



**MYANMAR NATIONAL BUILDING CODE
TWG No.5 - BUILDING SERVICES
LIFT & ESCALATOR**



**PRESENTATION BY
U YE MYINT (PE NO :049)
B.E (Electrical Power) 1981**



CONTENTS

1. SCOPE
2. TERMINOLOGY
3. GENERAL
4. ESSENTIAL REQUIREMENTS
5. DIMENSIONAL TOLERANCES
6. PRELIMINARY DESIGN
7. POWER AND CONTROL SYSTEM
8. CONDITIONS FOR OPTIMUM PRACTICE
9. RUNNING AND MAINTENANCE
10. PROCEDURE FOLLOWING TEST, INCLUDING INSPECTION
AND MAINTENANCE
11. ESCALATOR

5C.1 Scope

-Essential requirement for the installation, operation and maintenance and inspection of lift (Passenger, Goods, Hospital, Service and Dumbwaiter)

-To give information that should be exchanged among the architect, consulting engineer and the lift/ escalator manufacturer from the stage of planning to installation including maintenance.

SKE-450F



SKE-600F



SKE-800F



SKE-950F2



SKW-1300F



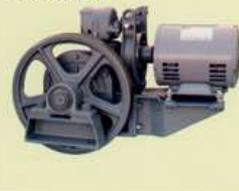
SK50-2



SK100-2A



SK100-2AS



SK200-2A



SK300-2A



SK400-2A



SANEI Traction machine with MITSUBISHI Motor (Made in Japan)

Designed and manufactured according to JIS B-1702, JGMA-405-01, JIS G-5501, JIS 4302 standard

For Passenger Elevator : SKE-450F2, SKE-600F2, SKE-800F2, SKE-950F2

For Freight Elevator : SKE-800F2, SKE-950F2, SKW-1300F, SKW-1500F

For Dumbwaiter : SK50-2, SK100-2A, SK100-2AS, SK200-2A, SK300-2A, SK400-2A

GEARLESS TRACTION MACHINE – PM MOTOR – MACHINE ROOMLESS

เครื่องมอเตอร์ขับเคลื่อนลิฟต์ชนิดแม่เหล็กถาวร ไม่มีเฟืองทด ดำรงชีพไฟที่ไม่มีห้องเครื่อง

ELE-MART



WTY1-630



WTY1-800
WTY1-1000



WTY2-1600

Passenger (Persons)	Load (Kg)	Speed (M/Min)	Model	Motor (Kw)	Main Sheave	Poles	Roping
8	630	60	WTY1-630-100	4.3	400x8x4	24	2:1
		90	WTY1-630-150	6.4	400x8x4	24	2:1
		105	WTY1-630-175	7.4	400x8x4	24	2:1
11	800	60	WTY1-800-100	5.4	400x10x5	20	2:1
		90	WTY1-800-150	8.1	400x10x5	20	2:1
		105	WTY1-800-175	9.6	400x10x5	20	2:1
15	1000	60	WTY1-1000-100	6.4	400x10x5	20	2:1
		90	WTY1-1000-150	10.0	400x10x5	20	2:1
		105	WTY1-1000-175	11.7	400x10x5	20	2:1
20	1350	60	WTY1-1350-100	9.3	400x10x8	20	2:1
		90	WTY1-1350-150	14.0	400x10x8	20	2:1
		105	WTY1-1350-175	16.3	400x10x8	20	2:1
24	1600	60	WTY1-1600-100	11.0	400x10x8	20	2:1
		90	WTY1-1600-150	16.4	400x10x8	20	2:1
		105	WTY1-1600-175	19.0	400x10x8	20	2:1



SGL-600



SGL-1000



SGL-1350



SGL-1600

Passenger (Persons)	Load (Kg)	Speed (M/Min)	Model	Motor (Kw)	Main Sheave	Poles	Roping
8	600	60	SGL-600-60	3.7	400x10x3	40	2:1
		90	SGL-600-90	5.6	400x10x3	40	2:1
		105	SGL-600-105	6.5	400x10x3	40	2:1
11	750	60	SGL-1000-60	4.6	400x10x4	40	2:1
		90	SGL-1000-90	6.9	400x10x4	40	2:1
		105	SGL-1000-105	8.1	400x10x4	40	2:1
15	1000	60	SGL-1000-60	6.2	400x10x5	40	2:1
		90	SGL-1000-90	9.2	400x10x5	40	2:1
		105	SGL-1000-105	11.0	400x10x5	40	2:1
20	1350	60	SGL-1350-60	8.3	486x10x7	40	2:1
		90	SGL-1350-90	12.4	486x10x7	40	2:1
		105	SGL-1350-105	14.5	486x10x7	40	2:1
24	1600	60	SGL-1600-60	9.8	486x12x6	40	2:1
		90	SGL-1600-90	14.7	486x12x6	40	2:1
		105	SGL-1600-105	17.1	486x12x6	40	2:1



显示模块 Display Module



DC12V 24V AC12V 24V DC12V DC24V DC12V 24V AC12V 24V DC12V DC24V

Micro Computer Arrangement



MICROPROCESSOR CONTROLLER

We developed Microprocessor controller which is controlled with a high performance computer and with an Inverter flux vector control, directly controls the current (or torque) in an AC induction motor and also PM motor for gearless traction machine.

The primary features as it's superior economical efficiency, premium performance, various functions, simple and easy maintenance and repair.

The program command software of our controller is similar to Mitsubishi PLC's. The software program is stored in an EEPROM. Our controller can service up to 32 floors/32 stops, Maximum 4 car group operation.

ELECTRIC SPECIFICATION

- Main Power: AC 340-440V, 50/60Hz,
- Control Circuit Power: DC 24V, 8.5A (up to 16 stops) 15A (over-17 stops)
- Car Lighting & Fan Power: AC100V-120V or AC200V-230V, 200W Max.
- Brake Voltage: DC100V or DC200V (as per requested)
- CPU: DC5V/2A working power & DC24V/1A driving power
- Car indicator: 7 Segment, 16 Segment or Dot Matrix binary signal com+
- Speed Reduction: Encoder 1024 Pulse
- Usage: Passenger elevator, Freight elevator.

