Technical Description
ALIMAK SCANDO 650
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. 9100272 - 1 08 2008 - 05 - 27

Photographs and drawings are illustrative only and do not necessarily show the design of the products on the market at any given point in time. The products must be used in conformity with applicable practice and safety regulations. Specifications of the products and equipment presented herein are subject to change without notice.

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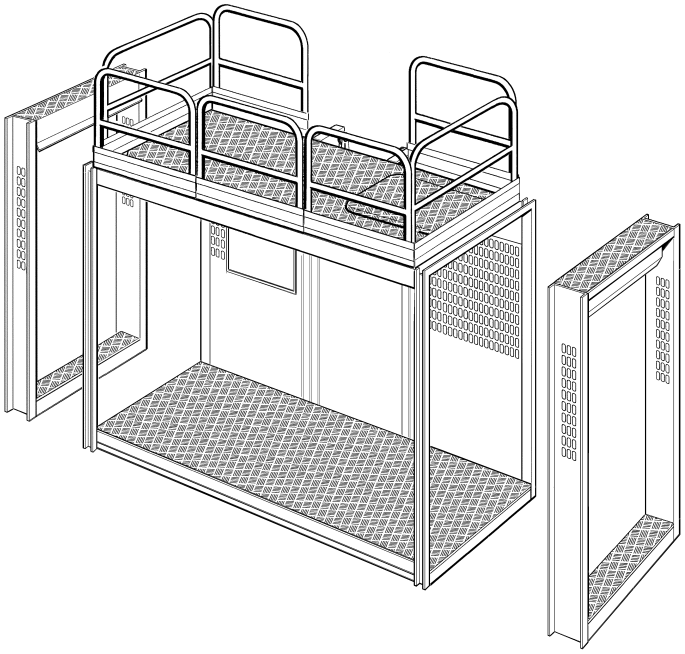
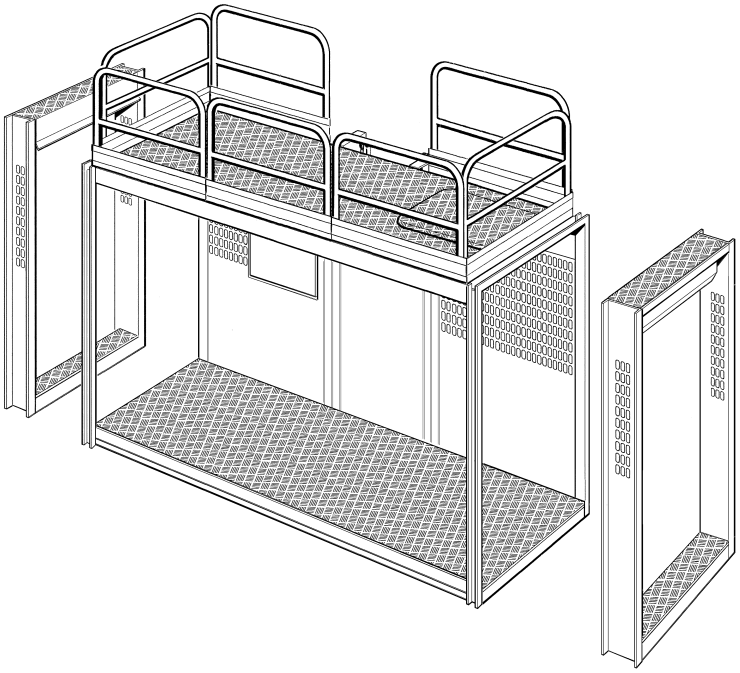
2.8 m car base structure **(9’- 2 1/4’’)**

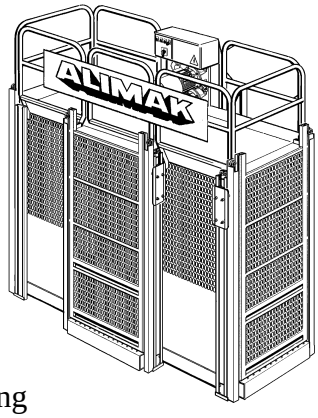


3.5 m car base structure **(11’- 5 3/4’’)**



Technical description

The new SCANDO 650 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 4.6 m **(15'- 1").** Car width 1.5 m **(4'- 11")** is fixed.

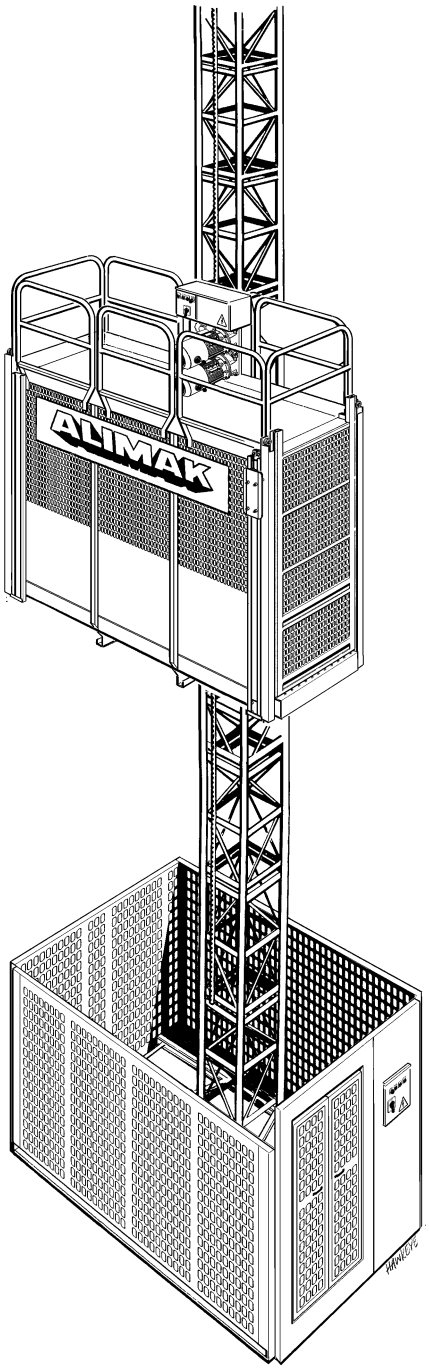


The car, as well as the ground enclosures doors / gates, can be positioned on any of the three sides away from mast.

The hoists have a lifting capacity of maximum 3200 kg kg **(7100 lbs.)** up to a lifting height of 200 m **(650 ft.)**.
Lifting speed is 38 m/min. **(125 fpm.)**, alt. 42, 54 or maximum 65 m/min. **(135 , 175 or 215 fpm.)** with VFC-operation.

A high speed version hoist 80 m/min. can also be furnished as well as an optional load sensing operation system controlling the speed between 80 to 100 m/min. **(260 to 330 fpm.)** depending on direction of travel and present load in the car.

The SCANDO 650 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 650 construction hoist is a part of the SCANDO 650 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.

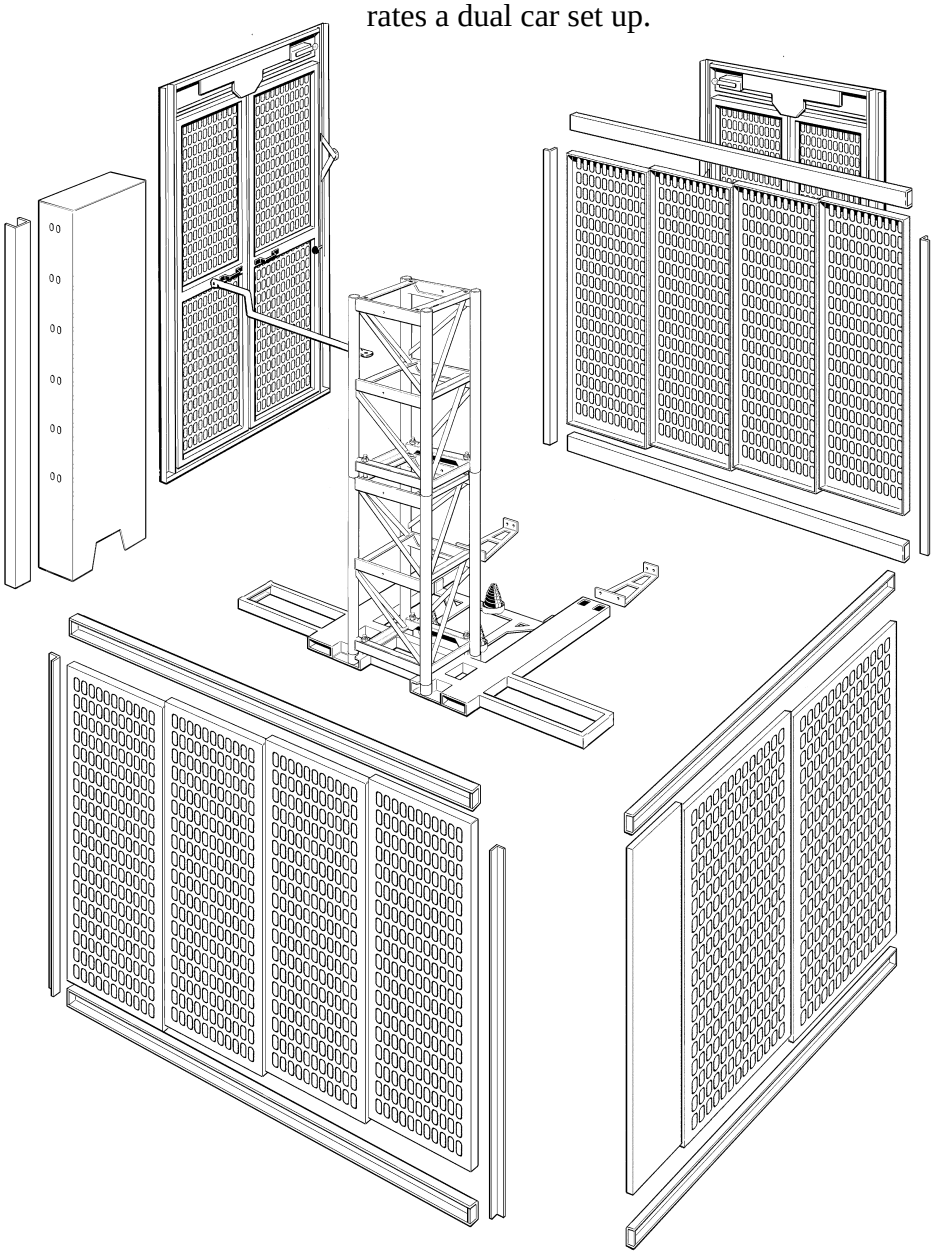
Necessary documents such as operator's manual, wiring diagrams, circuit diagrams and spare parts lists are delivered with the hoist.

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.

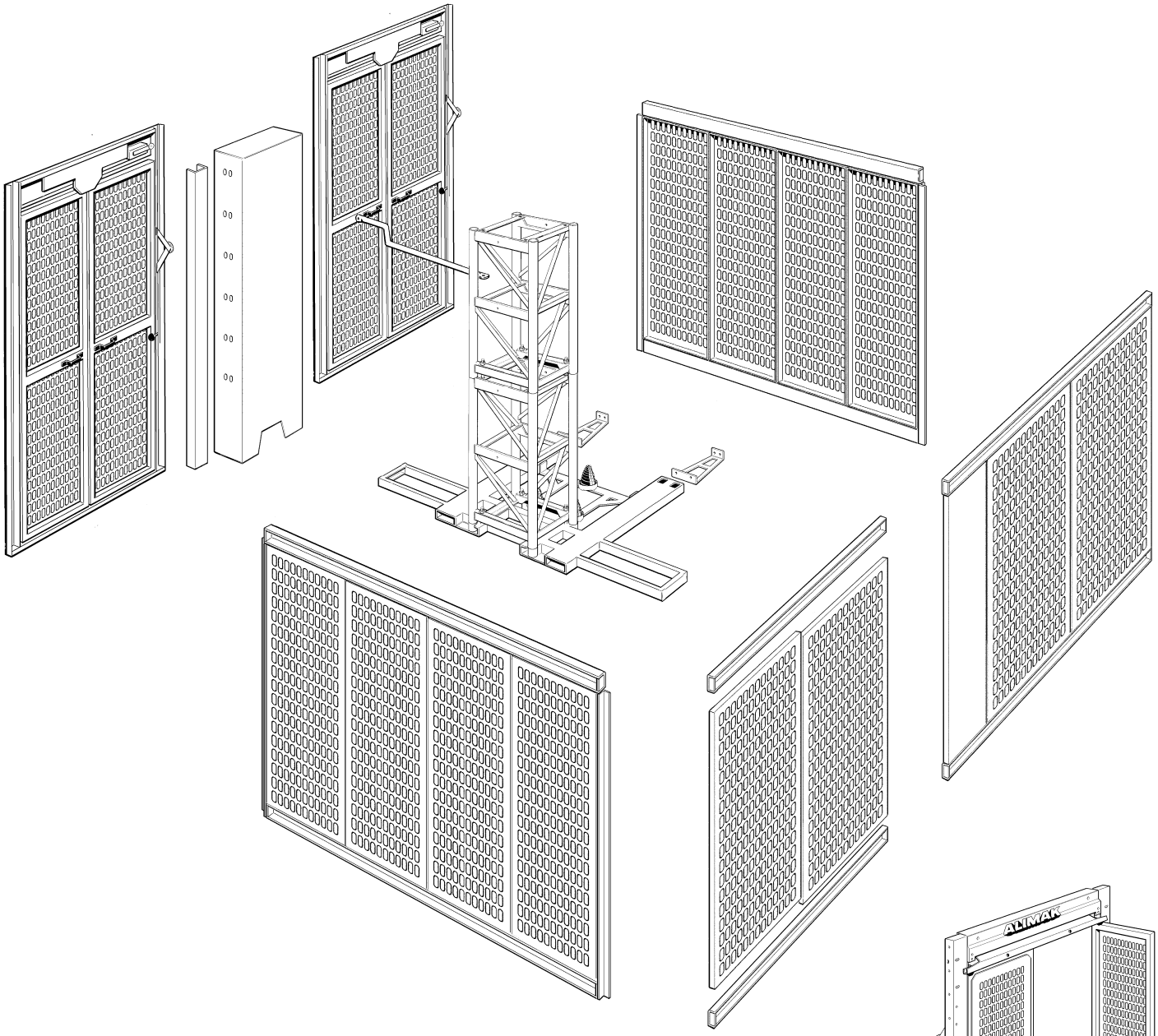
Base frame

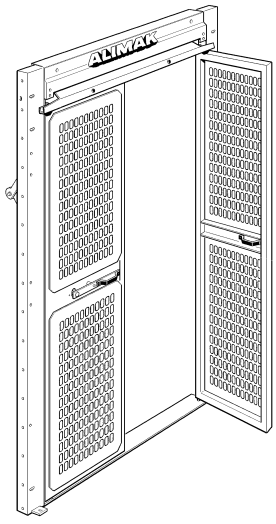
The bottom mast section is bolted to the base frame, which incorporates 3 buffer positions, channels for fork lifting and 2 boltable outriggers to support the enclosure. Minimum fork lift length required is 1200 mm **(3’ - 11”)**.
The hoist can be used freestanding, bolted to the transportable sheet steel foundation or the concrete slab.
With an additional buffer support the base frame also incorporates a dual car set up.



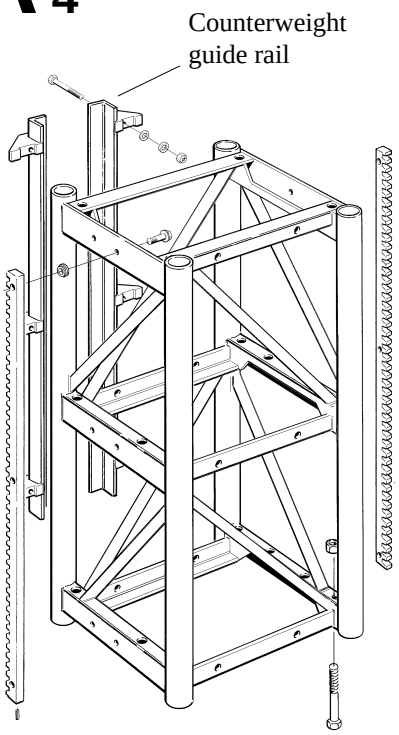
Ground enclosure

The foundation is enclosed by 2500 mm **(8'- 2 1/2")** 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 dual car set ups. It can also be changed so that another SCANDO 650 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.
Doors can be positioned on any of the three sides away from mast.

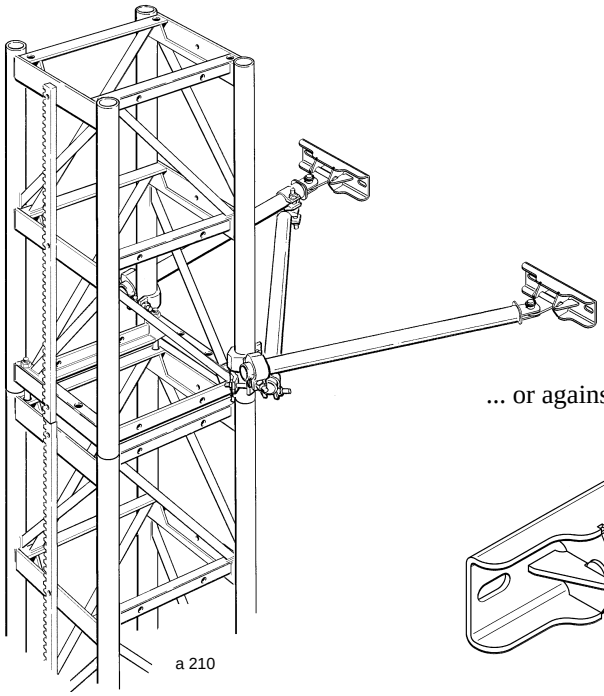


Hoist mast

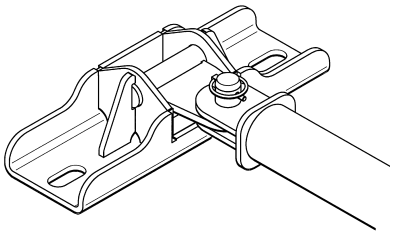
The square mast c/c 650 x 650 mm **(2'- 1 1/8" x 2'- 1 1/8")** is the mainstay of the SCANDO 650 access system. The mast is constructed of tubes and frames of high tensile steel and fabricated in lenghts of 1508 mm **(4'- 11 3/8")**. Each section is provided with one or two bolted rack(s) module 5 and the sections are bolted together with bolts and nuts.
The four guiding tubes and possibilities with two racks give dual car set up advantages. Counterweight guide rail can be bolted to all mast sections.

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.

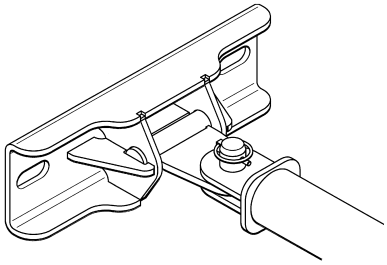
Mast sections and mast ties are hot dipped galvanized with the exception of the mast section rack.



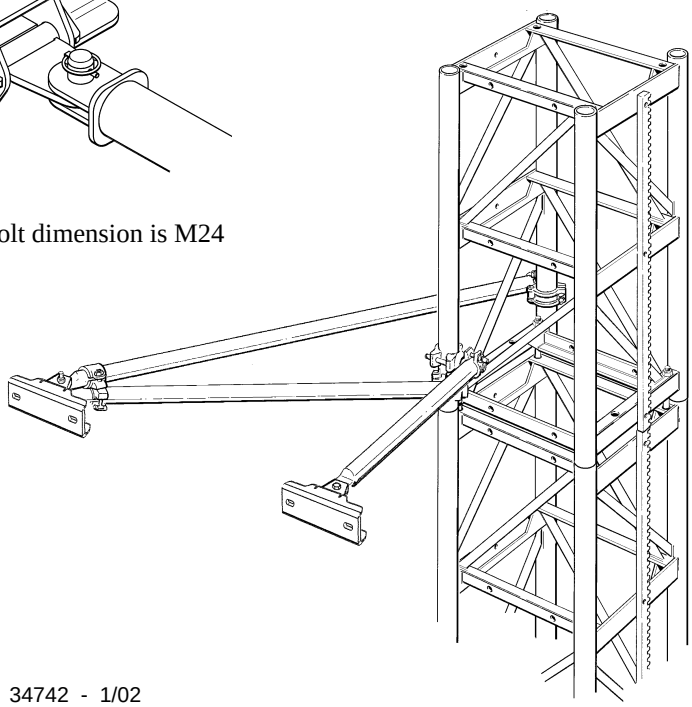
Corresponding wall
bracket can be installed
either on slab ...



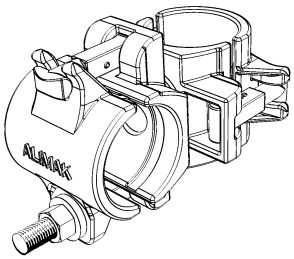
... or against wall



Wall bracket bolt dimension is M24

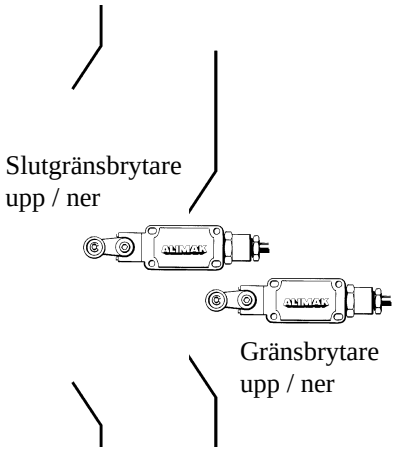


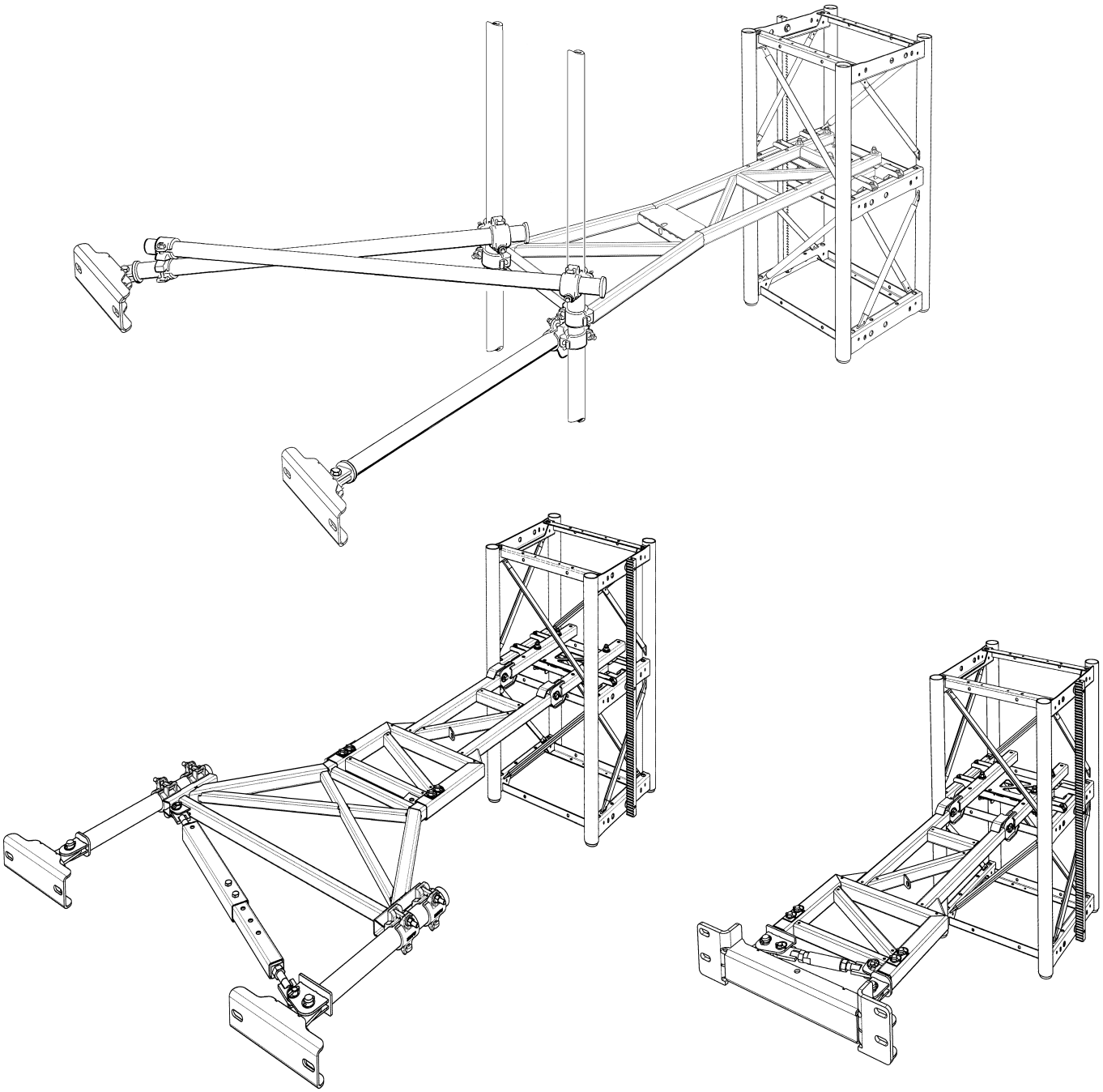
Alimak original dia. 76 mm
pivoted tube coupler



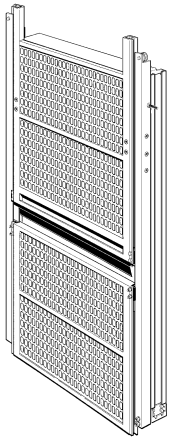
The hoist stops automatically at the top and bottom by means of cams attached to the hoist mast. The cams activate the normal limit switches located on the hoist car. Additionally there is a final limit switch activated by separate cams at the top and bottom of the hoistway.

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





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.

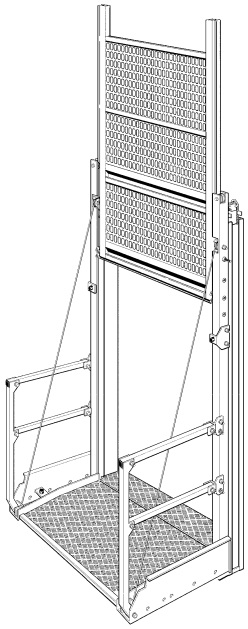
Individually adjustable ball bearing mounted guide roller assemblies guide the car on the mast.

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.

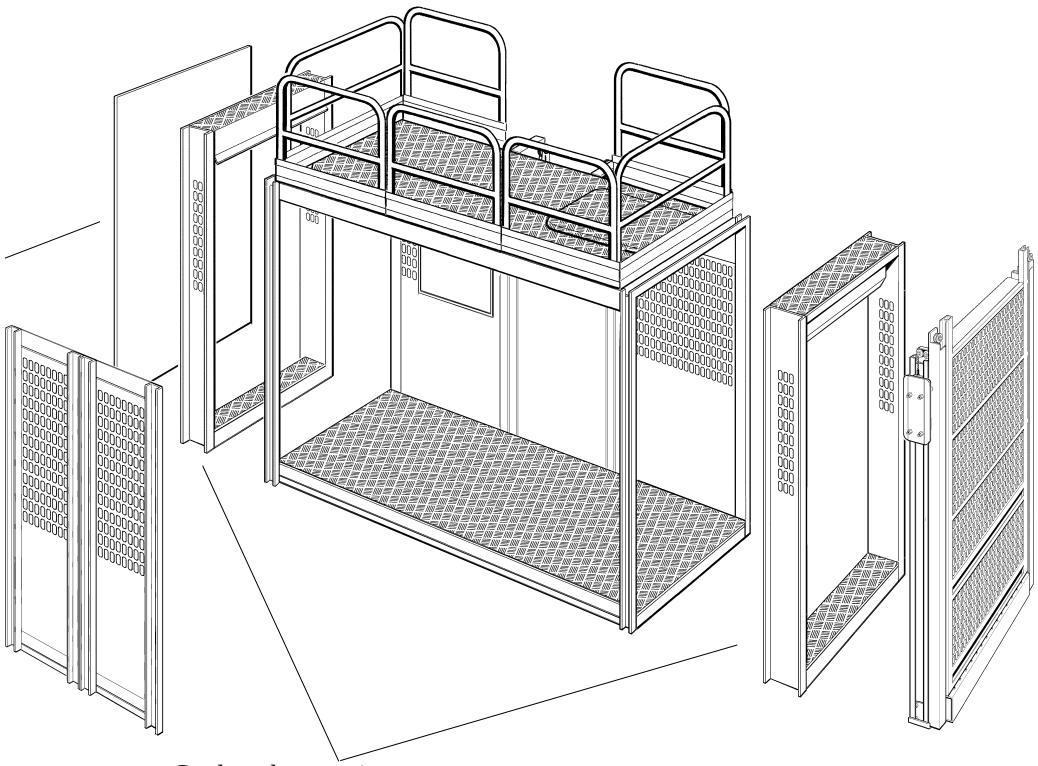
The car has mechanically locked and electrically monitored vertical guided entrance and exit doors.
The doors are modular for flexibility and in the SCANDO 650 access program, 4 different car doors are available. The lightweight moving door blades consist of aluminium profiles for ease of operation.
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 . . .



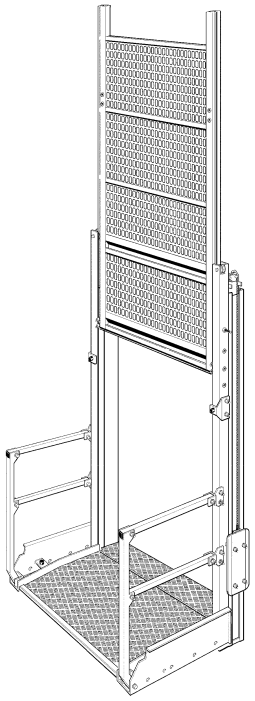
Manual folding load ramp



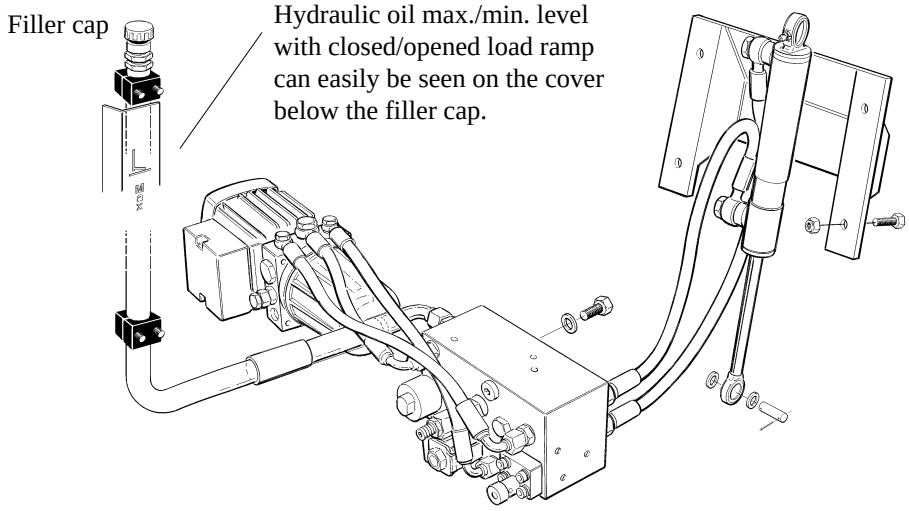
. . . or fully automatic electro hydraulic folding load ramp.

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.

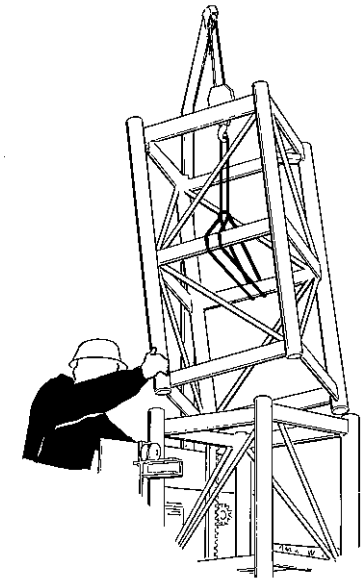


Fully automatic electro-hydraulic folding load ramp



A 2.5 m **(8'- 2 1/2")** wide full height entrance door with C-side location can be furnished for the 2.8 m car base structure and a 3.2 m **(10'- 6")** wide full height entrance door with C-side location for the 3.5 m car base structure. Doors of C-location are always of type vertical sliding.

Note: If a 3rd car door is to be added after a while, the ALC II floor call selecting system must be accomplished with an ALC II expanding unit – if this floor call selecting system occurs.



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.

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 0.35 m **(1'- 1 3/4")**. Maximum 2 pcs./car.

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

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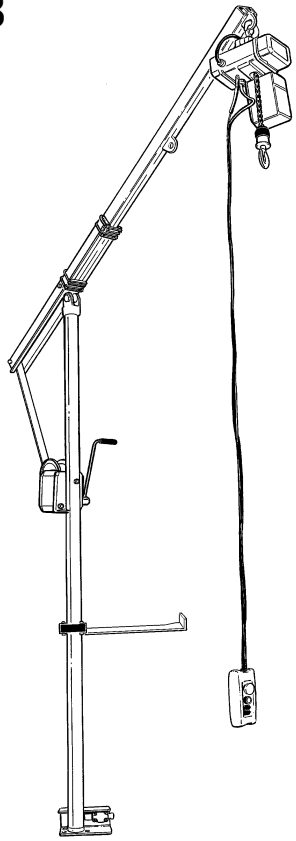


Erection crane, optional equipment

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

Payload capacity 250 kg **(550 lbs.)** = jib radius 570 – 1060 mm.
(1'- 10 1/2" – 3'- 5 3/4")
Payload capacity 170 kg **(370 lbs.)** = jib radius 350 – 1700 mm.
(1'- 1 3/4" – 5'- 7")

Weight approx. 40 kg **(88 lbs.)**, exclusive of electric winch.

Electric winch, 3 phase 440V, weight 13 kg **(29 lbs.)**.

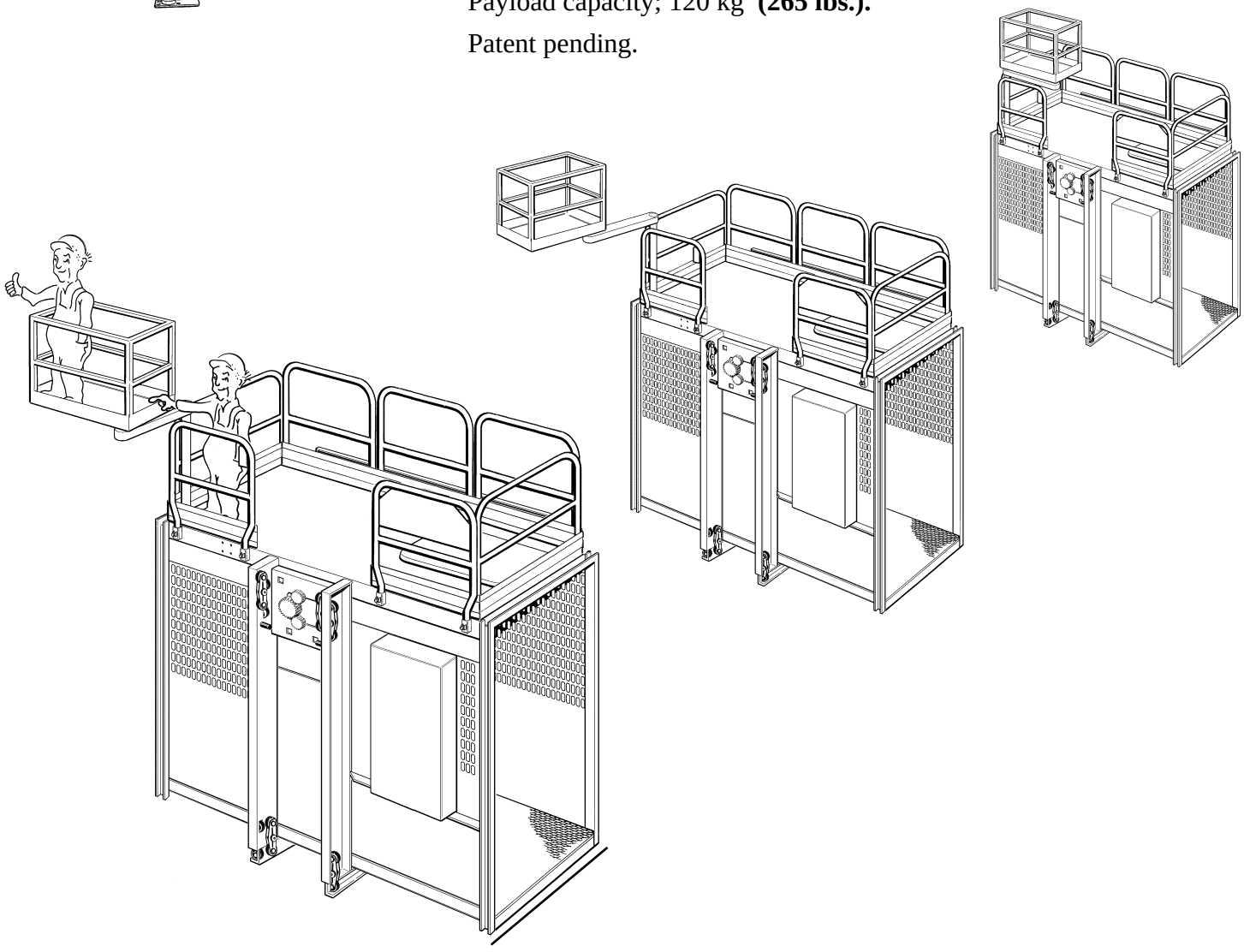
Movable erection platform, optional equipment

A manual movable erection platform to ease the mast section assembly and the mast tie installation can be furnished with the SCANDO 650 construction hoists.

Platform length adapted for different car lengths.
The platform reach is approximately 2 times its own length.

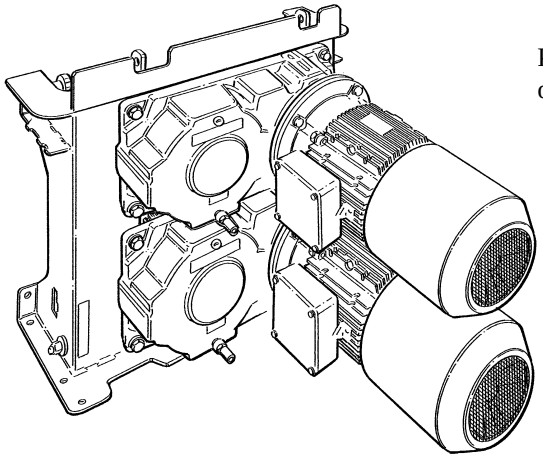
Payload capacity; 120 kg **(265 lbs.).**

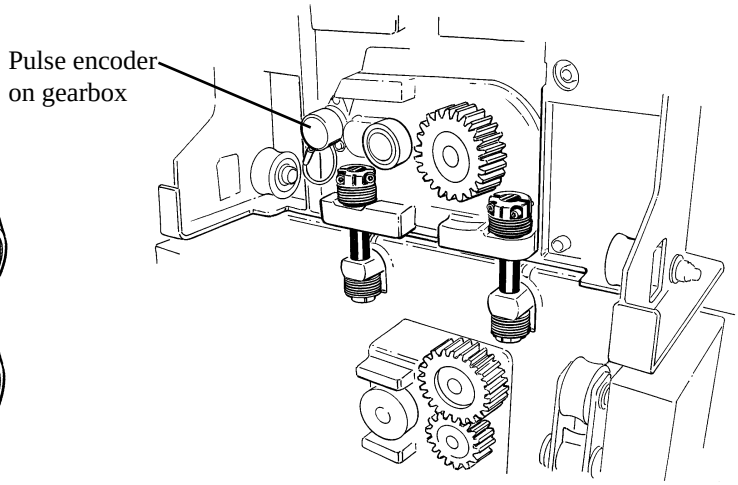
Patent pending.



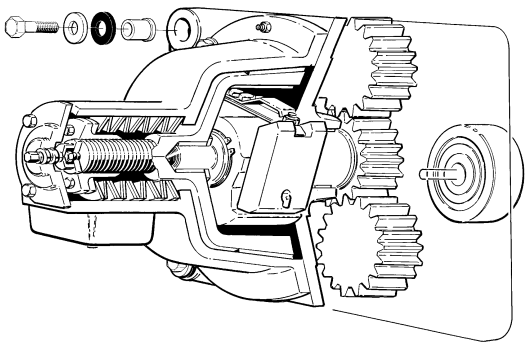
Drive unit

A compact unit with two or three 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).





The safety device is completely independent from the drive unit and installed inside the car with two pinions 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.

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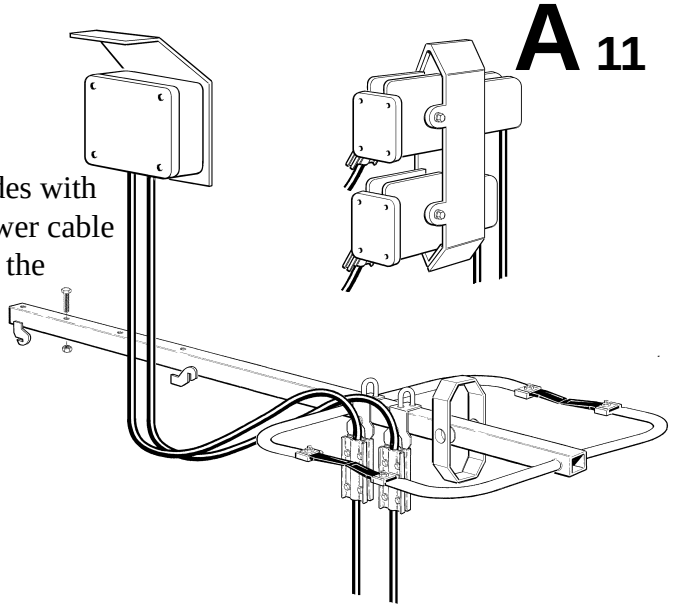
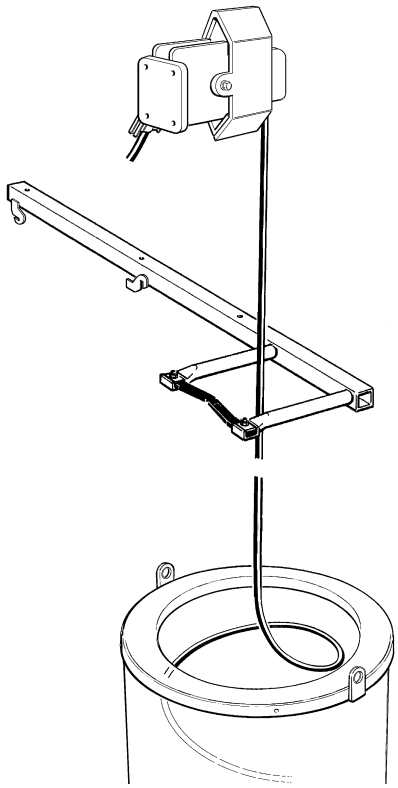
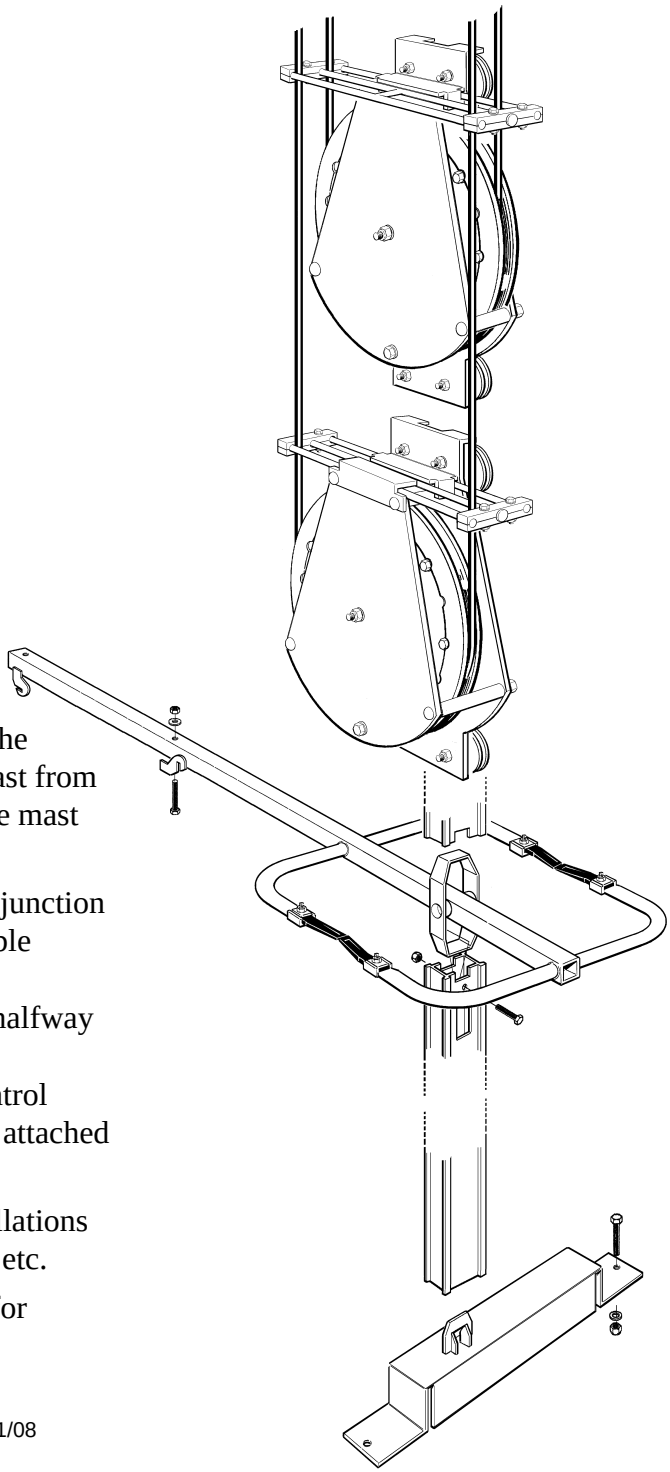
Cable guiding device

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

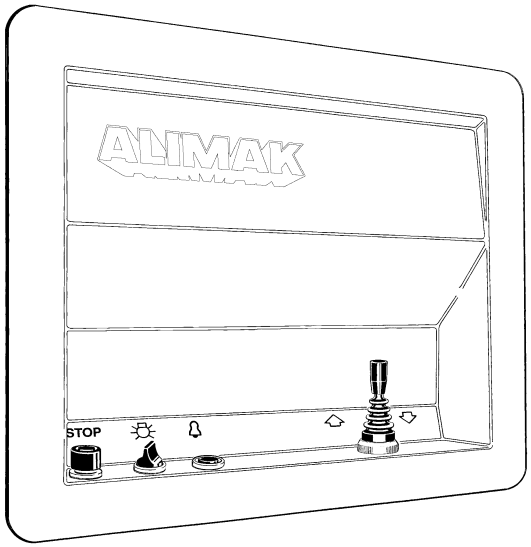
To be able to control the cables and to overcome the voltage drop in the power cable at high lifting heights, the power cable and control cable are fixed firmly to the mast from ground level to a junction box in the mast halfway to the mast top.

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.

Refer to chapter I regarding dimensioning hoist cables for further information.

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

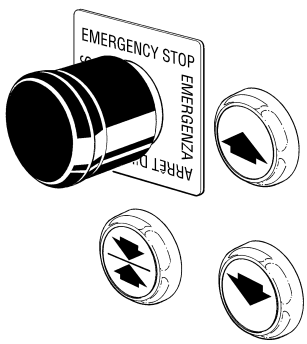
The ALC is a microprocessor based control with a main soft-ware and two different control systems available:

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.

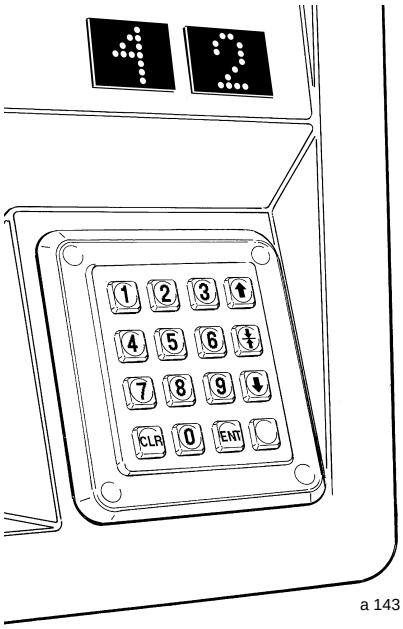
Calls/destinations from the landings transmit on three 230VAC control wires between the hoist and the landings through the base panel. A destination order from the hoist has three seconds priority over landing calls.



Push-buttons at ground landing

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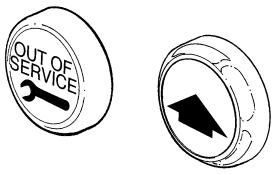
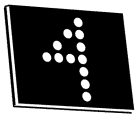
Each landing is provided with two Call buttons, one for Up and Down resp.



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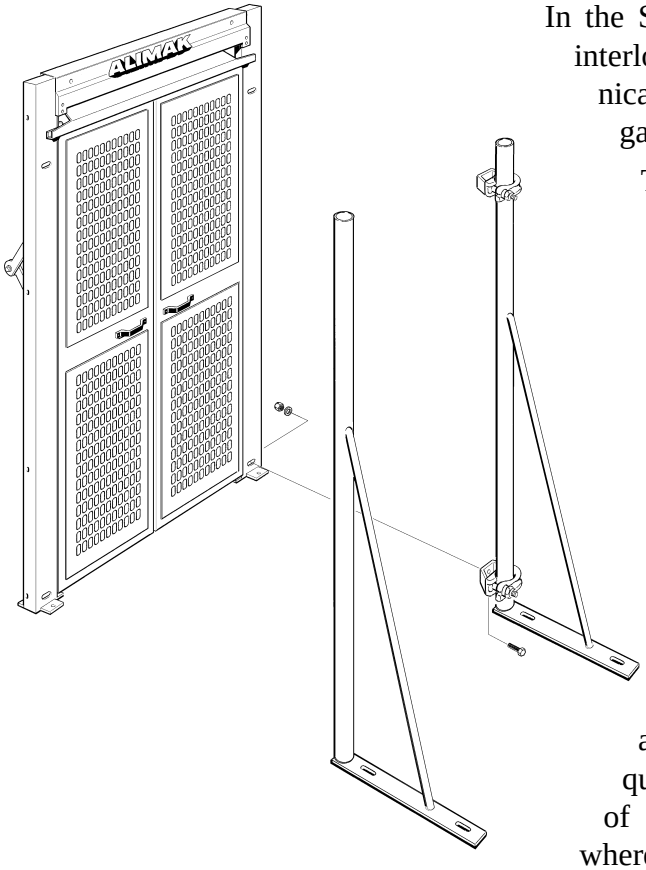
For more detailed information regarding the ALC II system and corresponding landing equipment, refer to separate manual P/N 9081541-107.

