Technical Description
ALIMAK SCANDO 450
Construction Hoists

This manual is only applicable if the manufacturing number indicated below corresponds to the manufacturing number stamped on the identification sign of the equipment. Where there is a conflict contact your ALIMAK representative.

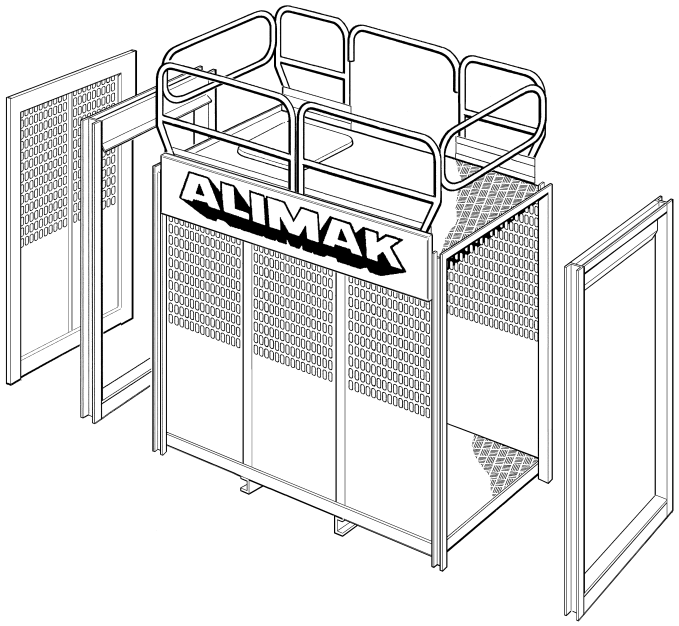
YOUR HOIST HAS:

Manufacturing No.:	**Year:**	Part No. 9103796 - 1 05 2009 - 11 - 12

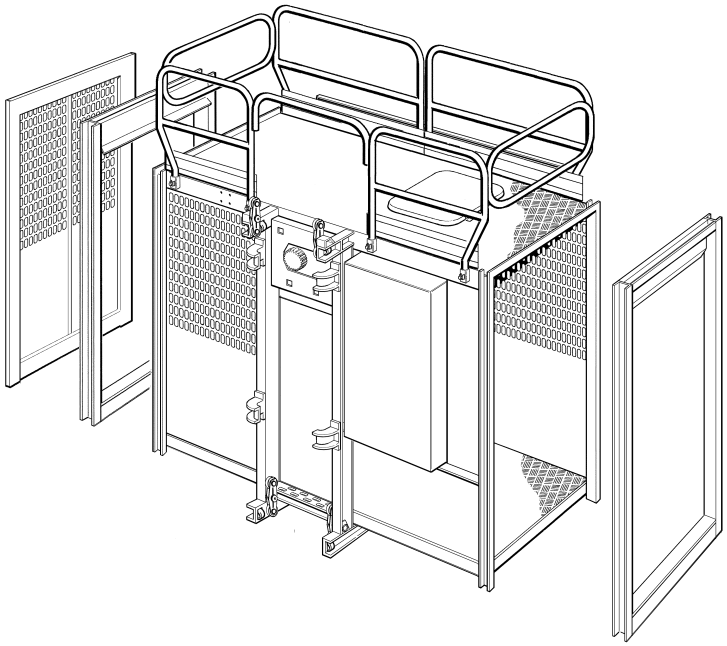
CONTENTS

See Operator’s Manual for chapter C, D, E and F.

2.0 m car base structure

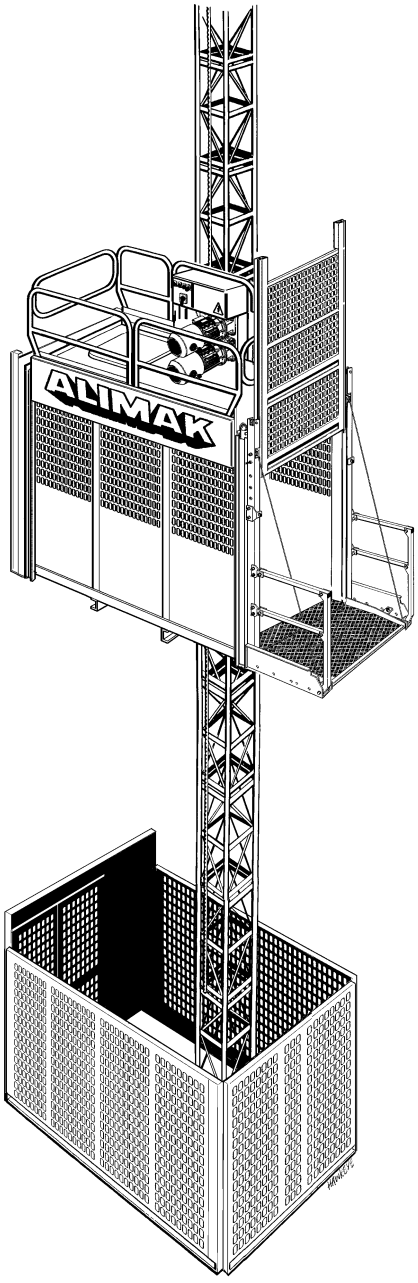


2.6 m car base structure



Technical description

General



The SCANDO 450 hoists are construction hoists for personnel and materials transport. Two car base structures can be combined with different gate units and extensions to a number of different car lengths up to maximum 3.2 m.
Car width 1.4 m is fixed.
The hoists have a lifting capacity of maximum 2000 kg up to a lifting height of 150 m.
Lifting speed is 30 m/min. or 38 m/min., alt. 42 or maximum 54 m/min. with VFC-operation.
The SCANDO 450 construction hoist can be set up with single or dual cars.

The hoist is easily transported by truck, to and from the erection site and handled with forklift trucks or jib cranes on the site.

The SCANDO 450 construction hoist is a part of the SCANDO 450 access system and can be combined with other products, i.e. platforms or materials hoists.

Regulations

The hoist and its mechanical and electrical components are designed and dimensioned to conform to operating conditions on contruction sites and fulfil demands according to EN 12159 and ANSI/ASME. The hoists and its components have been thoroughly tested and conform to one or several of the following international/national standards: IEC, CEE, EN, DIN, UL, CSA, SS etc.

Necessary documents such as operator’s manual, wiring diagrams, circuit diagrams and spare parts lists are delivered with the hoist.

Foundation

The foundation is a reinforced concrete slab and cast ”in place” in accordance with instructions given under **”Preparations before installation”** and **”Concrete slab dimensions”** in this manual.
A transportable sheet steel foundation or a precast concrete slab can also be used.

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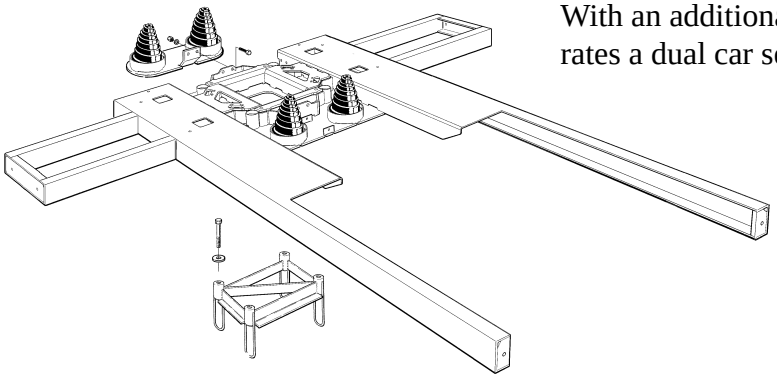
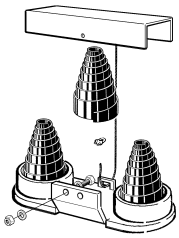
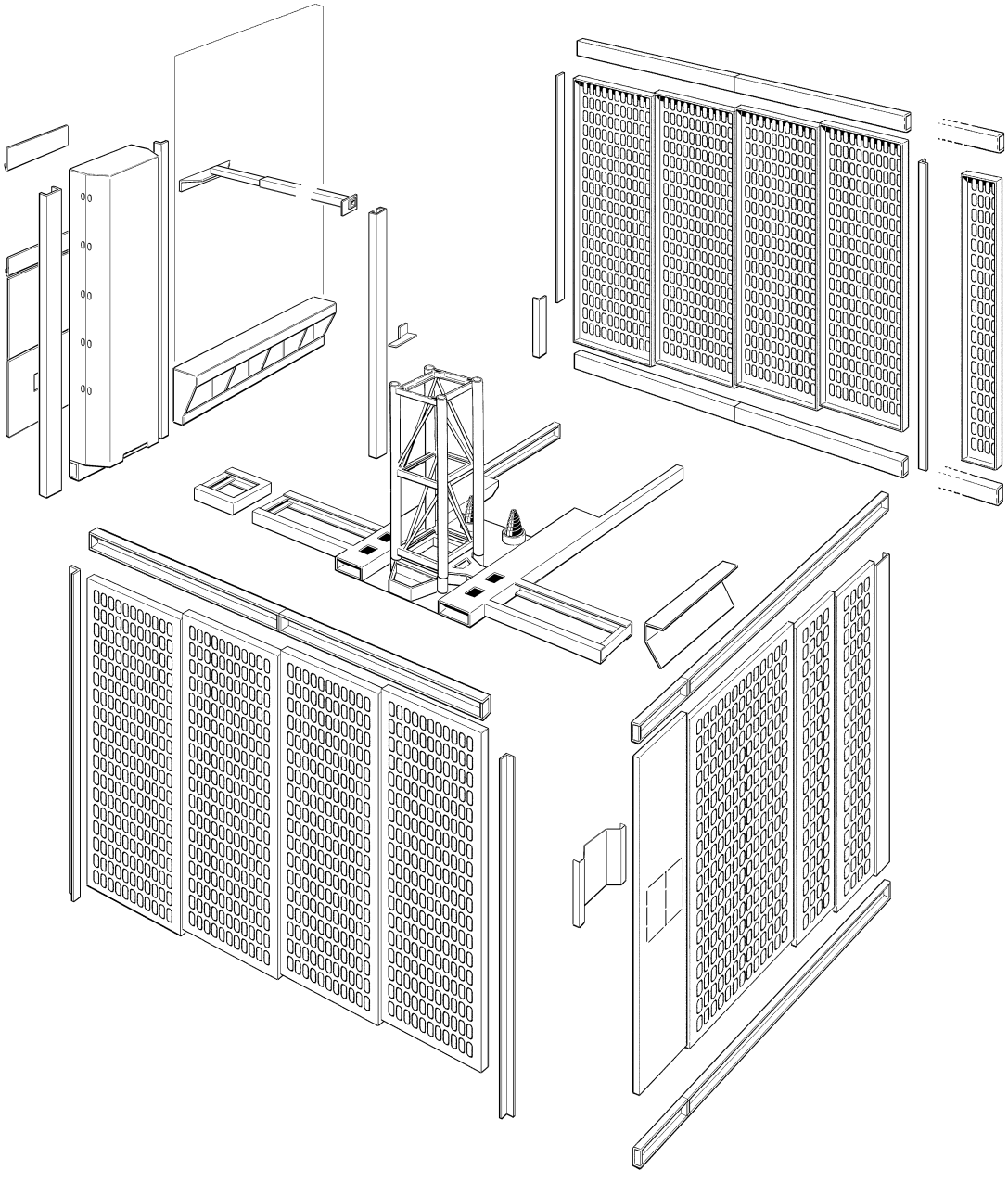
Base frame

The bottom mast section is bolted to the base frame, which incorporates 2 buffer positions, channels for fork lifting and 4 outriggers to support the enclosure.
The hoist can be used freestanding, bolted to the transportable sheet steel foundation or the concrete slab.
With an additional buffer support the base frame also incorporates a dual car set up.



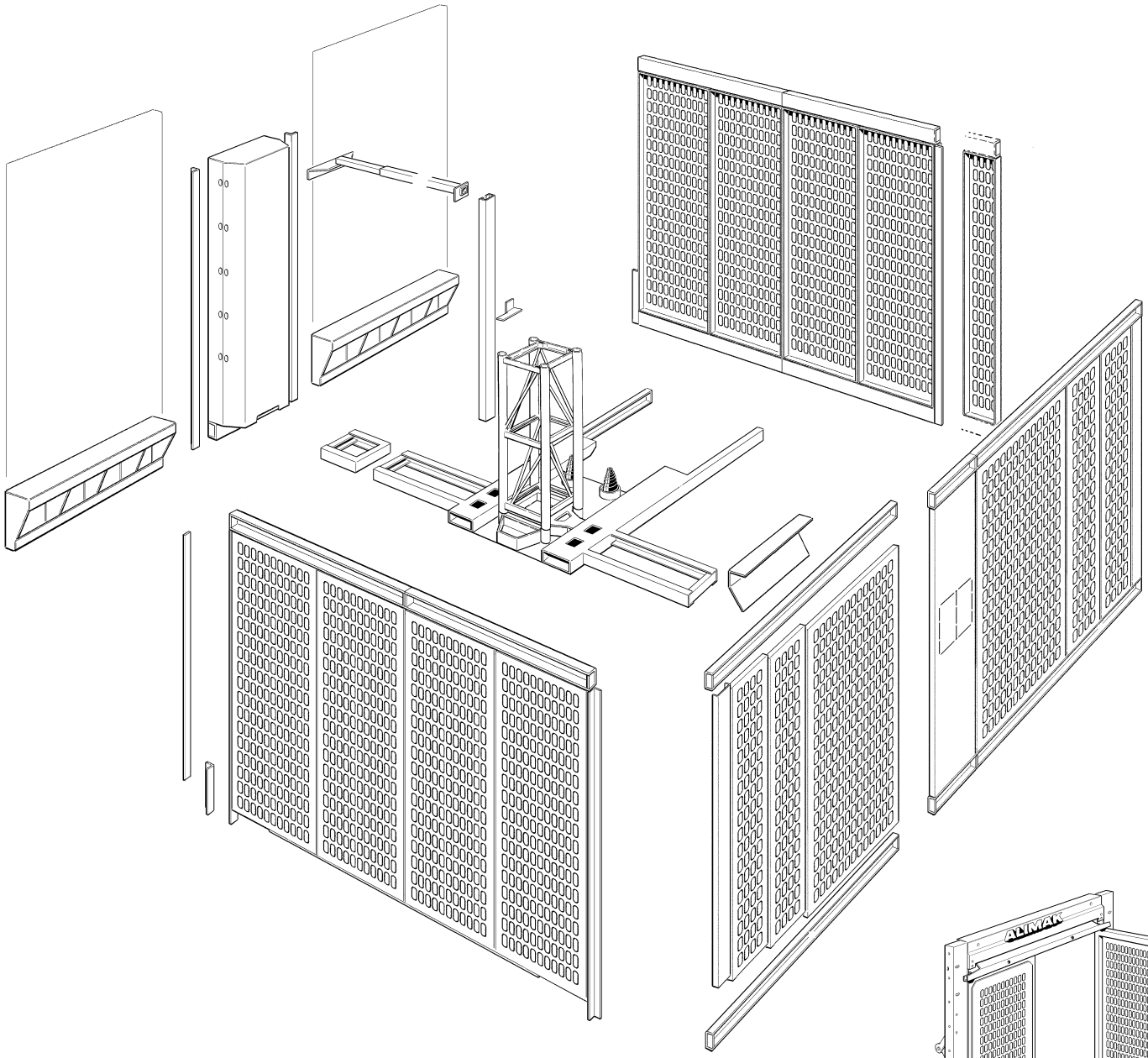
A 3rd additional buffer spring is added for car load more than 1400 kg.

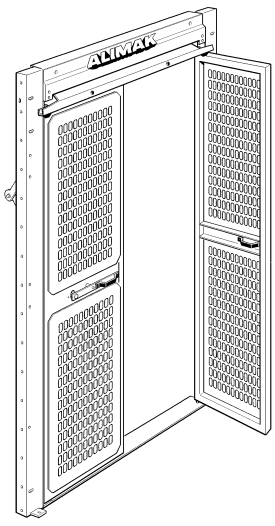




Ground enclosure

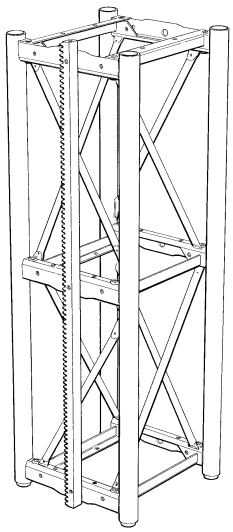
The foundation is enclosed by 2500 mm high perforated steel sheet sections attached to the base frame.
The enclosure is built in modules and can easily be adapted for different lengths as well as twin car set ups. It can also be changed so that another SCANDO 450 modular system hoist/ platform can operate on the other side of the mast.





The enclosure is provided with one or two double-swing mechanically locked and electrically monitored door(s).
Two entrance doors allow entrance to the car from 2 different directions.

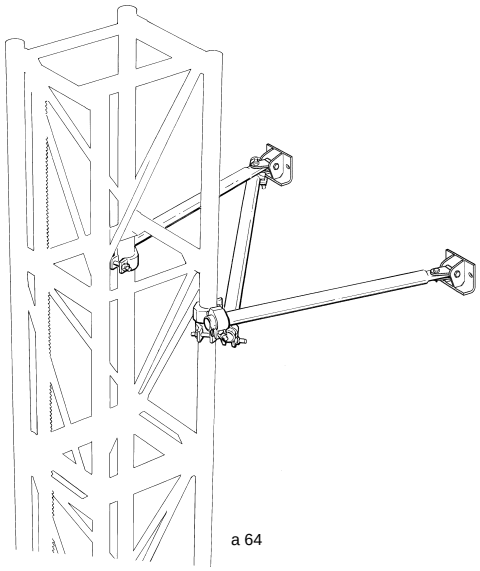
Hoist mast



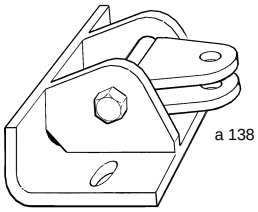
The square mast c/c 450 x 450 mm is the mainstay of the SCANDO 450 access system. The mast is constructed of tubes and frames of high tensile steel and fabricated in lenghts of 1508 mm. Each section is provided with one or two bolted rack(s) module 5 and the sections are bolted together with bolts and nuts.
The four guiding tubes and possibilities with two racks give dual car set up advantages.

The ties are attached to the frames of the mast sections or alt. to the rear mast tubes. The other end to special brackets attached to the wall. The tie length is telescopic adjustable within different intervals. The ties can also be inclined from the horizontal. Specifications for each particular mast tie can be found in chapter H.

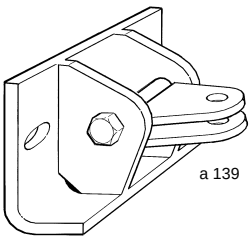
Mast sections and mast ties are hot dipped galvanized with the exception of the mast section rack.



Corresponding wall bracket can be installed either on vault/slab ...

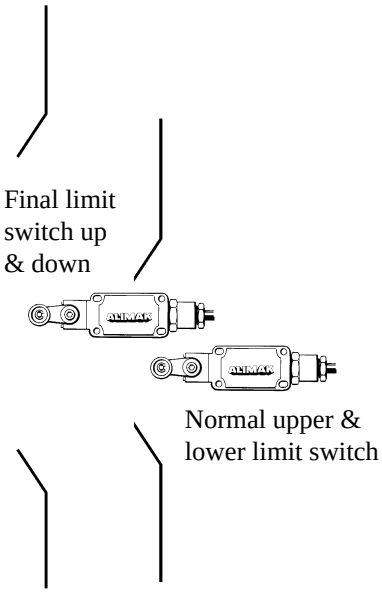


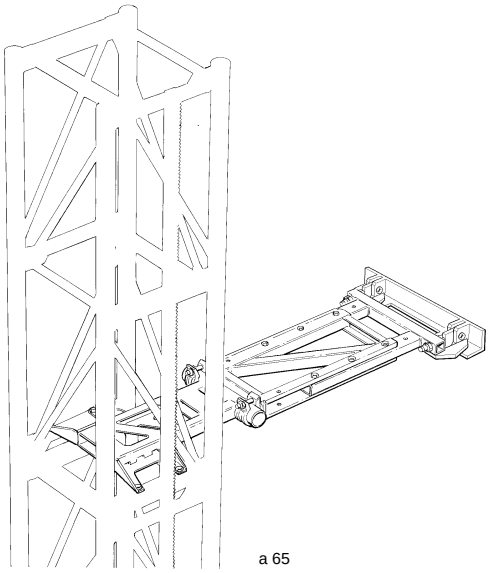
... or against facade.



The hoist stops automatically at the top and bottom by means of cams attached to the hoist mast. The cams activate the normal limit switches located on the hoist car. Additionally there is a final limit switch activated by separate cams at the top and bottom of the hoistway.

The final limit switch controls a main contactor, which switches off all three phases of the main power supply to the drive motor(s).

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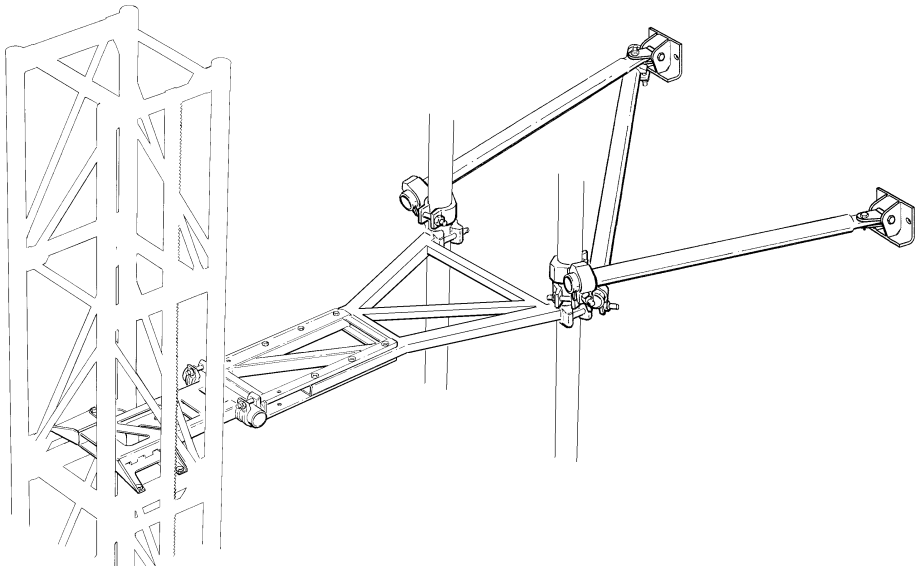
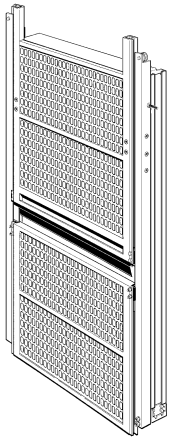


Car



Car exit door in two parts

The car is sized to be suitable for ease of transport and is constructed of high quality steel for strength and weight reduction. The car walls are constructed of perforated steel sheeting allowing light to enter and also give the operator a clear view of the hoistway.

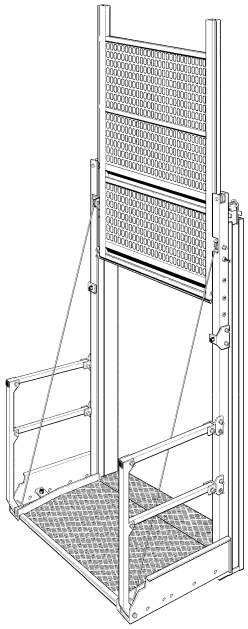
Individually adjustable ball bearing mounted guide roller assemblies guide the car on the mast.

Car consists of multi layer built-up car floor with fire resistant plastic material on galvanized steel sheet and aluminium checker plate on top. The car roof is constructed of aluminium checker plate.

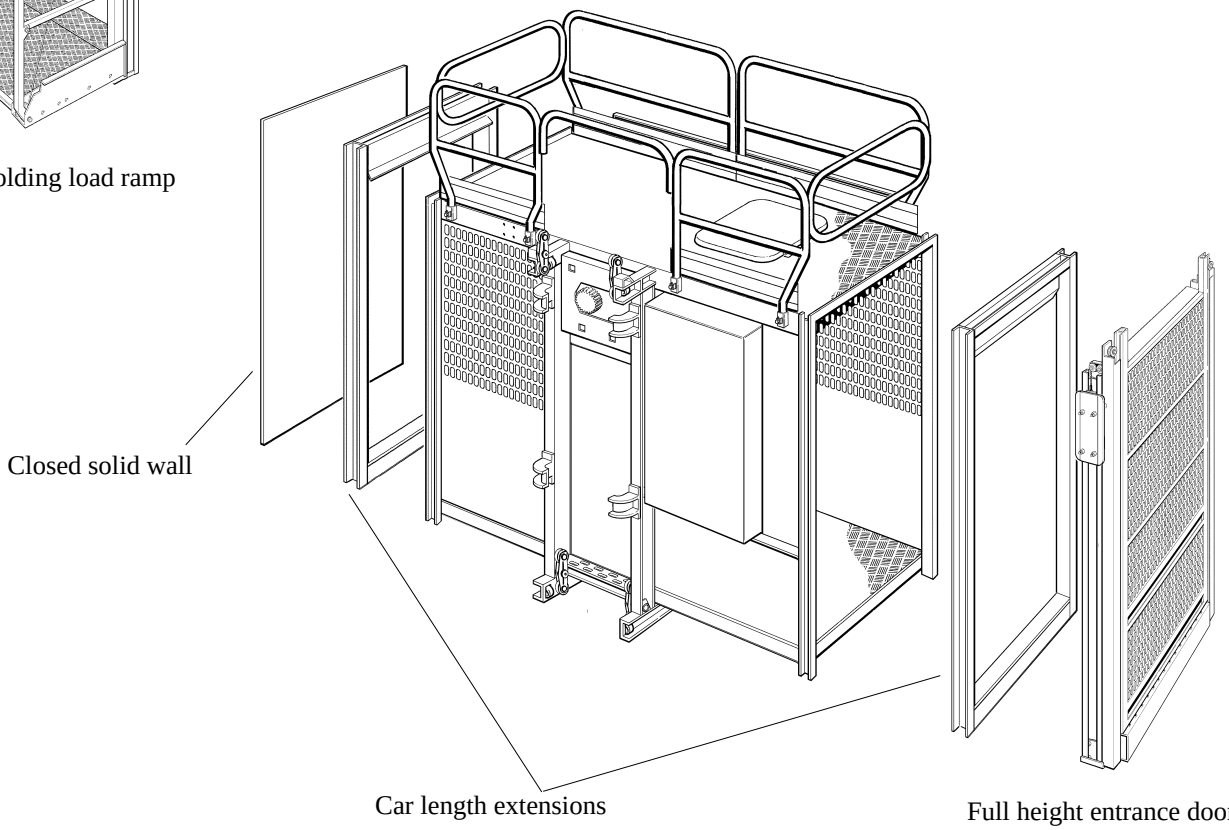
The car has mechanically locked and electrically monitored vertical guided entrance and exit doors.
The doors are modular for flexibility and in the SCANDO 450 access program, 4 different car doors are available. The lightweight moving door blades consist of aluminium profiles for ease of operation.
Normally the exit door is manufactured in two parts whereas the entrance door is in one part. (The entrance door is the one facing the door of the ground enclosure).

The exit door can also be combined with a folding load ramp in 2 different versions;

Manual folding load ramp . . .



Manual folding load ramp

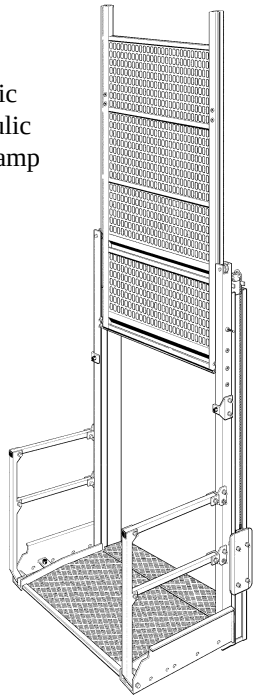


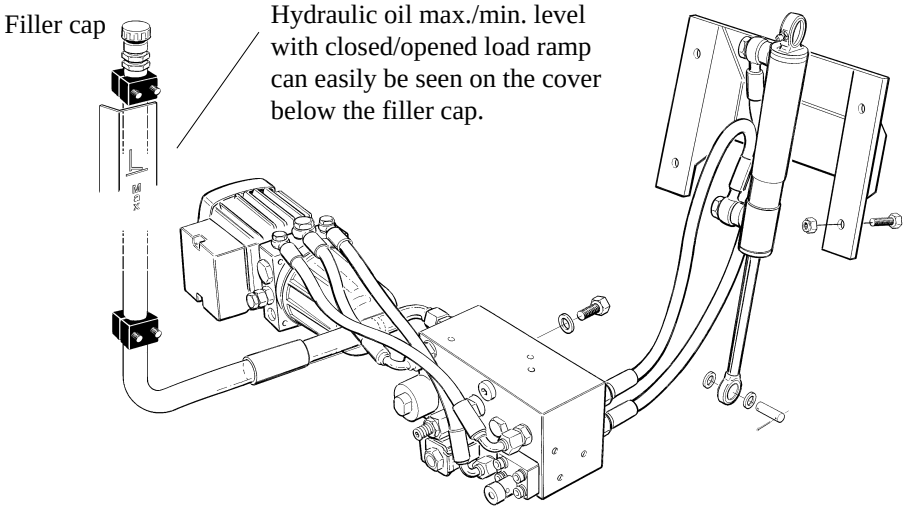
. . . or fully automatic electro hydraulic folding load ramp.

The hydraulic system double acting cylinder opens and closes the load ramp automatically at the landing and is operated by the automatic floor call selection system, ALC II.

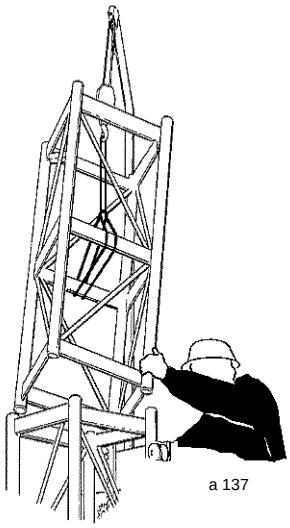
The electro hydraulic power pack is located on the floor portion of the gate/ramp section.

Fully automatic electro-hydraulic folding load ramp





As the car roof serves as working platform during erection, it is provided with safety railing. There is also a trapdoor in the roof and a ladder in the car to gain entry to the roof for erection purposes.



Erection crane, optional equipment

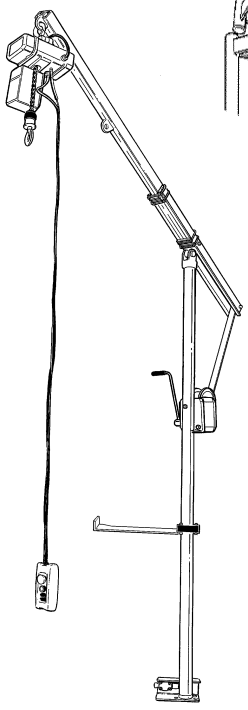
New type erection crane with manual adjustable jib equipped with electric winch can be furnished.

Payload capacity 250 kg = jib radius 570 – 1060 mm.

Payload capacity 170 kg = jib radius 350 – 1700 mm.

Weight approx. 40 kg, exclusive of electric winch.

Electric winch, 3 phase 380 – 420V / 440 – 480V, weight 13 kg.



Asymmetrical car configuration

The car length on each side of the mast shall be equal if possible. The difference may only be ***one*** extension section of 0.1 m.

Although the hoist is asymmetrical it should be considered symmetrical and the longer end dictating the maximum allowable load.

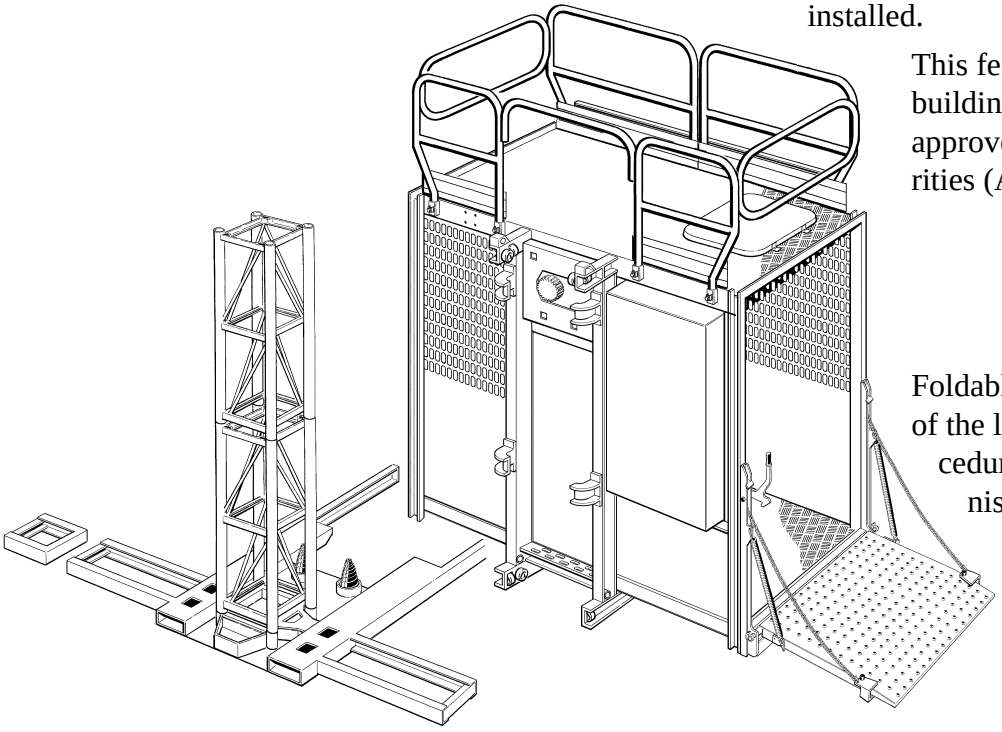
Scando 450 PM for materials transport

Scando 450 can be delivered with a less sofisticated electrical control system adapted for materials transport.

Electrical equipment wired with self-holding contactors is allowed according to EN 12158 – if the hoist automatically stops on a cam located 2.5 meter above the bottom landing. The remaining distance down to the bottom landing is operated with a hold to run push-button procedure from the bottom landing, or from inside the hoist cage.

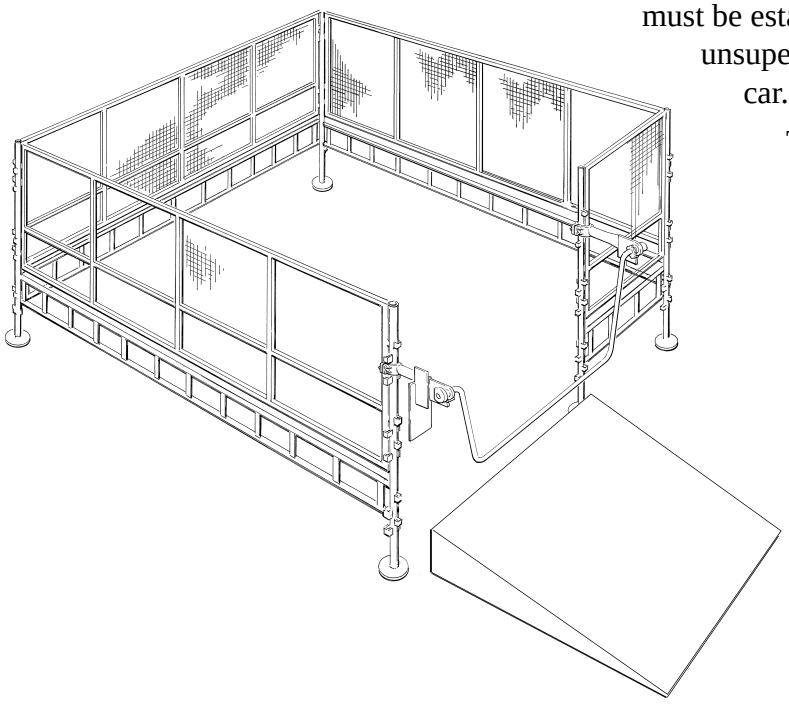
The electrical equipment can easily be changed to work with self-holding contactors and the Stop Next Landing feature – if approved enclosure and doors are going to be installed.

This feature is common on building sites in Sweden and approved by Swedish authorities (ASS 58 B (F)).



Foldable load ramps for ease of the loading / unloading procedures can also be furnished.

According to EN-regulations a rope off, or a safety enclosure must be established at the ground landing to prevent unsupervised personnel entrance underneath the car.



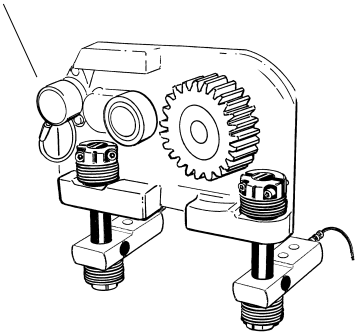
The ground enclosure can be made of common scaffold material – but must fulfil dimensional and structural require-ments as mentioned in EN 12158, para 5.5 and 5.5.4. Minimum height 1.1 m with top and mid rail. Minimum 0.5 m to nearest moving part.

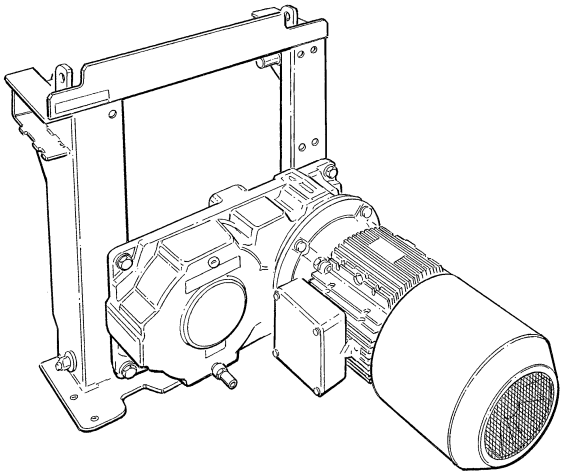
The ground enclosure entrance gate must be provided with a self locking device, which can be manually released. Alimak can supply a suitable light-weight ground enclosure.

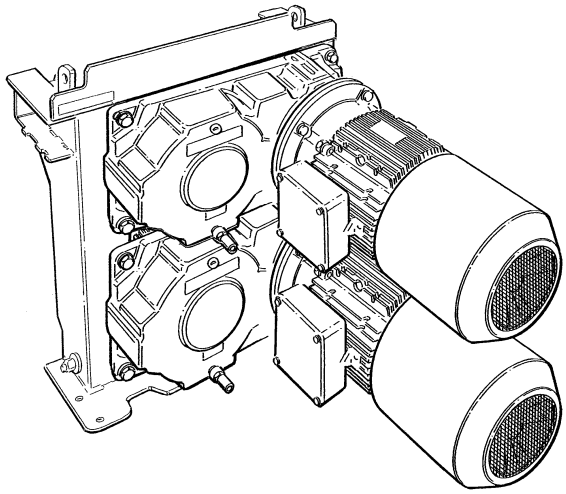
Drive unit

A compact unit with one or two pinions engages the rack of the mast. Each pinion is fitted to a high efficiency helical gear box driven by a flexible coupling, by a direct start or frequency controlled, squirrel cage induction motor with built-in electro-magnetic disc brake.
The drive unit is connected to the car by pull rods.
The connection between car and drive unit means that the hoist is prepared for an overload sensing system (OSS).

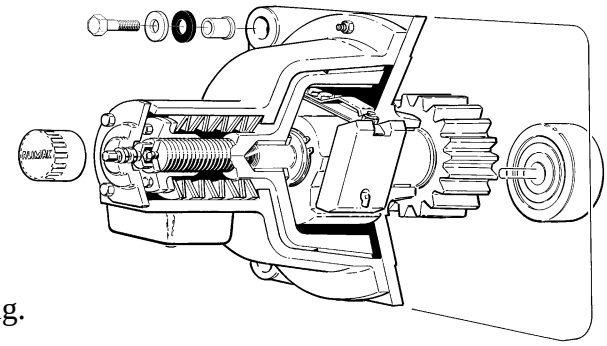
Pulse encoder on gearbox







The safety device is completely independent from the drive unit and installed inside the car with one pinion engaging the rack. The device is actuated by a centrifugal weight and stops the hoist when the normal rated speed is exceeded.



FC vs DOL

Frequency controlled electric motors give:

- better (softer) riding comfort when starting and stopping.
- better stopping accuracy.
- less brake wear.
- hoist speed can be reduced during installation and inspection procedures, which is not possible with direct on line (DOL) started electric motors.
- less starting current.

Nominal operation speed		Reduced Insp./Erection speed	
30 m/min.	(48 Hz) **101 fpm**	11.2 m/min. (18 Hz)	**37 fpm**
42 m/min.	(87 Hz) **135 fpm**	12.1 m/min. (25 Hz)	**40 fpm**
54 m/min.	(87 Hz) **175 fpm**	15.5 m/min. (25 Hz)	**50 fpm**

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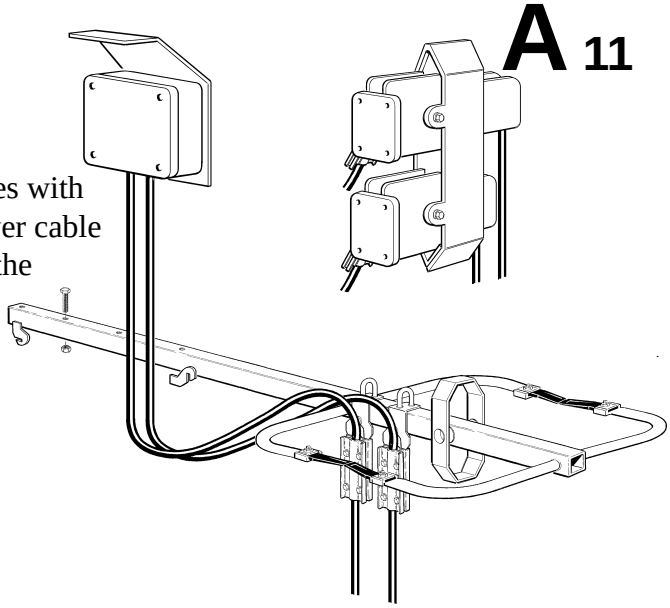
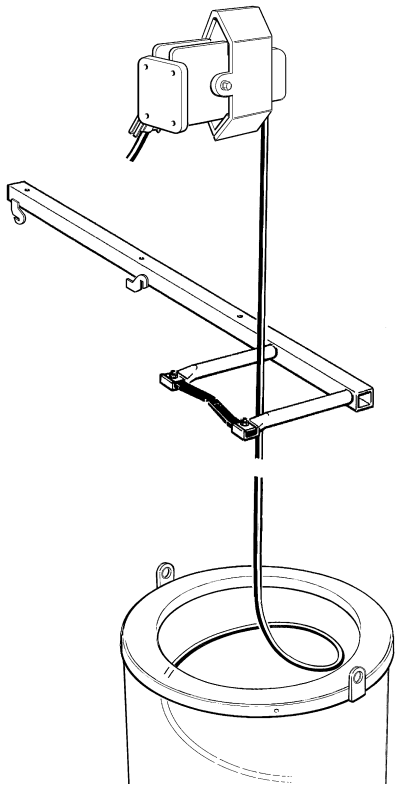
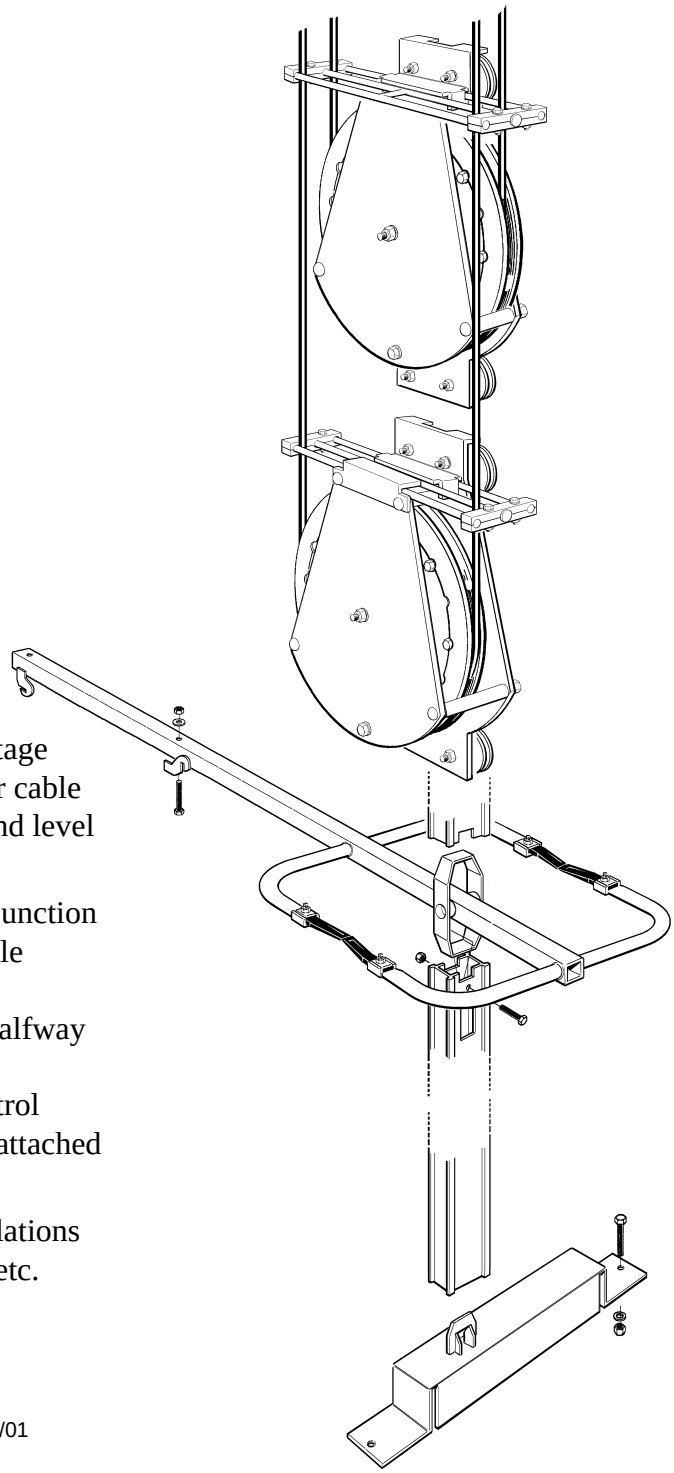
Cable guiding device

Type cable collecting basket

The trailing cable is coiled into a basket. U-shaped guides with plastic springs along the hoistway guide the trailing power cable between the cable collecting basket at ground level and the cable attachment on the car.







