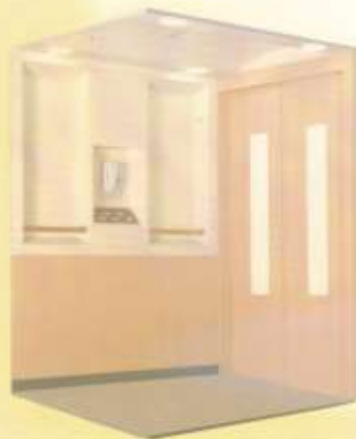




**MYANMAR NATIONAL BUILDING CODE  
TWG No.5 - BUILDING SERVICES  
LIFT & ESCALATOR**



**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 สำหรับลิฟต์ไม่มีห้องเครื่อง

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



SIMPLEX



SIMPLEX



DUPLEX WITH GROUP CONTROLLER

### 显示模块 Display Module



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

### Micro Computer Arrangement

コンピュター系統



Py-602

Power & Drive Interface Board

マイコンボード

Py-602

Power & Drive Interface Board

マイコンボード

## 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 แยก
- ราคาชุด HEADER แบบ CENTER (C/O) 1 ตัว ALUMINIUM SILL, JAMB BRACKET, SILL SUPPORT และ TOE GUARD แยก
- ราคาชุด HEADER แบบ 2-PANEL SIDE OPENING (2S) 1 ตัว ALUMINIUM SILL ไม่รวม JAMB BRACKET, SILL SUPPORT, TOE GUARD
- ราคาอาจเปลี่ยนแปลงได้โดยไม่ต้องแจ้งให้ทราบล่วงหน้า

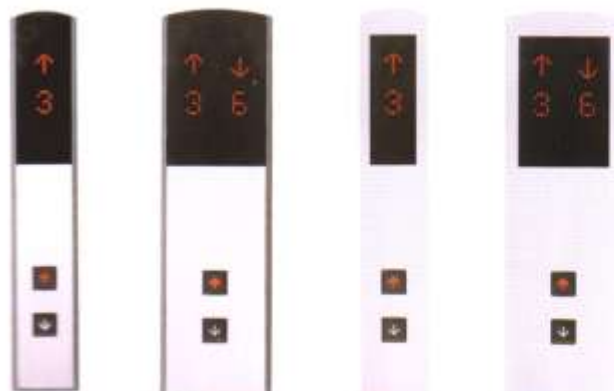
# Car Operating Panels



CBM-A110      CBM-C110\*

Faceplate	<ul style="list-style-type: none"> <li>● Plastic in dark grey (CBM-A110)</li> <li>● Stainless steel hairline (CBM-C110)</li> </ul>
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

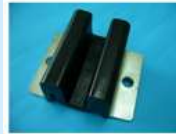


PIM-A110      PIM-A120      PIM-C110\*      PIM-C120\*

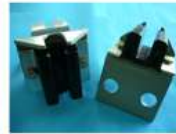
(for one car)      (for two cars)      (for one car)      (for two cars)

Faceplate	<ul style="list-style-type: none"> <li>● Stainless steel hairline with dark grey plastic case (PIM-A110/A120)</li> <li>● Stainless steel hairline (PIM-C110/C120)</li> </ul>
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

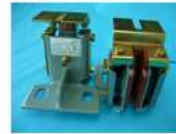
\* = Options.



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



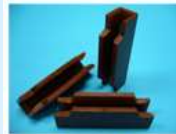
HITACHI  
GUIDE SHOE 13K



HITACHI PLASTIC  
GUIDE SHOE 8K



HITACHI PLASTIC  
GUIDE SHOE 13K



PLASTIC GUIDE  
8K MITSUBISHI



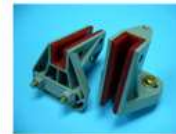
PLASTIC GUIDE  
13K MITSUBISHI



PLASTIC GUIDE  
8K HITACHI



PLASTIC GUIDE  
13K HITACHI



GUIDE SHOE DUMB  
10 mm. (PB234)



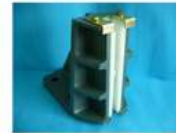
GUIDE SHOE DUMB  
5 mm. (PB234)