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.

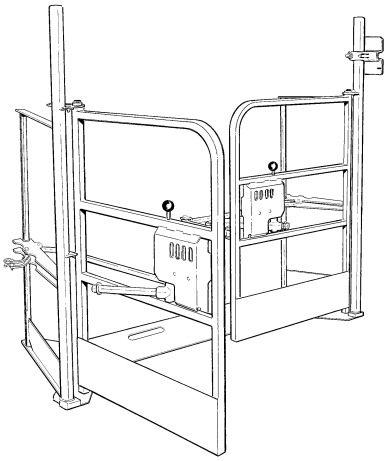
The landing equipment can be installed by connecting them to special brackets at the landings, in openings, on projections or facade scaffoldings. It can also be installed on vertical scaffold pipes parallel to the mast from the ground enclosure to the mast top.

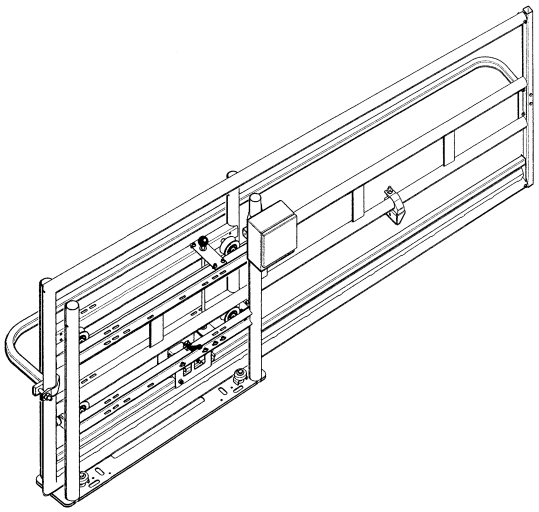
The electric interlocking of the landing equipment is connected to the control system of the hoist (stop circuit).

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.

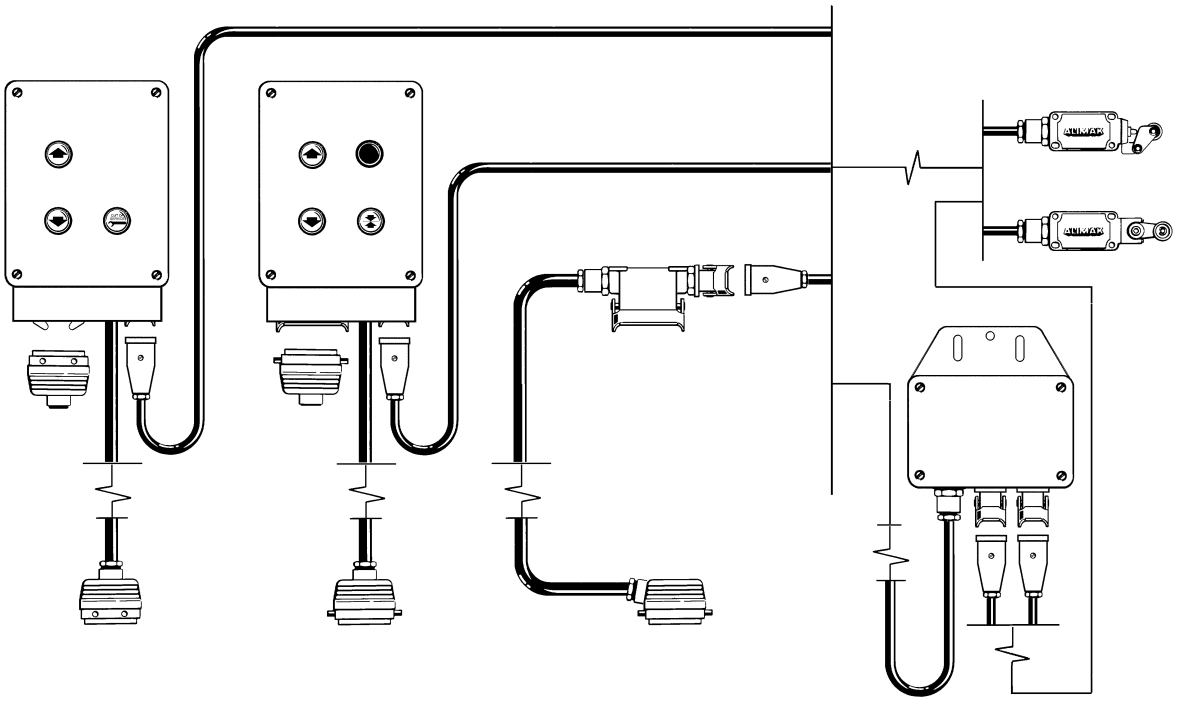
The equipment is provided with a 6-pole socket outlet and plug on the connection cable in order to achieve a quick, secure and proper connection to the control system of the hoist. 10-pole socket outlet and plug alternately, where ALC floor call selecting system occurs.

The electric equipment is delivered with connection cable in lengths of 7 or 15 meter **(23 or 49 ft.).**

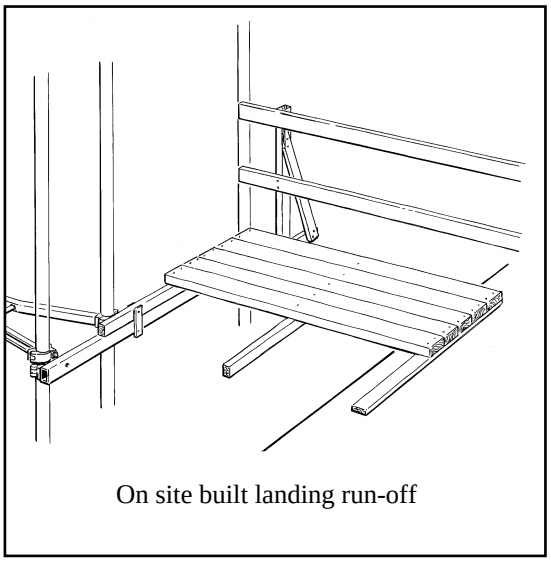




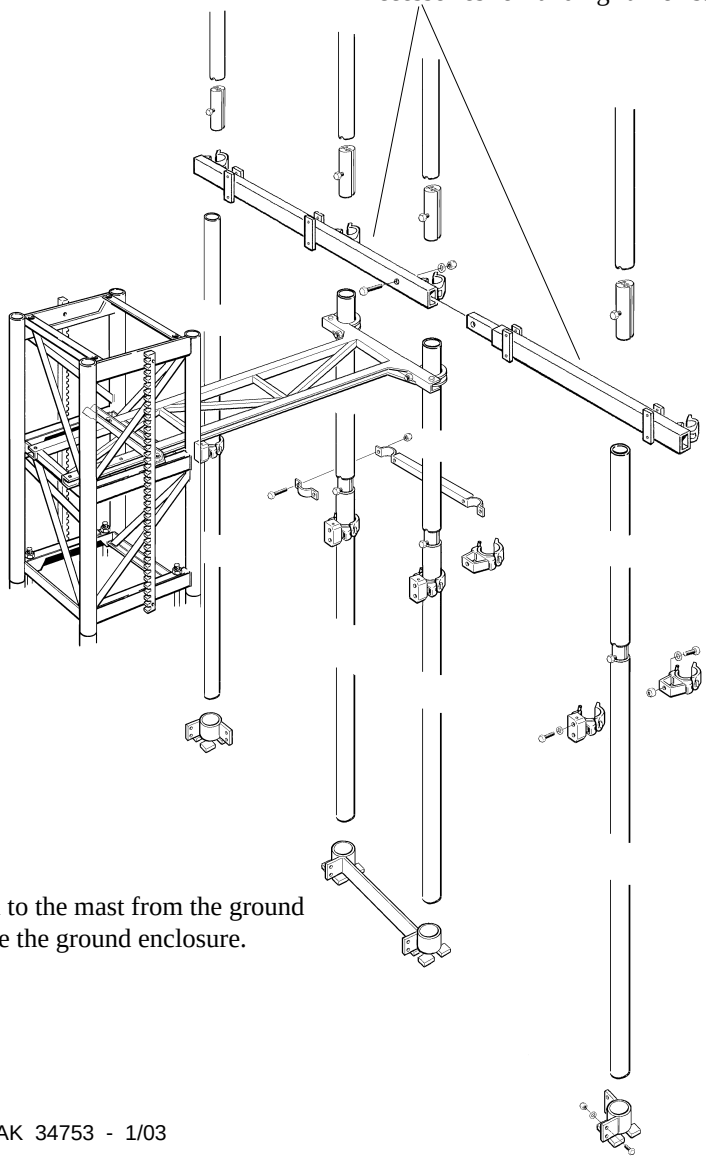
Included electric material is of protection class IP 54 or higher.



Accessories for landing run-offs.



On site built landing run-off



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

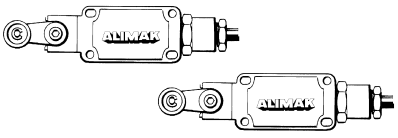
Safety equipment

Automatic stop at top and bottom landings

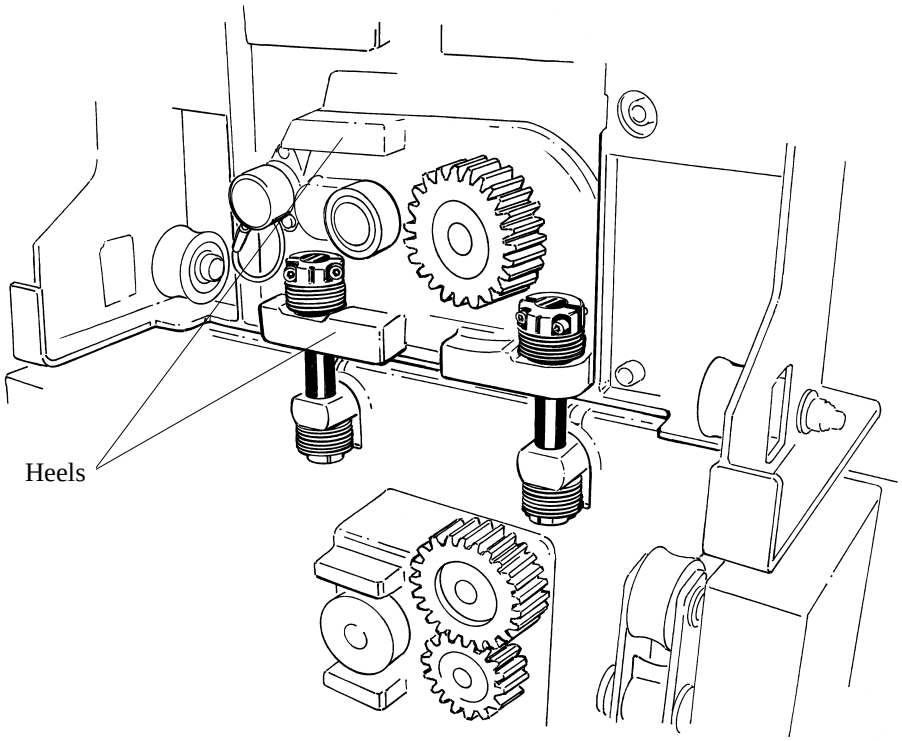
At top and bottom landings, limit cams are mounted on the mast. These cams activate the limit switches, which automatically stop the hoist. The functions for the Up and Down limit switches are backed up by a final limit switch with its own cams on the mast at top and bottom landings. This switch provides 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 car comes off.

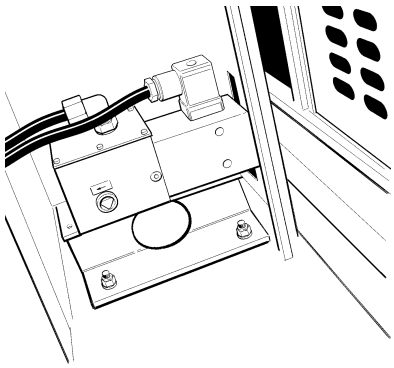
Safety hooks

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.

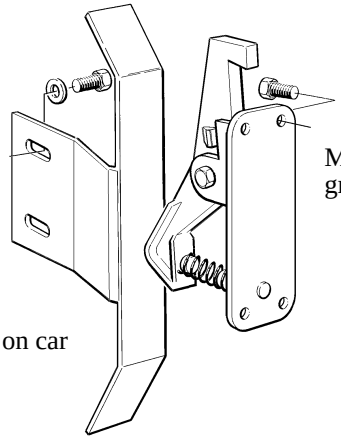
Door interlocks on hoist and landing doors

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.

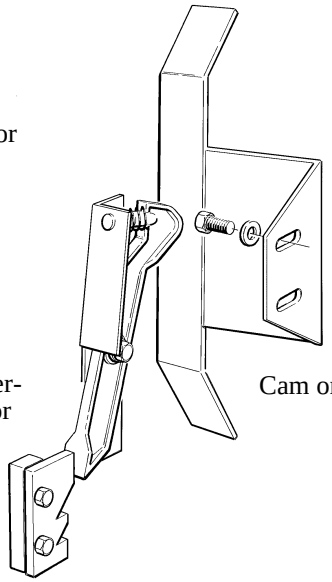


Car door lock of solenoid type with integrated electric switch



Mechanical interlock for ground enclosure door

Cam on car



Mechanical inter-lock for car door

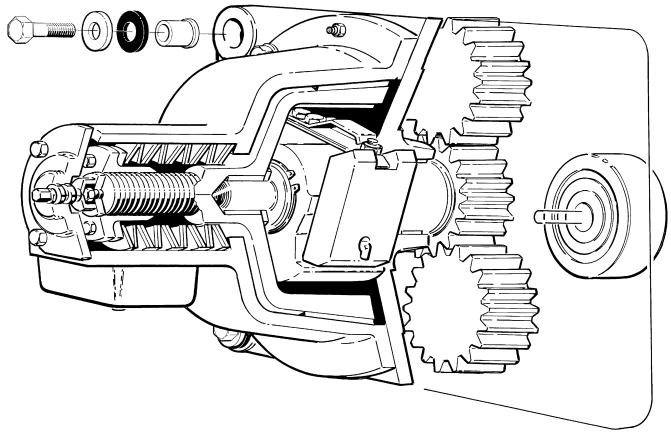
Cam on ground enclosure

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.



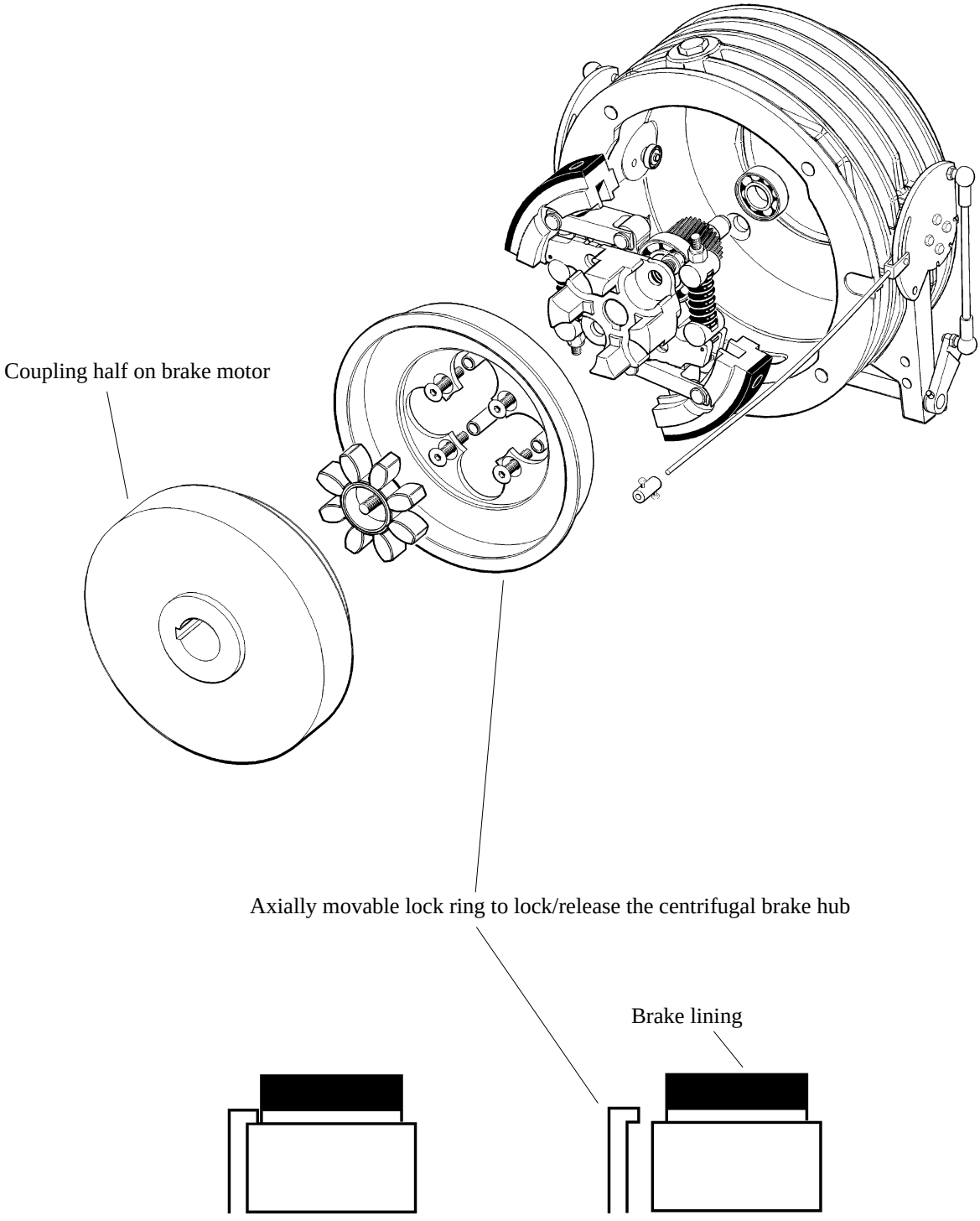
Phase failure relay

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

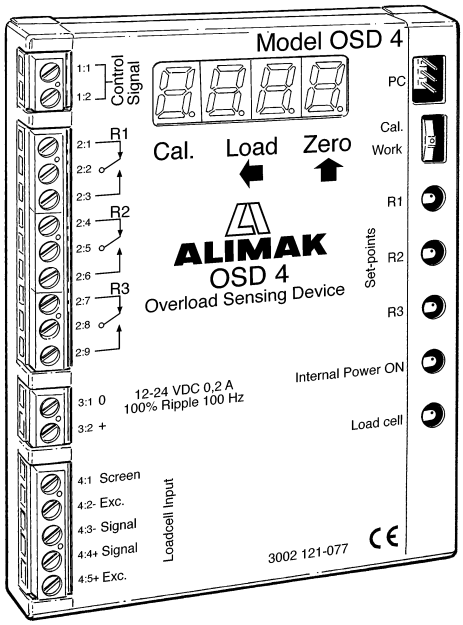
When lowering by gravity in case of a power failure, a centrifugal brake incorporated into the drive machinery will maintain a constant speed preventing the car from reaching governor tripping speed, and thereby activating the safety device.



Optional Overload Sensing Device

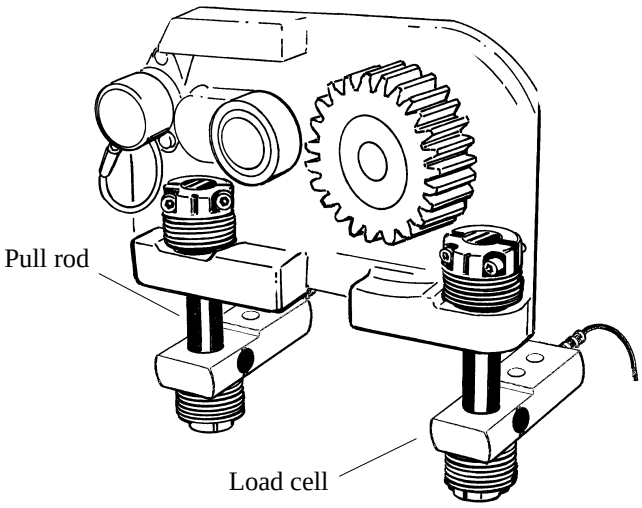
The hoist can be equipped with an overload sensing device. The system indicates when the car is fully loaded and prevents operation in an overload condition.

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

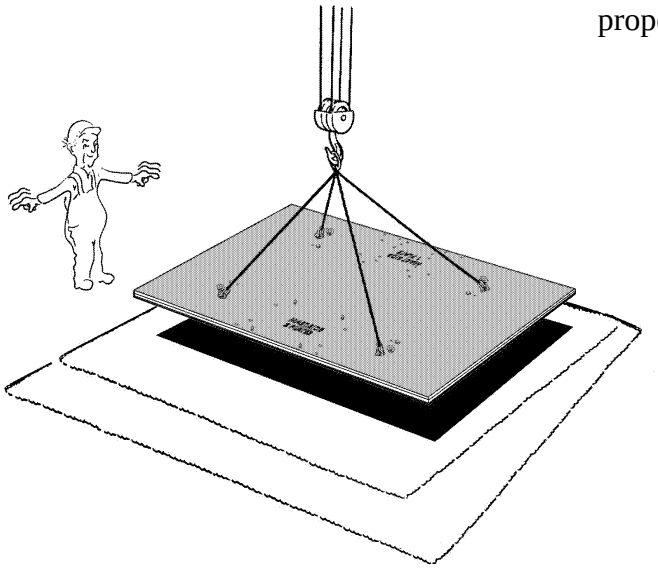
Use of prefabricated sheet steel foundation

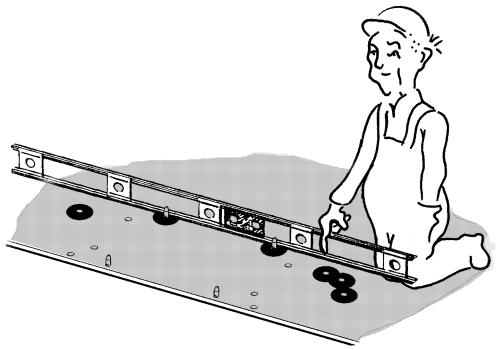
– Furnish a properly sized gravel bed where the base unit is to be installed.

– 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.



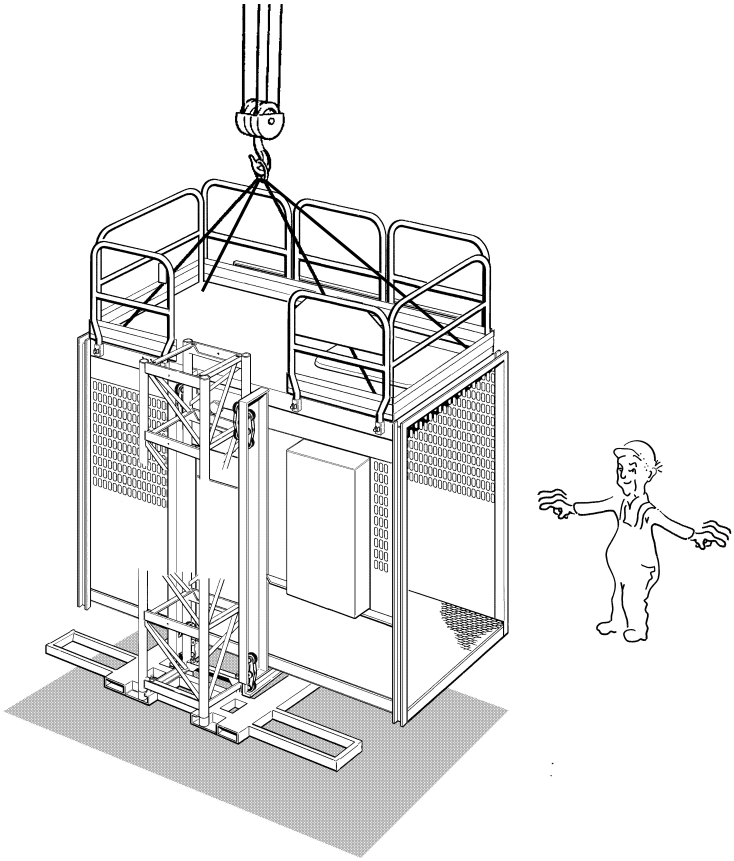


Alimak can supply manufacturing drawings of appropriate steel sheet foundation free of charge.

– 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.

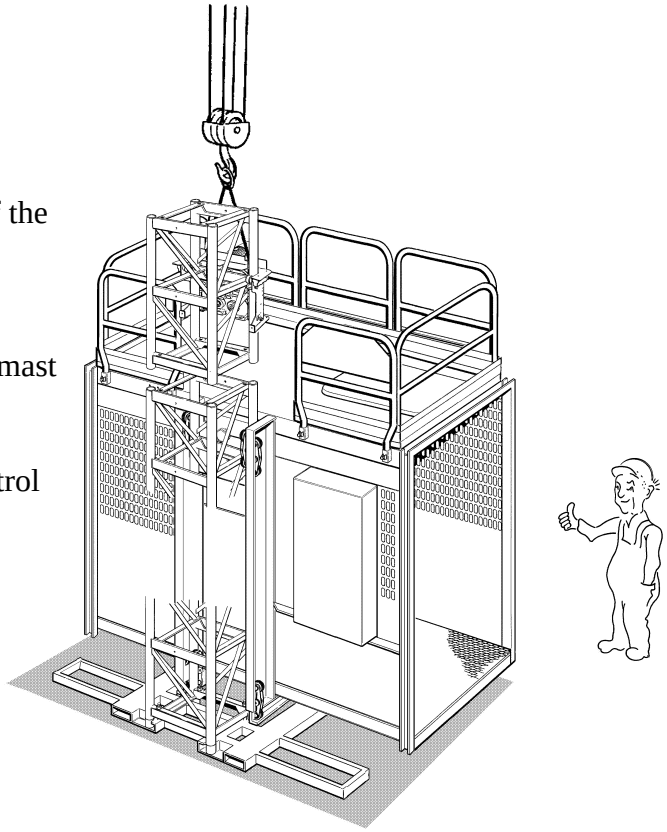
– Lift the base unit above the sheet steel foundation.
  Adjust the position of the base unit and lower it so the guide pins on the sheet steel foundation enter the holes (for the mast sections corner tubes) in the base frame.



– 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.

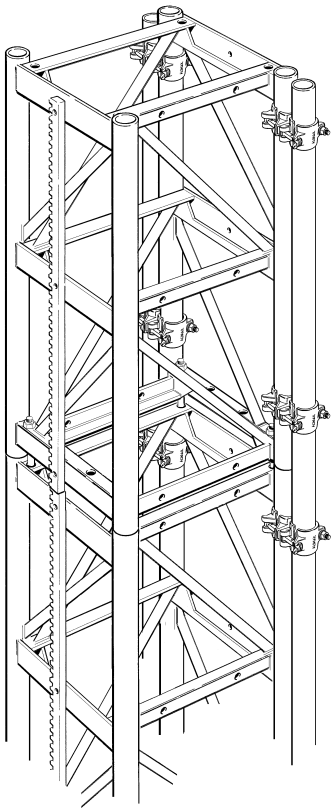


Allowable freestanding heights when using pre-fabricated sheet steel foundation

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				
Hoist installed on 2 pcs steel sheet foundations bolted together				
3.2 m **(10'- 6'')**	2000 kg **(4400 lbs.)**	15 meter **(50 ft.)**, zone C		24 meter **(79 ft.)**
	2000 kg **(4400 lbs.)**	13.5 meter **(45 ft.)**, zone C		
3.9 m **(12'- 9 1/2'')**				
4.6 m **(15'- 1'')**				

**** Maximum allowed freestanding with load reduced to maximum 8 pcs mast sections and 2 people in the car (1160 kg) and wind speed less than 12.5 m/s.***



Methods to increase the freestanding mast height

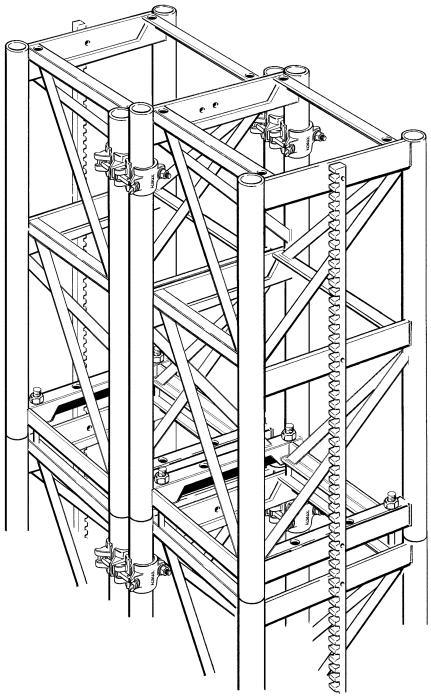
Tubes connected to the steel sheet foundation and assembled with tube couplers to the mast tower's rear mast tubes, up to the 6 meters' **(20 ft.)** level, will allow mast heights according to the following table based on car length and maximum allowable payload.

Reinforcement tubes dia. 76 mm are 3 **(10 ft.)** 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			
3.2 m **(10'- 6'')**	2000 kg **(4400 lbs.)**	22.5 meter, zone C	
3.9 m **(12'- 9 1/2'')**			
4.6 m **(15'- 1'')**			

Another method is to reinforce with a 2nd mast tower.

A concrete slab on the ground is preferable for this type of installation.

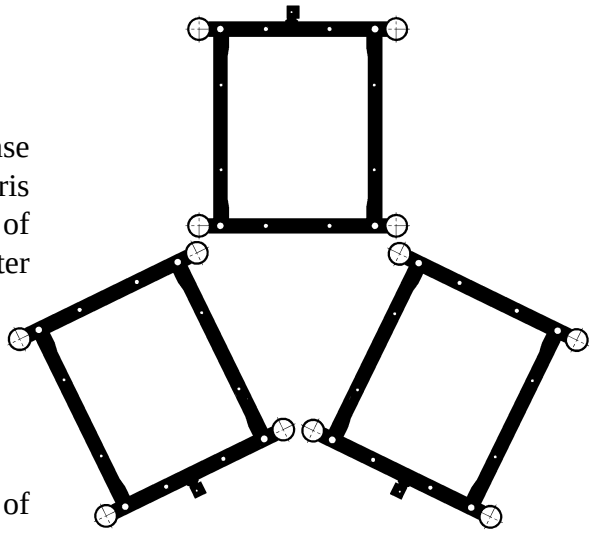


Example:

For a single 3.2 m **(10'- 6")** car with allowable payload capacity 2000 kg **(4400 lbs.)** the maximum freestanding mast height of 30 meter **(100 ft.)** can be reached with 2nd mast tower 20 meter **(60 ft.**) in height;

Estimated concrete slab dimensions:
3.5 x 2.5 meter **(11'- 5 '' x 8'- 5")**.
Concrete volume: 15 m^3 **(20 cu.yds)**.

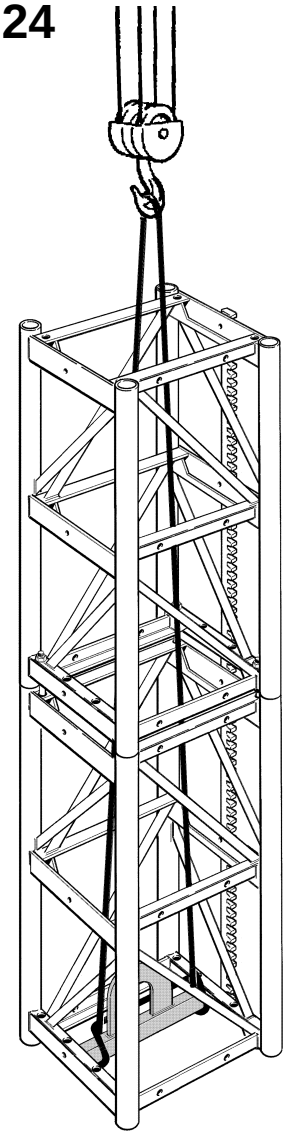
Please contact Alimak Calculation Department for advice.



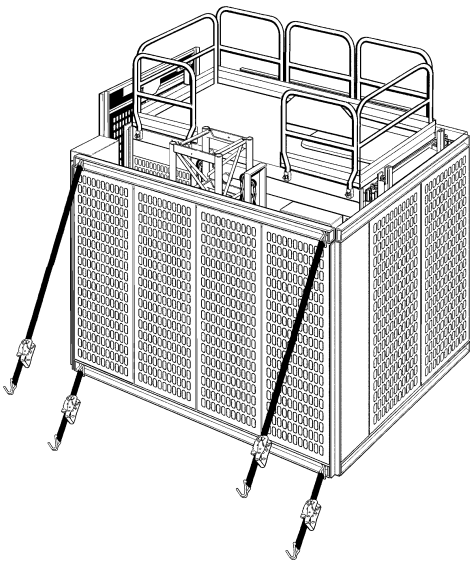
It may be desirable to connect three mast towers to each other. This is a preferable method to achieve greater height to increase the distance to the top tie. (On the Eiffel Tower Project in Paris 55 meter **(180 ft.)** was achieved). By increasing the number of attached towers the overall hoist structure achieves greater rigidity.

A concrete slab on the ground is preferable for this type of installation.

Please contact Alimak Calculation Department for advice.



Tool P/N 9101281-000



Holes in the ground enclosure corners are intended for tightening the base unit with ratcheted tie downs during transportation.

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.

Use of step up transformer

To increase present voltage to the stated required voltage level, an optional step up transformer must be used.

Also the following must be taken into consideration:

– The 400V power outlet on car roof must be replaced with a 500V outlet.
– Ground fault relay must be exchanged
– Control transformer rewired.

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 **(1 in.)** height of the characters.

It is advisable to use pouch 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 **(176 lbs.)** and space 0.2 m^2 **(2.15 sq.ft)** intended for each and every person. (The corresponding average weight is 90.7 kg (**200 lbs.)** 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 2400 kg **(5290 lbs.)** will give allowable no. of passengers inside the car = 40 pcs., with estimated passenger average weight 60 kg **(132 lbs.).**

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

Sign inside the car showing specifications for the particular installation

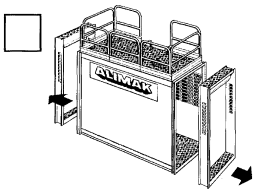
It is possible to write /erase the sign inside the car showing specifications for the particular installation. The sign must be filled in and signed by a person responsible for the entire hoist installation.

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.

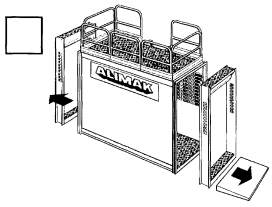
Specifications for this particular installation

Car configuration

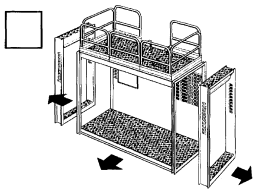
No optional load ramp

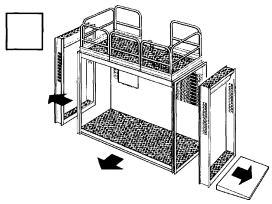


With optional load ramp



car length extended to 3.9 m





The actual car configuration marked [X]

© ALIMAK AB

Date Signature

9101229 -101 A

Freestanding capability bolted to a properly sized prefabricated steel-sheet or a concrete foundation. [ ]

Freestanding height during installation with rated capacity reduced to 8 pcs. mast sections and 2 persons. Wind speed less than 12.5 m/s. (28 mph) [ ]

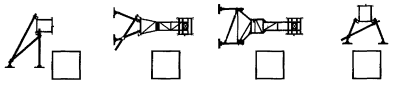
Distance above top mast tie [ ]

Distance between mast ties [ ]

Maximum mast height: [ ]

Mast bolt dimension; dia. 1" UNC
Bolt quality 8.8/ torque 300 Nm (220 lbf x ft)
Mast section P/No. 9092000-sub.

Mast tie type:



Power supply fuses [ ]

Feeding power cable [ ]

Please read the complete manual before operating this machine

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.
- Wide extra gate on the ground enclosure's C-side.
- 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.
- Wide extra gate on the car's C-side.
- With or without step-up transformer or both step-up and step down transformer.

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. 1202, 1203, 1204 and 1205

Scando 650 DOL /32 – 39 ext. & /39

Small car with safety railings	991 kg
Dual motor machinery	495 kg
Entrance gate	155 kg
Exit gate	133 kg

∑ = 1774 kg **(min.)** in round figures **1800 kg**

Gate with additional load ramp + 147 kg	147 kg	(1891)		
Car extension parts (90 + 90 kg)	180 kg	(2071)	(1924)	
Wide extra car C-gate	190 kg	(2261)	(2114)	(1934)

∑ = 2261 kg **(max.)**
in round figures **2300 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 trailing cable excl.) = **2800 kg (min.)**	3287 kg	(2261 - 1774 + 2800)		
Extra rack for dual car installation 2 pcs. x 17 kg	34 kg	(3321)		
Extra (2nd) ground enclosure gate	180 kg			
(Wall panel reduction = 28 kg/m x 1.5 m)	- 42 kg	(3459)	(3425)	
Ground enclosure extension adapted for extended car = 2 pcs. x 0.35 x 28 kg/ m	20 kg	(3479)	(3445)	
C-gate 2.5 m wide (page B10)	370 kg			
(Wall panel reduction = 28 kg/m x 3.6 m)	- 101 kg	(3748)	(3714)	

∑ = 3748 kg **(max.)**
in round figures **3750 kg**

Example:

Car
weight specifications from the data sheets respectively
No. 1249 and 1250

Scando 650 DOL /39

Large car with safety railings	1116 kg
Dual motor machinery	495 kg
Entrance gate	155 kg
Exit gate	133 kg

$\sum$ = 1899 kg **(min.)** in round figures **1900 kg**

Gate with additional load ramp + 147 kg	147 kg	(2046)	
Wide extra car C-gate	190 kg	(2236)	(2119)

$\sum$ = 2236 kg **(max.)**
in round figures **2250 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 trailing cable excl.	= **3000 kg (min.)**	3337 kg	(2236 - 1899 + 3000)	
Extra rack for dual car installation 2 pcs. x 17 kg		34 kg	(3371)	
Extra (2nd) ground enclosure gate		180 kg		
(Wall panel reduction = 28 kg/m x 1.5 m)		- 42 kg	(3509)	(3475)
Ground enclosure extension adapted for extended car = 2 pcs. x 0.35 x 28 kg/ m		20 kg	(3529)	(3495)
C-gate 2.5 m wide (page B10)		370 kg		
(Wall panel reduction = 28 kg/m x 3.6 m)		- 101 kg	(3798)	(3764)

$\sum$ = 3798 kg **(max.)**
in round figures **3800 kg**

Example:

Car
weight specifications from the data sheets respectively
No. 1206, 1208, 1210 and 1211

Scando 650 FC /32 – 39 ext. (Dual motor machinery)

Small car with safety railings	991 kg
Dual motor machinery	590 kg
Entrance gate	155 kg
Exit gate	133 kg

$\sum$ = 1869 kg **(min.)** in round figures **1900 kg**

Gate with additional load ramp + 147 kg	147 kg	(2016)		
Car extension parts (90 + 90 kg)	180 kg	(2196)	(2049)	
Wide extra car C-gate	190 kg	(2386)	(2239)	(2049)

$\sum$ = 2386 kg **(max.)**
in round figures **2400 kg**

Base unit

Car + Ground enclosure

Car and ground enclosure with 2 pcs. reinforced mast sections with 1 pce. rack each = **2850 kg (min.)**	3320 kg	(2239 - 1869 + 2850)		
Extra rack for dual car installation 2 pcs. x 17 kg	34 kg	(3254)		
Extra (2nd) ground enclosure gate	180 kg			
(Wall panel reduction = 28 kg/m x 1.5 m)	- 42 kg	(3392)	(3358)	
Ground enclosure extension adapted for extended car = 2 pcs. x 0.35 x 28 kg/ m	20 kg	(3412)	(3378)	
C-gate 2.5 m wide (page B10)	370 kg			
(Wall panel reduction = 28 kg/m x 3.6 m)	- 101 kg	(3681)	(3647)	

$\sum$ = 3681 kg **(max.)**
in round figures **3700 kg**

Example:

Car
weight specifications from the data sheets respectively
No. 1212, 1213, 1214 and 1215

Scando 650 FC /32 – 39 ext. (Triple motor machinery)

Small car with safety railings	991 kg
Triple motor machinery	890 kg
Entrance gate	155 kg
Exit gate	133 kg

∑ = 2169 kg **(min.)** in round figures **2200 kg**

Gate with additional load ramp + 147 kg	147 kg	(2316)		
Car extension parts (90 + 90 kg)	180 kg	(2496)	(2349)	
Wide extra car C-gate	190 kg	(2686)	(2539)	(2359)

∑ = 2686 kg **(max.)**
in round figures **2700 kg**

Base unit

Car + Ground enclosure

Car and ground enclosure with 2 pcs. reinforced mast sections with 1 pce. rack each = **3250 kg (min.)**	3767 kg	(2686 - 2169 + 3250)		
Extra rack for dual car installation 2 pcs. x 17 kg	34 kg	(3801)		
Extra (2nd) ground enclosure gate	180 kg			
(Wall panel reduction = 28 kg/m x 1.5 m)	- 42 kg	(3939)	(3905)	
Ground enclosure extension adapted for extended car = 2 pcs. x 0.35 x 28 kg/ m	20 kg	(3959)	(3925)	
C-gate 2.5 m wide (page B10)	370 kg			
(Wall panel reduction = 28 kg/m x 3.6 m)	- 101 kg	(4228)	(4194)	

∑ = 4228 kg **(max.)**
in round figures **4250 kg**

Example:

Car
weight specifications from the data sheets respectively
No. 1218, 1219, 1220, 1221, 1294 and 1295

Scando 650 FC /39 – 46 ext. (3 motor machinery)

Large car with safety railings	1116 kg
Triple motor machinery	890 kg
Entrance gate	155 kg
Exit gate	133 kg

∑ = 2294 kg **(min.)** in round figures **2300 kg**

Gate with additional load ramp + 147 kg	147 kg	(2441)		
Car extension parts (90 + 90 kg)	180 kg	(2621)	(2474)	
Wide extra car C-gate	210 kg	(2831)	(2684)	(2474)

∑ = 2831 kg **(max.)**
in round figures **2850 kg**

Base unit

Car + Ground enclosure

Car and ground enclosure with 2 pcs. reinforced mast sections with 1 pce. rack each = **3450 kg (min.)**	3987 kg	(2831 - 2294 + 3450)		
Extra rack for dual car installation 2 pcs. x 17 kg	34 kg	(4021)		
Extra (2nd) ground enclosure gate	180 kg			
(Wall panel reduction = 28 kg/m x 1.5 m)	- 42 kg	(4159)	(4125)	
Ground enclosure extension adapted for extended car = 2 pcs. x 0.35 x 28 kg/ m	20 kg	(4179)	(4145)	
C-gate 3.2 m wide (page B10)	415 kg			
(Wall panel reduction = 28 kg/m x 4.3 m)	- 121 kg	(4473)	(4439)	
Step-up trafo (inside the car during transport)	300 kg	(4773)	(4739)	

∑ = 4773 kg **(max.)**
in round figures **4800 kg**

Example:

Car

weight specifications from the data sheets respectively
No. 1294, 1295, 1307 and 1308

Scando 650 FC-S /39 – 46 ext. (SU/SD)

Large car with safety railings	1116 kg
Triple motor machinery	1200 kg
Entrance gate	155 kg
Exit gate	133 kg

∑ = 2604 kg **(min.)** in round figures **2600 kg**

Gate with additional load ramp + 117 kg	117 kg	(2721)		
Car extension parts (90 + 90 kg)	180 kg	(2901)	(2784)	
Wide extra car C-gate	210 kg	(3111)	(2994)	(2814)
Step down transformer	300 kg	(3411)	(3294)	(3114)

∑ = 3411 kg **(max.)**

in round figures **3450 kg**

Base unit

Car + Ground enclosure

Car and ground enclosure with 2 pcs. reinforced mast sections with 1 pce. rack each = **4050 kg (min.)**	4857 kg	(3411 - 2604 + 4050)		
Extra rack for dual car installation 2 pcs. x 17 kg	34 kg	(4891)		
Extra (2nd) ground enclosure gate	180 kg			
(Wall panel reduction = 28 kg/m x 1.5 m)	- 42 kg	(5029)	(4995)	
Ground enclosure extension adapted for extended car = 2 pcs. x 0.35 x 28 kg/ m	20 kg	(5049)	(5015)	
C-gate 3.2 m wide (page B10)	415 kg			
(Wall panel reduction = 28 kg/m x 4.3 m)	- 121 kg	(5343)	(5309)	
Step-up trafo (inside the car during transport)	300 kg	(5643)	(5609)	

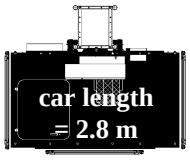
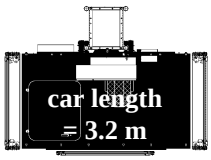
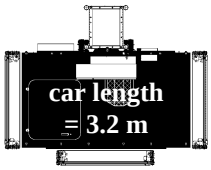
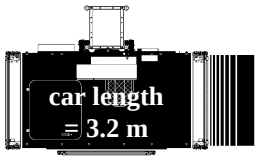
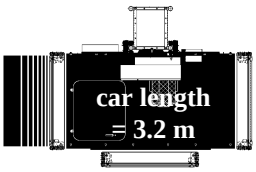
∑ = 5643 kg **(max.)**

in round figures **5650 kg**

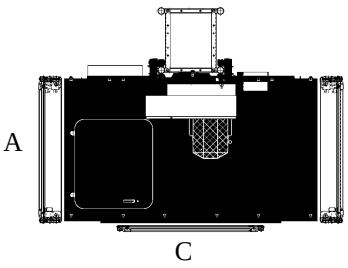
Product range;
Car length 2.8 – 3.2 m ..... **B 1**
Car extended, length 3.5 – 3.9 m ..... **B 2**
Car length 3.5 – 3.9 m ..... **B 3**
Car extended, length 3.9 – 4.6 m ..... **B 4**

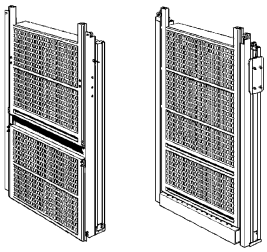
Technical data sheet ..... **B 6**
Dimensions ..... **B 7**
Tie distance and overhang ..... **B 14**
Lubrication and lubrication quantities ..... **B 14**
Electric circuit diagram ..... **B 14**
Location of landing door/gate ..... **B 15**
Tightening torque ..... **B 17**

Product range, car length 2.8 – 3.2 m

Car configuration	50 Hz 2 x 11 kW DOL 0.6 m/s	60 Hz 2 x 11 kW DOL 0.6 m/s	Power / Speed 2 x 11 kW FC 0.7 m/s	2 x 11 kW FC 0.9 m/s	3 x 11 kW FC 0.9 m/s	3 x 11 kW FC 1.1 m/s
			Load capacity			
C10 	2200/2500 kg	2900 kg	2300/2700 kg	1300/200 kg	3100/3200 kg	2100/2700 kg
C22 	2100/2400 kg or 24 pers. No. 1202	2600 kg or 24 pers. No. 1204	2100/2400 kg or 24 pers. No. 1206	1200/1900 kg or 24 pers. No. 1210	2900/3200 kg or 29 pers. No. 1212	1900/2500 kg or 29 pers. No. 1214
C23 	2000/2300 kg or 24 pers. No. 1202	2500 kg or 24 pers. No. 1204	2000/2300 kg or 24 pers. No. 1206	1100/1800 or 24 pers. No. 1210	2800/3200 kg 24 pers. No. 1212	1800/2400 kg or 24 pers. No. 1214
C25 	1900/2300 kg or 24 pers. No. 1202	2400 kg or 24 pers. No. 1204	2000/2200 kg or 24 pers. No. 1206	1000 /1700 kg or 24 pers. No. 1210	2800/3200 kg or 24 pers. No. 1212	1800/2400 kg or 24 pers. No. 1214
 C26	1900/2200 kg or 22/24 pers. No. 1202	2200 kg or 24 pers No. 1204	1900/2000 kg or 24 pers. No. 1206	900/1700 kg or 24 pers. No. 1210	2700/3200 kg or 24 pers. No. 1212	1700/2300 kg or 24 pers. No. 1214

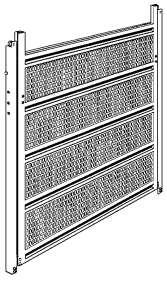
Click applicable datasheet No. above





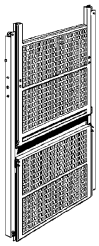
Vertical full height entrance door or exit door in two parts

possible location A, B or C



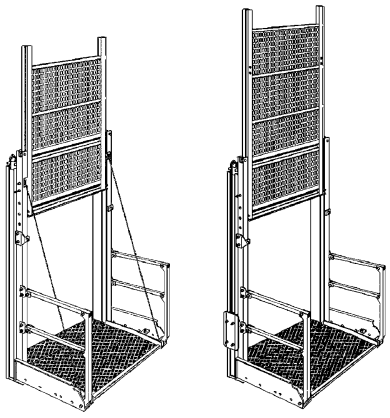
Vertical ”slim” full height entrance door width 2.5 m

possible location A



Vertical ”slim” exit door in two parts, width 1.5 m

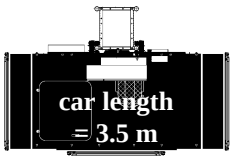
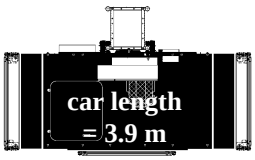
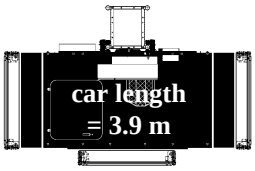
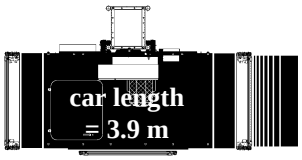
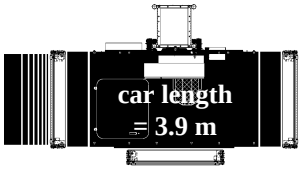
pos. location CA, CB or CC



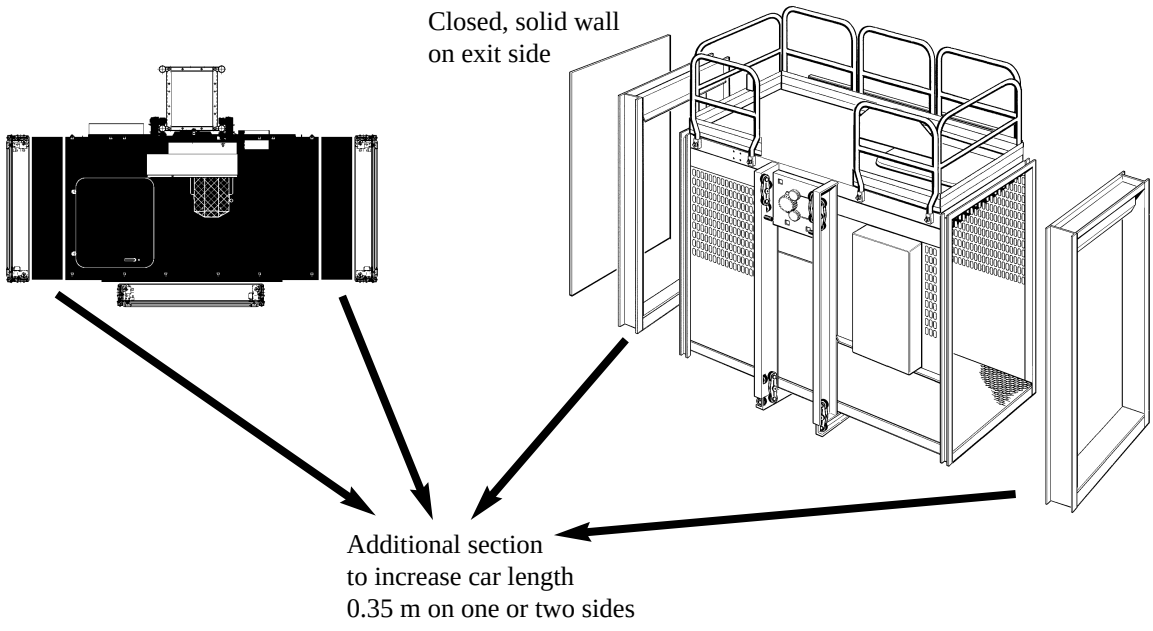
Exit door combined with optional electric / hydraulic or manual operated load ramp.

possible location A, B or C

Product range, extended car length 3.5 – 3.9 m

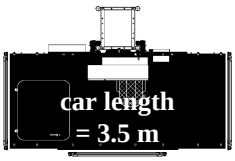
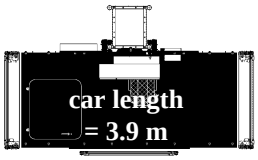
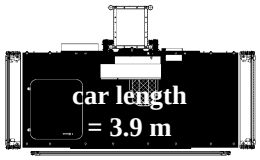
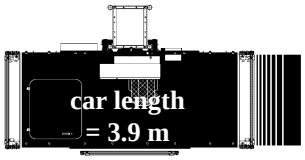
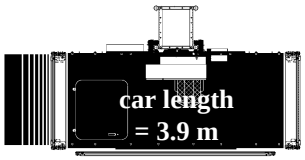
Car configuration	50 Hz 2 x 11 kW DOL 0.6 m/s	60 Hz 2 x 11 kW DOL 0.6 m/s	Power / Speed 2 x 11 kW FC 0.7 m/s	2 x 11 kW FC 0.9 m/s	3 x 11 kW FC 0.9 m/s	3 x 11 kW FC 1.1 m/s
			Load capacity			
C30 	2000/2400 kg	2600 kg	2100/2400 kg	1100/1800 kg	2900/3200 kg	1900/2500 kg
C42 	1900/2200 kg or 24 pers. No. 1203	2300 kg or 24 pers. No. 1205	1900/2100 kg or 24 pers. No. 1208	1000/1700 kg or 24 pers. No. 1211	2700/3200 kg or 29 pers. No. 1213	1700/2300 kg or 29 pers. No. 1215
C43 	1800/2100 kg or 22/24 pers No. 1203	2100 kg or 24 pers. No. 1205	1800/1900 kg or 22 pers. No. 1208	900/1600 kg or 24 pers. No. 1211	2600/3200 kg or 29 pers. No. 1213	1600/2200 kg or 29 pers. No. 1215
C45 	1800/2000 kg or 22/24 pers No. 1203	2000 kg or 24 pers. No. 1205	1800 kg or 22 pers. No. 1208	800/1600 kg or 24 pers. No. 1211	2600/3200 kg or 29 pers. No. 1213	1600/2200 kg or 29 pers. No. 1215
C46 	1700/1900 kg or 21 pers. No. 1203	1900 kg or 24 pers. No. 1205	1700 kg or 20 pers. No. 1208	800/1500 kg or 24 pers. No. 1211	2500/3200 kg or 29 pers. No. 1213	1500/2100 kg or 29 pers. No. 1215

Note: the doors can be located to meet site requirements.