Type cable trolley on separate guide rail

To be able to control the cables and to overcome the voltage drop in the power cable at high lifting heights, the power cable and control cable are fixed firmly to the mast from ground level to a junction box in the mast halfway to the mast top.

The trailing power cable and the control cable from the junction box to the cable brackets on the car are tensioned by cable trollies. The cable trollies travel on a separate guide rail attached close to the mast from ground level to a point halfway to the mast top.
Differential expansion/contraction of the power and control cable requires that the two trollies are not mechanically attached to each other.

The method described above is also used for hoist installations in harsh surroundings with highwinds, low temperature etc.

Control system

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Four different systems are available:

a) Operator control system without self holding contactors For DOL hoist only.

Operation from the car only by means of a joy-stick for travel up and down.

The system is automatic, i.e. the car stops as soon as the joy-stick has been released (dead man type control).

b) Operator control system with self holding contactors For DOL hoist only.

Operation from the car only by means of a joy-stick and a additional Stop Next Landing push-button.

When the hoist approaches the desired landing, the button Stop Next Landing is pressed. The hoist will then stop automatically at the landing.

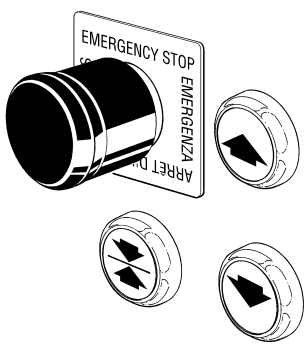
ALIMAK Lift Control, ALC for DOL and FC operation

The ALC is a microprocessor based control with a main soft-ware and two different control systems available:

c) Semi-Automatic control system

This is a common control system but now developed to work without any landing cams. The position of the hoist is determined by counting impulses generated by the pulse encoder attached to the gear box.

The machine can be operated from inside the hoist and if chosen, also from the landings by using Up, Down and Stop Next Landing push-buttons.
By pressing a button for up or down, the hoist starts travelling in the chosen direction. When the hoist approaches the desired landing, the button Stop Next Landing is pressed. The hoist will then stop automatically at the landing.

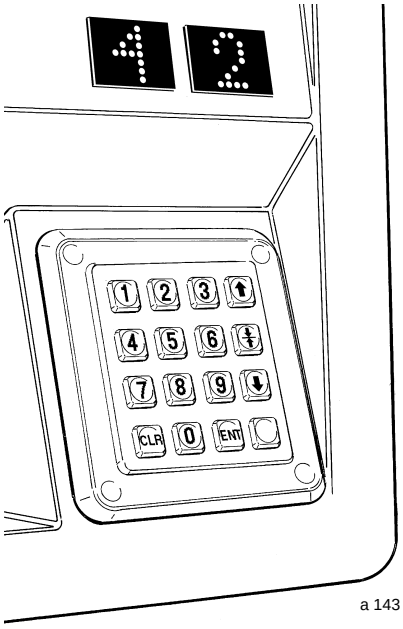


Push-buttons at ground landing

Calls/destinations from the landings transmit on three 230VAC control wires between the hoist and the landings through the base panel. A destination order from the hoist has three seconds priority over landing calls.

d) Collective control system

This is an advanced control system available in the ALC controller. The machine can be operated from inside the hoist by destination push-buttons or a keypad and if chosen, also called from the landings.



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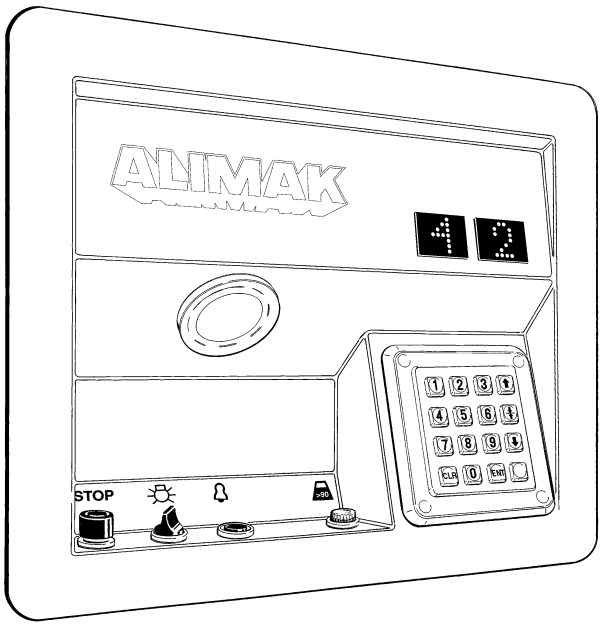
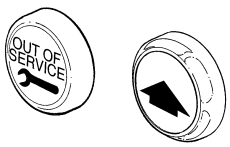
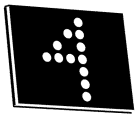


Each landing is provided with two Call buttons, one for Up and Down resp.



Push-button panels at landings

The actual position and the hoist destination is shown on displays inside the car.On these displays a fault indication is given.



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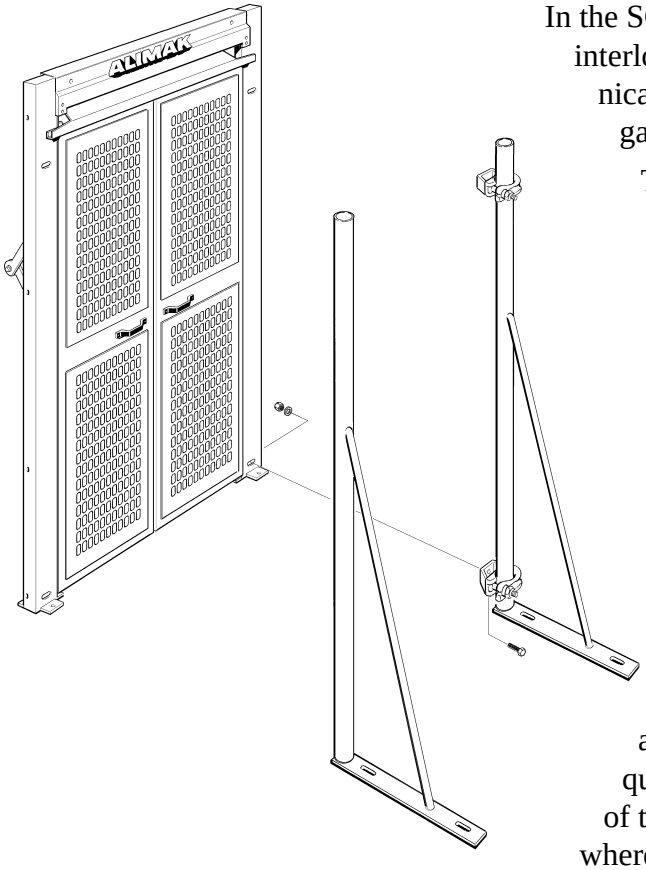
For more detailed information regarding the ALC II system and corresponding landing equipment, refer to separate manual P/N 9081541-107.

Landing equipment

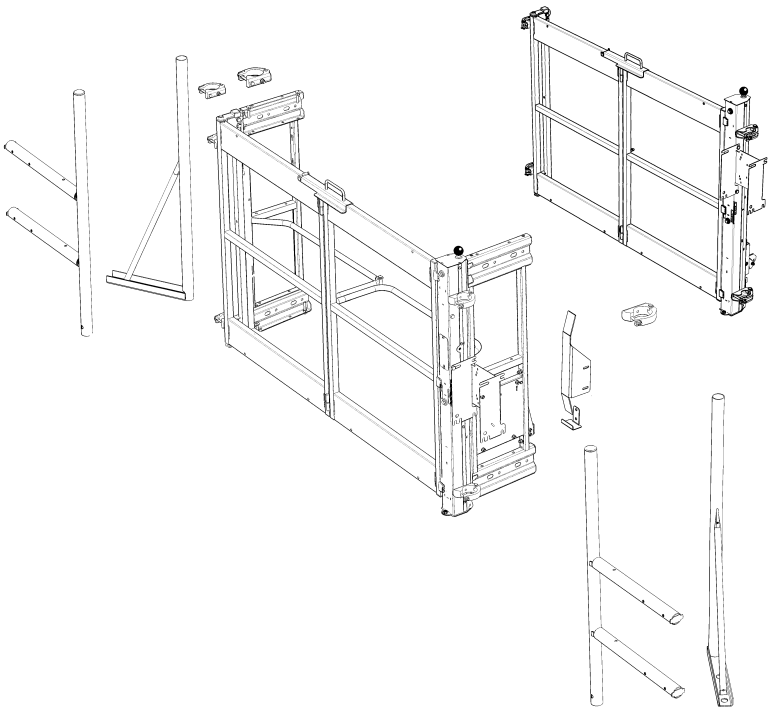


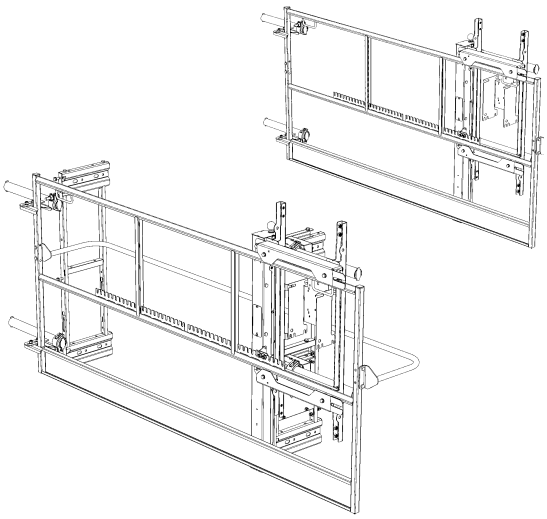
In the SCANDO access system mechanically and electrically interlocked double-leaf swing doors are included. Or mechanically locked and electrically monitored horizontal sliding gates at the landings.

The landing equipment can be installed by connecting them to special brackets at the landings, in openings, on projections or facade scaffoldings. It can also be installed on vertical scaffold pipes parallel to the mast from the ground enclosure to the mast top.

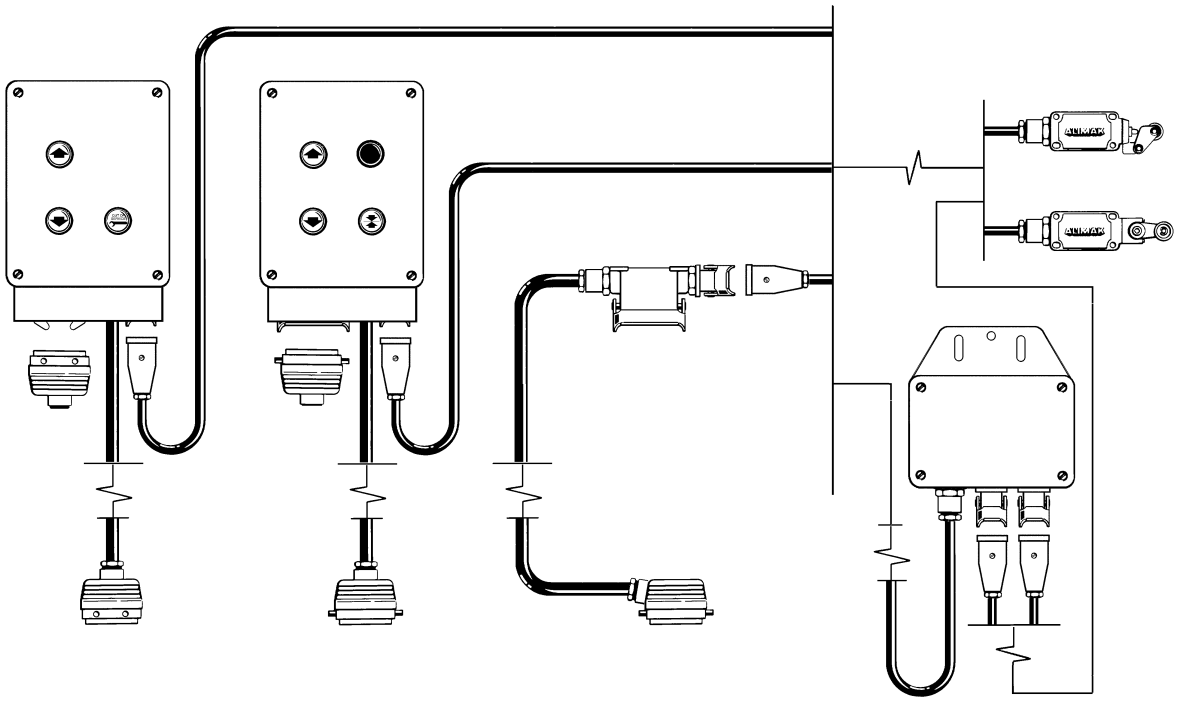
The electric interlocking of the landing equipment is connected to the control system of the hoist (stop circuit).
The landing el. equipment consists of a stainless steel box with necessary control push-buttons for calling the hoist. Connection cable as well as limit switch or electromechanical locks for monitoring of the landing door or alternatively the landing gate.

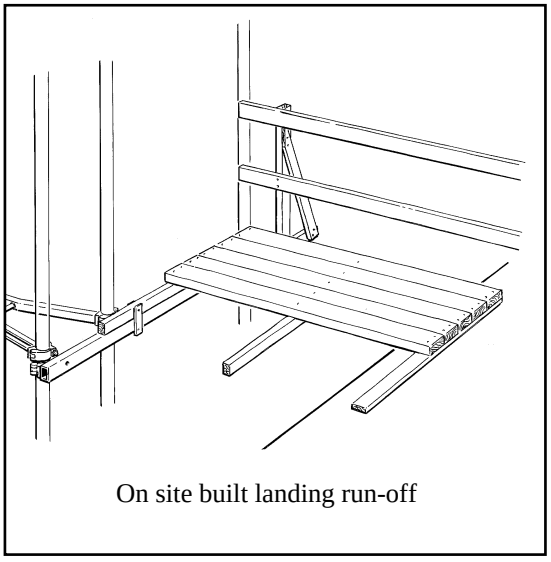
The equipment is provided with a 6-pole socket outlet and plug on the connection cable in order to achieve a quick, secure and proper connection to the control system of the hoist. 10-pole socket outlet and plug alternately, where ALC floor call selecting system occurs.
The electric equipment is delivered with connection cable in lengths of 7 or 15 meter.





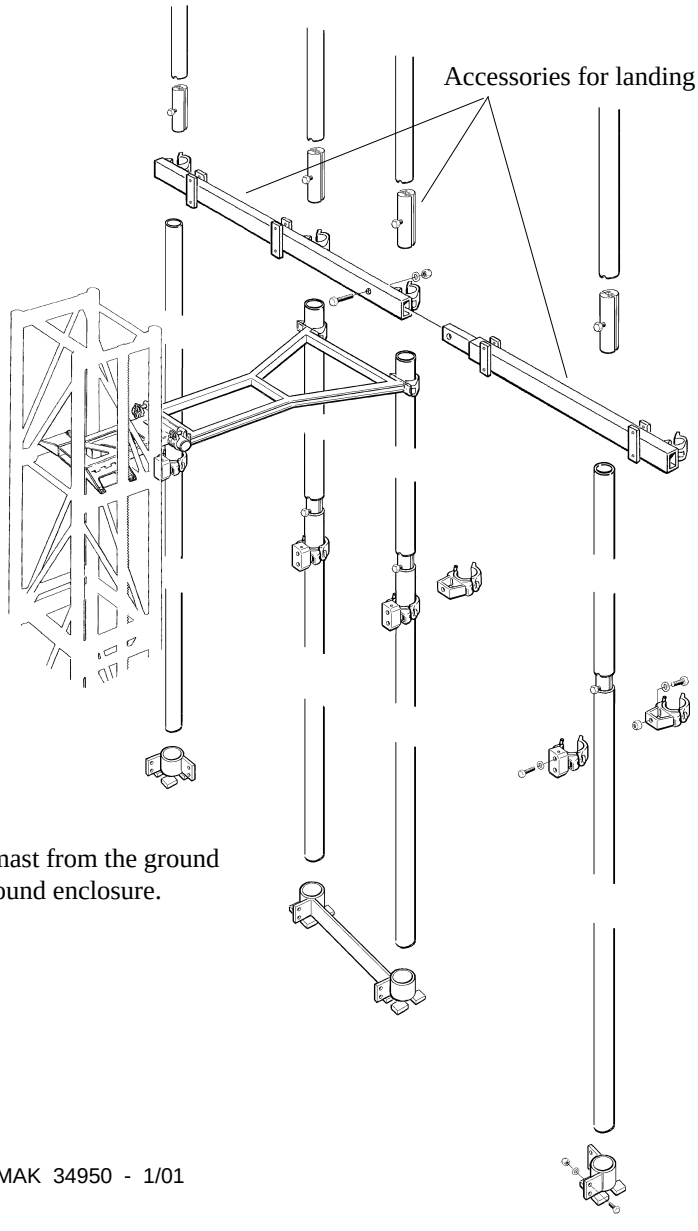
Included electric material is of protection class IP 54 or higher.





On site built landing run-off

Accessories for landing run-offs.



Vertical scaffold pipes parallel to the mast from the ground to the mast top attached outside the ground enclosure.

Safety equipment

Automatic stop at top and bottom landings

At top and bottom landings, limit cams are mounted on the mast. These cams activate the limit switches, which automatically stop the hoist. The functions for the Up and Down limit switches are backed up by a final limit switch with its own cams on the mast at top and bottom landings. This switch provides interruption of the three-phase power supply and stops the hoist should the normal limit switch fail.

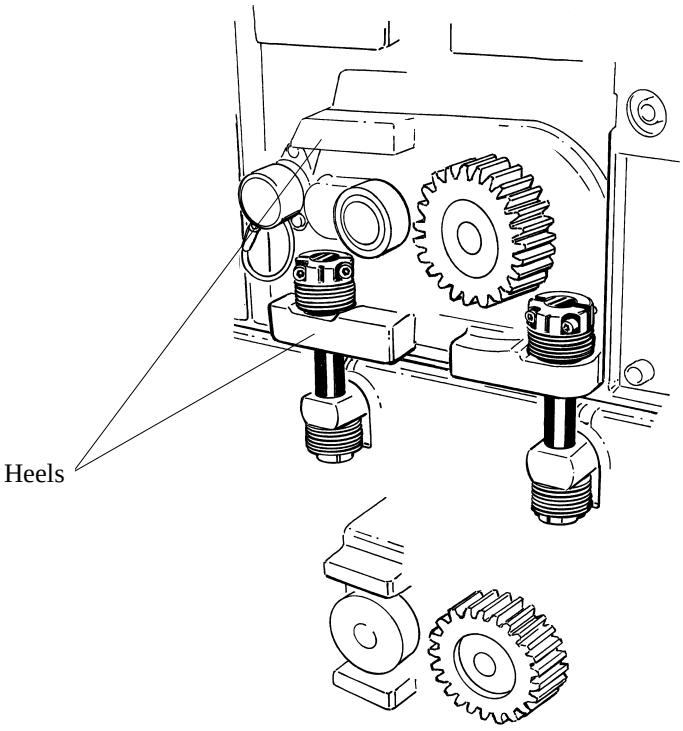
Below the bottom landing level, close to the hoist mast, buffer springs are located for the hoist car. The buffer is designed to stop a descending hoist beyond its normal limit of travel.

Final limit switch up & down

Normal upper & lower limit switch

Safety details on machinery plate

On the machinery and safety device plates, heels keep the pinion of the machinery and safety device constantly engaged with the rack on the hoist mast, in case a counter roller or a guide roller on the cage comes off.



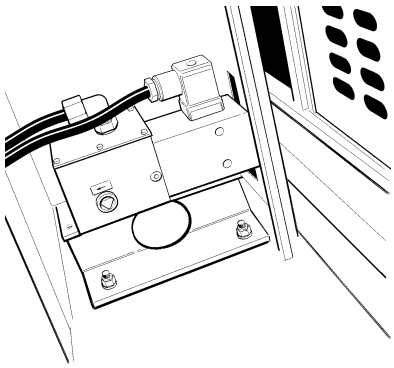
Safety hooks

To prevent the hoist from climbing off the mast during erection or dismantling, or to prevent the pinions from disengaging the rack in case a counter roller or guide roller comes off, safety hooks are mounted on the drive unit and on the car. The safety hooks are placed underneath the drive pinion of the machinery, preventing the hoist from falling off the mast should the drive pinion run off the top rack.

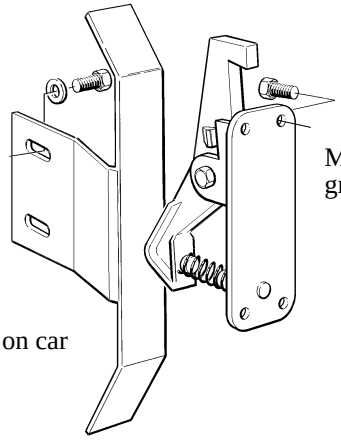
Door interlocks on hoist and landing doors

Hoist doors/ramps and/or landing doors/bars are all electrically interlocked. If any of the ”doors” are unlocked or opened, the hoist will not operate until the door is closed.

A mechanically interlocked car or landing door cannot be opened unless the hoist has stopped at the respective landing.

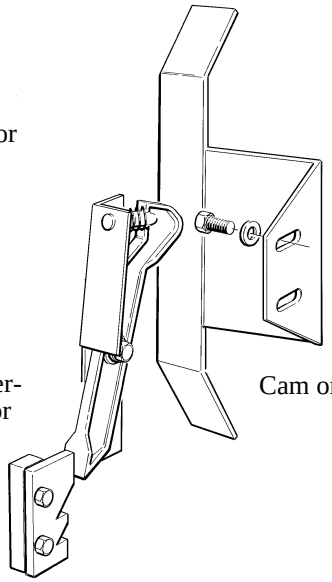


Car door lock of solenoid type with integrated electric switch



Mechanical interlock for ground enclosure door

Cam on car



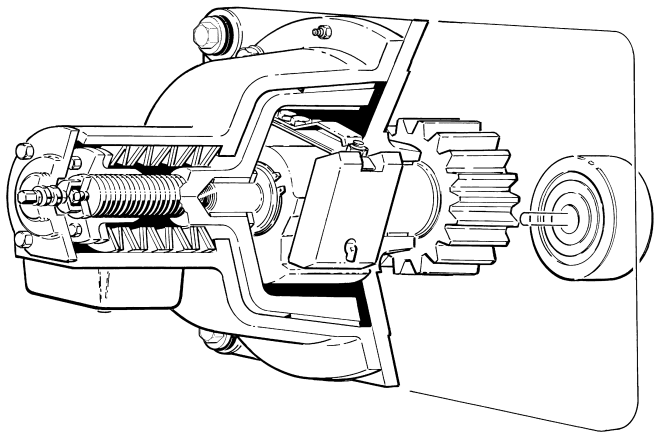
Mechanical inter-lock for car door

Cam on ground enclosure

Safety device

The hoist has a unique well proven safety device which smoothly stops the hoist on the mast should normal driving speed be exceeded.

The safety device has a shaft with a centrifugal weight and a pinion constantly engaged with the rack on the hoist mast. When the centrifugal weight activates, the brake cone is screwed in against a brake lining inside the safety housing. The hoist is brought to a smooth stop, and simultaneously the power to the drive motor is cut off.



In case of guide roller failure there are separate safety hooks provided which prevent the pinion of the safety device from disengagement with the rack.

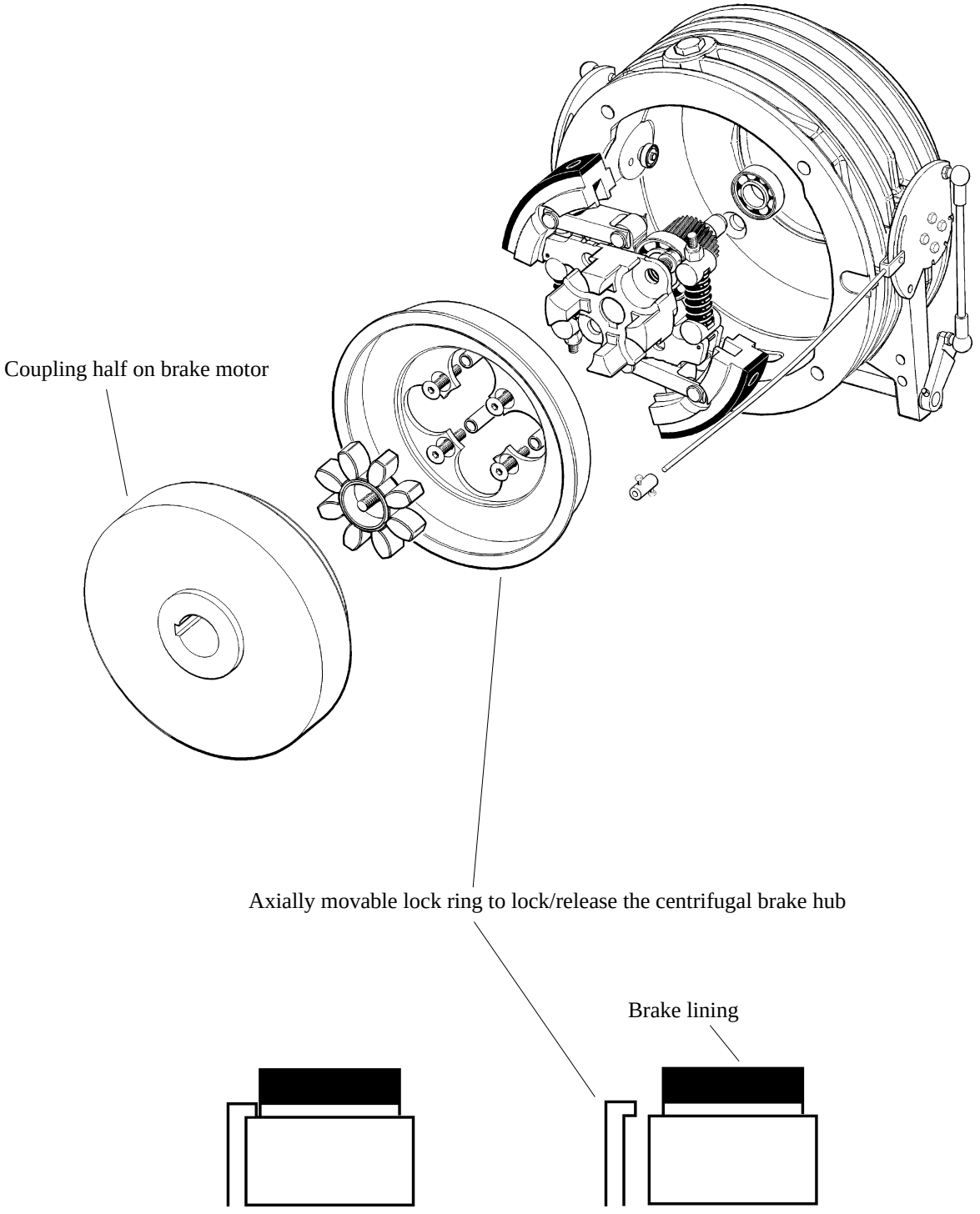
Phase failure relay

The electric equipment is protected by a phase failure relay, which means that the hoist can only be driven when correct phase sequence is connected.

Optional equipment

Optional centrifugal brake

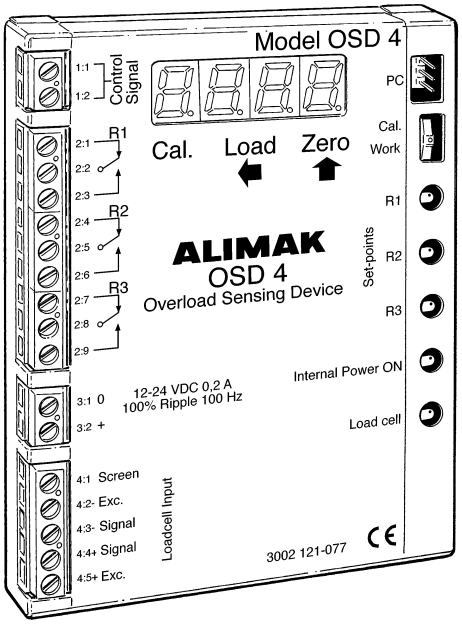
When lowering by gravity in case of a power failure, a centrifugal brake incorporated into the drive machinery will maintain a constant speed preventing the car from reaching governor tripping speed, and thereby activating the safety device.



Optional Overload Sensing Device

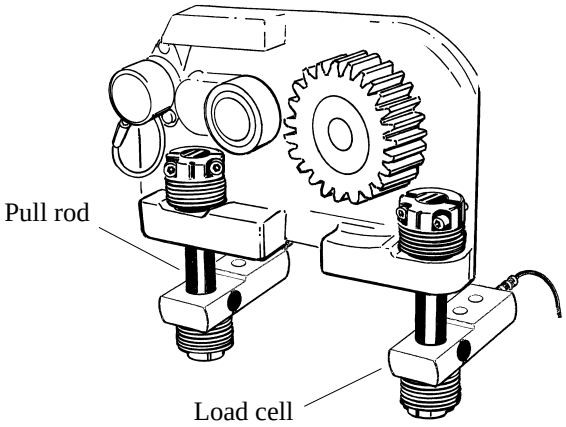
The hoist can be equipped with an overload sensing device. The system indicates when the car is fully loaded and prevents operation in an overload condition.

Load cells are built into the pull rods connecting the machinery to the car structure.



Signals from the load cells are transferred to the OSD 4 amplifier located in M-panel

Gear box rear side



When the rated load is exceeded the control circuit will be switched off to prevent the use of the hoist. At the same time a red LED lights.

Fault code F4 will be displayed where ALC floor call selecting device occurs.

Indication light ”Overload” in car

Optional prefabricated sheet steel foundation

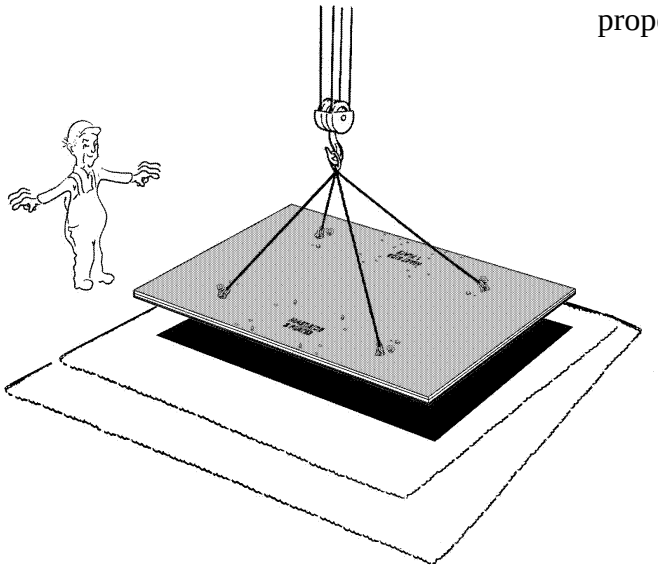
Use of prefabricated sheet steel foundation

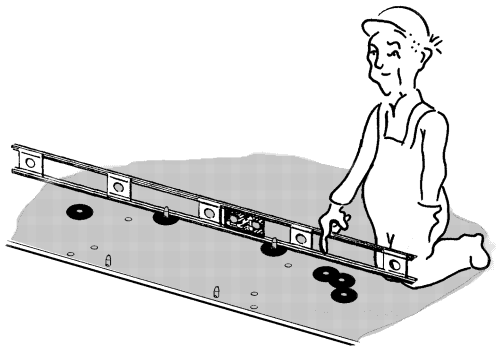
– Furnish a properly sized gravel bed where the base unit is to be installed.

– Level and compact the gravel bed.

  The gravel bed furnished should be of sufficient depth in order to preclude washout. Consideration shall be given to installing a plastic membrane below the gravel.

– Set the sheet steel plate onto the prepared gravel bed at its proper location.



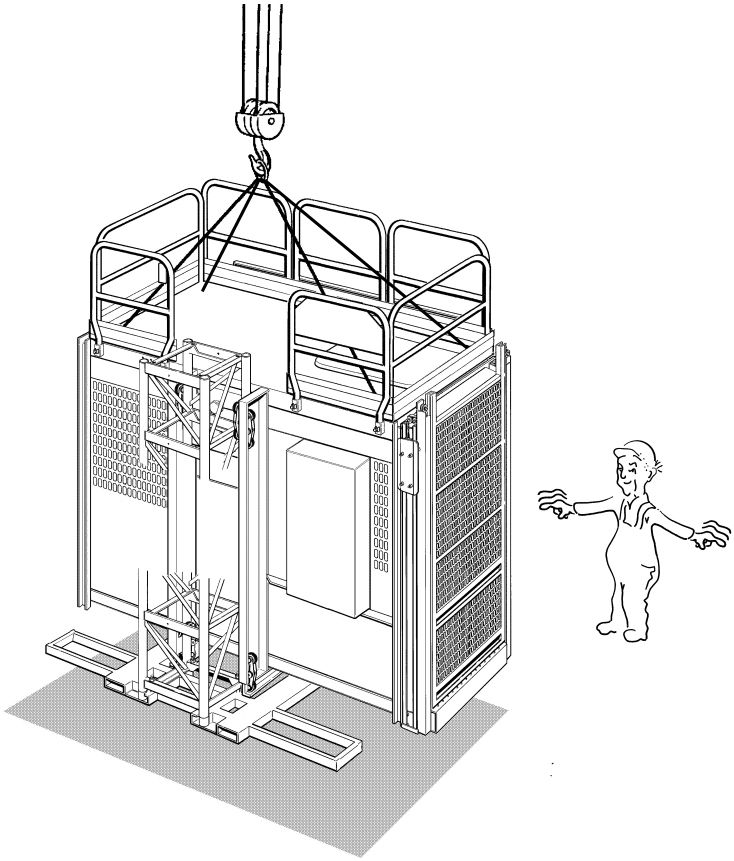


Alimak can supply manufacturing drawings of appropriate steel sheet foundation free of charge.

– Using a spirit level to locate the highest level guide pin.

– From the highest level guide pin use shim washers or pair of slotted shims to level remaining pins.

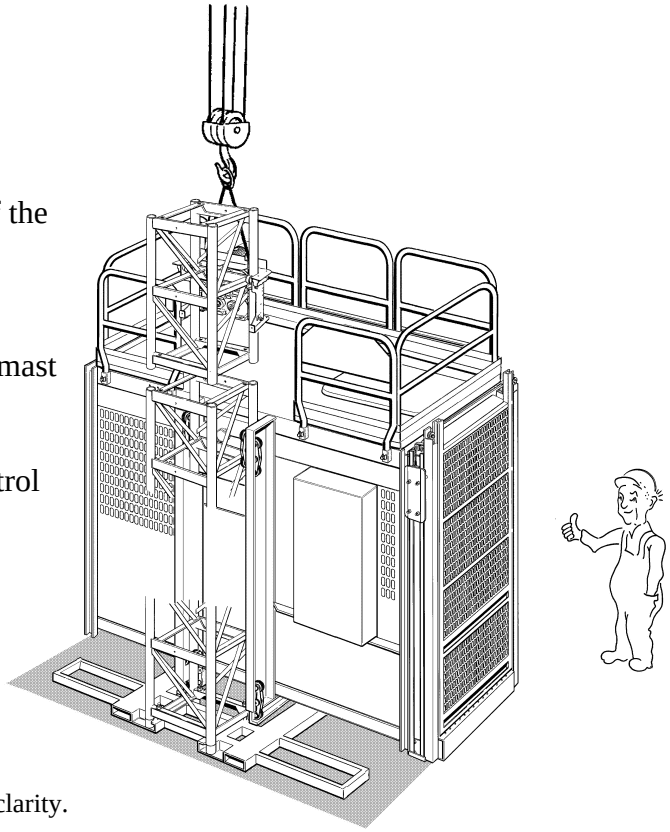
– Lift the base unit above the sheet steel foundation.
  Adjust the position of the base unit and lower it so the guide pins on the sheet steel foundation enter the holes (for the mast sections corner tubes) in the base frame.



– Assemble and tighten the bolts for the attachment of the mast's base frame to the steel sheet foundation with bolts intended for this purpose.

– Lift, lower and assemble the drive unit located on a mast section.

– Connect the machinery to the hoist's power and control circuits.



Note; Hoist components such as ground enclosure not shown for clarity.

Allowable freestanding heights when using pre-fabricated sheet steel foundation

Hoist installed on a sheet steel foundation (1 pce) or on two (2 pcs) sheet steel foundations bolted together on top of the other can be erected and used with freestanding mast heights according to the following table based on car length and maximum allowable payload.

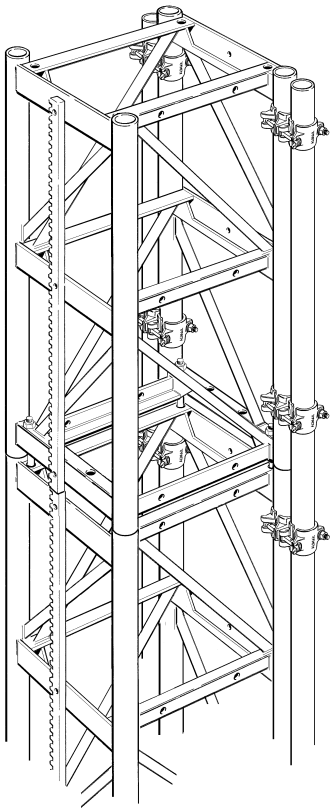
Car length capacity	Car payload Single car	Freestandig in opeartion Dual cars	Single car	During erection*
Hoist installed on 1 pce steel sheet foundation				
2.4 m				
2.6 m				
3.0 m				
3.2 m				
Hoist installed on 2 pcs steel sheet foundations bolted together				
2.4 m				
2.6 m				
3.0 m				
3.2 m				

**** Maximum allowed freestanding with load reduced to maximum 8 pcs mast sections and 2 people in the car (≤less than 800kg) and wind speed less than 12.5 m/s.***

Methods to increase the freestanding mast height

Tubes connected to the steel sheet foundation and assembled with tube couplers to the mast tower's rear mast tubes, up to the 6 meters' level, will allow mast heights according to the following table based on car length and maximum allowable payload.

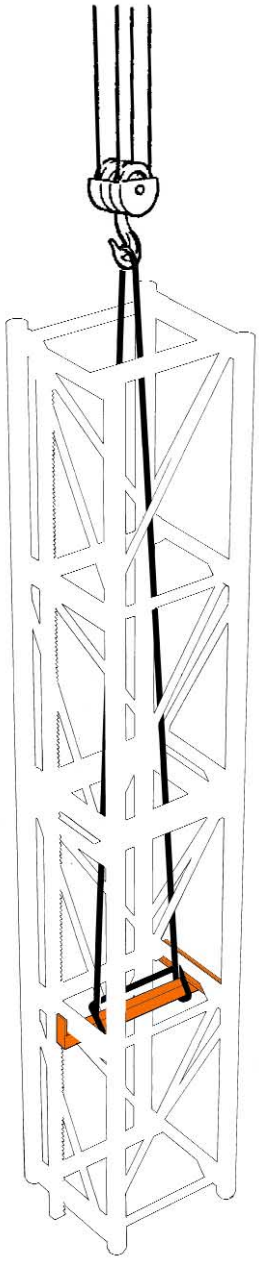
Reinforcement tubes dia. 76 mm are 3 meter in length.
Two pair of tube couplers are used on each mast section.



Car length	Payload	Freestandig in operation	During erection*
Hoist installed on 2 pce steel sheet foundation			
2.4 m			
2.6 m			
3.0 m			
3.2 m			

NOTE ! Picture on this page is showing the Scando 650 Construction Hoist's mast sections.
The Scando 450 Construction Hoist is simply the Scando 650's "little brother" manufactured for lower lifting capacities. Built smaller of thinner dimensions – but mainly with the same functions.

Capacity for the Scando 450 hoists mast sections are stated in the tables.



Optional lifting tool for use with on site cranes

The preferred method of assembling the lift system is the use of a crane with sufficient lifting height.

3 – 5 mast sections (never exceeding the mast's freestanding capability) can be assembled lying on the ground before being lifted to the mast top and assembled.

We recommend attaching the load according to the figure in order to avoid driving the car to the top of the mast in order to disconnect the load from the crane hook.

The user's own protective measures

Protection at the landings

It is recommended that overhead protection is furnished at landing entrances to protect against falling objects.

Scaffolds and other gangways close to the hoistway

Scaffolds and other gangways and platforms close to the hoistway shall be provided with enclosures according to local regulations.

Illumination of landings

Adequate site lighting shall be provided to illuminate the landings over the full height of travel of the hoist.

Landings erected at site

Landings built on site shall be equipped with safety railings and toe guards and shall meet applicable local regulations.

Each landing shall be designed for the maximum load of the hoist.

Final commisioning test and verification of equipment before delivery

The equipment is fully checked according to the directives stated in EN 12159 para. 6.3, before delivery, to confirm intended operation.

Safety device and device for deteckting overlad are tested with full load and additional 25% overload.

Load signs

Load sign showing maximum load and maximum number of passengers in the car, must be displayed inside the car and on each landing, according to EN 12159.
The sign must be durable and with minimum 25 mm height of the characters.

It is advisable to use hot seal laminating film for this purpose.

Data on load signs must be in accordance with technical data and additional technical information on pages B1 – B4 in this manual.

Print your own load sign. Click here; Acrobat PDF

If car overload sensing device is used

Restrictions regarding allowable No. of passengers in the car are dictated by applicable requirements in the EU Member States and based on the average weight 80 kg and space 0.2 m^2 intended for each and every person. (The corresponding average weight is 90.7 kg according to ANSI/ASME).

Use of the overload sensing device, installed and calibrated for the hoist's maximum allowable payload capacity will sum up the total weight of the passengers in the car for each and every trip. No. of passengers in the car can then be more than stipulated in EU norms due to the passenger's average weight.

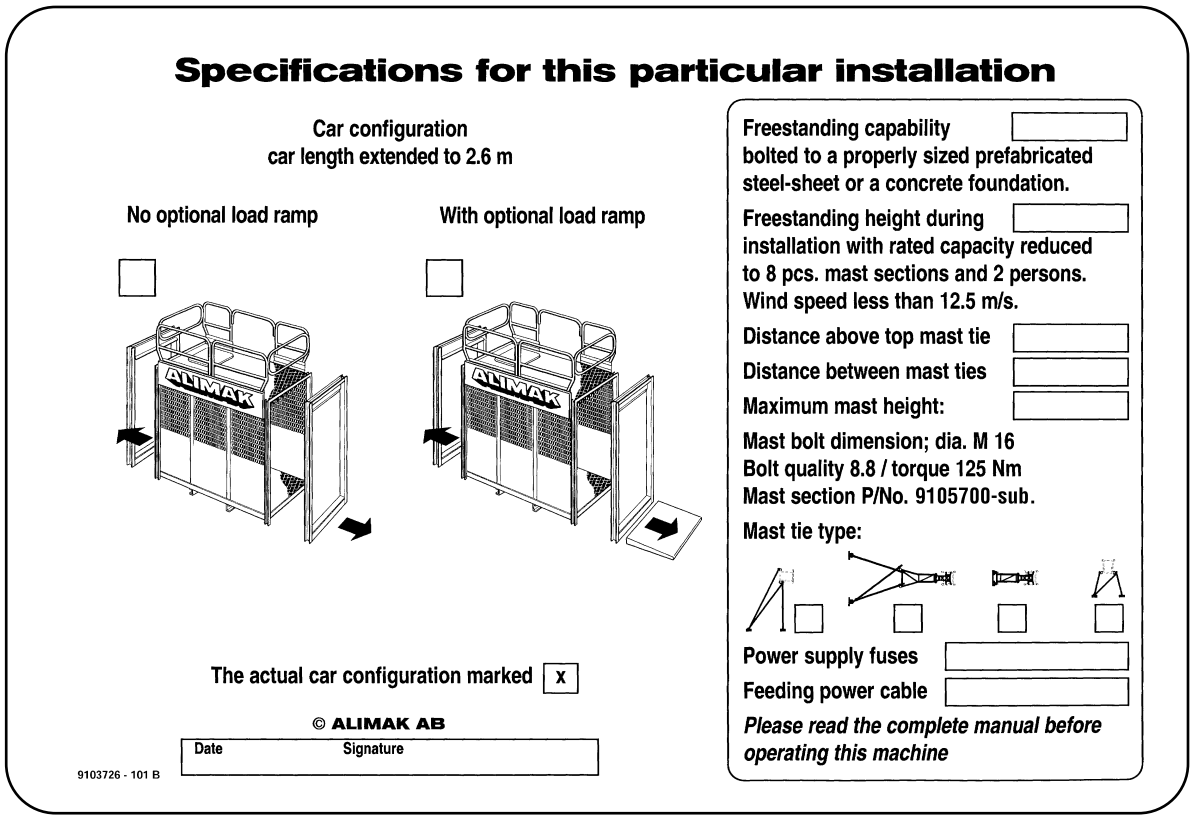
Car payload 1900 kg will give allowable no. of passengers inside the car = 31 pcs., with estimated passenger average weight 60 kg.