Entrance Design



E-200



E-201



E-100



E-050

ELE-MART

DOOR OPERATOR & LANDING DOOR HEADER



Center Opening (C/O) with VVVF Inverter Speed Control

ขนาดประตูเปิดกว้าง Opening Size (mm.)	ราคาชุดขับเคลื่อนประตูใน Door Operator พร้อมอุปกรณ์ (บาท)	ราคาชุดเซฟตี้ Safety Edges แบบ Double (สองข้าง ซ้าย - ขวา) (บาท)	ราคาชุดเซฟตี้ Safety Edge แบบ Single (ข้างเดียว) (บาท)	ราคาชุดสเตอร์ Door Header พร้อม Sill Support (บาท)
JJ = 800	38,000.-	8,000.-	4,000.-	6,800.-
JJ = 900	42,000.-	8,000.-	4,000.-	7,500.-
JJ = 1000	45,000.-	9,000.-	4,500.-	8,200.-
JJ = 1100	48,000.-	10,000.-	5,000.-	9,800.-



2-Panel Sliding Opening (2S) with VVVF Inverter Speed Control

ขนาดประตูเปิดกว้าง Opening Size (mm.)	ราคาชุดขับเคลื่อนประตูใน Door Operator พร้อมอุปกรณ์ (บาท)	ราคาชุดเซฟตี้ Safety Edge แบบ Single (ข้างเดียว) (บาท)	ราคาชุดสเตอร์ Door Header พร้อม Aluminium Sill (บาท)
JJ = 700	45,700.-	4,700.-	10,500.-
JJ = 800	48,000.-	4,700.-	10,500.-
JJ = 900	49,000.-	4,700.-	10,800.-
JJ = 1000	51,000.-	5,500.-	11,800.-
JJ = 1100	52,000.-	5,600.-	12,300.-
JJ = 1200	53,000.-	5,600.-	13,000.-
JJ = 1300	55,000.-	5,800.-	14,000.-
JJ = 1500	58,000.-	6,000.-	16,000.-

- ราคาไม่รวมภาษีมูลค่าเพิ่ม
- ราคาชุด DOOR OPERATOR 1 ตัว SUPPER CLAMP, CROSSBEAM ARM, STUD BOLT, TRANSVERSE ROD และ BRACKET 1 คู่
- ราคาชุด HEADER (แบบ CENTER (C/O) 1 ตัว ALUMINIUM SILL, JAMB BRACKET, SILL SUPPORT และ TOE GUARD 1 คู่
- ราคาชุด HEADER (แบบ 2-PANEL SIDE OPENING (2S) 1 ตัว ALUMINIUM SILL ไม่รวม JAMB BRACKET, SILL SUPPORT, TOE GUARD
- ราคาของอะไหล่เปลี่ยนอะไหล่ได้โดยมีอะไหล่สำรองไว้ที่ร้าน

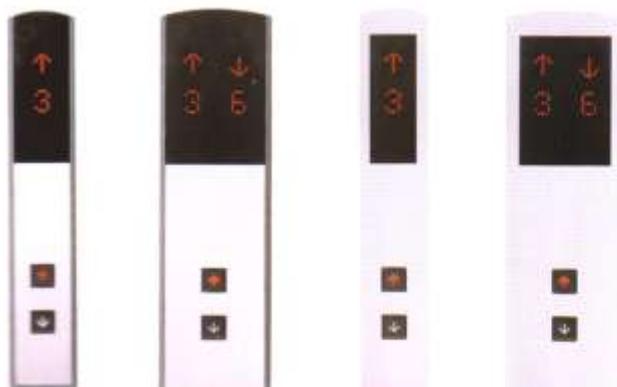
Car Operating Panels



CBM-A110 CBM-C110*

Faceplate	<ul style="list-style-type: none"> ● Plastic in dark grey (CBM-A110) ● Stainless steel hairline (CBM-C110)
Display panel	Smoky grey plastic, matt surface
Direction and position indicator	Digital LED dot display, orange when illuminated
Call button	Microstroke click button in grey plastic
Response light	LED, yellow orange when illuminated

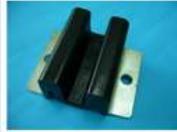
Hall Position Indicators and Call Buttons



PIM-A110 (for one car) PIM-A120 (for two cars) PIM-C110* (for one car) PIM-C120* (for two cars)

Faceplate	<ul style="list-style-type: none"> ● Stainless steel hairline with dark grey plastic case (PIM-A110/A120) ● Stainless steel hairline (PIM-C110/C120)
Display panel	Smoky grey plastic, matt surface
Direction and position indicator	Digital LED dot display, orange when illuminated, flashing direction light on car arrival
Call button	Microstroke click button in grey plastic
Response light	LED, yellow orange when illuminated

* = Options.



MITSUBISHI
GUIDE SHOE 5K



GUIDE SHOE 5K
WITH BRACKET



MITSUBISHI
GUIDE SHOE 8K



MITSUBISHI
GUIDE SHOE 13K



MITSUBISHI GUIDE SHOE
FOR HIGH SPEED



HITACHI
GUIDE SHOE 5K



HITACHI
GUIDE SHOE 8K



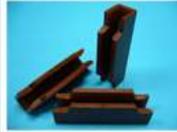
HITACHI
GUIDE SHOE 13K



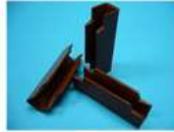
HITACHI PLASTIC
GUIDE SHOE 8K



HITACHI PLASTIC
GUIDE SHOE 13K



PLASTIC GUIDE
8K MITSUBISHI



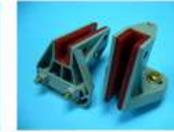
PLASTIC GUIDE
13K MITSUBISHI



PLASTIC GUIDE
8K HITACHI



PLASTIC GUIDE
13K HITACHI



GUIDE SHOE DUMB
10 mm. (PB234)