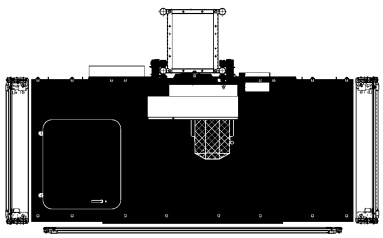


j:\Order\430\43015\Prestanda\PrestandaScando650_Rev_J_xls.

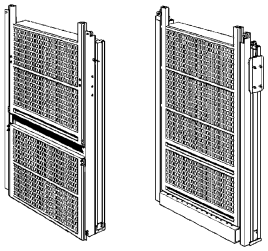
Product range, car length 3.5 – 3.9 m

Car configuration	50 Hz 2 x 11 kW DOL 0.6 m/s	60 Hz 2 x 11 kW DOL 0.6 m/s	Power / Speed 2 x 11 kW FC 0.7 m/s	2 x 11 kW FC 0.9 m/s	3 x 11 kW FC 0.9 m/s	3 x 11 kW FC 1.1 m/s	3 x 22 kW FC 1.3 m/s
				Load capacity			
	NA	NA	NA	NA	NA	NA	NA
C52 	2300 kg or 29 pers. No. 1249	2400 kg or 29 pers. No. 1250	2200 kg or 27 pers. No. 1254	1700 kg or 21 pers. No. 1255	3200 kg or 29 pers. No. 1218	2400 kg or 29 pers. No. 1220	3100 kg or 29 pers. No. 1295 No. 1294
C53 	2200 kg or 27 pers. No. 1249	2200 kg or 27 pers. No. 1250	2000 kg or 25 pers. No. 1254	1700 kg or 21 pers. No. 1255	3200 kg or 29 pers. No. 1218	2300 kg or 29 pers. No. 1220	3000 kg or 29 pers. No. 1295 No. 1294
C55 	2100 kg or 26 pers. No. 1249	2100 kg or 26 pers. No. 1250	1900 kg or 24 pers. No. 1254	1600 kg or 20 pers. No. 1255	3200 kg or 29 pers. No. 1218	2300 kg or 29 pers. No. 1220	3000 kg or 29 pers. No. 1295 No. 1294
 C56	2000 kg or 25 pers. No. 1249	2000 kg or 25 pers. No. 1250	1800 kg or 22 pers. No. 1254	1500 kg or 19 pers. No. 1255	3200 kg or 29 pers. No. 1218	2200 kg or 27 pers. No. 1220	2900 kg or 29 pers. No. 1295 No. 1294

Click applicable datasheet No. above

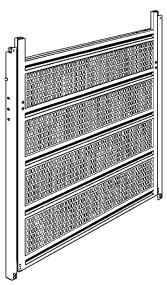
A  B

C



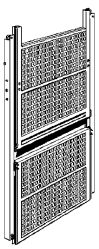
Vertical full height entrance door or exit door in two parts

possible location A, B or C



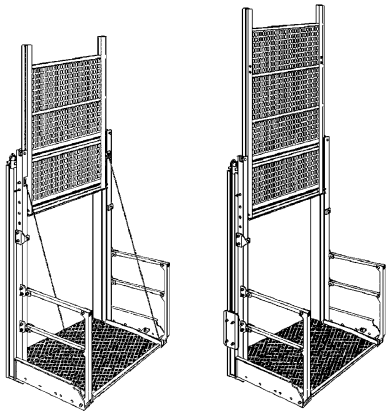
Vertical ”slim” full height entrance door width 3.2 m

possible location A



Vertical ”slim” exit door in two parts, width 1.5 m

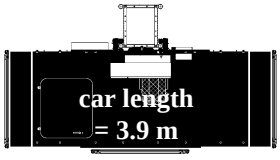
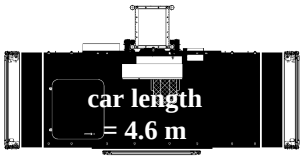
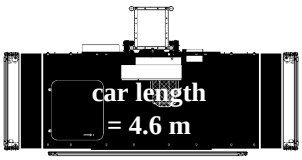
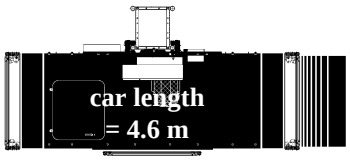
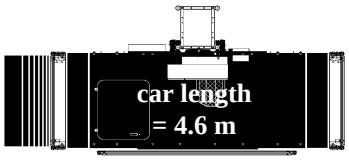
pos. location CA, CB or CC



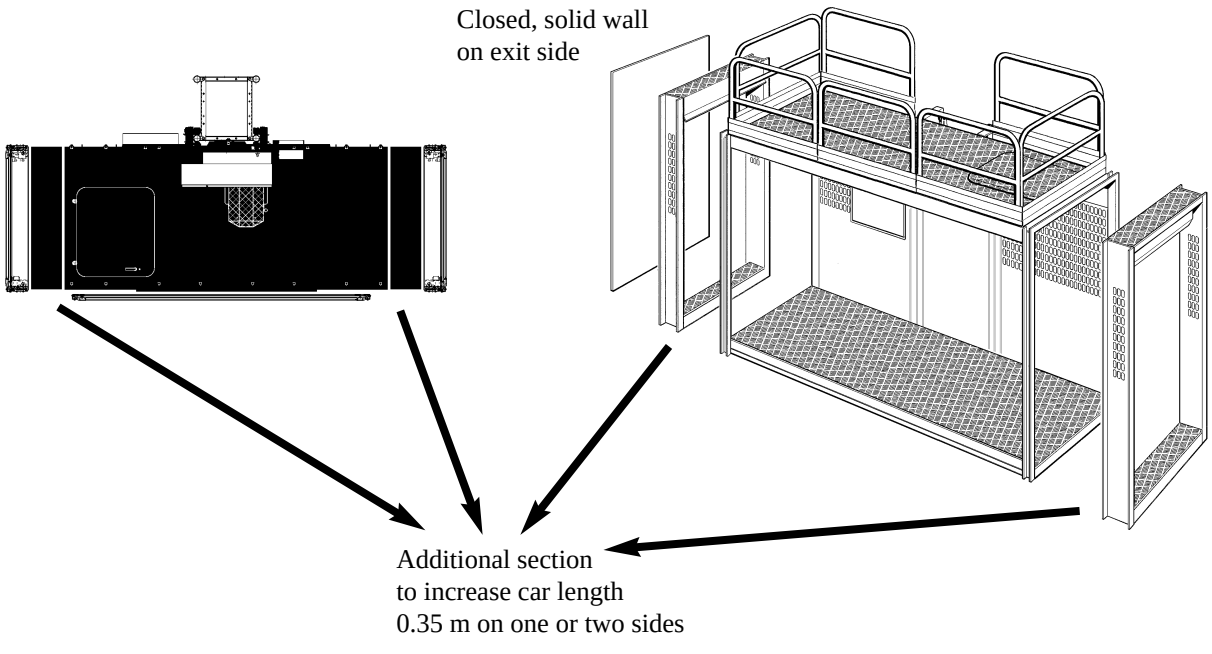
Exit door combined with optional electric / hydraulic or manual operated load ramp.

possible location A, B or C

Product range, extended car length 3.9 – 4.6 m

Car configuration	50 Hz 2 x 11 kW DOL 0.6 m/s	60 Hz 2 x 11 kW DOL 0.6 m/s	2 x 11 kW FC 0.7 m/s	2 x 11 kW FC 0.9 m/s	Power / Speed 3 x 11 kW FC 0.9 m/s	3 x 11 kW FC 1.1 m/s	3 x 22 kW FC 1.3 m/s
					Load capacity		
	NA	NA	NA	NA	NA	NA	NA
C62 	NA	NA	NA	NA	3000 kg or 34 pers. No. 1219	2200 kg or 27 pers. No. 1221	2900 kg or 34 pers. No. 1307 2800 kg or 34 pers. No. 1308
C63 	NA	NA	NA	NA	3000 kg or 34 pers. No. 1219	2100 kg or 26 pers. No. 1221	2800 kg or 34 pers. No. 1307 2700 kg or 34 pers. No. 1308
C65 	NA	NA	NA	NA	3000 kg or 34 pers. No. 1219	2100 kg or 26 pers. No. 1221	2800 kg or 34 pers No. 1307 2700 kg or 34 pers. No. 1308
 C66	NA	NA	NA	NA	3000 kg or 34 pers. No. 1219	2000 kg or 25 pers. No. 1221	2700 kg or 33 pers. No. 1307 2600 kg or 32 pers. No. 1308

Note: the doors can be located to meet site requirements.



B 5

Technical data sheet

SCANDO 650 DOL .. /28 – 32	**50Hz**	**No. 1202**
SCANDO 650 DOL .. /35 – 39 ext.	**50Hz**	**No. 1203**
SCANDO 650 DOL .. /35 – 39	**50Hz**	**No. 1249**
SCANDO 650 DOL .. /28 – 32	**60Hz**	**No. 1204**
SCANDO 650 DOL .. /35 – 39 ext.	**60Hz**	**No. 1205**
SCANDO 650 DOL .. /35 – 39	**60Hz**	**No. 1250**
SCANDO 650 FC .. /28 – 32	**(0.7 m/s)**	**No. 1206**
SCANDO 650 FC .. /35 – 39 ext.	**(0.7 m/s)**	**No. 1208**
SCANDO 650 FC .. /35 – 39	**(0.7 m/s)**	**No. 1254**
SCANDO 650 FC .. /28 – 32	**(0.9 m/s)**	**No. 1210**
SCANDO 650 FC .. /35 – 39 ext.	**(0.9 m/s)**	**No. 1211**
SCANDO 650 FC .. /35 – 39	**(0.9 m/s)**	**No. 1255**
SCANDO 650 FC .. /28 – 32	**(0.9 m/s)**	**No. 1212**
SCANDO 650 FC .. /35 – 39 ext.	**(0.9 m/s)**	**No. 1213**
SCANDO 650 FC .. /28 – 32	**(1.1 m/s)**	**No. 1214**
SCANDO 650 FC .. /35 – 39 ext.	**(1.1 m/s)**	**No. 1215**
SCANDO 650 FC .. /35 – 39	**(0.9 m/s)**	**No. 1218**
SCANDO 650 FC .. /39 – 46 ext.	**(0.9 m/s)**	**No. 1219**
SCANDO 650 FC .. /35 – 39	**(1.1 m/s)**	**No. 1220**
SCANDO 650 FC .. /39 – 46 ext.	**(1.1 m/s)**	**No. 1221**

HIGH SPEED, lifting height up to 200 m (SU)

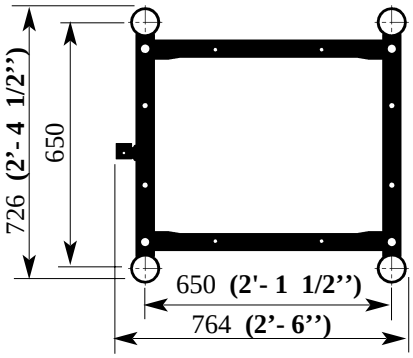
SCANDO 650 FC-S .. /35 – 39	**(1.3 m/s)**	**No. 1295**
SCANDO 650 FC-S .. /39 – 46 ext.	**(1.3 m/s)**	**No. 1307**

HIGH SPEED, lifting height up to 300 m (SU / SD)

SCANDO 650 FC-S .. /35 – 39	**(1.3 m/s)**	**No. 1294**
SCANDO 650 FC-S .. /39 – 46 ext.	**(1.3 m/s)**	**No. 1308**

Dimensions, weight

Mast section



Length / height:	1508 mm	**(4'- 11 3/8'')**
Weight:	115 / 135 kg	**(254 / 298 lbs.)**
Mast bolt dimensions:	1'' UNC galv. – quality minimum 8.8 or	**(A325)**
Tightening torque:	300 Nm	**(220 lbf x ft)**

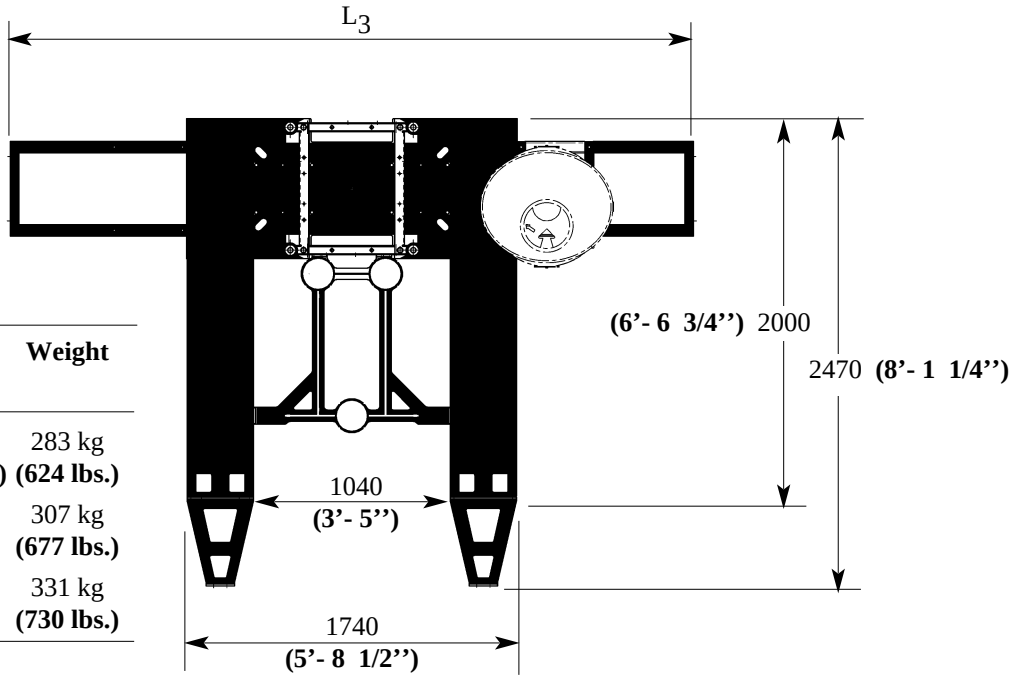
Mast expansion/contraction

The expansion/contraction of the mast is: 0.012 mm/m and degree °C **(or 0.000008 in./ft. and degree °F).**

Base frame

Scale 1 : 40

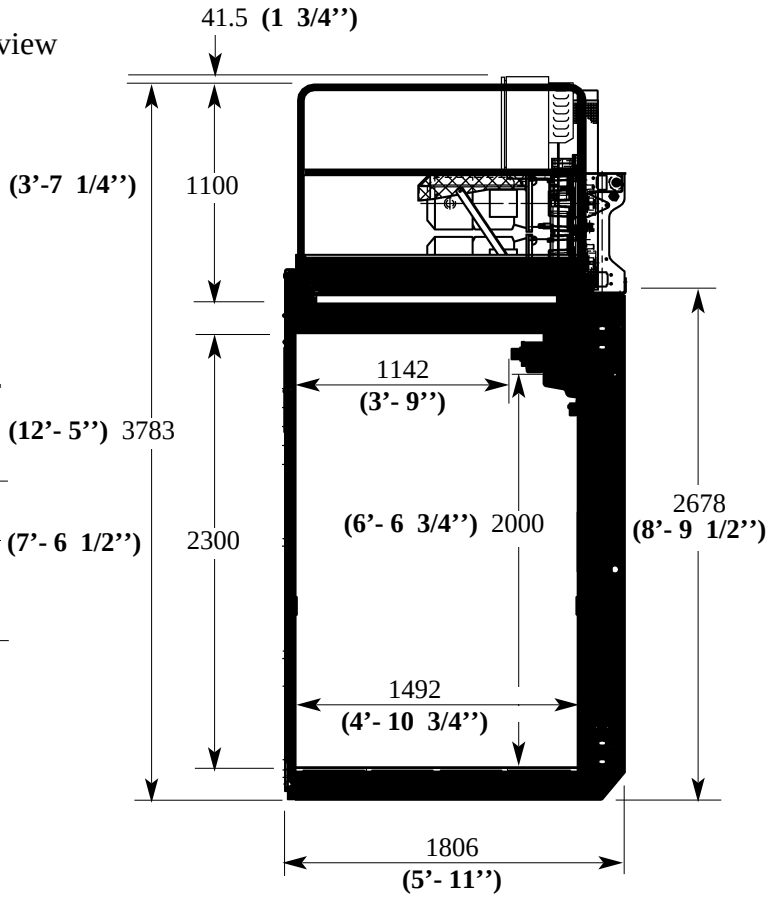
Main unit excl. outriggers
Height: 100 mm **(4'')**



Internal car length	L_3	Weight
3200 mm **(10'- 6'')**	3610 mm **(11'- 10 3/4'')**	283 kg **(624 lbs.)**
3900 mm **(12'- 9 1/2'')**	4310 mm **(14'- 1 3/4'')**	307 kg **(677 lbs.)**
4600 mm **(15'- 1'')**	5010 mm **(16'- 5 1/4'')**	331 kg **(730 lbs.)**

Hoist car

Inside height/width and outside dimensions plan view
Scale 1 : 40



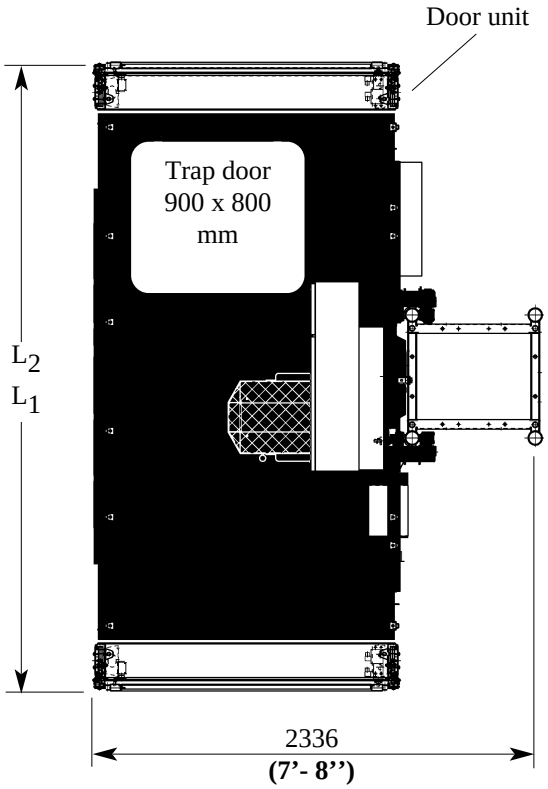
Allowable concentrated load on floor

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	Weight *
2800 mm (9'- 2 1/4'') car base structure		
3.0 m **(9'- 10'')**	3100 mm **(10'- 2'')** eccentric	
3.2 m **(10'- 6'')**	3300 mm **(10'- 10'')**	1420 kg **(3150 lbs.)**
3.55 m **(11'- 7 3/4'')**	3650 mm **(11'- 11 3/4'')** eccentric	
3.9 m **(12'- 9 1/2'')**	4000 mm **(13'- 1 1/2'')**	
3500 mm (11'- 5 3/4'') car base structure		
3.7 m **(12'- 1 3/4'')**	3800 mm **(12'- 5 1/2'')** eccentric	
3.9 m **(12'- 9 1/2'')**	4000 mm **(13'- 1 1/2'')**	1600 kg **(3530 lbs.)**
4.25 m **(13'- 11 1/4'')**	4350 mm **(14'- 3 1/4'')** eccentric	
4.6 m **(15'- 1'')**	4700 mm **(15'- 5'')**	

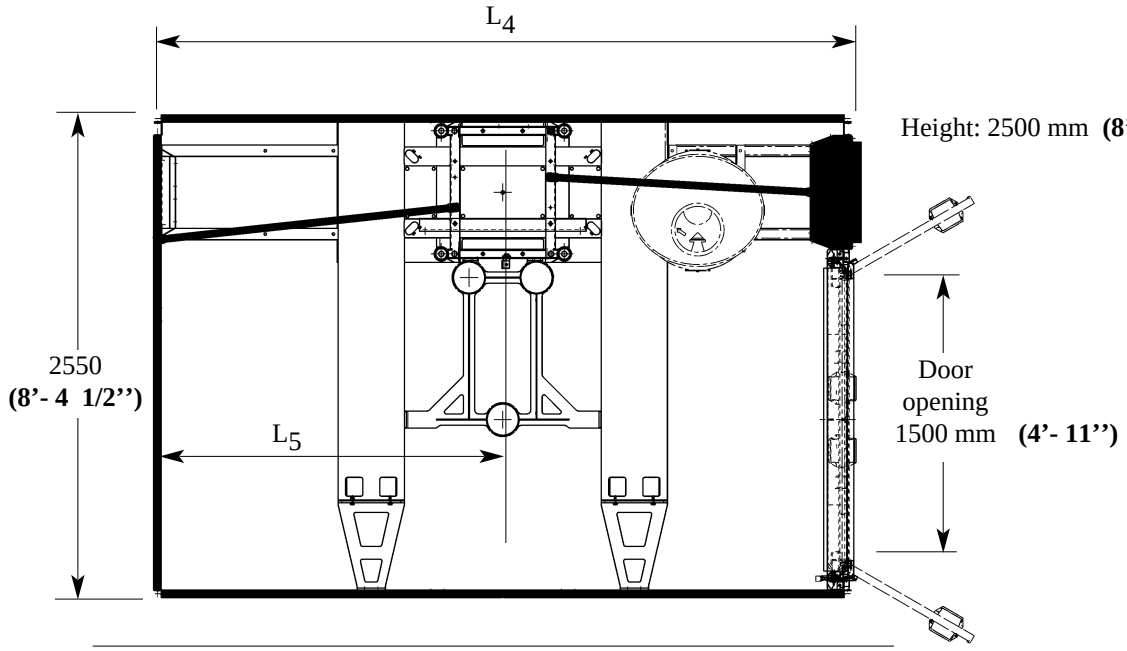
*** exclusive of drive unit and safety railing**

Minimum shaft dimensions:

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

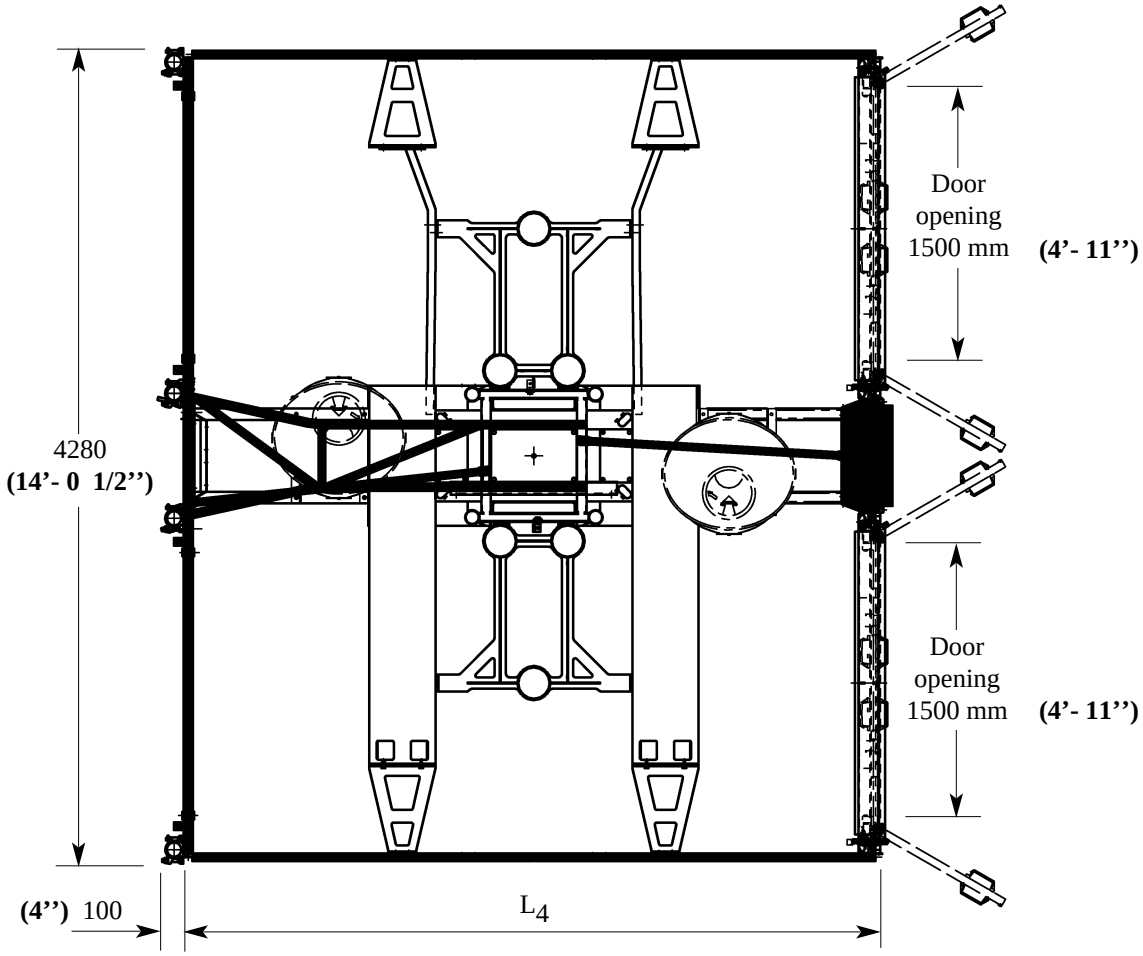
Ground enclosure for single and dual cars A/B door location

Top view, Scale 1 : 40



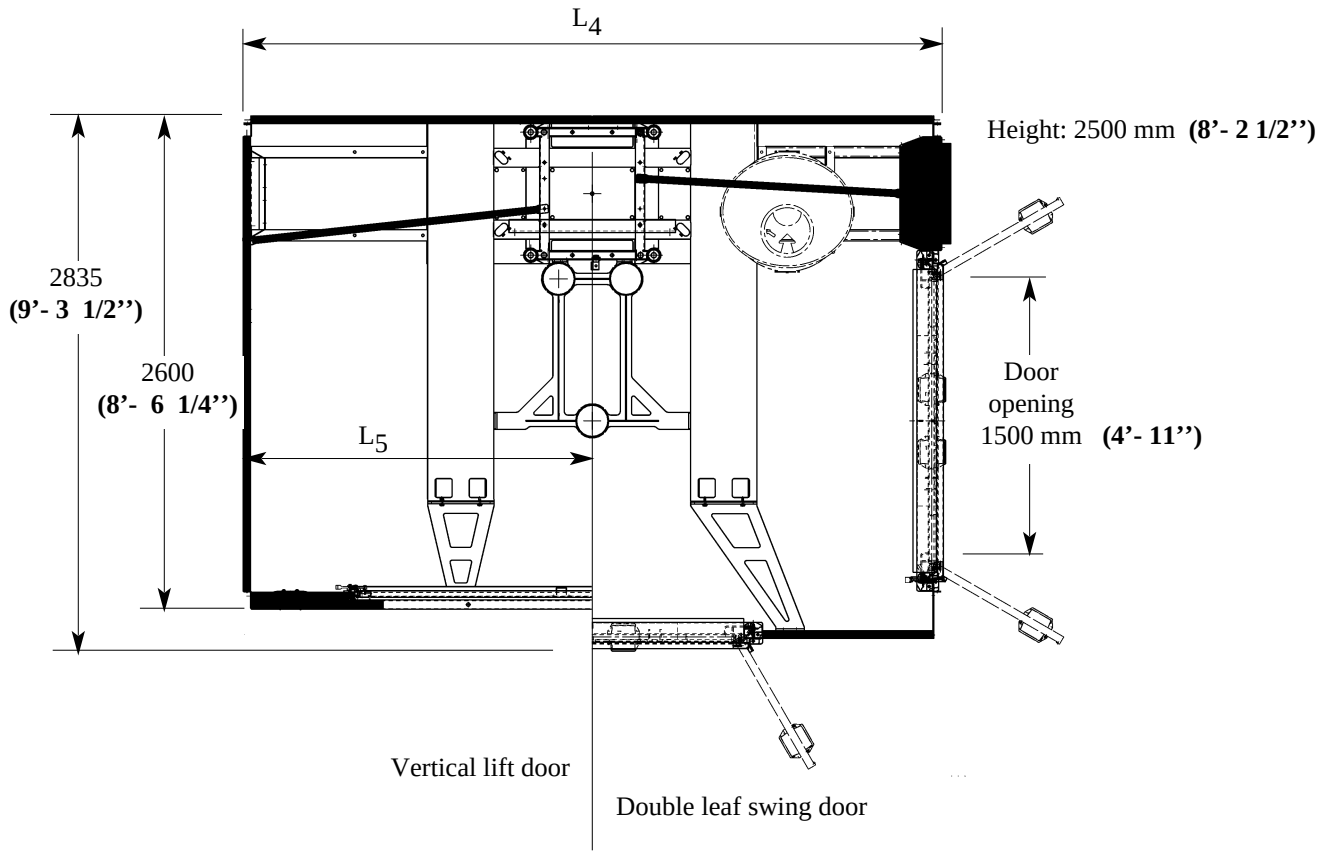
Car length	L_4*	External L_5
3.2 m (10'- 6'')	3720 mm (12'- 2 1/2'')	1845 mm (6'- 0 3/4'')
3.9 m (12'- 9 1/2'')	4420 mm (14'- 6'')	2195 mm (7'- 2 1/2'')
4.6 m (15'- 1'')	5120 mm (16'- 9 1/2'')	2545 mm (8'- 4 1/4'')

* Add additional 0.1 m **(4'')** where accessories for pipe support equipment are added to the ground enclosure. Add 0.1 + 0.1 m if added on both sides.



Ground enclosure for single car A/B and C door location

Top view, Scale 1 : 40



Car length	L_4*	External L_5
3.2 m **(10'- 6'')**	3720 mm **(12'- 2 1/2'')**	1845 mm **(6'- 0 3/4'')**
3.9 m **(12'- 9 1/2'')**	4420 mm **(14'- 6'')**	2195 mm **(7'- 2 1/2'')**
4.6 m **(15'- 1'')**	5120 mm **(16'- 9 1/2'')**	2545 mm **(8'- 4 1/4'')**

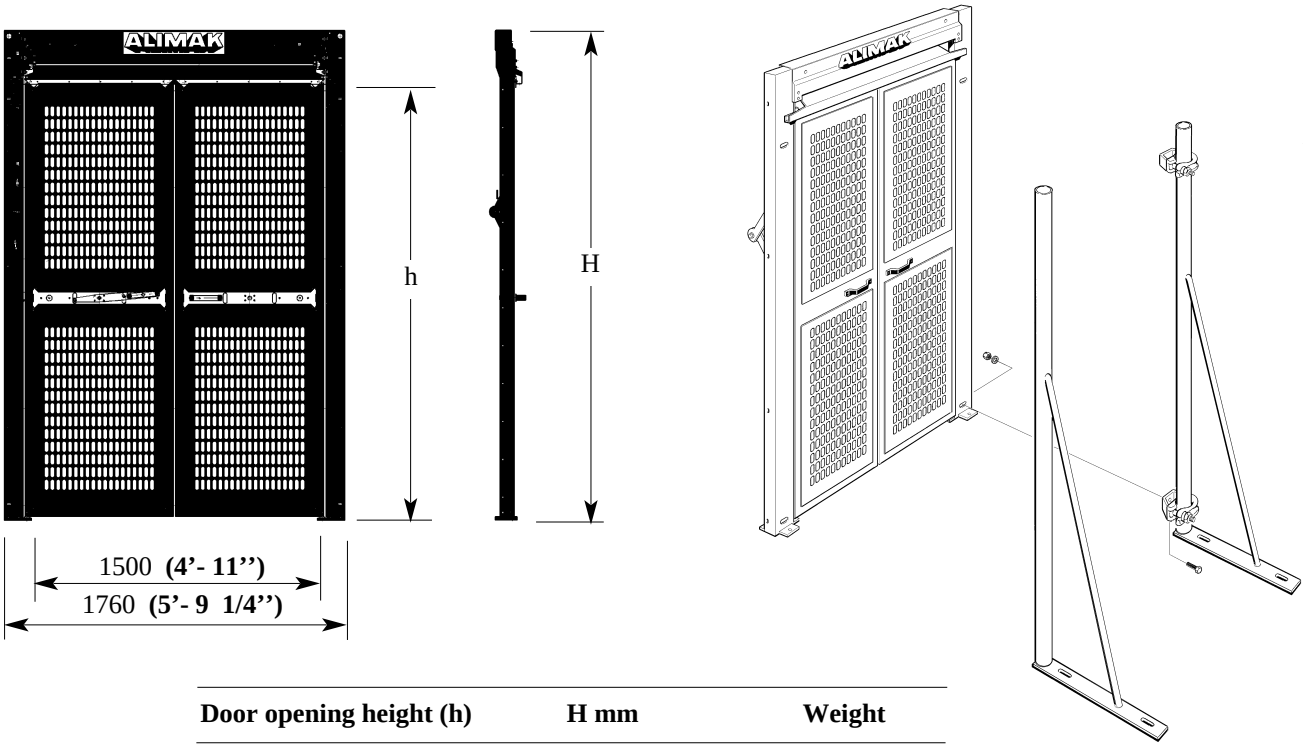
***** Add additional 0.1 m **(4'')** where accessories for pipe support equipment are added to the ground enclosure. Add 0.1 + 0.1 m if added on both sides.

Enclosure door / gates	Width External / Internal	Weight
Double leaf swing door	1760 / 1500 mm	120 kg **(265 lbs.)**
Vertical lift door	3600 / 2500 mm	370 kg **(815 lbs.)**
Vertical lift door	4300 / 3200 mm	415 kg **(915 lbs.)**

Enclosure panels
Estimate approx. 28 kg/m **(8.5 lbs./ft.)**

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

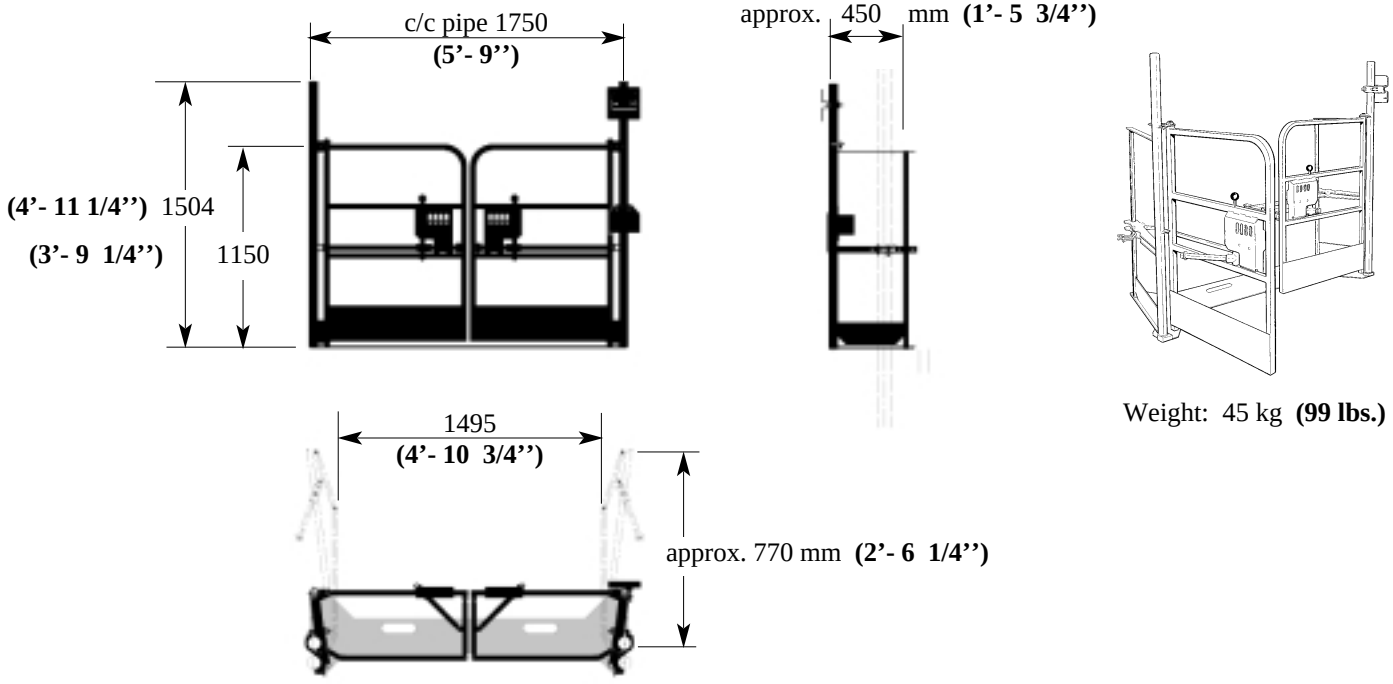
Scale 1 : 40



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.)**

Double-leaf swing door for landings (alt. 2)

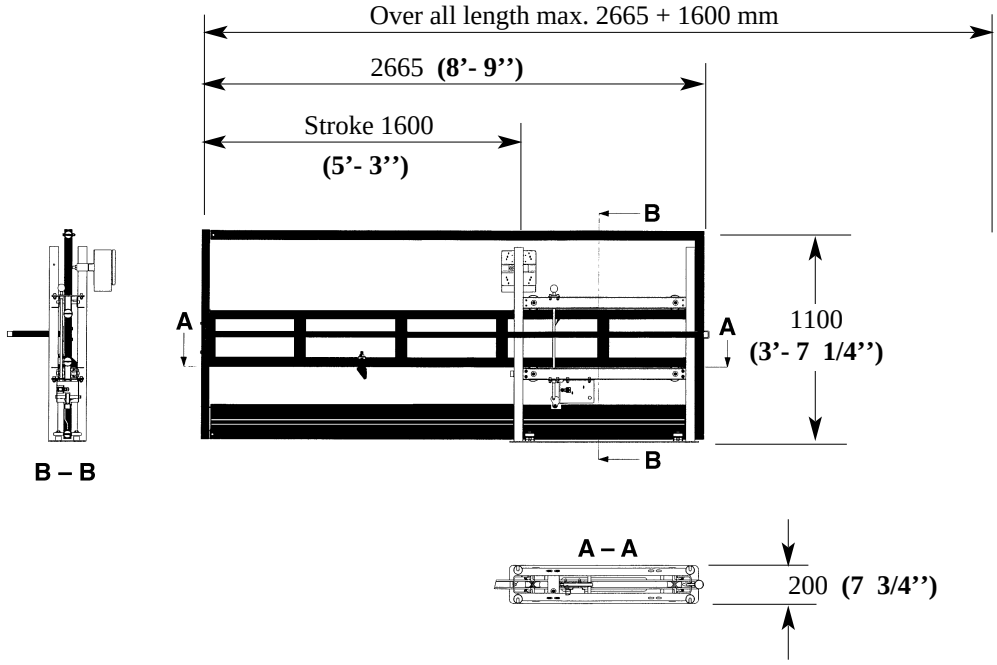
Scale 1 : 40

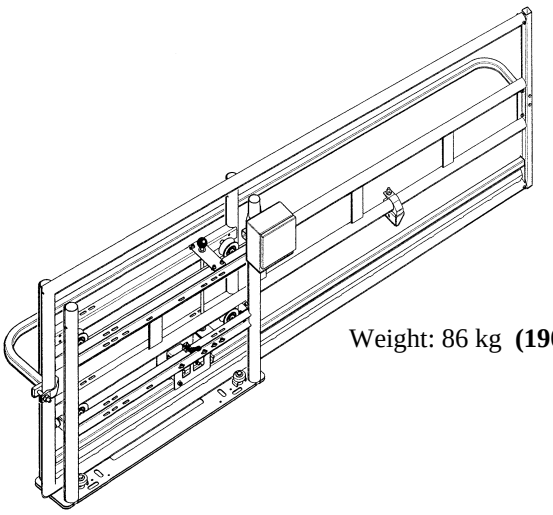


Weight: 45 kg **(99 lbs.)**

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

Scale 1 : 40



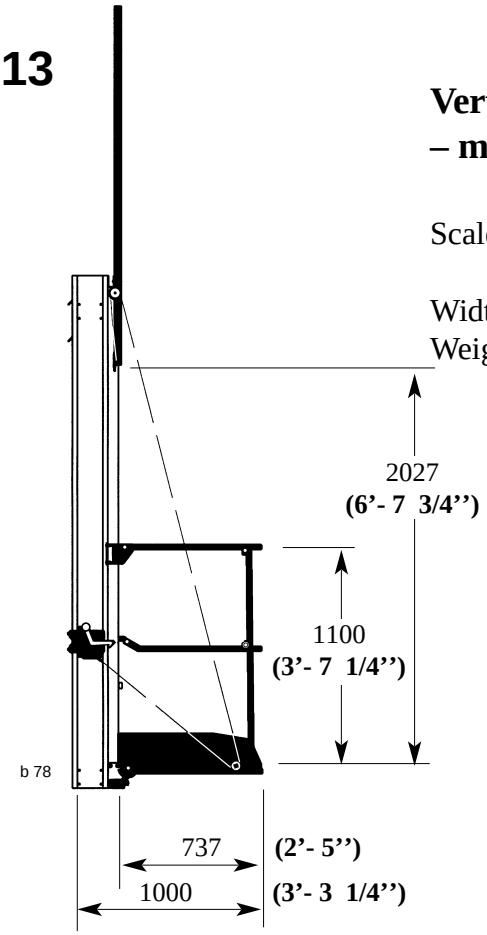


Weight: 86 kg **(190 lbs.)**

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

Scale 1 : 40

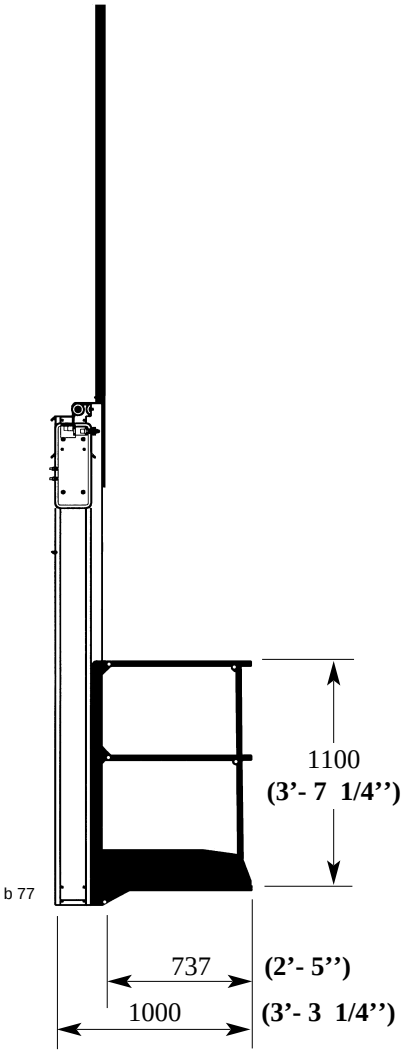
Width: internal 1492 mm **(4’- 10 3/4’’)**
Weight: 250 kg **(550 lbs.)**



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

Scale 1 : 40

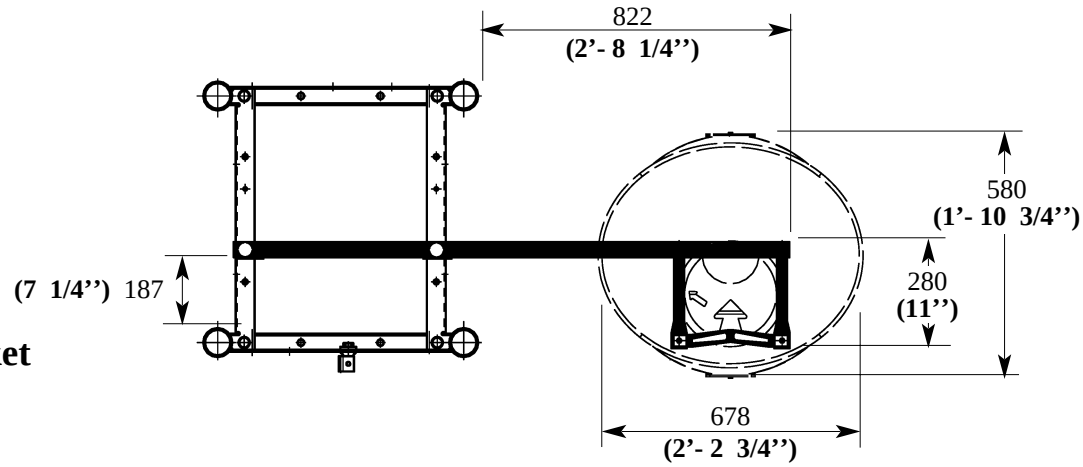
Width: internal 1400 mm **(4’- 7’’)**
Weight: 280 kg **(620 lbs.)**



Cable guides for trailing cable(s)

Scale 1 : 20

Weight: 7 kg **(15.5 lbs.)**



Cable collecting basket

Scale 1 : 20

Dia.: ø 580 / ø 678 mm **(dia. 1'- 10 3/4 / dia. 2'- 2 3/4'')**

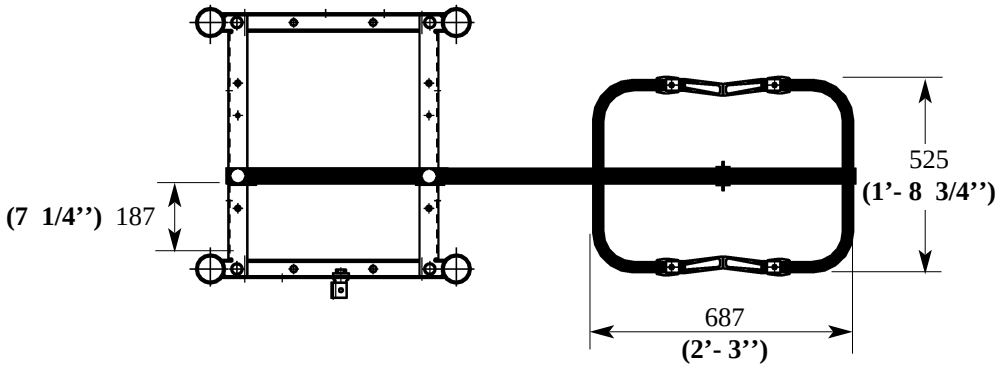
Height: 2000 mm **(6'- 6 3/4'')**

Weight: 28 kg **(62 lbs.)**

Cable guides for trolley and trailing cables

Scale 1 : 20

Weight: 9.5 kg **(21 lbs.)**



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.