Furthermore, the overload sensing device will handle the passenger's personal equipment as well.

Sign inside the car showing specifications for the particular installation

It is possible to write /erase the sign inside the car showing specifications for the particular installation. The sign must be filled in and signed by a person responsible for the entire hoist installation.

The intention with showing this sign is to ensure personnel using the hoist and inspectors from the responsible authorities that the hoist is correctly installed according to the person responsible for the entire hoist installation.



Weight specifications for Car and Base unit

It is difficult to staticly state precise car and base unit weights on the hoists rating plate depending on different optional equipment chosen and combined.

Ground Enclosure

- Mast sections with 1 or 2 racks can be supplied for single or dual car applications.
- 1 or 2 ground enclosure entrance/exit gates.
- Ground enclosure adapted for extended car, with or without extensions.

Car

- 2 different car size structures can occur.
  With or without car extensions.
- Exit gate with additional load ramp can be added.

On the hoist car rating plate there are min./max. figures depending on the above mentioned.

For more detailed weight specifications please add the stated component weights in this manual, for the particular configuration.
See example on the following pages.

Example:

Car
weight specifications from the data sheets respectively:
No. 1264 and No. 1268

Scando 450 DOL /24

Small car with safety railings	463 kg	
Single motor machinery	250 kg	
Entrance gate	110 kg	
Exit gate	90 kg	
	∑ = 913 kg	**(min.)** in round figures **950 kg**

Gate with additional load ramp	140 kg	(1053)	
Car extension parts x2 (32 kg)	64 kg	(1117)	(977)
	∑ = 1117 kg	**(max.)**	
	in round figures **1150 kg**		

Base unit

Car + Ground enclosure

Car and ground enclosure with 2 pcs. reinforced mast sections with 1 pce. rack each. (Weight of possible cable basket and cable excl.) = 2200 kg (min.)	2404 kg	(1117 - 913 + 2200)	
Extra rack for dual car installation 2 x 17 kg	34 kg	(2438)	
Extra (2nd) ground enclosure gate	110 kg		
(Wall panel reduction = 28 kg/m x 1.5 m)	- 42 kg	(2506)	(2472)
Ground enclosure extension adapted for extended car = 2 x 0.1 x 28 kg/ m	6 kg	(2512)	(2478)
	∑ = 2512 kg	**(max.)**	
	in round figures **2500 kg**		

Example:

Car
weight specifications from the data sheets respectively:
No. 1265, No. 1266, No. 1269 and No. 1270

Scando 450 DOL /30 – 32 ext.

Large car with safety railings	551 kg
Single motor machinery	250 kg
Entrance gate	110 kg
Exit gate	90 kg
∑ =	1001 kg **(min.)** in round figures **1000 kg**

Gate with additional load ramp	140 kg	(1141)	
Car extension parts x2 (32 kg)	64 kg	(1205)	(1065)
	∑ = 1205 kg	**(max.)**	
	in round figures **1200 kg**		

Base unit

Car + Ground enclosure

Car and ground enclosure with 2 pcs. reinforced mast sections with 1 pce. rack each. (Weight of possible cable basket and cable excl.) = 2400 kg (min.)	2604 kg	(1205 - 1001 + 2400)	
Extra rack for dual car installation 2 x 17 kg	34 kg	(2638)	
Extra (2nd) ground enclosure gate	110 kg		
(Wall panel reduction = 28 kg/m x 1.5 m)	- 42 kg	(2706)	(2672)
Ground enclosure extension adapted for extended car = 2 x 0.1 x 28 kg/ m	6 kg	(2712)	(2678)
	∑ = 2712 kg	**(max.)**	
	in round figures **2700 kg**		

Example:

Car
weight specifications from the data sheets respectively:
No. 1276 and 1280

Scando 450 DOL /24

Small car with safety railings	463 kg
Dual motor machinery	450 kg
Entrance gate	110 kg
Exit gate	90 kg

$\sum$ = 1113 kg **(min.)** in round figures **1150 kg**

Gate with additional load ramp	140 kg	(1253)	
Car extension parts x2 (32 kg)	64 kg	(1317)	(1253)

$\sum$ = 1317 kg **(max.)**
in round figures **1350 kg**

Base unit

Car + Ground enclosure

Car and ground enclosure with 2 pcs. reinforced mast sections with 1 pce. rack each. (Weight of possible cable basket and cable excl.) = 2600 kg (min.)	2804 kg	(1317 - 1113 + 2600)	
Extra rack for dual car installation 2 x 17 kg	34 kg	(2838)	
Extra (2nd) ground enclosure gate	110 kg		
(Wall panel reduction = 28 kg/m x 1.5 m)	- 42 kg	(2906)	(2872)
Ground enclosure extension adapted for extended car = 2 x 0.1 x 28 kg/ m	6 kg	(2912)	(2878)

$\sum$ = 2912 kg**(max.)**
in round figures **2900 kg**

Example:

Car
weight specifications from the data sheets respectively:
No. 1277, No 1278, No. 1281 and 1282

Scando 450 DOL /30 – 32 ext.

Large car with safety railings	551 kg
Dual motor machinery	450 kg
Entrance gate	110 kg
Exit gate	90 kg

∑ = 1201 kg **(min.)** in round figures **1200 kg**

Gate with additional load ramp	140 kg	(1341)	
Car extension parts x2 (32 kg)	64 kg	(1405)	(1265)

∑ = 1405 kg **(max.)**
in round figures **1400 kg**

Base unit

Car + Ground enclosure

Car and ground enclosure with 2 pcs. reinforced mast sections with 1 pce. rack each. (Weight of possible cable basket and cable excl.) = 2600 kg (min.)	2804 kg	(1405 - 1201 + 2600)	
Extra rack for dual car installation 2 x 17 kg	34 kg	(2838)	
Extra (2nd) ground enclosure gate	110 kg		
(Wall panel reduction = 28 kg/m x 1.5 m)	- 42 kg	(2906)	(2872)
Ground enclosure extension adapted for extended car = 2 x 0.1 x 28 kg/ m	6 kg	(2912)	(2878)

∑ = 2912 kg **(max.)**
in round figures **2900 kg**

Example:

Car
weight specifications from the data sheets respectively:
No. 1272

Scando 450 FC /24

Small car with safety railings	463 kg
Single motor machinery	330 kg
Entrance gate	110 kg
Exit gate	90 kg
	∑ = 993 kg **(min.)** in round figures **1000 kg**

Gate with additional load ramp	140 kg	(1133)	
Car extension parts x2 (32 kg)	64 kg	(1197)	(1057)
	∑ = 1197 kg **(max.)**		
	in round figures **1200 kg**		

Base unit

Car + Ground enclosure

Car and ground enclosure with 2 pcs. reinforced mast sections with 1 pce. rack each. (Weight of possible cable basket and cable excl.) = 2280 kg (min.)	2484 kg(1197 - 993 + 2280)		
Extra rack for dual car installation 2 x 17 kg	34 kg	(2518)	
Extra (2nd) ground enclosure gate	110 kg		
(Wall panel reduction = 28 kg/m x 1.5 m)	- 42 kg	(2586)	(2552)
Ground enclosure extension adapted for extended car = 2 x 0.1 x 28 kg/ m	6 kg	(2592)	(2558)
	∑ = 2592 kg **(max.)**		
	in round figures **2600 kg**		

Example:

Car
weight specifications from the data sheets respectively:
No. 1273 and No. 1274

Scando 450 FC /30 – 32 ext.

Large car with safety railings	551 kg
Single motor machinery	330 kg
Entrance gate	110 kg
Exit gate	90 kg

$\sum$ = 1081 kg **(min.)** in round figures **1100 kg**

Gate with additional load ramp	140 kg	(1221)	
Car extension parts x2 (32 kg)	64 kg	(1285)	(1145)

$\sum$ = 1285 kg **(max.)**
in round figures **1300 kg**

Base unit

Car + Ground enclosure

Car and ground enclosure with 2 pcs. reinforced mast sections with 1 pce. rack each. (Weight of possible cable basket and cable excl.) = 2380 kg (min.)	2580 kg	(1285 - 1081 + 2380)	
Extra rack for dual car installation 2 x 17 kg	34 kg	(2618)	
Extra (2nd) ground enclosure gate	110 kg		
(Wall panel reduction = 28 kg/m x 1.5 m)	- 42 kg	(2686)	(2652)
Ground enclosure extension adapted for extended car = 2 x 0.1 x 28 kg/ m	6 kg	(2692)	(2658)

$\sum$ = 2692 kg **(max.)**
in round figures **2700 kg**

Example:

Car
weight specifications from the data sheets respectively:
No. 1284 and No 1288

Scando 450 FC /24

Small car with safety railings	463 kg
Dual motor machinery	530 kg
Entrance gate	110 kg
Exit gate	90 kg

∑ = 1193 kg **(min.)** in round figures **1200 kg**

Gate with additional load ramp	140 kg	(1333)	
Car extension parts x2 (32 kg)	64 kg	(1397)	(1257)

∑ = 1397 kg **(max.)**
in round figures **1400 kg**

Base unit

Car + Ground enclosure

Car and ground enclosure with 2 pcs. reinforced mast sections with 1 pce. rack each. (Weight of possible cable basket and cable excl.) = 2480 kg (min.)	2684 kg	(1397 - 1193 + 2480)	
Extra rack for dual car installation 2 x 17 kg	34 kg	(2718)	
Extra (2nd) ground enclosure gate	110 kg		
(Wall panel reduction = 28 kg/m x 1.5 m)	- 42 kg	(2786)	(2752)
Ground enclosure extension adapted for extended car = 2 x 0.1 x 28 kg/ m	6 kg	(2792)	(2758)

∑ = 2792 kg **(max.)**
in round figures **2800 kg**

Example:

Car

weight specifications from the data sheets respectively:
No. 1285, No. 1286, No. 1289 and No. 1290

Scando 450 FC /30 – 32 ext.

Large car with safety railings	551 kg
Dual motor machinery	530 kg
Entrance gate	110 kg
Exit gate	90 kg

∑ = 1281 kg **(min.)** in round figures **1300 kg**

Gate with additional load ramp	140 kg	(1421)	
Car extension parts x2 (32 kg)	64 kg	(1485)	(1345)

∑ = 1485 kg **(max.)**

in round figures **1500 kg**

Base unit

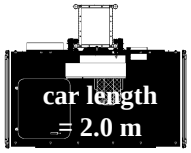
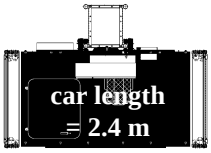
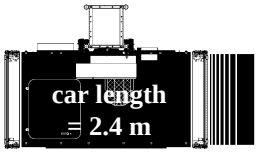
Car + Ground enclosure

Car and ground enclosure with 2 pcs. reinforced mast sections with 1 pce. rack each. (Weight of possible cable basket and cable excl.) = 2580 kg (min.)	2784 kg	(1485 - 1281 + 2580)	
Extra rack for dual car installation 2 x 17 kg	34 kg	(2818)	
Extra (2nd) ground enclosure gate	110 kg		
(Wall panel reduction = 28 kg/m x 1.5 m)	- 42 kg	(2886)	(2852)
Ground enclosure extension adapted for extended car = 2 x 0.1 x 28 kg/ m	6 kg	(2892)	(2842)

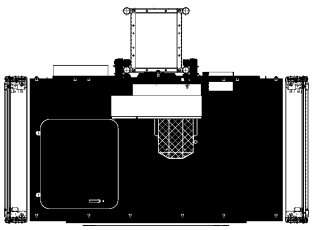
∑ = 2892 kg **(max.)**

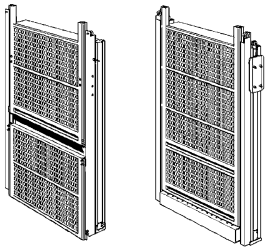
in round figures **2900 kg**

Product range, car length 2.0 – 2.4 m

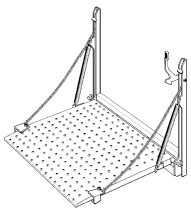
Car configuration		Power / Speed 1 x 11 kW DOL 0.5 m/s 50 Hz	1 x 11 k W DOL 0.5 m/s 60 Hz	2 x 7.5 kW DOL 0.63 m/s 50 Hz	2 x 7.5 kW DOL 0.63 m/s 60 Hz	1 x 11 kW FC 0.5 m/s	2 x 11 kW FC 0.7 m/s	2 x 11 kW FC 0.9 m/s
		Load capacity						
C10		1400 kg or 14 pers. No. 1263	NA	1400 kg or 14 pers. No. 1275	NA	NA	NA	NA
C22		1200 kg or 15 pers. No. 1264	NA	1400 kg or 17 pers. No. 1276	NA	1100 kg or 14 pers. No. 1272	1400 kg or 17 pers. No. 1284	1400 kg or 17 pers. No. 1288
C25		1000 kg or 12 pers. No. 1264	NA	1400 kg or 17 pers. No. 1276	NA	900 kg or 11 pers. No. 1272	1400 kg or 17 pers. No. 1284	1400kg or 17 pers. No. 1288

Click applicable datasheet No. above

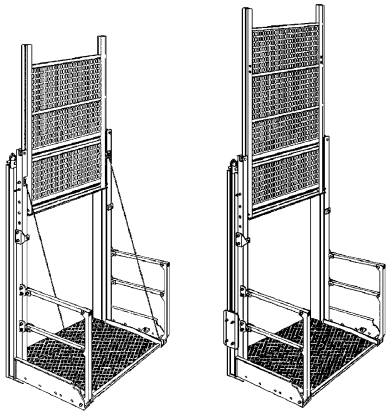
A  B



Vertical full height entrance door or exit door in two parts possible location A or B

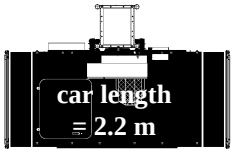
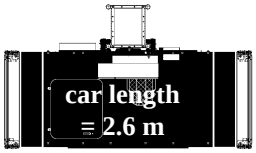
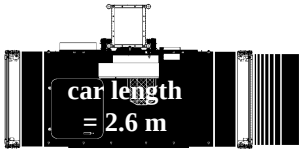


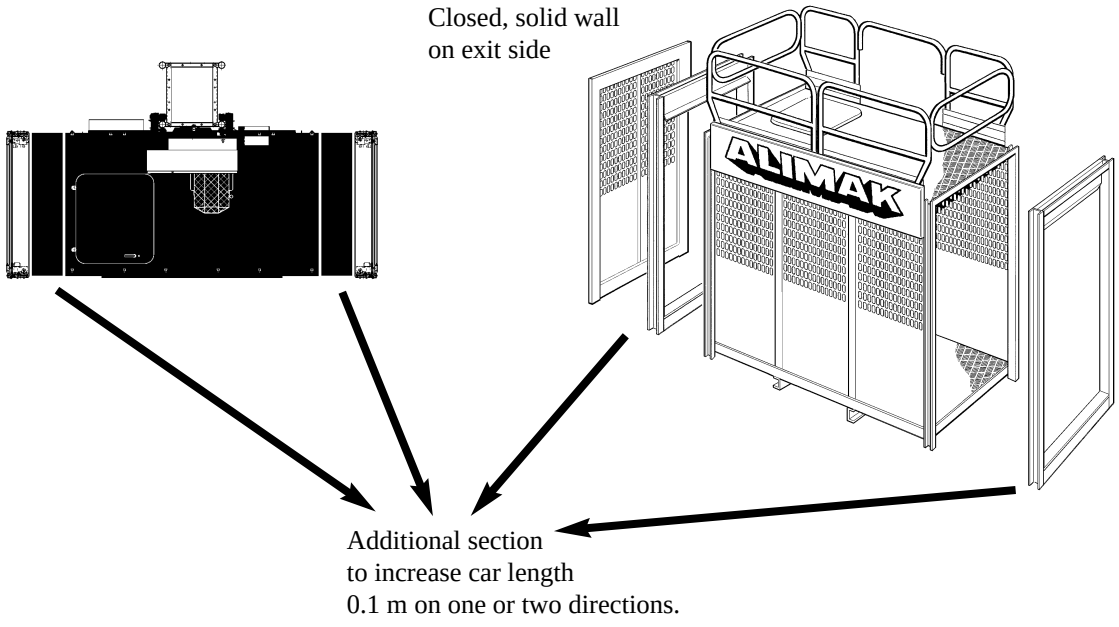
Manual load ramp, weight 64 kg



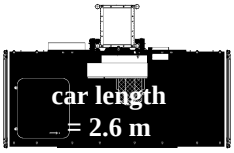
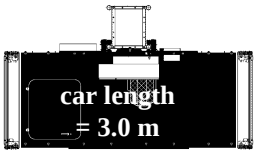
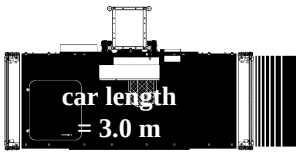
Exit door combined with optional electric / hydraulic or manual operated load ramp. possible location A or B

Product range, extended car length 2.2 – 2.6 m

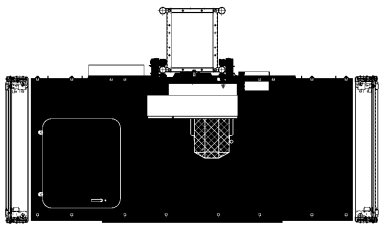
Car configuration	Power / Speed 1 x 11 kW DOL 0.5 m/s 50 Hz	1 x 11 k W DOL 0.5 m/s 60 Hz	2 x 7.5 kW DOL 0.63 m/s 50 Hz	2 x 7.5 kW DOL 0.63 m/s 60 Hz	1 x 11 kW FC 0.5 m/s	2 x 11 kW FC 0.7 m/s	2 x 11 kW FC 0.9 m/s
			Load capacity				
	NA	NA	NA	NA	NA	NA	NA
C42 	NA	NA	NA	NA	NA	NA	NA
C45 	NA	NA	NA	NA	NA	NA	NA

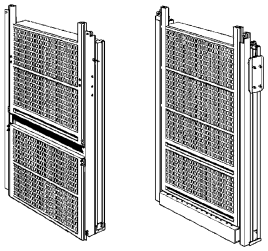


Product range, car length 2.6 – 3.0 m

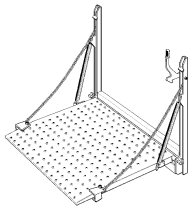
Car configuration		Power / Speed 1 x 11 kW DOL 0.5 m/s 50 Hz	1 x 11 k W DOL 0.5 m/s 60 Hz	2 x 7.5 kW DOL 0.63 m/s 50 Hz	2 x 7.5 kW DOL 0.63 m/s 60 Hz	1 x 11 kW FC 0.5 m/s	2 x 11 kW FC 0.7 m/s	2 x 11 kW FC 0.9 m/s
		Load capacity						
C50		1200 kg or 15 pers. No. 1263	NA	1400 kg or 14 pers. No. 1275	NA	NA	NA	NA
C52		1100 kg or 13 pers. No. 1265	NA	1400 – 2000 kg or 17 – 21 pers. No. 1277	NA	1100 kg or 13 pers. No. 1273	1400 – 2000 kg or 17 – 21 pers. No. 1285	1400 – 1900 kg or 17 – 21 pers. No. 1289
C55		800 kg or 10 pers. No. 1265	NA	1400 – 1900 kg or 17 – 21 pers. No. 1277	NA	700 kg or 8 pers. No. 1273	1400 – 2000 kg or 17 – 21 pers. No. 1285	1400 – 1900 kg or 17 – 21 pers. No. 1289

Click applicable datasheet No. above

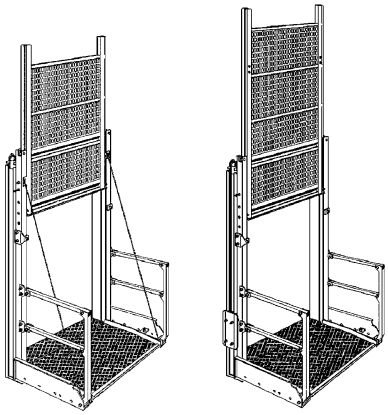
A  B



Vertical full height
entrance door or
exit door in two parts
possible location A or B

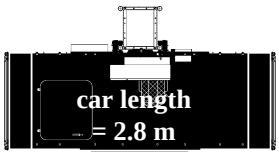
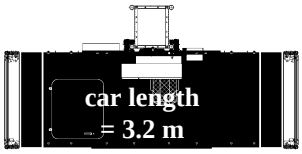
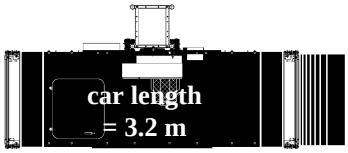


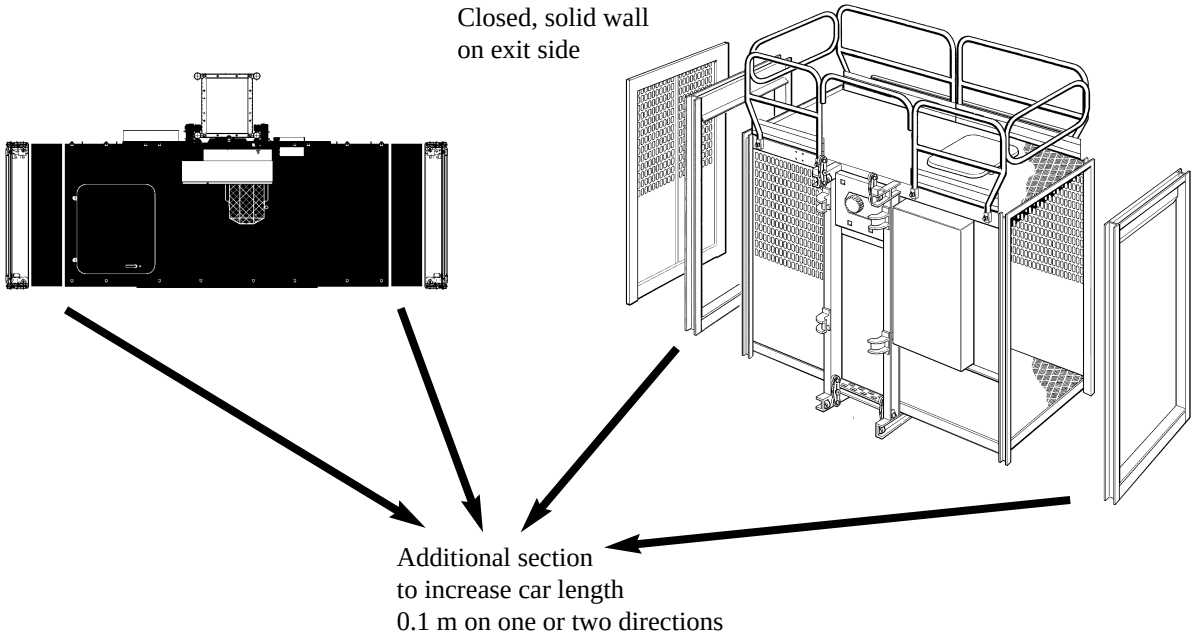
Manual load ramp,
weight 64 kg



Exit door combined with optional
electric / hydraulic or manual
operated load ramp.
possible location A or B

Product range, extended car length 2.8 – 3.2 m

Car configuration		Power / Speed 1 x 11 kW DOL 0.5 m/s 50 Hz	1 x 11 k W DOL 0.5 m/s 60 Hz	2 x 7.5 kW DOL 0.63 m/s 50 Hz	2 x 7.5 kW DOL 0.63 m/s 60 Hz	1 x 11 kW FC 0.5 m/s	2 x 11 kW FC 0.7 m/s	2 x 11 kW FC 0.9 m/s
		Load capacity NA	NA	NA	NA	NA	NA	NA
C62		900 kg or 11 pers. No. 1266	NA	1400 – 1900 kr or 17 – 22 pers. No. 1278	NA	800 kg or 10 pers. No. 1274	1400 – 1900 kr or 17 – 22 pers. No. 1286	1400 – 1800 kr or 17 – 22 pers. No. 1290
C65		700 kg or 8 pers. No. 1266	NA	1400 – 1800 kg or 17 – 22 pers. No. 1278	NA	600 kg or 7 pers. No. 1274	1400 – 1900 kg or 17 – 22 pers. No. 1286	1400 – 1800 kg or 17 – 22 pers. No. 1290



Load vs No. of passengers in the car

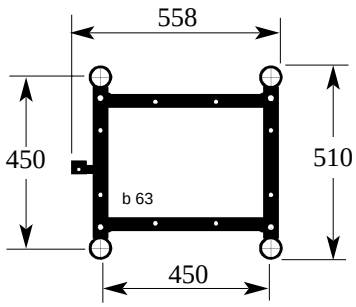
Car size	Losd capacity kg (lbs.)		No. of passengers EN 12159 80 kg	No. of passengers ANSI/ASME 90.7 kg (200 lbs.)
2.4 x 1.4 m = 3.36 m^2	1400 kg	**(3090 lbs.)**	17 pcs	15 pcs
(7'- 10 1/2'')	1200 kg	**(2640 lbs.)**	15 pcs	13 pcs
	1000 kg	**(2200 lbs.)**	12 pcs	11 pcs
	800 kg	**(1760 lbs.)**	10 pcs	9 pcs
2.6 x 1.4 m = 3.64 m^2	2000 kg	**(4410 lbs.)**	18 pcs	22 pcs
(8'- 6 1/4'')	1800 kg	**(3970 lbs.)**	– " –	20 pcs
	1600 kg	**(3530 lbs.)**	– " –	17 pcs
	1400 kg	**(3090 lbs.)**	17 pcs	15 pcs
	1200 kg	**(2640 lbs.)**	15 pcs	13 pcs
	1000 kg	**(2200 lbs.)**	12 pcs	11 pcs
	800 kg	**(1760 lbs.)**	10 pcs	9 pcs
3.0 x 1.4 m = 4.2 m^2	2000 kg	**(4410 lbs.)**	21 pcs	22 pcs
(9'- 10'')	1800 kg	**(3970 lbs.)**	– " –	20 pcs
	1600 kg	**(3530 lbs.)**	20 pcs	17 pcs
	1400 kg	**(3090 lbs.)**	17 pcs	15 pcs
	1200 kg	**(2640 lbs.)**	15 pcs	13 pcs
	1000 kg	**(2200 lbs.)**	12 pcs	11 pcs
	800 kg	**(1760 lbs.)**	10 pcs	9 pcs
3.2 x 1.4 m = 4.48 m^2	2000 kg	**(4410 lbs.)**	22 pcs	22 pcs
(10'- 6'')	1800 kg	**(3970 lbs.)**	– " –	20 pcs
	1600 kg	**(3530 lbs.)**	20 pcs	17 pcs
	1400 kg	**(3090 lbs.)**	17 pcs	15 pcs
	1200 kg	**(2640 lbs.)**	15 pcs	13 pcs
	1000 kg	**(2200 lbs.)**	12 pcs	11 pcs
	800 kg	**(1760 lbs.)**	10 pcs	9 pcs

Technical data sheet

SCANDO 450 PM DOL .. /20 – 26	**1 x 11 kW 50 Hz**	**.... No. 1263**
SCANDO 450 DOL .. /24	**1 x 11 kW 50 Hz**	**.... No. 1264**
SCANDO 450 DOL .. /30	**1 x 11 kW 50 Hz**	**.... No. 1265**
SCANDO 450 DOL .. /32 ext.	**1 x 11 kW 50 Hz**	**.... No. 1266**
SCANDO 450 FC .. /24	**1 x 11 kW (0.5 m/s)**	**.... No. 1272**
SCANDO 450 FC .. /30	**1 x 11 kW (0.5 m/s)**	**.... No. 1273**
SCANDO 450 FC .. /32 ext.	**1 x 11 kW (0.5 m/s)**	**.... No. 1274**
SCANDO 450 PM DOL .. /20 – 26	**2 x 7.5 kW 50 Hz**	**.... No. 1275**
SCANDO 450 DOL .. /24	**2 x 7.5 kW 50 Hz**	**.... No. 1276**
SCANDO 450 DOL .. /30	**2 x 7.5 kW 50 Hz**	**.... No. 1277**
SCANDO 450 DOL .. /32 ext.	**2 x 7.5 kW 50 Hz**	**.... No. 1278**
SCANDO 450 FC .. /24	**2 x 11 kW (0.7 m/s)**	**.... No. 1284**
SCANDO 450 FC .. /30	**2 x 11 kW (0.7 m/s)**	**.... No. 1285**
SCANDO 450 FC .. /32 ext.	**2 x 11 kW (0.7 m/s)**	**.... No. 1286**
SCANDO 450 FC .. /24	**2 x 11 kW (0.9 m/s)**	**.... No. 1288**
SCANDO 450 FC .. /30	**2 x 11 kW (0.9 m/s)**	**.... No. 1289**
SCANDO 450 FC .. /32 ext.	**2 x 11 kW (0.9 m/s)**	**.... No. 1290**

Dimensions, weight

Mast section



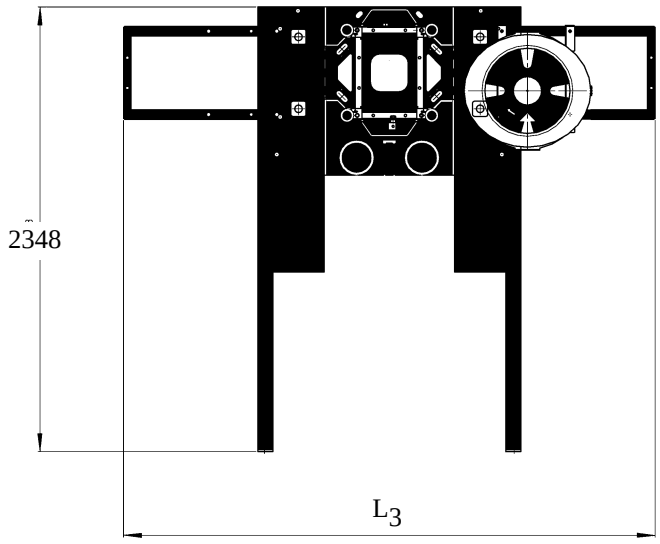
Length / height:	1508 mm
Weight:	68 / 85 kg
Mast bolt dimensions:	M16 galv.
	– quality minimum 8.8 or
Tightening torque:	125 Nm

Mast expansion/contraction

The expansion/contraction of the mast is: 0.012 mm/m and degree °C

Base frame

Scale 1 : 40

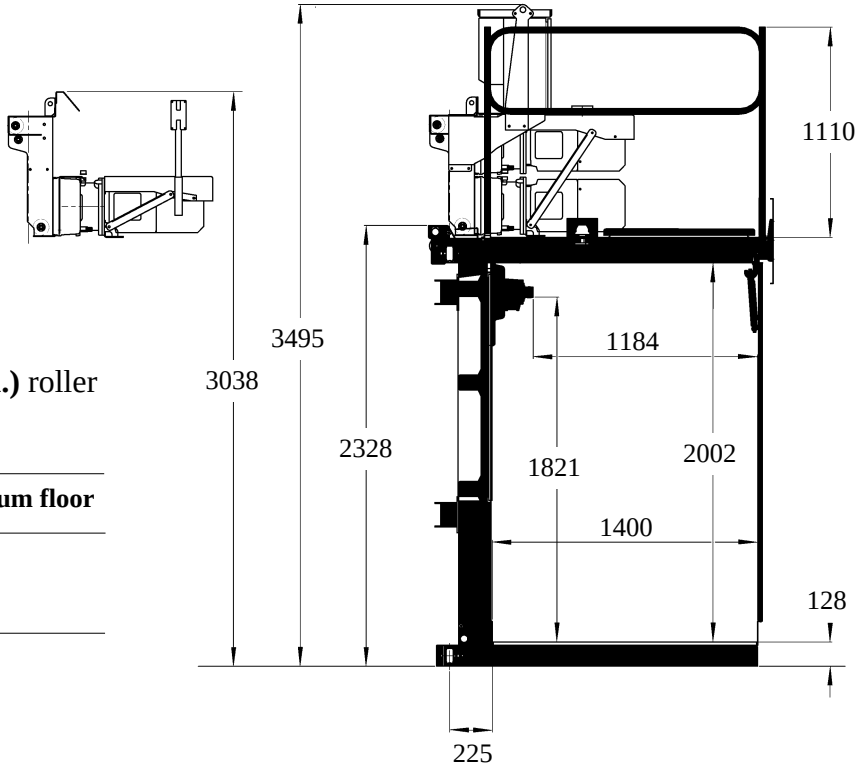


Height: 100 mm

Car length	L_3	Weight
2400 mm	2810 mm	195 kg
2600 mm	3010 mm	
3000 mm	3410 mm	
3200 mm	3610 mm	

Hoist car

Inside height/width and outside dimensions plan view
Scale 1 : 40
Weight: 950 – 1350 kg (depending on equipment and car length)



Allowable concentrated load on floor

Concentrated load on a dia. 100 mm **(4 in.)** roller with length 100 mm is;

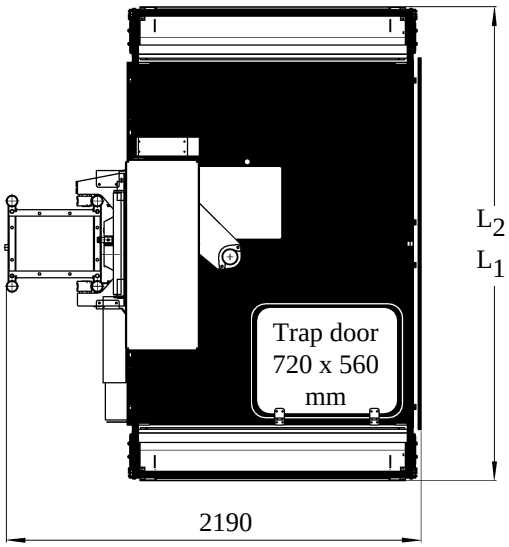
Plywood floor	Multi-layer built-up aluminium floor
500 kg / roller **(1100 lbs. / roller)**	1000 kg / roller **(2200 lbs, / roller)**

Top view outside dimensions

Scale 1 : 40

Car length Internal L_1	External L_2
2000 mm (PM)	2300 mm
2200 mm (PM)	2500 mm
2400 mm	2500* mm
2600 mm	2700* mm
2600 mm (PM)	2900 mm
2800 mm	2900* mm
2800 mm (PM)	3100 mm
3000 mm	3100* mm
3200 mm	3300* mm

*Add extra 95 mm where load ramp occur.



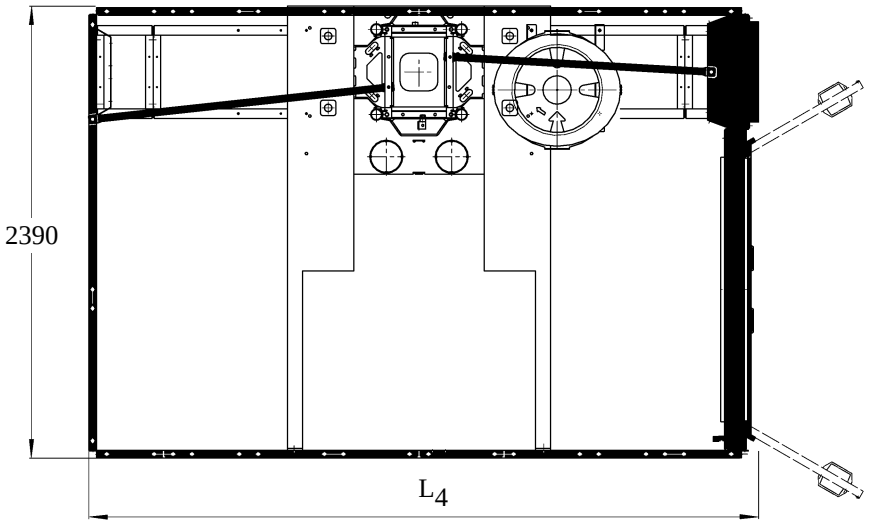
Minimum shaft dimensions:

Min. permissible “clearence” on all external dimensions is 100 mm **(4 in.)**

Ground enclosure for single and dual hoist cars

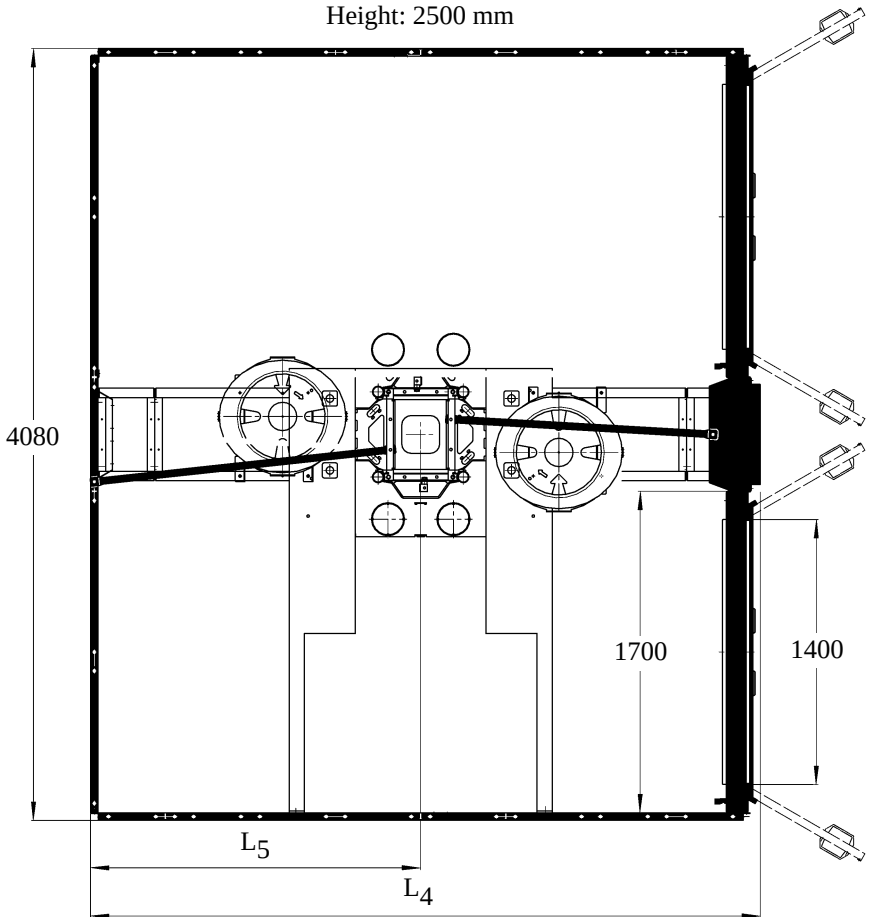
Top view, Scale 1 : 40

Height: 2500 mm



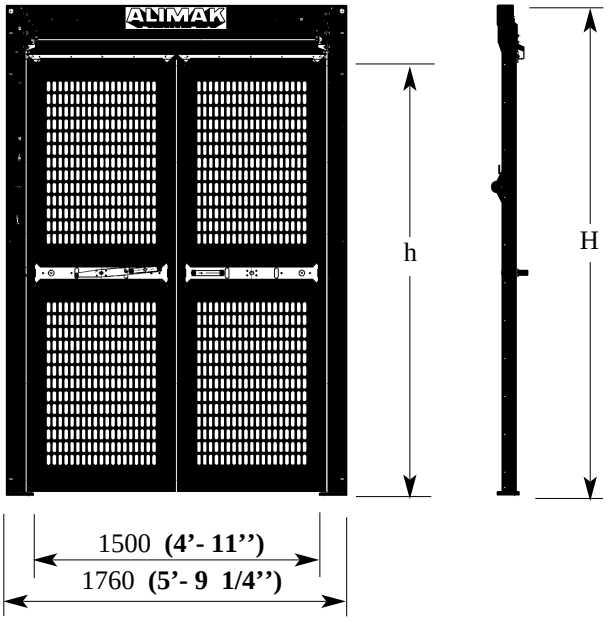
Car length	L_4	L_5
2400 mm	2940 mm	1445 mm
2600 mm	3140 mm	1545 mm
2800 mm	3340 mm	1645 mm
3000 mm (shown)	3540 mm	1745 mm
3200 mm	3740 mm	1845 mm

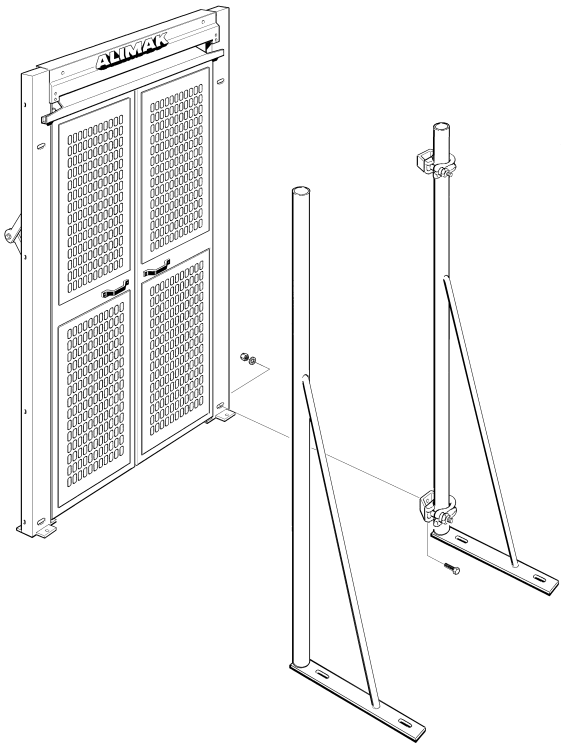
Height: 2500 mm



Double-leaf swing door for landings (alt 1.)

Scale 1 : 40



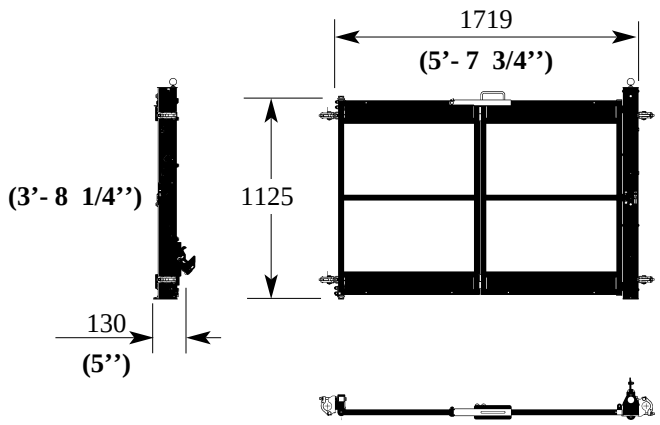


Refer to drwg,
9103162-sub. and 9103524-sub.