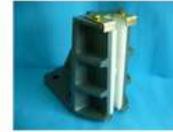
GUIDE SHOE DUMB
5 mm. (PB234)



GUIDE SHOE GSC13K
CAST IRON



GUIDE SHOE GSC24K
CAST IRON



GUIDE SHOE GSF24K
FIXED GUIDE



MITSUBISHI
ROLLER GUIDE UNIT



OTIS GUIDE ROLLER
456CL Ø200x38



OTIS GUIDE ROLLER
456CM Ø124x28.5



OTIS GUIDE ROLLER
456CN Ø95x25.5



EXPRESS GUIDE ROLLER
Ø153x30.5 & Ø114x25



FUJITEC GUIDE
ROLLER Ø100x21



SCHINDLER GUIDE
ROLLER Ø153x32



ROPE SOCKET
8 mm. WEDGE TYPE



ROPE SOCKET
10 mm. WEDGE TYPE



ROPE SOCKET
12 mm. WEDGE TYPE



ROPE SOCKET
16 mm. WEDGE TYPE



ROPE SOCKET



ROPE SOCKET



ROPE SOCKET



ROPE SOCKET



ROPE SOCKET



SAFETY GEAR QJ2500A
MITSUBISHI TYPE
RATED SPEED ≤ 2.5 m/s



SAFETY GEAR QJ2500B
HITACHI TYPE
RATED SPEED ≤ 2.5 m/s



SAFETY GEAR AQ11
THYSSEN TYPE
RATED SPEED ≤ 2.5 m/s



SAFETY GEAR UNIT AH-01Z
INCLUDING 4 SETS OF GUIDE SHOE
8K OR 13K



GOVERNOR WITH TENSION PULLEY
SPEED 0.25 m/s, 0.5 m/s, 1.0 m/s
1.5 m/s, 1.75m/s



SCHINDLER
R6 ROLLER GUIDE
PB268



RS ROLLER GUIDE
PB210



ROLLER GUIDE $\varnothing 205$
PB226



GUIDE RAIL
8K, 13K, 18K, 24K



OIL BUFFER HYF80



OIL BUFFER HYF210A



OIL BUFFER HYF275A



OIL BUFFER HYF425A



The E.M.R. device (ARD) is used in traction lifts, to assure the car return to floor and the door opening in case of main power failure.

E.M.R. can drive any kind of lift motors (alternative or direct current), gearless motors too.

E.M.R. can be easily installed; it is powered by solid state batteries and does not require any maintenance.

E.M.R. is manufactured according with the European EN81 standard and conforms to the international quality system ISO 9001 standard.

MODEL RED-R1(7.5kw), RED-R2(11kw), RED-R3(16kw), RED-R4(24.7kw), RED-R6(45kw) for motor 380V AC



Uninterruptible Power Supply (UPS) or sometimes called a battery backup is a device which maintains a continuous supply of electric power to connected equipment by supplying power from a separate source when utility power is not available.

A UPS for elevator is inserted between the source of power (typically commercial utility power) and VVVF controller. When a power failure or abnormality occurs, the UPS will effectively switch from utility power to its own power source almost instantaneously.



UPS FOR PASSENGER ELEVATOR : MODEL SRP3-380V5 for motor 5.5kw – 15kw
MODEL SRP5-380V5 for motor 18.5kw – 22kw

UPS FOR HOME LIFT : MODEL SRP3-220V5 for motor 1.5kw – 3.7kw

5C.2 Terminology

-Lift, is a Type of vertical transport equipment that efficiently moves people or goods between floor of building, vessel or other structures.

5C.3 General

- Exchange of Information
- Information to be provided by Architect or Engineer.
- Electrical Requirements
- Arrangement of Lift

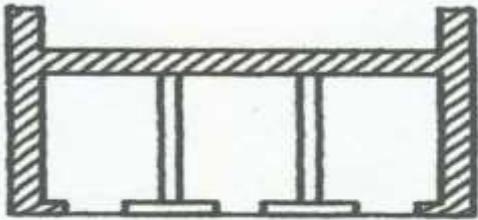
(1) Exchange of Information

- * The number, capacity, speed the number, and disposition of the lifts necessary to give adequate lift service in the proposed building.
- * The provision of adequate access to the machine room.
- * The loads which the lift will impose on the building structure, and the holes to be left in the machine room floor and cut-outs for wall boxes for push-buttons and signals.
- * The necessity for and type of insulation to minimize the transmission of vibration and noise to other parts of the building.
- * The special requirements of local authorities and other requirements set out in the 'planning permit'.

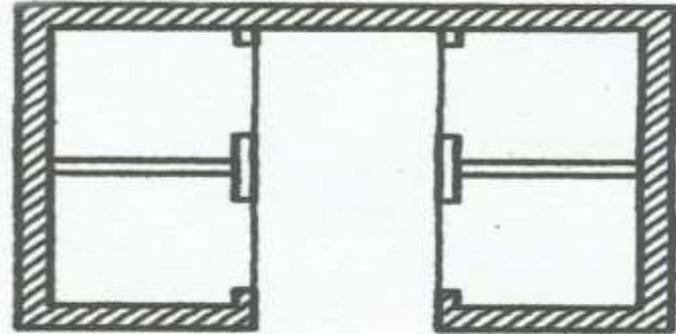
- * The need for the builder to maintain accuracy of building as to dimensions and in plumb.
- * The periods of time required for preparation and approval of relevant drawings for manufacturing and the installation of the lift equipment.
- * The requirements for fixing guide brackets to the building structure; and brackets spacing is not more than 2500 mm.
- * The time at which electric power will be required before completion to allow for testing.
- * Lift well shall be adequately ventilated at the top of the shaft to the external air by means of one or more permanent openings having a total unobstructed area of at least 1% of the horizontal section of the well and not less than 0.1 m² for each lift in the shaft.