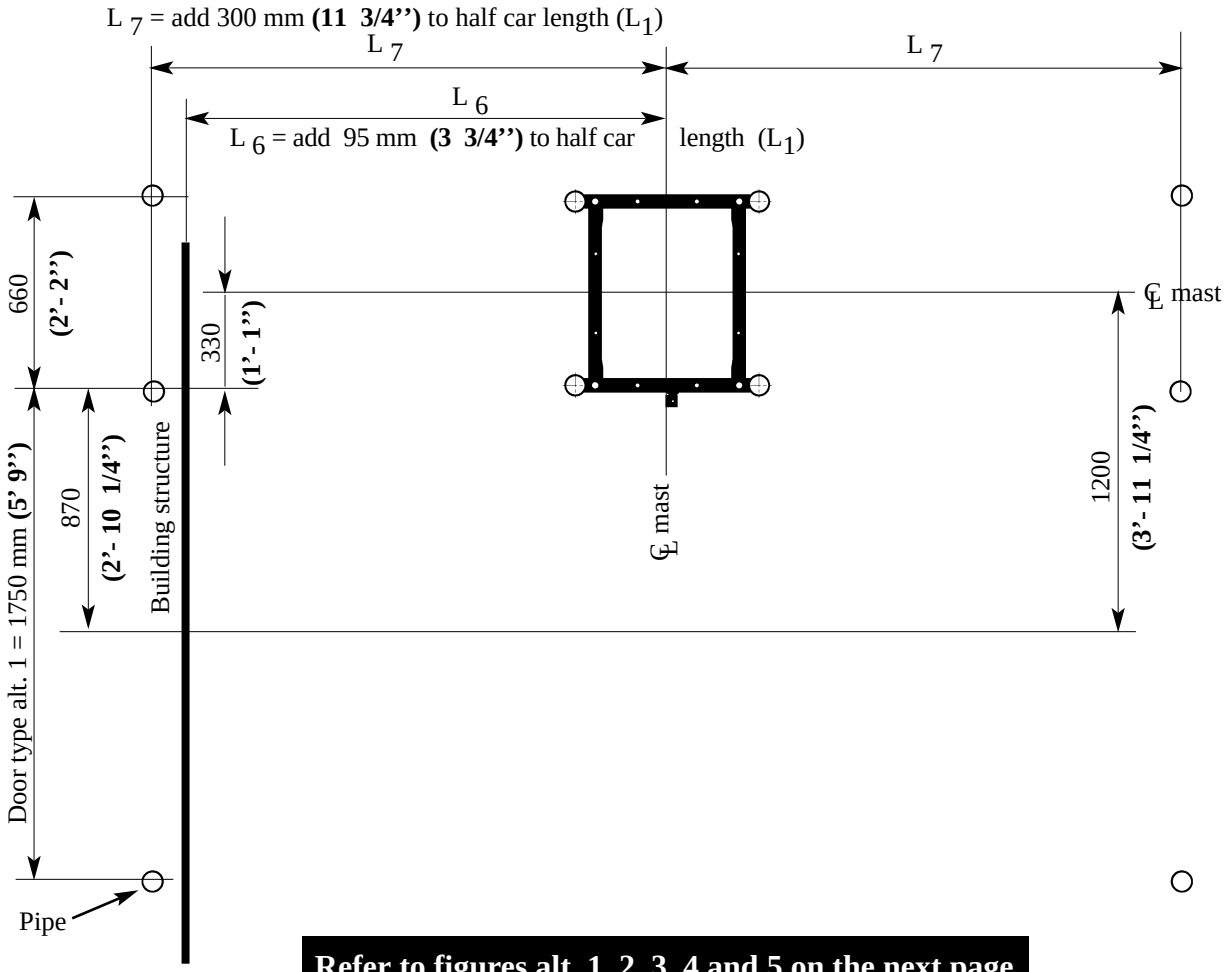
Noise level at operation

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

Operating temperature range

+ 40°C / – 25°C **(+ 104°F / – 13°F)**.

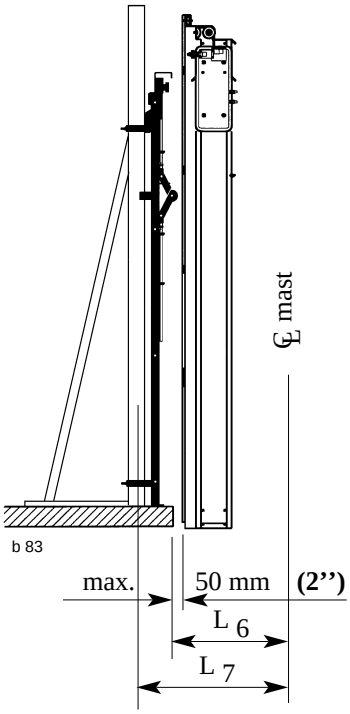
Location of landing door/gate



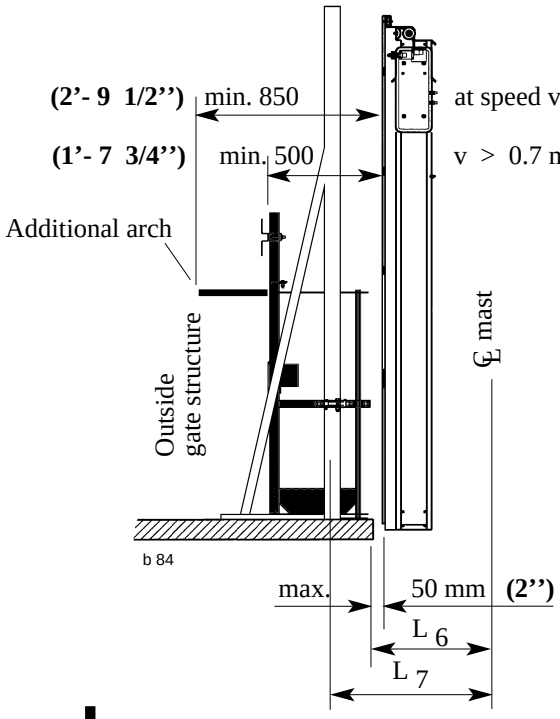
Refer to figures alt. 1, 2, 3, 4 and 5 on the next page

Car length L_1 mm	Door / gate type	Pipe dia. mm	Measure L_6 mm	Measure L_7 mm
3200 mm	Alt.1	ø 76 (3'')	1695 (5'- 6 3/4'')	1900 (6'- 2 3/4'')
(10'- 6'')	Alt.2	ø 76 (3'')	1695 (5'- 6 3/4'')	1900 (6'- 2 3/4'')
	Alt.3	ø 76 (3'')	1695 (5'- 6 3/4'')	2220 (7'- 3 1/2'')
	Alt.4	ø 76 (3'')	2300 (7'- 6 1/2'')	2620 (8'- 7 1/4'')
	Alt.5	–	2100 – 2300 (6'- 10 3/4'' – 7'- 6 1/2'')	–
3900 mm	Alt.1	ø 76 (3'')	2045 (8'- 8 1/2'')	2250 (7'- 4 1/2'')
(12'- 9 1/2'')	Alt.2	ø 76 (3'')	2045 (8'- 8 1/2'')	2250 (7'- 4 1/2'')
	Alt.3	ø 76 (3'')	2045 (8'- 8 1/2'')	2570 (8'- 5 1/4'')
	Alt.4	ø 76 (3'')	2650 (8'- 8 1/4'')	2970 (9'- 9'')
	Alt.5	–	2450 – 2650 (8'- 0 1/2'' – 8'- 8 1/4'')	–
4600 mm	Alt.1	ø 76 (3'')	2395 (7'- 10 1/4'')	2600 (8'- 6 1/4'')
(15'- 1'')	Alt.2	ø 76 (3'')	2395 (7'- 10 1/4'')	2600 (8'- 6 1/4'')
	Alt.3	ø 76 (3'')	2395 (7'- 10 1/4'')	2920 (9'- 7'')
	Alt.4	ø 76 (3'')	3000 (9'- 10'')	3320 (10'- 10 3/4'')
	Alt.5	–	2800 – 3000 (9'- 2 1/4'' – 9'- 10'')	

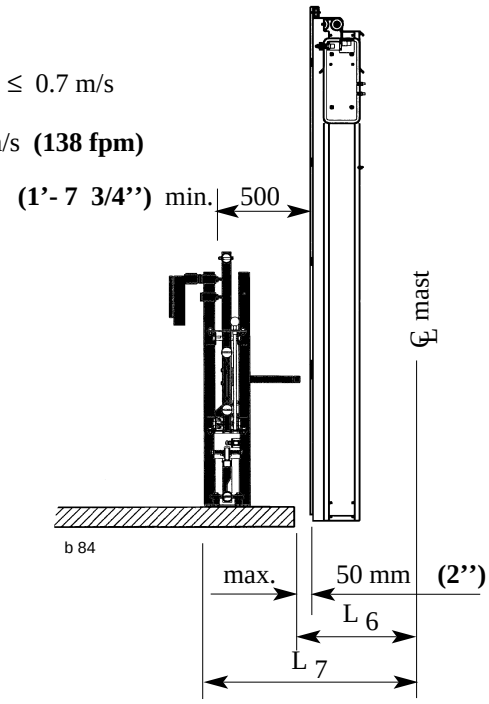
Alt. 1
Exit door combined
with landing door



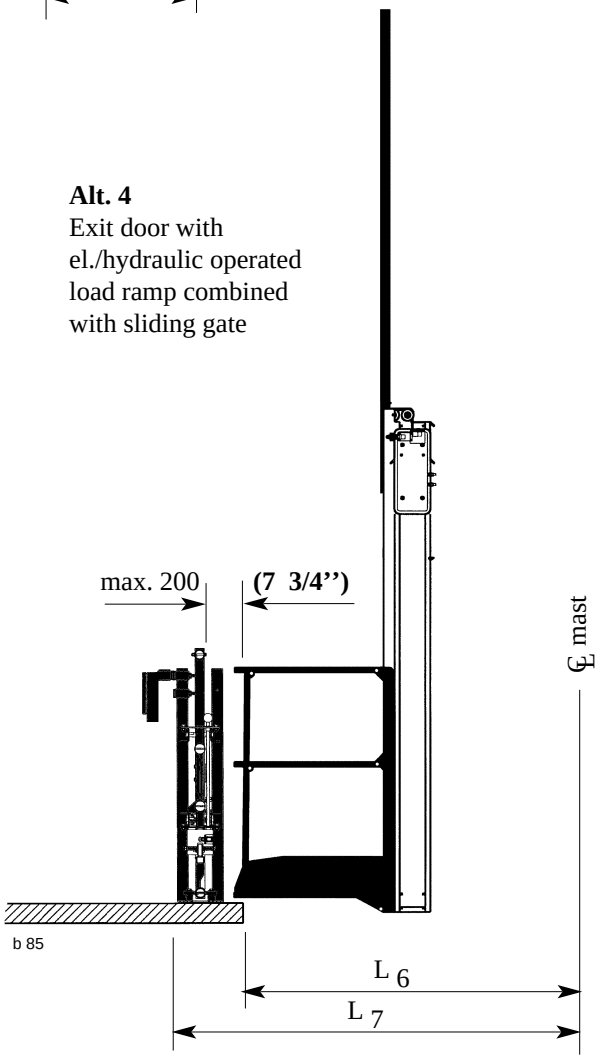
Alt. 2
Exit door combined with
double-leaf swing door



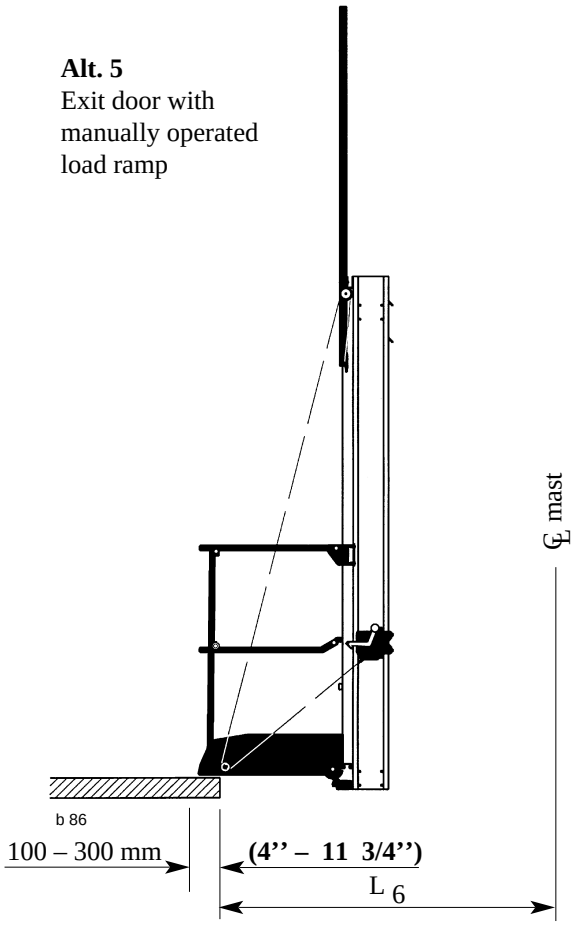
Alt. 3
Exit door combined
with sliding gate



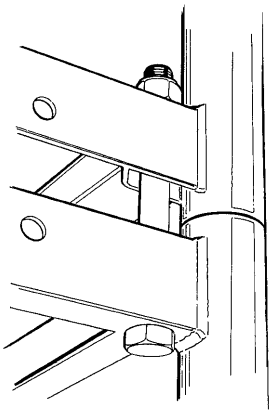
Alt. 4
Exit door with
el./hydraulic operated
load ramp combined
with sliding gate



Alt. 5
Exit door with
manually operated
load ramp



Tightening torque

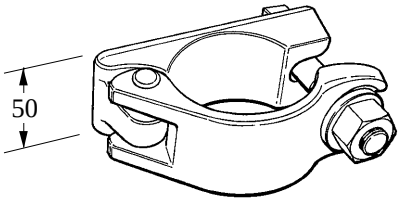


Recommendations according to the chart on the following page apply in general except for:

ALIMAK Mast bolt, dim. 1 ”UNC

– Torque : 300 Nm **(220 lbf x ft)**

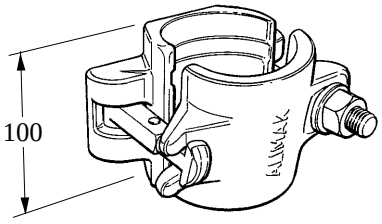
– Spanner size : 1 1/2”



ALIMAK Scaffold clamp Ø 76 mm

– Torque : 150 Nm **(110 lbf x ft)**

– Spanner size : 28 mm



ALIMAK Scaffold clamp Ø 76 mm

– Torque : 220 Nm **(163 lbf x ft)**

– Spanner size : 24 or 27 mm

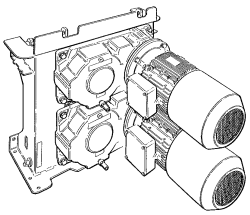
Recommended torques

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

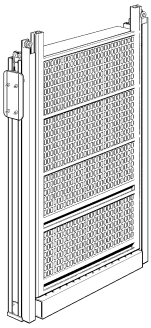
SCANDO 650 Modular System

Dual motor machinery (DOL)
Weight 495 kg

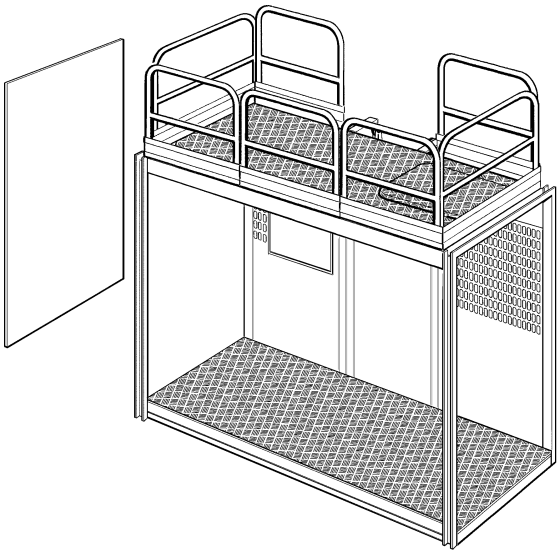


Vertical exit door
in two parts,
weight 133 kg

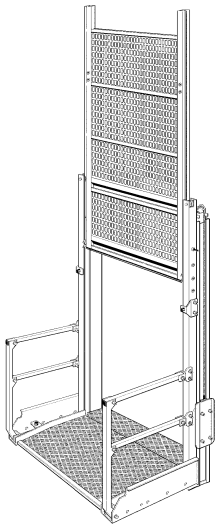
Vertical full height
entrance door, weight 155 kg



2.8 m car base structure incl. safety railings (85 kg),
weight 991 kg

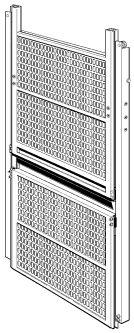


Closed, solid wall
on exit side,
weight 55 kg

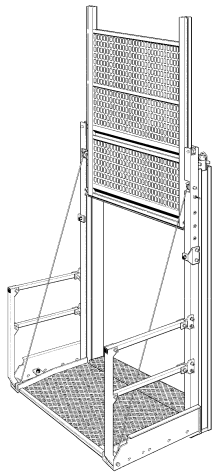


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 2.5 m entrance
door, weight 190 kg



Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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Printed in Sweden

ALIMAK®

SCANDO 650 DOL /32 50Hz

3.2 m car with two [1] vertical doors		**X**			**(C22)**
3.2 m car with three vertical doors			**X**		**(C23)**
3.2 m car with one load ramp and one [1] vertical door				**X**	**(C25)**
3.2 m car with one load ramp and two vertical doors					**X (C26)**

Pay-load capacity (fuse 63 A)	kg	2100	2000	1900	1900
(fuse 80 A)	kg	2400	2300	2300	2200
Average speed 50 Hz	m/min	38	38	38	38
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	3	3	3	3
Safety device type GFD	P/no.		9101991-9009		

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
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	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 2.5 [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~	63 or 80 alternatively
Dual motor machinery	kW	2 x 11
Starting current (DOL)	A~	289
Power consumpt. (fuse 63 A)	kVA~	37
(fuse 80 A)	kVA~	40
Power cable guiding system		***Cable basket (≤ 100 m)***

Data for other voltages on request

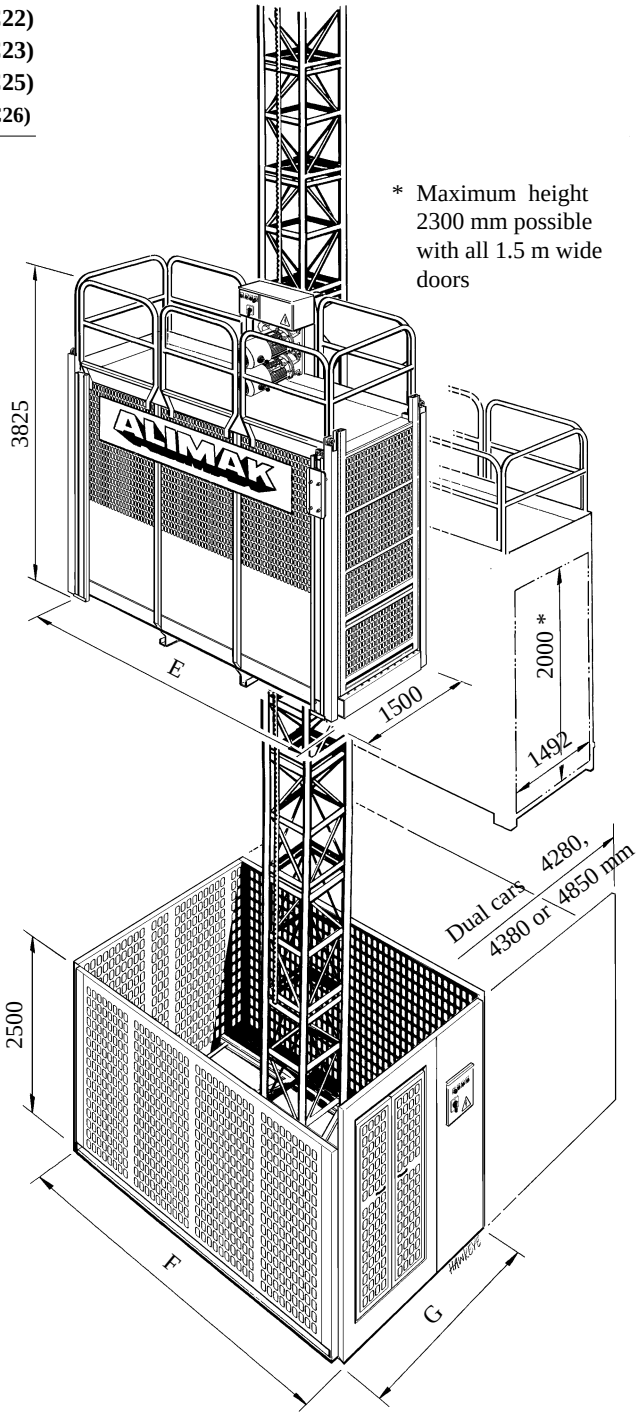
WEIGHTS

Base unit weight approx.	kg	2800	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***



* Maximum height 2300 mm possible with all 1.5 m wide doors

[1] A "slim" 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 147 kg or 117 kg respectively, where optional load ramp occurs.

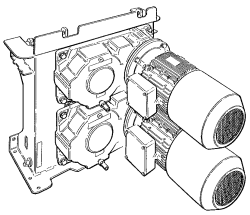
[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

[4] Is intended for the 3rd vertical lift door (location C).

ALIMAK AB, P O Box 720, SE-931 27 Skellefteå, Sweden. Tel. +46 910 87000.
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

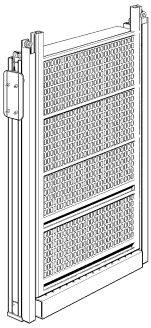
SCANDO 650 Modular System

Dual motor machinery (DOL)
Weight 495 kg

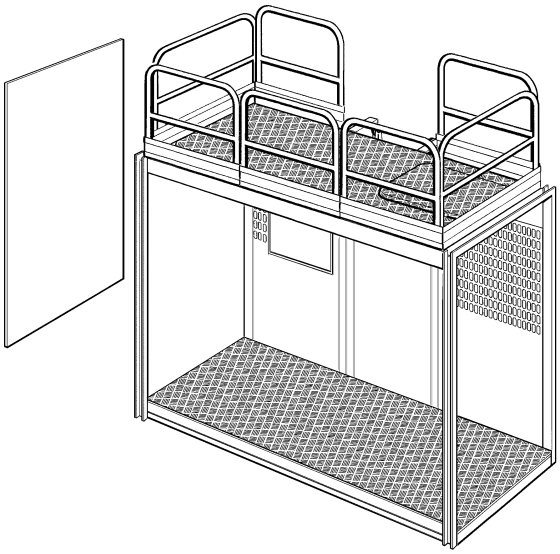


Vertical exit door
in two parts,
weight 133 kg

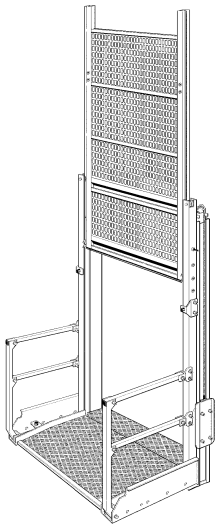
Vertical full height
entrance door, weight 155 kg



2.8 m car base structure incl. safety railings (85 kg),
weight 991 kg

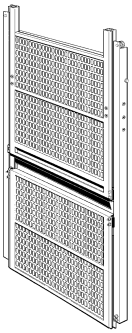


Closed, solid wall
on exit side,
weight 55 kg

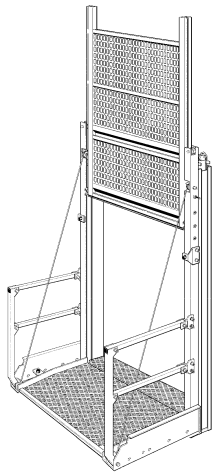


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 2.5 m entrance
door, weight 190 kg



Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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Printed in Sweden

SCANDO 650 DOL /32 60 Hz

3.2 m car with two [1] vertical doors		**X**				**(C22)**
3.2 m car with three vertical doors			**X**			**(C23)**
3.2 m car with one load ramp and one [1] vertical door				**X**		**(C25)**
3.2 m car with one load ramp and two vertical doors					**X**	**(C26)**
Pay-load capacity (fuse 60 A)	kg	2600	2500	2400	2200	
Average speed 60 Hz	m/min	38	38	38	38	
Max. lifting height	meter	200	200	200	200	
Increased lifting height on request						
No. of buffer springs	pcs.	3	3	3	3	
Safety device type GFD	P/no.		9101991-9009			

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
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	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 2.5 [4] x 2.0***			

ELECTRICAL DATA

Power supply range		440 – 480 V, 60 Hz, 3 Phase
At 480 V/60 Hz:		
Power supply fuses	A~	60
Dual motor machinery	kW	2 x 11
Starting current (DOL)	A~	289
Power consumpt. (fuse 60 A)	kVA~	41
Power cable guiding system		***Cable basket (≤ 100 m)***

Data for other voltages on request

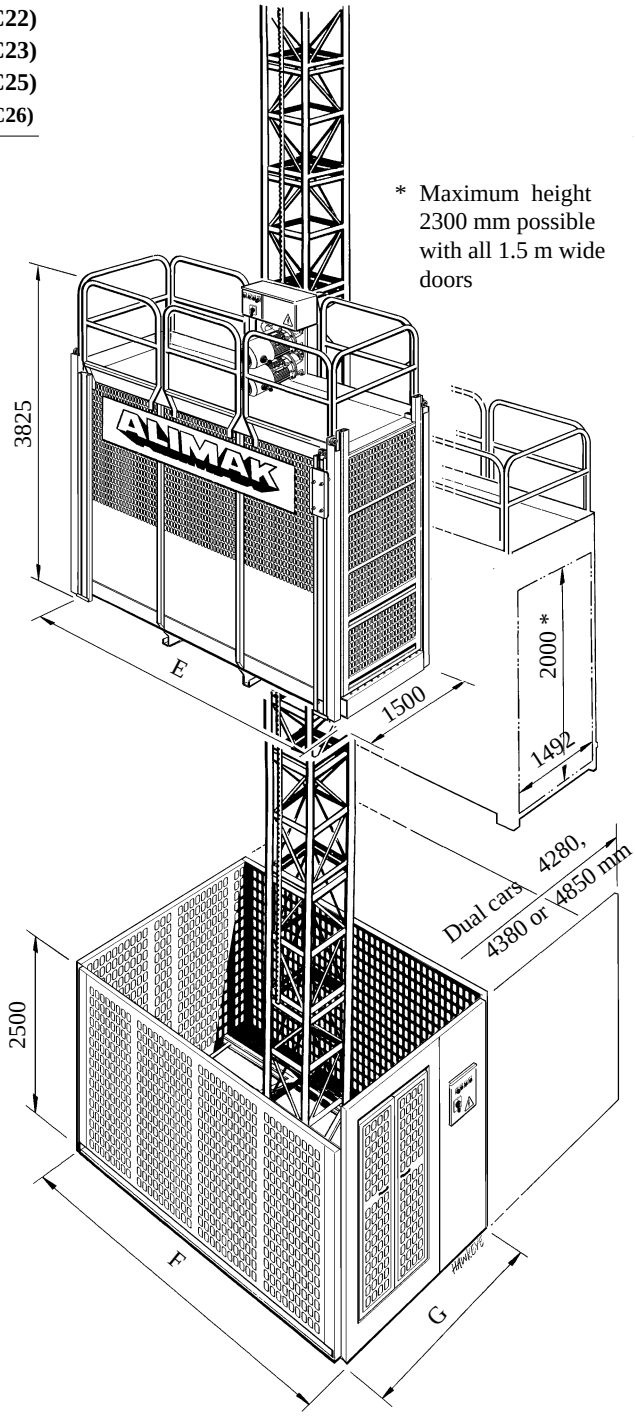
WEIGHTS

Base unit weight approx.	kg	2800	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***



* Maximum height 2300 mm possible with all 1.5 m wide doors

[1] A ”slim” 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 147 kg or 117 kg respectively, where optional load ramp occurs.

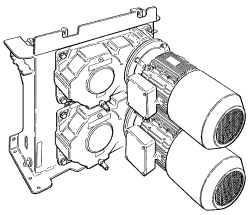
[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

[4] Is intended for the 3rd vertical lift door (location C).

ALIMAK AB, P O Box 720, SE-931 27 Skellefteå, Sweden. Tel. +46 910 87000.
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

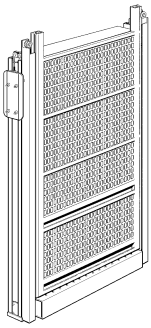
SCANDO 650 Modular System

Dual motor machinery (DOL)
Weight 495 kg

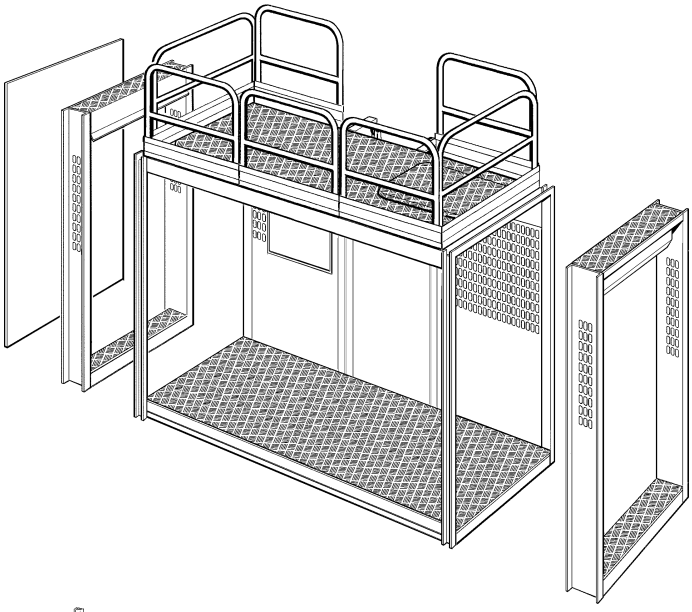


Vertical exit door
in two parts,
weight 133 kg

Vertical full height
entrance door, weight 155 kg

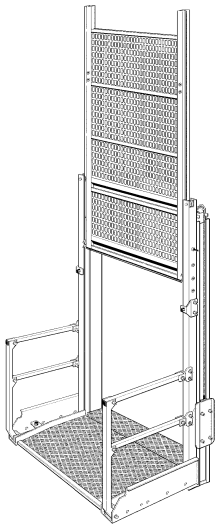


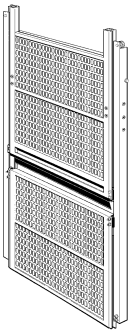
2.8 m car base structure incl. safety railings (85 kg),
weight 991 kg

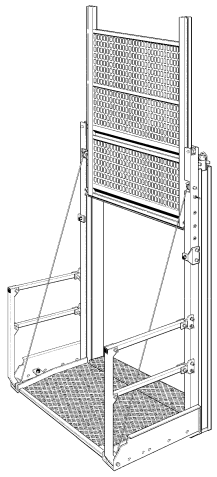


Closed, solid wall
on exit side,
weight 55 kg

Additional section
to increase car length
0.35 m in one or two
sides (0.35 + 0.35 m).
Weight 90 kg each.







Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 2.5 m entrance
door, weight 190 kg

Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg

Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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Printed in Sweden

SCANDO 650 DOL /39 50 Hz

Extended 3.9 m car with two [1] vertical doors		**X**			**(C42)**
Extended 3.9 m car with three vertical doors			**X**		**(C43)**
Extended 3.9 m car with one load ramp and one [1] vertical door		**X**			**(C45)**
Extended 3.9 m car with one load ramp and two vertical doors				**X**	**(C46)**

Pay-load capacity (fuse 63 A)	kg	1900	1800	1800	1700
(fuse 80 A)	kg	2200	2100	2000	1900
Average speed 50 Hz	m/min	38	38	38	38
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	3	3	3	3
Safety device type GFD	P/no.		9101991-9009		

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	3.9	3.9	3.9	3.9
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 2.5 [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~	63 or 80 alternatively
Dual motor machinery	kW	2 x 11
Starting current (DOL)	A~	289
Power consumpt. (fuse 63 A)	kVA~	37
(fuse 80 A)	kVA~	40
Power cable guiding system		***Cable basket (≤ 100 m)***

Data for other voltages on request

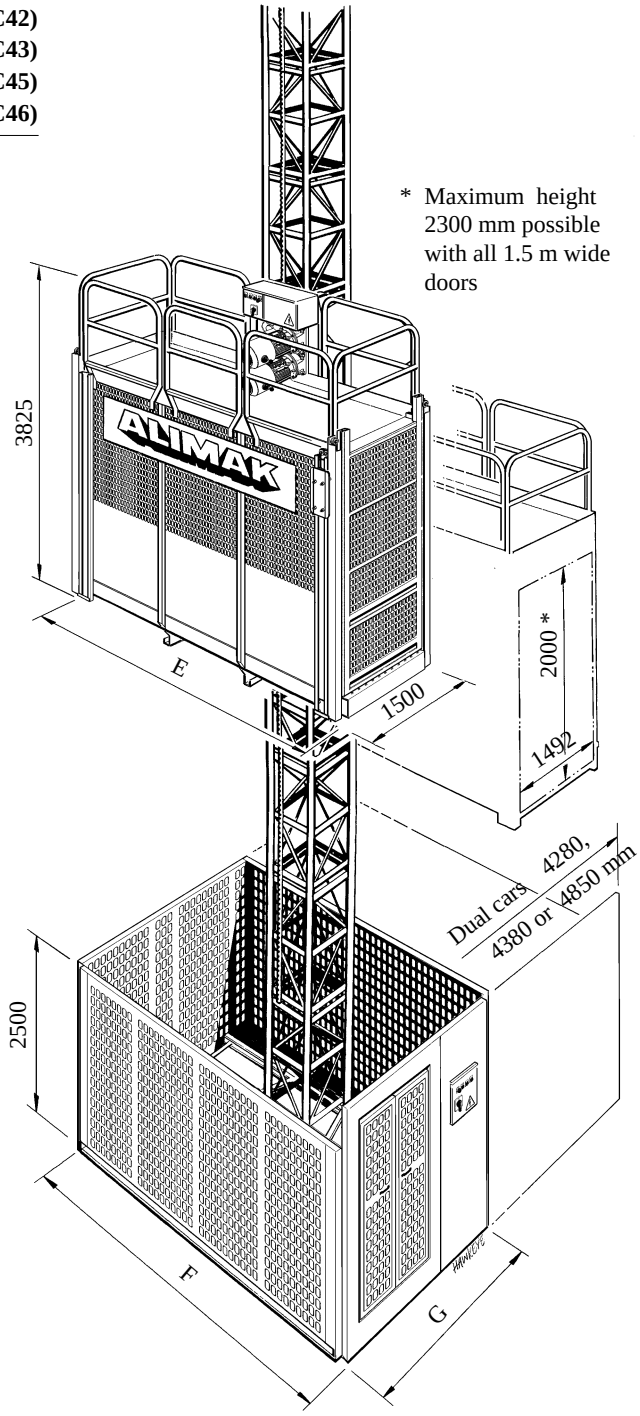
WEIGHTS

Base unit weight approx.	kg	3000	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***



* Maximum height 2300 mm possible with all 1.5 m wide doors

[1] A ”slim” 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 147 kg or 117 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.

[4] Is intended for the 3rd vertical lift door (location C).

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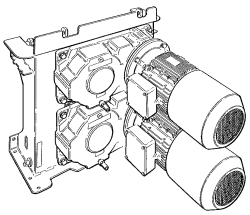
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

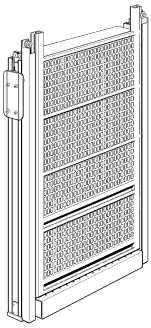
SCANDO 650 Modular System

Dual motor machinery (DOL)
Weight 495 kg

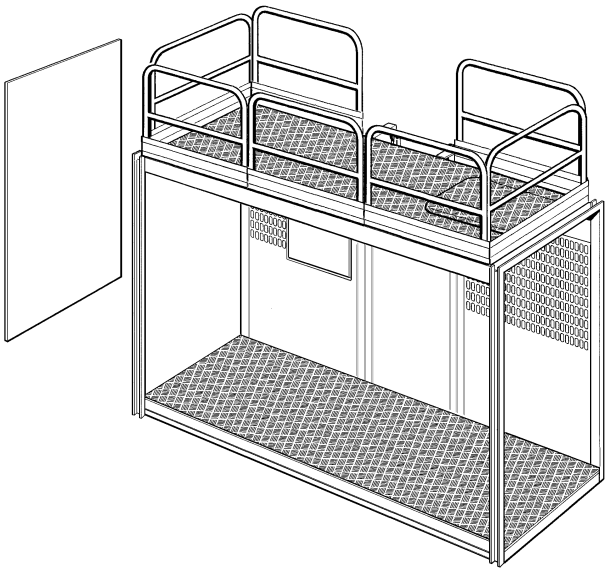


Vertical exit door
in two parts,
weight 133 kg

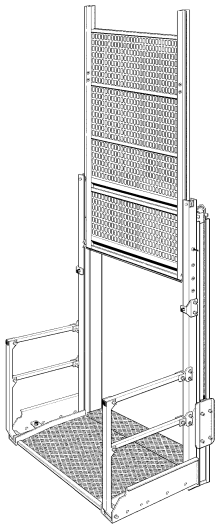
Vertical full height
entrance door, weight 155 kg



3.5 m car base structure incl. safety railings (100 kg)
weight 1116 kg

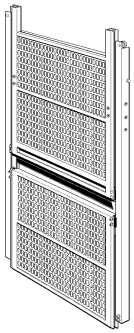


Closed, solid wall
on exit side,
weight 55 kg

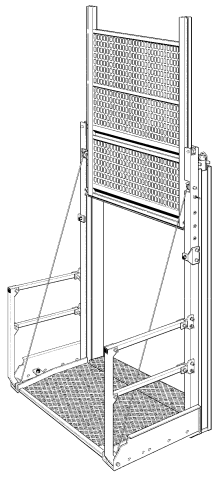


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 2.5 m entrance
door, weight 190 kg



Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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Printed in Sweden

SCANDO 650 DOL /39 50Hz

3.9 m car with two [1] vertical doors		**X**				**(C52)**
3.9 m car with three vertical doors			**X**			**(C53)**
3.9 m car with one load ramp and one [1] vertical door				**X**		**(C55)**
3.9 m car with one load ramp and two vertical doors					**X**	**(C56)**
Pay-load capacity (fuse 63 A)	kg	1900	1900	1800	1700	
(fuse 80 A)	kg	2300	2200	2100	2000	
Average speed 50 Hz	m/min	38	38	38	38	
Max. lifting height	meter	200	200	200	200	
Increased lifting height on request						
No. of buffer springs	pcs.	3	3	3	3	
Safety device type GFD	P/no.		9101991-9009			

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	3.9	3.9	3.9	3.9
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 2.5 [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~	63 or 80 alternatively
Dual motor machinery	kW	2 x 11
Starting current (DOL)	A~	289
Power consumpt. (fuse 63 A)	kVA~	37
(fuse 80 A)	kVA~	40
Power cable guiding system		***Cable basket (≤ 100 m)***

Data for other voltages on request

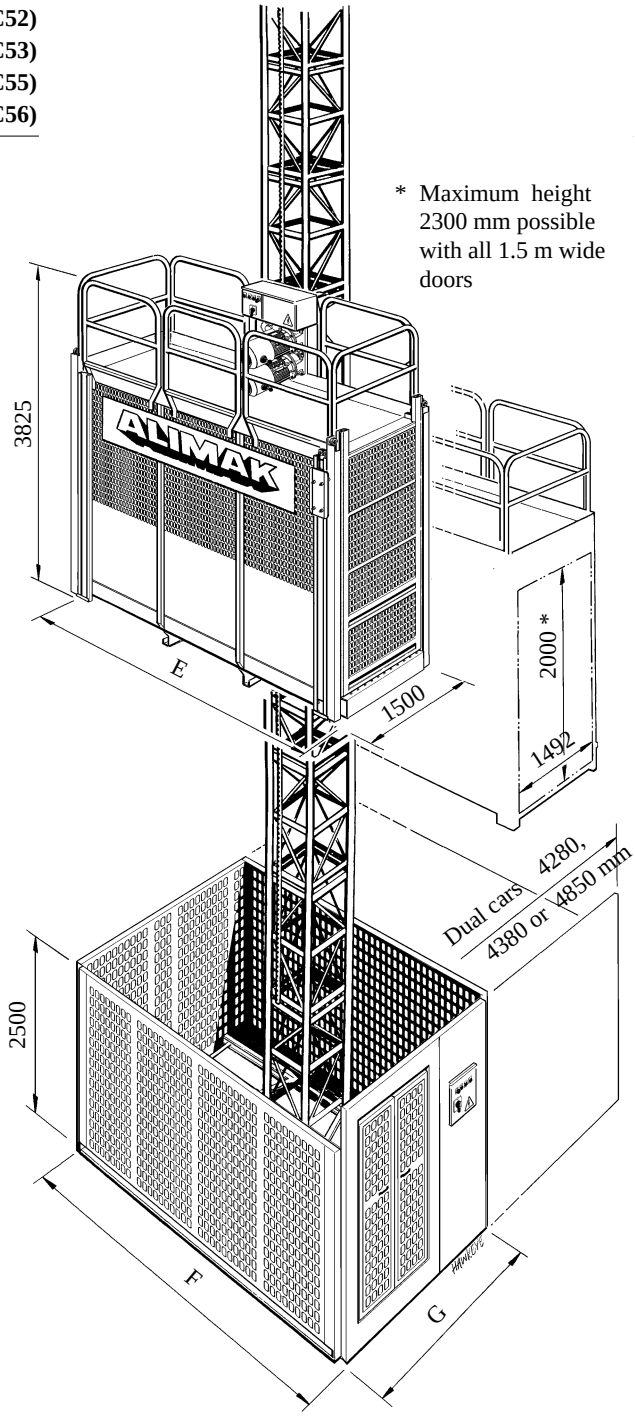
WEIGHTS

Base unit weight approx.	kg	3000	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***



* Maximum height 2300 mm possible with all 1.5 m wide doors

[1] A "slim" 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 147 kg or 117 kg respectively, where optional load ramp occurs.

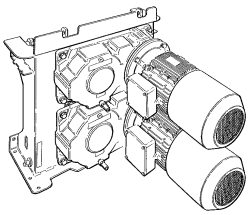
[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

[4] Is intended for the 3rd vertical lift door (location C).

ALIMAK AB, P O Box 720, SE-931 27 Skellefteå, Sweden. Tel. +46 910 87000.
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

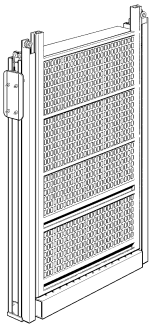
SCANDO 650 Modular System

Dual motor machinery (DOL)
Weight 495 kg

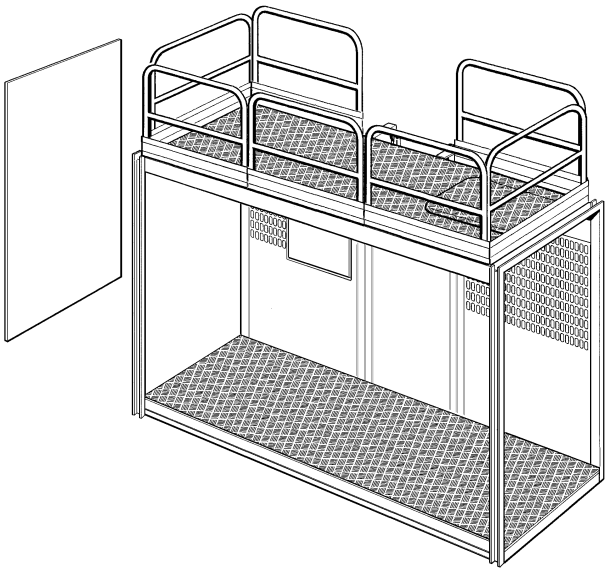


Vertical exit door
in two parts,
weight 133 kg

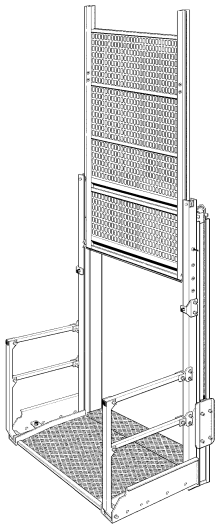
Vertical full height
entrance door, weight 155 kg



3.5 m car base structure incl. safety railings (100 kg)
weight 1116 kg

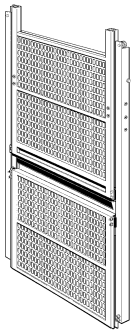


Closed, solid wall
on exit side,
weight 55 kg

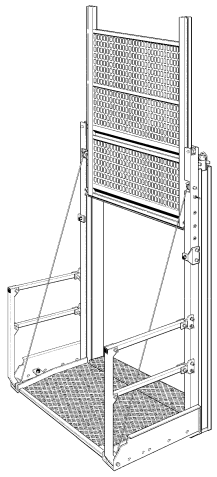


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 2.5 m entrance
door, weight 190 kg



Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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ALIMAK®

SCANDO 650 DOL /39 60Hz

3.9 m car with two [1] vertical doors		**X**				**(C52)**
3.9 m car with three vertical doors			**X**			**(C53)**
3.9 m car with one load ramp and one [1] vertical door				**X**		**(C55)**
3.9 m car with one load ramp and two vertical doors					**X**	**(C56)**
Pay-load capacity (fuse 60 A)	kg	2400	2200	2100	20 00	
Average speed 50 Hz	m/min	38	38	38	38	
Max. lifting height	meter	200	200	200	200	
Increased lifting height on request						
No. of buffer springs	pcs.	3	3	3	3	
Safety device type GFD	P/no.		9101991-9009			

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	3.9	3.9	3.9	3.9
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 2.5 [4] x 2.0***			

ELECTRICAL DATA

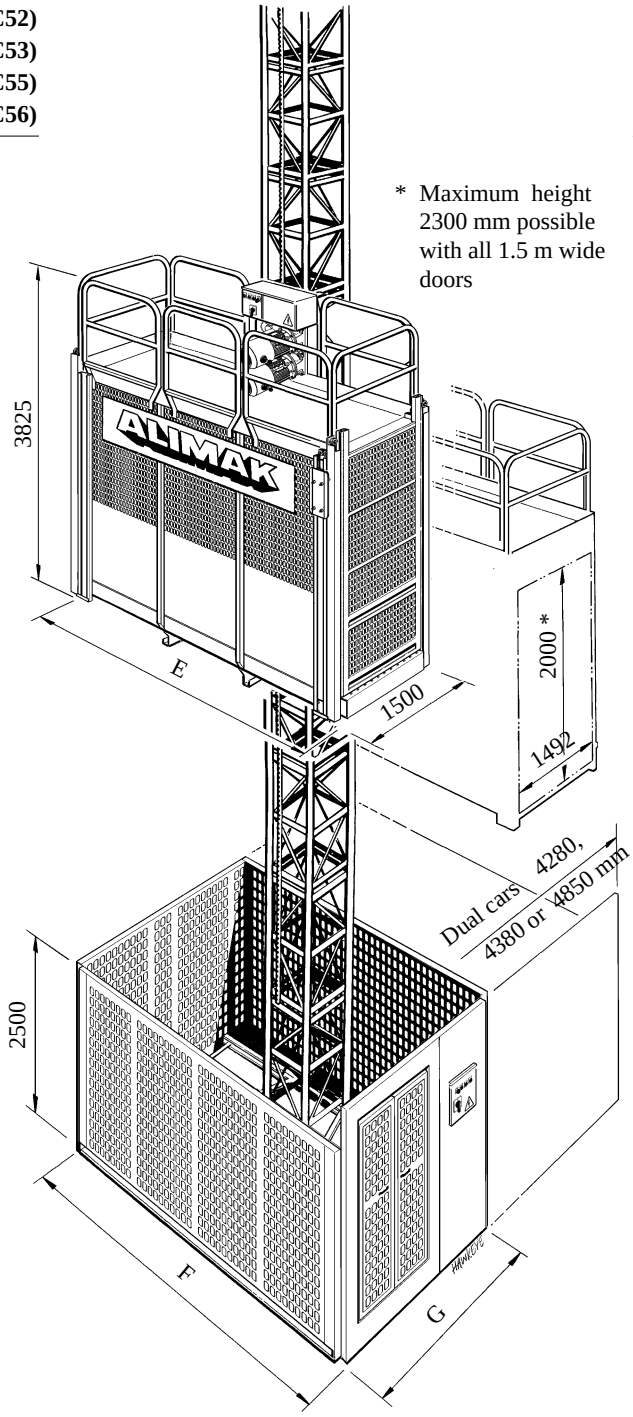
Power supply range		380 – 420 V, 50 Hz, 3 Phase
At 400 V/60 Hz:		
Power supply fuses	A~	60
Dual motor machinery	kW	2 x 11
Starting current (DOL)	A~	289
Power consumpt. (fuse 66 A)	kVA~	41
Power cable guiding system		***Cable basket (≤ 100 m)***
Data for other voltages on request		

WEIGHTS

Base unit weight approx.	kg	3000	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:		
Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***



* Maximum height 2300 mm possible with all 1.5 m wide doors

[1] A "slim" 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 147 kg or 117 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.