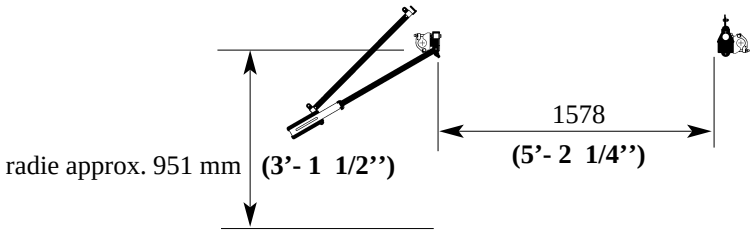
Door opening height (h)	H mm	Weight
2000 mm **(6-' 6 3/4'')**	2285 **(7'- 6'')**	110 kg **(243 lbs.)**
2300 mm **(7'- 6 1/2'')**	2585 **(8'- 5 3/4'')**	120 kg **(265 lbs.)**

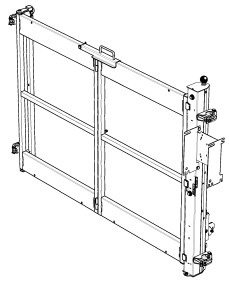
Bi-folding gate for landings (alt. 2)

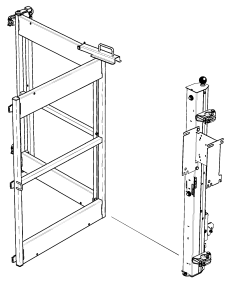
Scale 1 : 40

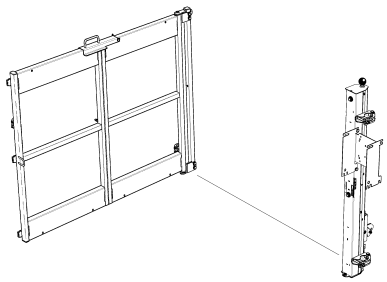


Weight: 36 kg **(79 lbs.)**

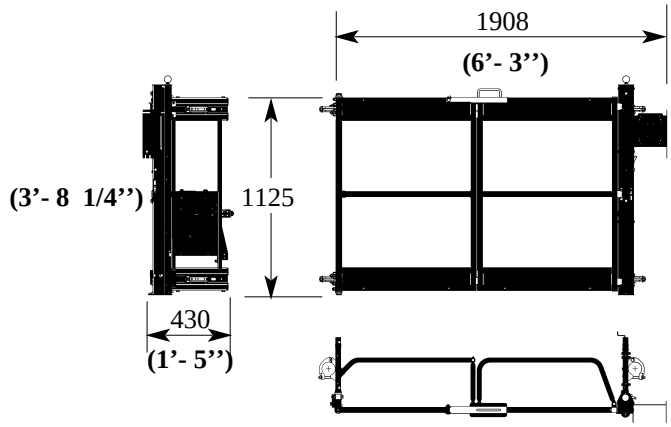




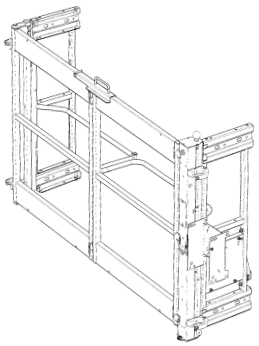




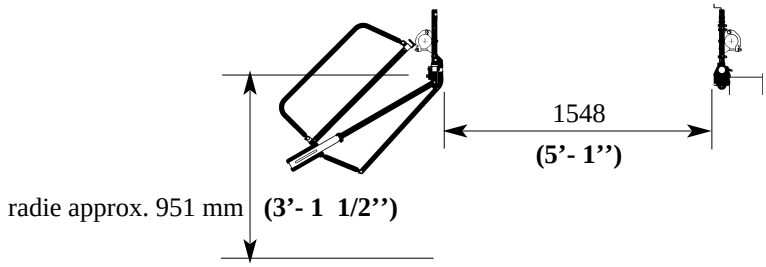
Refer to drwg,
9109380-010 and 9109380-910



Weight 55 kg **(121 lbs.)**

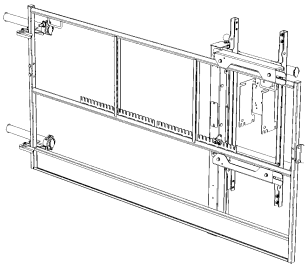


Refer to drwg, 9109380-950

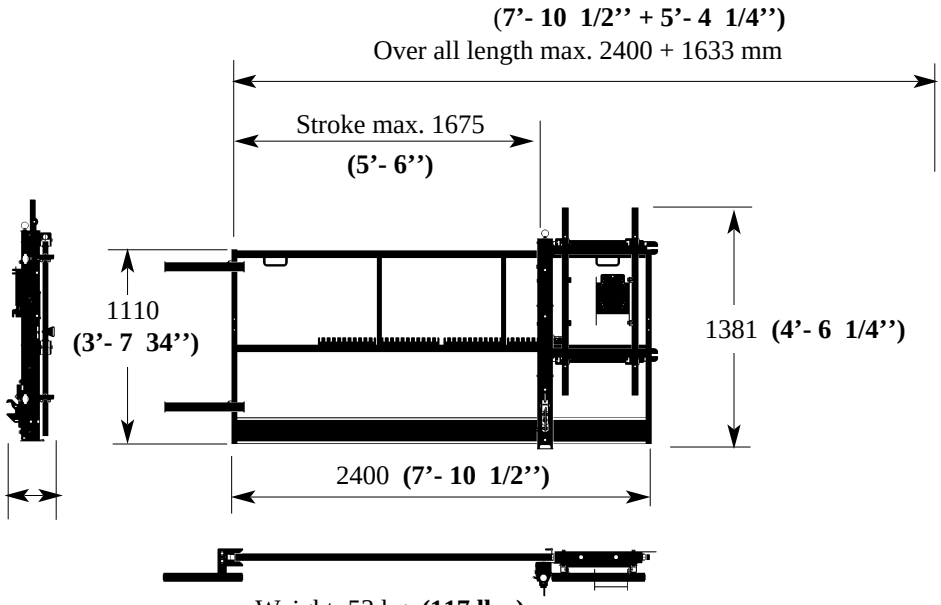


Horizontal sliding gates for landings
For installation ON slab (alt. 3 & 4)

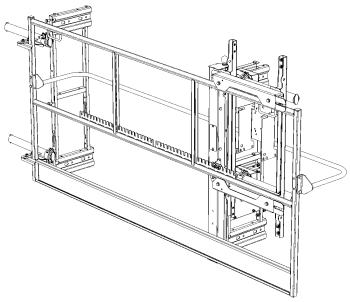
Scale 1 : 40



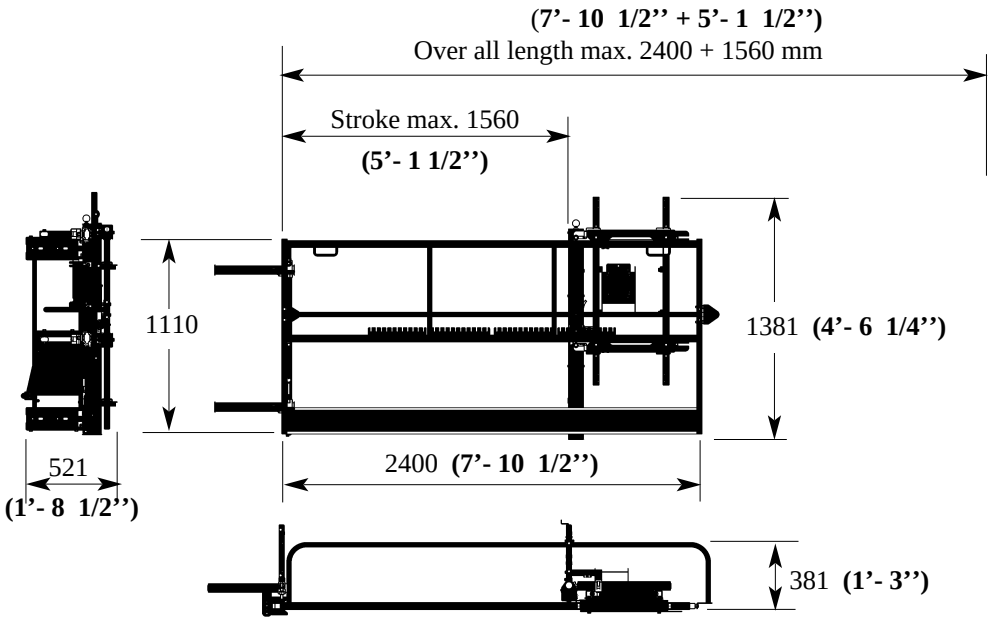
Refer to drwg,
9109800-010 and 9109800-910



Weight: 53 kg **(117 lbs.)**



Refer to drwg, 9109800-950

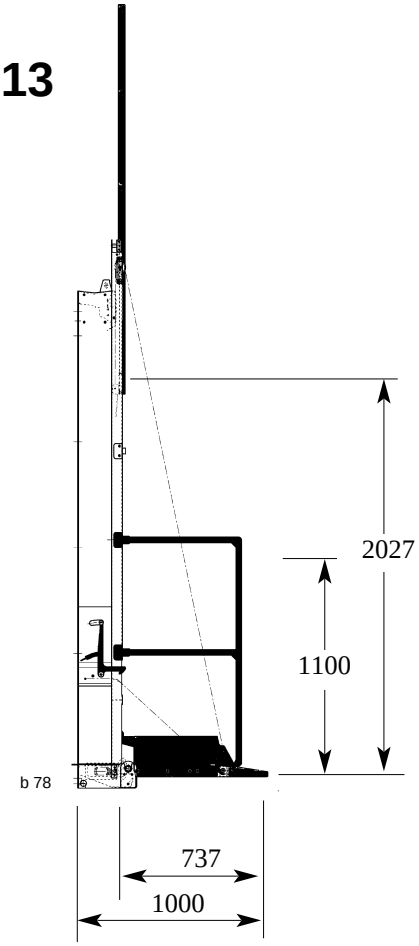


Weight: 76 kg **(168 lbs.)**

Vertical sliding bi-parting exit door with folding ramp – manually operated (alt. 4)

Scale 1 : 40

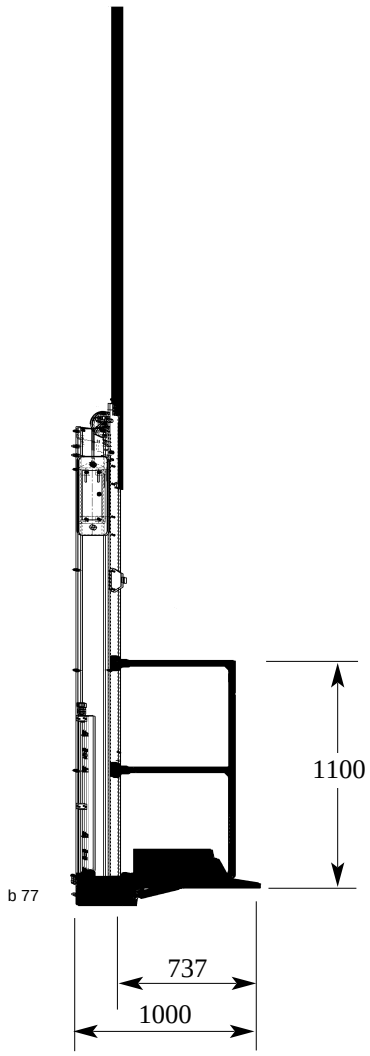
Width: internal 1400 mm
Weight: 140 kg



Vertical sliding exit door with folding ramp – el. operated, EN Approved (alt. 5)

Scale 1 : 40

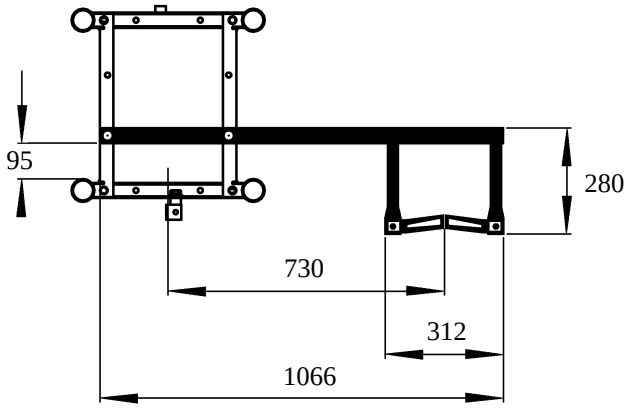
Width: internal 1400 mm
Weight: 230 kg



Cable guides for trailing cable(s)

Scale 1 : 20

Weight: 5.5 kg



Cable collecting basket

Scale 1 : 20

Dia.: ø 580 / ø 678 mm

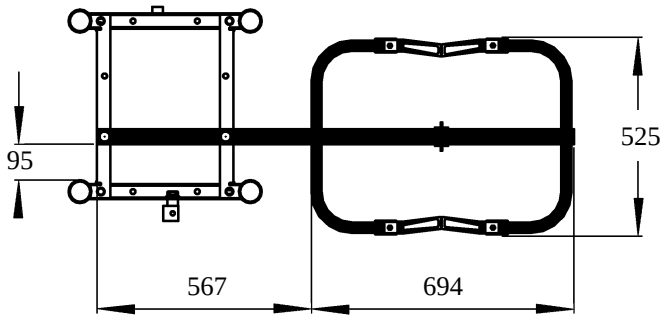
Height: 2000 mm

Weight: 28 kg

Cable guides for trolley and trailing cables

Scale 1 : 20

Weight: 9.5 kg



Tie distance and overhang

See chapter ”Hoist mast”.

Lubrication and lubrication volumes

See lubrication diagram in the chapter "Service and Maintenance"

Electric circuit diagram

See hoist document box.

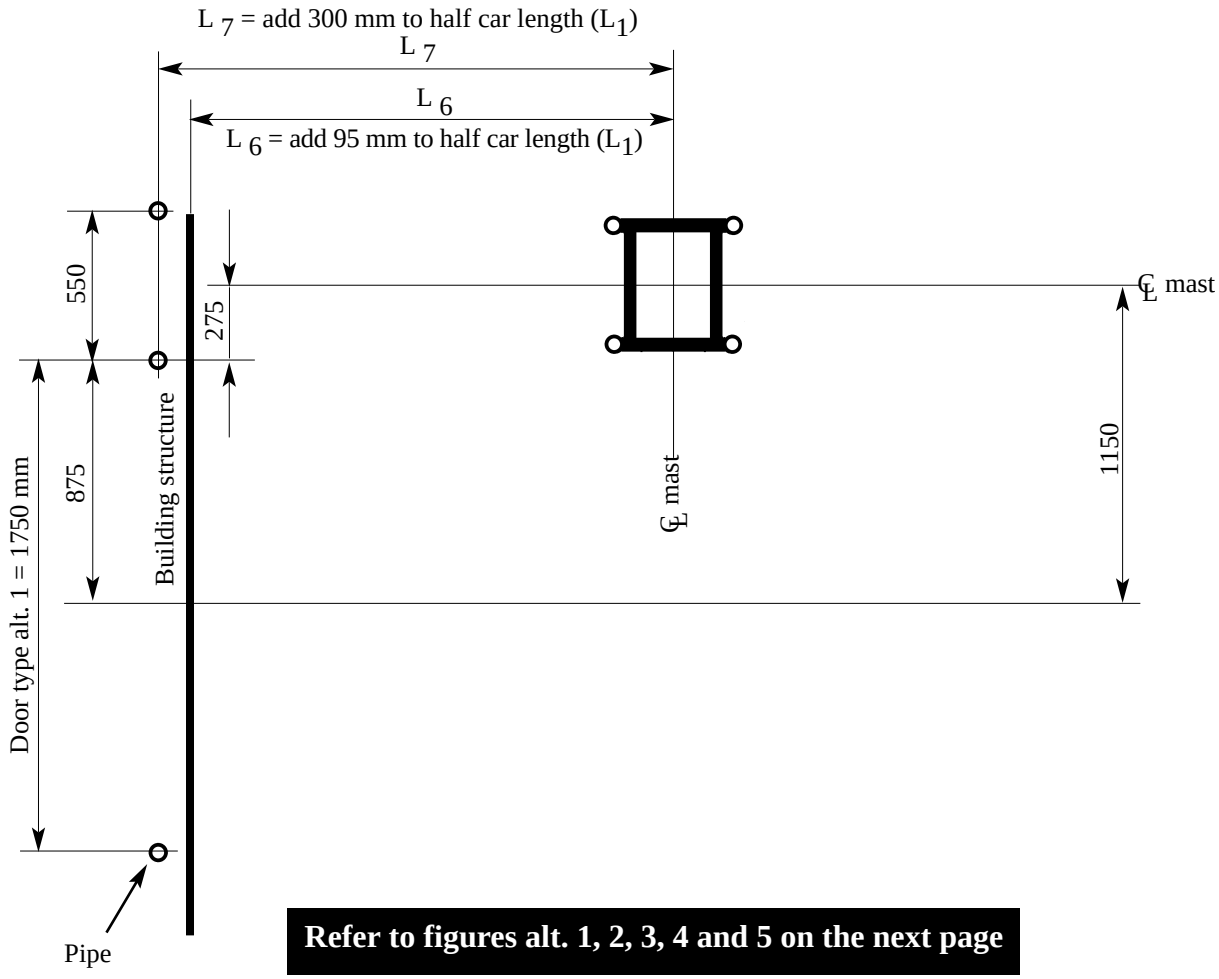
Noise level at operation

Measuring standard: IEC 651. Less than 85 dB(A).

Operating temperature range

+ 40°C / – 25°C

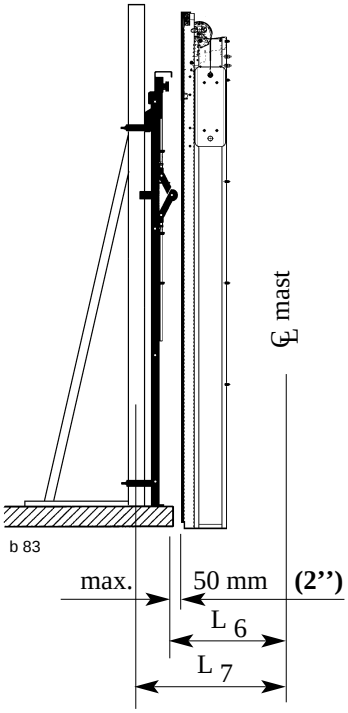
Location of landing door/gate



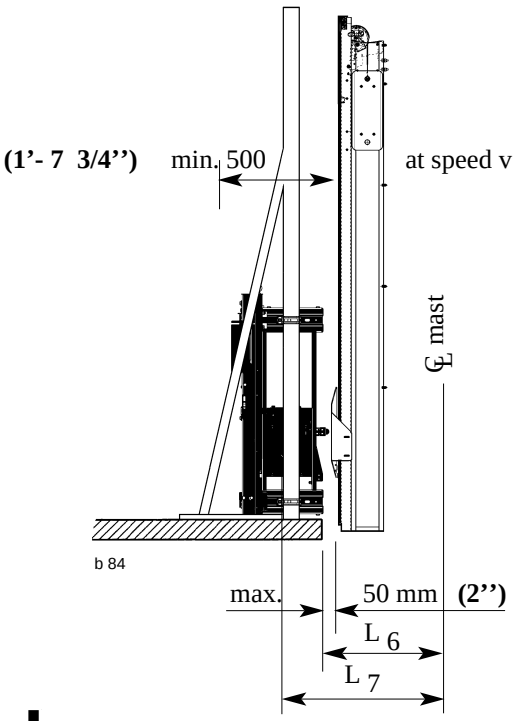
Refer to figures alt. 1, 2, 3, 4 and 5 on the next page

Car length L_1 mm	Door / gate type	Pipe dia. mm	Measure L_6 mm	Measure L_7 mm
2400 mm	Alt.1	ø 76	1295	1500
	Alt.2	ø 76	1295	1500
	Alt.3	ø 76	1295	1730
	Alt.4	ø 76	1900	2080
	Alt.5	–	1700 – 1900	–
3000 mm	Alt.1	ø 76	1595	1800
	Alt.2	ø 76	1595	1800
	Alt.3	ø 76	1595	2030
	Alt.4	ø 76	2200	2380
	Alt.5	–	2000 – 2200	–
3200 mm	Alt.1	ø 76	1695	1900
	Alt.2	ø 76	1695	1900
	Alt.3	ø 76	1695	2130
	Alt.4	ø 76	2300	2480
	Alt.5	–	2100 – 2300	–

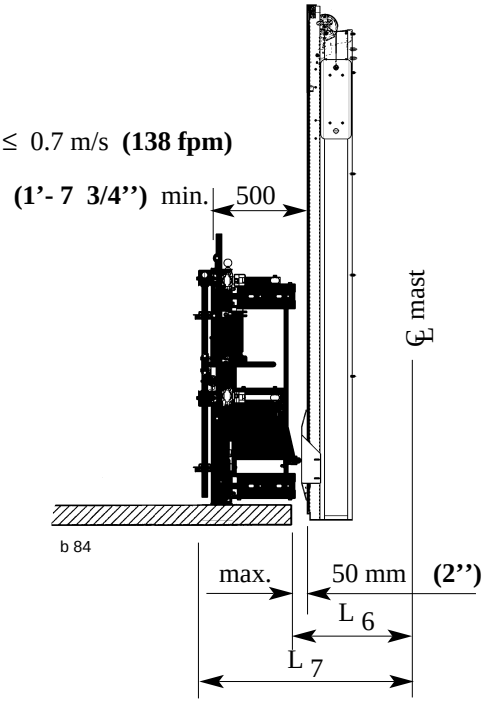
Alt. 1
Exit door combined
with landing door



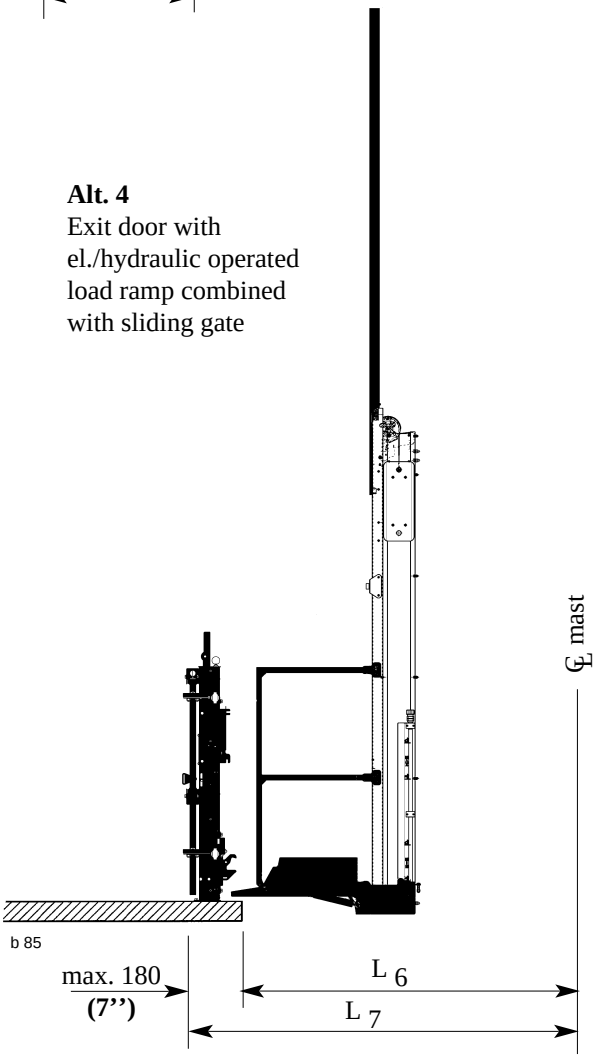
Alt. 2
Exit door combined with
bi-folding gate



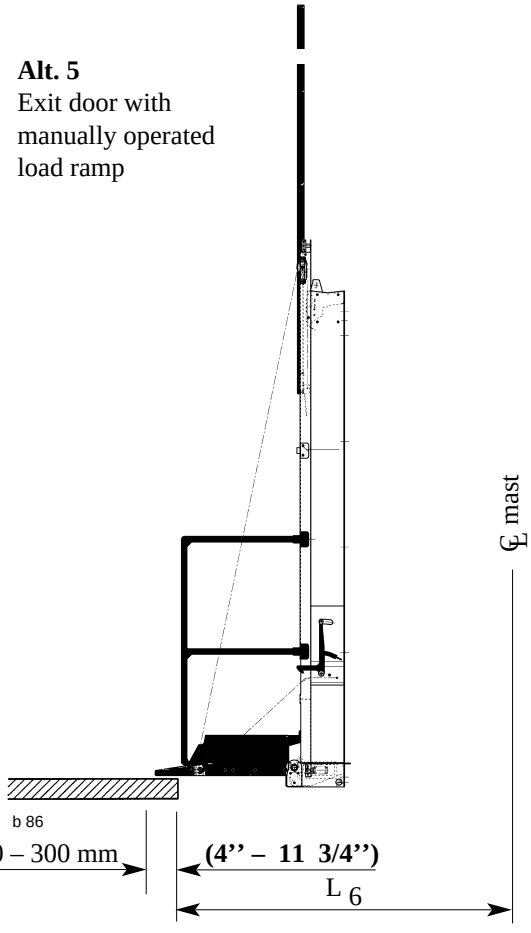
Alt. 3
Exit door combined
with sliding gate



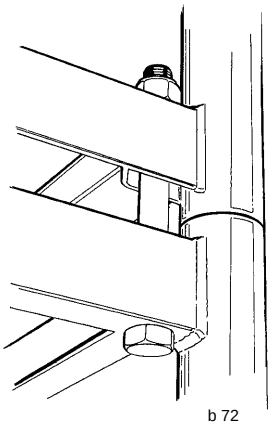
Alt. 4
Exit door with
el./hydraulic operated
load ramp combined
with sliding gate



Alt. 5
Exit door with
manually operated
load ramp



Tightening torque


b 72

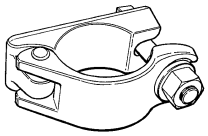
Recommendations according to the chart on the following page apply in general except for:

ALIMAK Mast bolt, dim. 1” UNC

– Torque : 300 Nm **(220 lbf · ft)**
– Spanner size : 1 1/2”

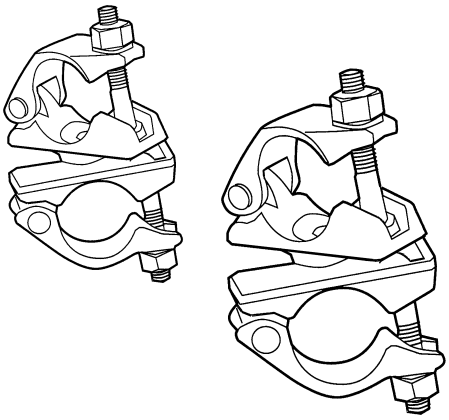
ALIMAK Mast bolt, dim. M16

– Torque : 125 Nm **(92 lbf · ft)**
– Spanner size : 24 mm



Tube coupler for tube dia. 48 mm

– Torque : 80 Nm **(60 lbf · ft)**
– Spanner size : 23 mm

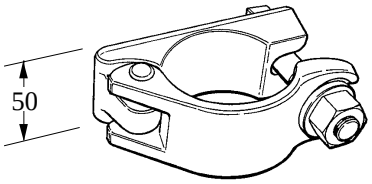


Pivoted tube coupler for for tube dia. 48 mm

– Torque : 50 Nm **(37 lbf · ft)**
– Spanner size : 24 mm

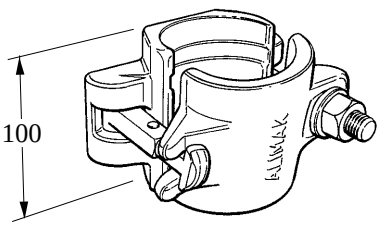
Pivoted tube coupler for for tube dia. 60 mm

– Torque : 50 Nm **(37 lbf · ft)**
– Spanner size : 1’’



Tube coupler for tube dia.76 mm

– Torque : 150 Nm **(110 lbf · ft)**
– Spanner size : 28 mm



ALIMAK tube coupler (pivoted / fixed) for tube dia.76 mm

– Torque : 220 Nm **(163 lbf · ft**)
– Spanner size : 24 or 27 mm

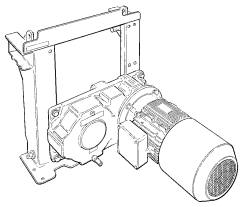
Recommended torques

The chart applies to galvanized bolt and nut of strength class 8.8 – dry surface.

Dimension	Spanner size	Torque	
		Nm	lbf x ft
M 6	10 mm	10	7
M 8	13 mm	24	18
M 10	17 mm	47	35
M 12	19 mm	81	60
M 14	22 mm	128	95
M 16	24 mm	198	146
M 20	30 mm	386	285
M 24	36 mm	668	493

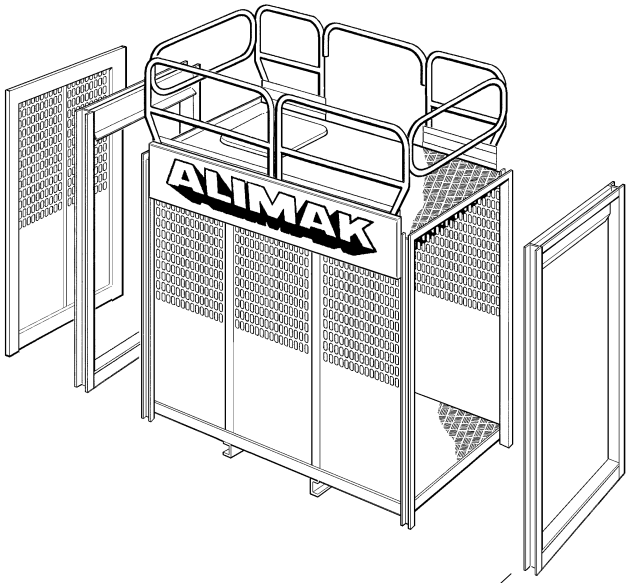
SCANDO 450 Modular System

Single motor machinery
Weight 250 kg

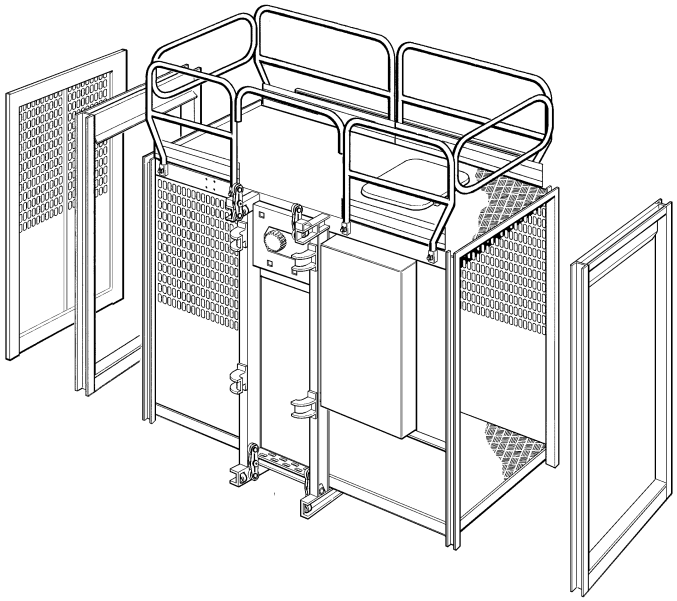


Short car base structure
length 2.0 incl. safety railing (55 kg), weight 463 kg

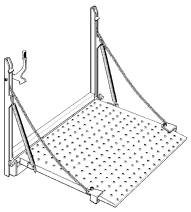
Closed, solid wall
on exit side,
weight 40 kg



Long car base structure
length 2.6 m incl. safetry railing (62 kg), weight 551 kg

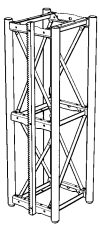


Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.



Manual load ramp in one
or both ends,
weight 64 kg

Mast section Mk II
length 1508 mm.



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ALIMAK®

SCANDO 450 PM DOL /20 – 26,11 kW 50 Hz

2.0 m car structure		**X**		**(C10)**
Reinforced 2.0 m [1] car structure			**X**	**(NA)**
2.6 m car structure			**X**	**(C50)**
Reinforced 2.6 m [1] car structure			**X**	**(NA)**
Pay-load capacity (fuse 35A)	kg	1400	1200	
Average speed 50 Hz	m/min	30	30	
Max. lifting height	meter	100	100	
Increased lifting height on request				
No. of buffer springs	pcs.	2	2	
Safety device type GF	P/no.	9067360-8008		

CAR DIMENSIONS

Internal width	meter	1.4	1.4
Internal length	meter	2.0	2.6
External length (E)	meter	***add 0.12 m to internal length above***	
Internal height, minimum	meter	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***	

ELECTRICAL DATA

Power supply range		380 – 420 V, 50 Hz, 3 Phase	
At 400 V/50 Hz:			
Power supply fuses	A~	35	35
Single motor machinery	kW	1 x 11	1 x 11
Starting current (DOL)	A~	144	144
Power consumpt. (fuse 35A)	kVA~	18	17
Power cable guiding system		***Cable basket (≤ 100 m)***	

Data for other voltages on request

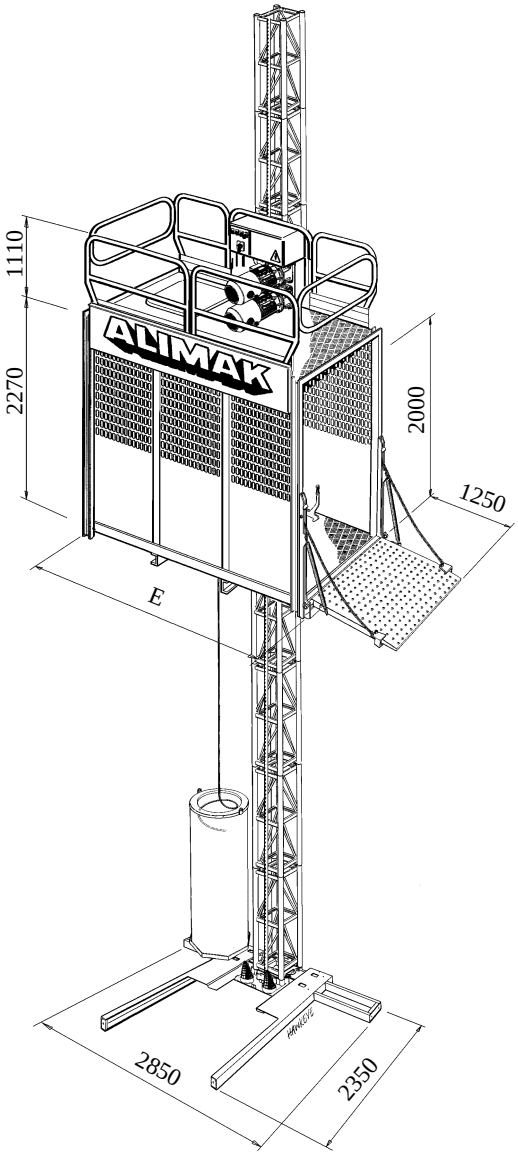
WEIGHTS

Base unit weight approx.	kg	1350 [2]	1440 [2]
Mast section with one rack	kg	70.5	70.5
Mast section with two racks	kg	87.5	87.5
Mast section length	mm	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.38 m to external length (E)***	
Width (G):	m	2.39	2.39
Maximum height:	m	3.10	3.10
machinery excl.			



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Add 32 kg for each 0.1 m car extension part where applicable.
Add trailing power cable approximately 1.0 kg/meter where cable basket occurs.

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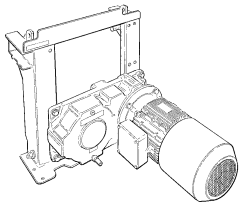
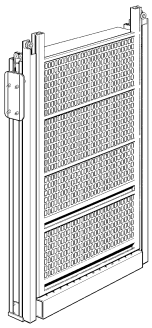
SCANDO 450 Modular System

Single motor machinery (DOL)
Weight 250 kg

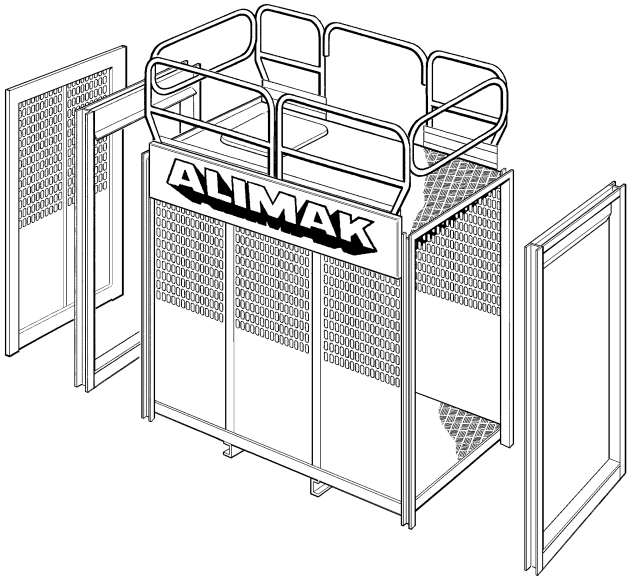


Standard vertical exit door
in two parts, weight 90 kg

Standard vertical full height
entrance door,weight 110 kg

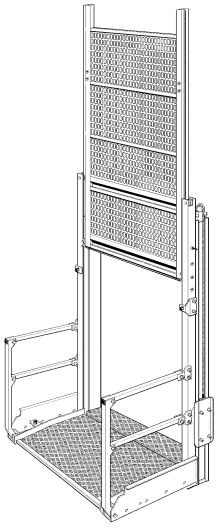


2.0 m car base structure incl. safety railings (55 kg),
weight 463 kg



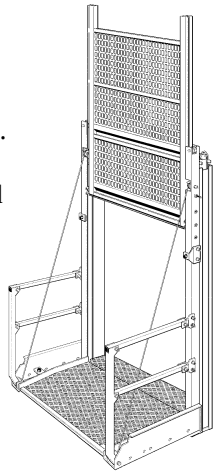
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

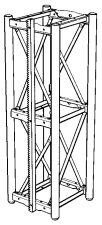


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section Mk II
length 1508 mm.



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SCANDO 450 DOL /24 50Hz

2.4 m car with two vertical doors		**X**		**(C22)**
2.4 m car with one load ramp and one vertical door		**X**		**(C25)**
Reinforced 2.4 m car [1] with two vertical doors			**X**	**(NA)**
Reinforced 2.4 m car [1] with one load ramp and one vertical door			**X**	**(NA)**
Pay-load capacity (fuse 35A)	kg	1200	1000	
Average speed 50 Hz	m/min	30	30	
Max. lifting height	meter	100	100	
Increased lifting height on request				
No. of buffer springs	pcs.	2	2	
Safety device type GF	P/no.	9067360-8008		

CAR DIMENSIONS

Internal width	meter	1.4	1.4
Internal length	meter	2.4	2.4
External length (E)	meter	***add 0.12 m to internal length above***	
Internal height, minimum, minimum	meter	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***	

ELECTRICAL DATA

Power supply range		380 – 420 V, 50 Hz, 3 Phase	
At 400 V/50 Hz:			
Power supply fuses	A~	35	35
Single motor machinery	kW	1 x 11	1 x 11
Starting current (DOL)	A~	144	144
Power consumpt. (fuse 35A)	kVA~	17	16

Power cable guiding system ***Cable basket (≤ 100 m)***

Data for other voltages on request

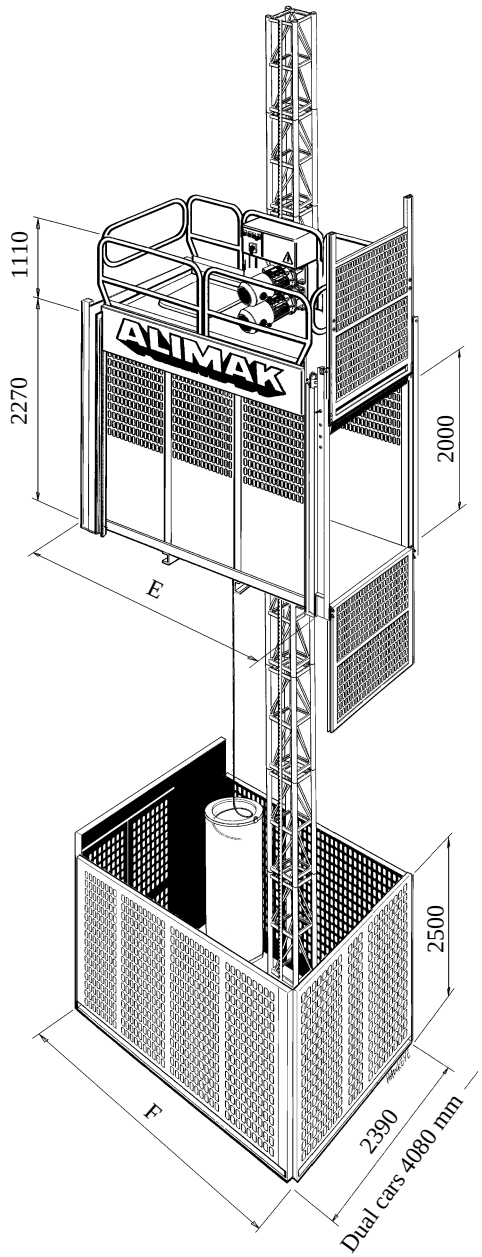
WEIGHTS

Base unit weight approx.	kg	2200	[2]
Mast section with one rack	kg	70.5	70.5
Mast section with two racks	kg	87.5	87.5
Mast section length	mm	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.38 [3] m to external length (E)***	
Width (G):	m	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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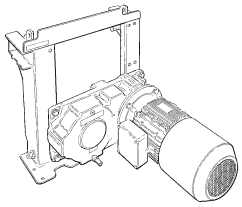
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

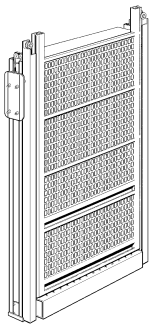
SCANDO 450 Modular System

Single motor machinery (DOL)
Weight 230 kg

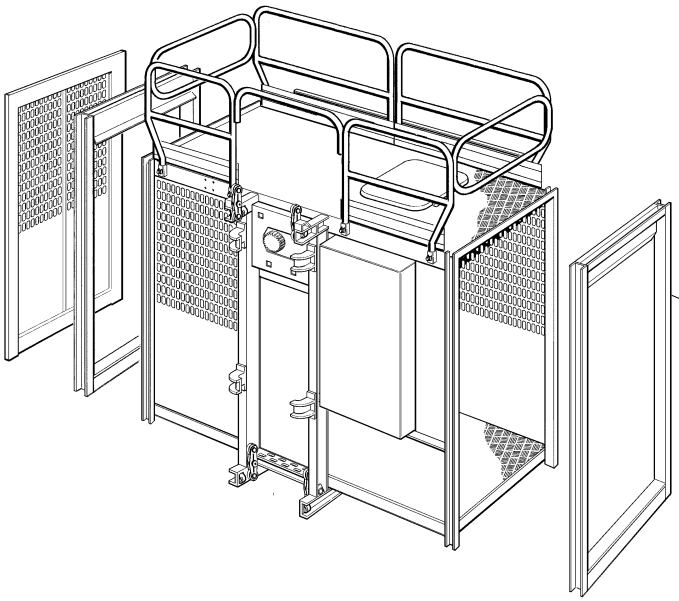


Standard vertical exit door
in two parts, weight 90 kg

Standard vertical full height
entrance door,weight 110 kg

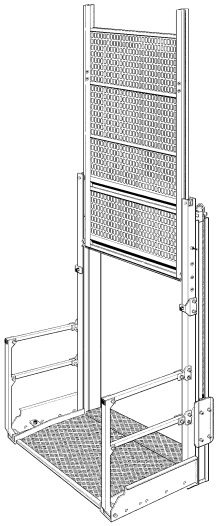


2.6 m car base structure incl. safety railings (62 kg),
weight 551 kg



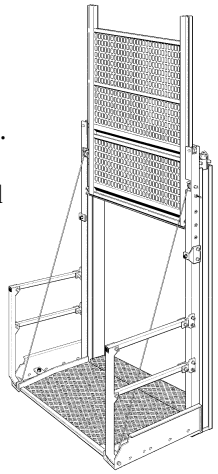
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

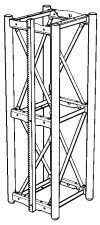


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section Mk II
length 1508 mm.



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SCANDO 450 DOL /30 50Hz

3.0 m car with two vertical doors		**X**				**(C52)**
3.0 m car with one load ramp and one vertical door			**X**			**(C55)**
Reinforced 3.0 m car [1] with two vertical doors				**X**		**(NA)**
Reinforced 3.0 m car [1] with one load ramp and one vertical door					**X**	**(NA)**
Pay-load capacity (fuse 35A)	kg	1100	800	1000	800	
Average speed 50 Hz	m/min	30	30			
Max. lifting height	meter	100	100			
Increased lifting height on request						
No. of buffer springs	pcs.	2	2			
Safety device type GF	P/no.	9067360-8008				

CAR DIMENSIONS

Internal width	meter	1.4	1.4
Internal length	meter	3.0	3.0
External length (E)	meter	***add 0.12 m to internal length above***	
Internal height, minimum, minimum	meter	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***	

ELECTRICAL DATA

Power supply range		380 – 420 V, 50 Hz, 3 Phase	
At 400 V/50 Hz:			
Power supply fuses	A~	35	35
Single motor machinery	kW	1 x 11	1 x 11
Starting current (DOL)	A~	144	144
Power consumpt. (fuse 35A)	kVA~	17	15

Power cable guiding system ***Cable basket (≤ 100 m)***

Data for other voltages on request

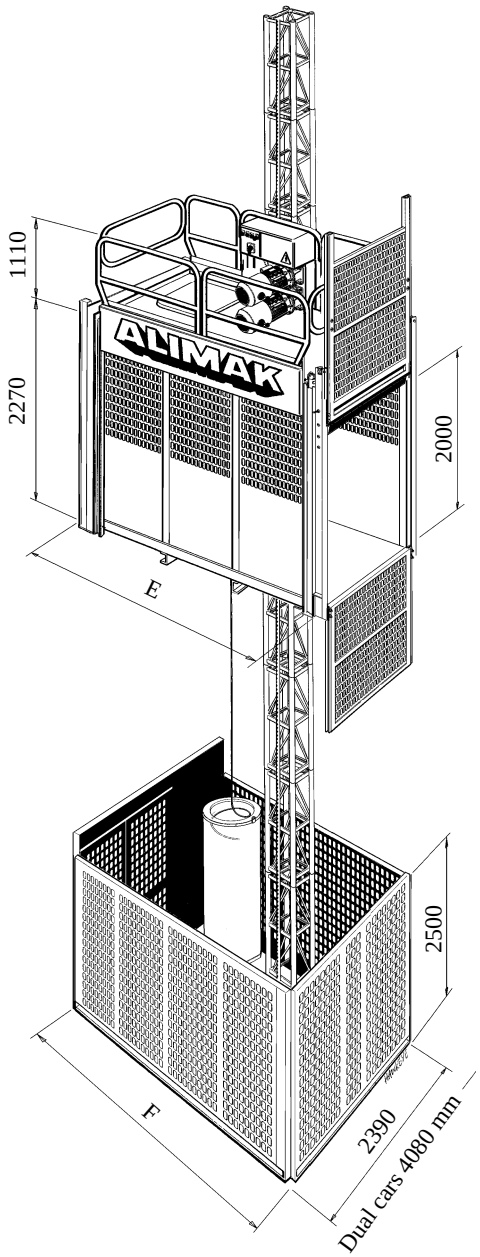
WEIGHTS

Base unit weight approx.	kg	2300	[2]
Mast section with one rack	kg	70.5	70.5
Mast section with two racks	kg	87.5	87.5
Mast section length	mm	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.38 [3] m to external length (E)***	
Width (G):	m	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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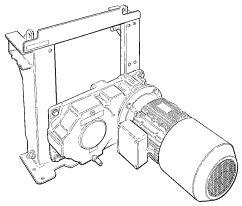
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

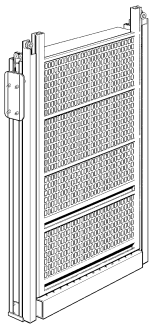
SCANDO 450 Modular System

Single motor machinery (DOL)
Weight 250 kg

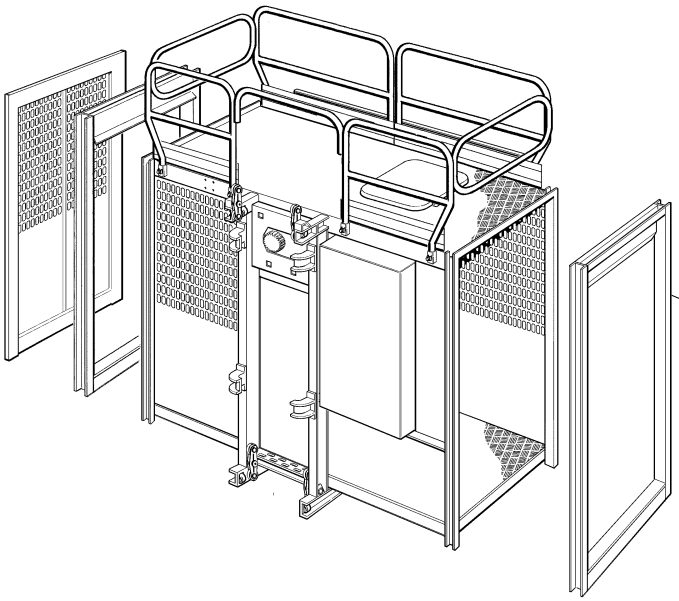


Standard vertical exit door
in two parts, weight 90 kg

Standard vertical full height
entrance door,weight 110 kg

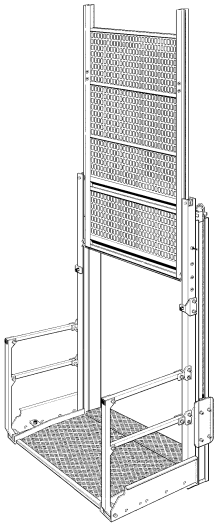


2.6 m car base structure incl. safety railings (62 kg),
weight 551 kg



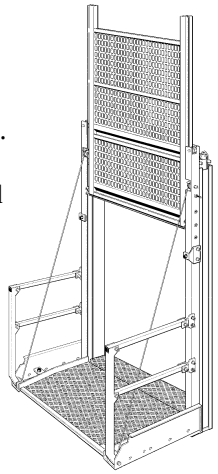
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

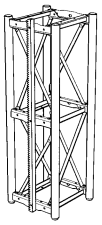


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section Mk II
length 1508 mm.