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  $\leq 2.5$  m/s



SAFETY GEAR QJ2500B  
HITACHI TYPE  
RATED SPEED  $\leq 2.5$  m/s



SAFETY GEAR AQ11  
THYSSEN TYPE  
RATED SPEED  $\leq 2.5$  m/s



SAFETY GEAR UNIT AH-012  
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, 1.75 m/s



SCHINDLER  
R6 ROLLER GUIDE  
PB268



RS ROLLER GUIDE  
PB210



ROLLER GUIDE Ø205  
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

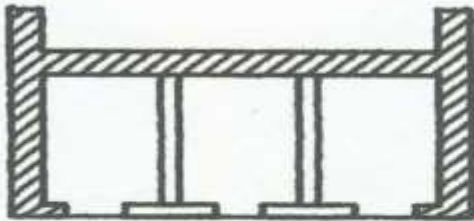
## **(1)Exchange of Information**

- \* 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'.

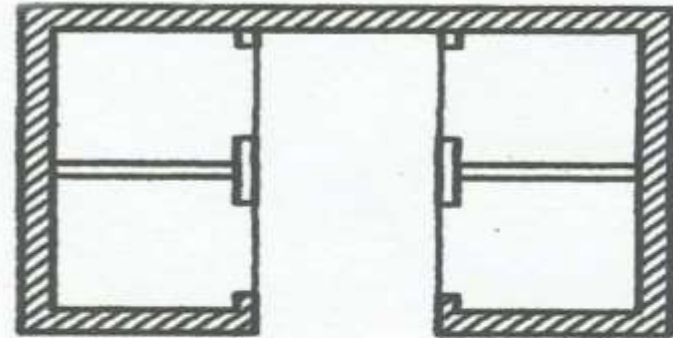
- \* The need for the builder to maintain accuracy of building as to dimensions and in plumb.
- \* The periods of time required for preparation and approval of relevant drawings for manufacturing and the installation of the lift equipment.
- \* The requirements for fixing guide brackets to the building 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 m<sup>2</sup> 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.

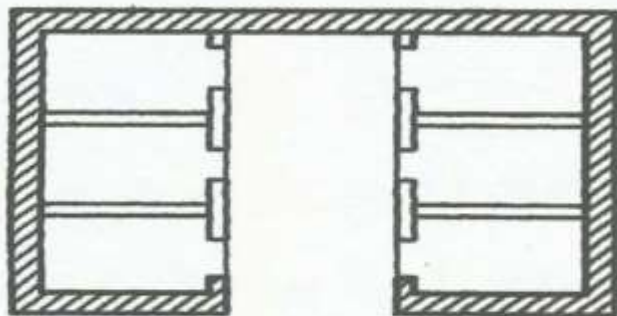
- \* Where pumps are required, they shall be installed outside the lift well. Pump shall be effectively partitioned from the lift well and separate access for maintenance. The level of any external sump shall be such that water cannot flow back into the lift well. Drains shall not run into pits.
- \* 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.



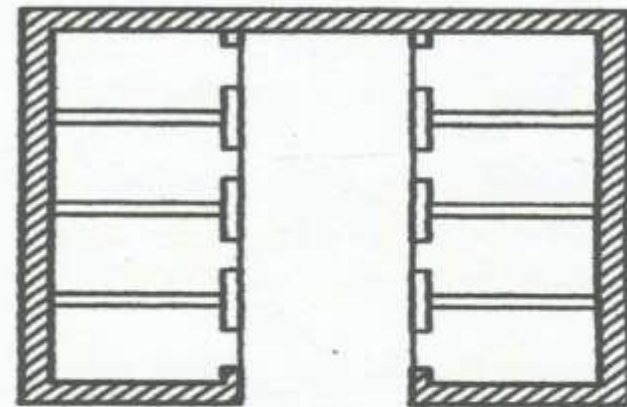
**1A STRAIGHT LINE  
ARRANGEMENT FOR THREE LIFTS**



**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.

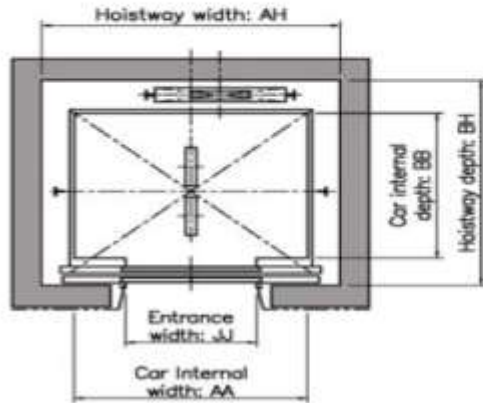
The minimum factor of safety for any part of the lift shall not be less than five. Higher factor of safety for various parts shall be applicable in accordance with accepted standards EN-81-1-1998.