[4] Is intended for the 3rd vertical lift door (location C).

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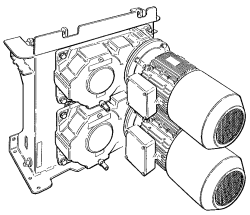
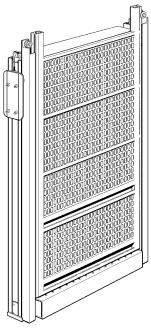
SCANDO 650 Modular System

Dual motor machinery (DOL)
Weight 495 kg

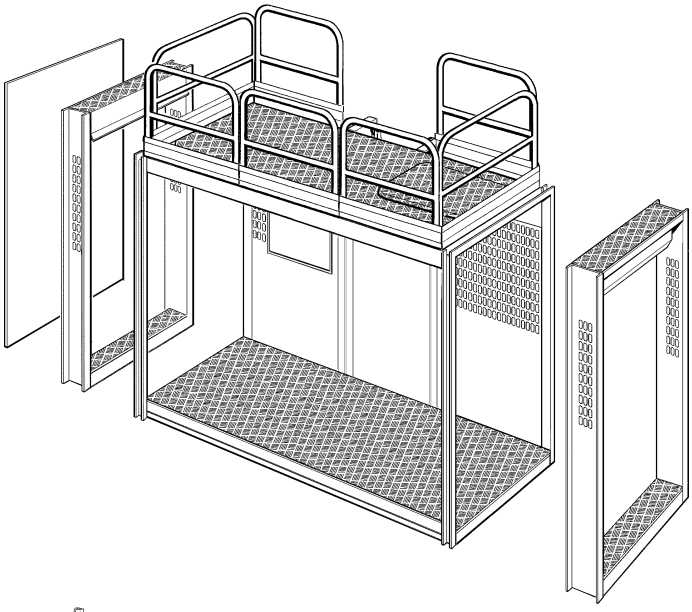


Vertical exit door
in two parts,
weight 133 kg

Vertical full height
entrance door, weight 155 kg

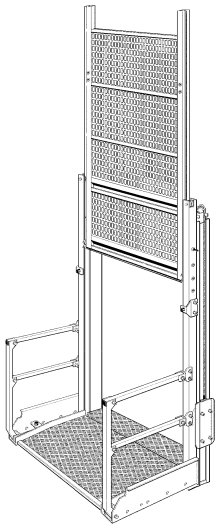


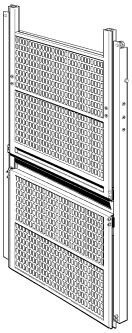
2.8 m car base structure incl. safety railings (85 kg),
weight 991 kg

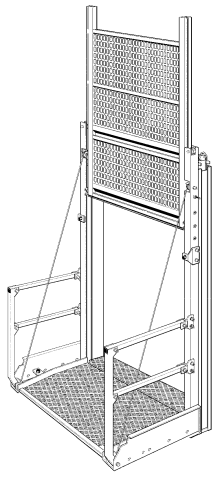


Closed, solid wall
on exit side,
weight 55 kg

Additional section
to increase car length
0.35 m in one or two
sides (0.35 + 0.35 m).
Weight 90 kg each.







Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 2.5 m entrance
door, weight 190 kg

Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg

Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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SCANDO 650 DOL /39 60 Hz

Extended 3.9 m car with two [1] vertical doors	**X**				**(C42)**
Extended 3.9 m car with three vertical doors		**X**			**(C43)**
Extended 3.9 m car with one load ramp and one [1] vertical door	**X**				**(C45)**
Extended 3.9 m car with one load ramp and two vertical doors				**X**	**(C46)**

Pay-load capacity (fuse 60 A)	kg	2300	2100	2000	1900
Average speed 60 Hz	m/min	38	38	38	38
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	3	3	3	3
Safety device type GFD	P/no.		9101991-9009		

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	3.9	3.9	3.9	3.9
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 2.5 [4] x 2.0***			

ELECTRICAL DATA

Power supply range		440 – 480 V, 60 Hz, 3 Phase
At 400 V/60 Hz:		
Power supply fuses	A~	60
Dual motor machinery	kW	2 x 11
Starting current (DOL)	A~	289
Power consumpt. (fuse 60 A)	kVA~	41
Power cable guiding system		***Cable basket (≤ 100 m)***

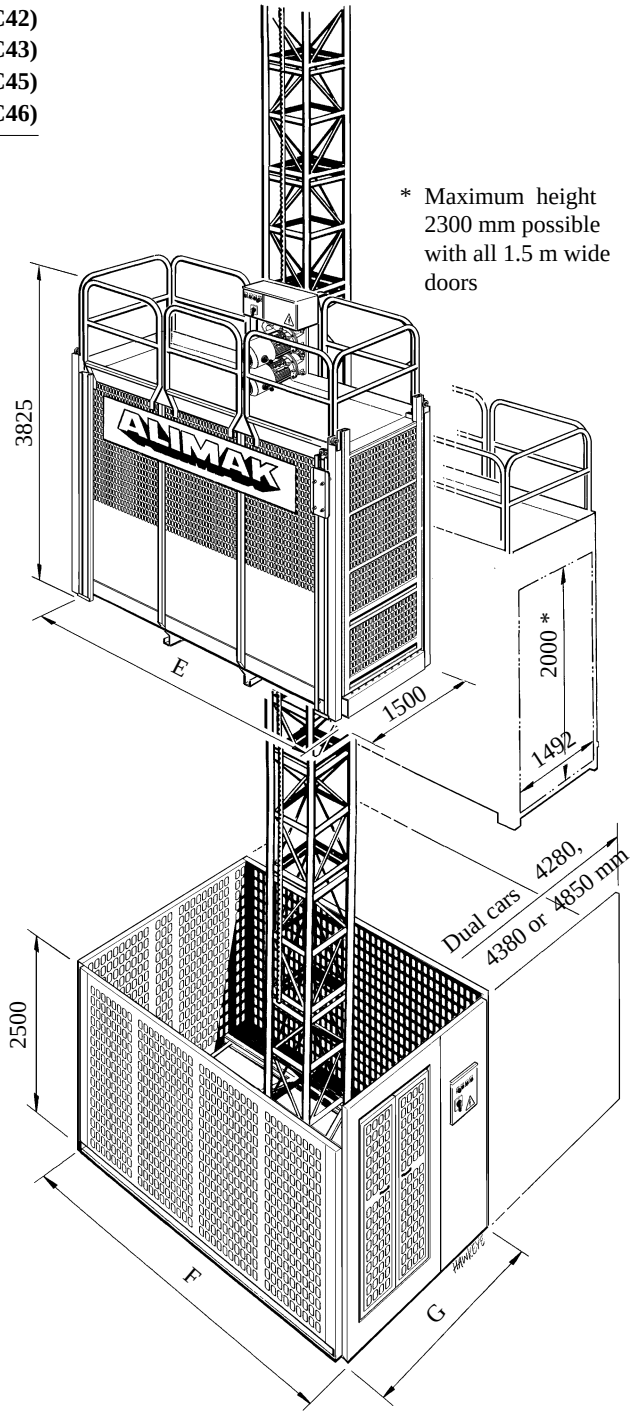
Data for other voltages on request

WEIGHTS

Base unit weight approx.	kg	3000	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:		
Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***



* Maximum height 2300 mm possible with all 1.5 m wide doors

[1] A ”slim” 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 147 kg or 117 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.

[4] Is intended for the 3rd vertical lift door (location C).

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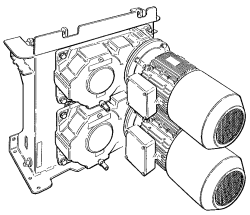
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

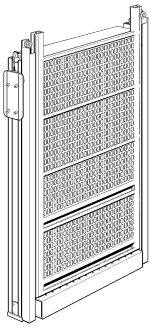
SCANDO 650 Modular System

Dual motor machinery (FC)
incl. VFC-panel (45 kW). Weight 590 kg

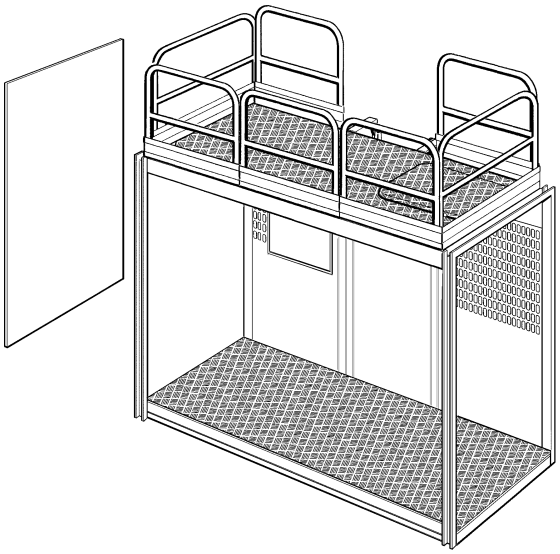


Vertical exit door
in two parts,
weight 133 kg

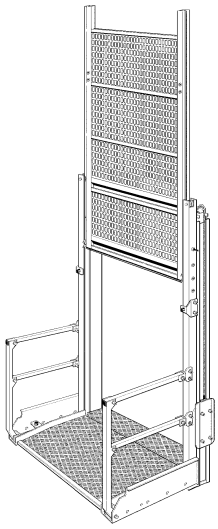
Vertical full height
entrance door, weight 155 kg



2.8 m car base structure incl. safety railings (85 kg),
weight 991 kg

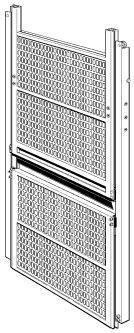


Closed, solid wall
on exit side,
weight 55 kg

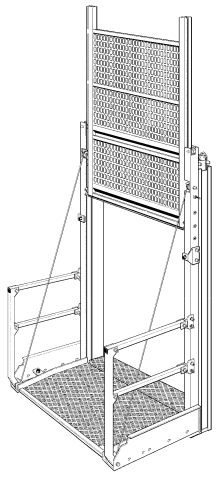


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 2.5 m entrance
door, weight 190 kg



Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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SCANDO 650 FC /32

3.2 m car with two [1] vertical doors		**X**				**(C22)**
3.2 m car with three vertical doors			**X**			**(C23)**
3.2 m car with one load ramp and one [1] vertical door				**X**		**(C25)**
3.2 m car with one load ramp and two vertical doors					**X**	**(C26)**
Pay-load capacity (fuse 63 A)	kg	2100	2000	2000	1900	
(fuse 80 A)	kg	2400	2300	2200	2000	
Speed 50 Hz / 60 Hz	m/min	0 – 42	0 – 42	0 – 42	0 – 42	
Max. lifting height	meter	200	200	200	200	
Increased lifting height on request						
No. of buffer springs	pcs.	2	2	2	2	
Safety device type GFD	P/no.		9101991-9010			

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
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	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 2.5 [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
Starting current (fuse 63 A)	A~	60
(fuse 80 A)	A~	64
Power consumpt. (fuse 63 A)	kVA~	36
(fuse 80 A)	kVA~	39
Power cable guiding system		***Cable basket (≤ 100 m)***
Data for other voltages on request		

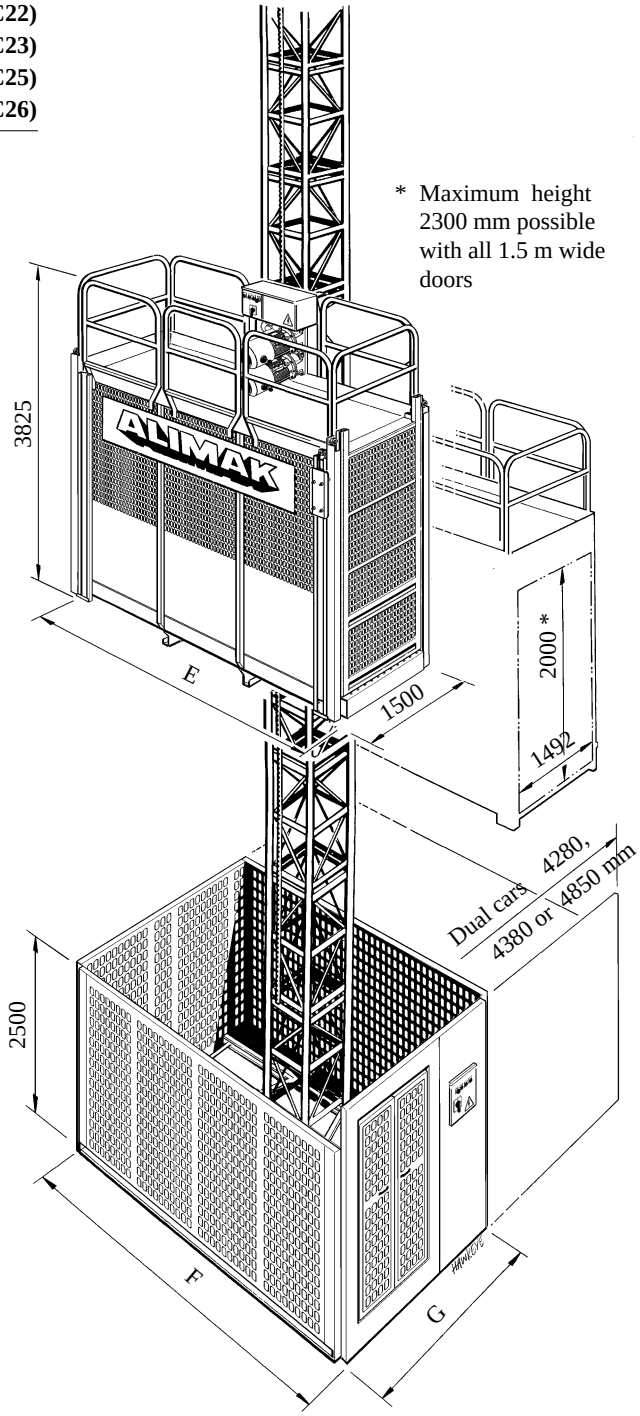
WEIGHTS

Base unit weight approx.	kg	2850	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.l.	m	***all 3.10***



* Maximum height 2300 mm possible with all 1.5 m wide doors

[1] A "slim" 3rd exit door also possible.

[3] Weights indicated for base model including standard entrance and exit door. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 147 kg or 117 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.

[4] Is intended for the 3rd vertical lift door (location C).

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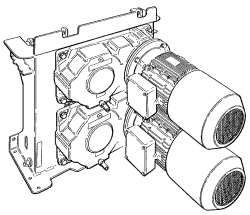
SCANDO 650 Modular System

Dual motor machinery (FC)
incl. VFC-panel (45 kW). Weight 590 kg



Vertical exit door
in two parts,
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Vertical full height
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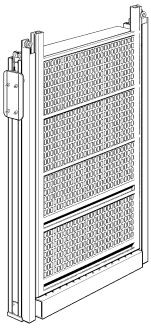

2.8 m car base structure incl. safety railings (85 kg),
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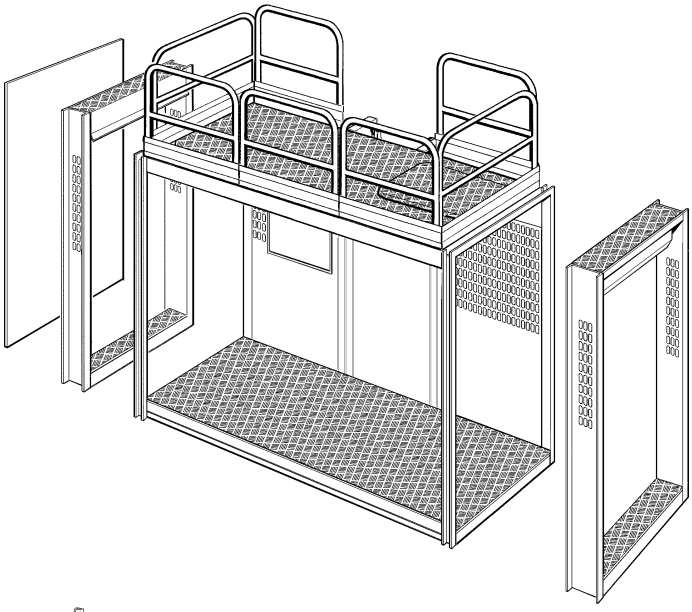

Closed, solid wall
on exit side,
weight 55 kg

Additional section
to increase car length
0.35 m in one or two
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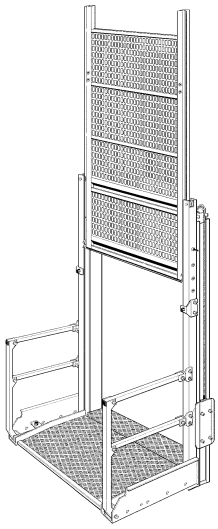
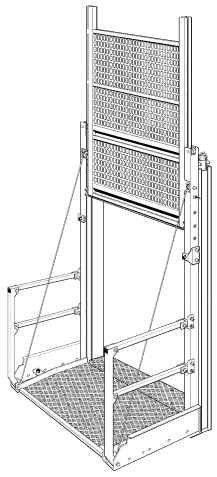
Weight 90 kg each.





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operated load ramp.
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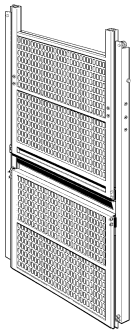

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Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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SCANDO 650 FC /39

Extended 3.9 m car with two [1] vertical doors		**X**			**(C42)**
Extended 3.9 m car with three vertical doors			**X**		**(C43)**
Extended 3.9 m car with one load ramp and one [1] vertical door		**X**			**(C45)**
Extended 3.9 m car with one load ramp and two vertical doors				**X**	**(C46)**
Pay-load capacity (fuse 63 A)	kg	1900	1800	1800	1700
(fuse 80 A)	kg	2100	1900	1800	1700
Speed 50 Hz / 60 Hz	m/min	0 – 42	0 – 42	0 – 42	0 – 42
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	2	2	2	2
Safety device type GFD	P/no.		9101991-9010		

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	3.9	3.9	3.9	3.9
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 2.5 [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
Starting current (fuse 63 A)	A~	60
(fuse 80 A)	A~	64
Power consumpt. (fuse 63 A)	kVA~	36
(fuse 80 A)	kVA~	39
Power cable guiding system		***Cable basket (≤ 100 m)***

Data for other voltages on request

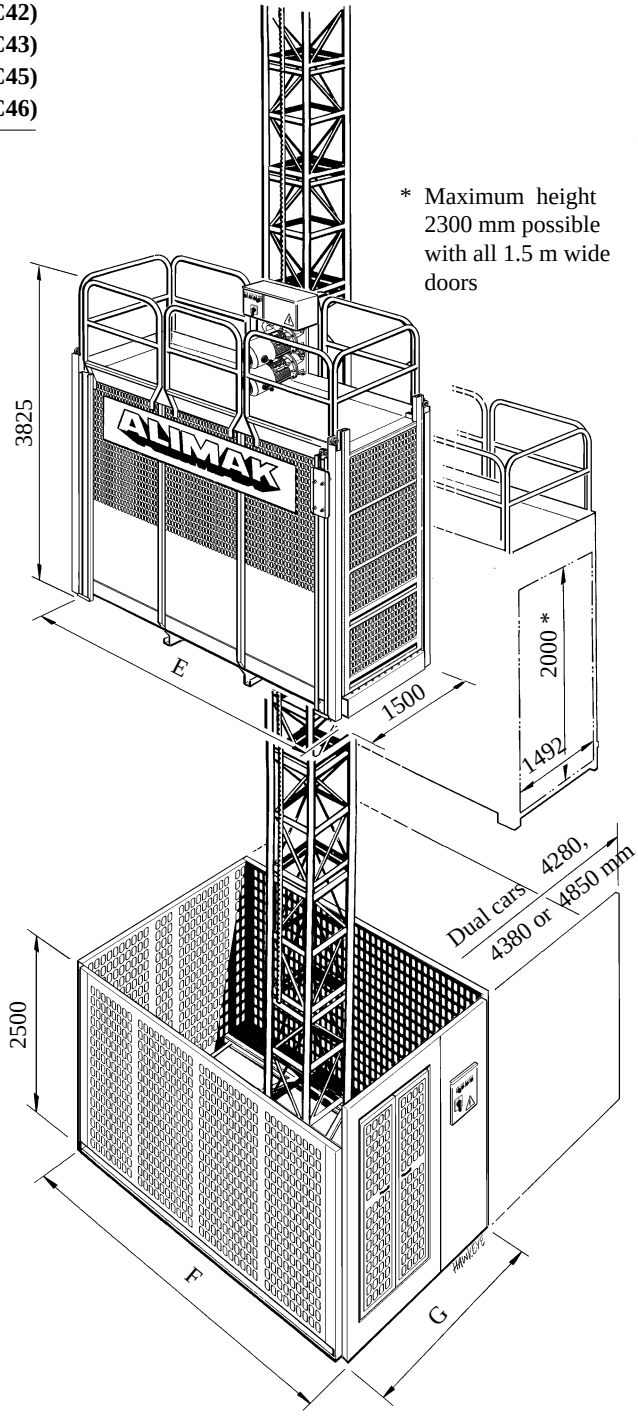
WEIGHTS

Base unit weight approx.	kg	3050	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***



* Maximum height 2300 mm possible with all 1.5 m wide doors

[1] A "slim" 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 147 kg or 117 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.

[4] Is intended for the 3rd vertical lift door (location C).

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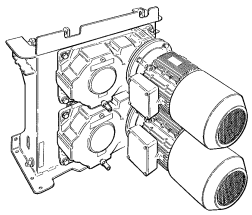
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

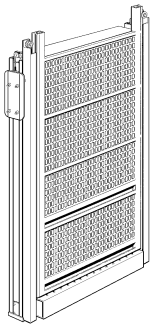
SCANDO 650 Modular System

Dual motor machinery (FC)
incl. VFC-panel (45 kW). Weight 590 kg

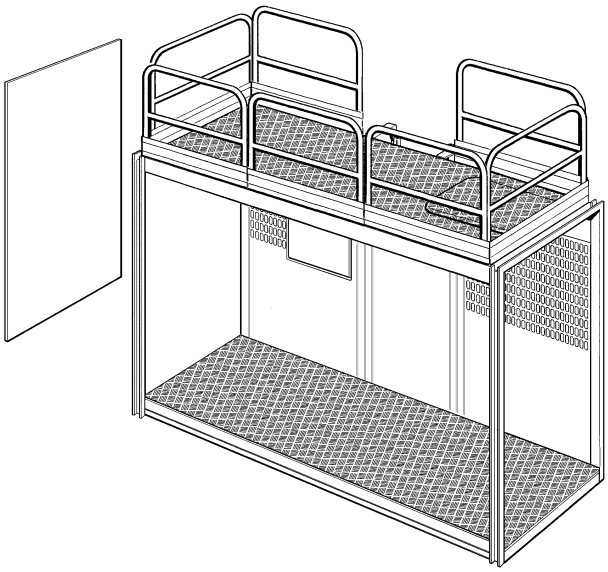


Vertical exit door
in two parts,
weight 133 kg

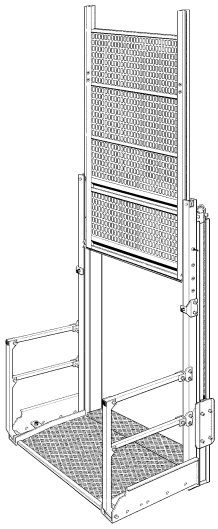
Vertical full height
entrance door, weight 155 kg



3.5 m car base structure incl. safety railings (100 kg)
weight 1116 kg

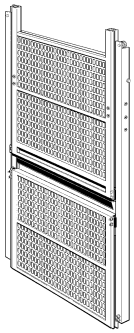


Closed, solid wall
on exit side,
weight 55 kg

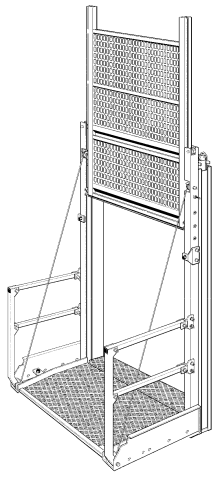


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 3.2 m entrance
door, weight 210 kg



Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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SCANDO 650 FC /39

3.9 m car with two [1] vertical doors		**X**			**(C52)**
3.9 m car with three vertical doors			**X**		**(C53)**
3.9 m car with one load ramp and one [1] vertical door				**X**	**(C55)**
3.9 m car with one load ramp and two vertical doors					**X (C56)**
Pay-load capacity (fuse 63 A)	kg	2000	1900	1900	1800
(fuse 80 A)	kg	2200	2000	1900	1800
Speed 50 Hz / 60 Hz	m/min	0 – 42	0 – 42	0 – 42	0 – 42
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	2	2	2	2
Safety device type GFD	P/no.		9101991-9010		

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	3.9	3.9	3.9	3.9
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 3.2 [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
Starting current (fuse 63 A)	A~	60
(fuse 80 A)	A~	64
Power consumpt. (fuse 63 A)	kVA~	36
(fuse 80 A)	kVA~	39
Power cable guiding system		***Cable basket (≤ 100 m)***
Data for other voltages on request		

WEIGHTS

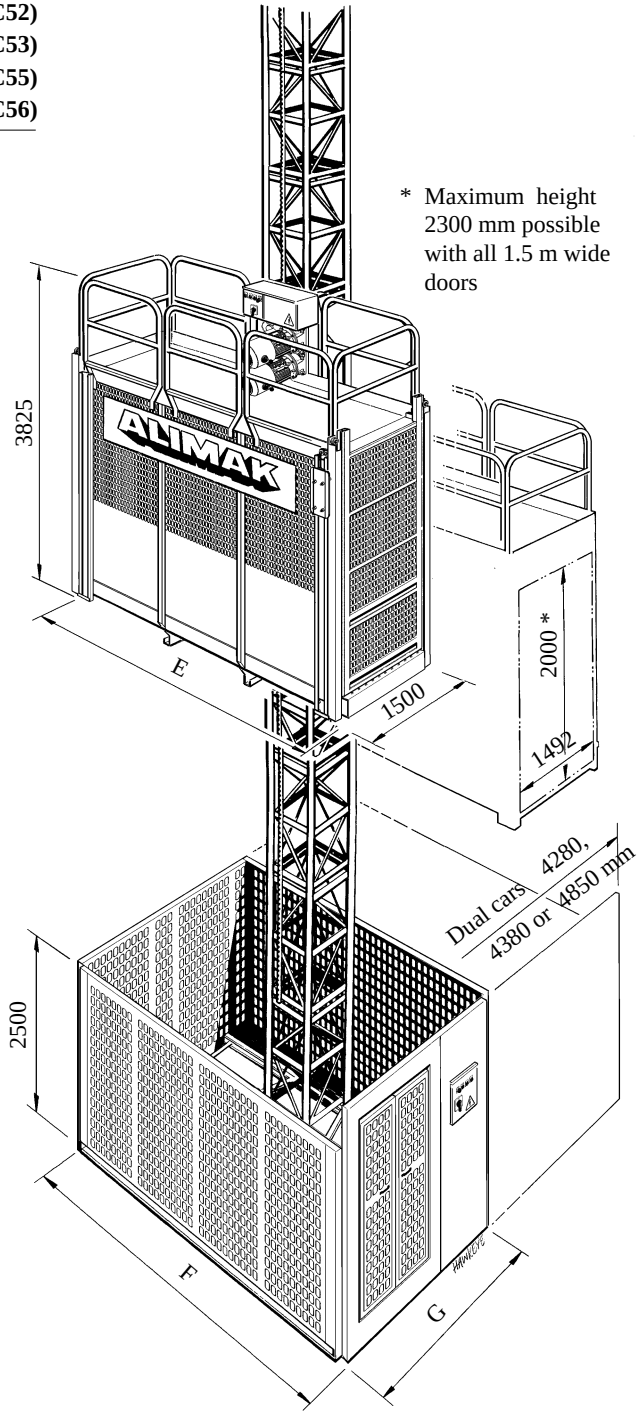
Base unit weight approx.	kg	3050	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***

* Maximum height 2300 mm possible with all 1.5 m wide doors



[1] A ”slim” 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 147 kg or 117 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.

[4] Is intended for the 3rd vertical lift door (location C).

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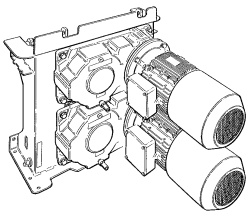
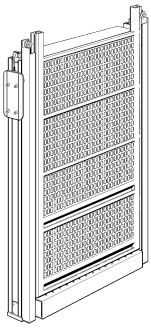
SCANDO 650 Modular System

Dual motor machinery (FC)
incl. VFC-panel (45 kW). Weight 590 kg

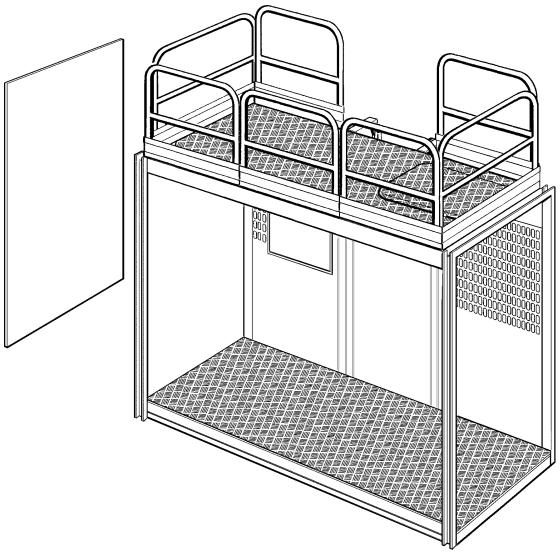


Vertical exit door
in two parts,
weight 133 kg

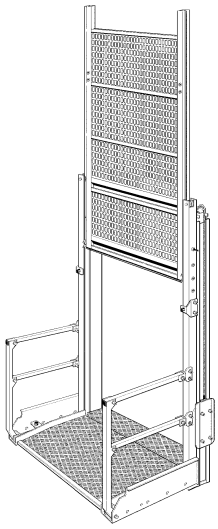
Vertical full height
entrance door, weight 155 kg



2.8 m car base structure incl. safety railings (85 kg),
weight 991 kg

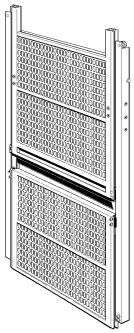


Closed, solid wall
on exit side,
weight 55 kg

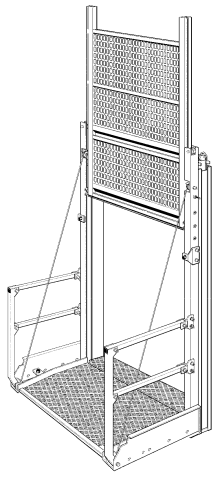


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 2.5 m entrance
door, weight 190 kg



Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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SCANDO 650 FC /32

3.2 m car with two [1] vertical doors		**X**				**(C22)**
3.2 m car with three vertical doors			**X**			**(C23)**
3.2 m car with one load ramp and one [1] vertical door				**X**		**(C25)**
3.2 m car with one load ramp and two vertical doors					**X**	**(C26)**
Pay-load capacity (fuse 63 A)	kg	1200	1100	1000	900	
(fuse 80 A)	kg	1900	1800	1700	1700	
Speed 50 Hz / 60 Hz	m/min	0 – 54	0 – 54	0 – 54	0 – 54	
Max. lifting height	meter	200	200	200	200	
Increased lifting height on request						
No. of buffer springs	pcs.	2	2	2	2	
Safety device type GFD	P/no.		9099255-8012			

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
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	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 2.5 [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
Starting current (fuse 63 A)	A~	61
(fuse 80 A)	A~	74
Power consumpt.(fuse 63 A)	kVA~	37
(fuse 80 A)	kVA~	44
Power cable guiding system		***Cable trolley***
Data for other voltages on request		

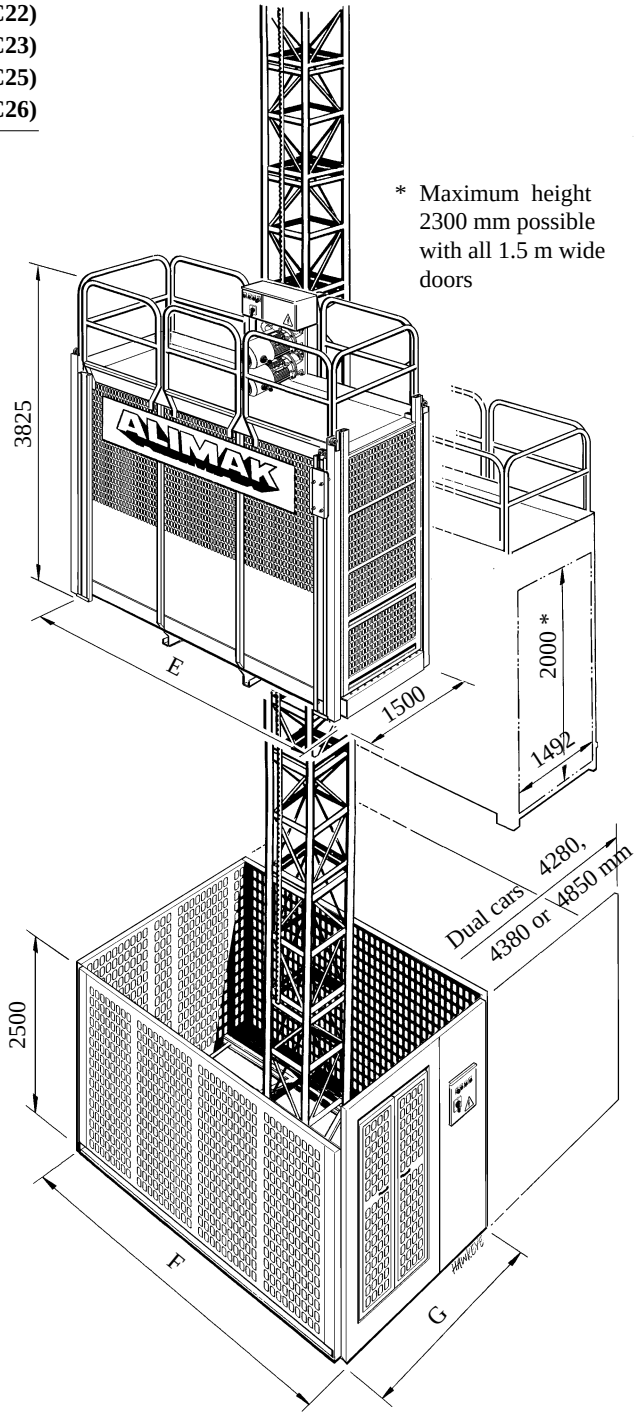
WEIGHTS

Base unit weight approx.	kg	2850	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height:	m	***all 3.10***
machinery excl.		



* Maximum height 2300 mm possible with all 1.5 m wide doors

[1] A "slim" 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door.
Add additional 147 kg or 117 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.

[4] Is intended for the 3rd vertical lift door (location C).

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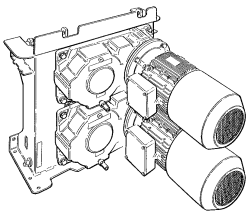
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

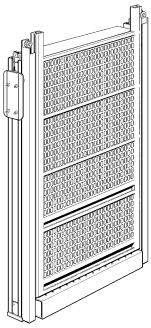
SCANDO 650 Modular System

Dual motor machinery (FC)
incl. VFC-panel (45 kW). Weight 590 kg

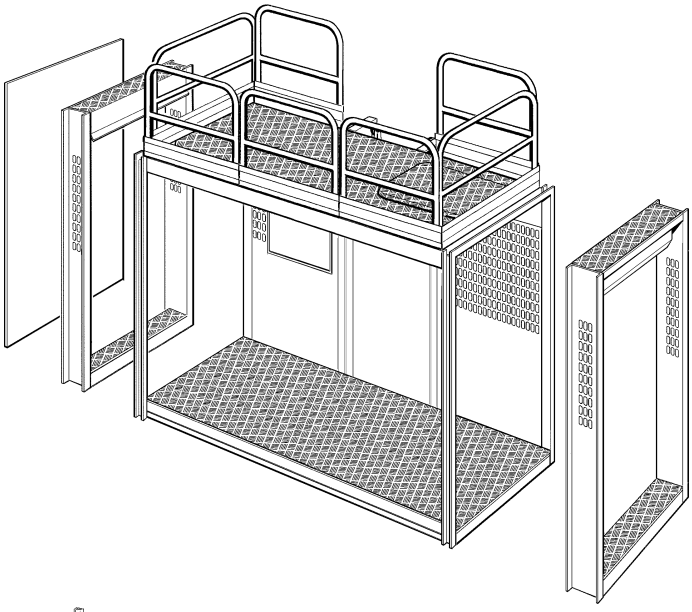


Vertical exit door
in two parts,
weight 133 kg

Vertical full height
entrance door, weight 155 kg

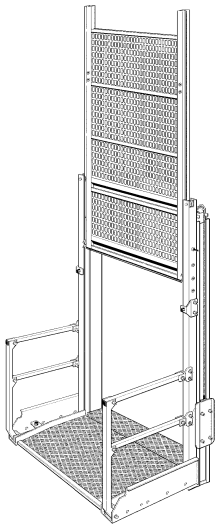


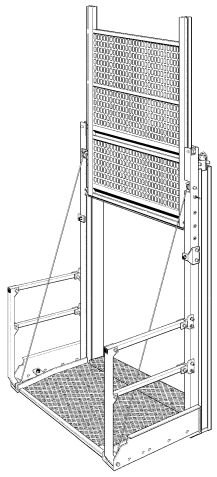
2.8 m car base structure incl. safety railings (85 kg),
weight 991 kg



Closed, solid wall
on exit side,
weight 55 kg

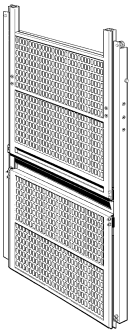
Additional section
to increase car length
0.35 m in one or two
sides (0.35 + 0.35 m).
Weight 90 kg each.





Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 2.5 m entrance
door, weight 190 kg



Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg

Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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Printed in Sweden

SCANDO 650 FC /39

Extended 3.9 m car with two [1] vertical doors		**X**			**(C42)**
Extended 3.9 m car with three vertical doors			**X**		**(C43)**
Extended 3.9 m car with one load ramp and one [1] vertical door		**X**			**(C45)**
Extended 3.9 m car with one load ramp and two vertical doors				**X**	**(C46)**

Pay-load capacity (fuse 63 A)	kg	1000	900	800	800
(fuse 80 A)	kg	1700	1600	1600	1500
Speed 50 Hz / 60 Hz	m/min	0 – 54	0 – 54	0 – 54	0 – 54
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	2	2	2	2
Safety device type GFD	P/no.		9099255-8012		

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	3.9	3.9	3.9	3.9
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 2.5 [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
Starting current (fuse 63 A)	A~	61
(fuse 80 A)	A~	74
Power consumpt.(fuse 63 A)	kVA~	37
(fuse 80 A)	kVA~	44
Power cable guiding system		***Cable trolley***

Data for other voltages on request

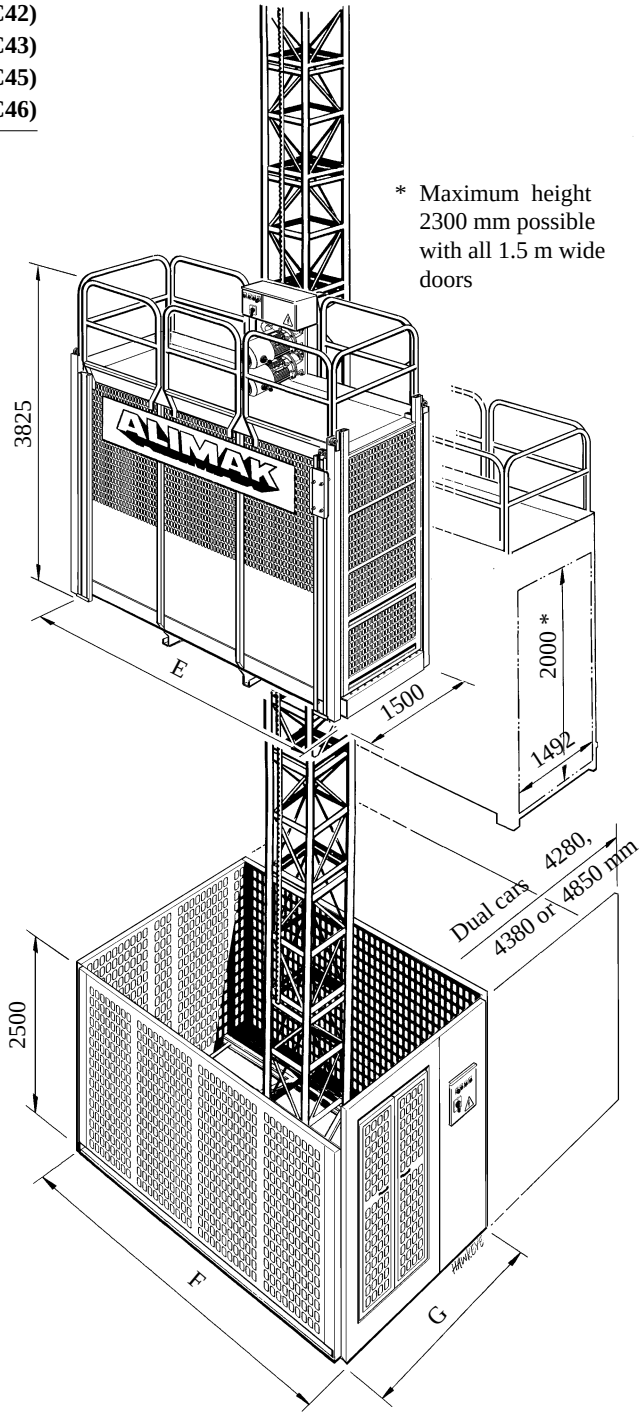
WEIGHTS

Base unit weight approx.	kg	3050	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***



* Maximum height 2300 mm possible with all 1.5 m wide doors

[1] A "slim" 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door.
Add additional 147 kg or 117 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.

[4] Is intended for the 3rd vertical lift door (location C).

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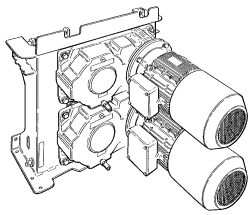
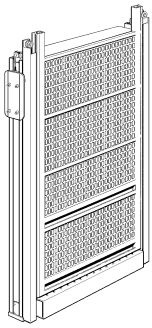
SCANDO 650 Modular System

Dual motor machinery (FC)
incl. VFC-panel (45 kW). Weight 590 kg

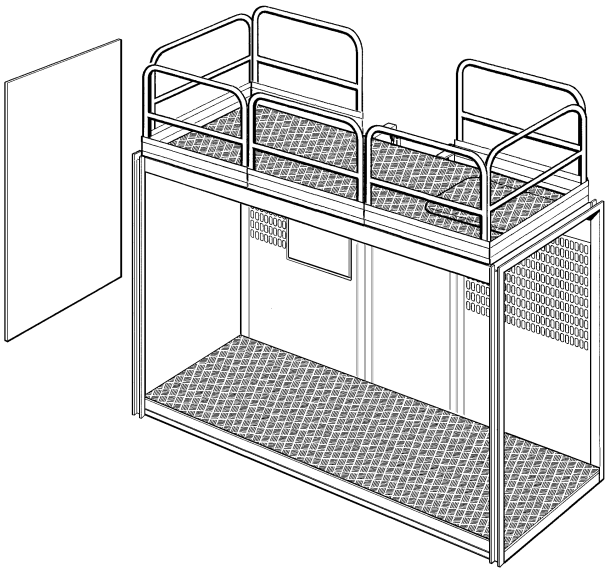


Vertical exit door
in two parts,
weight 133 kg

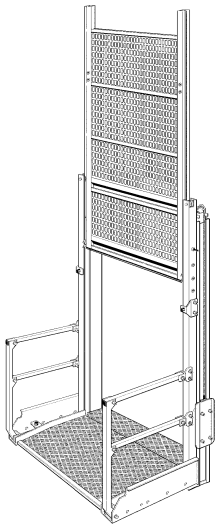
Vertical full height
entrance door, weight 155 kg



3.5 m car base structure incl. safety railings (100 kg)
weight 1116 kg

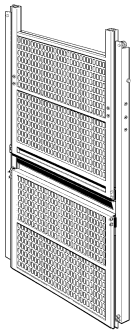


Closed, solid wall
on exit side,
weight 55 kg

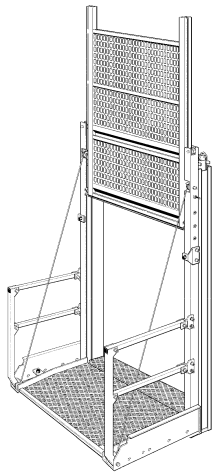


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 3.2 m entrance
door, weight 210 kg



Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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SCANDO 650 FC /39

3.9 m car with two [1] vertical doors		**X**			**(C52)**
3.9 m car with three vertical doors			**X**		**(C53)**
3.9 m car with one load ramp and one [1] vertical door				**X**	**(C55)**
3.9 m car with one load ramp and two vertical doors					**X (C56)**
Pay-load capacity (fuse 63 A)	kg	1500	1400	1400	1300
(fuse 80 A)	kg	1700	1700	1600	1500
Speed 50 Hz / 60 Hz	m/min	0 – 54	0 – 54	0 – 54	0 – 54
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	2	2	2	2
Safety device type GFD	P/no.		9099255-8012		

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	3.9	3.9	3.9	3.9
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 3.2 [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
Starting current (fuse 63 A)	A~	57
(fuse 80 A)	A~	61
Power consumpt. (fuse 63 A)	kVA~	41
(fuse 80 A)	kVA~	44
Power cable guiding system		***Cable basket (≤ 100 m)***

Data for other voltages on request

WEIGHTS

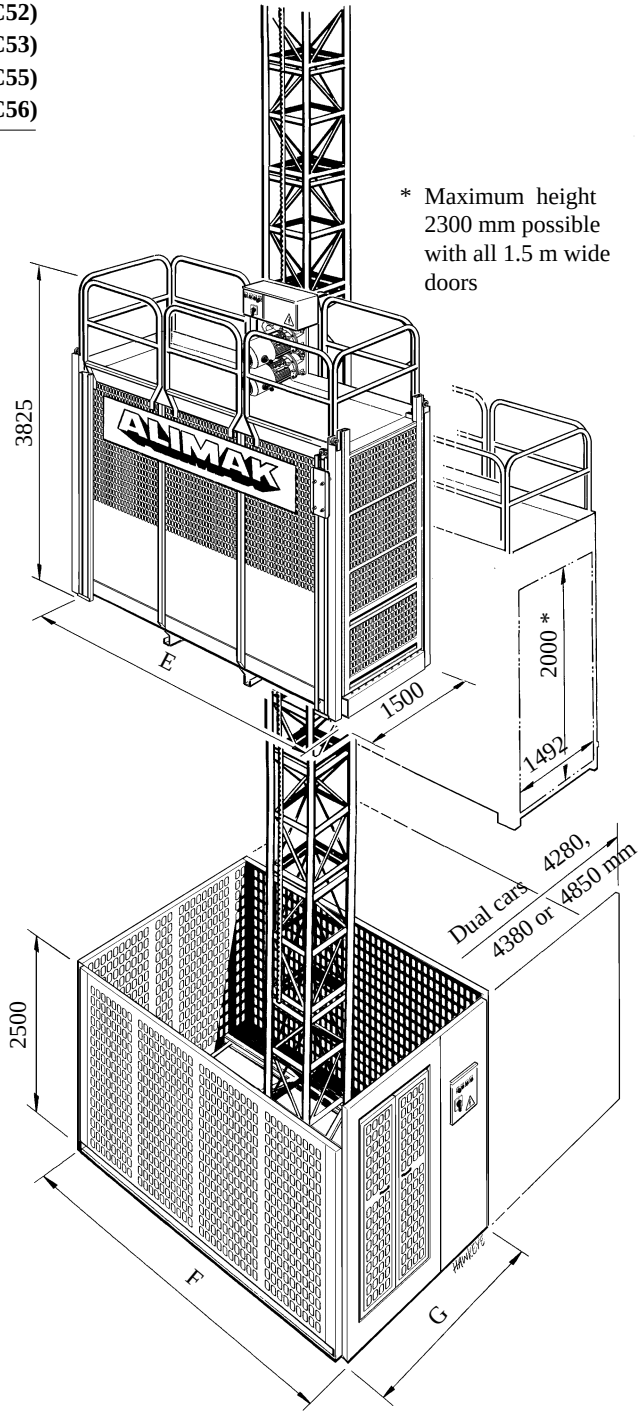
Base unit weight approx.	kg	3050	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***

* Maximum height 2300 mm possible with all 1.5 m wide doors



[1] A ”slim” 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door. Add trailing power cable approximately 1.0 kg/meter where cable basket occurs. Add additional 147 kg or 117 kg respectively, where optional load ramp occurs.