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SCANDO 450 DOL /32 50Hz

Extended 3.0 m car with two vertical doors	**X**	**(C62)**
Ext. 3.0 m car with one load ramp and vertical door	**X**	**(C65)**
Ext. reinforced 3.0 m car [1] with two vertical doors	**X**	**(NA)**
Ext. reinforced 3.0 m car [1] with one load ramp and one vertical door	**X**	**(NA)**

Pay-load capacity (fuse 35A)	kg	900	700
Average speed 50 Hz	m/min	30	30
Max. lifting height	meter	100	100
Increased lifting height on request			
No. of buffer springs	pcs.	2	2
Safety device type GF	P/no.	9067360-8008	

CAR DIMENSIONS

Internal width	meter	1.4	1.4
Internal length	meter	3.2	3.2
External length (E)	meter	***add 0.12 m to internal length above***	
Internal height, minimum	meter	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***	

ELECTRICAL DATA

Power supply range		380 – 420 V, 50 Hz, 3 Phase	
At 400 V/50 Hz:			
Power supply fuses	A~	35	35
Single motor machinery	kW	1 x 11	1 x 11
Starting current (DOL)	A~	144	144
Power consumpt. (fuse 35A)	kVA~	16	15

Power cable guiding system ***Cable basket (≤ 100 m)***

Data for other voltages on request

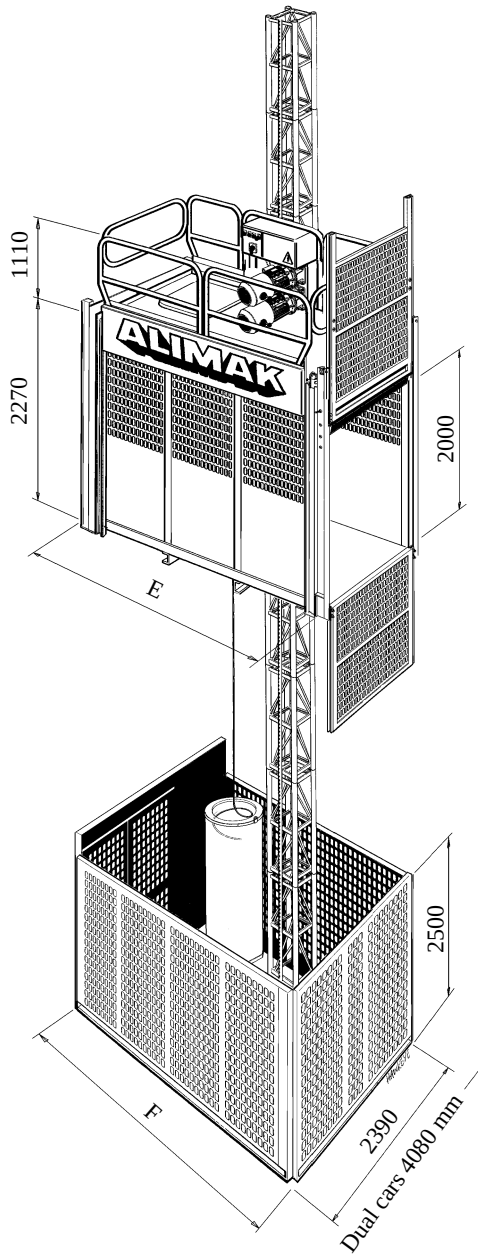
WEIGHTS

Base unit weight approx.	kg	2400	[2]
Mast section with one rack	kg	70.5	70.5
Mast section with two racks	kg	87.5	87.5
Mast section length	mm	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.38 [3] m to external length (E)***	
Width (G):	m	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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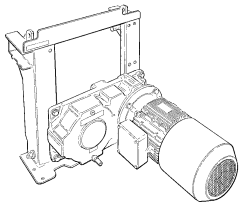
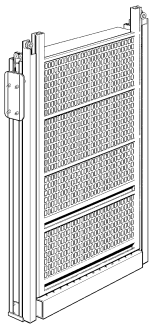
SCANDO 450 Modular System

Single motor machinery FC
incl. VFC-panel weight 330 kg

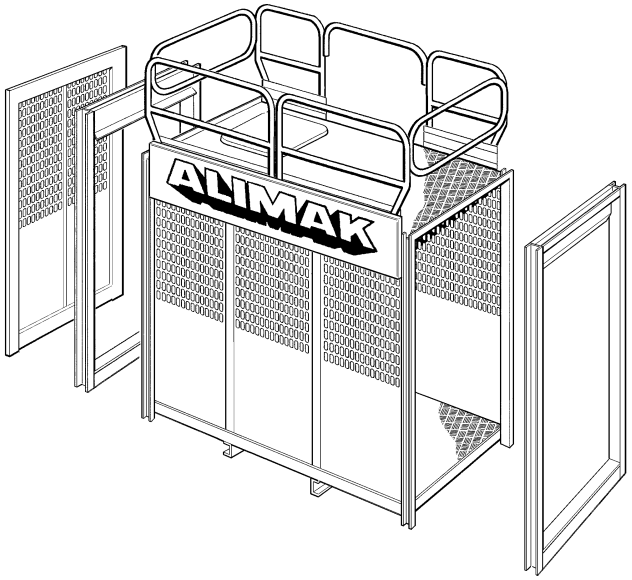


Standard vertical exit door
in two parts, weight 90 kg

Standard vertical full height
entrance door,weight 110 kg

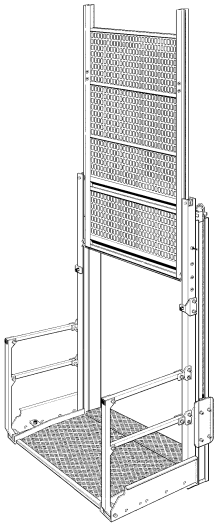


2.0 m car base structure incl. safety railings (55 kg),
weight 463 kg



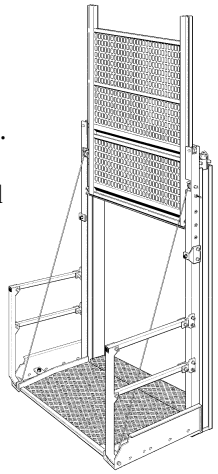
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

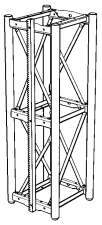


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section Mk II
length 1508 mm.



Printed in Sweden

SCANDO 450 FC /24

2.4 m car with two vertical doors		**X**		**(C22)**
2.4 m car with one load ramp and one vertical door		**X**		**(C25)**
Reinforced 2.4 m car [1] with two vertical doors			**X**	**(NA)**
Reinforced 2.4 m car [1] with one load ramp and one vertical door			**X**	**(NA)**
Pay-load capacity (fuse 25A)	kg	1100	900	
Average speed 50 or 60 Hz	m/min	30	30	
Max. lifting height	meter	100	100	
Increased lifting height on request				
No. of buffer springs	pcs.	2	2	
Safety device type GF	P/no.	9067360-8008		

CAR DIMENSIONS

Internal width	meter	1.4	1.4
Internal length	meter	2.4	2.4
External length (E)	meter	***add 0.12 m to internal length above***	
Internal height, minimum	meter	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***	

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase	
At 400 V/50 Hz:			
Power supply fuses	A~	25	25
Single motor machinery	kW	1 x 11	1 x 11
Starting current	A~	22	22
Power consumpt. (fuse 25A)	kVA~	14	13

Power cable guiding system ***Cable basket (≤ 100 m)***

Data for other voltages on request

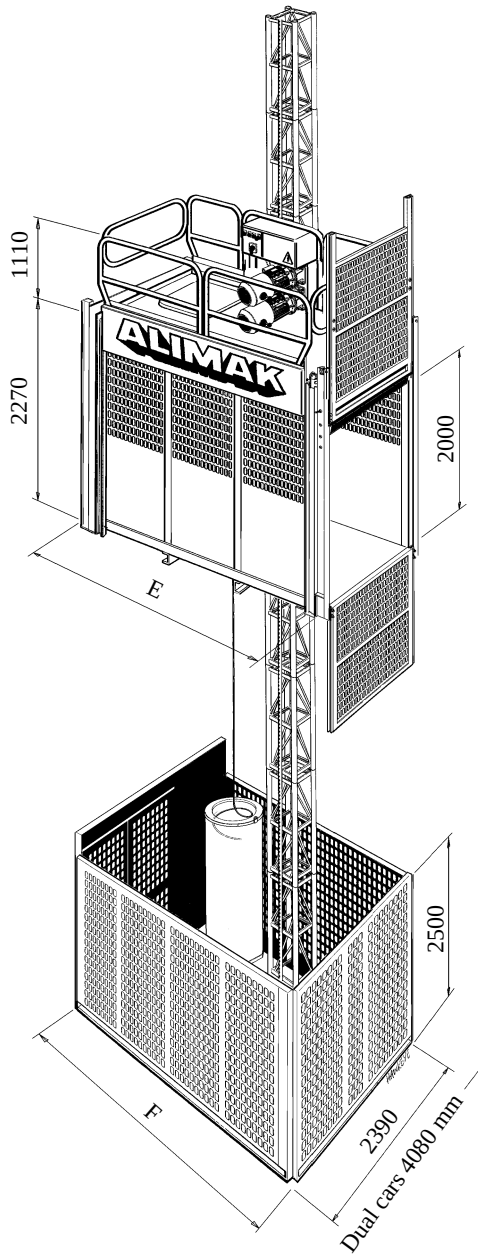
WEIGHTS

Base unit weight approx.	kg	2280	[2]
Mast section with one rack	kg	70.5	70.5
Mast section with two racks	kg	87.5	87.5
Mast section length	mm	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.38 [3] m to external length (E)***	
Width (G):	m	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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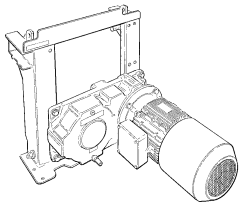
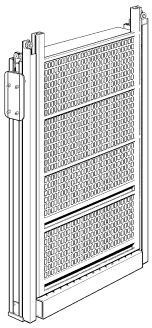
SCANDO 450 Modular System

Single motor machinery FC
incl. VFC-panel weight 330 kg

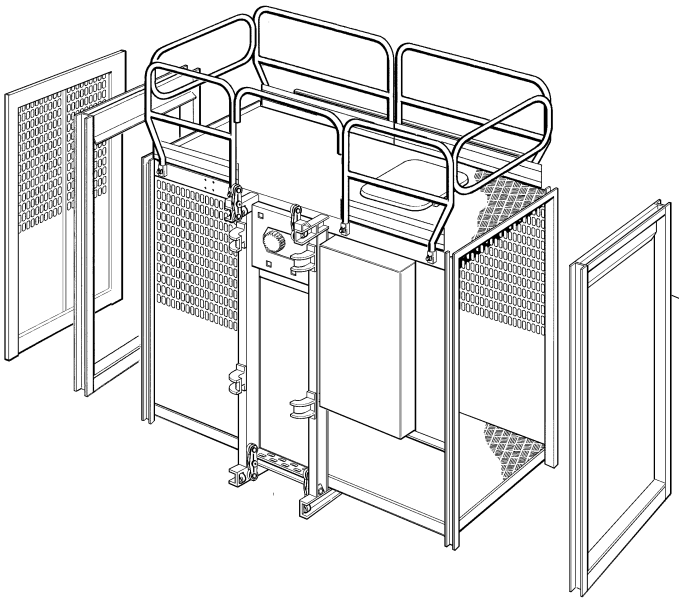


Standard vertical exit door
in two parts, weight 90 kg

Standard vertical full height
entrance door,weight 110 kg

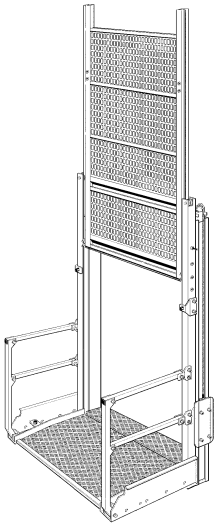


2.6 m car base structure incl. safety railings (62 kg),
weight 551 kg



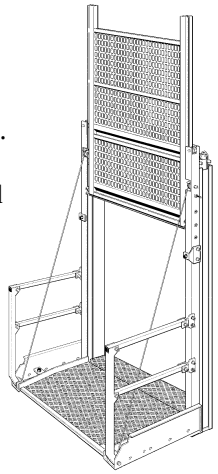
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

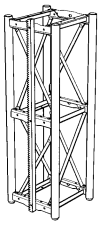


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section Mk II
length 1508 mm.



Printed in Sweden

SCANDO 450 FC /30

3.0 m car with two vertical doors		**X**		**(C52)**
3.0 m car with one load ramp and one vertical door			**X**	**(C55)**
Reinforced 3.0 m car [1] with two vertical doors		**X**		**(NA)**
Reinforced 3.0 m car [1] with one load ramp and one vertical door			**X**	**(NA)**

Pay-load capacity (fuse 25A)	kg	1000	700
Average speed 50 or 60 Hz	m/min	30	30
Max. lifting height	meter	100	100
Increased lifting height on request			
No. of buffer springs	pcs.	2	2
Safety device type GF	P/no.	9067360-8008	

CAR DIMENSIONS

Internal width	meter	1.4	1.4
Internal length	meter	3.0	3.0
External length (E)	meter	***add 0.12 m to internal length above***	
Internal height, minimum	meter	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***	

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase	
At 400 V/50 Hz:			
Power supply fuses	A~	25	25
Single motor machinery	kW	1 x 11	1 x 11
Starting current	A~	22	21
Power consumpt. (fuse 25A)	kVA~	13	12

Power cable guiding system ***Cable basket (≤ 100 m)***

Data for other voltages on request

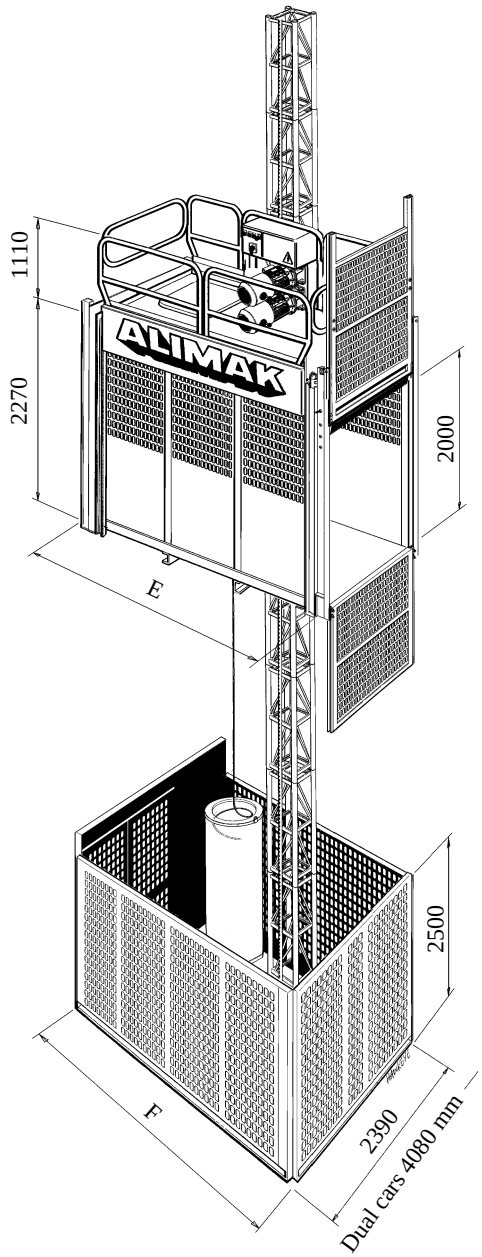
WEIGHTS

Base unit weight approx.	kg	2380	[2]
Mast section with one rack	kg	70.5	70.5
Mast section with two racks	kg	87.5	87.5
Mast section length	mm	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.38 [3] m to external length (E)***	
Width (G):	m	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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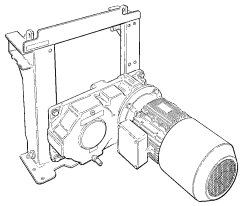
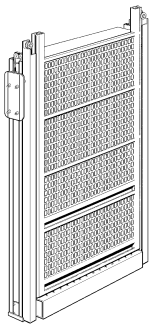
SCANDO 450 Modular System

Single motor machinery FC
incl. VFC-panel weight 330 kg

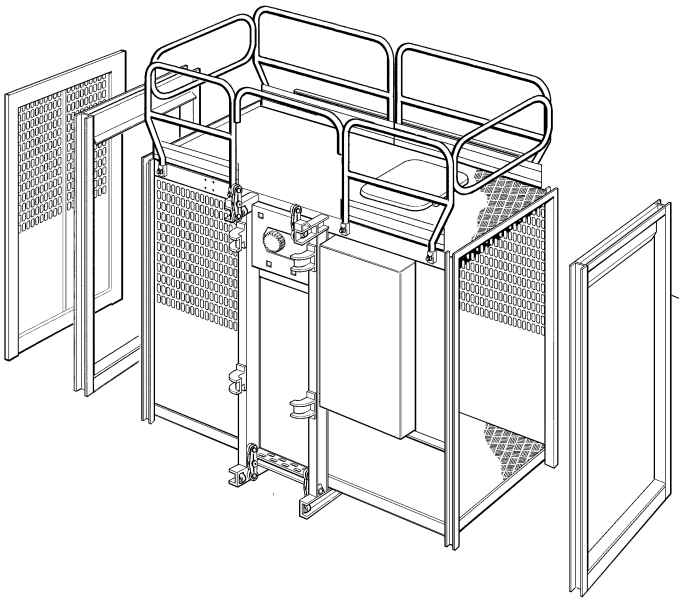


Standard vertical exit door
in two parts, weight 90 kg

Standard vertical full height
entrance door,weight 110 kg

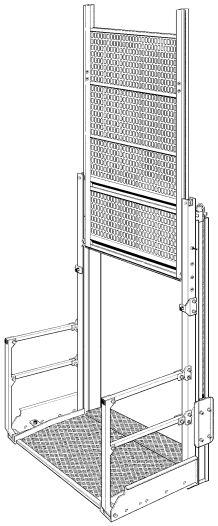


2.6 m car base structure incl. safety railings (62 kg),
weight 551 kg



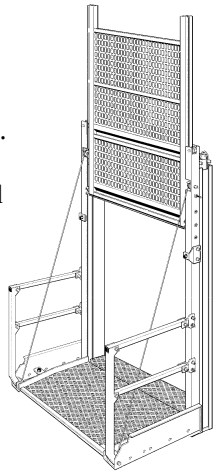
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

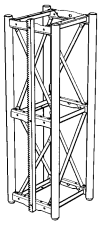


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section Mk II
length 1508 mm.



Printed in Sweden

SCANDO 450 FC /32

Extended 3.2 m car with two vertical doors	**X**	**(C62)**
Ext. 3.2 m car with one load ramp and vertical door	**X**	**(C65)**
Ext. reinforced 3.2 m car [1] with two vertical doors	**X**	**(NA)**
Ext. reinforced 3.2 m car [1] with one load ramp and one vertical door	**X**	**(NA)**

Pay-load capacity (fuse 25A)	kg	800	600
Average speed 50 or 60 Hz	m/min	30	30
Max. lifting height	meter	100	100
Increased lifting height on request			
No. of buffer springs	pcs.	2	2
Safety device type GF	P/no.	9067360-8008	

CAR DIMENSIONS

Internal width	meter	1.4	1.4
Internal length	meter	3.2	3.2
External length (E)	meter	***add 0.12 m to internal length above***	
Internal height, minimum	meter	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***	

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase	
At 400 V/50 Hz:			
Power supply fuses	A~	25	25
Single motor machinery	kW	1 x 11	1 x 11
Starting current	A~	21	20
Power consumpt. (fuse 25A)	kVA~	13	12

Power cable guiding system ***Cable basket (≤ 100 m)***

Data for other voltages on request

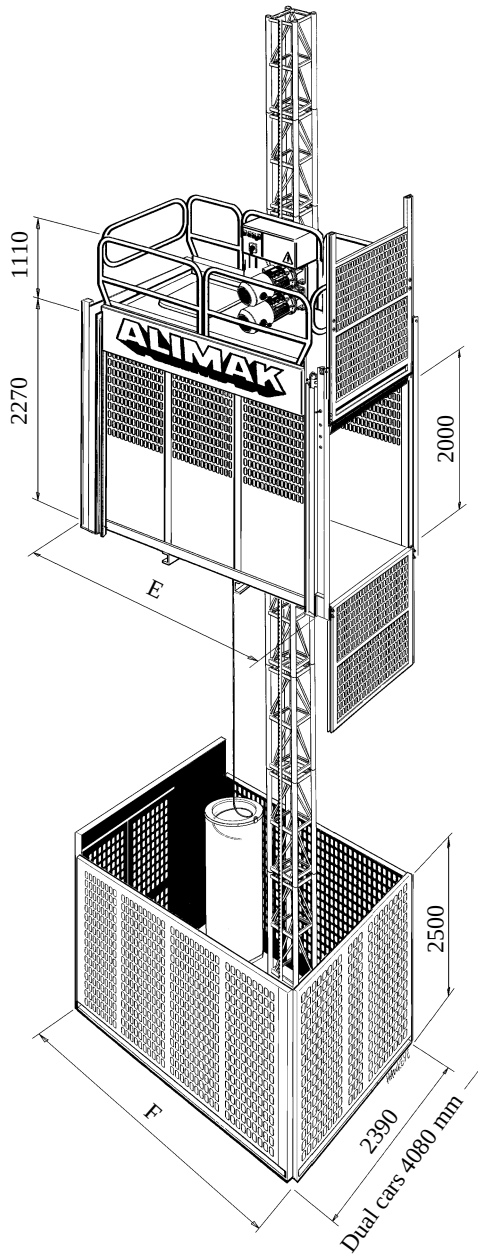
WEIGHTS

Base unit weight approx.	kg	2480	[2]
Mast section with one rack	kg	70.5	70.5
Mast section with two racks	kg	87.5	87.5
Mast section length	mm	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.38 [3] m to external length (E)***	
Width (G):	m	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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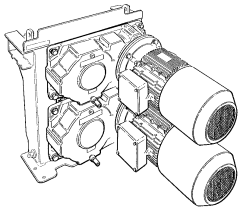
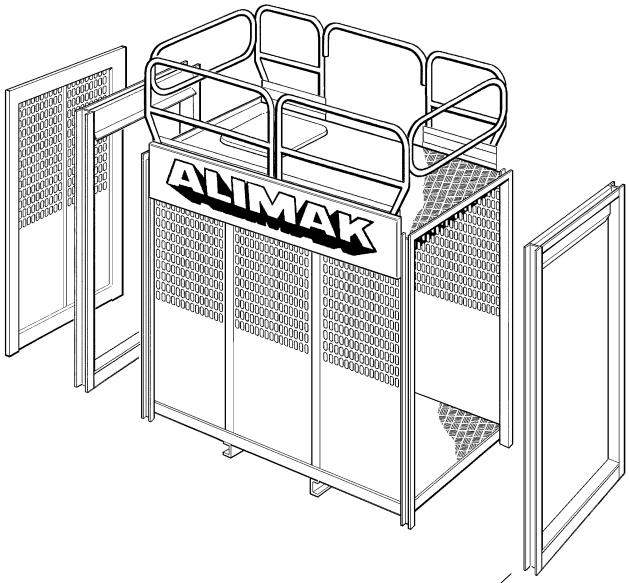
SCANDO 450 Modular System

Dual motor machinery (DOL)
Weight 450kg

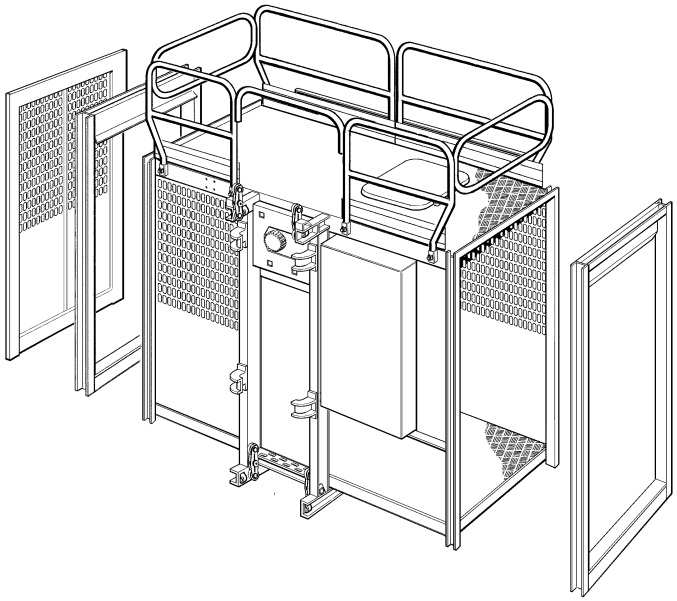


Short car base structure
length 2.0 incl. safety railing (55 kg), weight 463 kg

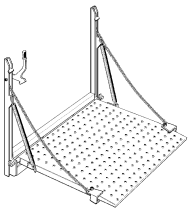
Closed, solid wall
on exit side,
weight 40 kg



Long car base structure
length 2.6 m incl. safetry railing (62 kg), weight 551 kg

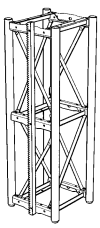


Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.



Manual load ramp in one
or both ends,
weight 64 kg

Mast section Mk II
length 1508 mm.

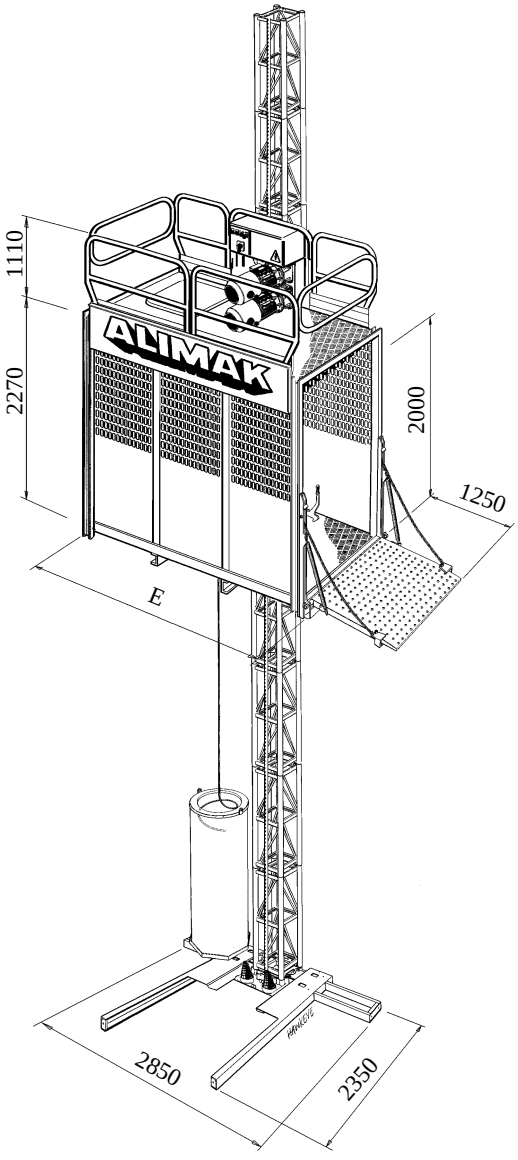


Printed in Sweden

ALIMAK®

SCANDO 450 PM DOL /20 – 26,15 kW 50 Hz

2.0 m car structure		**X**			**(C10)**
Reinforced 2.0 m [1] car structure			**X**		**(C10B)**
2.6 m car structure				**X**	**(C50)**
Reinforced 2.6 m [1] car structure					**X (C50B)**
Pay-load capacity (fuse 50A)	kg	1400		1400	
(fuse 63A)	kg	1400	2000	1400	2000
Average speed 50 Hz	m/min	38	38	38	38
Max. lifting height	meter	150	150	150	150
Increased lifting height on request					
No. of buffer springs	pcs.	2	2	2	2
Safety device type GF	P/no.	9067360-8009		9067360-1009	
CAR DIMENSIONS					
Internal width	meter	1.4	1-4	1.4	1.4
Internal length	meter	2.0	2.0	2.6	2.6
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height, minimum	meter	2.0	2.0	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***			
ELECTRICAL DATA					
Power supply range		380 – 420 V, 50 Hz, 3 Phase			
At 400 V/50 Hz:					
Power supply fuses	A~	50	50	50	50
Dual motor machinery	kW	2 x 7.5	2 x 7.5	2 x 7.5	2 x 7.5
Starting current (DOL)	A~	207	207	207	207
Power consumpt. (fuse 50A)	kVA~	25	31	26	32
Power cable guiding system		***Cable basket (≤ 100 m)***			
Data for other voltages on request					
WEIGHTS					
Base unit weight approx.	kg	1550	1600	1640	1690
Mast section with one rack	kg	70.5	70.5	70.5	70.5
Mast section with two racks	kg	87.5	87.5	87.5	87.5
Mast section length	mm	1508	1508	1508	1508
TRANSPORT DIMENSIONS					
Base unit incl. ground enclosure:					
Length (F):	m	***add 0.38 [3] m to external length (E)***			
Width (G):	m	2.39	2.39	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Add 32 kg for each 0.1 m car extension part where applicable.
Add trailing power cable approximately 1.0 kg/meter where cable basket occurs.

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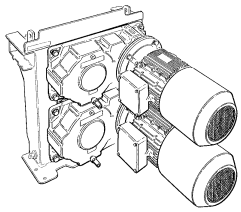
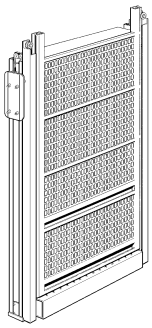
SCANDO 450 Modular System

Dual motor machinery (DOL)
Weight 450 kg

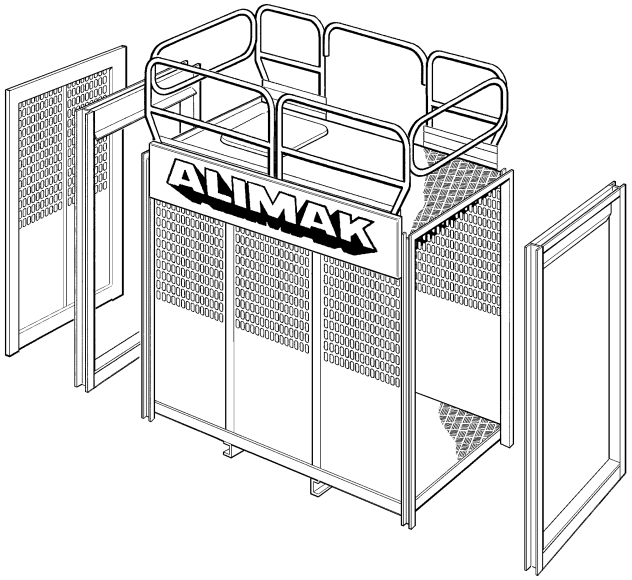


Standard vertical exit door
in two parts, weight 90 kg

Standard vertical full height
entrance door,weight 110 kg

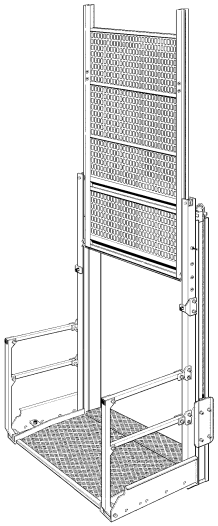


2.0 m car base structure incl. safety railings (55 kg),
weight 463 kg



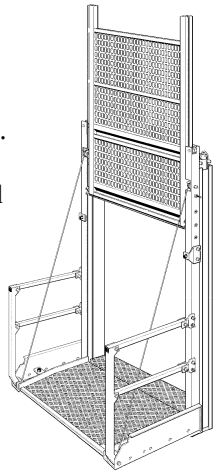
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

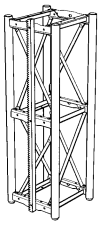


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section Mk II
length 1508 mm.



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SCANDO 450 DOL /24 50Hz

2.4 m car with two vertical doors		**X**		**(C22)**
2.4 m car with one load ramp and one vertical door		**X**		**(C25)**
Reinforced 2.4 m car [1] with two vertical doors			**X**	**(NA)**
Reinforced 2.4 m car [1] with one load ramp and one vertical door			**X**	**(NA)**
Pay-load capacity (fuse 50A)	kg	1400	1400	
(fuse 63A)	kg	1400	1400	
Average speed 50 Hz	m/min	38	38	
Max. lifting height	meter	150	150	
Increased lifting height on request				
No. of buffer springs	pcs.	2	2	
Safety device type GF	P/no.	9067360-8009		

CAR DIMENSIONS

Internal width	meter	1.4	1.4
Internal length	meter	2.4	2.4
External length (E)	meter	***add 0.12 m to internal length above***	
Internal height, minimum	meter	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***	

ELECTRICAL DATA

Power supply range		380 – 420 V, 50 Hz, 3 Phase	
At 400 V/50 Hz:			
Power supply fuses	A~	50 or 63 alternatively	
Dual motor machinery	kW	2 x 7.5	2 x 7.5
Starting current (DOL)	A~	207	207
Power consumpt. (fuse 50A)	kVA~	26	27
(fuse 63A)	kVA~	26	27
Power cable guiding system		***Cable basket (≤ 100 m)***	
Data for other voltages on request			

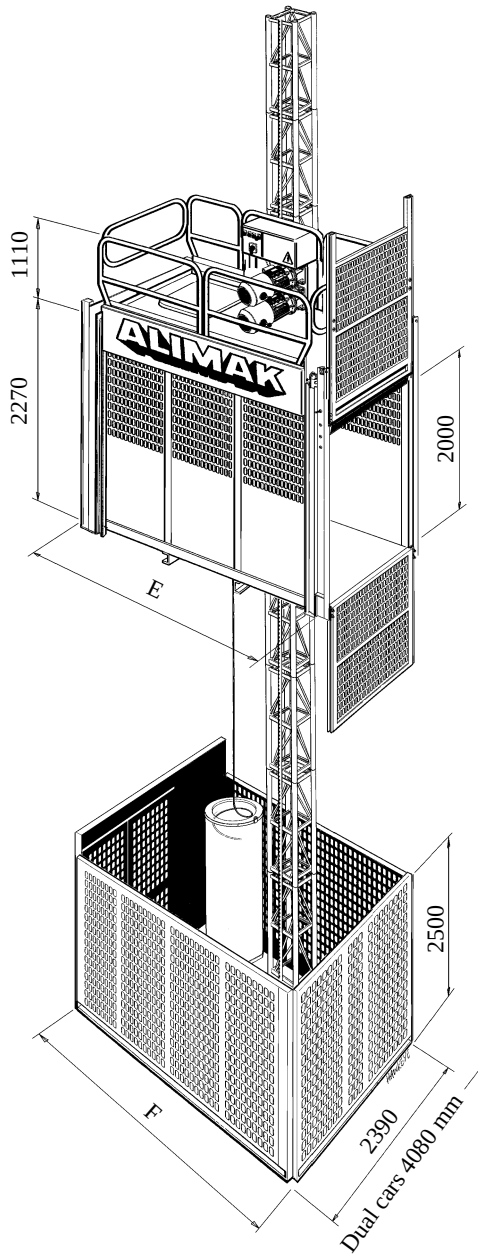
WEIGHTS

Base unit weight approx.	kg	2400	[2]
Mast section with one rack	kg	70.5	70.5
Mast section with two racks	kg	87.5	87.5
Mast section length	mm	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.38 [3] m to external length (E)***	
Width (G):	m	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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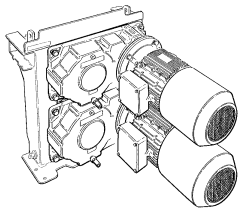
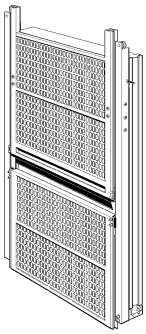
SCANDO 450 Modular System

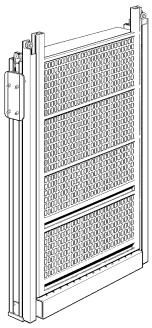
Dual motor machinery (DOL)
Weight 450 kg



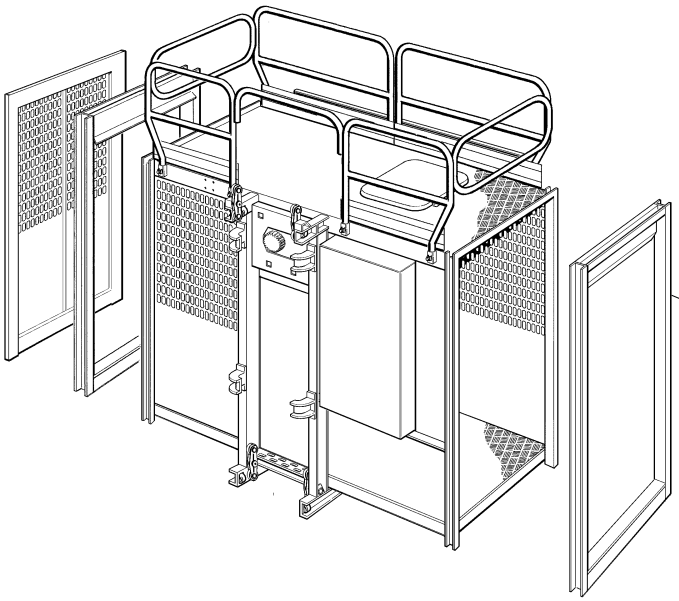
Standard vertical exit door
in two parts, weight 90 kg



Standard vertical full height
entrance door,weight 110 kg

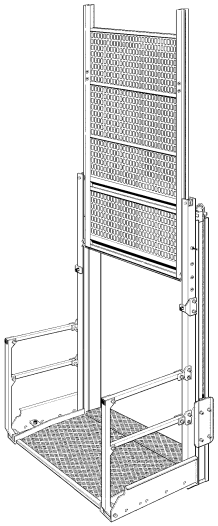


2.6 m car base structure incl. safety railings (62 kg),
weight 551 kg



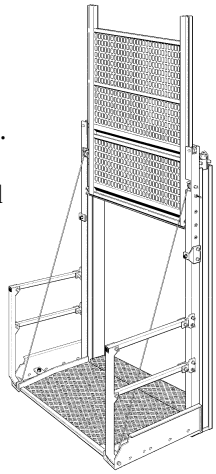
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

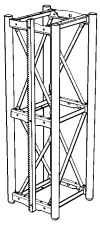


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section
length 1508 mm.



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ALIMAK®

SCANDO 450 DOL /30 50Hz

3.0 m car with two vertical doors		**X**			**(C52)**
3.0 m car with one load ramp and one vertical door			**X**		**(C55)**
Reinforced 3.0 m car [1] with two vertical doors				**X**	**(C52B)**
Reinforced 3.0 m car [1] with one load ramp and one vertical door					**X (C55B)**
Pay-load capacity (fuse 50A)	kg	1400	1400	1700	1500
(fuse 63A)	kg	1400	1400	2000	1900
Average speed 50 Hz	m/min	38	38	38	38
Max. lifting height	meter	150	150	150	150
Increased lifting height on request					
No. of buffer springs	pcs.	2	2	3	3
Safety device type GF	P/no.	9067360-8009		9067360-1009	

CAR DIMENSIONS

Internal width	meter	1.4	1.4	1.4	1.4
Internal length	meter	3.0	3.0	3.0	3.0
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height, minimum	meter	2.0	2.0	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***			

ELECTRICAL DATA

Power supply range		380 – 420 V, 50 Hz, 3 Phase			
At 400 V/50 Hz:					
Power supply fuses	A~	50 or 63 alternatively			
Dual motor machinery	kW	2 x 7.5	2 x 7.5	2 x 7.5	2 x 7.5
Starting current (DOL)	A~	207	207	207	207
Power consumpt. (fuse 50A)	kVA~	26	28	30	29
(fuse 63A)	kVA~	26	28	32	22
Power cable guiding system		***Cable basket (≤ 100 m)***			
Data for other voltages on request					

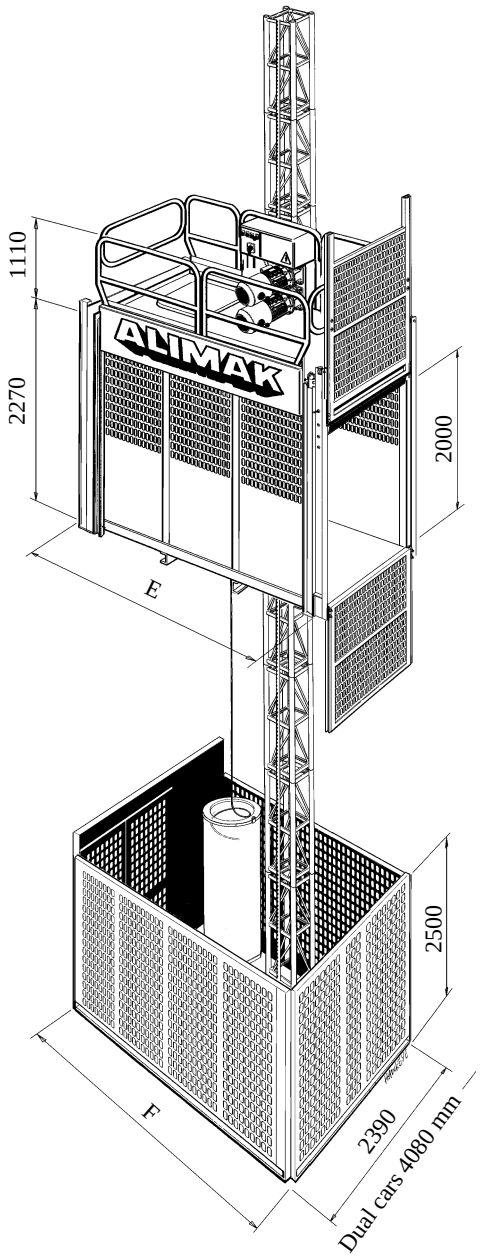
WEIGHTS

Base unit weight approx.	kg	2500	[2]	[2]	[2]
Mast section with one rack	kg	70.5	70.5	70.5	70.5
Mast section with two racks	kg	87.5	87.5	87.5	87.5
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.38 [3] m to external length (E)***			
Width (G):	m	2.39	2.39	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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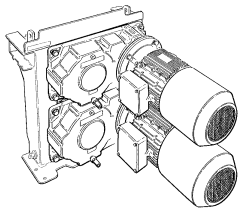
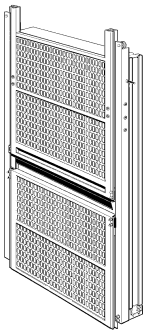
SCANDO 450 Modular System

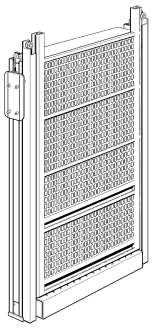
Dual motor machinery (DOL)
Weight 450 kg



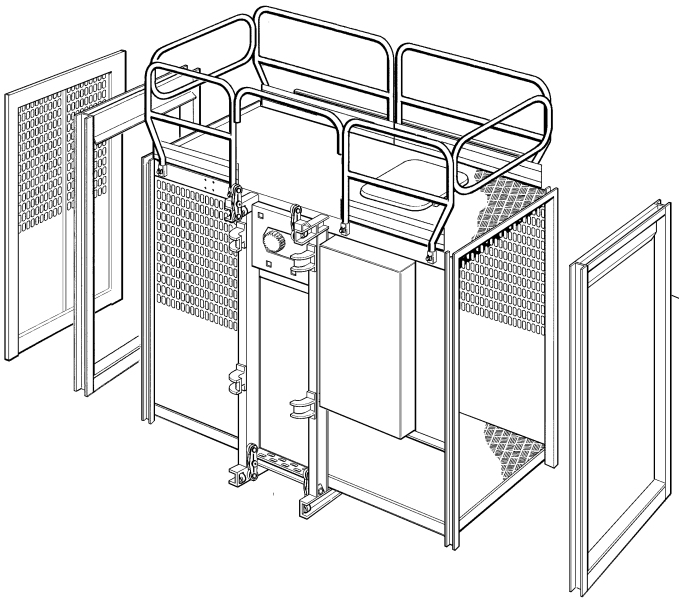
Standard vertical exit door
in two parts, weight 90 kg



Standard vertical full height
entrance door,weight 110 kg

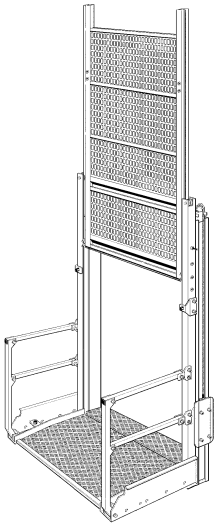


2.6 m car base structure incl. safety railings (62 kg),
weight 551 kg



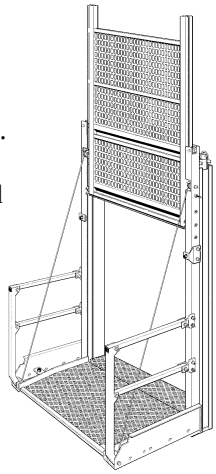
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

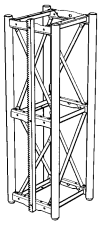


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section Mk II
length 1508 mm.