# 1. Recommended Dimensions of Passenger Lifts and Service Lifts

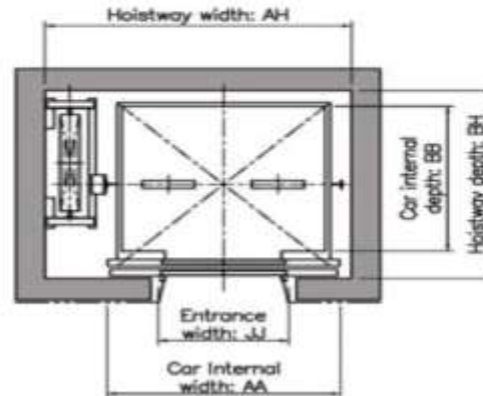
## (Machine Room System)

All dimensions in millimeters

### Hoistway Plan

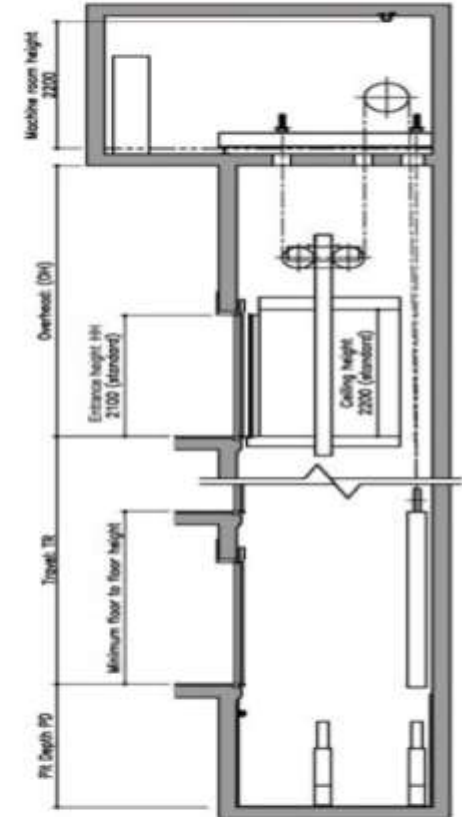


Shown for CO doors  
Counterweight rear drop

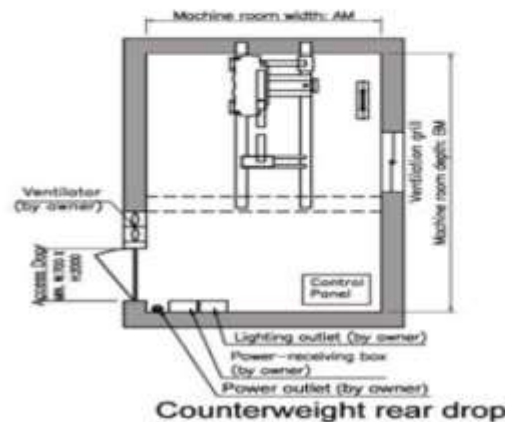


Shown for CO doors  
Counterweight side drop

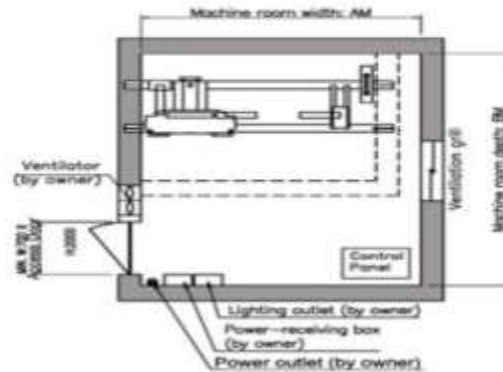
### Hoistway Section



### 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						2000x3600
		1.0				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						2000x3650
						Side	2100x1600	2500x3100
11	750				1400x1350	Rear	1750x1910	2000x3700
						Side	2100x1700	2500x3100
13	900			900	1600x1350	Rear	2050x1910	2100x3700
						Side	2400x1730	2500x3100
15	1000				1600x1500	Rear	2050x2060	2100x3850
						Side	2400x1880	2500x3200
				1000	1800x1300	Rear	2250x1860	2300x3700
17	1150					Side	2600x1680	2600x3000
					1800x1500	Rear	2250x2110	2300x3900
						Side	2650x1880	2900x3100
20	1350			1100	2000x1350	Rear	2450x1960	2500x3450
						Side	2850x1730	3100x3000
				1000	1800x1700	Rear	2250x2310	2300x4100
						Side	2650x2080	3000x3200
				1100	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	Minimun 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