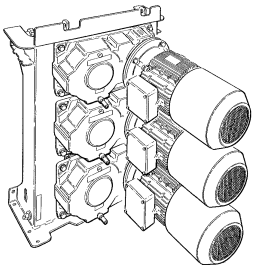
[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

[4] Is intended for the 3rd vertical lift door (location C).

ALIMAK AB, P O Box 720, SE-931 27 Skellefteå, Sweden. Tel. +46 910 87000.
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

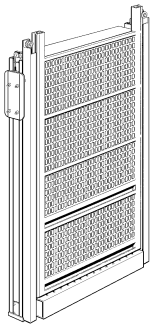
SCANDO 650 Modular System

Triple motor machinery
incl. VFC-panel (75 kW). Weight 890 kg

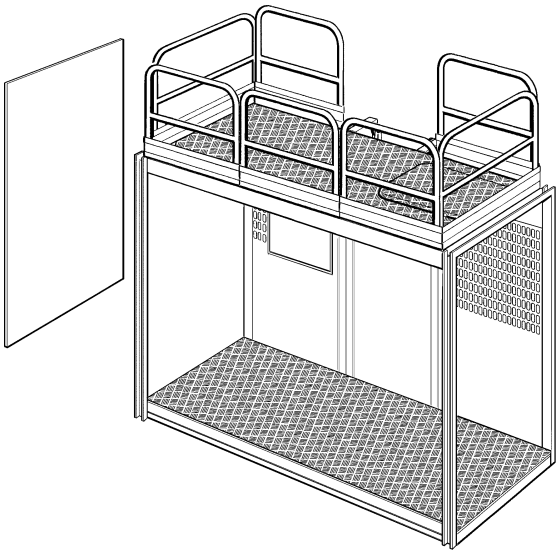


Vertical exit door
in two parts,
weight 133 kg

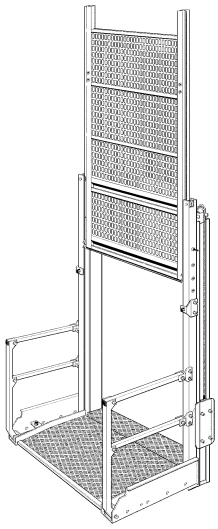
Vertical full height
entrance door, weight 155 kg



2.8 m car base structure incl. safety railings (85 kg),
weight 991 kg

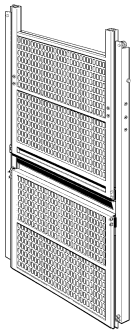


Closed, solid wall
on exit side,
weight 55 kg

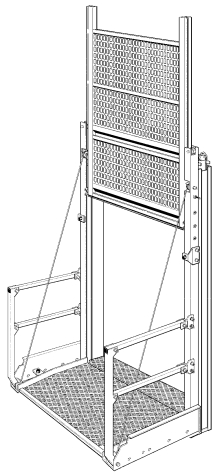


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 2.5 m entrance
door, weight 190 kg



Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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SCANDO 650 FC /32

3.2 m car with two [1] vertical doors		**X**			**(C22)**
3.2 m car with three vertical doors			**X**		**(C23)**
3.2 m car with one load ramp and one [1] vertical door				**X**	**(C25)**
3.2 m car with one load ramp and two vertical doors					**X (C26)**
Pay-load capacity (fuse 100 A)	kg	2900	2800	2800	2700
(fuse 125 A)	kg	3200	3200	3200	3200
Speed 50 Hz / 60 Hz	m/min	0 – 54	0 – 54	0 – 54	0 – 54
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	3	3	3	3
Safety device type GFD	P/no.		9099255-1212		

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
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	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 2.5 [4] x 2.0***			

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase
At 400 V/50 Hz: ***(step-up transformer above 160 m required)***		
Power supply fuses	A~	100 or 125 alternatively
Triple motor machinery	kW	3 x 11
Starting current (fuse 100 A)	A~	98
(fuse 125 A)	A~	108
Power consumpt.(fuse 100 A)	kVA~	59
Power consumpt.(fuse 125 A)	kVA~	59
Power cable guiding system		***Cable trolley***
Data for other voltages on request		

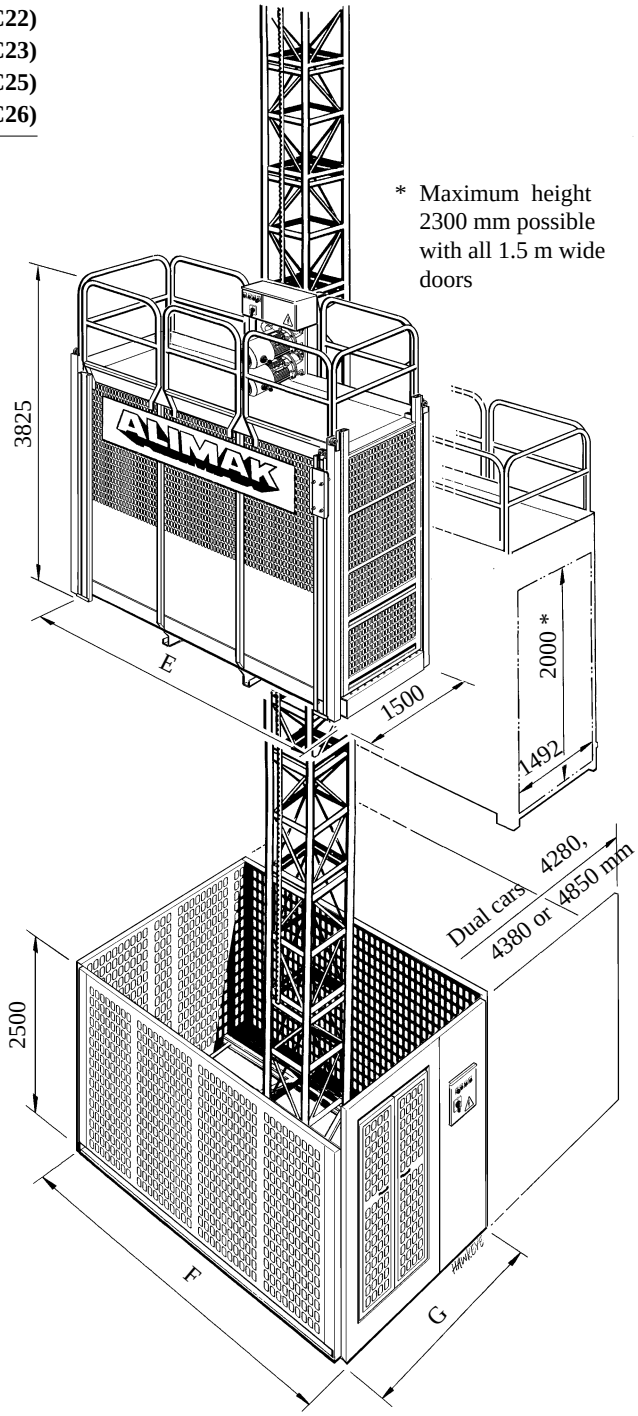
WEIGHTS

Base unit weight approx.	kg	3250	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***



* Maximum height 2300 mm possible with all 1.5 m wide doors

[1] A "slim" 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door.
Add additional 147 kg or 117 kg respectively, where optional load ramp occurs.

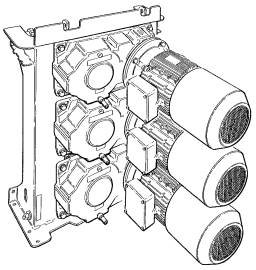
[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

[4] Is intended for the 3rd vertical lift door (location C).

ALIMAK AB, P O Box 720, SE-931 27 Skellefteå, Sweden. Tel. +46 910 87000.
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

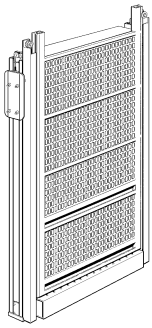
SCANDO 650 Modular System

Triple motor machinery
incl. VFC-panel (75 kW). Weight 890 kg

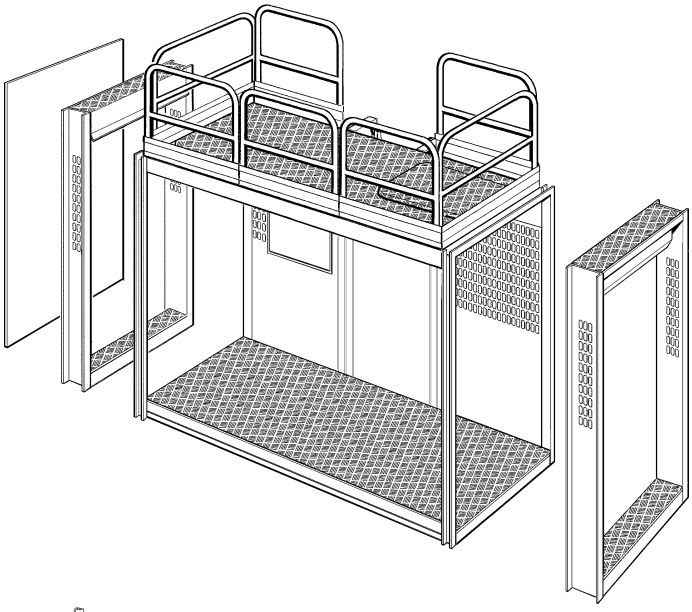


Vertical exit door
in two parts,
weight 133 kg

Vertical full height
entrance door, weight 155 kg

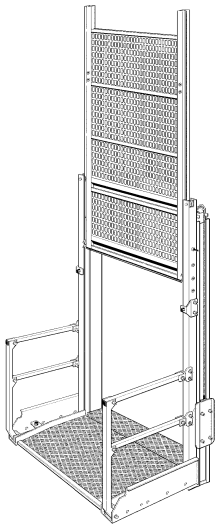


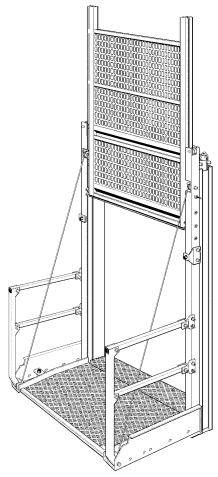
2.8 m car base structure incl. safety railings (85 kg),
weight 991 kg

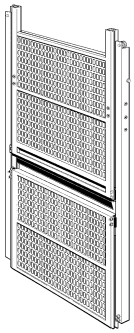


Closed, solid wall
on exit side,
weight 55 kg

Additional section
to increase car length
0.35 m in one or two
sides (0.35 + 0.35 m).
Weight 90 kg each.







Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 2.5 m entrance
door, weight 190 kg

Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg

Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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SCANDO 650 FC /39

Extended 3.9 m car with two [1] vertical doors		**X**			**(C42)**
Extended 3.9 m car with three vertical doors			**X**		**(C43)**
Extended 3.9 m car with one load ramp and one [1] vertical door		**X**			**(C45)**
Extended 3.9 m car with one load ramp and two vertical doors				**X**	**(C46)**
Pay-load capacity (fuse 100 A)	kg	2700	2600	2600	2500
(fuse 125 A)	kg	3200	3200	3200	3200
Speed 50 Hz / 60 Hz	m/min	0 – 54	0 – 54	0 – 54	0 – 54
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	3	3	3	3
Safety device type GFD	P/no.		9099255-1212		

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	3.9	3.9	3.9	3.9
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 2.5 [4] x 2.0***			

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase
At 400 V/50 Hz: ***(step-up transformer above 180 m required)***		
Power supply fuses	A~	100 or 125 alternatively
Triple motor machinery	kW	3 x 11
Starting current (fuse 100 A)	A~	98
(fuse 125 A)	A~	108
Power consumpt.(fuse 100 A)	kVA~	59
(fuse 125 A)	kVA~	65
Power cable guiding system		***Cable trolley***
Data for other voltages on request		

WEIGHTS

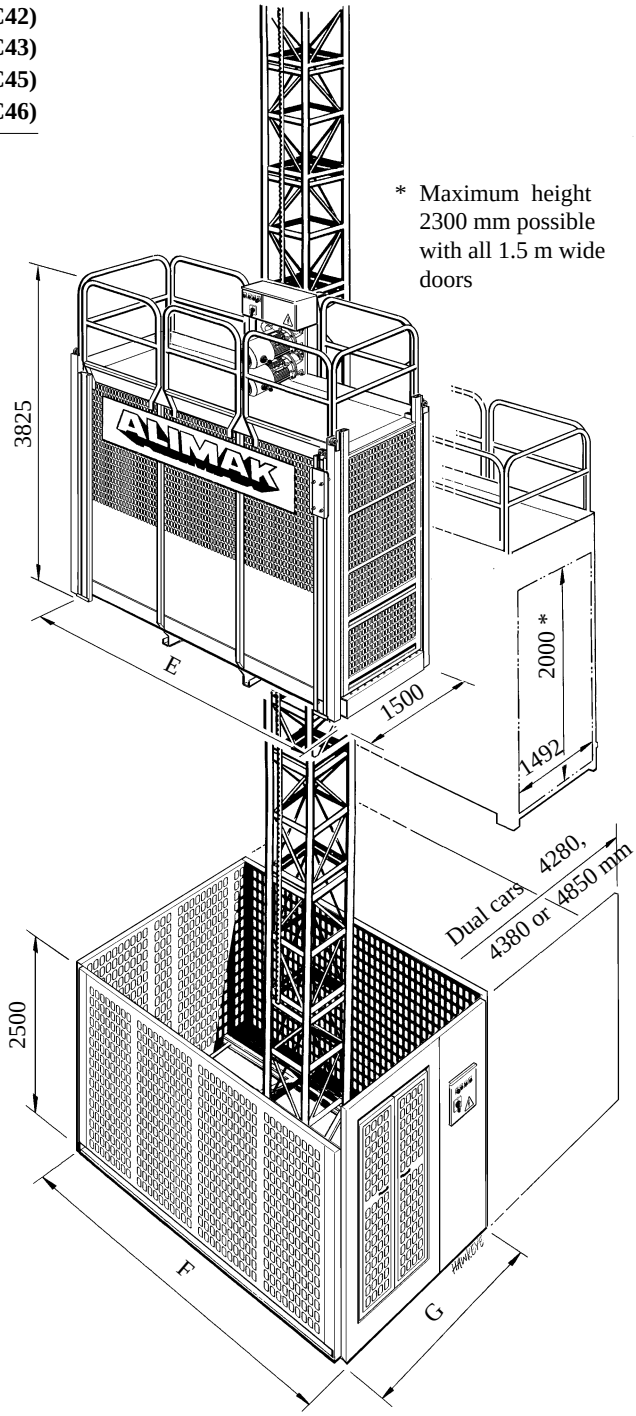
Base unit weight approx.	kg	3450	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***

* Maximum height 2300 mm possible with all 1.5 m wide doors



[1] A "slim" 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door.
Add additional 147 kg or 117 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.

[4] Is intended for the 3rd vertical lift door (location C).

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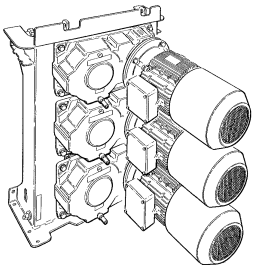
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

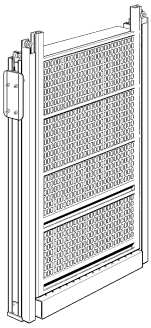
SCANDO 650 Modular System

Triple motor machinery
incl. VFC-panel (75 kW). Weight 890 kg

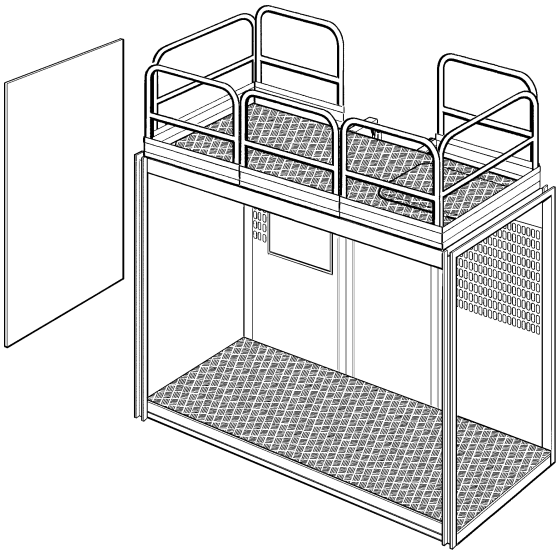


Vertical exit door
in two parts,
weight 133 kg

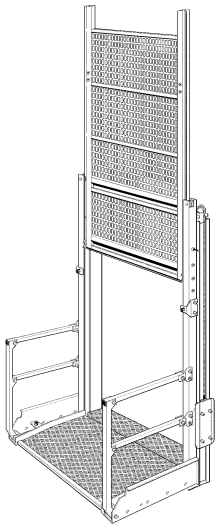
Vertical full height
entrance door, weight 155 kg



2.8 m car base structure incl. safety railings (85 kg),
weight 991 kg

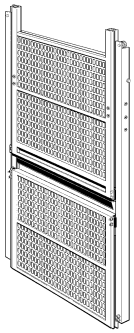


Closed, solid wall
on exit side,
weight 55 kg

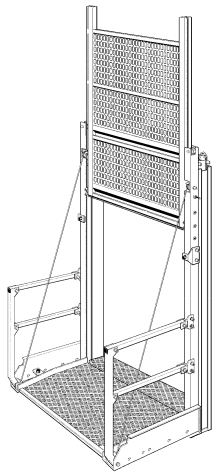


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 2.5 m entrance
door, weight 190 kg



Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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SCANDO 650 FC /32

3.2 m car with two [1] vertical doors		**X**			**(C22)**
3.2 m car with three vertical doors			**X**		**(C23)**
3.2 m car with one load ramp and one [1] vertical door				**X**	**(C25)**
3.2 m car with one load ramp and two vertical doors					**X (C26)**
Pay-load capacity (fuse 100 A)	kg	1900	1800	1800	1700
(fuse 125 A)	kg	2500	2400	2400	2300
Speed 50 Hz / 60 Hz	m/min	0 – 66	0 – 66	0 – 66	0 – 66
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	3	3	3	3
Safety device type GFD	P/no.		9099255-1014		

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
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	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 2.5 [4] x 2.0***			

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase
At 400 V/50 Hz: ***(step-up transformer above 160 m required)***		
Power supply fuses	A~	100 or 125 alternatively
Triple motor machinery	kW	3 x 11
Starting current (fuse 100 A)	A~	97
(fuse 125 A)	A~	110
Power consumpt.(fuse 100 A)	kVA~	58
Power consumpt.(fuse 125 A)	kVA~	66
Power cable guiding system		***Cable trolley***
Data for other voltages on request		

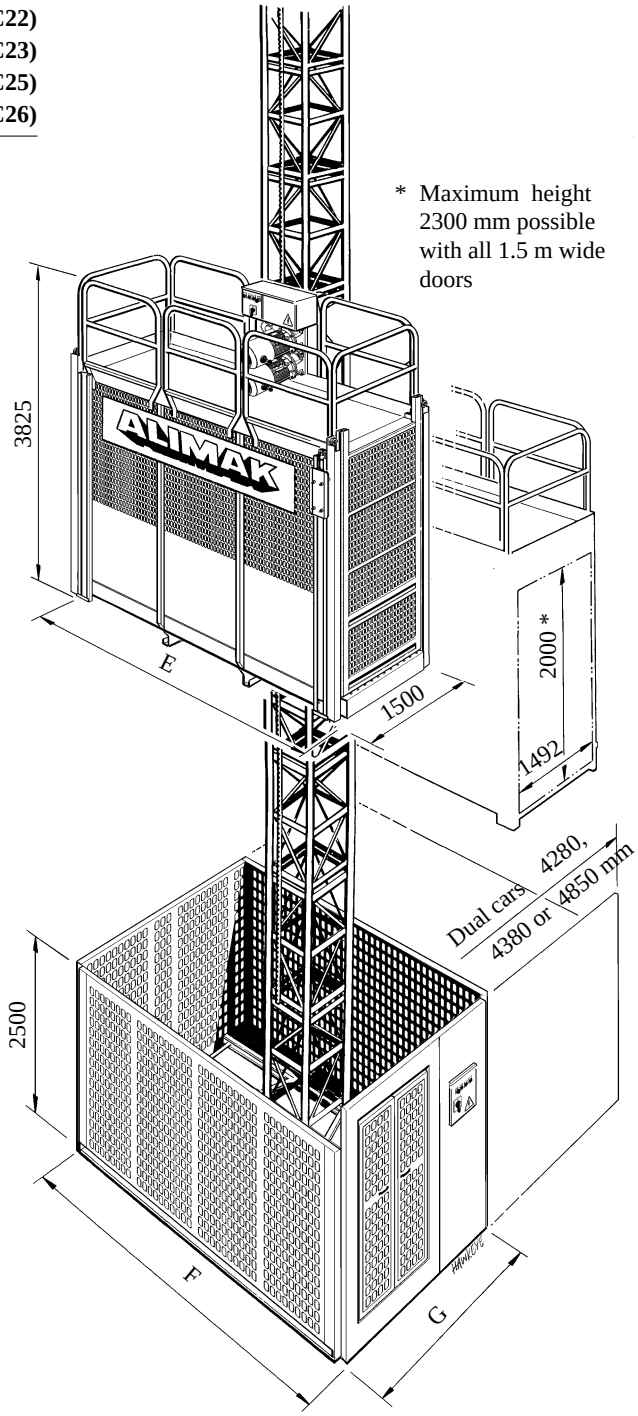
WEIGHTS

Base unit weight approx.	kg	3250	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***



* Maximum height 2300 mm possible with all 1.5 m wide doors

[1] A "slim" 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door.
Add additional 147 kg or 117 kg respectively, where optional load ramp occurs.

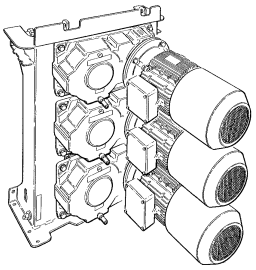
[3] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

[4] Is intended for the 3rd vertical lift door (location C).

ALIMAK AB, P O Box 720, SE-931 27 Skellefteå, Sweden. Tel. +46 910 87000.
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

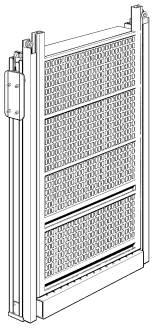
SCANDO 650 Modular System

Triple motor machinery
incl. VFC-panel (75 kW). Weight 890 kg

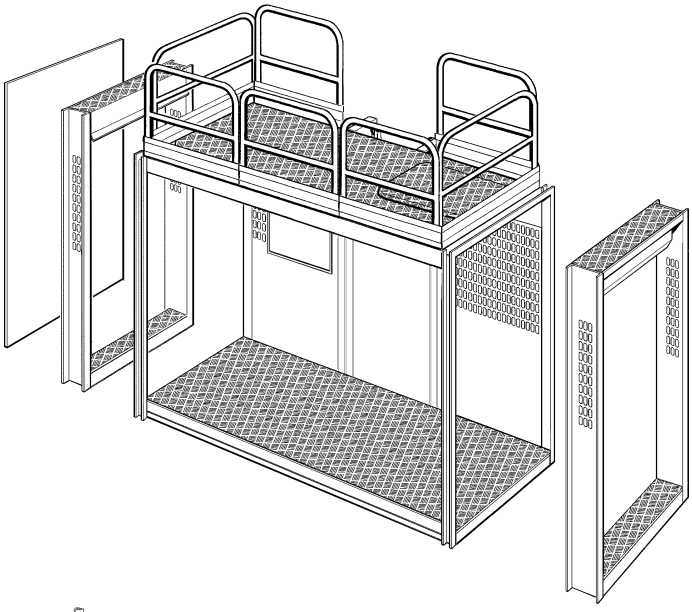


Vertical exit door
in two parts,
weight 133 kg

Vertical full height
entrance door, weight 155 kg

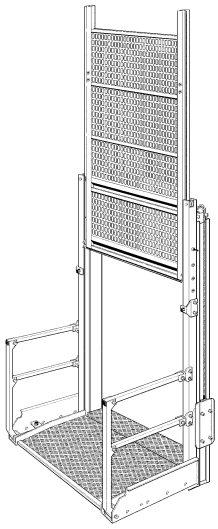


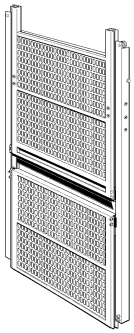
2.8 m car base structure incl. safety railings (85 kg),
weight 991 kg

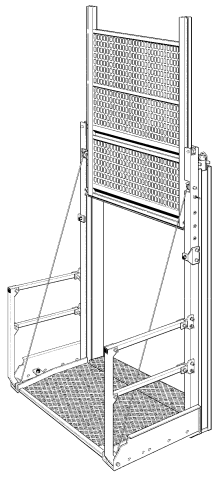


Closed, solid wall
on exit side,
weight 55 kg

Additional section
to increase car length
0.35 m in one or two
sides (0.35 + 0.35 m).
Weight 90 kg each.







Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 2.5 m entrance
door, weight 190 kg

Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg

Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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SCANDO 650 FC /39

Extended 3.9 m car with two [1] vertical doors		**X**			**(C42)**
Extended 3.9 m car with three vertical doors			**X**		**(C43)**
Extended 3.9 m car with one load ramp and one [1] vertical door		**X**			**(C45)**
Extended 3.9 m car with one load ramp and two vertical doors				**X**	**(C46)**
Pay-load capacity (fuse 100 A)	kg	1700	1600	1600	1500
(fuse 125 A)	kg	2300	2200	2200	2100
Speed 50 Hz / 60 Hz	m/min	0 – 66	0 – 66	0 – 66	0 – 66
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	3	3	3	3
Safety device type GFD	P/no.	9099255-1014			

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	3.9	3.9	3.9	3.9
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 2.5 [4] x 2.0***			

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase
At 400 V/50 Hz: ***(step-up transformer above 160 m required)***		
Power supply fuses	A~	100 or 125 alternatively
Triple motor machinery	kW	3 x 11
Starting current (fuse 100 A)	A~	97
(fuse 125 A)	A~	110
Power consumpt.(fuse 100 A)	kVA~	58
(fuse 125 A)	kVA~	66
Power cable guiding system		***Cable trolley***
Data for other voltages on request		

WEIGHTS

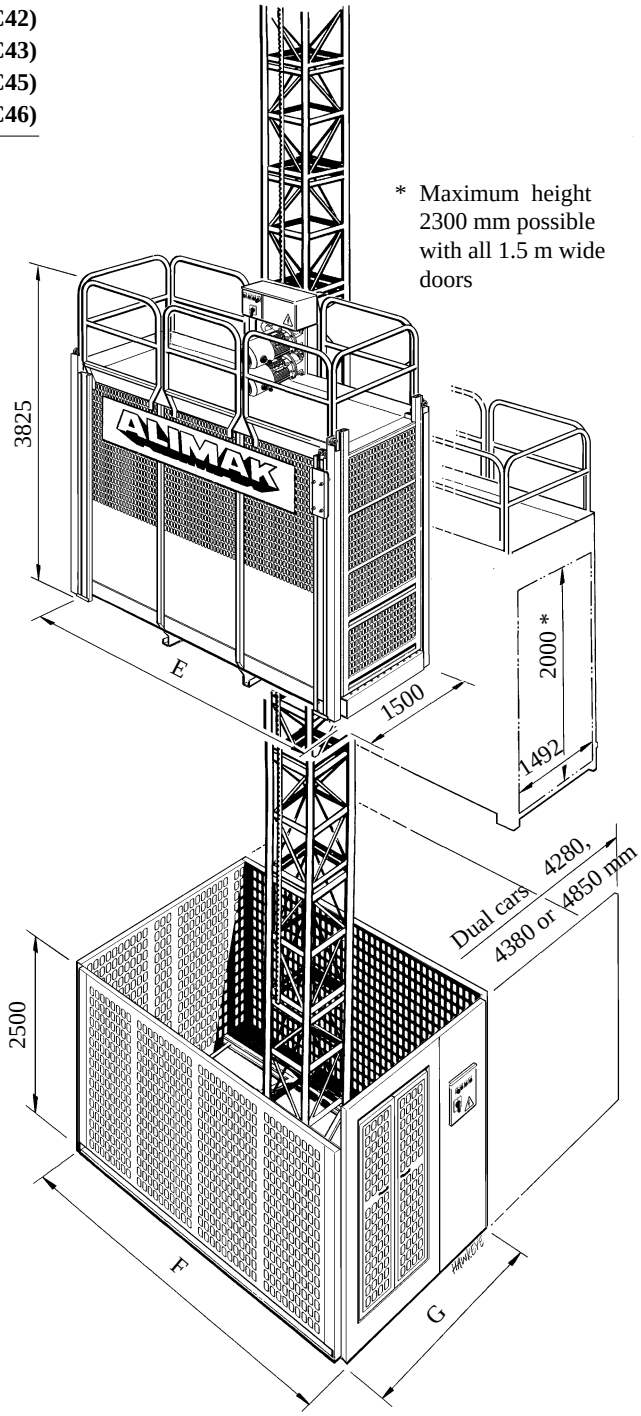
Base unit weight approx.	kg	3450	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***

* Maximum height 2300 mm possible with all 1.5 m wide doors



[1] A "slim" 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door.
Add additional 147 kg or 117 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.

[4] Is intended for the 3rd vertical lift door (location C).

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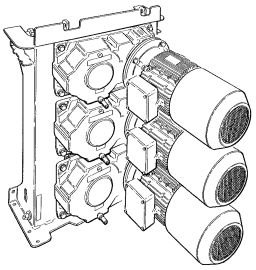
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

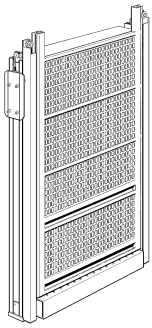
SCANDO 650 Modular System

Triple motor machinery
incl. VFC-panel (75 kW). Weight 890 kg

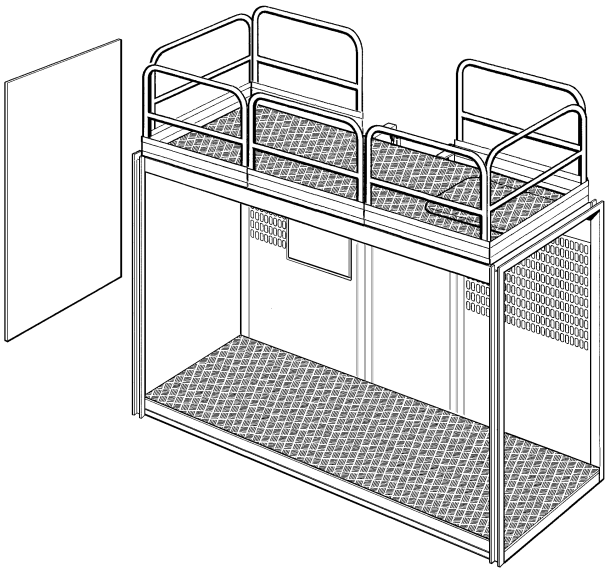


Vertical exit door
in two parts,
weight 133 kg

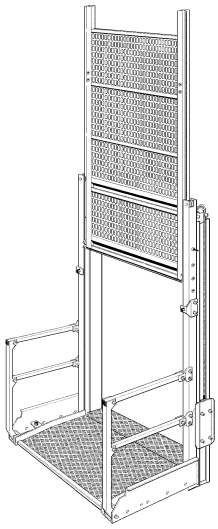
Vertical full height
entrance door, weight 155 kg



3.5 m car base structure incl. safety railings (100 kg)
weight 1116 kg

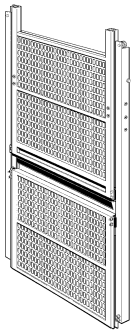


Closed, solid wall
on exit side,
weight 55 kg

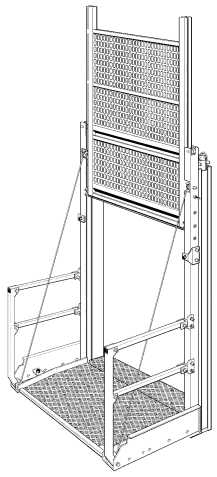


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 3.2 m entrance
door, weight 210 kg



Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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SCANDO 650 FC /39

3.9 m car with two [1] vertical doors		**X**			**(C52)**
3.9 m car with three vertical doors			**X**		**(C53)**
3.9 m car with one load ramp and one [1] vertical door				**X**	**(C55)**
3.9 m car with one load ramp and two vertical doors					**X (C56)**
Pay-load capacity (fuse 100 A)	kg	2800	2700	2600	2600
(fuse 125 A)	kg	3200	3200	3200	3200
Speed 50 Hz / 60 Hz	m/min	0 – 54	0 – 54	0 – 54	0 – 54
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	3	3	3	3
Safety device type GFD	P/no.		90099255-1212		

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	3.9	3.9	3.9	3.9
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 3.2 [4] x 2.0***			

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase
At 400 V/50 Hz: ***(step-up transformer above 170 m required)***		
Power supply fuses	A~	100 or 125 alternatively
Triple motor machinery	kW	3 x 11
Starting current (fuse 100 A)	A~	98
(fuse 125 A)	A~	108
Power consumpt.(fuse 100 A)	kVA~	59
(fuse 125 A)	kVA~	65
Power cable guiding system		***Cable trolley***
Data for other voltages on request		

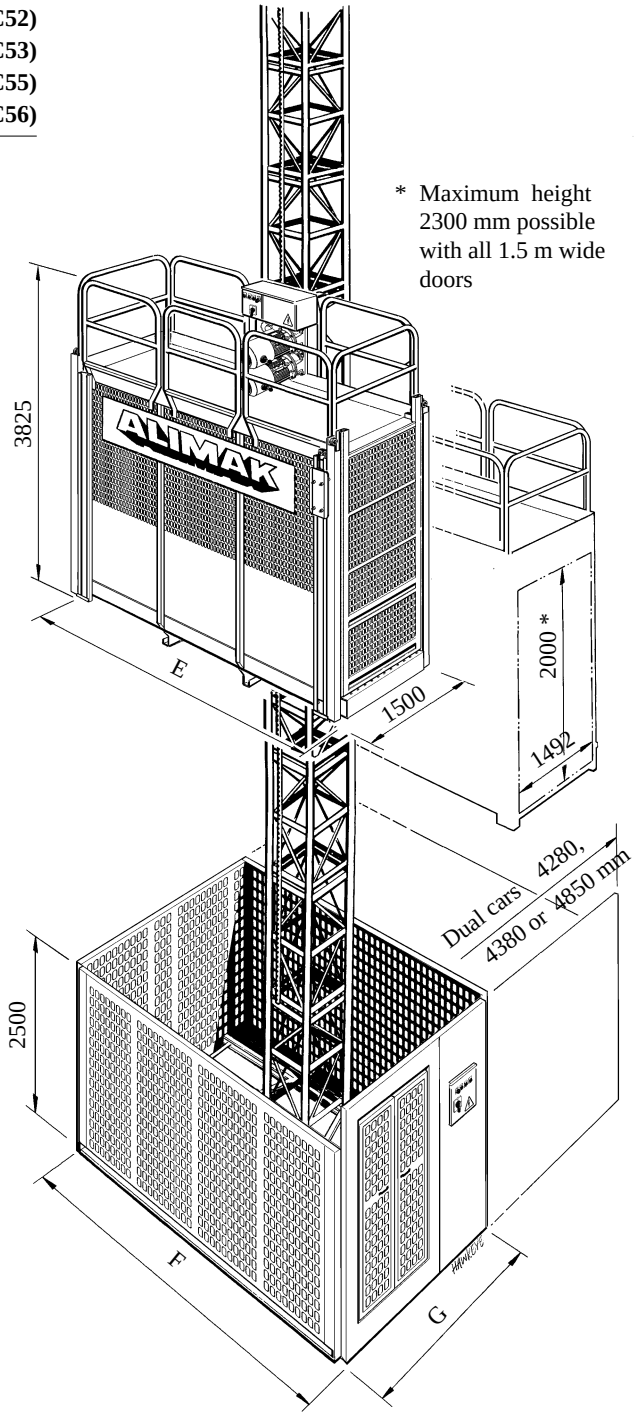
WEIGHTS

Base unit weight approx.	kg	3450	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***



* Maximum height 2300 mm possible with all 1.5 m wide doors

[1] A 1.5 m's "slim" 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door.
Add additional 147 kg or 117 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.

[4] Is intended for the 3rd vertical lift door (location C).

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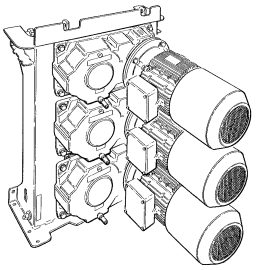
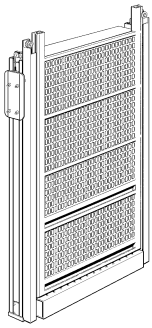
SCANDO 650 Modular System

Triple motor machinery
incl. VFC-panel (75 kW). Weight 890 kg

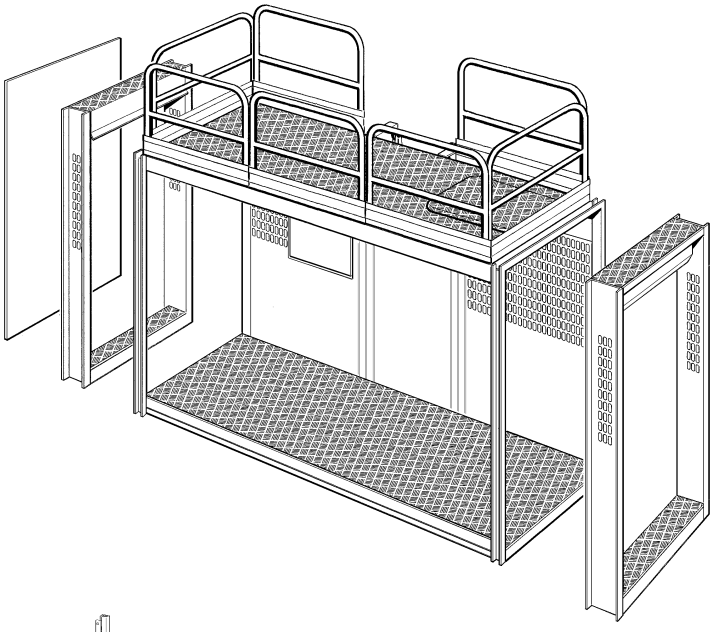


Vertical exit door
in two parts,
weight 133 kg

Vertical full height
entrance door, weight 155 kg

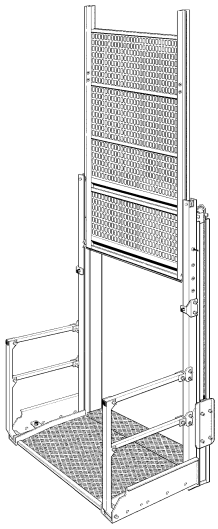


3.5 m car base structure incl. safety railings (100 kg)
weight 1116 kg



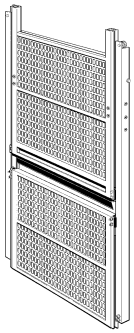
Closed, solid wall
on exit side,
weight 55 kg

Additional section
to increase car length
0.35 m in one or two
sides (0.35 + 0.35 m).
Weight 90 kg each.

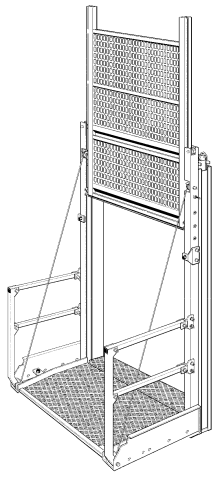


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 3.2 m entrance
door, weight 210 kg



Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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SCANDO 650 FC /46

Extended 4.6 m car with two [1] vertical doors		**X**			**(C62)**
Extended 4.6 m car with three vertical doors			**X**		**(C63)**
Extended 4.6 m car with one load ramp and one [1] vertical door		**X**			**(C65)**
Extended 4.6 m car with one load ramp and two vertical doors				**X**	**(C66)**

Pay-load capacity (fuse 100 A)	kg	2600	2500	2500	2400
(fuse 125 A)	kg	3000	3000	3000	3000
Speed 50 Hz / 60 Hz	m/min	0 – 54	0 – 54	0 – 54	0 – 54
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	3	3	3	3
Safety device type GFD	P/no.		9099255-1212		

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	4.6	4.6	4.6	4.6
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 3.2 [4] x 2.0***			

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase
At 400 V/50 Hz: ***(step-up transformer above 180 m required)***		
Power supply fuses	A~	100 or 125 alternatively
Triple motor machinery	kW	3 x 11
Starting current (fuse 100 A)	A~	98
(fuse 125 A)	A~	108
Power consumpt.(fuse 100 A)	kVA~	59
(fuse 125 A)	kVA~	65
Power cable guiding system		***Cable trolley***
Data for other voltages on request		

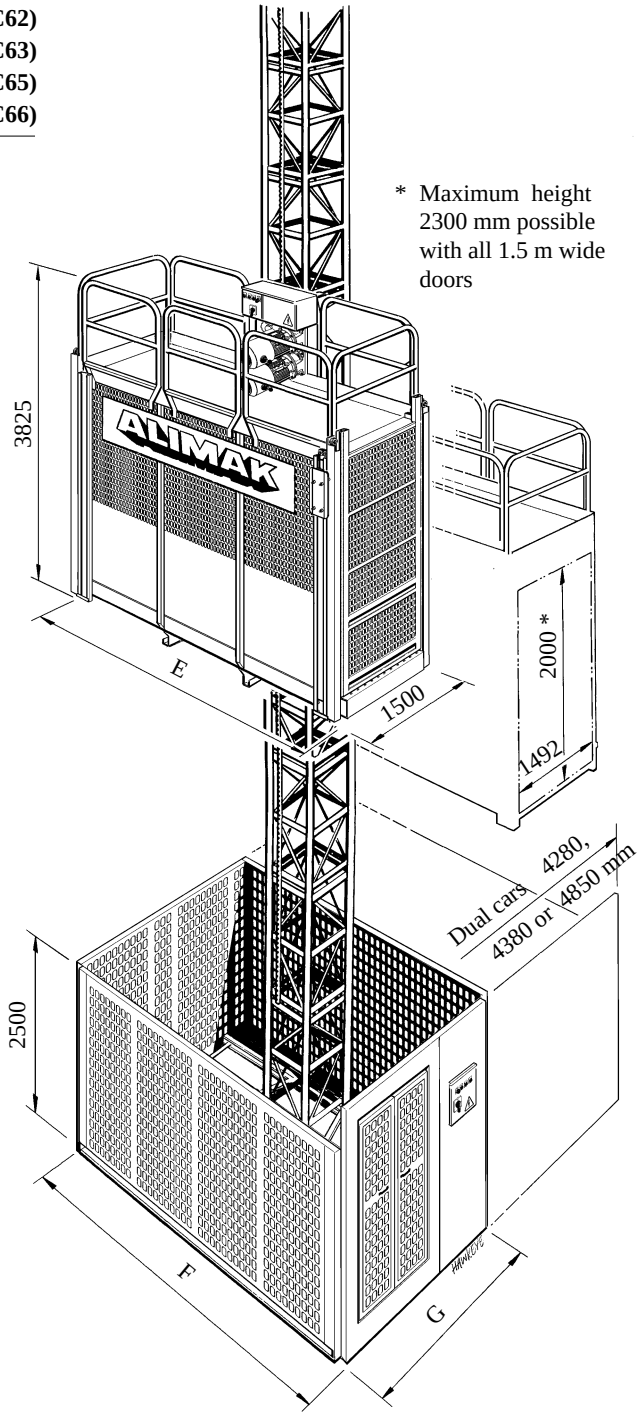
WEIGHTS

Base unit weight approx.	kg	3600	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***



* Maximum height 2300 mm possible with all 1.5 m wide doors

[1] A 1.5 m's "slim" 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door.
Add additional 147 kg or 117 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.

[4] Is intended for the 3rd vertical lift door (location C).

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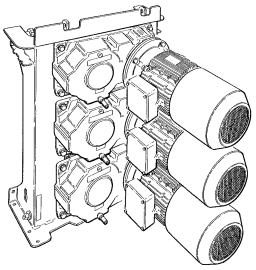
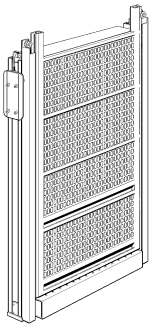
SCANDO 650 Modular System

Triple motor machinery
incl. VFC-panel (75 kW). Weight 890 kg

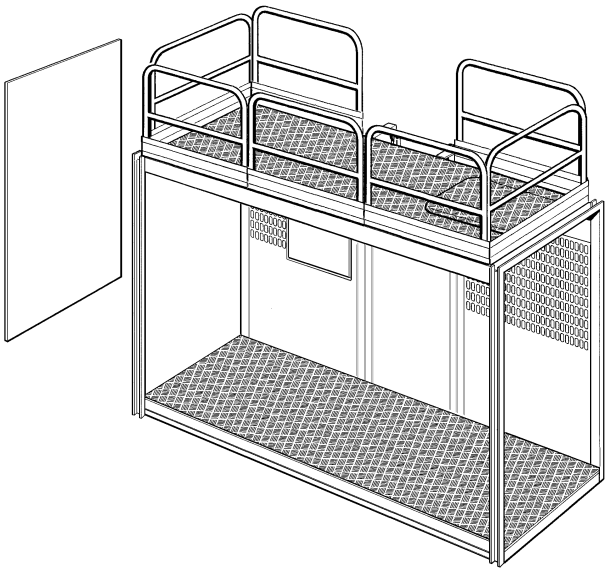


Vertical exit door
in two parts,
weight 133 kg

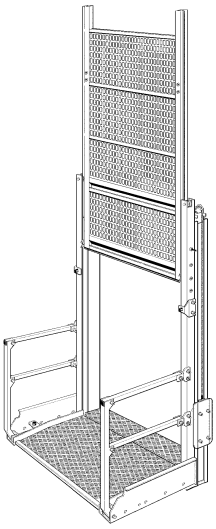
Vertical full height
entrance door, weight 155 kg



3.5 m car base structure incl. safety railings (100 kg)
weight 1116 kg

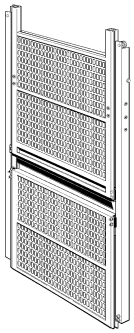


Closed, solid wall
on exit side,
weight 55 kg

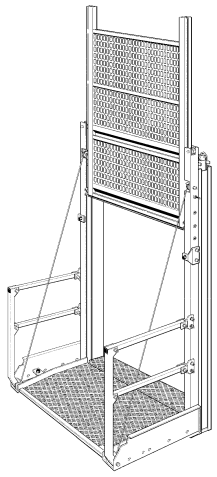


Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 3.2 m entrance
door, weight 210 kg



Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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SCANDO 650 FC /39

3.9 m car with two [1] vertical doors		**X**			**(C52)**
3.9 m car with three vertical doors			**X**		**(C53)**
3.9 m car with one load ramp and one [1] vertical door				**X**	**(C55)**
3.9 m car with one load ramp and two vertical doors					**X (C56)**

Pay-load capacity (fuse 100 A)	kg	1800	1700	1700	1600
(fuse 125 A)	kg	2400	2300	2300	2200
Speed 50 Hz / 60 Hz	m/min	0 – 66	0 – 66	0 – 66	0 – 66
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	3	3	3	3
Safety device type GFD	P/no.		9099255-1014		

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	3.9	3.9	3.9	3.9
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 3.2 [4] x 2.0***			

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase
At 400 V/50 Hz: ***(step-up transformer above 160 m required)***		
Power supply fuses	A~	100 or 125 alternatively
Triple motor machinery	kW	3 x 11
Starting current (fuse 100 A)	A~	97
(fuse 125 A)	A~	110
Power consumpt.(fuse 100 A)	kVA~	58
(fuse 125 A)	kVA~	66
Power cable guiding system		***Cable trolley***
Data for other voltages on request		

WEIGHTS

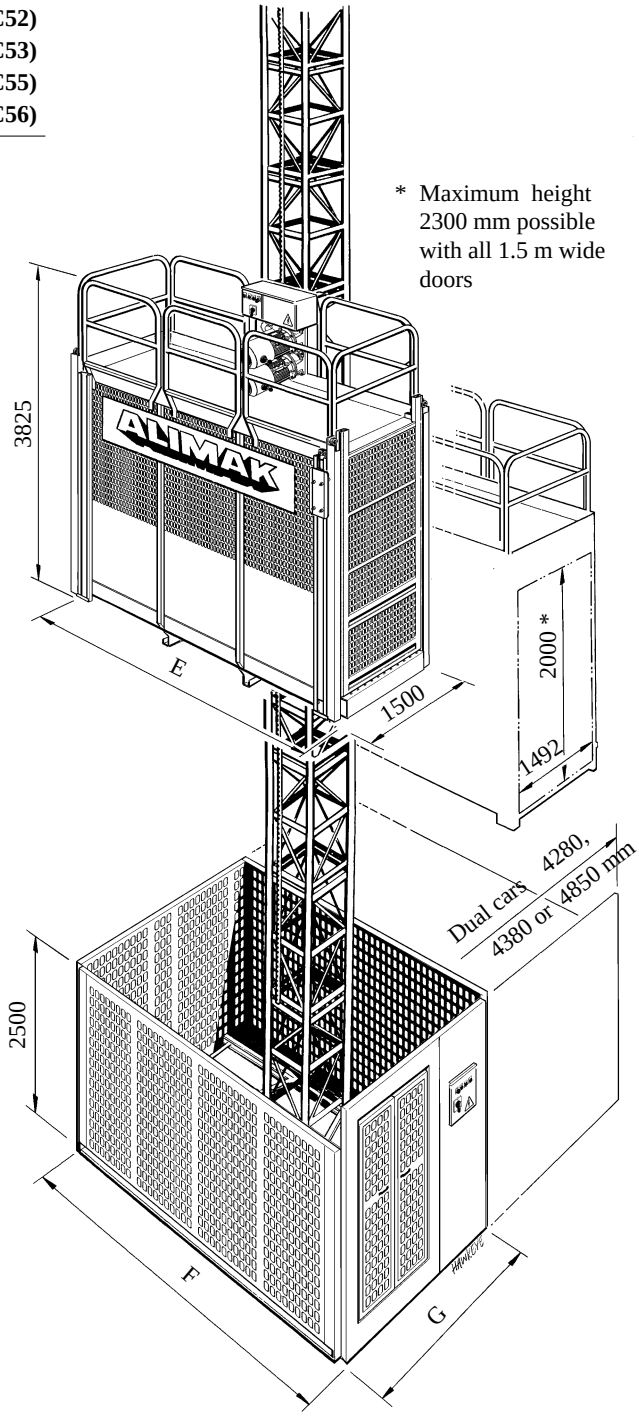
Base unit weight approx.	kg	3450	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***

* Maximum height 2300 mm possible with all 1.5 m wide doors



[1] A 1.5 m's "slim" 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door.
Add additional 147 kg or 117 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.