Printed in Sweden

SCANDO 450 DOL /32 50Hz

Extended 3.0 m car with two vertical doors		**X**			**(C62)**
Ext. 3.0 m car with one load ramp and vertical door			**X**		**(C65)**
Ext. reinforced 3.0 m car [1] with two vertical doors				**X**	**(C62B)**
Ext. reinforced 3.0 m car [1] with one load ramp and one vertical door					**X (C65B)**
Pay-load capacity (fuse 50A)	kg	1400	1400	1600	1500
(fuse 63A)	kg	1400	1400	2000	1900
Average speed 50 Hz	m/min	38	38	38	38
Max. lifting height	meter	150	150	150	150
Increased lifting height on request					
No. of buffer springs	pcs.	2	2	3	3
Safety device type GF	P/no.	9067360-8009		9067360-1009	

CAR DIMENSIONS

Internal width	meter	1.4	1.4	1.4	1.4
Internal length	meter	3.2	3.2	3.2	3.2
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height, minimum	meter	2.0	2.0	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***			

ELECTRICAL DATA

Power supply range		380 – 420 V, 50 Hz, 3 Phase			
At 400 V/50 Hz:					
Power supply fuses	A~	50 or 63 alternatively			
Dual motor machinery	kW	2 x 7.5	2 x 7.5	2 x 7.5	2 x 7.5
Starting current (DOL)	A~	207	207	207	207
Power consumpt. (fuse 50A)	kVA~	27	28	29	29
(fuse 63A)	kVA~	27	28	32	32
Power cable guiding system		***Cable basket (≤ 100 m)***			
Data for other voltages on request					

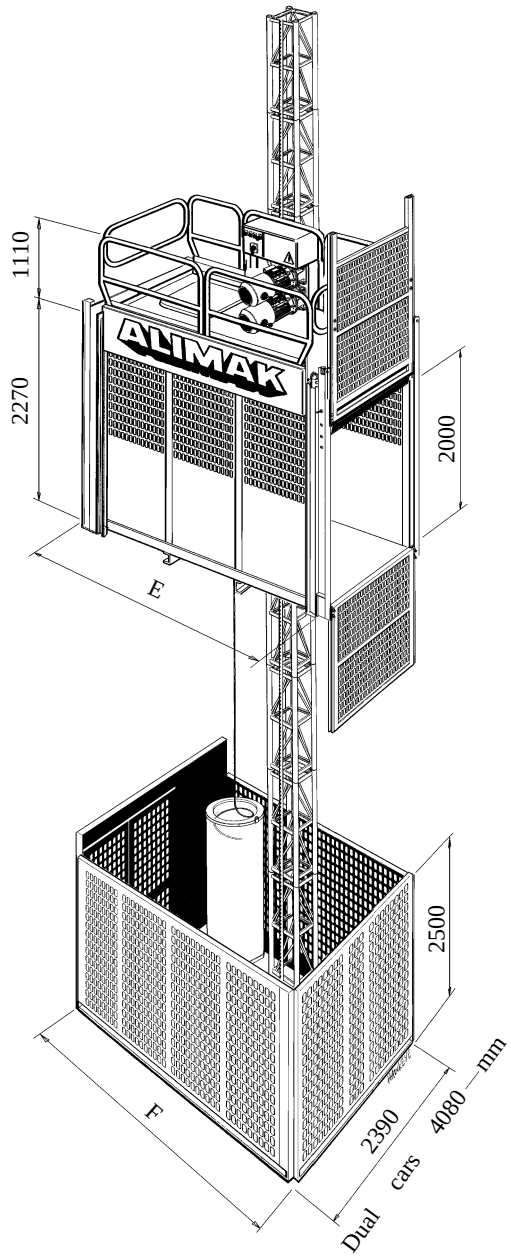
WEIGHTS

Base unit weight approx.	kg	2600	[2]	[2]	[2]
Mast section with one rack	kg	70.5	70.5	70.5	70.5
Mast section with two racks	kg	87.5	87.5	87.5	87.5
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.38 [3] m to external length (E)***			
Width (G):	m	2.39	2.39	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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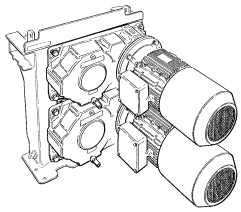
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

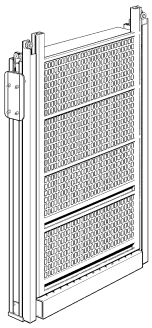
SCANDO 450 Modular System

Dual motor machinery FC
incl. VFC-panel weight 530 kg

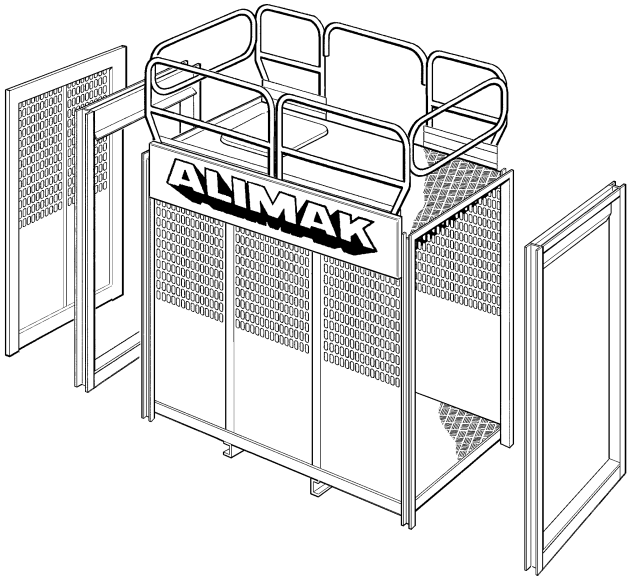


Standard vertical exit door
in two parts, weight 90 kg

Standard vertical full height
entrance door,weight 110 kg

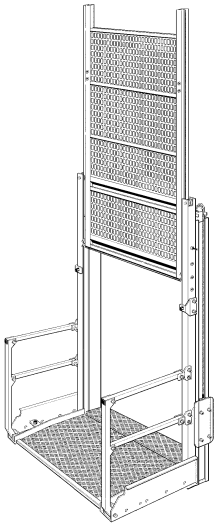


2.0 m car base structure incl. safety railings (55 kg),
weight 463 kg



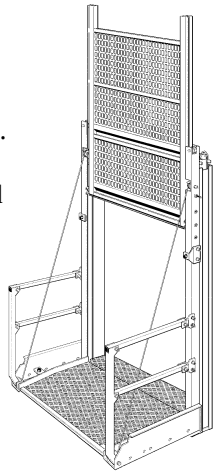
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

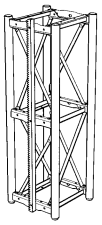


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section
length 1508 mm.



Printed in Sweden

No. 1284 E May -08

SCANDO 450 FC /24

2.4 m car with two vertical doors		**X**		**(C22)**
2.4 m car with one load ramp and one vertical door			**X**	**(C25)**
Reinforced 2.4 m car [1] with two vertical doors				**X** **(NA)**
Reinforced 2.4 m car [1] with one load ramp and one vertical door				**X** **(NA)**

Pay-load capacity (fuse 50A)	kg	1400	1400
(fuse 63A)	kg	1400	1400
Average speed 50 or 60 Hz	m/min	42	42
Max. lifting height	meter	150	150
Increased lifting height on request			
No. of buffer springs	pcs.	2	2
Safety device type GF	P/no.	9067360-8010	

CAR DIMENSIONS

Internal width	meter	1.4	1.4
Internal length	meter	2.4	2.4
External length (E)	meter	***add 0.12 m to internal length above***	
Internal height, minimum	meter	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***	

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase	
At 400 V/50 Hz:			
Power supply fuses	A~	50 or 63 alternatively	
Dual motor machinery	kW	2 x 11	2 x 11
Starting current (fuse 50A)	A~	40	42
(fuse 63A)	A~	40	42
Power consumpt. (fuse 50A)	kVA~	24	25
(fuse 63A)	kVA~	24	25
Power cable guiding system		***Cable basket (≤ 100 m)***	
Data for other voltages on request			

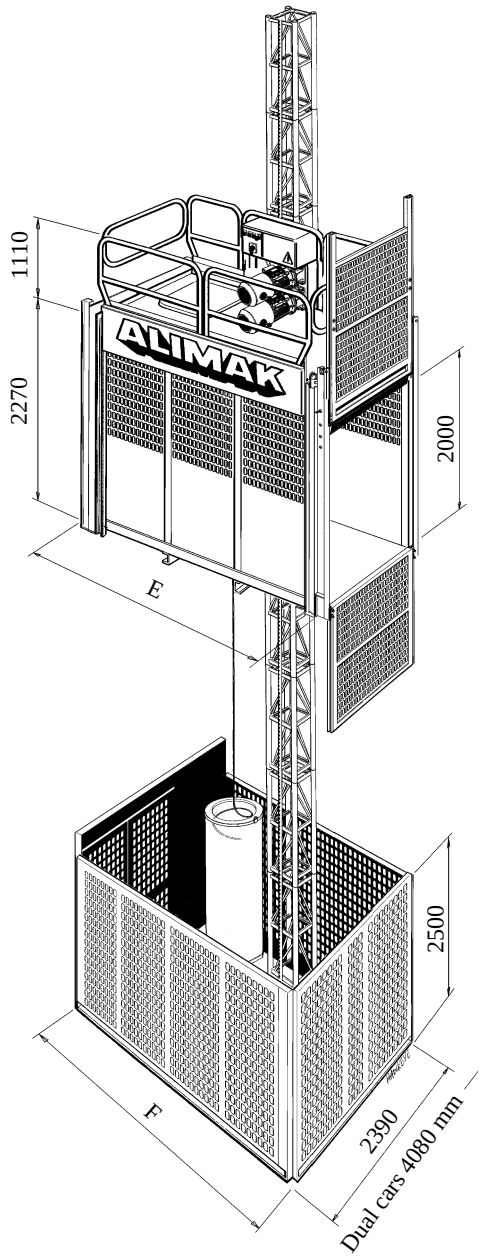
WEIGHTS

Base unit weight approx.	kg	2480	[2]
Mast section with one rack	kg	70.5	70.5
Mast section with two racks	kg	87.5	87.5
Mast section length	mm	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.38 [3] m to external length (E)***	
Width (G):	m	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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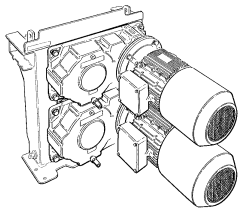
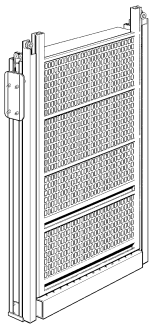
SCANDO 450 Modular System

Dual motor machinery FC
incl. VFC-panel weight 530 kg

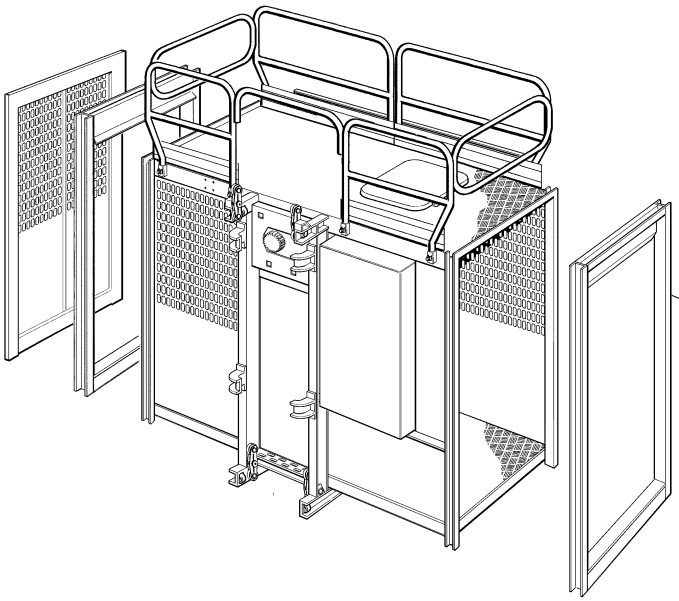


Standard vertical exit door
in two parts, weight 90 kg

Standard vertical full height
entrance door,weight 110 kg

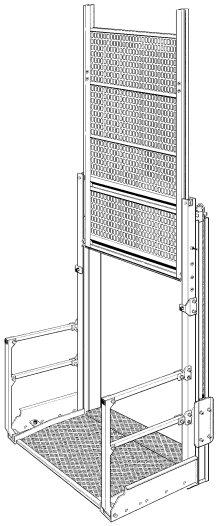


2.6 m car base structure incl. safety railings (62 kg),
weight 551 kg



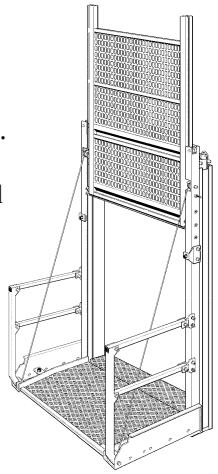
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

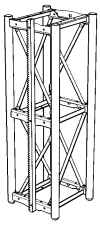


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section Mk II
length 1508 mm.



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No. 1285 E May -08

SCANDO 450 FC /30

3.0 m car with two vertical doors		**X**			**(C52)**
3.0 m car with one load ramp and one vertical door			**X**		**(C55)**
Reinforced 3.0 m car [1] with two vertical doors				**X**	**(C52B)**
Reinforced 3.0 m car [1] with one load ramp and one vertical door					**X (C55B)**
Pay-load capacity (fuse 50A)	kg	1400	1400	1800	1700
(fuse 63A)	kg	1400	1400	2000	2000
Average speed 50 or 60 Hz	m/min	42	42	42	42
Max. lifting height	meter	150	150	150	150
Increased lifting height on request					
No. of buffer springs	pcs.	2	2	3	3
Safety device type GF	P/no.	9067360-8010		9067360-1010	

CAR DIMENSIONS

Internal width	meter	1.4	1.4	1.4	1.4
Internal length	meter	3.0	3.0	3.0	3.0
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height, minimum	meter	2.0	2.0	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***			

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase			
At 400 V/50 Hz:					
Power supply fuses	A~	50 or 63 alternatively			
Dual motor machinery	kW	2 x 11	2 x 11	2 x 11	2 x 11
Starting current (fuse 50A)	A~	41	43	47	47
(fuse 63A)	A~	41	43	50	52
Power consumpt. (fuse 50A)	kVA~	25	26	28	29
(fuse 63A)	kVA~	25	26	30	31
Power cable guiding system		***Cable basket (≤ 100 m)***			
Data for other voltages on request					

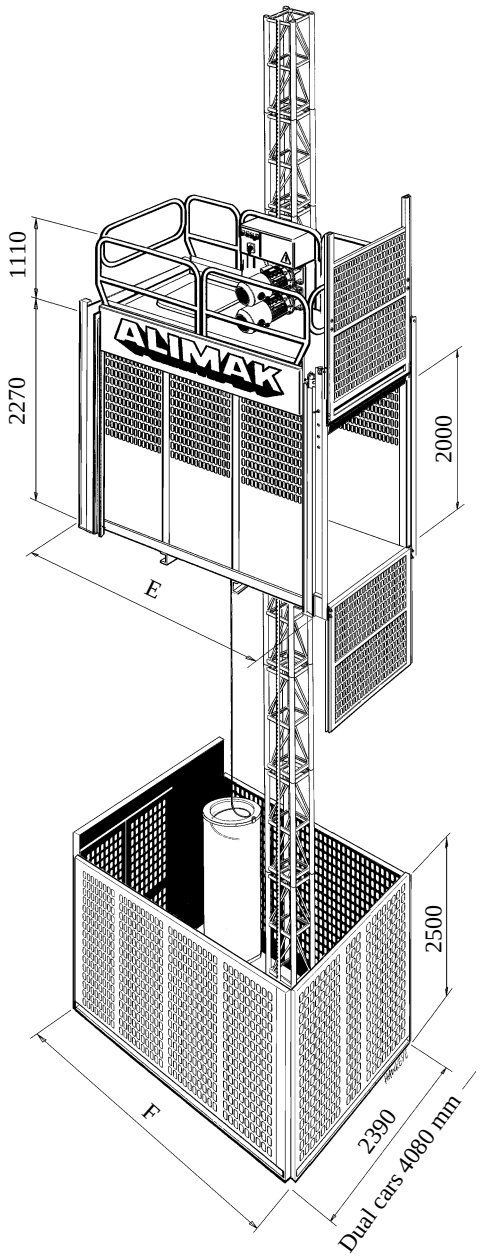
WEIGHTS

Base unit weight approx.	kg	2580	[2]	[2]	[2]
Mast section with one rack	kg	70.5	70.5	70.5	70.5
Mast section with two racks	kg	87.5	87.5	87.5	87.5
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.38 [3] m to external length (E)***			
Width (G):	m	2.39	2.39	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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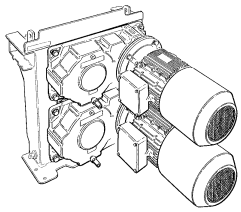
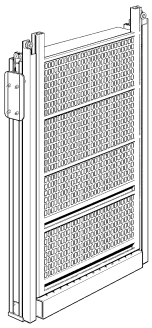
SCANDO 450 Modular System

Dual motor machinery FC
incl. VFC-panel weight 550 kg

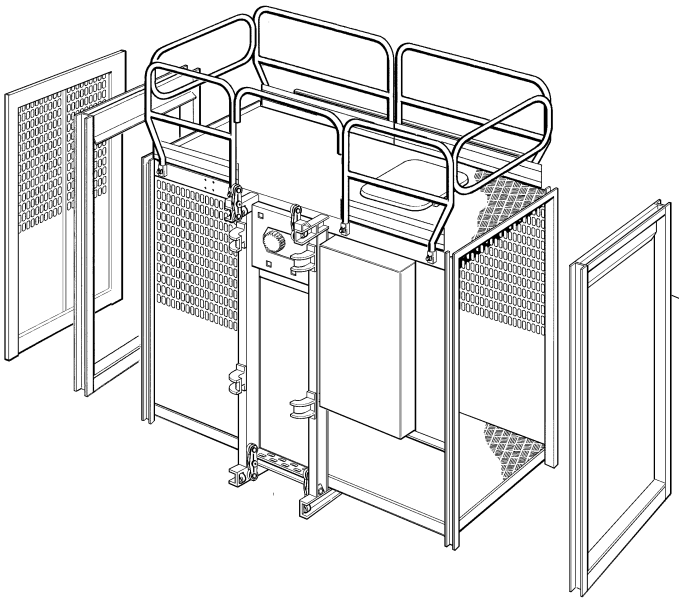


Standard vertical exit door
in two parts, weight 90 kg

Standard vertical full height
entrance door,weight 110 kg

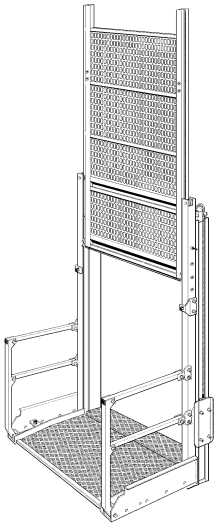


2.6 m car base structure incl. safety railings (62 kg),
weight 551 kg



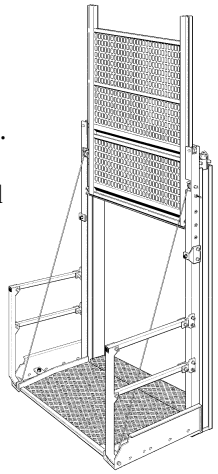
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

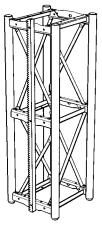


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section
length 1508 mm.

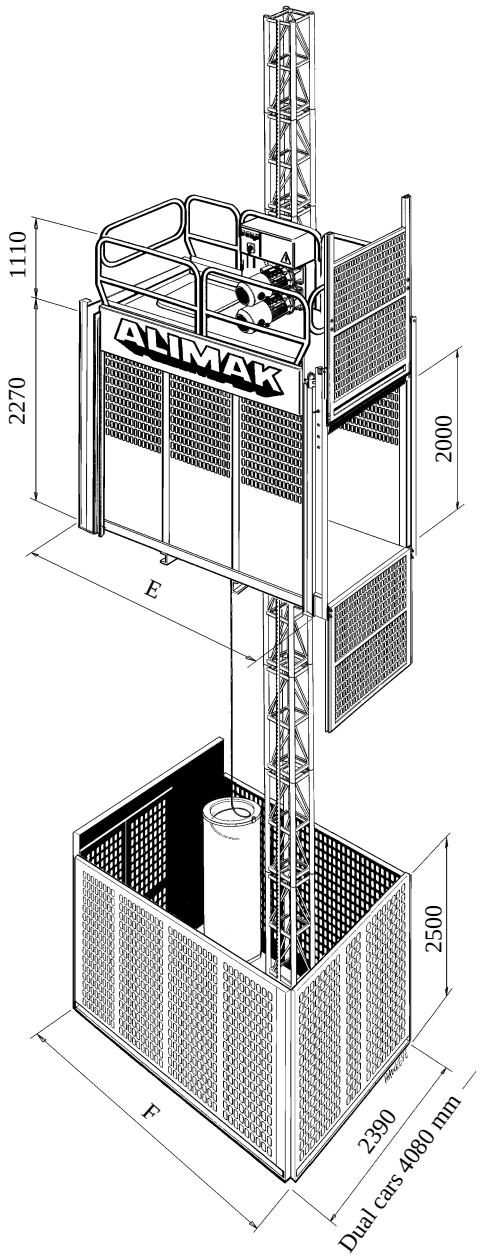


Printed in Sweden

No. 1286 E May -08

SCANDO 450 FC /32

Extended 3.2 m car with two vertical doors		**X**			**(C62)**
Ext. 3.2 m car with one load ramp and vertical door			**X**		**(C65)**
Ext. reinforced 3.2 m car [1] with two vertical doors				**X**	**(C62B)**
Ext. reinforced 3.2 m car [1] with one load ramp and one vertical door					**X (C65B)**
Pay-load capacity (fuse 50A)	kg	1400	1400	1700	1600
Pay-load capacity (fuse 63A)	kg	1400	1400	1900	1900
Average speed 50 or 60 Hz	m/min	42	42	42	42
Max. lifting height	meter	150	150	150	150
Increased lifting height on request					
No. of buffer springs	pcs.	2	2	3	3
Safety device type GF	P/no.	9067360-8010		9067360-1010	
CAR DIMENSIONS					
Internal width	meter	1.4	1.4	1.4	1.4
Internal length	meter	3.2	3.2	3.2	3.2
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height, minimum	meter	2.0	2.0	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***			
ELECTRICAL DATA					
Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase			
At 400 V/50 Hz:					
Power supply fuses	A~	50 or 63 alternatively			
Dual motor machinery	kW	2 x 11	2 x 11	2 x 11	2 x 11
Starting current (fuse 50A)	A~	42	44	47	47
(fuse 63A)	A~	42	44	51	53
Power consumpt. (fuse 50A)	kVA~	25	27	28	28
(fuse 63A)	kVA~	25	26	31	32
Power cable guiding system		***Cable basket (≤ 100 m)***			
Data for other voltages on request					
WEIGHTS					
Base unit weight approx.	kg	2680	[2]	[2]	[2]
Mast section with one rack	kg	70.5	70.5	70.5	70.5
Mast section with two racks	kg	87.5	87.5	87.5	87.5
Mast section length	mm	1508	1508	1508	1508
TRANSPORT DIMENSIONS					
Base unit incl. ground enclosure:					
Length (F):	m	***add 0.38 [3] m to external length (E)***			
Width (G):	m	2.39	2.39	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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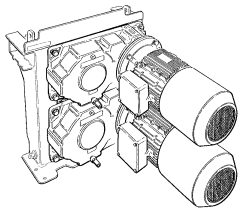
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

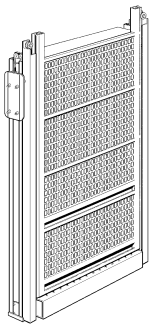
SCANDO 450 Modular System

Dual motor machinery FC
incl. VFC-panel weight 530 kg

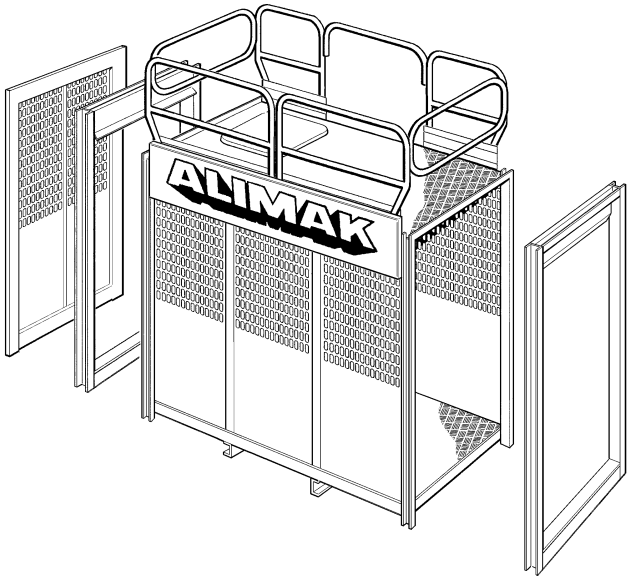


Standard vertical exit door
in two parts, weight 90 kg

Standard vertical full height
entrance door,weight 110 kg

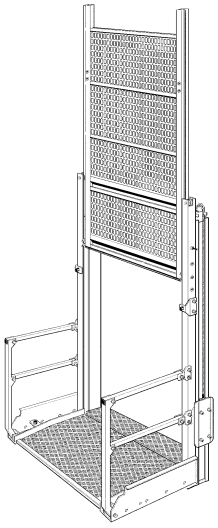


2.0 m car base structure incl. safety railings (55 kg),
weight 463 kg



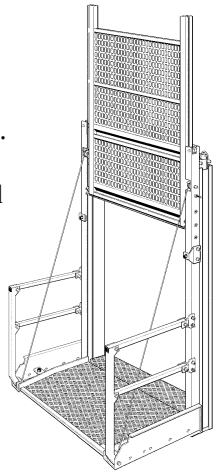
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

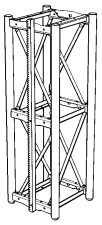


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section Mk II
length 1508 mm.



Printed in Sweden

No. 1288 E May -08

SCANDO 450 FC /24

2.4 m car with two vertical doors	**X**		**(C22)**
2.4 m car with one load ramp and one vertical door	**X**		**(C25)**
Reinforced 2.4 m car [1] with two vertical doors		**X**	**(NA)**
Reinforced 2.4 m car [1] with one load ramp and one vertical door		**X**	**(NA)**

Pay-load capacity (fuse 63A)	kg	1400	1400
(fuse 80A)	kg	1400	1400
Average speed 50 or 60 Hz	m/min	54	54
Max. lifting height	meter	150	150
Increased lifting height on request			
No. of buffer springs	pcs.	2	2
Safety device type GF	P/no.	9067360-8012	

CAR DIMENSIONS

Internal width	meter	1.4	1.4
Internal length	meter	2.4	2.4
External length (E)	meter	***add 0.12 m to internal length above***	
Internal height, minimum	meter	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***	

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase	
At 400 V/50 Hz:			
Power supply fuses	A~	63 or 80 alternatively	
Dual motor machinery	kW	2 x 11	2 x 11
Starting current (fuse 63A)	A~	51	54
(fuse 80A)	A~	51	54
Power consumpt. (fuse 63A)	kVA~	31	32
(fuse 80A)	kVA~	31	32
Power cable guiding system		***Cable trolley***	
Data for other voltages on request			

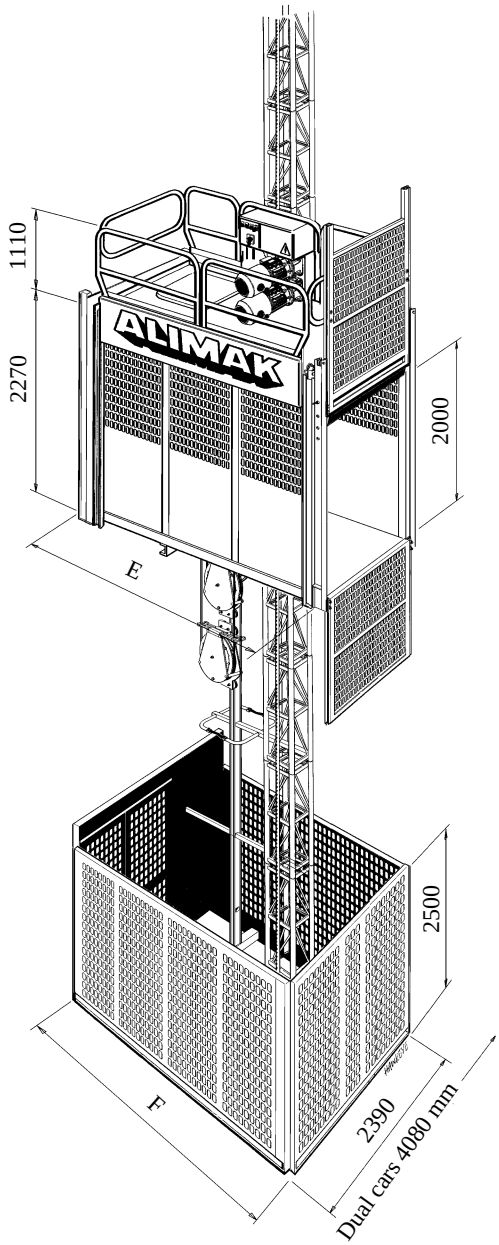
WEIGHTS

Base unit weight approx.	kg	2480	[2]
Mast section with one rack	kg	70.5	70.5
Mast section with two racks	kg	87.5	87.5
Mast section length	mm	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.38 [3] m to external length (E)***	
Width (G):	m	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. Add additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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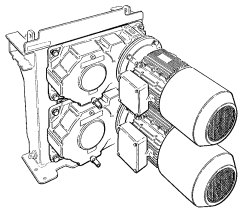
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

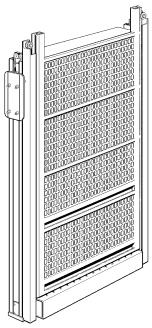
SCANDO 450 Modular System

Dual motor machinery FC
incl. VFC-panel weight 530 kg

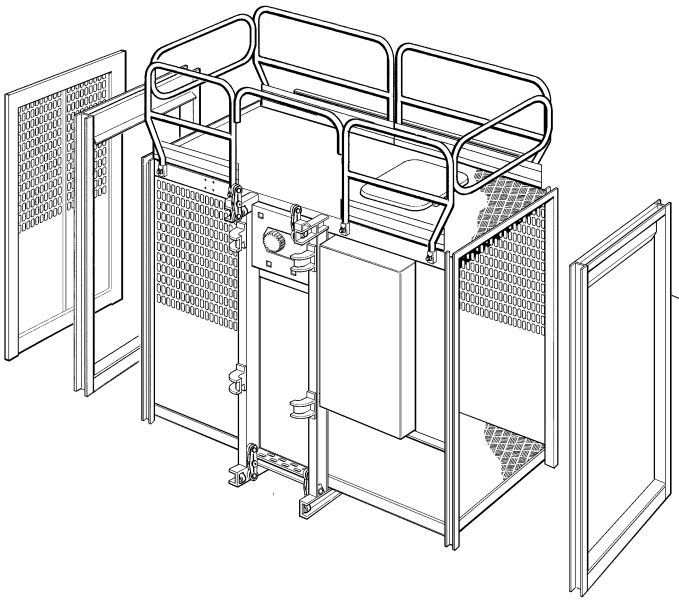


Standard vertical exit door
in two parts, weight 90 kg

Standard vertical full height
entrance door,weight 110 kg

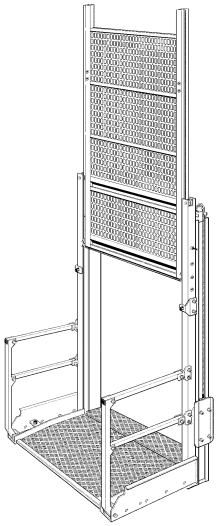


2.6 m car base structure incl. safety railings (62 kg),
weight 551 kg



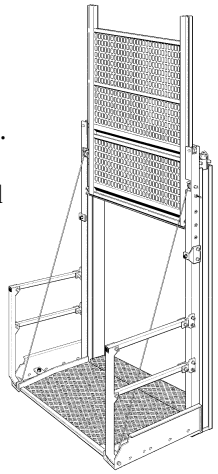
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

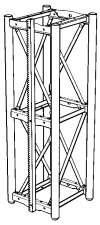


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section Mk II
length 1508 mm.



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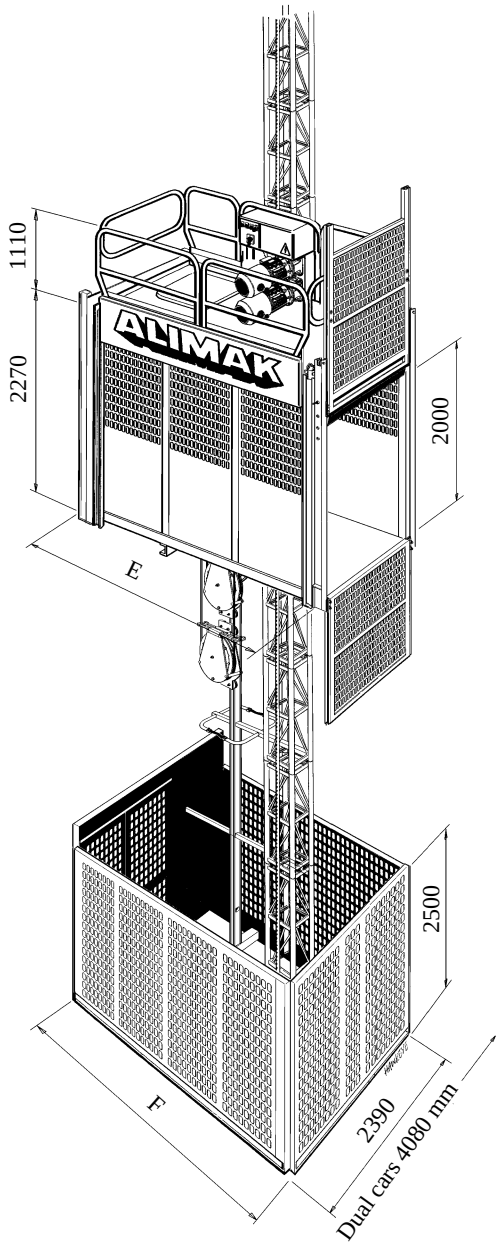
No. 1289 E May -08

SCANDO 450 FC /30

3.0 m car with two vertical doors		**X**			**(C52)**
3.0 m car with one load ramp and one vertical door			**X**		**(C55)**
Reinforced 3.0 m car [1] with two vertical doors				**X**	**(C52B)**
Reinforced 3.0 m car [1] with one load ramp and one vertical door					**X (C55B)**
Pay-load capacity (fuse 63A)	kg	1400	1400	1800	1600
Pay-load capacity (fuse 80A)	kg	1400	1400	1900	1900
Average speed 50 or 60 Hz	m/min	54	54	54	54
Max. lifting height	meter	150	150	150	150
Increased lifting height on request					
No. of buffer springs	pcs.	2	2	3	3
Safety device type GF	P/no.	9067360-8012		9067360-1012	
CAR DIMENSIONS					
Internal width	meter	1.4	1.4	1.4	1.4
Internal length	meter	3.0	3.0	3.0	3.0
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height, minimum	meter	2.0	2.0	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***			
ELECTRICAL DATA					
Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase			
At 400 V/50 Hz:					
Power supply fuses	A~	63 or 80 alternatively			
Dual motor machinery	kW	2 x 11	2 x 11	2 x 11	2 x 11
Starting current (fuse 63A)	A~	53	55	60	59
(fuse 80A)	A~	53	55	64	66
Power consumpt. (fuse 63A)	kVA~	32	33	36	36
(fuse 80A)	kVA~	32	33	39	40
Power cable guiding system		***Cable trolley***			
Data for other voltages on request					
WEIGHTS					
Base unit weight approx.	kg	2580	[2]	[2]	[2]
Mast section with one rack	kg	70.5	70.5	70.5	70.5
Mast section with two racks	kg	87.5	87.5	87.5	87.5
Mast section length	mm	1508	1508	1508	1508
TRANSPORT DIMENSIONS					
Base unit incl. ground enclosure:					
Length (F):	m	***add 0.38 [3] m to external length (E)***			
Width (G):	m	2.39	2.39	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. Add additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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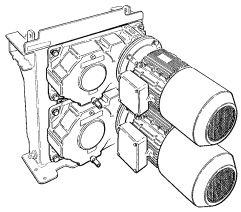
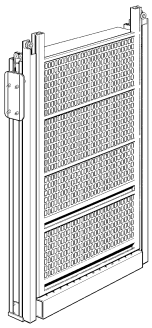
SCANDO 450 Modular System

Dual motor machinery FC
incl. VFC-panel weight 530 kg

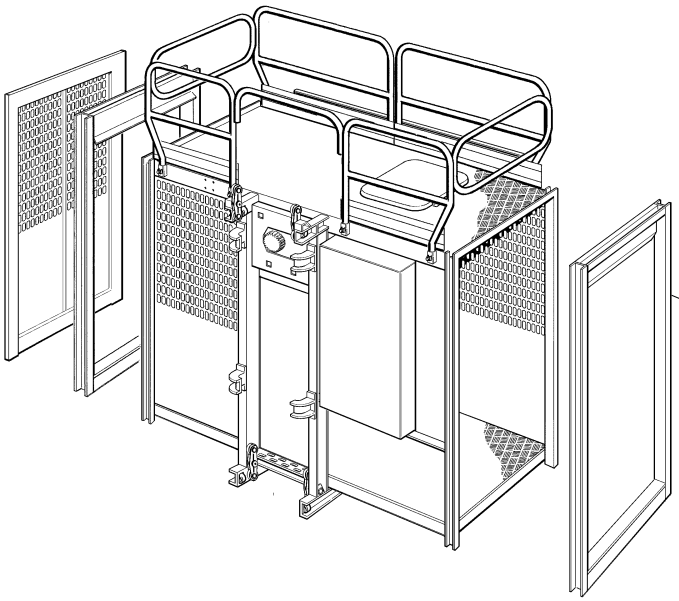


Standard vertical exit door
in two parts, weight 90 kg

Standard vertical full height
entrance door,weight 110 kg

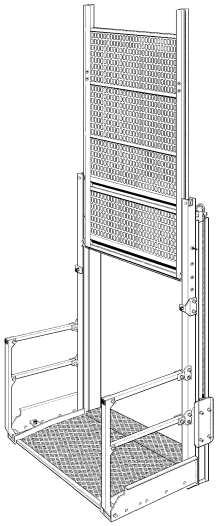


2.6 m car base structure incl. safety railings (62 kg),
weight 551 kg



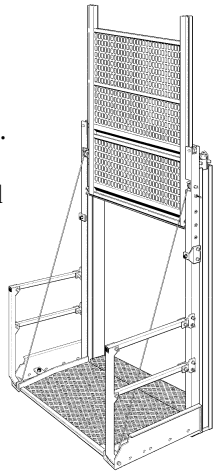
Closed, solid wall
on exit side,
weight 40 kg

Additional section
to increase car length
0.1 m in one or two
directions (0.1 + 0.1 m).
Weight 32 kg each.

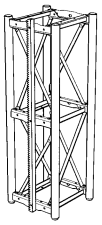


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 230 kg.
Add 140 kg when changed
from standard exit door.

Exit door combined with
optional manual load ramp.
Weight 200 kg.
Add 110 kg when changed
from standard exit door.



Mast section Mk II
length 1508 mm.



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SCANDO 450 FC /32

Extended 3.0 m car with two vertical doors		**X**			**(C62)**
Ext. 3.0 m car with one load ramp and vertical door			**X**		**(C65)**
Ext. reinforced 3.0 m car [1] with two vertical doors				**X**	**(C62B)**
Ext. reinforced 3.0 m car [1] with one load ramp and one vertical door					**X (C65B)**
Pay-load capacity (fuse 63A)	kg	1400	1400	1700	1600
(fuse 80A)	kg	1400	1400	1800	1800
Average speed 50 or 60 Hz	m/min	54	54	54	54
Max. lifting height	meter	150	150	150	150
Increased lifting height on request					
No. of buffer springs	pcs.	2	2	3	3
Safety device type GF	P/no.	9067360-8012		9067360-1012	

CAR DIMENSIONS

Internal width	meter	1.4	1.4	1.4	1.4
Internal length	meter	3.2	3.2	3.2	3.2
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height, minimum	meter	2.0	2.0	2.0	2.0
Door opening W x H	meter	***all equal = 1.4 x 2.0***			

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase			
At 400 V/50 Hz:					
Power supply fuses	A~	63 or 80 alternatively			
Dual motor machinery	kW	2 x 11	2 x 11	2 x 11	2 x 11
Starting current (fuse 63A)	A~	54	57	60	60
(fuse 80A)	A~	54	57	65	68
Power consumpt. (fuse 63A)	kVA~	33	34	36	36
(fuse 80A)	kVA~	33	34	39	41
Power cable guiding system		***Cable trolley***			
Data for other voltages on request					

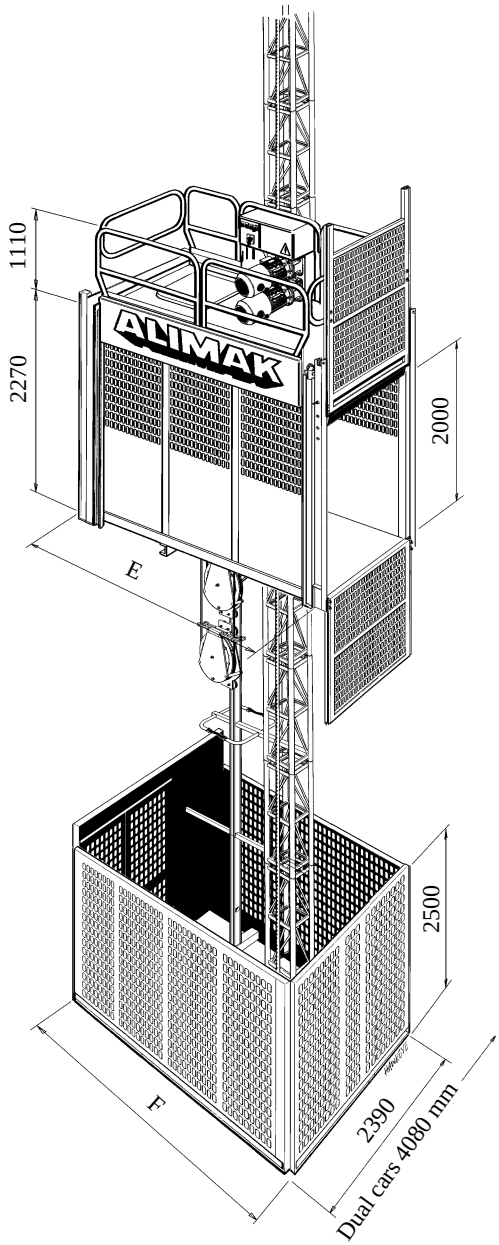
WEIGHTS

Base unit weight approx.	kg	2680	[2]	[2]	[2]
Mast section with one rack	kg	70.5	70.5	70.5	70.5
Mast section with two racks	kg	87.5	87.5	87.5	87.5
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.38 [3] m to external length (E)***			
Width (G):	m	2.39	2.39	2.39	2.39
Maximum height: machinery excl.	m	3.10	3.10	3.10	3.10



[1] Reinforced car structure and boogie rollers for load more than 1400 kg.