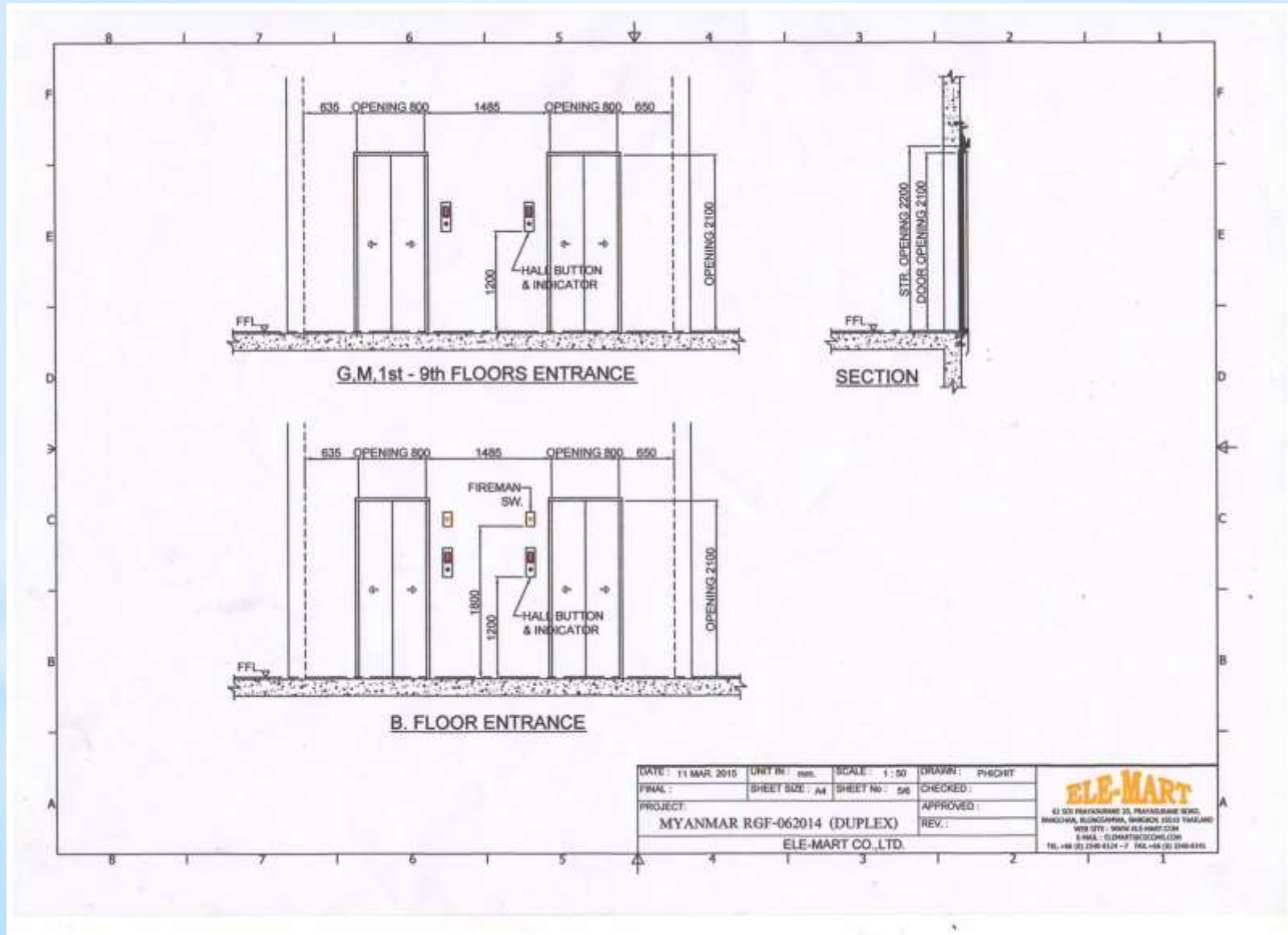
13 to 20

1.5 to 2.5m/s

Above 20

2.5 m/s and above

# Requirements for Fireman's Lift



- (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.

\*Longer newels possible  
at top and bottom

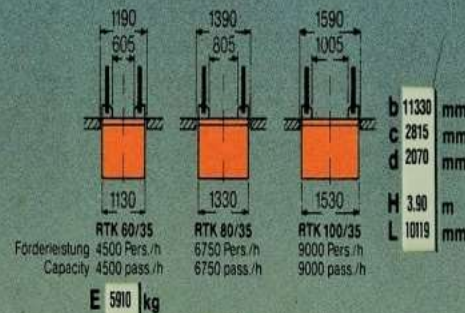


Alle Maße in Millimetern.  
Bei Sonderaußenverkleidung  