- * Where the depth of a pit, measured from the lower terminal landing exceeds 1000 mm and where no other means of access exists, a ladder shall be fixed permanently within reach of the lower terminal landing door. The pit ladder or the handholds for the pit ladder shall extend up to 1500 mm above the bottom terminal floor to enable safe descent into the pit. Where more than one lift is operating in the same pit, pit ladder shall be installed for every lift.
- * Pits shall be waterproofed before installation of the lift equipment by the use of tanking, membranes or other positive means and where required, shall have a covered sump located therein. The sump cover shall be a non-slip type and shall be not easily displaced. The sump shall not be connected to any closed drainage system; but may be connected into an open-ended drain below the sump level so that it cannot be flooded.

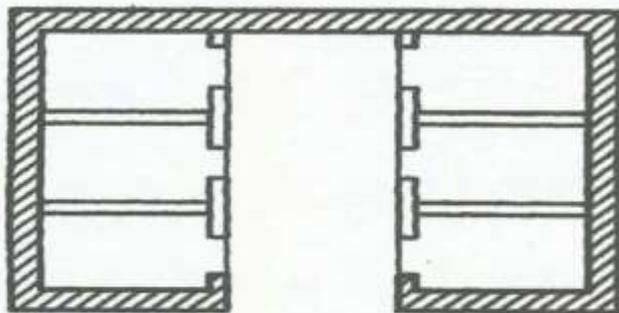
- * Where pumps are required, they shall be installed outside the lift well. Pump shall be effectively partitioned from the lift well and separate access for maintenance. The level of any external sump shall be such that water cannot flow back into the lift well. Drains shall not run into pits.
- * The requirements for electrical supply feeders, etc.
- * The requirements for scaffolding in the lift well and protection of the lift well prior to and during installation of equipment and
- * Delivery and storage of equipment.



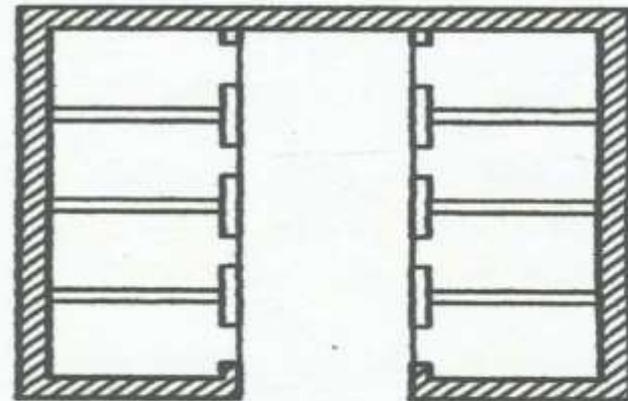
**1A STRAIGHT LINE
ARRANGEMENT FOR THREE LIFTS**



**1B ALCOVE ARRANGEMENT FOR
FOUR LIFTS**



1C ARRANGEMENT FOR SIX LIFTS



1D ARRANGEMENT FOR EIGHT LIFTS

Fig -1 ARRANGEMENT OF LIFTS

5C.4 Essential Requirements

- Conformity with lifts act and Rules.
- Conformity with Myanmar Electricity Act and Rules.
- Conformity with Myanmar Standards.
- Conformity with Fire Regulations.
- Factor of Safety.

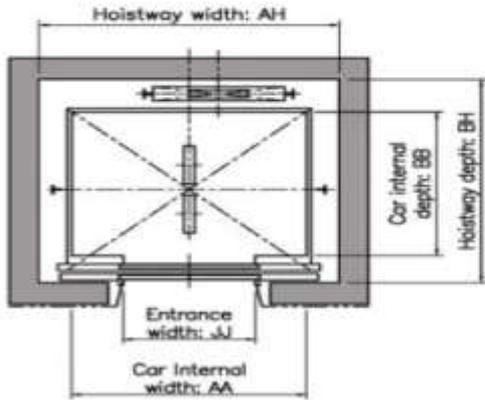
The minimum factor of safety for any part of the lift shall not be less than five. Higher factor of safety for various parts shall be applicable in accordance with accepted standards EN-81-1-1998.

1. Recommended Dimensions of Passenger Lifts and Service Lifts

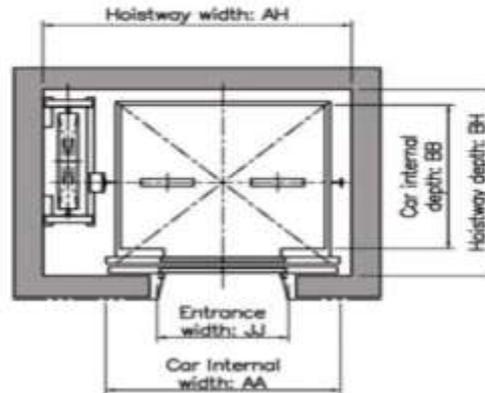
(Machine Room System)