[2] Weights indicated for base model including standard entrance and exit door. Add 32 kg for each 0.1 m car extension part where applicable. AdAdd additional 140 kg or 110 kg respectively, where optional load ramp occurs.

[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

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Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

Foundation

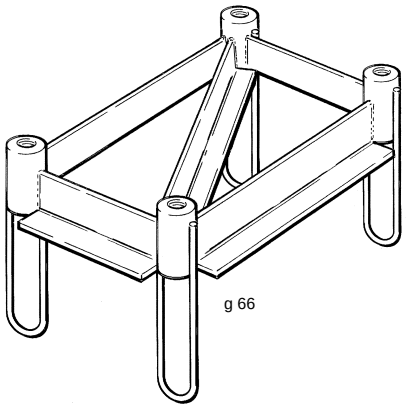
The hoist can be installed on a gravel bed, a concrete slab or in some cases a foundation pit is required.
What way to go depends on the circumstances and the National hoist regulations.

Concrete slab

A concrete slab is to be made according to the following instructions, and according to the actual model of hoist.

It is important that the mounting holes of the foundation frame are brought in level with the completed concrete surface, and that the concrete is vibrated thoroughly – especially around the foundation frame.

It is also important that the finished surface is plane and horizontal.

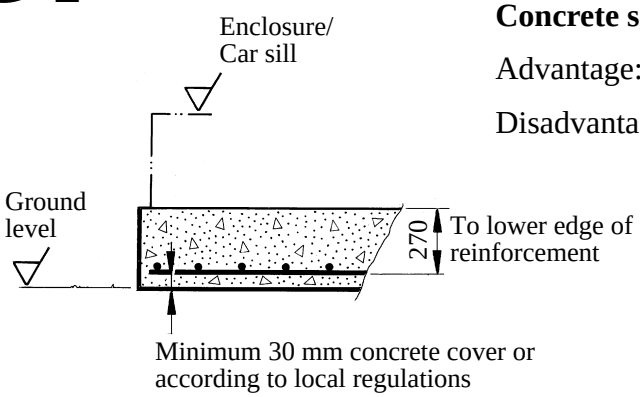


Foundation frame:

– part no. 9094 730-101 for mast section c/c 450 x 450 mm

The foundation may be made in any of the following ways, depending upon the finished concrete level compared with the ground level.

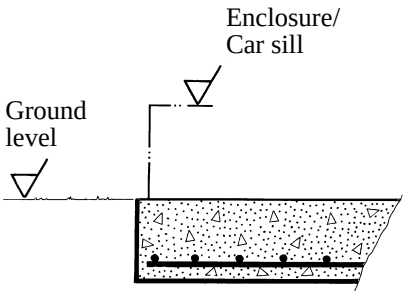
G 2



Concrete slab on the ground

Advantage: No drain required.

Disadvantage: High sill.

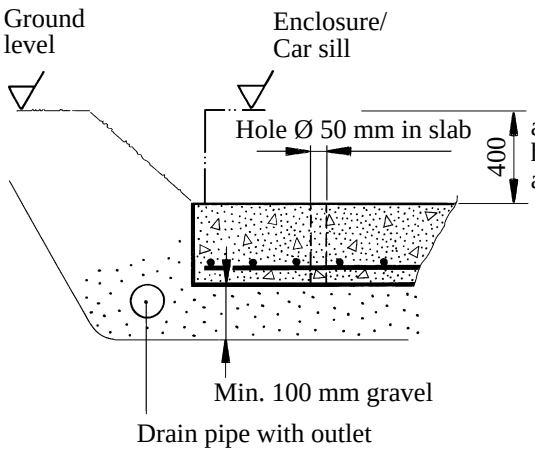


Concrete slab level with the ground

Advantage: No drain required.

Disadvantage: Sill.

A concrete slab level with the ground is the most common type of foundation. A ramp up to the level of the sill is usually made of fill, wood or steel.

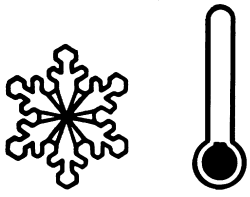


Concrete slab below ground level

Advantage: No sill between ground level and hoist car.

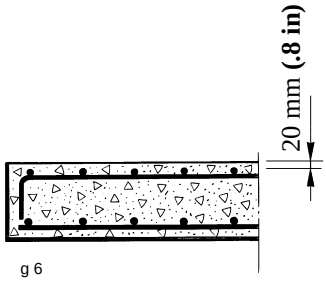
Disadvantage: Corrosion if water remains on the foundation and does not drain.

This alternative requires draining.



IMPORTANT: Please note that the foundation must always be isolated, or the surrounding soil prevented from freezing, if there is a risk of frost heave.

Extra reinforcement of concrete slab
– for hoist with landing equipment on vertical pipe support

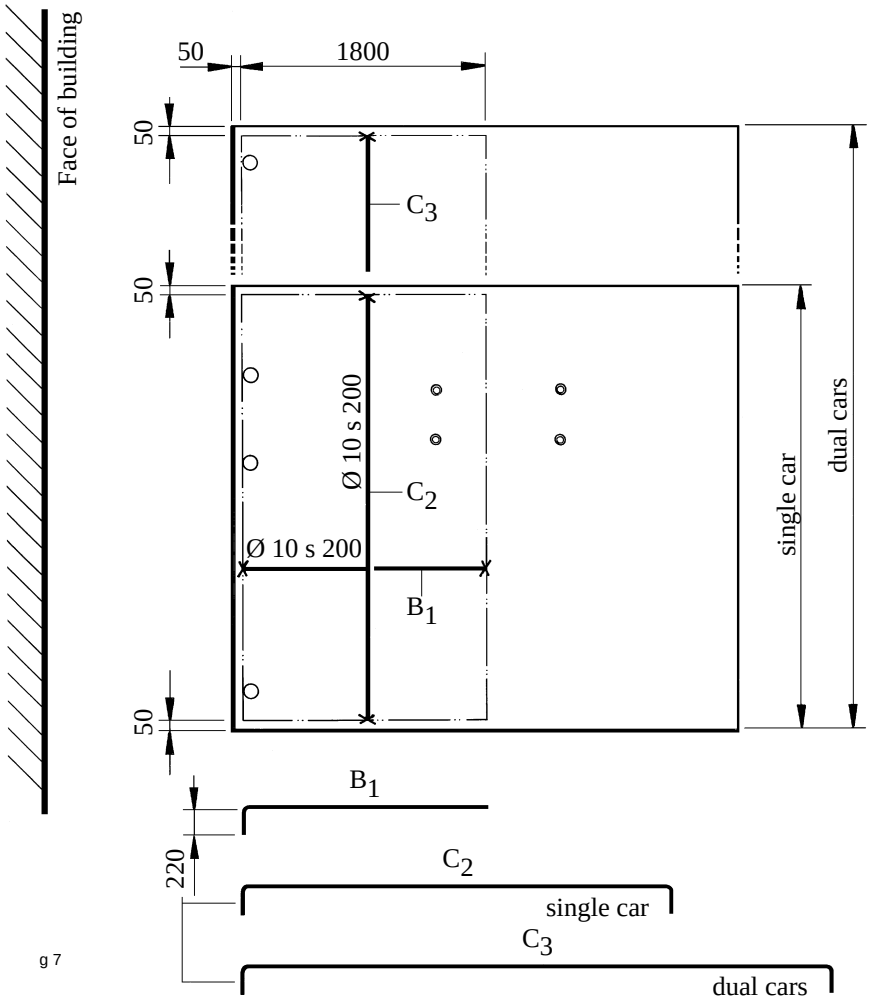


g 6

The concrete slab must have additional reinforcement in order to carry the extra load due to the vertical pipes, landing equipment and the extra load, due to the landings (people, buggies, materials, etc).

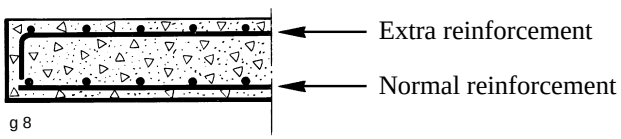
The extra reinforcement is only necessary within the areas shown in the picture below. The layer of reinforcement should be placed 20 mm below the upper edge of the slab.

Note that a concrete slab which forms part of a foundation pit does not require this extra reinforcement.



g 7

Cross-section of concrete slab

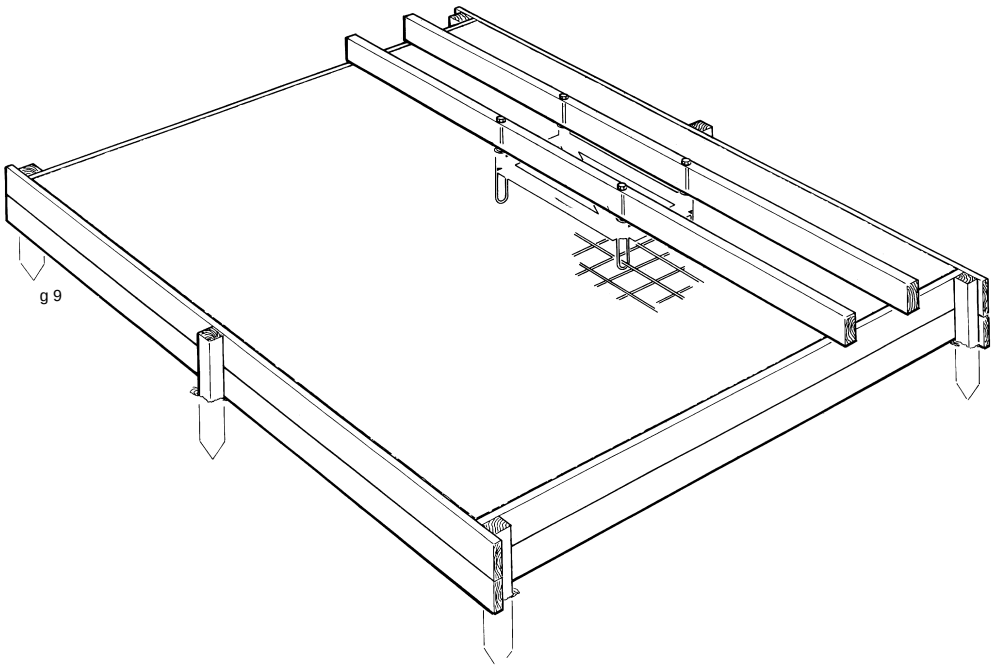


g 8

G 4

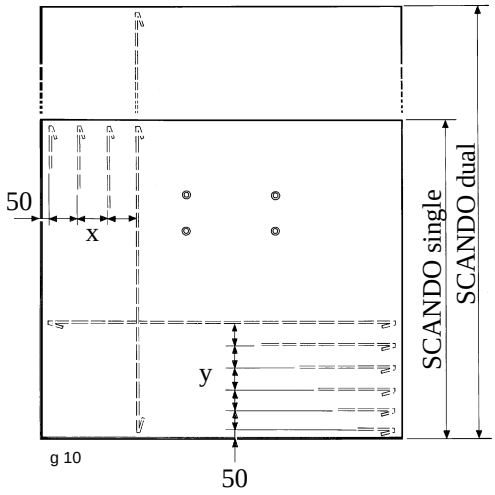
Formwork and fixing of foundation frame

This is done by means of crossbeams, to which the foundation frame is fastened with bolts.



Reinforcement for concrete slab

Reinforcement bar quality: minimum KS 400 (Yield strength = 390 N/mm²



Lifting height lower than	150 m (500 ft).		150 – 250 m (500 – 820 ft.)	
Car dimension meter	Reinforcement x	y	Reinforcement x	y
Single car	Ø10 s 300	Ø16 s 300		
Dual cars	Ø16 s 250	Ø16 s 250		

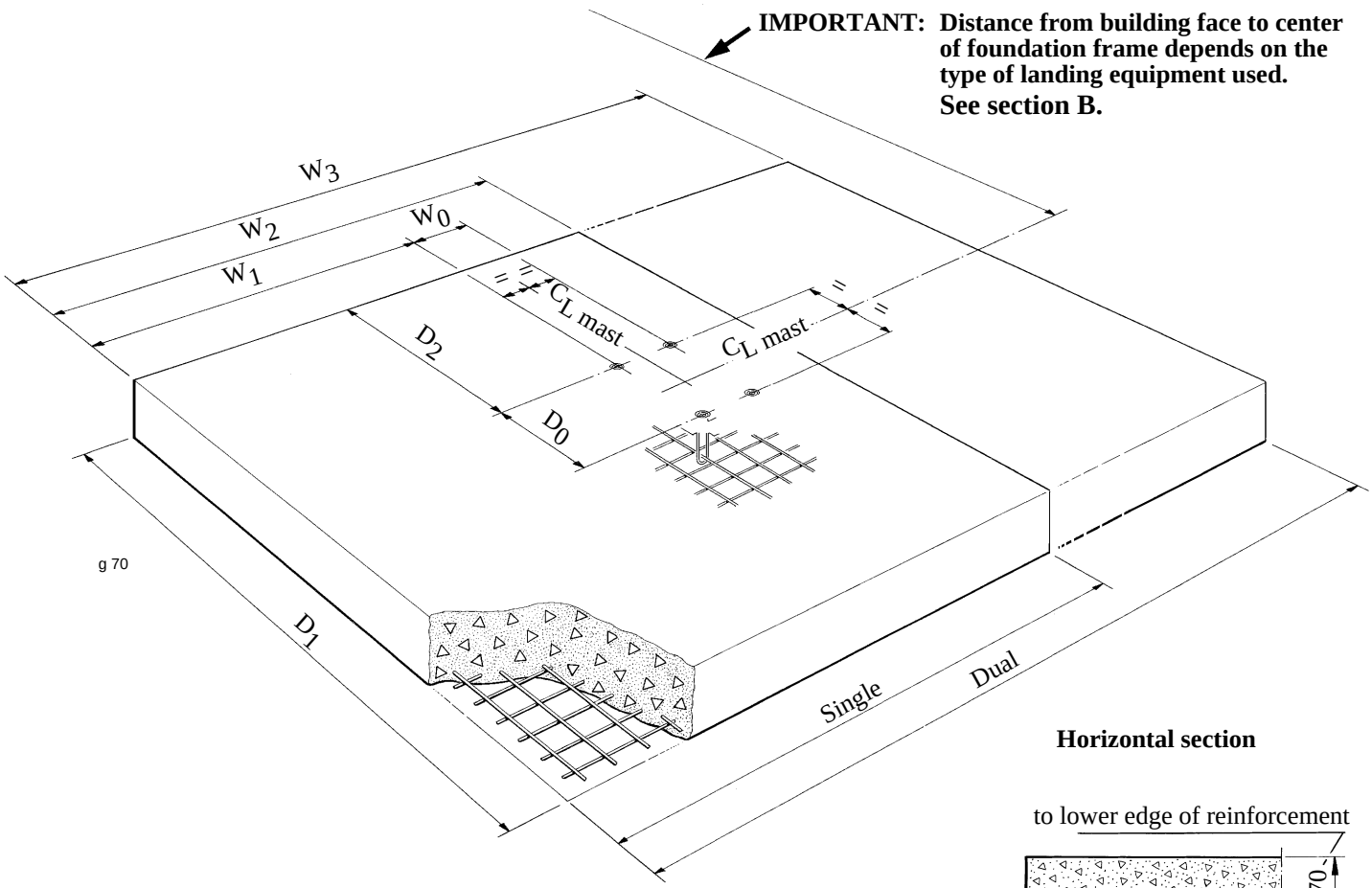
Concrete quality:

minimum K 25 (25 N/mm²) at 28 days.

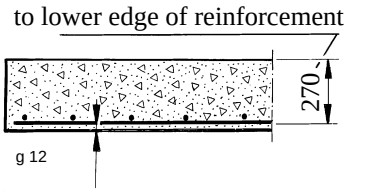
The concrete must reach 70% of the required compressive strength before the installation of the hoist may start.

This is usually obtained 7 days after placing the concrete. If a shorter time is needed, higher strength concrete may be used.

Concrete slab dimensions



Horizontal section



Car dimension meter	D_0 mm	D_1 mm	D_2 mm	W_0 mm	W_1 mm	W_2 mm	W_3 mm	Concrete volume m^3
Single car								
1.4 x 2.4	500	3100	1300	250	2050	2700	–	2.55
1.4 x 2.6	500	3300	1400	250	2050	2700	–	2.70
1.4 x 3.0	500	3700	1600	250	2050	2700	–	3.00
1.4 x 3.2	500	3900	1700	250	2050	2700	–	3.20
Dual cars								
1.4 x 2.4	500	3100	1300	250	2050	–	4350	4.05
1.4 x 2.6	500	3300	1400	250	2050	–	4350	4.35
1.4 x 3.0	500	3700	1600	250	2050	–	4350	4.85
1.4 x 3.2	500	3900	1700	250	2050	–	4350	5.10

Components for attachments of enclosure

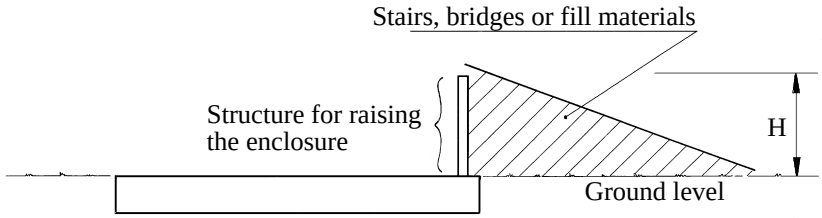
For the attachment of the enclosure on the foundation we recommend to use expansion bolts.
Please note that these items are not furnished with the hoist.

When extra safety space is required under the hoist car at the bottom landing

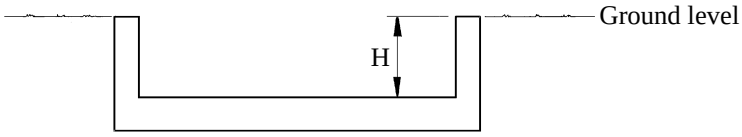
Some local hoist regulations require an extra safety space under the hoist car bottom landing. The same concrete slab as before can be used provided that the enclosure front is raised according to local hoist regulations.

See picture below.

H min. = 1060 mm



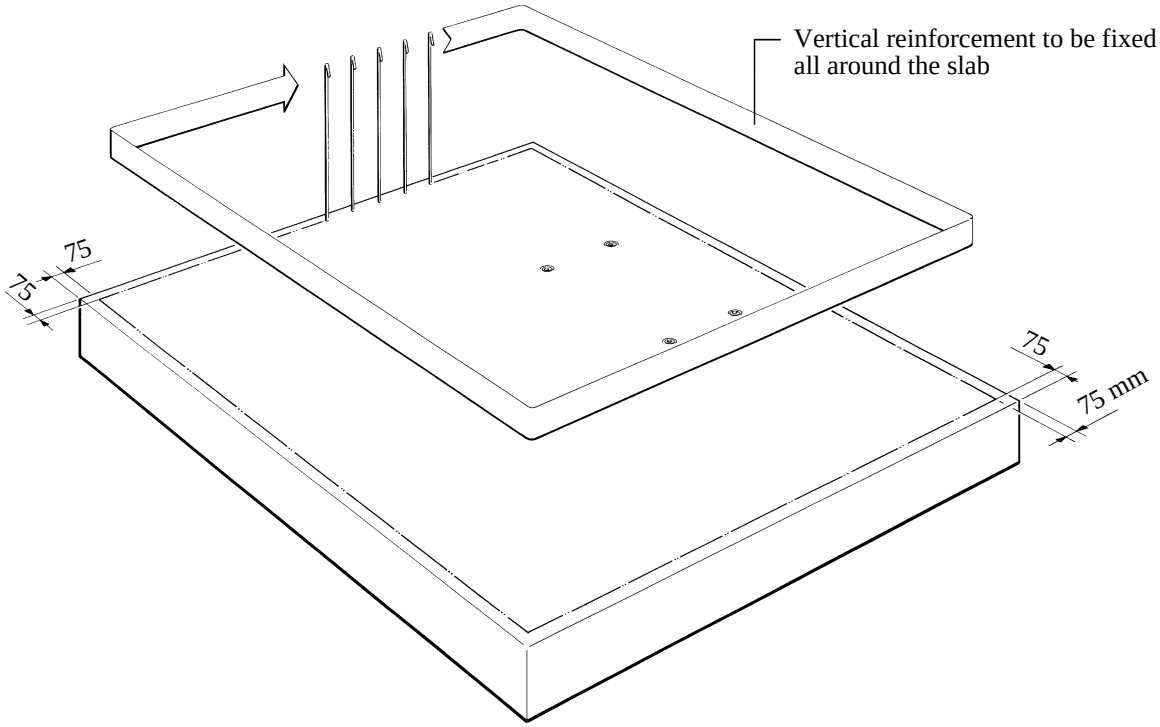
Alternatively a concrete pit can be made below ground level.



Foundation pit

The foundation pit is made as follows:

1. Make a concrete slab with additional vertical reinforcement for the pit walls, see figure. (Identical to one for a concrete slab level with the ground and for the hoist model in question).



2. When the base slab has cured, add the horizontal reinforcement, followed by formwork and completion of the walls of the foundation pit.

Concrete slab without foundation frame

In order to use a concrete slab without a foundation frame, the following requirements must be met:

– The procedures/specifications for preparing the concrete slab will be the same ones used for preparing a concrete slab with a foundation frame.

– The base frame must be attached with expansion bolts that can ***each*** withstand a pull-out force of at least 40 kN. .
The expansion bolts should be mounted in the holes normally used for attaching the base frame to the foundation frame.

– Installation is prohibited when wind speeds are in excess of 12.5 m/sec.

– The maximum height allowed for the first tie is 6 meter.

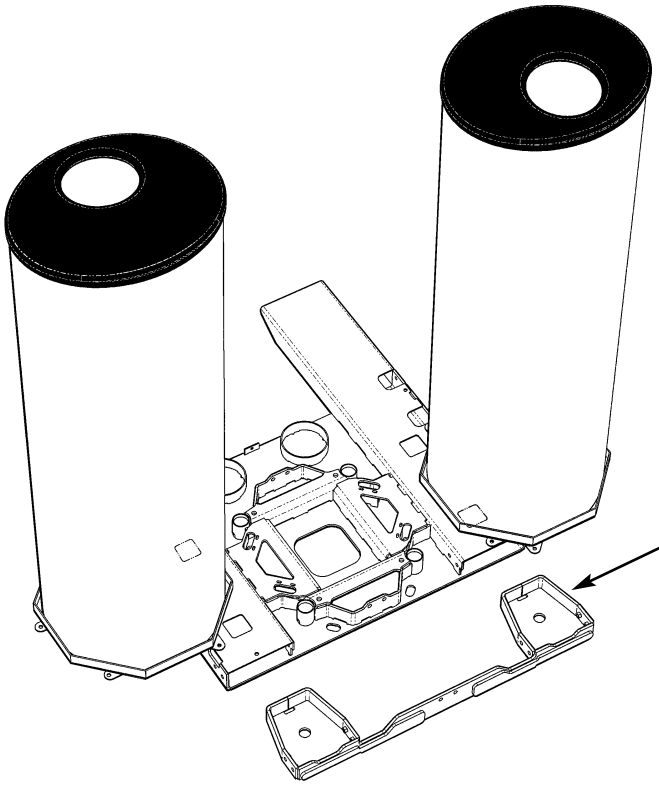
– The type of installation must be approved by the local governing authorities.

Transportable foundation

In order to use a transportable steel foundation, the following requirements must be met:

– The steel foundation must conform to all of Alimak's specifications. (These can be ordered separately from an Alimak representative).

– The type of installation must be approved by the local governing authorities.



IMPORTANT: When using a prefabricated foundation of steel sheet made for square 650 x 650 mm Scando masts , a reinforcement section, part, No. 9094 589-000 must be added to the bottom frame, according to the figure.

The same applies if a cast in foundation frame for the same mast is to be used.

It is of utmost importance that the reinforcement section is properly attached to the bottom frame with ALL 4 pcs. M12 bolts.

Load on foundation

The static load on the foundation consists of:

– The payload of the hoist (x 2 – for dual cars).

– Base unit dead weight. [For dual cars, add approx 1000 kg.

– Hoist mast dead weight.

– Add 10% of the total for mast ties, power cable, and cable guiding devices.

– Add a further 25% of the total for vertical pipe support, if used.

The dynamic load on the foundation consists of:

– 100% impact (or according to local regulations) on the pay-load and 2/3 of the base unit dead weight.

Example:

Static and dynamic load on the foundation (approx.)

Calculation of static load on the foundation for a dual car hoist SCANDO 450 DOL 14/26 with pipe support. Mast height 90 m, equivalent to 60 pcs. mast sections. Weights according to specifications in the data sheets.

Payload = 1400 kg 1400 kg (2 pcs.)	2800 kg
Base unit dead weight = 2400 kg +1000 kg for the 2nd car	3400 kg
Hoist mast 58 sections, 85 kg/each	4930 kg
(2 sections included in the base unit)	∑ = 11130 kg
Mast ties and cable guides Add 10% load	1113 kg
	∑ = 12243 kg
Vertical support and landing equipment. Add 25% load	3061 kg
	∑ = 15304 kg
Dynamic load approx. 2 x 1400 kg + 2/3 x (2400 + 1000)kg	5067 kg
	∑ = 20371 kg

20371 x 9.81 = 199 839,5 N.

In round figures = 200 kN

Ground pressure

Max. ground pressure under the concrete slabs is 0.15 MPa provided that the foundation has been reinforced and built up according to the given instructions.

Should the ground be able to stand higher pressures, it is possible to increase the load on the foundation. Please contact ALIMAK for information.

Examples of acceptable ground pressure according to SBN 1975 (Swedish Building Norms):

Moraine = 0.4 – 1.0 MPa

Fine sand = 0.2 MPa

The ground pressure due to the installation is calculated according to the following formula:

P_V is the sum of the static and the dynamic load and the dead weight of foundation in kN. Estimate approx. 24 kN/m^3 for concrete.

See ”Concrete slab dimensions” for D, W and concrete volume.

D x W is the concrete slab surface in m^2.

σ_{ground} = ground pressure (MPa)

Single car hoist

without pipe support : $\sigma_{ground} = \dfrac{2.3 \times P_V}{D_1 \times W_2 \times 1000}$ (MPa)

with pipe support : $\sigma_{ground} = \dfrac{3.5 \times P_V}{D_1 \times W_2 \times 1000}$ (MPa)

Dual car hoist

without pipe support : $\sigma_{ground} = \dfrac{P_V}{D_1 \times W_3 \times 1000}$ (MPa)

with pipe support : $\sigma_{ground} = \dfrac{1.6 \times P_V}{D_1 \times W_3 \times 1000}$ (MPa)

Example:

Calculation of ground pressure for a dualn cars SCANDO 450 DOL 14/26 with vertical pipe support.

Static and dynamic load = 200 kN (according to example on previous page).

Concrete slab dimension is D_1 x W_3 = 3300 x 4350 mm or 3.3 x 4.35 meter and weight of concrete slab is 24 kN/m^3 x 4.30 m^3 = 103 kN.

P_V = 200 + 103 kN = 303 kN

$$\sigma_{ground} = \frac{1.6 \times P_V}{D_1 \times W_3 \times 1000} \quad \text{(MPa)}$$

$$\sigma_{ground} = \frac{1.6 \times 303}{3.3 \times 4.35 \times 1000} =$$

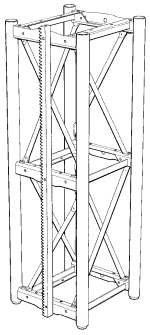
σ_{ground} = 0.034 MPa

Projecting hoist mast

Generally following selection process is used:

1. Type of mast section
2. Number of mast sections
3. Type of mast tie
4. Number of mast ties

Hoist model – i.e. load capacity and speed are assumed to be known.



1. Type of mast section

Determined by the capacity of the hoist and whether the mast will be provided with one or dual cars as well as the lifting height. See further information on following pages.

2. Number of mast sections

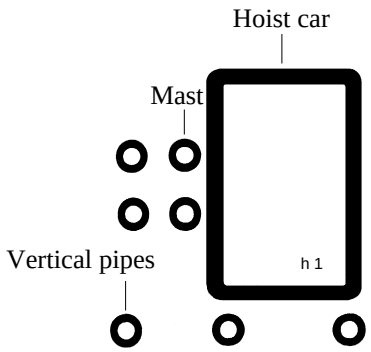
Determined by required lifting height (L_h) = $\frac{L_h}{1.508}$ meter and the necessary number of extra mast sections depending on:

Whether the hoist will be installed on a concrete slab at ground level.

– 3 extra mast sections.

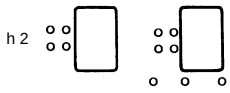
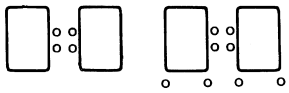
Whether the hoist will be installed with an extended enclosure or with a foundation pit below ground level.

– 4 extra mast sections.



3. Type of mast ties

Determined by whether there will be a single or dual car hoist and whether counterweight equipment and/or vertical pipes will be used. See table below:

Mast tie				
Type S3	X		X	
Type S2		X		X
Type R2	X			

X = Possible combinations
The selection of ties depends also on the length of tie required tie distance.
For detailed specifications see heading ”Mast ties”.

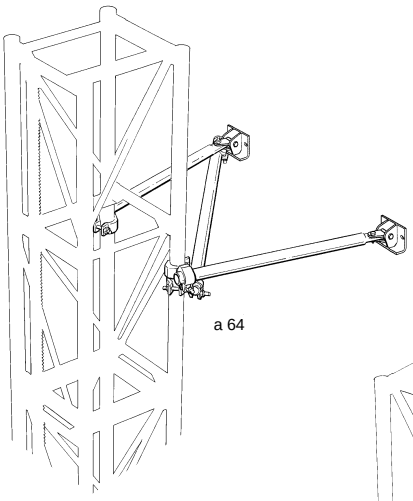
4. Numbers of mast ties

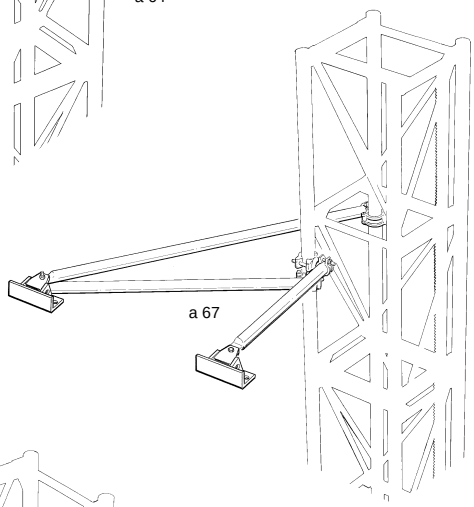
Determined by tie distance and overhang at various maximum lifting height. See tables in the end of chapter.

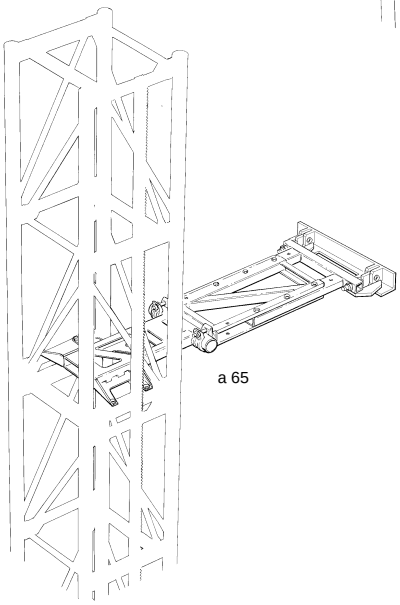
Mast ties

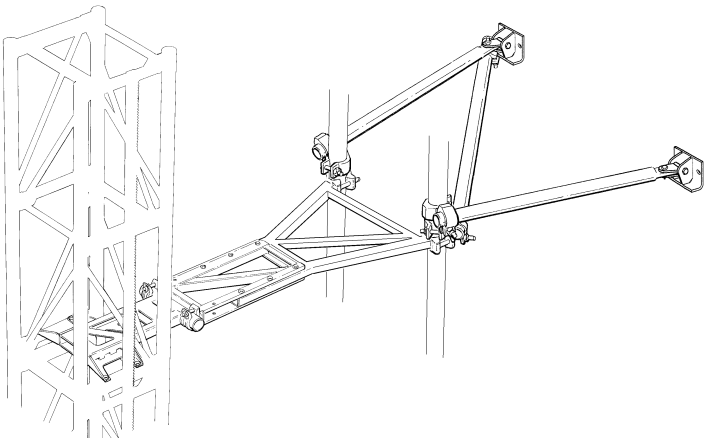
The ties are usually mounted with anchoring details or with bolts through bearing walls, e.g. archs, balconies, steel or concrete beams. If you intend to use embedment anchorings, these must be prepared well in advance before erection.

Note that the wall must always be dimensioned to take up the reaction forces of the ties.


a 64


a 67


a 65



Mast capability

Car load capacity	Tie distances	Maximum allowable mast height Single car	Dual cars
≤ 1400 kg	6 meter	464 m (369 m*)	294 m (205 m*)
	9 meter	403 m (298 m*)	242 m (147 m*)
	12 meter	356 m (246 m*)	212 m (115 m)*
> 1400 kg to ≤ 2000 kg	6 meter	447 m (358 m*)	271 m (187 m*)
	7.5 meter	403 m (310 m*)	245 m (152 m*)
	9 meter	365 m (265 m*)	215 m (– *)
	12 meter	308 m (203 m*)	183 m (–*)

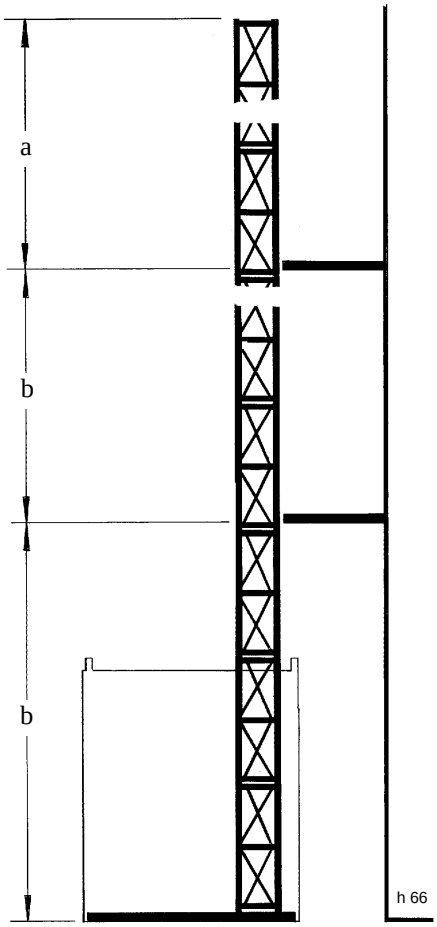
* Capability for previous 450 x 450 mast section Mk I in (brackets)

Freestanding / Tied hoist mast

Calculations according to EN 12159

Hoist with tied mast for a maximum mast height according to previous page. Tie intervals and max free untied top / overhang as below:

Note: For mast tie type S1C, S2C and S3C only !
Contact Alimak representative where mast tie tubes of thinner type are intended to be used.



Car length	Maximum load	Maximum freestanding on concrete foundation	Maximum overhang/ untied mast top a *	Maximum mast tie intervals b
Single car				
1.4 x 2.4 m	up to 1000 kg	7.5 meter	7.5 meter	12 meter
– ” –	1001 – 1400 kg	6.0 meter	6.0 meter	12 meter
– ” –	1401 – 2000 kg	4.5 meter	4.5 meter	12 meter
1.4 x 3.0 m	up to 1000 kg	7.5 meter	7.5 meter	12 meter
– ” –	1001 – 1400 kg	6.0 meter	6.0 meter	12 meter
– ” –	1401 – 2000 kg	4.5 meter	4.5 meter	12 meter
Dual cars				
1.4 x 2.4 m	up to 1000 kg	6.0 meter	6.0 meter	12 meter
– ” –	1001 – 1400 kg	6.0 meter	6.0 meter	12 meter
– ” –	1401 – 2000 kg	4.5 meter	4.5 meter	12 meter
1.4 x 3.0 m	up to 1000 kg	6.0 meter	6.0 meter	12 meter
– ” –	1001 – 1400 kg	6.0 meter	6.0 meter	12 meter
– ” –	1401 – 2000 kg	4.5 meter	4.5 meter	12 meter

Increased mast tie distances are possible especially at low lifting heights. Kindly ask Alimak for information.

***** ***Maximum allowed overhang during erection is 13.5 m, only if installation proceeds from the car with maximum 800 kg load in car and a wind speed less than 12.5 m/s.u***

IMPORTANT:

– Placing of landings must be avoided at max. free top and right between tie with long distances due to the deflection of the mast. If this is not possible an extra tie should be installed at the landing.

– In cases where required lifting height exceeds the max. allowable mast height, we kindly ask you to contact Alimak for advice.

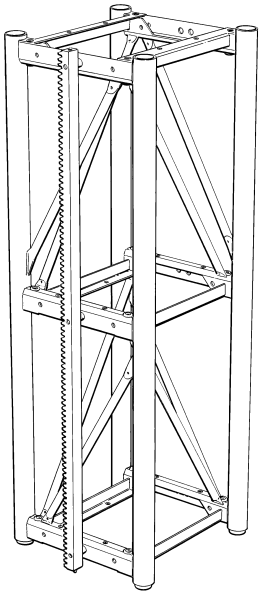
Combination of present Mk II and previous Mk I mast sections

Capacity maximum allowable mast height must be reduced by 30% if present and former type mast sections are combined. Freestanding, untied mast top (overhang) and maximum allowable tie distances will remain the same.

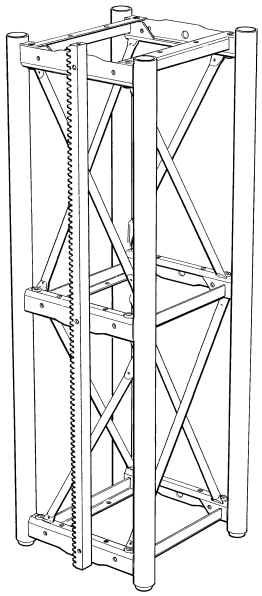
If former and present mast types are combined – former type mast sections MUST always be located on mast top due to present mast sections' increased weight.

Former Mk I
450 x 450 mast section

Compare location of diagonal support tubes



Present Mk II
450 x 450 mast section



Reaction forces

Reaction forces can be calculated by using various formulas depending on the type of mast tie selected:

Values for Rx and Ry according to the following.

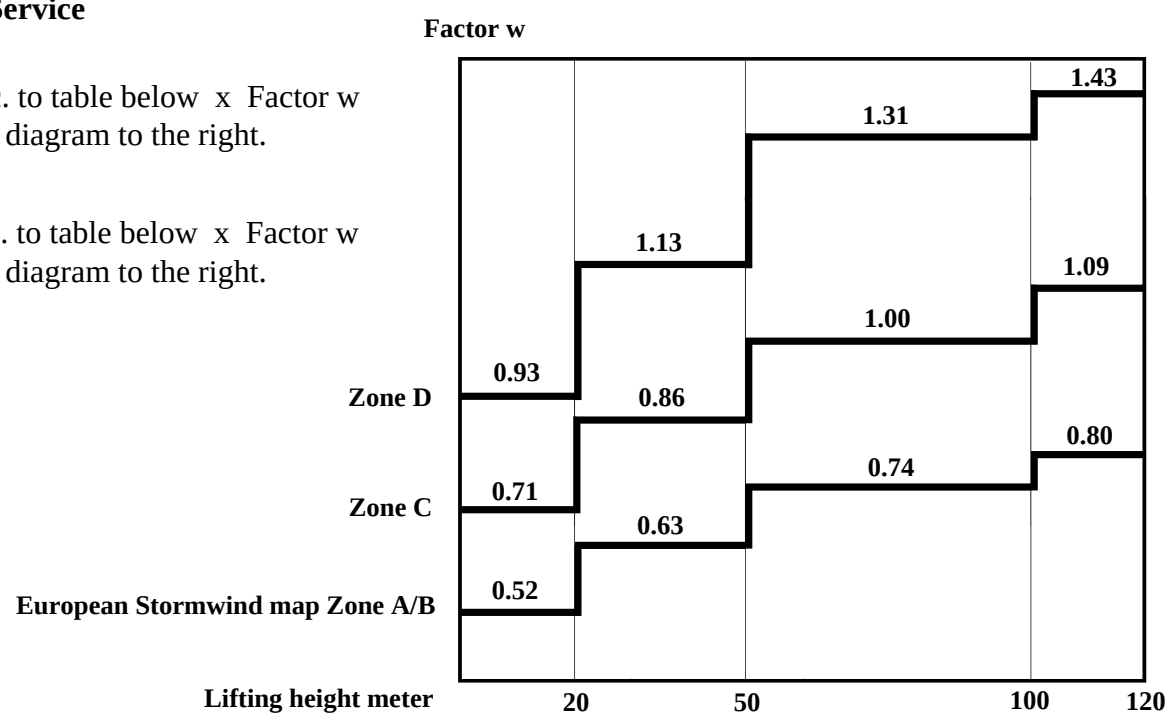
Hoist in Service

Overhang, meter	7.5 m		6.0 m		6.0 m		6.0 m	
Mast tie intervals	12 m		12 m		9.0 m		6.0 m	
Payload capacity	Rx	Ry	Rx	Ry	Rx	Ry	Rx	Ry
up to 1000 kg	7.1 kN	4.3 kN	6.6 kN	3.8 kN	7.7 kN	3.9 kN	10.2 kN	4.7 kN
1001 – 1400 kg	–	–	8.3 kN	4.3 kN	10.0 kN	4.5 kN	13.3 kN	5.2 kN
1401 – 2000 kg	–	–	8.8 kN	4.2 kN	10.6 kN	4.4 kN	14.4 kN	5.0 kN

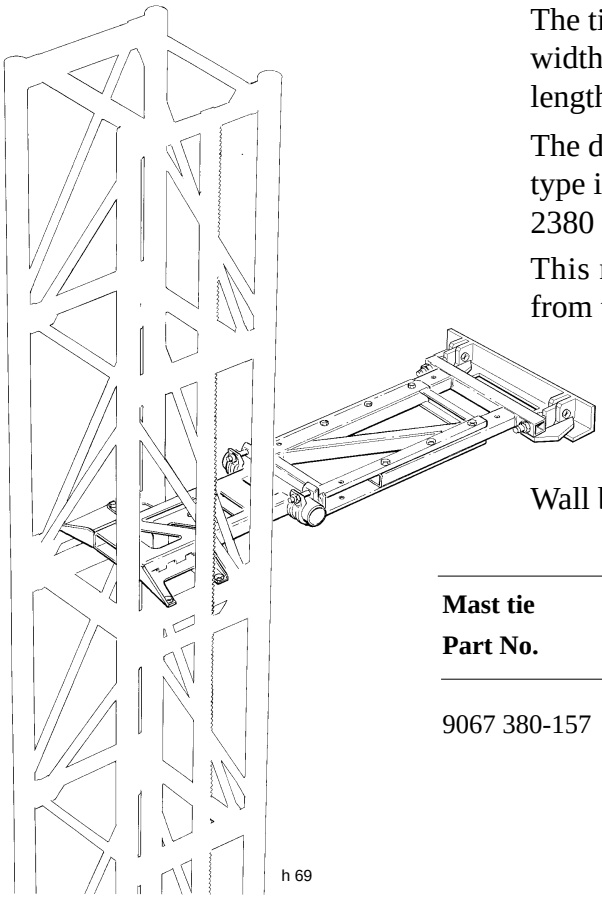
Hoist out of Service

Rx = Rx acc. to table below x Factor w acc. to diagram to the right.

Ry = Ry acc. to table below x Factor w acc. to diagram to the right.



Overhang, meter	7.5 m		6.0 m		6.0 m		6.0 m	
Mast tie intervals	12 m		12 m		9.0 m		6.0 m	
Single or Dual	Rx0	Ry0	Rx0	Ry0	Rx0	Ry0	Rx0	Ry0
Single	8.1 kN	8.1 kN	6.7 kN	6.7 kN	6.4 kN	6.4 kN	6.5 kN	6.5 kN
Dual cars	9.2 kN	9.2 kN	7.6 kN	7.6 kN	7.3 kN	7.3 kN	7.3 kN	7.3 kN



Mast tie type S3C (for twin car installation)

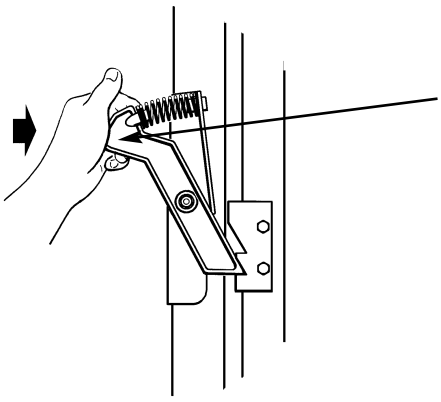
The tie is telescopic variable in the horizontal direction. The width **B** of the tie is fixed 540 or 1050 mm, independant of the length of the tie, which is adjustable up to 320 mm.

