elevators, escalators and building system products are renowned for their excellent efficiency, energy savings and comfort. The technologies and skills cultivated at the Inazawa Works and 13 overseas manufacturing factories are utilized in a global network that provides sales, installation and maintenance in support of maintaining and improving product quality.
As a means of contributing to the realization of a sustainable society, we consciously consider the environment in business operations, proactively work to realize a low-carbon, recycling-based society, and promote the preservation of biodiversity.

ISO9001/14001 certification

Mitsubishi Electric Corporation Inazawa Works has acquired ISO 9001 certification from the International Organization for Standardization based on a review of quality management.
The plant has also acquired environmental management system standard ISO 14001 certification.

Mitsubishi Elevator Asia Co., Ltd. has acquired ISO 9001 certification from the International Organization for Standardization based on a review of quality management.
The plant has also acquired environmental management system standard ISO 14001 certification.

ISO 9001 BUREAU VERITAS Certification

ISO 9001 BUREAU VERITAS Certification UKAS MANAGEMENT SYSTEMS 008

ISO 14001 JACO EC98J2017 UKAS MANAGEMENT SYSTEMS 051

ISO 14001 BUREAU VERITAS Certification UKAS MANAGEMENT SYSTEMS 008

eco Changes 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.

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

Visit our website at:
http://www.MitsubishiElectric.com/elevator/

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

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Specifications are subject to change without notice.

C-CL1-5-C9523-D INA-1701 (IP)