[4] Is intended for the 3rd vertical lift door (location C).

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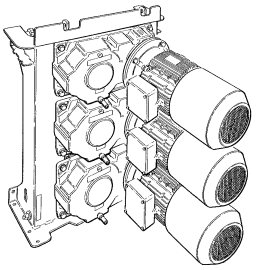
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

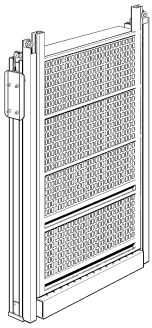
SCANDO 650 Modular System

Triple motor machinery
incl. VFC-panel (75 kW). Weight 890 kg

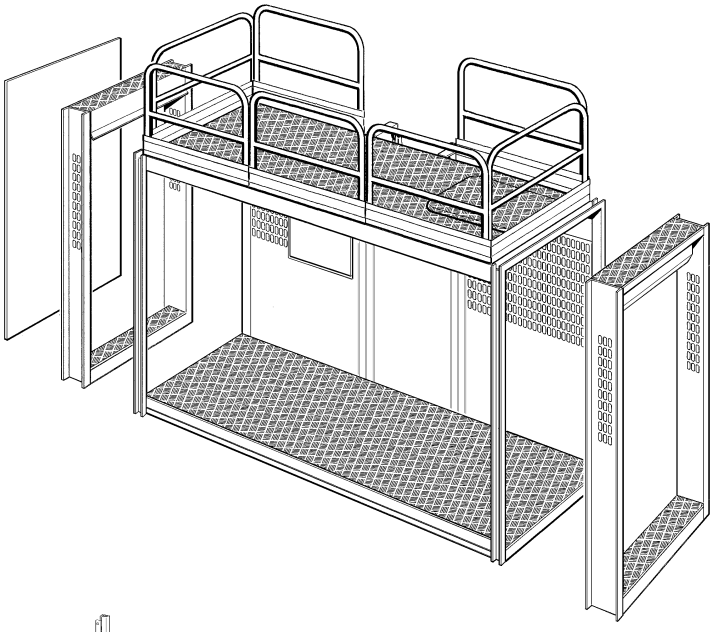


Vertical exit door
in two parts,
weight 133 kg

Vertical full height
entrance door, weight 155 kg

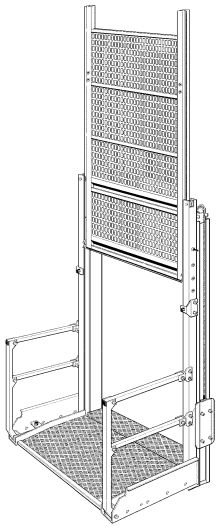


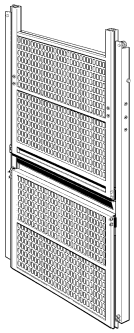
3.5 m car base structure incl. safety railings (100 kg)
weight 1116 kg

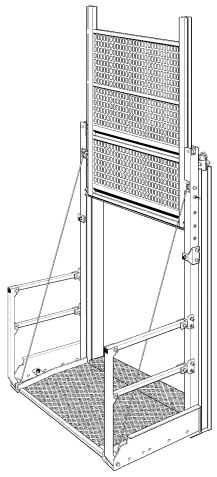


Closed, solid wall
on exit side,
weight 55 kg

Additional section
to increase car length
0.35 m in one or two
sides (0.35 + 0.35 m).
Weight 90 kg each.







Exit door combined with
optional electric / hydraulic
operated load ramp.
Weight 280 kg.
Add 147 kg when changed
from standard exit door.

Vertical full height
”slim” 3.2 m entrance
door, weight 210 kg

Vertical ”slim”
1.5 m exit door in two
parts, weight 75 kg

Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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SCANDO 650 FC /46

Extended 4.6 m car with two [1] vertical doors		**X**			**(C62)**
Extended 4.6 m car with three vertical doors			**X**		**(C63)**
Extended 4.6 m car with one load ramp and one [1] vertical door		**X**			**(C65)**
Extended 4.6 m car with one load ramp and two vertical doors				**X**	**(C66)**

Pay-load capacity (fuse 100 A)	kg	1600	1500	1500	1400
(fuse 125 A)	kg	2200	2100	2100	2000
Speed 50 Hz / 60 Hz	m/min	0 – 66	0 – 66	0 – 66	0 – 66
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
No. of buffer springs	pcs.	3	3	3	3
Safety device type GFD	P/no.		9099255-1014		

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	4.6	4.6	4.6	4.6
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 3.2 [4] x 2.0***			

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase
At 400 V/50 Hz: ***(step-up transformer above 160 m required)***		
Power supply fuses	A~	100 or 125 alternatively
Triple motor machinery	kW	3 x 11
Starting current (fuse 100 A)	A~	97
(fuse 125 A)	A~	110
Power consumpt.(fuse 100 A)	kVA~	58
(fuse 125 A)	kVA~	66
Power cable guiding system		***Cable trolley***
Data for other voltages on request		

WEIGHTS

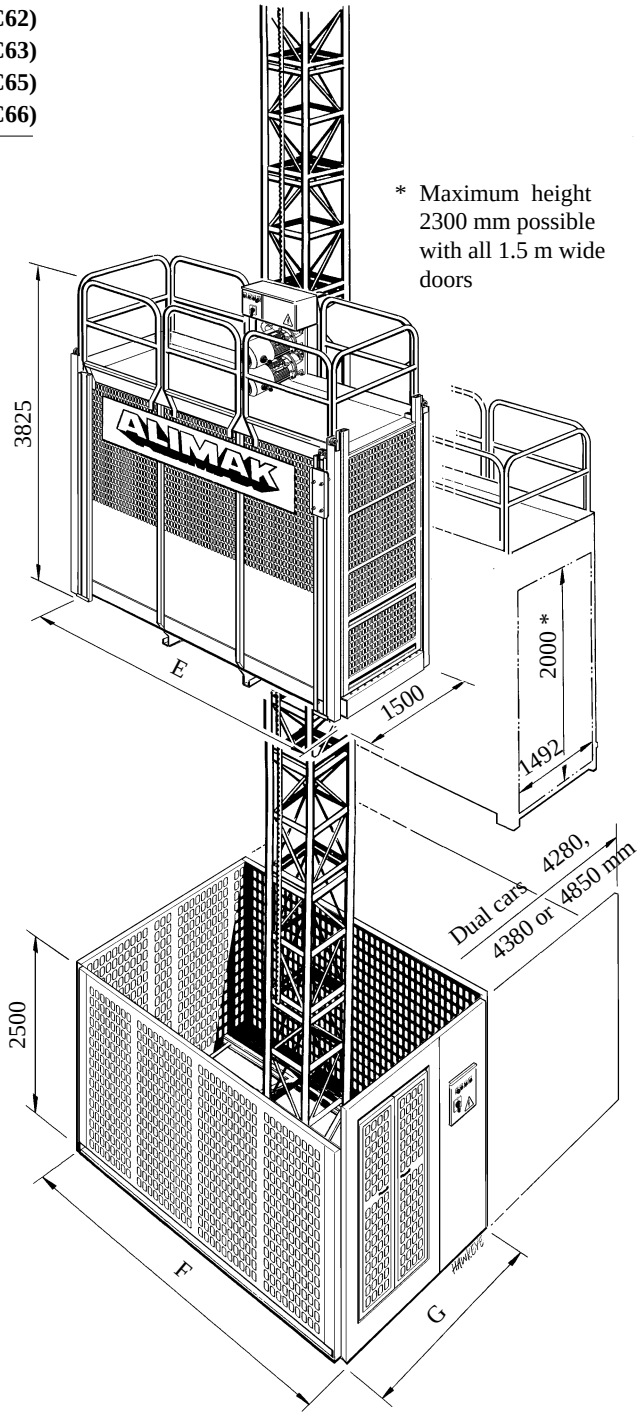
Base unit weight approx.	kg	3600	[2]	[2]	[2]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [3] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.	m	***all 3.10***

* Maximum height 2300 mm possible with all 1.5 m wide doors



[1] A 1.5 m's "slim" 3rd exit door also possible.

[2] Weights indicated for base model including standard entrance and exit door.
Add additional 147 kg or 117 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.

[4] Is intended for the 3rd vertical lift door (location C).

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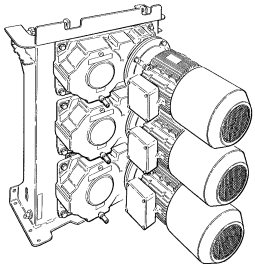
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

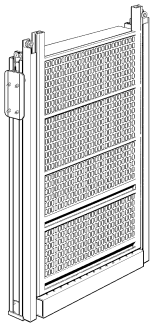
SCANDO 650 Modular System

Triple motor machinery
incl. VFC-panel (90 kW). Weight 1200 kg

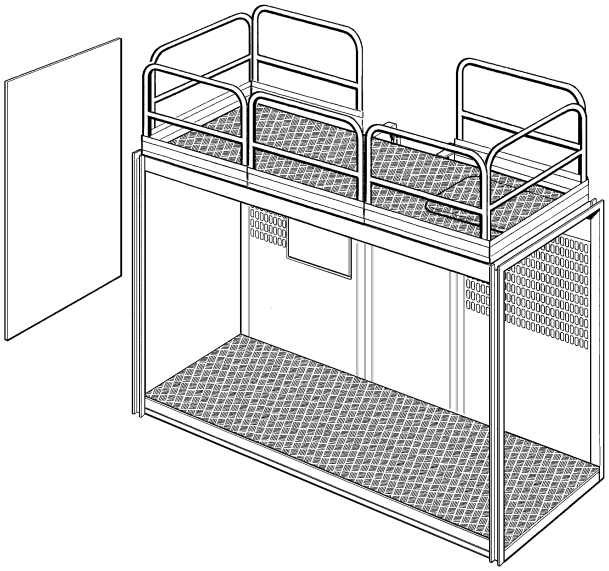


Vertical exit door
in two parts,
weight 133 kg

Vertical full height
entrance door, weight 155 kg

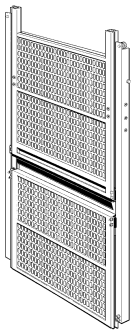


3.5 m car base structure incl. safety railings (100 kg)
weight 1116 kg

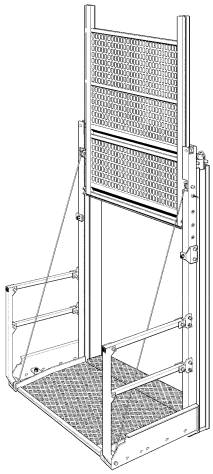


Closed, solid wall
on exit side,
weight 55 kg

Vertical full height
”slim” 3.2 m entrance
door, weight 210 kg



Vertical ”slim” 1.5 m
exit door in two parts,
weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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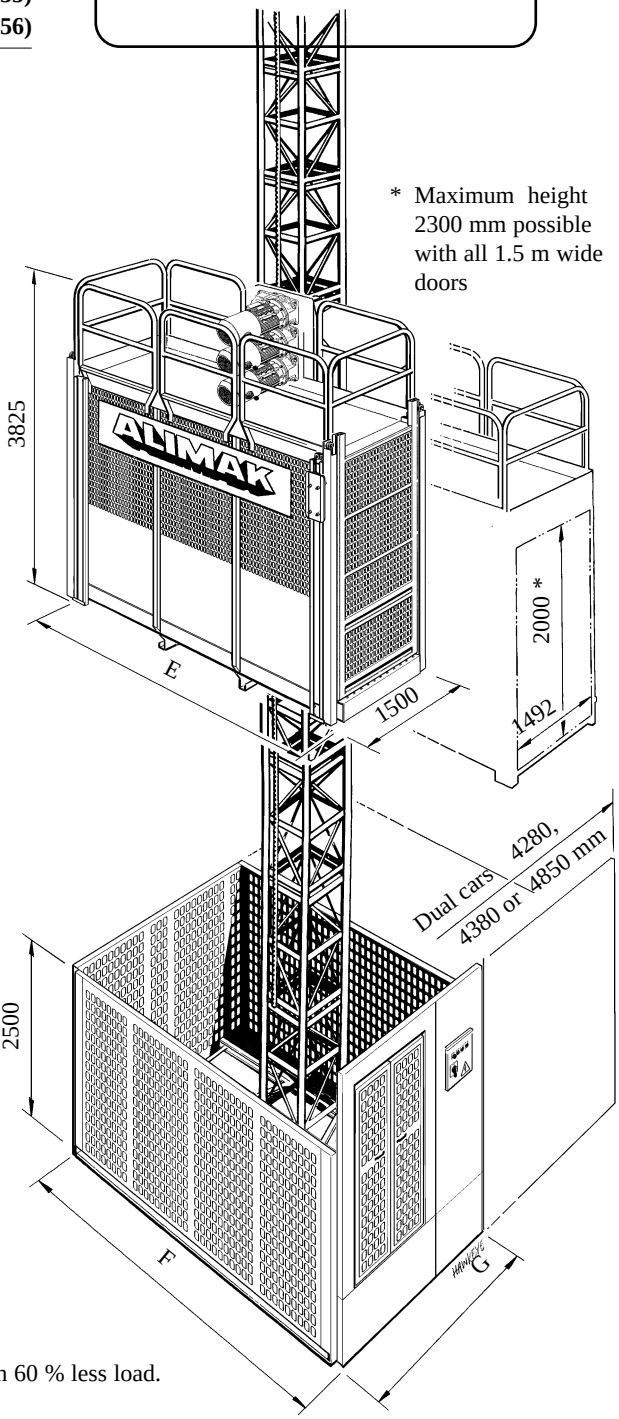
SCANDO 650 FC-S /39 (SU/SD)

3.9 m car with two [1] vertical doors		**X**			**(C52)**
3.9 m car with three vertical doors			**X**		**(C53)**
3.9 m car with one load ramp and one [1] vertical door				**X**	**(C55)**
3.9 m car with one load ramp and two vertical doors					**X (C56)**
Pay-load capacity (fuse 200 A)	kg	3100	3000	3000	2900
Speed 50 Hz or 60 Hz	m/min	[2] 80 / 100	80 / 100	80 / 100	80 / 100
Max. lifting height	meter	300	300	300	300
Increased lifting height on request					
Hydraulic buffers	P/No.		9106058-000		
Safety device type GFD	P/no.		9107880-1219		

Refer to "Dimensioning hoist cables", chapter I in the manual Technical Description for further information



* Maximum height 2300 mm possible with all 1.5 m wide doors

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	3.9	3.9	3.9	3.9
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 3.2 [5] x 2.0***			

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase
At 400 V/50 Hz:		***(Step-Up and Step Down transformer required)***
Power supply fuses	A~	200 /225
Triple motor machinery	kW	3 x 22
Starting current (fuse 200 A)	A~	approx. 170 A
Power consumpt.(fuse 200 A)	kVA~	approx. 115 kVA
Power cable guiding system		***Cable trolley***

Data for other voltages on request

WEIGHTS

Base unit weight approx.	kg	4050	[3]	[3]	[3]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50 [4] m to external length (E)***
Width (G):		***See table on previous page***
Maximum height: machinery excl.		***all 3.10 m***

[1] A 1.5 m's "slim" 3rd exit door also possible.

[2] 80 m/min. = speed in the upwards direction with nominal load.
100 m/min. = speed in the downwards direction and in the upwards direction with 60 % less load.

[3] Weights indicated for base model including standard entrance and exit door.
Add additional 117 kg where optional load ramp occurs.

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

[5] Is intended for the 3rd vertical lift door (location C).

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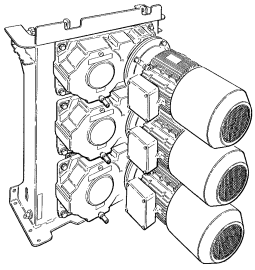
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

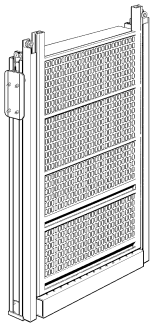
SCANDO 650 Modular System

Triple motor machinery
incl. VFC-panel (90 kW). Weight 1200 kg

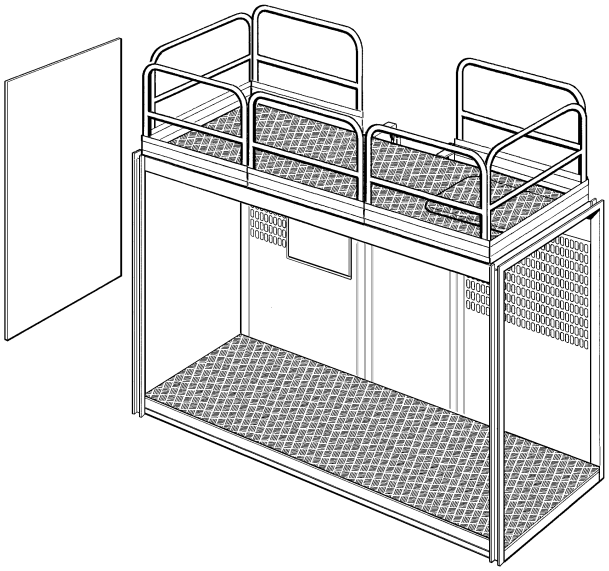


Vertical exit door
in two parts,
weight 133 kg

Vertical full height
entrance door, weight 155 kg

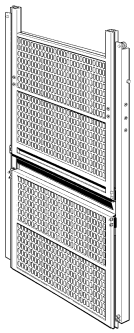


3.5 m car base structure incl. safety railings (100 kg)
weight 1116 kg

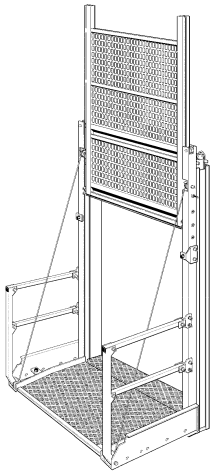


Closed, solid wall
on exit side,
weight 55 kg

Vertical full height
”slim” 3.2 m entrance
door, weight 210 kg



Vertical ”slim” 1.5 m
exit door in two parts,
weight 75 kg



Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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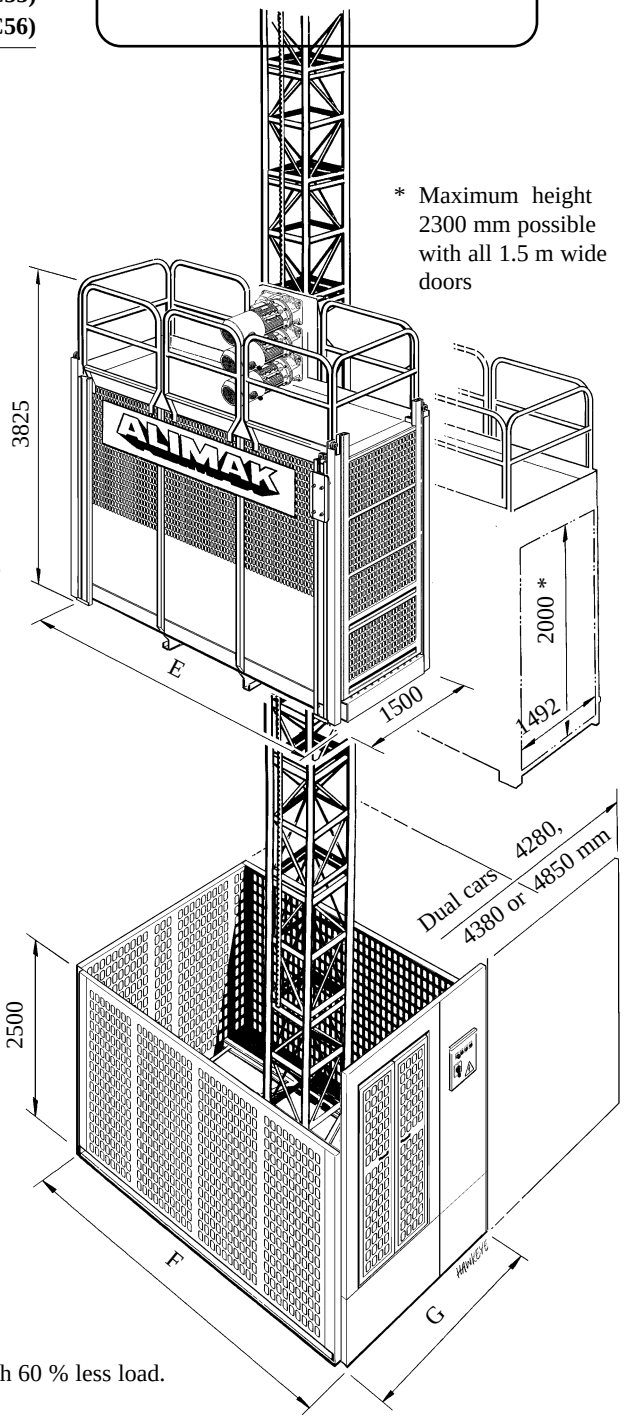
SCANDO 650 FC-S /39 (SU)

3.9 m car with two [1] vertical doors		**X**			**(C52)**
3.9 m car with three vertical doors			**X**		**(C53)**
3.9 m car with one load ramp and one [1] vertical door				**X**	**(C55)**
3.9 m car with one load ramp and two vertical doors					**X (C56)**
Pay-load capacity (fuse 200 A)	kg	3100	3000	3000	2900
Speed 50 Hz or 60 Hz	m/min	[2] 80 / 100	80 / 100	80 / 100	80 / 100
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
Hydraulic buffers	P/No.		9106058-000		
Safety device type GFD	P/no.		9107880-1219		

Refer to "Dimensioning hoist cables", chapter I in the manual Technical Description for further information



* Maximum height 2300 mm possible with all 1.5 m wide doors

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	3.9	3.9	3.9	3.9
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 3.2*** [5] ***x 2.0***			

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase
At 400 V/50 Hz:		***(Step-Up transformer required)***
Power supply fuses	A~	200 / 225
Triple motor machinery	kW	3 x 22
Starting current (fuse 200 A)	A~	approx. 170 A
Power consumpt.(fuse 200 A)	kVA~	approx. 115 kVA
Power cable guiding system		***Cable trolley***

Data for other voltages on request

WEIGHTS

Base unit weight approx.	kg	3750	[3]	[3]	[3]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50*** [4] ***m to external length (E)***
Width (G):		***See table on previous page***
Maximum height:		***all 3.10 m***
machinery excl.		

[1] A 1.5 m's "slim" 3rd exit door also possible.

[2] 80 m/min. = speed in the upwards direction with nominal load.
100 m/min. = speed in the downwards direction and in the upwards direction with 60 % less load.

[3] Weights indicated for base model including standard entrance and exit door.
Add additional 117 kg where optional load ramp occurs.

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

[5] Is intended for the 3rd vertical lift door (location C).

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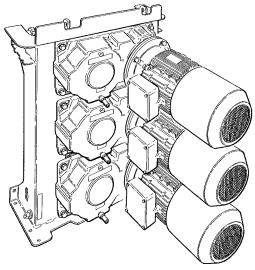
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

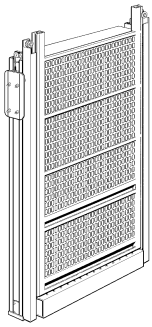
SCANDO 650 Modular System

Triple motor machinery
incl. VFC-panel (90 kW). Weight 1200 kg

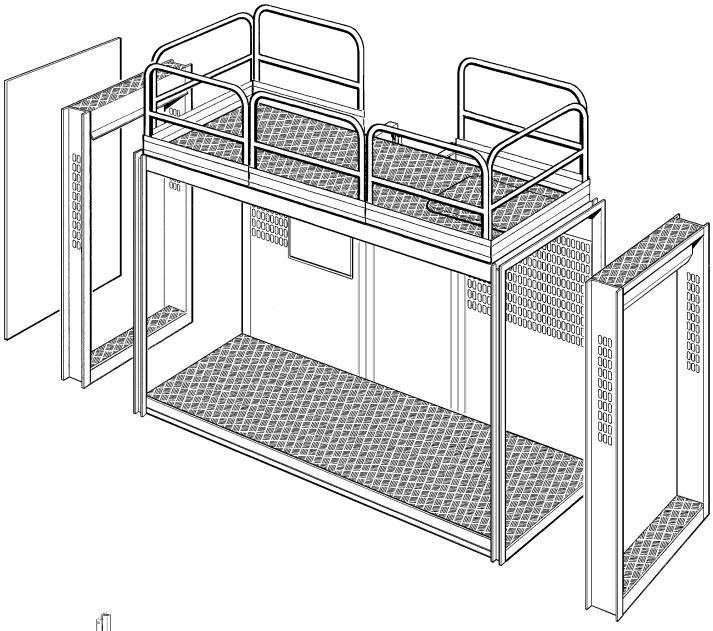


Vertical exit door
in two parts,
weight 133 kg

Vertical full height
entrance door, weight 155 kg

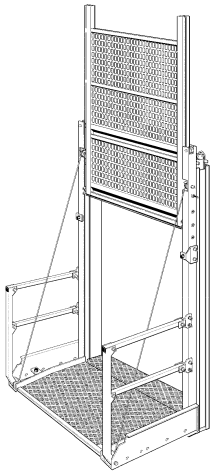


3.5 m car base structure incl. safety railings (100 kg)
weight 1116 kg

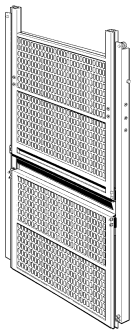


Closed, solid wall
on exit side,
weight 55 kg

Additional section
to increase car length
0.35 m in one or two
sides (0.35 + 0.35 m).
Weight 90 kg each.



Vertical full height
”slim” 3.2 m entrance
door, weight 210 kg



Vertical ”slim” 1.5 m
exit door in two parts,
weight 75 kg

Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
from standard exit door.

Enclosure width dimension G	**Single**	**Dual**
Enclosure for car with standard entrance and exit doors	2550 mm	4280 mm
Enclosure with additional vertical lift door, location C	2600 mm	4380 mm
Enclosure with additional double leaf swing door, location C	2835 mm	4850 mm

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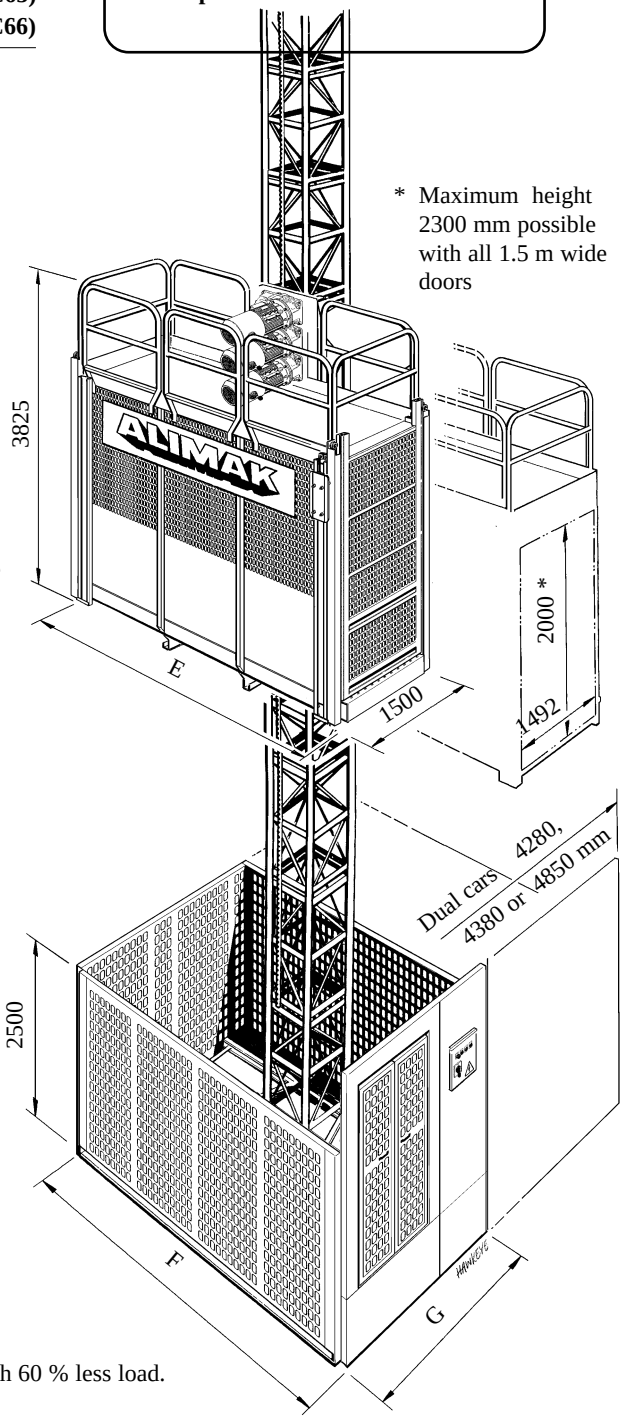
SCANDO 650 FC - S /46 (SU)

Extended 4.6 m car with two [1] vertical doors		**X**			**(C62)**
Extended 4.6 m car with three vertical doors			**X**		**(C63)**
Extended 4.6 m car with one load ramp and one [1] vertical door		**X**			**(C65)**
Extended 4.6 m car with one load ramp and two vertical doors				**X**	**(C66)**
Pay-load capacity (fuse 200 A)	kg	2900	2800	2800	2700
Speed 50 Hz or 60 Hz	m/min	[2] 80 / 100	80 / 100	80 / 100	80 / 100
Max. lifting height	meter	200	200	200	200
Increased lifting height on request					
Hydraulic buffers	P/No.	9106058-000			
Safety device type GFD	P/no.	9107880-1219			

Refer to "Dimensioning hoist cables", chapter I in the manual Technical Description for further information



* Maximum height 2300 mm possible with all 1.5 m wide doors

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	4.6	4.6	4.6	4.6
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 3.2*** [5] ***x 2.0***			

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase
At 400 V/50 Hz:		***(Step-Up transformer required)***
Power supply fuses	A~	200 / 225
Triple motor machinery	kW	3 x 22
Starting current (fuse 200 A)	A~	approx. 170 A
Power consumpt.(fuse 200 A)	kVA~	approx. 115 kVA
Power cable guiding system		***Cable trolley***

Data for other voltages on request

WEIGHTS

Base unit weight approx.	kg	3900	[3]	[3]	[3]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50*** [4] ***m to external length (E)***
Width (G):		***See table on previous page***
Maximum height:		***all 3.10 m***
machinery excl.		

[1] A 1.5 m's "slim" 3rd exit door also possible.

[2] 80 m/min. = speed in the upwards direction with nominal load.
100 m/min. = speed in the downwards direction and in the upwards direction with 60 % less load.

[3] Weights indicated for base model including standard entrance and exit door.
Add additional 117 kg where optional load ramp occurs.

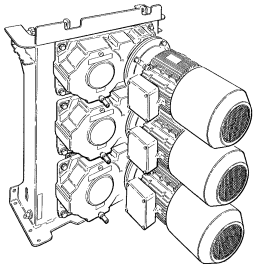
[4] Add additional 0.1 m where accessories for pipe support equipment are added to the ground enclosure.

[5] Is intended for the 3rd vertical lift door (location C).

ALIMAK AB, P O Box 720, SE-931 27 Skellefteå, Sweden. Tel. +46 910 87000.
Fax +46 910 56690. E-mail: info@alimak.se. Web site: www.alimak.com.

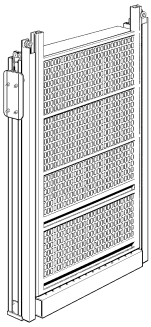
SCANDO 650 Modular System

Triple motor machinery
incl. VFC-panel (90 kW). Weight 1200 kg

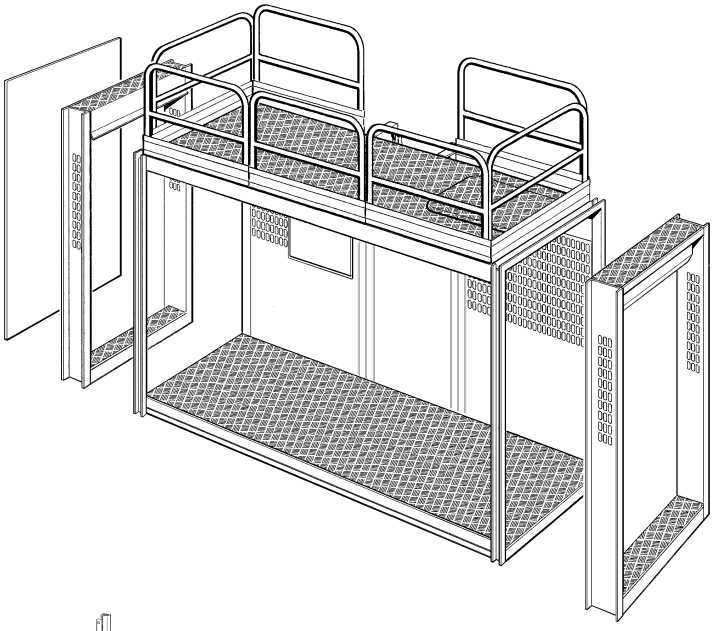


Vertical exit door
in two parts,
weight 133 kg

Vertical full height
entrance door, weight 155 kg

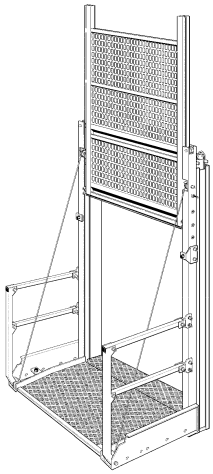


3.5 m car base structure incl. safety railings (100 kg)
weight 1116 kg

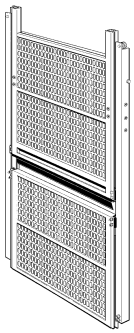


Closed, solid wall
on exit side,
weight 55 kg

Additional section
to increase car length
0.35 m in one or two
sides (0.35 + 0.35 m).
Weight 90 kg each.



Vertical full height
”slim” 3.2 m entrance
door, weight 210 kg



Vertical ”slim” 1.5 m
exit door in two parts,
weight 75 kg

Exit door combined with
optional manual load ramp.
Weight 250 kg.
Add 117 kg when changed
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Enclosure width dimension G	**Single**	**Dual**
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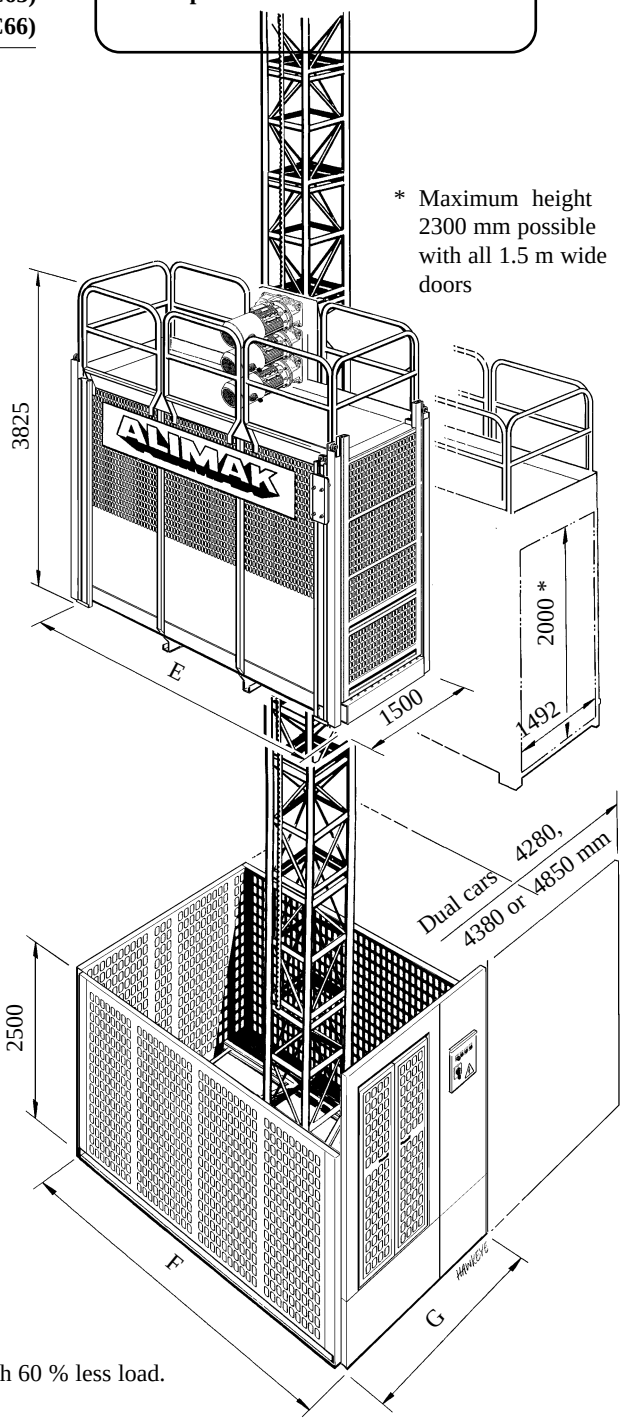
Printed in Sweden

SCANDO 650 FC - S /46 (SU/SD)

Extended 4.6 m car with two [1] vertical doors		**X**			**(C62)**
Extended 4.6 m car with three vertical doors			**X**		**(C63)**
Extended 4.6 m car with one load ramp and one [1] vertical door		**X**			**(C65)**
Extended 4.6 m car with one load ramp and two vertical doors				**X**	**(C66)**
Pay-load capacity (fuse 200 A)	kg	2900	2800	2800	2700
Speed 50 Hz or 60 Hz	m/min	[2] 80 / 100	80 / 100	80 / 100	80 / 100
Max. lifting height	meter	300	300	300	300
Increased lifting height on request					
Hydraulic buffers	P/No.		9106058-000		
Safety device type GFD	P/no.		9107880-1219		

Refer to "Dimensioning hoist cables", chapter I in the manual Technical Description for further information



* Maximum height 2300 mm possible with all 1.5 m wide doors

CAR DIMENSIONS

Internal width	meter	1.5	1.5	1.5	1.5
Internal length	meter	4.6	4.6	4.6	4.6
External length (E)	meter	***add 0.12 m to internal length above***			
Internal height	meter	2.3	2.3	2.3	2.3
Door opening W x H	meter	***1.5 or 3.2*** [5] ***x 2.0***			

ELECTRICAL DATA

Power supply range		400 – 500 V, 50 or 60 Hz, 3 Phase
At 400 V/50 Hz:		***(Step-Up and Step Down transformer required)***
Power supply fuses	A~	200 / 225
Triple motor machinery	kW	3 x 22
Starting current (fuse 200 A)	A~	approx. 170 A
Power consumpt.(fuse 200 A)	kVA~	approx. 115 kVA
Power cable guiding system		***Cable trolley***

Data for other voltages on request

WEIGHTS

Base unit weight approx.	kg	4200	[3]	[3]	[3]
Mast section with one rack	kg	115	115	115	115
Mast section with two racks	kg	135	135	135	135
Mast section length	mm	1508	1508	1508	1508

TRANSPORT DIMENSIONS

Base unit incl. ground enclosure:

Length (F):	m	***add 0.50*** [4] ***m to external length (E)***
Width (G):		***See table on previous page***
Maximum height:		***all 3.10 m***
machinery excl.		

[1] A 1.5 m's "slim" 3rd exit door also possible.

[2] 80 m/min. = speed in the upwards direction with nominal load.
100 m/min. = speed in the downwards direction and in the upwards direction with 60 % less load.

[3] Weights indicated for base model including standard entrance and exit door.
Add additional 117 kg where optional load ramp occurs.

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

[5] Is intended for the 3rd vertical lift door (location C).

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Foundation ..... **G 1**
Concrete slab ..... **G 1**
Foundation pit ..... **G 7**
Concrete slab without foundation frame ..... **G 8**
Transportable foundation ..... **G 8**
Load on the foundation ..... **G 9**
Ground pressure ..... **G 10**

Foundation

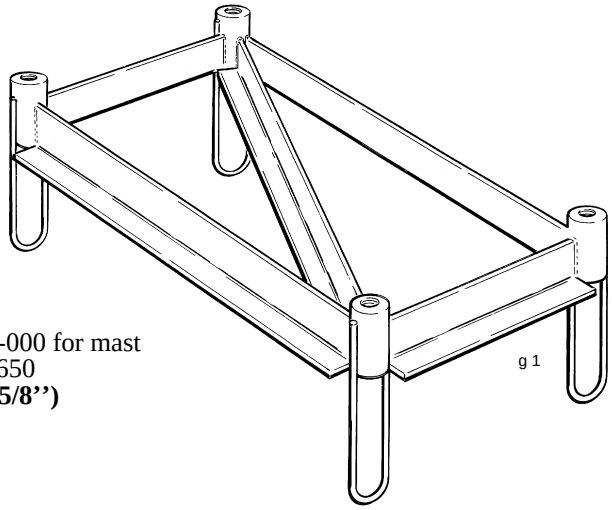
The hoist can be installed on a gravel bed, a concrete slab or in some cases a foundation pit is required.
What way to go depends on the circumstances and the National hoist regulations.

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.

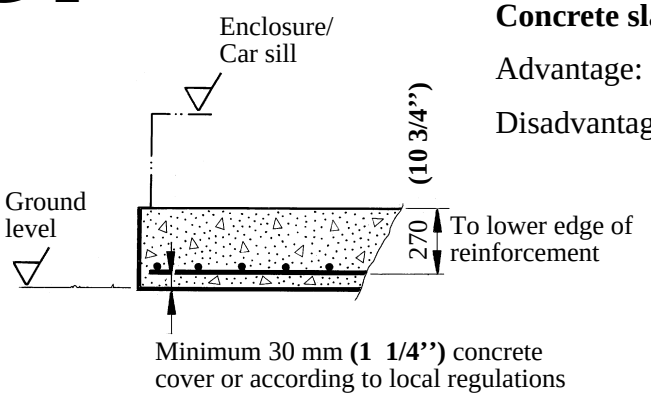


Foundation frame:

– part no. 9025 751-000 for mast section c/c 650 x 650
(2'-1 5/8'' x 2'-1 5/8'')

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

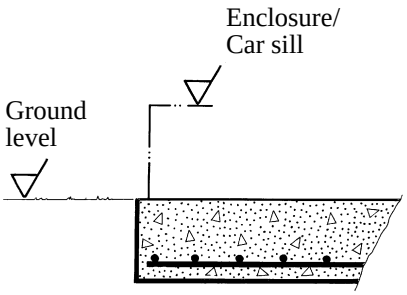
G 2



Concrete slab on the ground

Advantage: No drain required.

Disadvantage: High sill.

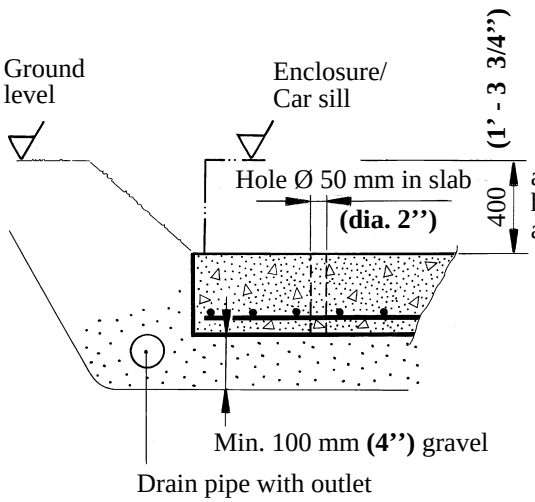


Concrete slab level with the ground

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.

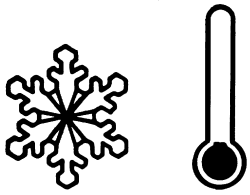


Concrete slab below ground level

Advantage: No sill between ground level and hoist car.

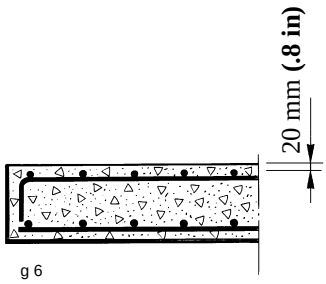
Disadvantage: Corrosion if water remains on the foundation and does not drain.

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

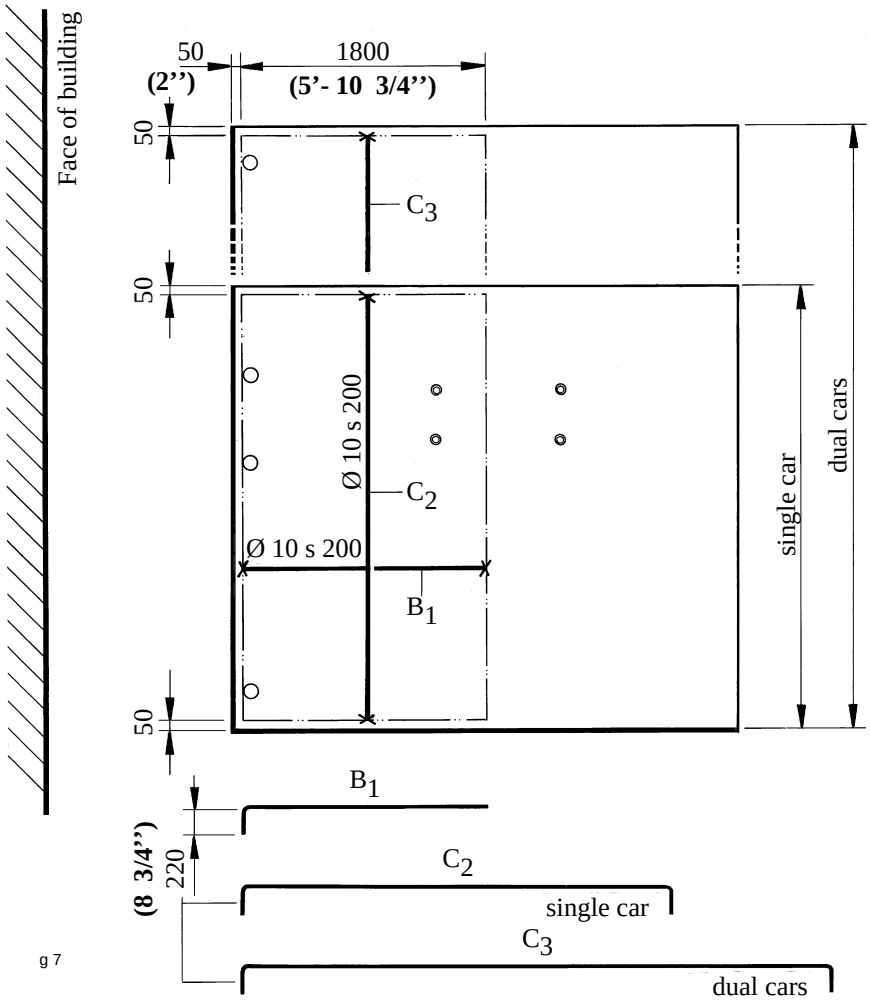


g 6

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).

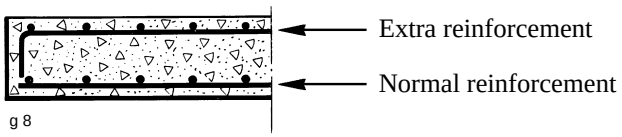
The extra reinforcement is only necessary within the areas shown in the picture below. The layer of reinforcement should be placed 20 mm **(.8 in.)** below the upper edge of the slab.