The distance **L** between the wall and the mast center for this tie type is variable from a minimum of 1310 mm to a maximum of 2380 mm.

This mast tie may be inclined between ± 15° (270 mm/m) from the horizontal.

Wall bracket part. no. 9066 185-000.

Mast tie Part No.	Car length m	$L_{min.}$ mm	$L_{max.}$ mm	B (fixed) mm	P_{max} In service	P_{max} Out of serv.
9067 380-157	2.0 – 3.2 Left	1310	1630	540	47 kN	52 kN
	2.4 Right*	1410*	1630	540	– ” –	– ” –
	2.6 Right*	1510*	1630	540	– ” –	– ” –
	3.0 – 3.2*	NA	NA			
9067 380-182	2.0 – 3.2 Left	1560	1880	540	54 kN	61 kN
	3.0 Right*	1710*	1880	540	– ” –	– ” –
	3.2 Right*	1810*	1880	540	– ” –	– ” –
9067 380-202	2.0 – 2.6 Left	1760	2080	1050	31 kN	34 kN
	3.0 Left	1960	2080	1050	– ” –	– ” –
	3.2 Left	2060	2080	1050	– ” –	– ” –
	2.6 Right*	1800*	2080	1050	– ” –	– ” –
	3.0 Right*	2000*	2080	1050	– ” –	– ” –
	3.2 Right*	NA	NA			
9067 380-232	2.0 – 3.2 Left	2060	2380	1050	35 kN	40 kN
	3.0 Right*	2140*	2380	1050	– ” –	– ” –
	3.2 Right*	2240*	2380	1050	– ” –	– ” –



* Limitation due to the interlock hook on the RIGHT car.

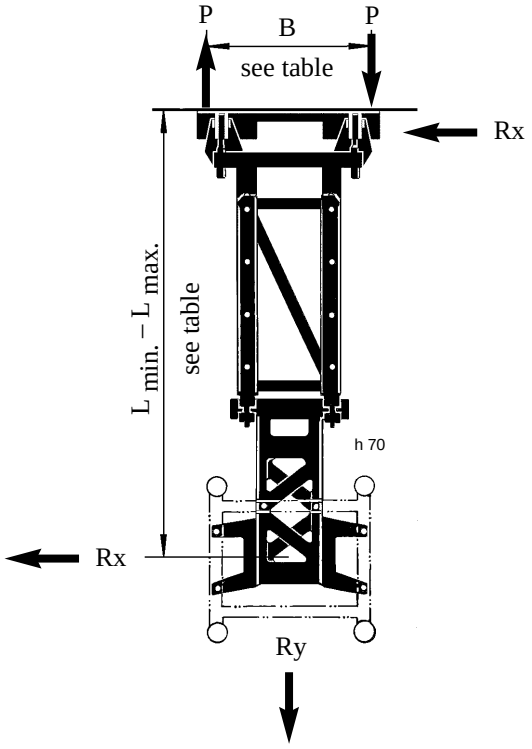
Reaction forces

Maximum reaction force P in the wall anchorage of the tie can be calculated as follows:

$$P = Rx \cdot \frac{L}{B} + \frac{Ry}{2}$$

Rx and Ry according to the table on page H4 and H5.

P must never exceed P_{max} indicated for each size of mast tie according to table on previous page.



H_8

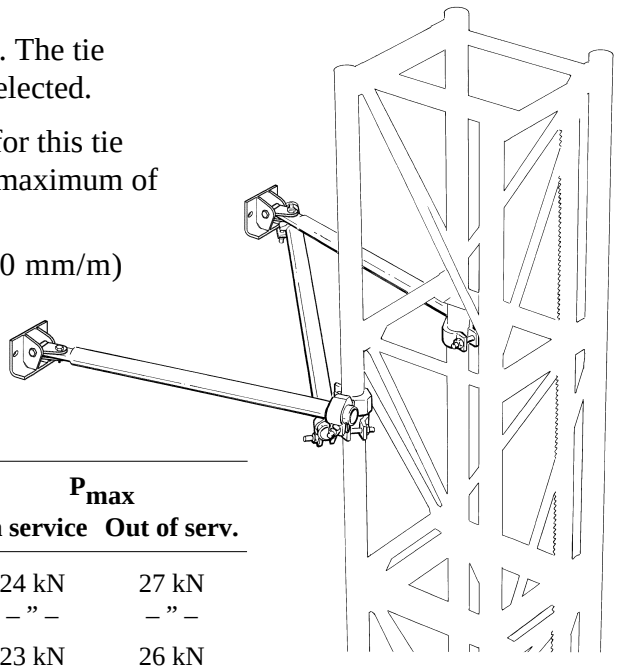
Mast tie type R2C-60 (tube dia. 60 mm)

The tie is telescopic variable in horizontal direction. The tie width **B** varies depending on the length of the tie selected.

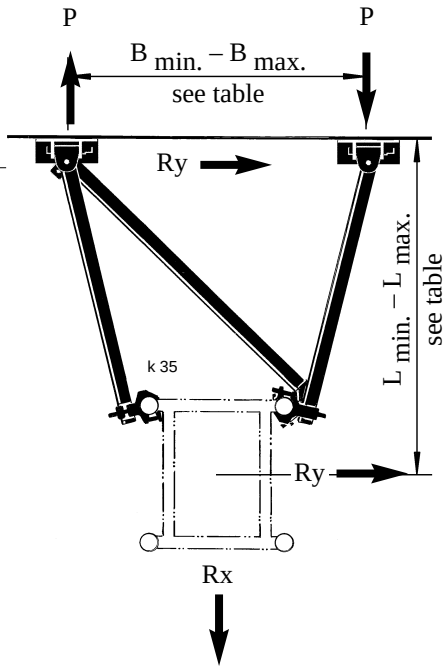
The distance between the wall and the mast center for this tie type is anywhere from a minimum of 600 mm to a maximum of 2550 mm.

This mast tie may be inclined between ± 15° (270 mm/m) from the horizontal.

Wall bracket part. no. 9066 185-000.



Mast tie Part No.	$L_{min.}$ mm	$L_{max.}$ mm	$B_{min.} - B_{max.}$ mm	P_{max} In service	P_{max} Out of serv.
9098 774-080	min. 600		760 – 900	24 kN	27 kN
		max. 850	700 – 950	– ” –	– ” –
9098 774-115	min. 1000		800 – 1100	23 kN	26 kN
		max. 1200	– ” –	– ” –	– ” –
9098 774-155	min. 1400		1000 – 1350	20 kN	23 kN
		max. 1600	– ” –	18 kN	21 kN
9098 774-195	min. 1800		1200 – 1550	19 kN	21 kN
		max. 2000	– ” –	17 kN	20 kN
9098 774-250	min. 2350		1550 – 1900	18 kN	21 kN
		max. 2550	– ” –	17 kN	20 kN



Reaction forces

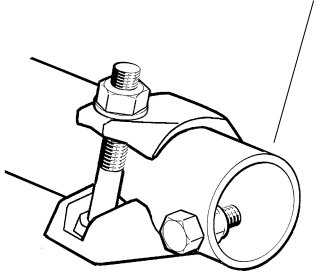
Maximum reaction force P in the wall anchorage of the tie can be calculated as follows:

$$P = Ry \cdot \frac{L}{B} + \frac{Rx}{2}$$

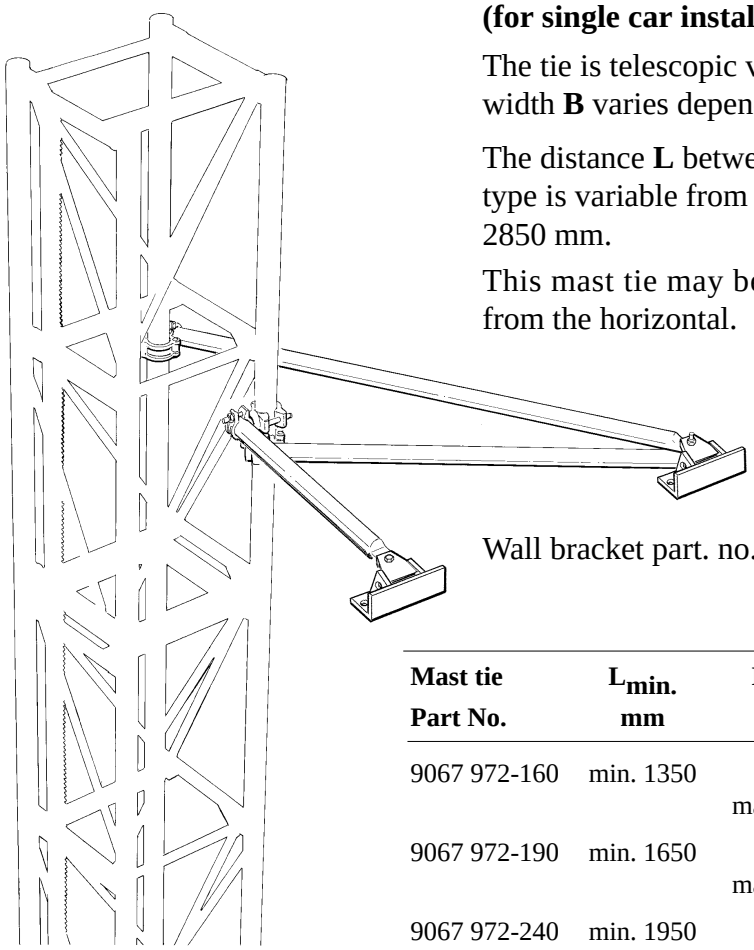
Rx and Ry according to the table on page H4 and H5.

P must never exceed P_{max} stated for each size of mast tie according to table above.

Each scaffold clamp must include a bolt and nut at the end of the tube as indicated.



Mast tie type S1C-60 (tube dia. 60 mm)
(for single car installation)



The tie is telescopic variable in horizontal direction. The tie width **B** varies depending on the length of the tie selected.

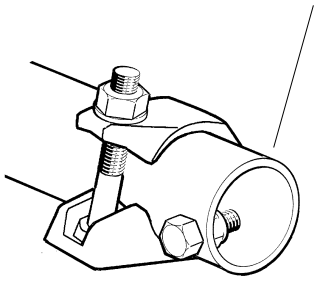
The distance **L** between the wall and the mast center for this tie type is variable from a minimum of 1350 mm to a maximum of 2850 mm.

This mast tie may be inclined between ± 15° (270 mm/m) from the horizontal.

Wall bracket part. no. 9066 185-000.

Mast tie Part No.	$L_{min.}$ mm	$L_{max.}$ mm	$B_{min.} - B_{max.}$ mm	P_{max} In service	P_{max} Out of serv.
9067 972-160	min. 1350		1000 – 1800	17.5 kN	19.5 kN
		max. 1650	1150 – 1470	– ” –	– ” –
9067 972-190	min. 1650		1200 – 2000	– ” –	– ” –
		max. 1950	1300 – 1700	– ” –	– ” –
9067 972-240	min. 1950		1500 – 2550	– ” –	– ” –
		max. 2450	1700 – 2050	– ” –	– ” –
9067 972-280	min. 2450		1550 – 2580	– ” –	– ” –
		max. 2850	1750 – 2050	– ” –	– ” –

Each scaffold clamp must include a bolt and nut at the end of the tube as indicated.



Reaction forces

Maximum reaction force P in the wall anchorage of the tie can be calculated as follows:

$$P = Rx \cdot \frac{L}{B} + Ry \cdot \frac{(B + 135)}{B}$$

Rx and Ry according to the table on page H4 and H5.

P must never exceed P_{max} indicated for each size of mast tie according to table above.

Remark: Dimension B_{max} can always be increased to avoid cutting the pipes within the values indicated in the table above.

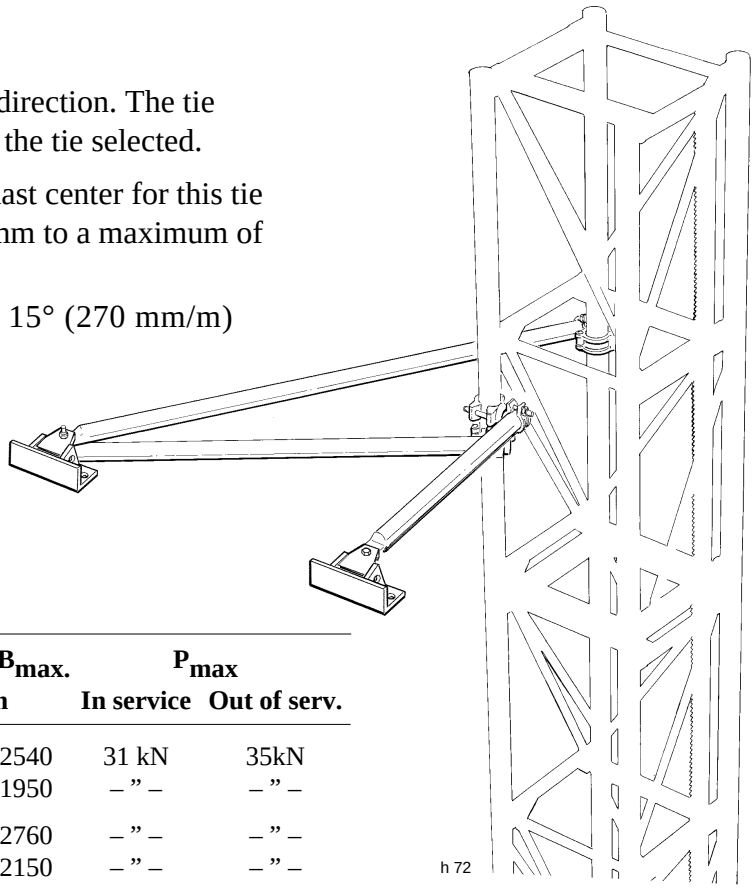
Mast tie type S1C-76 (tube dia, 76 mm)
(for single car installation)

The tie is telescopic variable in horizontal direction. The tie width **B** varies depending on the length of the tie selected.

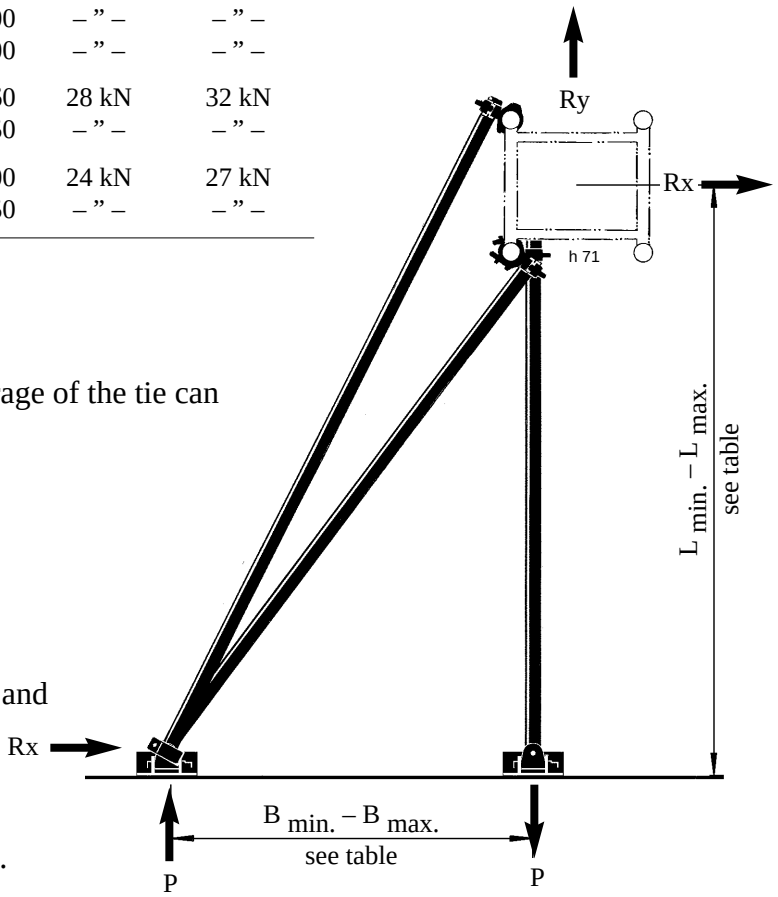
The distance **L** between the wall and the mast center for this tie type is variable from a minimum of 2850 mm to a maximum of 5250 mm.

This mast tie may be inclined between ± 15° (270 mm/m) from the horizontal.

Wall bracket part. no. 9066 185-000.



Mast tie Part No.	$L_{min.}$ mm	$L_{max.}$ mm	$B_{min.} - B_{max.}$ mm	P_{max} In service	P_{max} Out of serv.
9094 100-320	min. 2850		1400 – 2540	31 kN	35kN
		max. 3250	1600 – 1950	– ” –	– ” –
9094 100-360	min. 3250		1600 – 2760	– ” –	– ” –
		max. 3650	1800 – 2150	– ” –	– ” –
9094 100-400	min. 3650		1800 – 2980	– ” –	– ” –
		max. 4050	2000 – 2350	– ” –	– ” –
9094 100-440	min. 4050		2000 – 3200	– ” –	– ” –
		max. 4450	2200 – 2500	– ” –	– ” –
9094 100-480	min. 4450		2200 – 3560	28 kN	32 kN
		max. 4850	2400 – 2750	– ” –	– ” –
9094 100-520	min. 4850		2400 – 3600	24 kN	27 kN
	max. 5250		2600 – 2950	– ” –	– ” –



Reaction forces

Maximum reaction force P in the wall anchorage of the tie can be calculated as follows:

$$P = Rx \cdot \frac{L}{B} + Ry \cdot \frac{(B + 115)}{B}$$

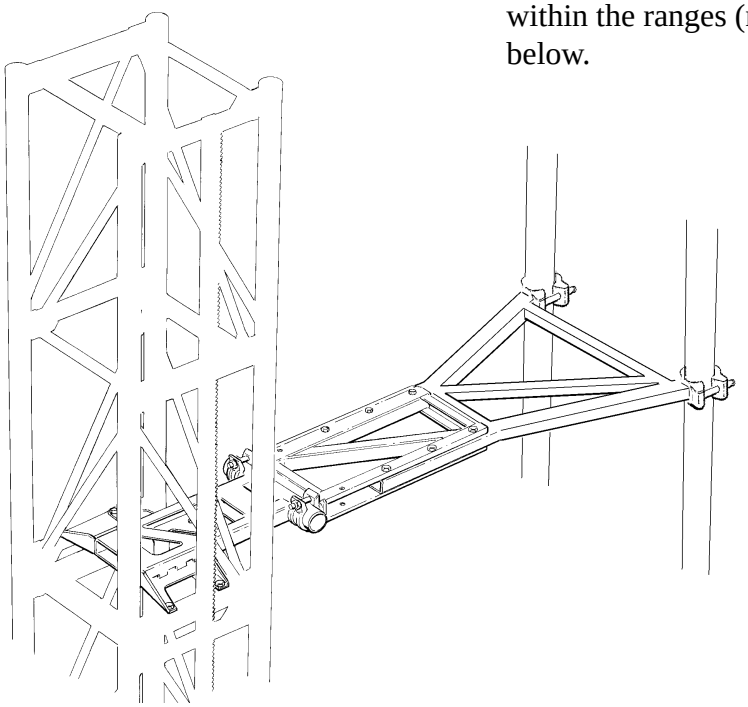
Rx and Ry according to the table on page H4 and H5.

P must never exceed P_{max} indicated for each size of mast tie according to table above.

Mast tie type S2C (for vertical pipes)

The tie is intended for both single and twin car hoists. The hoist ***must*** be equipped with vertical pipes for the landing equipment.

The length of tie **L** and the width **B** are telescopic variable within the ranges (min. – max.) shown by the figures in table below.



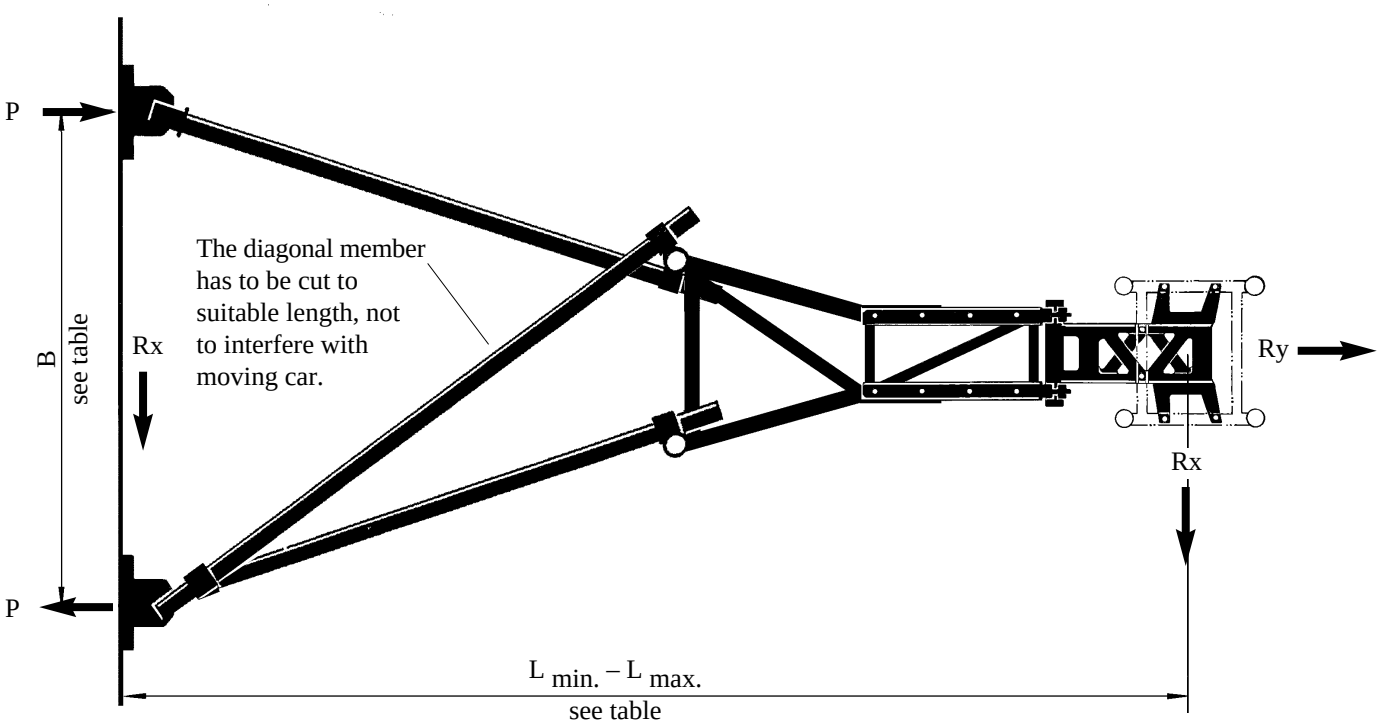
Main frame Part No.	Car length m	$L_{min.}$ mm	$L_{max.}$ mm	$B_{min.} – B_{max.}$ mm	Additional part * Part No.	P_{max} In service	P_{max} Out of serv.
9090 546-000	2.4	1950	3150	1060 – 1550	0498 679-1652	46 kN	52 kN
– ” –	2.6	2050	3250	1060 – 1550	0498 679-1652	48 kN	54 kN
– ” –	3.0	2250	3450	1060 – 1550	0498 679-1652	50 kN	57 kN
9090 546-100	3.2	2350	3550	1060 – 1550	0498 679-1652	52 kN	59 kN
9090 546-000	2.4	3160	4400	1760 – 2560	0498 679-2902	39 kN	44 kN
– ” –	2.6	3260	4500	1760 – 2560	0498 679-2902	40 kN	45 kN
– ” –	3.0	3460	4700	1760 – 2560	0498 679-2902	42 kN	47 kN
9090 546-100	3.2	3560	4800	1760 – 2560	0498 679-2902	43 kN	48 kN

* Wall bracket included

The additional part may be inclined between ± 15° (270 mm/m) from the horizontal.

Reaction forces

Maximum reaction force P in the wall anchorage of the tie can be calculated as follows:

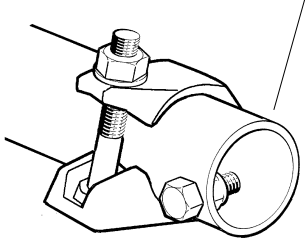


$$P = Rx \cdot \frac{L}{B} + \frac{Ry}{2}$$

Rx and Ry according to the table on page H4 and H5.

P must never exceed P_{max} indicated for each size of mast tie according to table on previous page.

Each scaffold clamp must include a bolt and nut at the end of the tube as indicated.



H 14

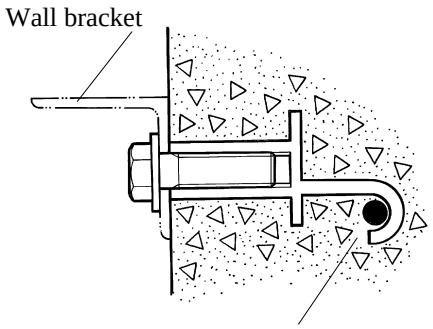
Attachment of ties

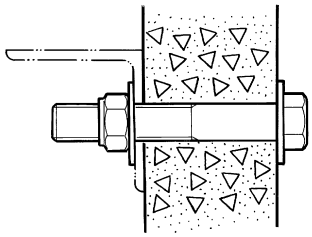
The ties are attached to the building by bolts, washers and nuts into the holes which are drilled at the installation or embedment sets or other approved suitable wall bracket attachments.

Cast in place inserts must be installed prior to the hoist installation in order for the concrete to cure properly and reach its proper strength. Concrete must be of suitable strength for calculated loads ***(See Reaction forces).*** Care must be taken in locating the inserts at their proper location ***(See type of mast tie).***

If other type of bolt is used such as epoxy cast in bolt or expansion bolt, it is important to choose an approved type which can take the calculated force in this application with a satisfactory safety factor.

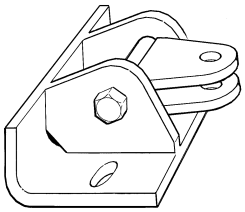
Specifications for this type of attachment should follow the manufacturer's recommendations and be approved by the governing authority for their use.





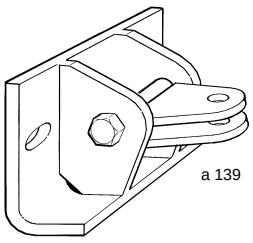
h 16

Wall brackets can be installed either on slab...

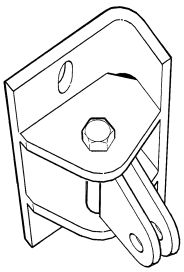


Wall bracket P/N 9066185-000
Hole dia. 22 mm for bolt dimension M20
c/c between bolts 200 mm

... or against face of structure



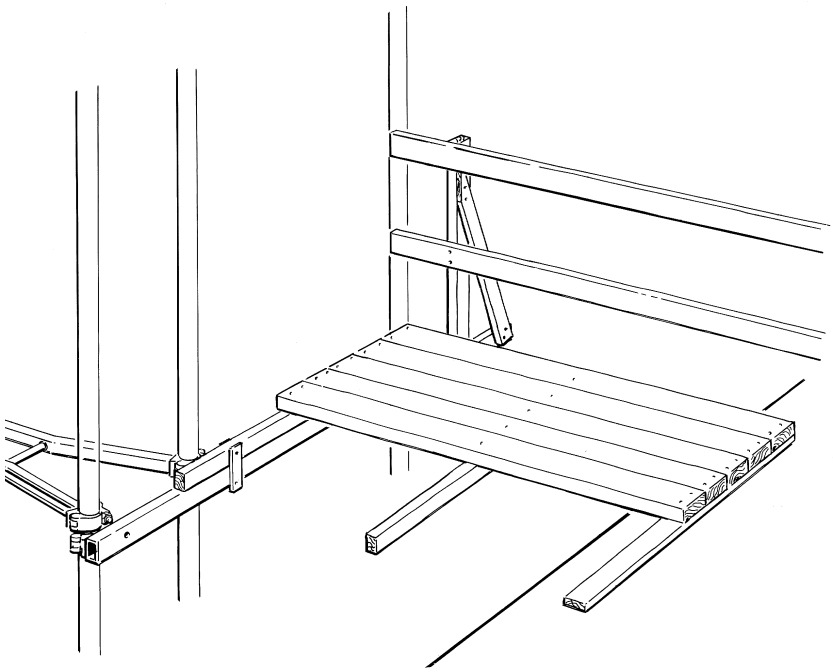
a 139



Note: Location of the wall brackets affects the bolt reaction forces. In doubtful cases we kindly ask you to contact Alimak for advice.

Landing run-offs in conjunction with vertical pipes

The sum of the vertical pipes', pipe supports', landing beams' and landing equipment's own weight means that the combined payload on the landing run-offs will be reduced with increasing mast height.



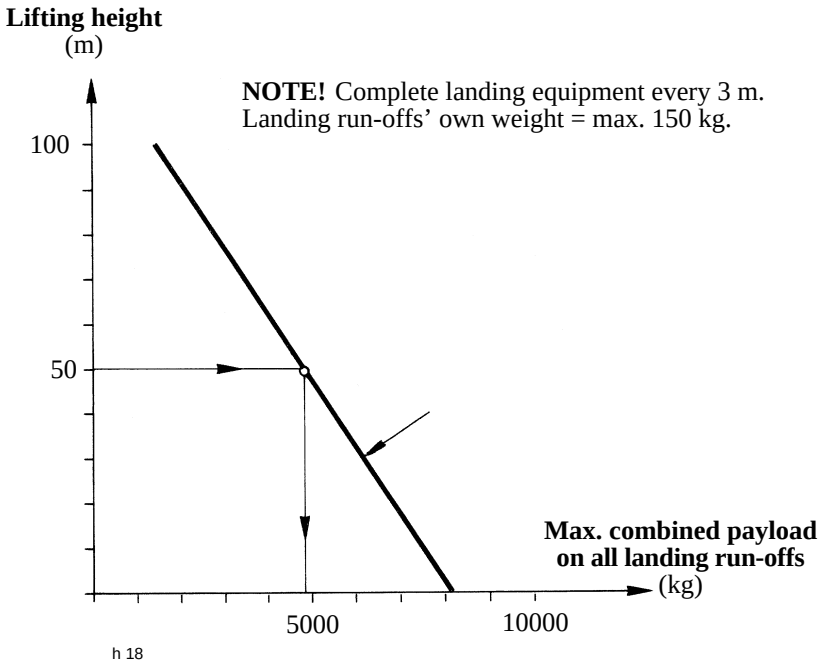
The maximum allowable payload on all the landings combined is shown on the diagram to the right. The load is understood to be equally distributed on the respective landing run-offs.

The allowable payload per landing run-off may not exceed the hoist's maximum capacity.

Example:

For a single car hoist type Scando 450 DOL 20/32 (car dimension 1.4 x 3.2) the maximum allowable payload for all the landing run-offs combined is 4800 kg at a 50 m lifting height.

The corresponding maximum allowable payload for a dual car hoist SCANDO 450 DOL 20/32 at 50 m lifting height is 2 x 4800 kg = 9600 kg



IMPORTANT:

- Except when loading or unloading the hoist it is advisable to avoid placing loads on the run-offs to avoid the risk of overloading.
- Exception must also be granted for personnel to call the hoist.
- Landing equipment for vertical pipes should be avoided at lifting heights greater than 100 meter**.**

Preparations before installation

To install your rack and pinion hoist as efficiently and safely as possible and at lowest cost, it is important that the following preparations are made before the erector is called and the installation is started.

Permission

Make sure the chosen site of erection meets the requirements set out by local authorities for safety and inspection and that their permission, if necessary, to install the hoist has been obtained.

i 1

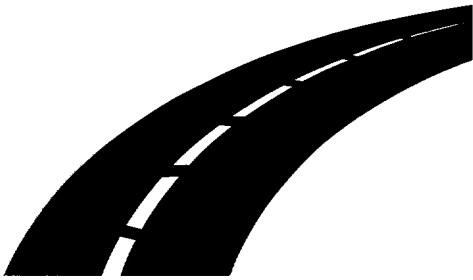
Erection place

Prepare the installation site so that electric power, light, lifting equipment and tools are available and there is adequate access for the lift transporter – beware of overhead obstructions.

If possible, prepare for the installation of ties and landing accessories such as supports, platforms and railing. Suitable places for attaching the ties are vaults, balconies or other concrete or steel structures. See applicable installation drawing.

Remember that these structures must be strong enough to absorb the reaction forces of the ties and landing door assemblies.

All mast sections should be stored on dry firm ground and as close to the erection place as possible.

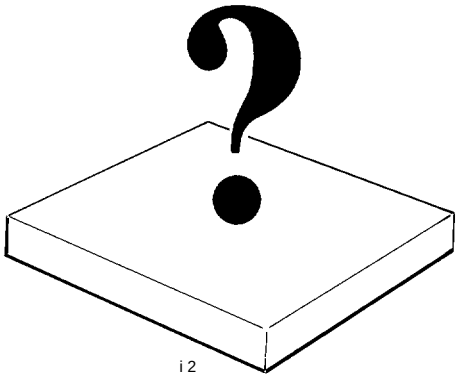


Foundation

Prepare the foundation with parts required for fixing the base frame of the mast. See chapter ”Foundation” in the manual Technical Description.

IMPORTANT!

Make sure before casting the foundation that the measurement between the foundation frame and the face of the hoistway corresponds to the ties to be used.

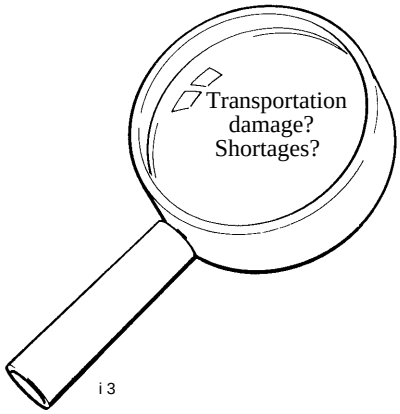

i 2

Delivery check-up

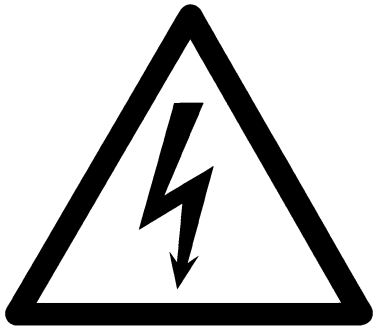
Check the delivery against shipping lists and look for transportation damage.

Should there be any damage, report the same to the responsible transportation insurance company within 7 days from the date of arrival of the goods.

Other claims should be made to ALIMAK representative within the same period.



i 3



i 4

Arrangement of power supply

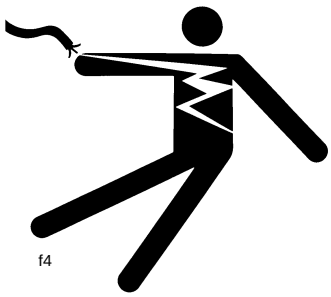
Direct On Line (DOL) starting of electric motors results in a very high starting current. The current must overcome the resistance in the cables which results in a voltage drop. This voltage drop occurs not only in the trailing cables, but also in the power supply cable installed between the jobsite distribution board and the electric panel ”B” at the base. The total voltage drop is the sum of the voltage drop in all the cables. ***The consequence of the voltage drop is a substantial reduction in the output torque of the motor.***

In order to avoid starting problems it is of the utmost importance that the ***main power supply is adequately sized*** with respect to the starting current and the voltage drop. The following data should be noted:

– During starting conditions, in the upward direction with rated load, the voltage drop must not exceed 15% of the rated voltage when measured at the motor terminals. In the Base panel, the voltage drop of the incoming power supply terminals must not exceed 3% of the rated voltage during the starting conditions.

– Once the rated speed is established during upward travel with rated load, the voltage drop must not exceed 5% of the rated voltage when measured at the motor terminals. In the Base panel, the incoming power supply voltage should, in practice, not drop at all, i.e. not exceed 1 – 2 % drop.

– ***Except for the above mentioned supply voltage levels during start and running conditions, the quality of the main power supply to the lift/hoist must be in accordance with the requirements of EN 50160:1999.***



f4

Client’s power supply

Supply cables to hoists with DOL or Y/D starting

The 3-phase power supply cable from the jobsite distribution board to the ”B” panel at the base can be calculated from the formulas below. The formulas are applicable for the most common types of hoists having 1 or 2 motor drive machinery with ***DOL-starting at 400V, 50Hz and 460V, 60Hz***.

Note If an earth leakage circuit breaker, ELCB, (ground fault circuit breaker) is to be used, the trip-out value should be chosen for equipment protection i.e. 500mA.

Use of 30mA ELCB is not recommended as it continuously trips due to the motor starting current.

No. of motors	Motor power continuous/25% intermittent 50 Hz	Motor power continuous/25% intermittent 60 Hz	Power supply cable to Base panel. Conductor area, copper	Minimum recommended Cu-Conductor area	Fuse at * 400V 50Hz 460V 60 Hz
1	7.5 / 8.8 kW	8.6 / 10 kW	a = L x 0.17 mm²	10 mm²	35 AT
2	7.5 / 8.8 kW	8.6 / 10 kW	a = L x 0.34 mm²	16 mm²	63 AT
1	11 / 13 kW	12.6 / 15 kW	a = L x 0.25 mm²	10 mm²	35 AT
2	11 / 13 kW	12.6 / 15 kW	a = L x 0.49 mm²	16 mm²	63 AT

a = Conductor area mm², Cu. To be rounded up to standard sizes, i.e. 10, 16, 25, 35 mm² etc.

L = Length in m of the 3-phase power supply cable from the jobsite distribution board to the Base panel

For conductor sizes in AWG Nos. see conversion table below.

* In order to avoid single phasing should a main fuse blow, we strongly recommend the power supply to be fused by means of a three-phase circuit breaker.

Supply cables to hoists and lifts with VFC (Variable Frequency Converter)

The size of the power supply cable must always comply with Rules and Regulations stipulated by the local Authority for electrical installations. Customer's power supply cable must also be sized to ensure that the voltage drop in the Base panel does not exceed 3% when starting with full load with the hoist moving in the upward direction.

The size of the power supply cable can be calculated by following formula:

a = L x P x 0.0056... ***...where***

a = Conductor area in mm² copper

L = Length in m of the power supply cable from distribution board to the Base panel

P = Drive motor power in kW on the hoist

Installed motor power kW	Minimum cable size (copper) mm²
3 – 5.5	4
6 – 10	6
11 – 20	10
21 – 30	10
31 – 40	16
41 – 50	25
51 – 75	(35) 50

IMPORTANT! The power supply cable must be sized according to the drive motor power installed on the hoist. Minimum size of the supply cable is shown on the table above. The table refers to supply voltage 400V to 460V, 50/60Hz.

See note re: earth circuit breaker on previous page.

Power supply from generator set at jobsite

Generator set size for Scando 450

Model	Machinery	Speed	Max. load	Fuse	Gen. set size
Sc 450 DOL	1 x 11 kW	30 m/min.	1200 kg	35A	110kVA
Sc 450 DOL	2 x 7.5 kW	38 m/min.	1700 kg	50A	155kVA
			2000 kg	63A	155kVA
Sc 450 FC	1 x 11 kW	0 – 30 m/min.	1100 kg	25A	20kVA
Sc 450 FC	2 x 11 kW	0 – 42 m/min.	1800 kg	50A	45kVA
			2000 kg	63A	45kVA
Sc 450 FC	2 x 11 kW	0 – 54 m/min.	1800 kg	63A	50kVA
			2000 kg	80A	50kVA

Gen. set must be able to continously deliver the highest present current level = starting current. Always check the nominal output current on the actual Gen. set.

Step-up transformer

Note – if a lift/hoist is connected to the main power supply via a step-up transformer the following must be fulfilled !

– DOL operated electric motors must be dimensioned for the particular step-up transformer.

– Check the connection on the primary side of the control transformer. Reconnect, if necessary, and measure to ensure the voltage on the secondary side.

– All additional equipment connected to outlets must be dimensioned for the particular step-up transformer. Voltage level on the 3-Phase outlet will be the same as delivered from the step-up transformer.

Voltage drop in the power supply

Typical symptoms

– The hoist will not start with the full rated load.

– The brakes will not lift when starting in the Up-direction.

– The contactors oscillate on and off (”shatter”) when starting with full load in the Up-direction.

– The contacts of the Up and the main contactors are damaged.

Steps to be taken to overcome a voltage drop problem

The best method to avoid any voltage drop problem is to make a proper engineering review of the conditions at the job site ***before*** installing the hoist. When installed, the options are limited.However, should a situation occur where the power supply seems to be insufficient, it is important to determine whether this depends on the voltage drop in the power supply or something else. Use an instrument to measure the incoming power supply voltage in both the B-panel at the base and the M-panel on/in the car. Take the readings ***during starting conditions*** in theupward direction with rated load in the car. If the voltage drop exceeds the values given above, one or more of the following steps can be taken:

1. Increase the conductor size in the power supply cable from the jobsite distribution board to the B-panel at base.
2. Increase the conductor size in the trailing power cables between the Base panel and the car. Due to mechanical and performance reasons, the conductors in the trailing cable should not exceed 16 mm^2.

   The fixed cable to the junction box at 1/2 lifting height can be increased in size.
3. Reduce the rated load.
4. Install a step-up transformer in the power supply in order to increase the voltage.

   Note! Motor windings must be adaptable to this higher voltage. Otherwise the motor must be changed. To give the best possible advantage, the step-up transformer should preferably be located close to the jobsite distribution board.
5. Use some sort of soft start equipment.

If you have any questions regarding the power supply cables or the trailing cables, please contact Alimak for advice.

Dimensioning hoist cables

(trailing power cable and feeding fixed power cable where applicable)

Drive unit rated power	Speed	Cable dimension Fixed feeding cable	Trailing cable	Maximum lifting height 400V 50Hz		480V 60Hz	
Scando 450				**25/35 Amp.**		**25/35 Amp.**	
1 x 11 kW DOL	0.5 m/s	–	4G10	100 m		100 m	**(330')**
	96 fpm	3x10/10	4G10	140 m		170 m	**(560')**
		3x16/16	4G10	180 m		> 200 m	**(660')**
		3x25/16	4G10	> 200 m		> 200 m	
		3x16/16	4G16	> 200 m		> 200 m	
		3x25/16	4G16	> 200 m		> 200 m	
				50/63 Amp.		**50/60 Amp.**	
2 x 7.5 kW DOL	0.63 m/s	–	4G10	100 m		100 m	**(330')**
	120 fpm	3x10/10	4G10	100 m		120 m	**(400')**
		3x16/16	4G10	130 m		160 m	**(525')**
		3x25/16	4G10	150 m		180 m	**(590')**
		3x16/16	4G16	170 m		> 200 m	**(660')**
		3x25/16	4G16	> 200 m		> 200 m	
				20/25 Amp.		**20/25 Amp.**	
1 x 11 kW FC	0 – 0.5 m/s	–	4G10	100 m		100 m	**(330')**
	0 – 96 fpm	3x10/10	4G10	> 200 m		> 200 m	**(660')**
		3x16/16	4G10	> 200 m		> 200 m	
		3x25/16	4G10	> 200 m		> 200 m	
		3x16/16	4G16	> 200 m		> 200 m	
		3x25/16	4G16	> 200 m		> 200 m	
				50 Amp.	**63 Amp.**	**50 Amp.**	**60 Amp.**
2 x 11 kW FC	0 – 0.7 m/s	–	4G10	100 m	100 m	100 m **(330')**	100 m **(330')**
	0 – 135 fpm	3x10/10	4G10	120 m	100 m	160 m **(525')**	160 m **(525')**
		3x16/16	4G10	150 m	130 m	> 200 m **(660')**	> 200 m **(660')**
		3x25/16	4G10	180 m	160 m	> 200 m	> 200 m
		3x16/16	4G16	> 200 m	180 m	> 200 m	> 200 m
		3x25/16	4G16	> 200 m	> 200 m	> 200 m	> 200 m
				63 Amp.	**80 Amp.**	**50 Amp.**	**60 Amp.**
2 x 11 kW FC	0 – 0.9 m/s	–	4G10	NA	NA	NA	NA
	0 – 175 fpm	3x10/10	4G10	90 m	NA	150 m **(495')**	120 m **(400')**
		3x16/16	4G10	110 m	NA	190 m **(625')**	150 m **(495')**
		3x25/16	4G10	140 m	NA	> 200 m **(660')**	180 m **(590')**
		3x16/16	4G16	160 m	140 m	> 200 m	> 200 m **(660')**
		3x25/16	4G16	> 200 m	170 m	> 200 m	> 200 m

Trailing cables

4G10+3x5x1 hybrid	for cable basket art.No. 3000162-210
4G10+12x1 hybrid	for cable trolley art. No. 3002198-500
4G16	for cable trolley art. No. 3002198-401
4G25	for cable trolley art. No. 3002198-402
7G2.5 + 9x1.5	for cable trolley art. No. 3002198-403

Feeding fixed cables

3x10/10	art. No. 3000319-054
3x16/16	art. No. 3000319-045
3x25/16	art. No. 3000319-046
3x35/16	art. No. 3000319-047
3x50/25	art. No. 3000319-048

HOIST

capacity kg

or passengers

9101286-101

HOIST

capacity _____ kg

or _____ passengers

To enable re-use of this data sign it is advisable to insert the data with a lead pencil or an erasable felt pen.

9101286-101