All dimensions in millimeters

Hoistway Plan

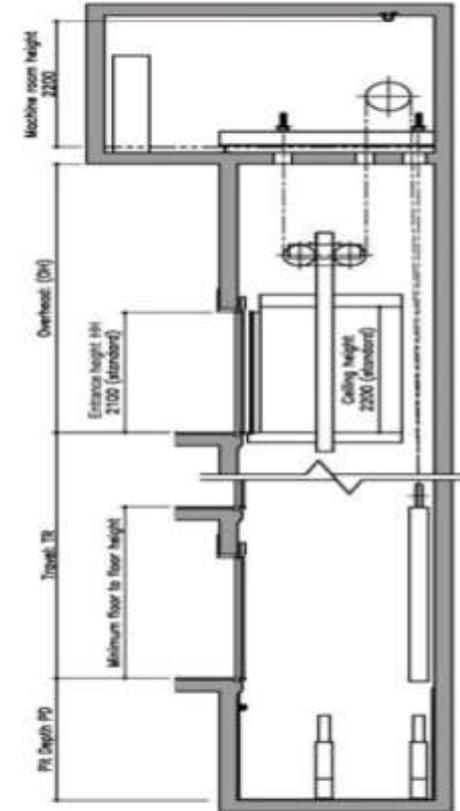


Shown for CO doors
Counterweight rear drop

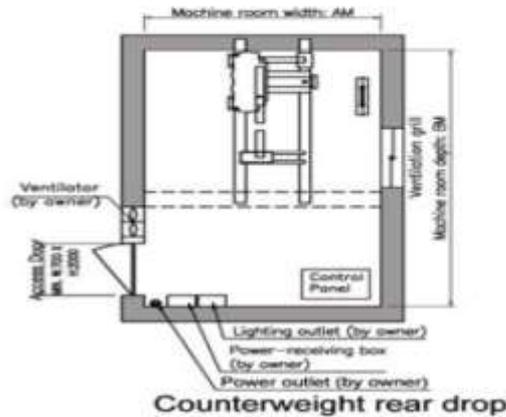


Shown for CO doors
Counterweight side drop

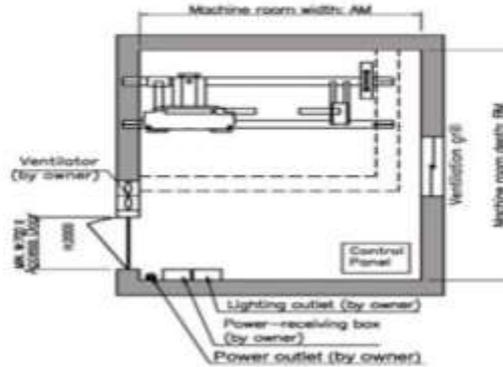
Hoistway Section



Machine Room Plan



Counterweight rear drop



Counterweight side drop

Table-1(a)

Number of persons	Rated Capacity (kg)	Rated Speed (m/sec)	Door Type	Entrance Width (mm) JJ	Car internal dimensions (mm) AA x BB	Counter-weight position	Minimum hoistway dimensions (mm) AH x BH /car	Minimum machine room dimensions (mm) AM x BM /car
6	450	1.0	CO	800	1400x850	Rear	1750x1400	2000x3250
						Side	2100x1200	2500x2900
8	550	1.0			1400x1030	Rear	1750x1590	2000x3350
		1.5				Side	2100x1380	2500x3000
9	600	1.0			1400x1100	Rear	1750x1660	2000x3550
		1.0				Side	2100x1450	2500x3000
10	700	1.0			1400x1250	Rear	1750x1810	2000x3600
		1.5				Side	2100x1600	2500x3100
11	750	1.0 1.5 1.75			1400x1350	Rear	1750x1910	2000x3700
						Side	2100x1700	2500x3100
13	900				900	Rear	2050x1910	2100x3700
						Side	2400x1730	2500x3100
15	1000			1600x1500	Rear	2050x2060	2100x3850	
					Side	2400x1880	2500x3200	
17	1150			1000	Rear	2250x1860	2300x3700	
					Side	2600x1680	2600x3000	
				1800x1500	Rear	2250x2110	2300x3900	
					Side	2650x1880	2900x3100	
20	1350			1100	Rear	2450x1960	2500x3450	
					Side	2850x1730	3100x3000	
				1000	Rear	2250x2310	2300x4100	
					Side	2650x2080	3000x3200	
2000x1550	Rear			2450x2160	2500x3650			
	Side			2850x1930	3200x2800			

Table 1(b)

Rated Speed (m/sec)	Maximum travel (m) TR	Maximum number of Stops	Minimum overhead (mm) OH	Minimum pit depth (mm) PD	Minimum machine room clear height (mm)	Minimum floor to floor height (mm)
25	60	30	4400	1360	2200	2500
1.5	90		4560	1410		
1.75			4630	1410		

Lift well Enclosures

- Lift well enclosures are made concrete wall or Brick wall in up to 9 stop but more than 9 stop, must be do concrete wall only.

Lift Pits

- Pits shall be of sound construction and maintained in a dry and clean condition.
- Pit depth exceeds 1.5 meter suitable descending arrangement.
- Suitable fixed ladder
- A light point with a switch shall also be provided for facility of maintenance and repair work.

Machine Rooms and Overhead Structures

- Adequately lighted and rendered fire-proof and weather-proof.
- The machine room shall have sufficient floor area for inspection and maintenance or repair.
- The room shall be kept closed.
- The height of the machine room shall be sufficient to allow any portion of equipment to be accessible and removable for repair and replacement and shall be not less than 2m clear.
- It is desirable that emergency exit may be provided in case of large machine rooms having four or more lifts.
- The ambient temperature of machine room shall be maintained between +5°C and +45°C.

5C.5 Dimensional Tolerances

- Plan dimensions of lift wells given by the lift maker represent the minimum clear plumb size.
- Finished landing openings should be accurate to design size and plumb one above the other for the full travel of the lift.

5C.6 Preliminary Design

- Two basic considerations
 - (a) the quantity of service
 - (b) the quality of service