erhöht sich die Grubenbreite  
um  $2 \times 20$  mm.  
Die Auflagerkräfte enthalten  
Eigenmasse + Verkehrs-  
masse ( $500 \text{ kg/m}^2$ ).

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

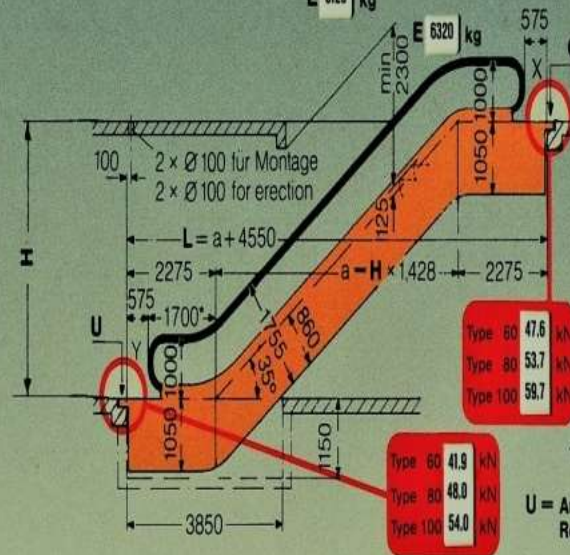
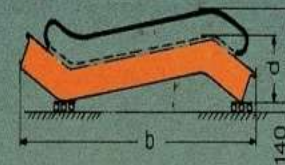
\*Längere Balustradenköpfe  
oben + unten möglich