Quantity of Service

Type of Building

Office – Diversified tenants

Office – Single tenant

Residential

Handling Capacity

10 to 15 percent

15 to 25 percent

7.5 percent

Quality of Service

20 to 25 seconds

Excellent

30 to 35 seconds

Good

36 to 40 seconds

Fair

41 to 45 seconds

Poor

Over 45 seconds

Unsatisfactory

Speed

No. of Floors

4 to 5

Speed

0.5 to 0.75m/s

6 to 12

0.75 to 1.5m/s

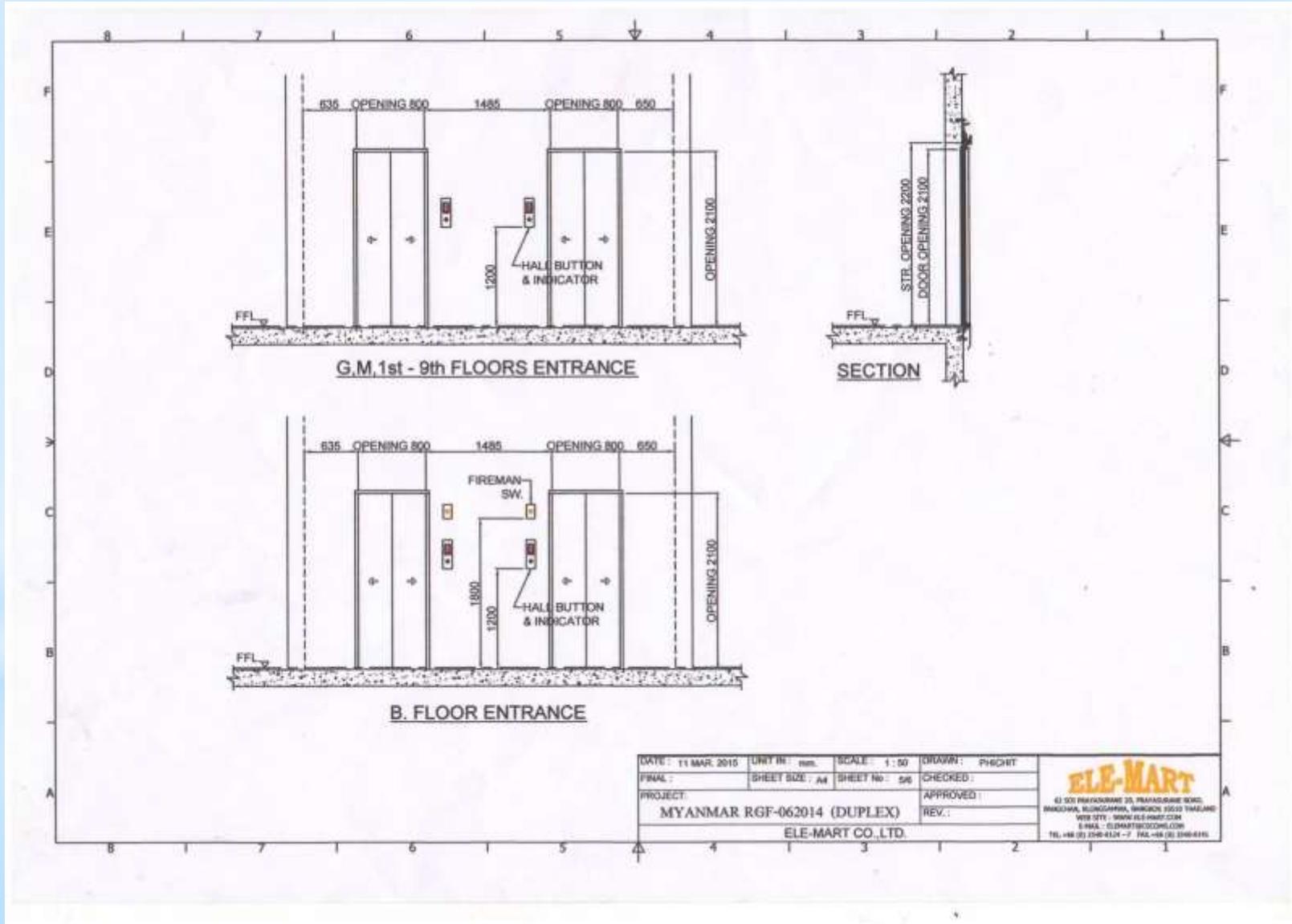
13 to 20

1.5 to 2.5m/s

Above 20

2.5 m/s and above

Requirements for Fireman's Lift



DATE: 11 MAR 2010	UNIT IN: mm	SCALE: 1:50	DRAWN: PHSCHT
FINAL:	SHEET SIZE: A4	SHEET No: 56	CHECKED:
PROJECT:	MYANMAR RGF-062014 (DUPLEX)		APPROVED:
ELE-MART CO., LTD.			REV.:

ELE-MART
 41/50 PHAYAGYI ROAD, PHAYAGYI TOWNSHIP, YANGON 1100 THAILAND
 WEB SITE: WWW.ELE-MART.COM
 E-MAIL: ELE-MART@GMAIL.COM
 TEL: +95 (9) 256-4121-7 FAX: +95 (9) 256-4141

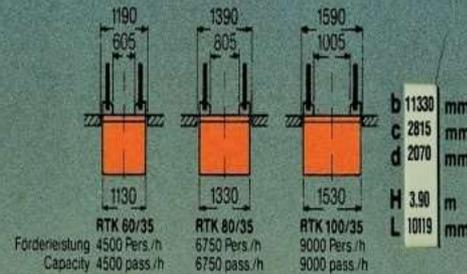
- (a) Height of 22m or more at least one lift
- (b) Not less than 8 persons / 550 kg or 1.44 square meters of car floor area.
- (c) A minimum of fire resistance of one hour.
- (d) Doors shall be of automatic operation for car and landing.

Alle Maße in Millimetern.
Bei Sonderaußenverkleidung erhöht sich die Grubenbreite um 2×20 mm.
Die Auflagerkräfte enthalten Eigenmasse + Verkehrsmasse (500 kg/m^2).

All dimensions in millimeters.
Pit width must be changed for special outer panels ($+2 \times 20$ mm).
Reaction load = dead weight + passenger load (500 kg/m^2).

*Längere Balustradenköpfe oben + unten möglich

*Longer newels possible at top and bottom



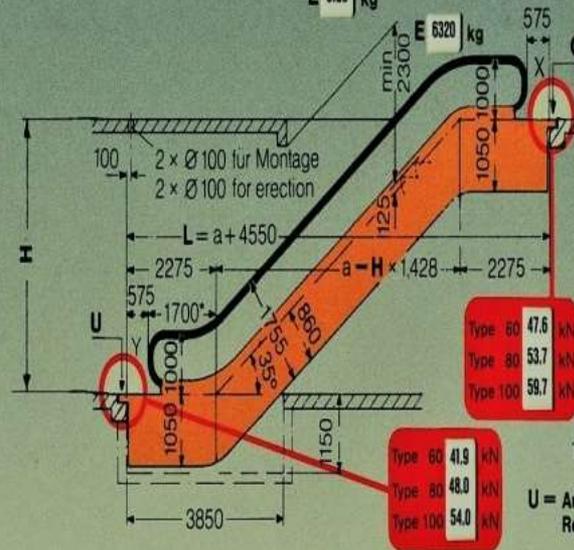
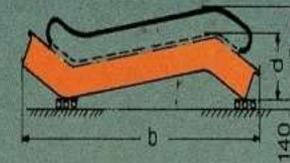
E 5910 kg

E 6120 kg

E 6320 kg

All dimensions in millimeters.
Pit width must be changed for special outer panels ($+2 \times 20$ mm).
Reaction load = dead weight + passenger load (500 kg/m^2).

E = Eigenmasse.
Dead weight.



Einzelheit X, Y spiegelbildlich
detail X, Y mirror image
OKFF
floor level finished

35°

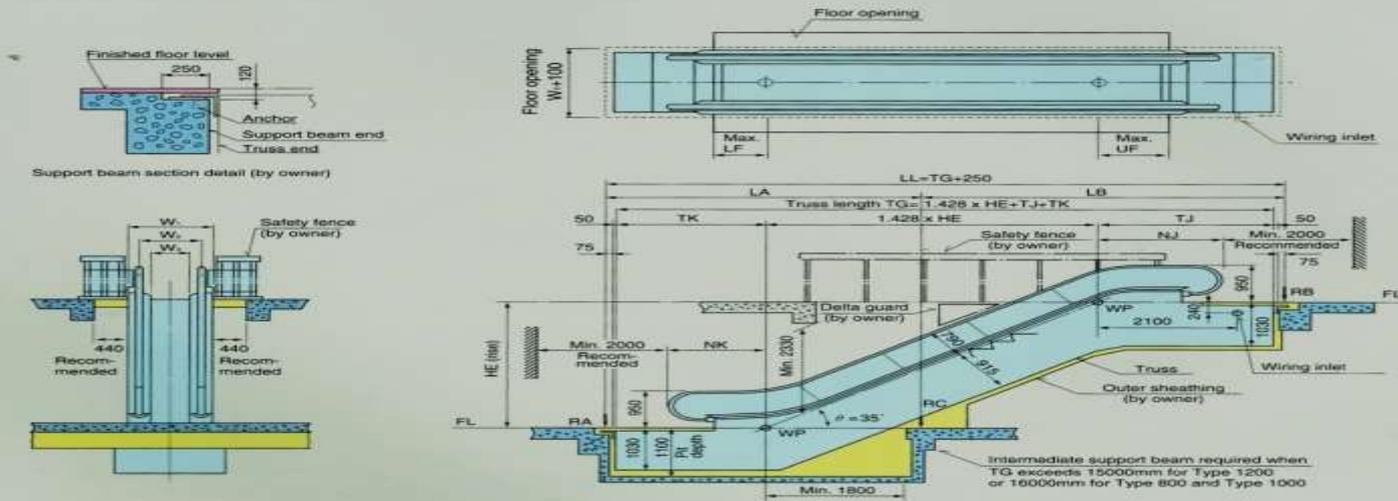
Rolltreppe Typ RTK-B
für Kaufhaus- und Verwaltungsbauten

Escalator Type RTK-B
for dept. stores and office buildings

O&K Rolltreppen GmbH
Nierenhofer Straße 10
D-4320 Hattingen
Telex 8 229 971
Telefax (0 23 24) 20 52 15



35° INCLINATION ANGLE



• Dimensions (mm)

Type	800			1000			1200						
	JS-B	JS-LB	JP-B	JS-SB	JS-B	JS-LB	JP-B	JS-SB	JS-B	JS-LB	JP-B		
Width of escalator W_1	1150			1350			1550						
Width between moving handrails W_2	880	960	1008	1080			1260						
Width between skirt panels W_3	610			810			1010						
Length of newel and truss, and other dimensions (Rise $HE \leq 6000$)	NJ	1885	1840	2300	1885	1840	2300	1885	1840	1885	1840		
	NK	1635	1590	2050	1635	1590	2050	1635	1590	1635	1590		
	TJ	2600 std. (*) (2885) (**)			2600 std. (*) (2885) (**)			2600 (*)			2600 (*)		
	TK	2350			2350			2350					
	UF	1235			1650			1650			1235		
LF	985			1400			985			1400			

Notes (*): Dimension TJ may be extended if automatic operation or auto announcement is required.
 (**): This dimension (TJ) is required when auxiliary brake is provided.

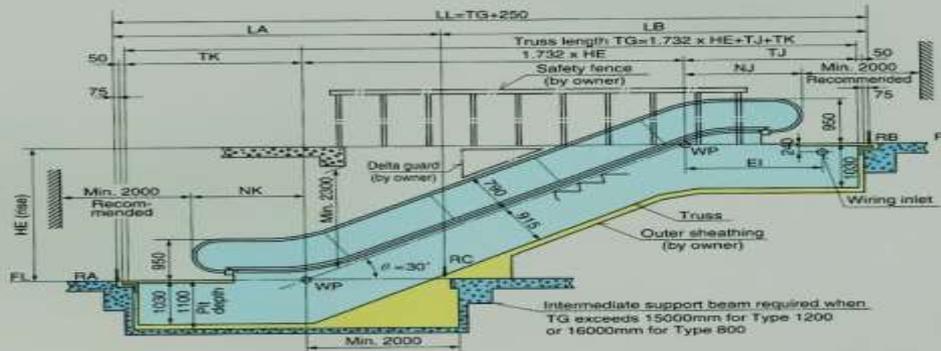
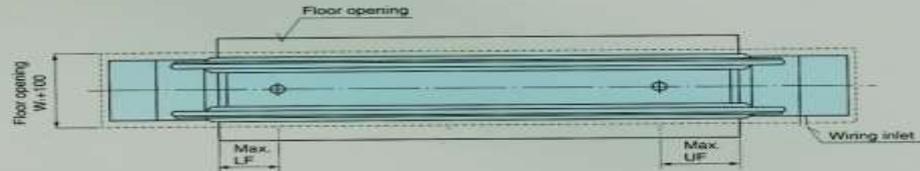
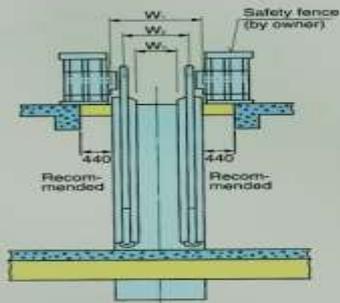
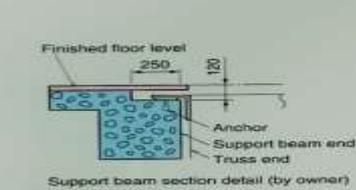
• Reaction Loads on Beam (kg)