\*Longer newels possible  
at top and bottom



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

**E = Eigenmasse.**  
**Dead weight.**



**O = Auflagerkraft, oben.**  
**Reaction, top.**

**U = Auflagerkraft, unten.**  
**Reaction, bottom.**

1 kN  $\approx$  102 kp

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

**35°**

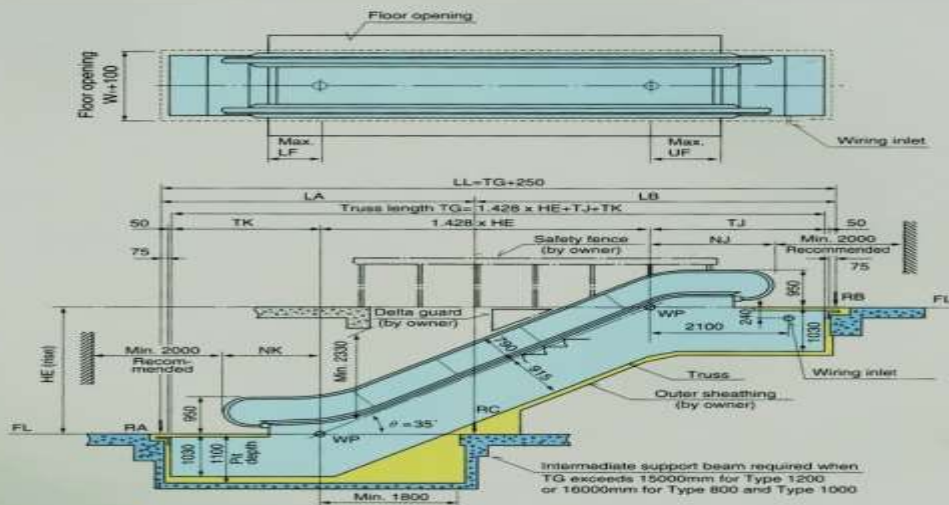
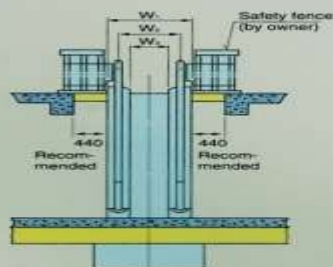
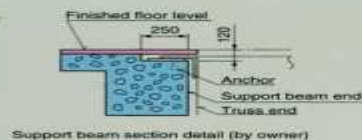
**Rolltreppe Typ RTK-B**  
für Kaufhaus- und Verwaltungsbauten

**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		1150			1350			1550				
Width between moving handrails		880			1080			1280				
Width between skirt panels		610			810			1010				
Length of newel and truss, and other dimensions (Rise HE ≤ 6000)		NJ		1885	1840	2300	1885	1840	2300	1885	1840	
		NK		1635	1590	2050	1635	1590	2050	1635	1590	
		TJ		2600 std. (*) (2885) (**)			2600 std. (*) (2885) (**)			2600 (*)	2600 (*)	
		TK		2350			2350			2350		
		UF		1235			1235			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.

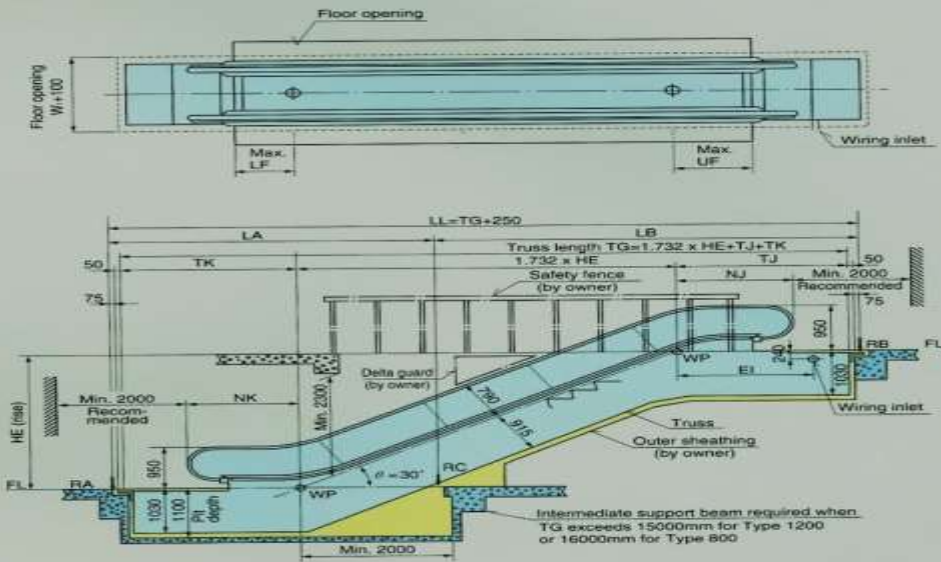
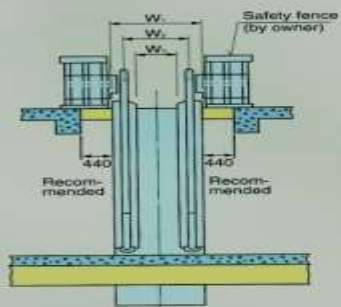
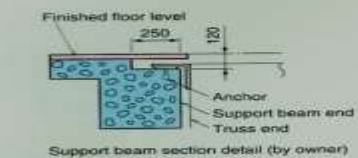
### • Reaction Loads on Beam (kg)

	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	$\alpha$ (kg/mm)	$\beta$ (kg)
1200	0.53	800
1000	0.46	
800	0.40	

### 30° INCLINATION ANGLE

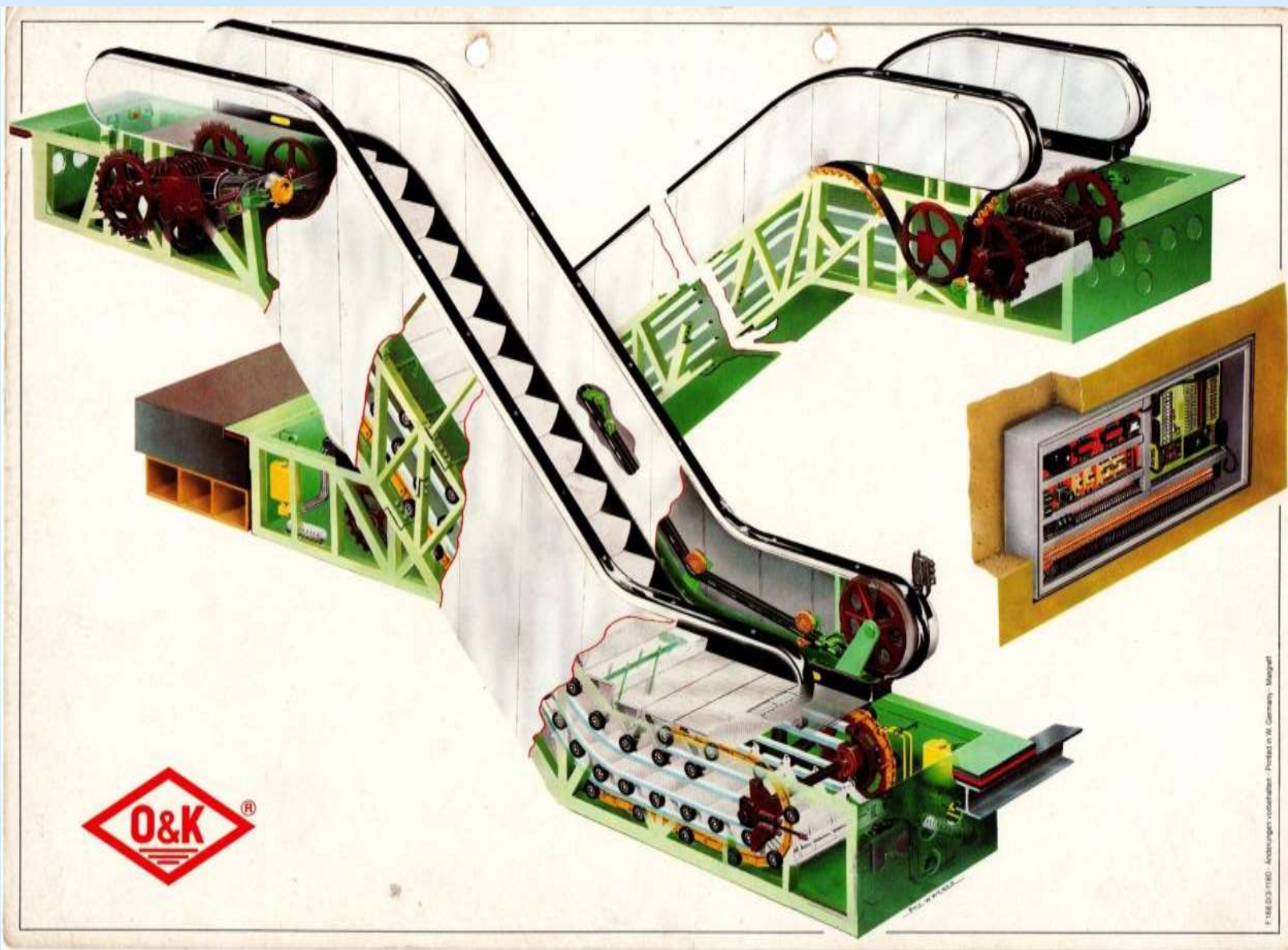


- Reaction Loads on Beam (kg)

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

- Reaction Load Factors

Type	$\alpha$	$\beta$	$\gamma$
1200	0.53	800	1265...HE $\leq$ 6000 1675...6000 < HE $\leq$ 6500
1000	0.46		
800	0.40		



Thank You