	Without intermediate support beam	With intermediate support beam
RA	$\alpha \cdot LL + \beta \cdot \frac{TJ - 1265}{LL}$	$\alpha \cdot LA$
RB	$\alpha \cdot LL + \beta \cdot \frac{TJ - 1265}{LL}$	$\alpha \cdot LB + \beta \cdot \frac{TJ - 1265}{LB}$
RC	—	$\alpha \cdot LL + \beta \cdot \frac{TJ - 1265}{LB}$

• Reaction Load Factors

Type	α (kg/mm)	β (kg)
1200	0.53	800
1000	0.46	
800	0.40	

30° INCLINATION ANGLE

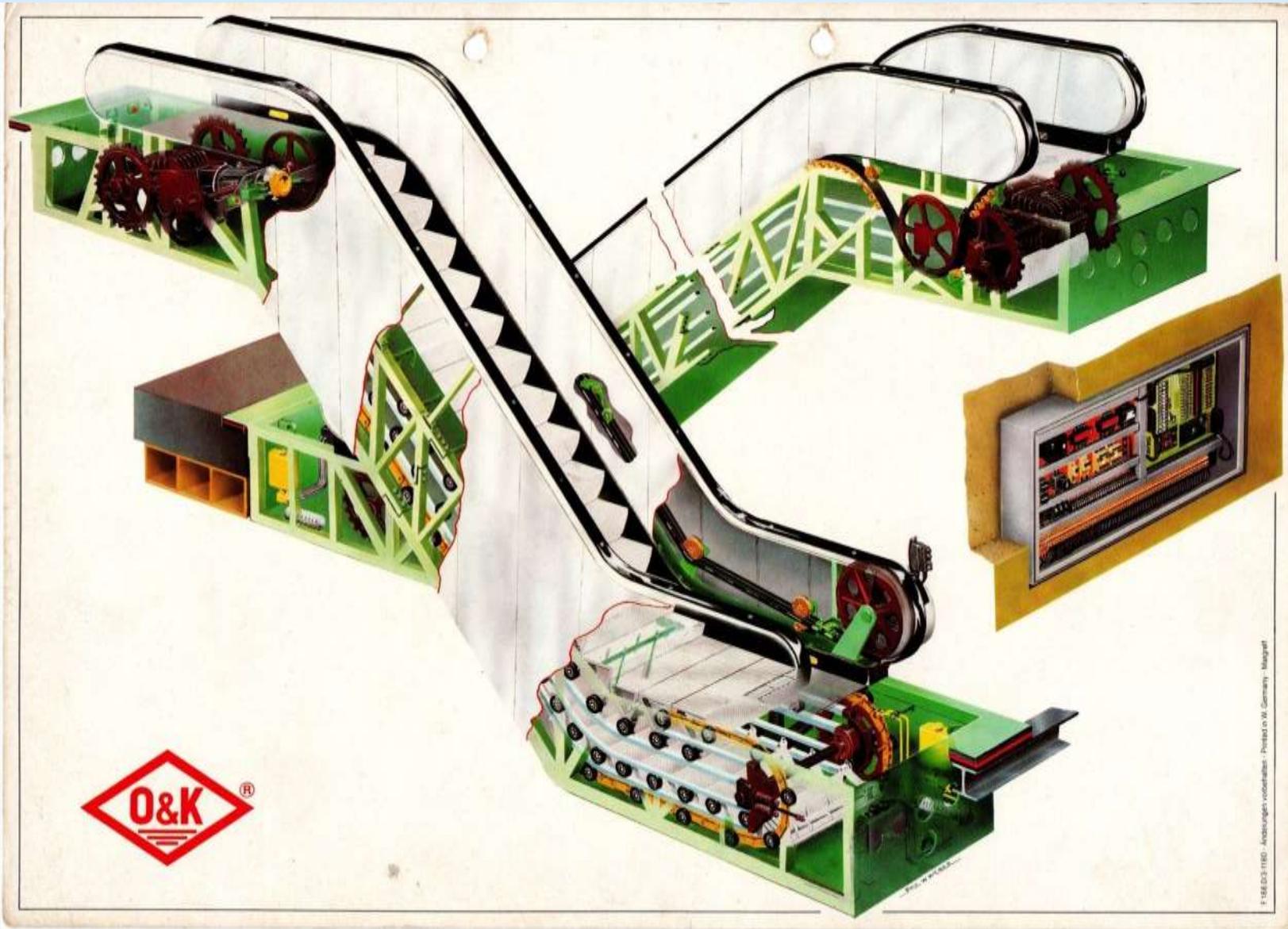


• Reaction Loads on Beam (kg)

	Without intermediate support beam	With intermediate support beam
RA	$\alpha \cdot LL + \beta \cdot \frac{TJ \cdot \gamma}{LL}$	$\alpha \cdot LA$
RB	$\alpha \cdot LL + \beta \cdot \frac{TJ \cdot \gamma}{LL}$	$\alpha \cdot LB + \beta \cdot \frac{TJ \cdot \gamma}{LB}$
RC	—	$\alpha \cdot LL + \beta \cdot \frac{TJ \cdot \gamma}{LB}$

• Reaction Load Factors

Type	α	β	γ
1200	0.53	800	1265...HE \leq 6000 1675...6000 < HE \leq 6500
1000	0.46		
800	0.40		



F 188 03 1180 - Antriebsgehäuse - Printed in W. Germany - May 1971

Thank You