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

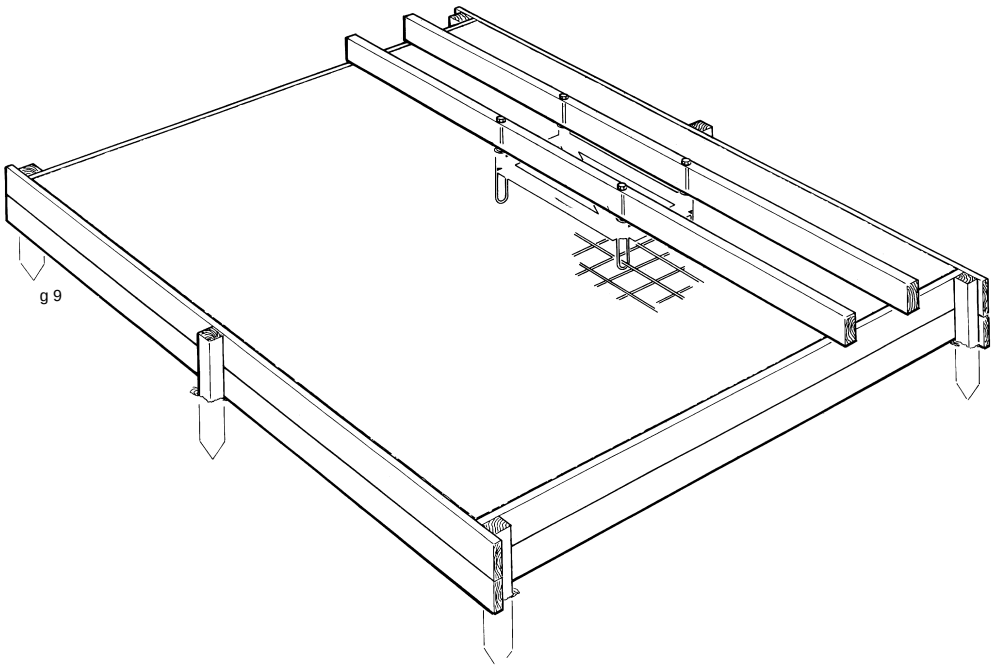


g 8

G 4

Formwork and fixing of foundation frame

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



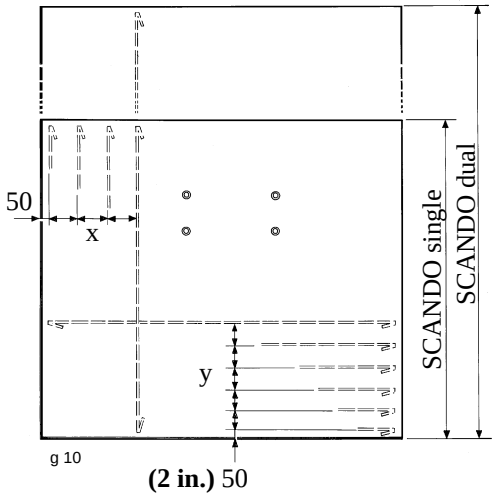
Conversion table:

Ø 10 mm ≈ **dia. 3/8 in.**
Ø 16 mm ≈ **dia. 5/8 in.**

s 140 mm ≈ **5 1/2 in.**
s 170 mm ≈ **6 1/2 in.**
s 180 mm ≈ **7 in.**
s 190 mm ≈ **7 1/2 in.**
s 200 mm ≈ **8 in.**
s 210 mm ≈ **8 1/2 in.**
s 220 mm ≈ **8 5/8 in**
s 230 mm ≈ **9 in.**
s 250 mm ≈ **10 in.**
s 280 mm ≈ **11 in.**
s 300 mm ≈ **12 in.**

Reinforcement for concrete slab

Reinforcement bar quality: minimum KS 400 (Yield strength = 390 N/mm² or **56550 psi**)



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				
1.5 x 3.2	Ø10 s 300	Ø16 s 300	Ø10 s 230	Ø16 s 210
1.5 x 3.9	Ø10 s 250	Ø16 s 180	Ø10 s 180	Ø16 s 140
1.5 x 4.6	Ø10 s 250	Ø16 s 180	Ø10 s 180	Ø16 s 140
Dual cars				
1.5 x 3.2	Ø16 s 250	Ø16 s 250	Ø16 s 180	Ø16 s 180
1.5 x 3.9	Ø16 s 300	Ø16 s 300	Ø16 s 220	Ø16 s 220
1.5 x 4.6	Ø16 s 300	Ø16 s 300	Ø16 s 220	Ø16 s 220

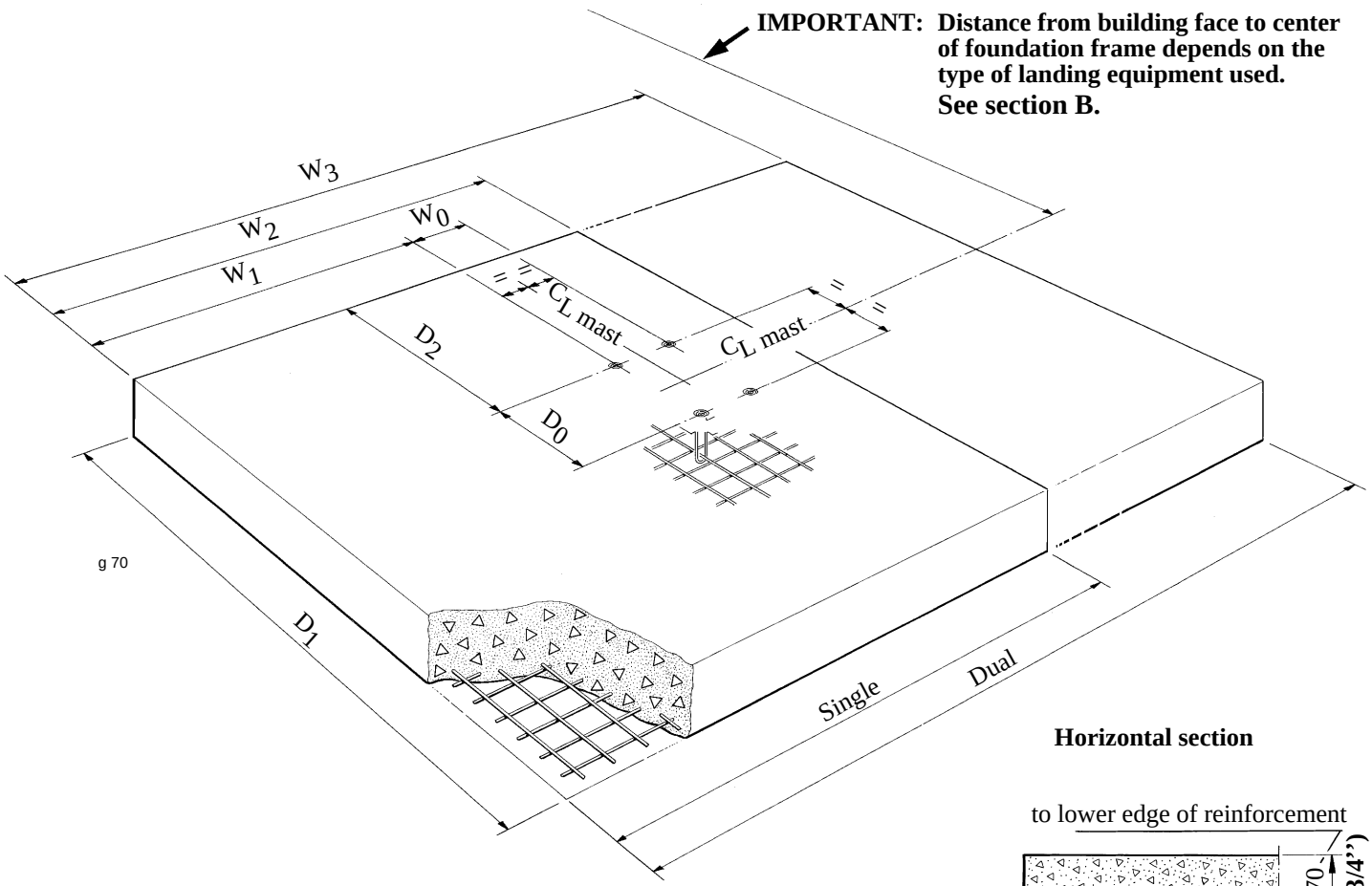
Concrete quality:

minimum K 25 (25 N/mm² or **3625 psi**) at 28 days.

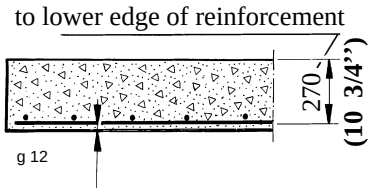
The concrete must reach 70% of the required compressive strength before the installation of the hoist may start.

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								
1.5 x 3.2	960	3950	1495	380	2035	2800	–	3.32
(4'-11'' x 10'-6')	**(3'-1 3/4'')**	**(12'-11 1/2'')**	**(4'-10 3/4'')**	**(1'- 3'')**	**(6'- 8'')**	**(9'- 2 1/4'')**	**–**	**(4.34 cu.yds)**
1.5 x 3.9	960	4650	1845	380	2035	2800	–	3.91
(4'-11'' x 12'-9 1/2'')	**(3'-1 3/4'')**	**(15'- 3'')**	**(6'- 0 3/4'')**	**(1'- 3'')**	**(6'- 8'')**	**(9'- 2 1/4'')**	**–**	**(5.11 cu.yds)**
1.5 x 4.6	960	5350	2195	380	2035	2800	–	4.50
(4'-11'' x 15'-1'')	**(3'-1 3/4'')**	**(17'- 6 3/4'')**	**(7'- 2 1/2'')**	**(1'- 3'')**	**(6'- 8'')**	**(9'- 2 1/4'')**	**–**	**(5.88 cu.yds)**
Dual cars								
1.5 x 3.2	960	3950	1495	380	2035	–	4530	5.37
(4'-11'' x 10'-6')	**(3'-1 3/4'')**	**(12'-11 1/2'')**	**(4'-10 3/4'')**	**(1'- 3'')**	**(6'- 8'')**	**–**	**(14'- 10 1/4'')**	**(6.83 cu.yds)**
1.5 x 3.9	960	4650	1845	380	2035	–	4530	6.32
(4'-11'' x 12'-9 1/2'')	**(3'-1 3/4'')**	**(15'- 3'')**	**(6'- 0 3/4'')**	**(1'- 3'')**	**(6'- 8'')**	**–**	**(14'- 10 1/4'')**	**(7.02 cu.yds)**
1.5 x 4.6	960	5350	2195	380	2035	–	4530	7.27
(4'-11'' x 15'-1'')	**(3'-1 3/4'')**	**(17'- 6 3/4'')**	**(7'- 2 1/2'')**	**(1'- 3'')**	**(6'- 8'')**	**–**	**(14'- 10 1/4'')**	**(9.51 cu.yds)**

Components for attachments of enclosure

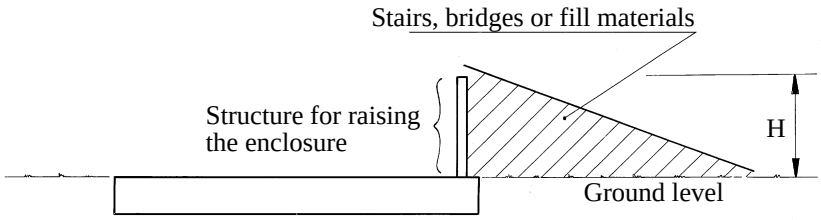
For the attachment of the enclosure on the foundation we recommend to use expansion bolts.
Please note that these items are not furnished with the hoist.

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

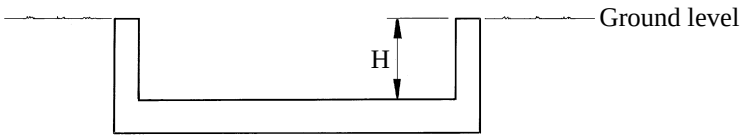
Some local hoist regulations require an extra safety space under the hoist car bottom landing. The same concrete slab as before can be used provided that the enclosure front is raised according to local hoist regulations.

See picture below.

H min. = 1060 mm **(3'-5 3/4")**



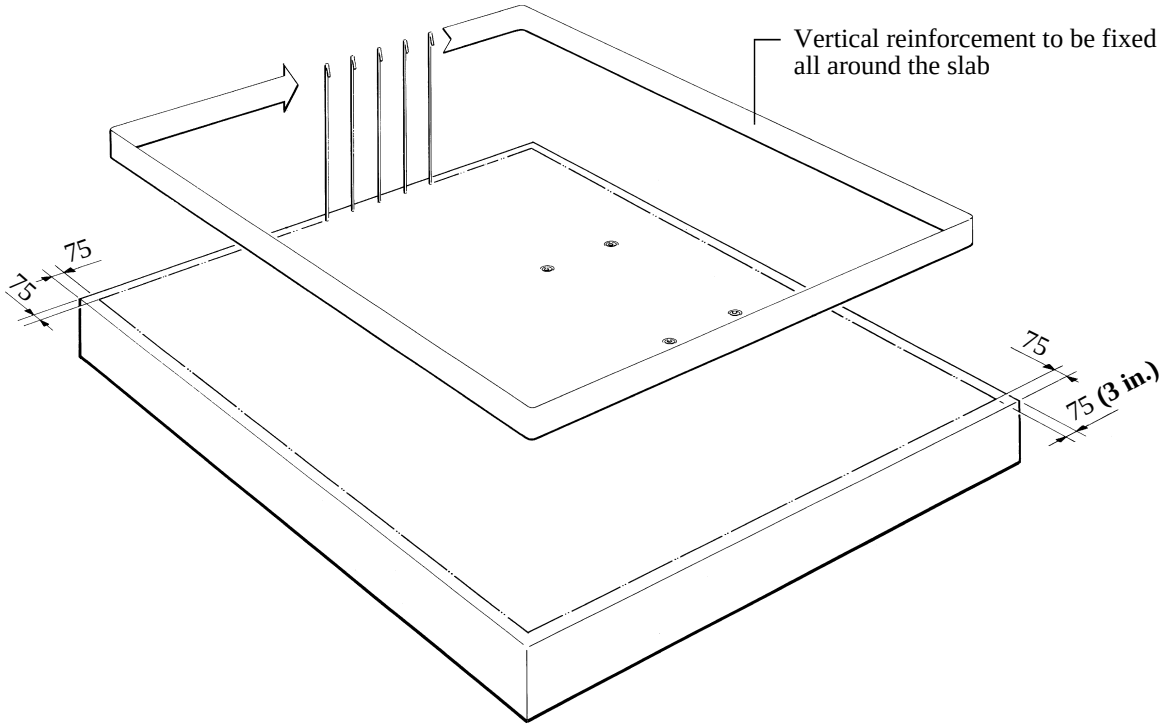
Alternatively a concrete pit can be made below ground level.



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:

  Freestanding in service = 67 kN **(15060 lbf.).**

  Freestanding during erection with load not exceeding allowable erection load = 51 kN **(11465 lbf.).**

  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 15 m/sec. **(33 mph)**.

– The maximum height allowed for the first tie is 9 meters **(30 ft)** provided that the reduced allowable erection load 1160 kg **(2560 lbs.)** is not exceeded.

– 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.

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 2000 kg **(4400 lbs.)**].

– Counterweight if used (x 2 – for dual cars).

– 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 650 DOL 22/32 with pipe support. Mast height 150 m **(492 ft.)**, equivalent to 100 mast sections. Weights according to specifications in the data sheets.

Payload = 2200 kg **(4850 lbs.)**		
2200 kg (2 pcs.)	4400 kg	**9700 lbs.**
Base unit dead weight = 2775 kg **(6118 lbs.)**		
+ 2050 kg for the 2nd car	4825 kg	**10637 lbs.**
Hoist mast 98 sections, 135 kg/each **(298 lbs.)** (2 sections included in the base unit)	12825 kg	**28274 lbs.**
	∑ = 22050 kg	**48611 lbs.**
Mast ties and cable guides		
Add 10% load	2205 kg	**4861 lbs.**
	∑ = 24255 kg	**53472 lbs.**
Vertical support and landing equipment. Add 25% load	6064 kg	**13368 lbs.**
	∑ = 30319 kg	**66840 lbs**
Dynamic load approx. 2 x 2200 kg		
+ 2/3 x (2775 + 2050)kg	7617 kg	**16792 lbs.**
	∑ = 37936 kg	**83632 lbs.**

37936 x 9.81 = 372152 N.

In round figures = 372 kN (**83632 lbs.)**

Ground pressure

Max. ground pressure under the concrete slabs is 0.15 MPa **(21.75 psi)** 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 **(58 – 145 psi)**

Fine sand = 0.2 MPa **(29 psi)**

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)

(MPa x 145 = **psi)**

Example:

Calculation of ground pressure for a twin car SCANDO 650 DOL 22/32 with vertical pipe support.

Static and dynamic load = 380 kN (according to example on previous page).

Concrete slab dimension is D_1 x W_3 = 3950 x 4530 mm or 3.95 x 4.53 meter and weight of concrete slab is 24 kN/m^3 x 5.37 m^3 = 129 kN.

P_V = 380 + 129 kN = 509 kN

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

$$\sigma_{ground} = \frac{1.6 \times 509}{3.95 \times 4.53 \times 1000} =$$

σ_{ground} = 0.045 MPa (MPa x 145 = **6.60 psi)**

Projecting hoist mast ..... **H 1**
Mast ties ..... **H 4**
Freestanding / Tied hoist mast ..... **H 5**
Reaction forces ..... **H 6**
Attachment of ties ..... **H 22**

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.

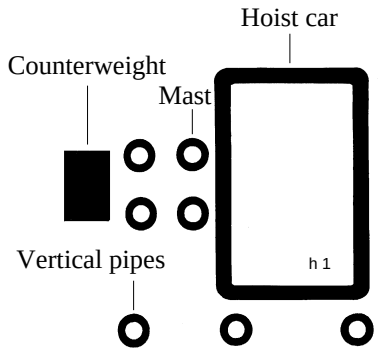
– without counterweight equipment = 3 extra mast sections.

– with counterweight equipment = 4 extra mast sections.

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

– without counterweight equipment = 4 extra mast sections.

– with counterweight equipment = 5 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	h 2							
Type S1A	X							
Type S2A		X		X		X		
Type S3A	X		X		X		X	
Type R2A	X							

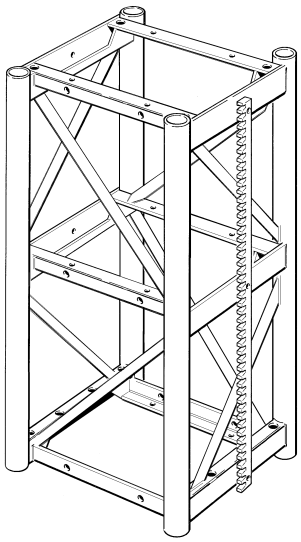
X = Possible combinations

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 sections

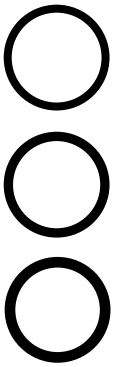
With the exception of one or two racks, with or without counter-weight guide rail, there are mainly three different types of mast sections available:

Standard mast with tube dimension:

Ø 76 x 4.2 mm **(3”x 11/64”)**. (outer diameter x thickness)

Reinforced mast with tube dimension:

Ø 76 x 8.0 mm **(3”x 5/16”)**.



Mast sections of different tube dimension can be combined

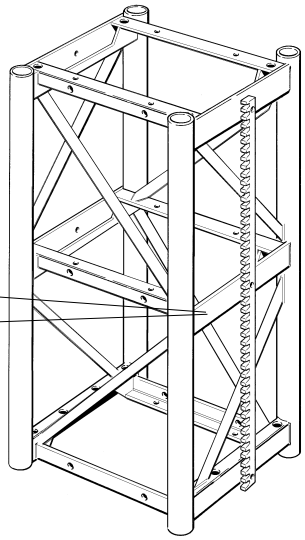
As can be seen from the following tables this is only necessary at extremely high lifting heights.

In such cases turn to Alimak Calculation Department who can optimize the installation so that as few reinforced mast sections as possible need to be used.

Identification

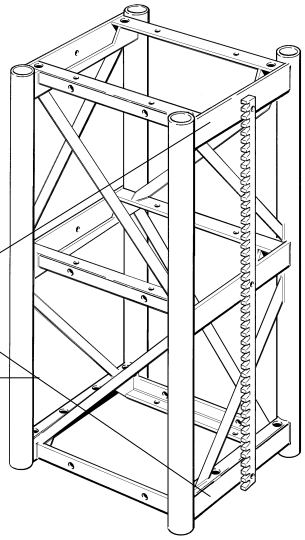
In order to easily identify the mast sections with different tube dimensions, the mast sections are colour-marked and weld marked corresponding to wall thickness as indicated below.

Tube dimension Ø 76 x 4.2	Tube dimension Ø 76 x 6.3	Tube dimension Ø 76 x 8.0
No marking	Blue	Yellow
No marking	Weld marked ”6”	Weld marked ”8”



Between the mast sections with different tube dimensions transition sections are used. These are marked as follows:

Tube dimension Ø 76 x 8.0 – Ø 76 x 6.3	Tube dimension Ø 76 x 6.3 – Ø 76 x 4.2
Blue	No marking
Yellow	Blue
Weld marked ”8” – ”6”	Weld marked ”6”



IMPORTANT:

A transition section or a reinforced mast section must always be used for connection against bottom frame.

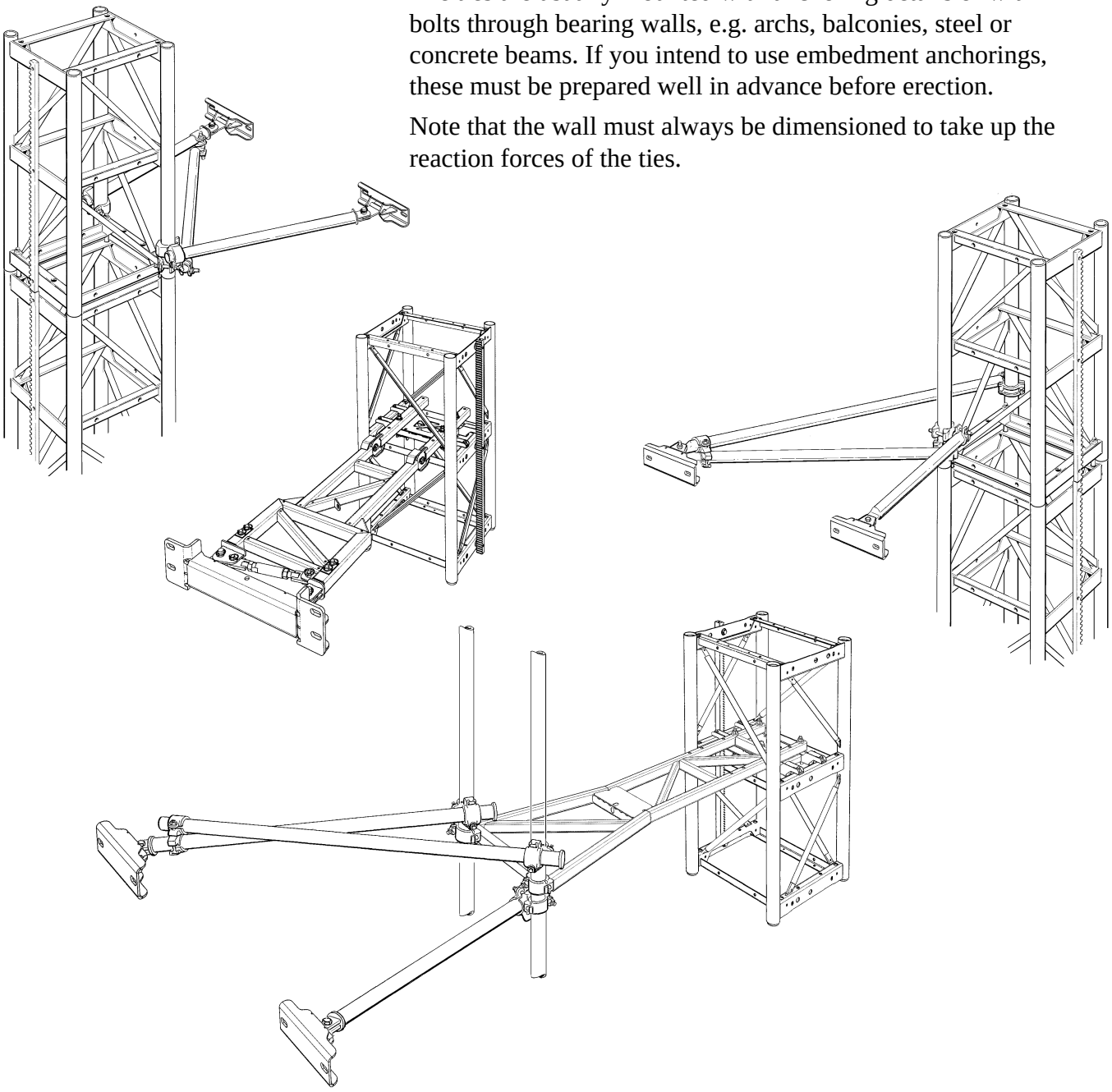
A transition section must always be used between mast sections with different tube thicknesses.

Reinforced mast sections must always be placed at the bottom of a mast installation.

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.



Maximum allowable mast height for Alimak standard mast section, tube dim. Ø 76 x 4,2 mm

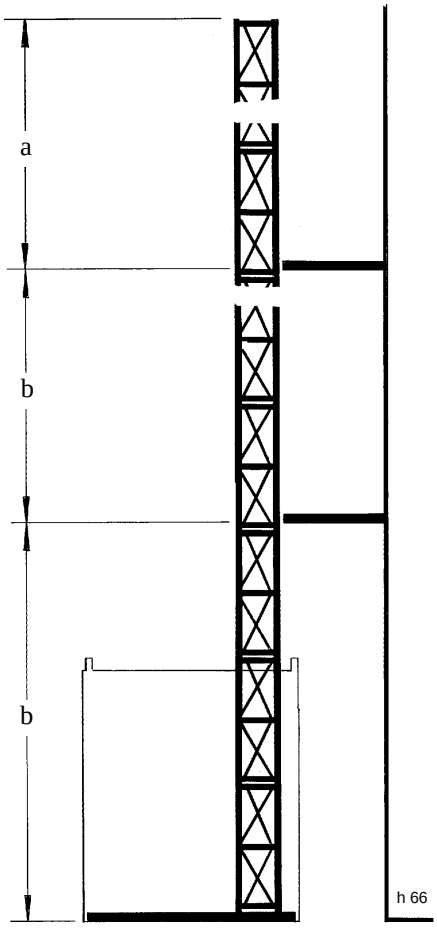
Model	Tie distances 9,0 meter	12,0 meter	15,0 meter
Single car			
Scando 24/32 DOL	787 m	746 m	716 m
Scando 32/39 FC ***(≤ 1,1 m/s)***	587 m	529 m	487 m
Dual cars			
Scando 24/32 DOL	580 m	572 m	552 m
Scando 32/39 FC ***(≤ 1,1 m/s)***	376 m	363 m	335 m

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 S1A, S2A and S3A 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				
Single car, speed ≤ 1.1 m/s regular speed				
3.2 meter	up to 2400 kg	15.0 m	15.0 m	15.0 m
	2401 – 2800 kg	13.5 m	13.5 m	15.0 m
	2801 – 3200 kg	12.0 m	12.0 m	15.0 m
3.9 meter	up to 2200 kg	13.5 m	13.5 m	15.0 m
< 1.1 m/s	2201 – 2700 kg	13.5 m	13.5 m	15.0 m
	2701 – 3200 kg	12.0 m	12.0 m	15.0 m
4.6 meter	up to 2000 kg	13.5 m	13.5 m	15.0 m
< 1.1 m/s	2001 – 3000 kg	12.0 m	12.0 m	15.0 m
Single car, speed > 1.1 m/s, *HIGH SPEED*				
3.9 meter	2700 – 3100 kg	10.5 m	10.5 m	15.0 m
4.6 meter	2400 – 2900 kg	10.5 m	10.5 m	15.0 m
DUAL				
Dual cars, speed ≤ 1.1 m/s regular speed				
3.2 meter	up to 2400 kg	12.0 m	12.0 m	15.0 m
	2401 – 2800 kg	12.0 m	12.0 m	15.0 m
	2801 – 3200 kg	12.0 m	12.0 m	15.0 m
3.9 meter	up to 2200 kg	12.0 m	12.0 m	15.0 m
< 1.1 m/s	2201 – 2700 kg	12.0 m	12.0 m	15.0 m
	2701 – 3200 kg	10.5 m	10.5 m	15.0 m
4.6 meter	up to 2000 kg	12.0 m	12.0 m	15.0 m
< 1.1 m/s	2001 – 3000 kg	10.5 m	10.5 m	15.0 m
Dual cars, speed > 1.1 m/s, *HIGH SPEED*				
3.9 meter	2700 – 3100 kg	10.5 m	10.5 m	15.0 m
4.6 meter	2400 – 2900 kg	9.0 m	9.0 m	15.0 m

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

* ***Maximum allowed overhang during erection is 24.0 m (79 ft.), only if installation proceeds from the car with maximum 1160 kg (2560 lbs.) load in car (2 persons and additional 8 pcs mast sections) and a wind speed less than 12.5 m/s (28 mph).***

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

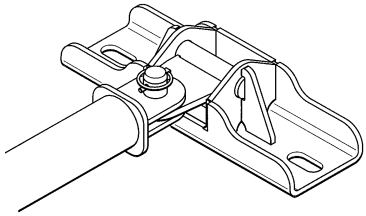
Reaction forces

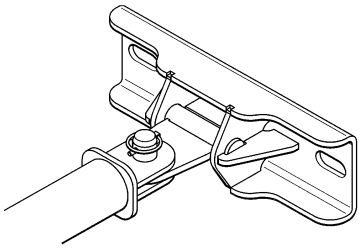
Reaction forces can be calculated by using various formulas depending on the type of mast tie selected:
Values for Rx and Ry according to the following.

Add additional 10% to the Rx value if the mast tie length **(L)** relative the tie width **(B)** is larger than 2.

Hoist in Service, single car

Overhang a	15.0 m		13.5 m		12.0 m		10.5 m	
Mast tie intervals b	15.0 m		15.0 m		15.0 m		15.0 m	
	Rx kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN
CAR LENGTH 3.2 meter								
2-motor machinery, speed ≤ 0.7 m/s, payload capacity;								
up to 2400 kg	14.3	9.0	13.6	8.3				
(a = b / 2)	(10.8)	(5.5)	(10.8)	(5.5)				
3-motor machinery, speed ≤ 1.1 m/s, payload capacity;								
up to 2400 kg	–	–	14.1	8.3				
(a = b / 2)	–	–	(10.8)	(5.5)				
between 2401 – 2800 kg	–	–	15.9	8.9				
(a = b / 2)	–	–	(12.6)	(5.6)				
between 2801 – 3200 kg	–	–	–	–				
(a = b / 2)	–	–	–	–				
CAR LENGTH 3.9 meter								
2-motor machinery, speed ≤ 0.7 m/s, payload capacity;								
up to 2200 kg	–	–	14.9	9.0				
(a = b / 2)	–	–	(11.6)	(5.7)				
3-motor machinery, speed ≤ 1.1 m/s, payload capacity;								
between 2201 – 2700 kg	–	–	–	–	15.8	8.3		
(a = b / 2)	–	–	–	–	(12.8)	(5.3)		
between 2701 – 3100 kg	–	–	–	–	16.5	8.3		
(a = b / 2)	–	–	–	–	(13.6)	(5.3)		
3-motor machinery, speed ≤ 1.7 m/s, payload capacity;								
between 2701 – 3200 kg	–	–	–	–	–	–	17.0	8.6
(a = b / 2)	–	–	–	–	–	–	(14.5)	(6.1)
CAR LENGTH 4.6 meter								
2 and 3-motor machinery, speed ≤ 1.1 m/s, payload capacity;								
up to 2000 kg	–	–	–	–	16.2	9.0		
(a = b / 2)	–	–	–	–	(12.8)	(5.6)		
between 2001 – 3000 kg	–	–	–	–	16.4	8.2		
(a = b / 2)	–	–	–	–	(13.5)	(5.3)		
3-motor machinery, speed ≤ 1.7 m/s, payload capacity;								
between 2400 – 2900 kg	–	–	–	–	–	–	17.4	9.1
(a = b / 2)	–	–	–	–	–	–	(14.7)	(6.5)





12.0 m 12.0 m		10.5 m 12.0 m		9.0 m 9.0 m		7.5 m 7.5 m		6.0 m 6.0 m	
Rx kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN
14.7 (11.6)	8.0 (4.9)			15.8 (13.1)	7.0 (4.3)			19.0 (14.7)	5.7 (3.4)
15.2 (11.6)	8.0 (4.9)			16.3 (13.1)	7.0 (4.3)			19.5 (14.7)	5.7 (3.4)
17.4 (14.1)	8.7 (5.4)			19.2 (16.3)	7.6 (4.7)			23.6 (19.7)	6.3 (2.8)
18.1 (14.8)	8.7 (5.4)			20.2 (17.3)	7.6 (4.7)			25.1 (21.2)	6.3 (2.8)
16.2 (12.8)	8.8 (5.4)			17.5 (14.6)	7.7 (4.7)			21.1 (16.3)	6.3 (3.8)
18.2 (14.7)	8.9 (5.4)			20.0 (17.0)	7.6 (4.6)			24.7 (19.2)	6.1 (4.0)
19.1 (15.7)	8.9 (5.4)			21.3 (18.3)	7.6 (4.6)			26.6 (20.9)	6.1 (4.0)
21.0 (17.3)	9.8 (5.9)	19.8 (16.8)	9.3 (6.3)	23.4 (20.3)	9.4 (6.3)	25.8 (20.4)	9.0 (5.7)	– –	– –
17.7 (14.2)	8.9 (5.3)			19.4 (16.4)	7.5 (4.5)			23.7 (18.3)	5.9 (4.1)
19.0 (15.6)	8.8 (5.3)			21.2 (18.2)	7.6 (4.5)			26.4 (20.8)	6.0 (4.1)
20.9 (17.2)	9.7 (5.8)	20.2 (17.1)	9.8 (6.7)	23.8 (20.5)	10.0 (6.7)	26.2 (20.4)	9.6 (6.1)	– –	– –

Hoist in Service, dual cars

Overhang a		15.0 m		13.5 m		12.0 m		10.5 m
Mast tie intervals	**b**	15.0 m		15.0 m		15.0 m		15.0 m
		Rx kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN
CAR LENGTH 3.2 meter									
2-motor machinery, speed ≤ 0.7 m/s, payload capacity;									
up to 2400 kg		–	–	15.2	15.1	14.0	14.0		
(a = b / 2)		–	–	(10.4)	(10.4)	(9.9)	(9.9)		
3-motor machinery, speed ≤ 1.1 m/s, payload capacity;									
up to 2400 kg		–	–	16.3	15.7	15.2	14.6		
(a = b / 2)		–	–	(11.4)	(10.8)	(10.9)	(10.3)		
between 2401 – 2800 kg		–	–	–	–	15.1	14.8		
(a = b / 2)		–	–	–	–	(10.8)	(10.4)		
between 2801 – 3200 kg		–	–	–	–	15.2	14.9		
(a = b / 2)		–	–	–	–	(11.0)	(10.6)		

Overhang a		15.0 m		13.5 m		12.0 m		10.5 m
Mast tie intervals	**b**	15.0 m		15.0 m		15.0 m		15.0 m
		Rx kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN
CAR LENGTH 3.9 meter									
2-motor machinery, speed ≤ 0.7 m/s, payload capacity;									
up to 2400 kg		–	–	–	–	14.7	14.9	–	–
(a = b / 2)		–	–	–	–	(10.4)	(10.6)	–	–
3-motor machinery, speed ≤ 1.1 m/s, payload capacity;									
between 2201 – 2800 kg		–	–	–	–	15.9	15.7	–	–
(a = b / 2)		–	–	–	–	(11.4)	(11.2)	–	–
between 2701 – 3200 kg		–	–	–	–	–	–	15.0	14.8
(a = b / 2)		–	–	–	–	–	–	(11.1)	(10.9)
3-motor machinery, speed ≤ 1.7 m/s, payload capacity;									
between 2701 – 3100 kg		–	–	–	–	–	–	–	–
(a = b / 2)		–	–	–	–	–	–	–	–
CAR LENGTH 4.6 meter									
2 and 3-motor machinery, speed ≤ 1.1 m/s, payload capacity;									
up to 2400 kg		–	–	–	–	16.1	15.7	–	–
(a = b / 2)		–	–	–	–	(11.5)	(11.1)	–	–
between 2001 – 3000 kg		–	–	–	–	–	–	14.9	15.1
(a = b / 2)		–	–	–	–	–	–	(11.0)	(11.2)
3-motor machinery, speed ≤ 1.7 m/s, payload capacity;									
between 2400 – 3100 kg		–	–	–	–	–	–	16.4	16.6
(a = b / 2)		–	–	–	–	–	–	(12.1)	(12.3)

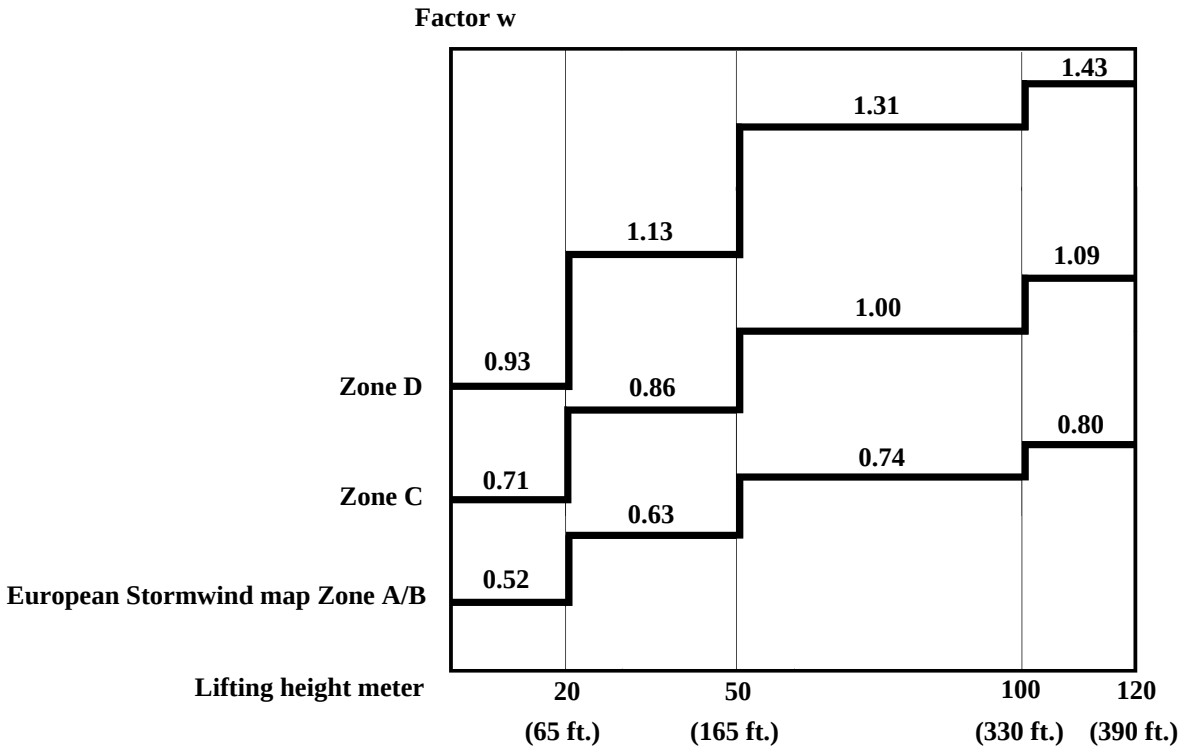
9.0 m 15.0		12.0 m 12.0 m		10.5 m 12.0 m		9.0 m 12.0 m		9.0 m 9.0 m		7.5 m 7.5 m		6.0 m 6.0 m	
Rx kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN
		15.4 (10.5)	15.4 (10.5)					14.7 (11.7)	14.7 (7.4)			17.5 (17.5)	17.5 (7.5)
		16.8 (11.6)	16.0 (10.9)					16.2 (12.7)	15.2 (8.6)			19.1 (19.1)	8.6 (8.6)
		10.7 (11.5)	16.2 (11.1)					16.1 (11.4)	15.5 (10.8)			20.1 (20.1)	8.3 (8.9)
		16.9 (11.7)	16.4 (11.3)					16.4 (13.9)	15.7 (9.0)			21.4 (21.4)	9.3 (9.3)

9.0 m 15.0		12.0 m 12.0 m		10.5 m 12.0 m		9.0 m 12.0 m		9.0 m 9.0 m		7.5 m 7.5 m		6.0 m 6.0 m	
Rx kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN	**Rx** kN	**Ry** kN
		16.2 (11.0)	16.4 (11.2)	– –	– –			15.4 (12.0)	15.6 (8.8)			17.6 (17.6)	8.8 (8.8)
		17.6 (12.2)	17.4 (12.0)	– –	– –			16.9 (14.0)	16.7 (9.3)			21.1 (21.1)	9.7 (9.7)
		– –	– –	16.4 (11.8)	16.3 (11.6)			17.3 (14.9)	17.1 (9.6)			22.8 (22.0)	10.3 (10.3)
15.0 (11.7)	14.1 (10.4)	– –	– –	– –	– –	16.6 (12.6)	15.3 (11.4)	19.3 (14.2)	17.6 (12.6)	19.4 (19.1)	17.5 (10.2)	– –	– –
		17.8 (12.4)	17.3 (11.8)	– _	– _			17.2 (13.5)	16.5 (9.1)			20.0 (20.0)	9.5 (9.5)
		– –	– –	16.4 (11.8)	16.6 (12.0)			17.3 (14.8)	17.5 (10.1)			22.7 (22.7)	11.0 (11.0)
15.8 (12.3)	15.2 (11.7)	– –	– –	– –	– –	17.4 (13.2)	16.7 (12.5)	20.2 (16.3)	19.2 (10.9)	20.3 (19.5)	19.1 (10.9)	– –	– –

Hoist out of Service

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

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



kN x 225 = **pound force**, **lbf.**

Overhang **a**	15.0 m		12.0 m		9.0 m		6.0 m	
Mast tie intervals **b**	15.0 m		12.0 m		9.0 m		6.0 m	
	Rx0	**Ry0**	**Rx0**	**Ry0**	**Rx0**	**Ry0**	**Rx0**	**Ry0**
Single car	22.8 kN	22.8 kN	18.2 kN	18.2 kN	13.7 kN	13.7 kN	9.1 kN	9.1 kN
a = b / 2 *	11.8 kN	11.8 kN	9.5 kN	9.5 kN	7.1 kN	7.1 kN	4.7 kN	4.7 kN
Dual cars	24.3 kN	24.3 kN	19.4 kN	19.4 kN	14.6 kN	14.6 kN	9.7 kN	9.7 kN
a = b / 2 *	12.6 kN	12.6 kN	10.1 kN	10.1 kN	7.6 kN	7.6 kN	5.0 kN	5.0 kN

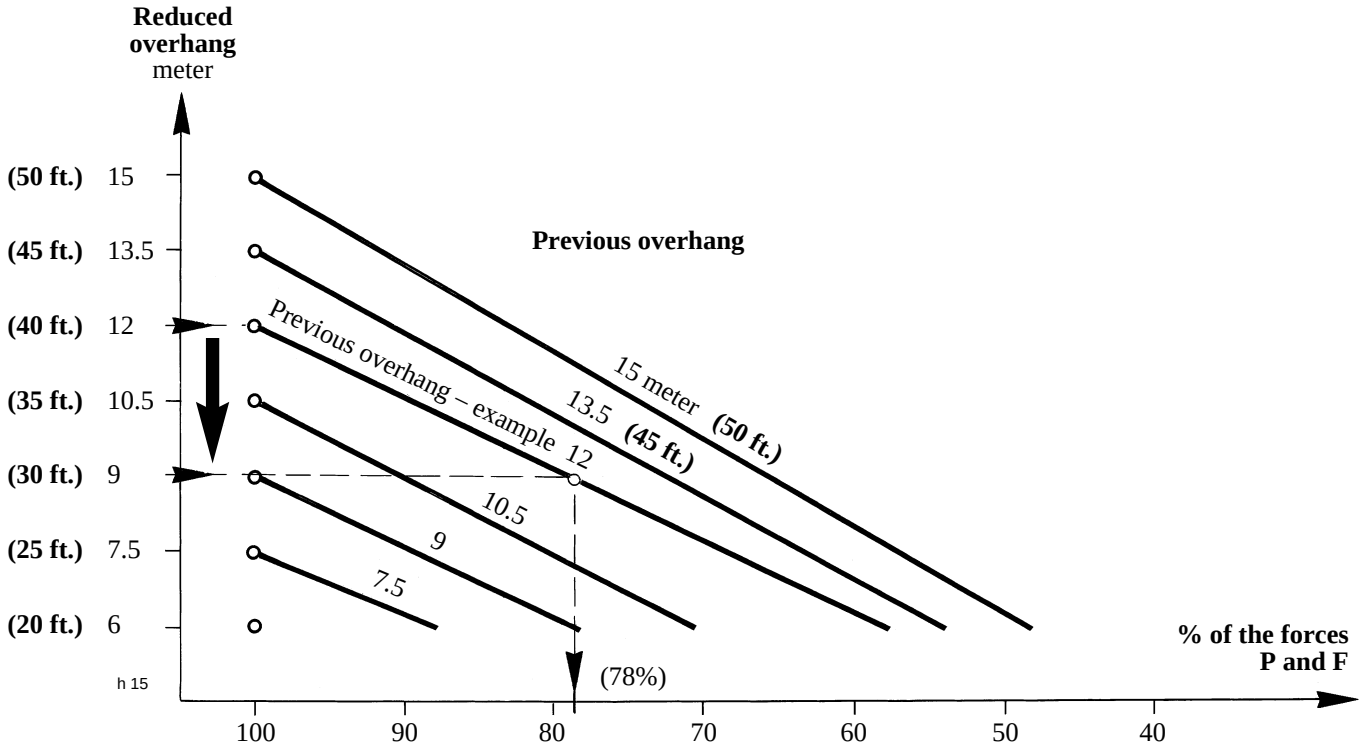
* If overhang equal or less than half the tie distances the reaction forces in the remaining mast ties will ALWAYS be the same. They can never be less.

Values for distances above last mast tie larger than b / 2 can be interpolated.

Note: The most favourable reaction forces will always appear at mast tie distances = 12 m **(40 ft.).**

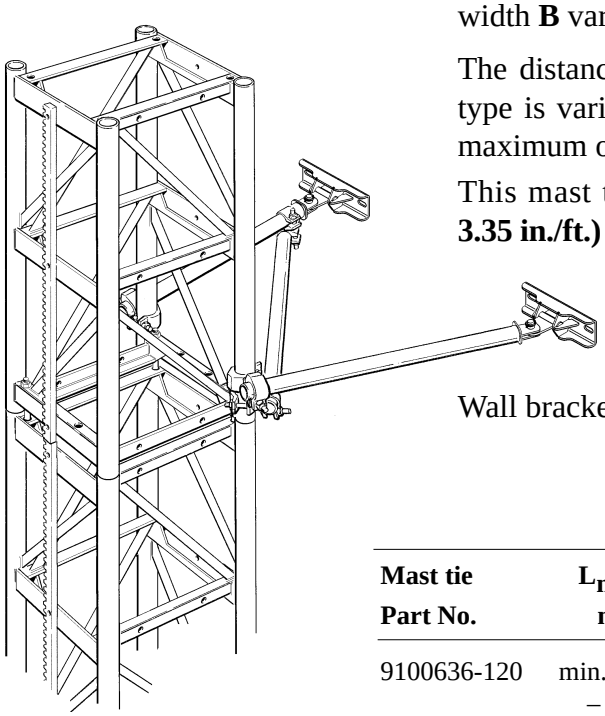
The reaction forces can be reduced by shortening the overhang

The following diagram shows roughly how the reaction forces **P** and **F** can be decreased by reducing the overhang – with tie distances remaining the same.



Example: As can be seen from the diagram below the reaction forces **P** and **F**, can be decreased from 100 to 78% if the overhang is shortened from 12 to 9 meter.

Newton [x 0.2248 = **lbf (pound force)**]



Mast tie type R2A-76 (tube dia. 76 mm or 3 in.)

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 variable from a minimum of 700 mm **(2'- 3 1/2")** to a maximum of 4000 mm **(13'- 1 1/2")**.

This mast tie may be inclined between ± 15° (270 mm/m or **3.35 in./ft.)** from the horizontal.

Wall bracket part. no. 9100631-000.

mm x 0.03937 = **inches**

kN x 225 = **pound force**, **lbf.**

Mast tie Part No.	**$L_{min.}$ mm**	**$L_{max.}$* mm**	**$B_{min.} - B_{max.}$ mm**	**P_{max} In service**	**Out of serv.**
9100636-120	min. 700		1100 –	32 kN	36 kN
	– " –		– 1500	27 kN	30 kN
		max. 1200	1100 –	44 kN	49 kN
		– " –	– 1500	35 kN	40 kN
9100636-160	min. 1200		1400 –	37 kN	42 kN
	– " –		– 1700	33 kN	37 kN
		max. 1600	1400 –	45 kN	50 kN
		– " –	– 1700	39 kN	44 kN
9100636-200	min. 1600		1400 –	45 kN	50 kN
	– " –		– 2000	35 kN	40 kN
		max. 2000	1400 –	52 kN	59 kN
		– " –	– 2000	40 kN	45 kN
9100636-250	min. 2000		1400 –	52 kN	59 kN
	– " –		– 2400	36 kN	41 kN
		max. 2500	1400 –	60 kN	67 kN
		– " –	– 2400	41 kN	46 kN
9100636-300	min. 2500		1600 –	55 kN	62 kN
	– " –		– 3200	34 kN	38 kN
		max. 3000	1600 –	60 kN	67 kN
		– " –	– 3200	38 kN	43 kN
9100636-350	min. 3000		1600 –	60 kN	67 kN
	– " –		– 3200	38 kN	43 kN
		max. 3500	1600 –	49 kN	55 kN
		– " –	– 3200	42 kN	48 kN
9100636-400	min. 3500		1600 –	49 kN	55 kN
	– " –		– 3200	43 kN	48 kN
		max. 4000	1600 –	34 kN	39 kN
		– " –	– 3200	33 kN	37 kN

* ***Note:*** Wall bracket turned for installation towards face of structure will give additional 75 mm **(3 in.)**.

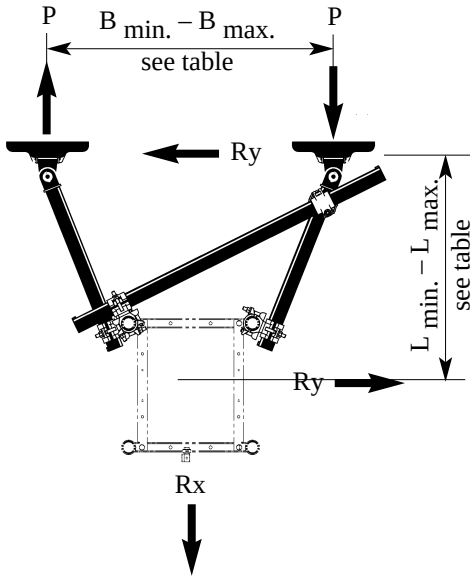
Reaction forces

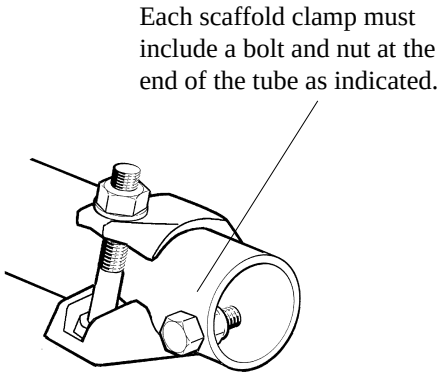
Maximum reaction force P in the wall anchorage of the tie can be calculated as follows:

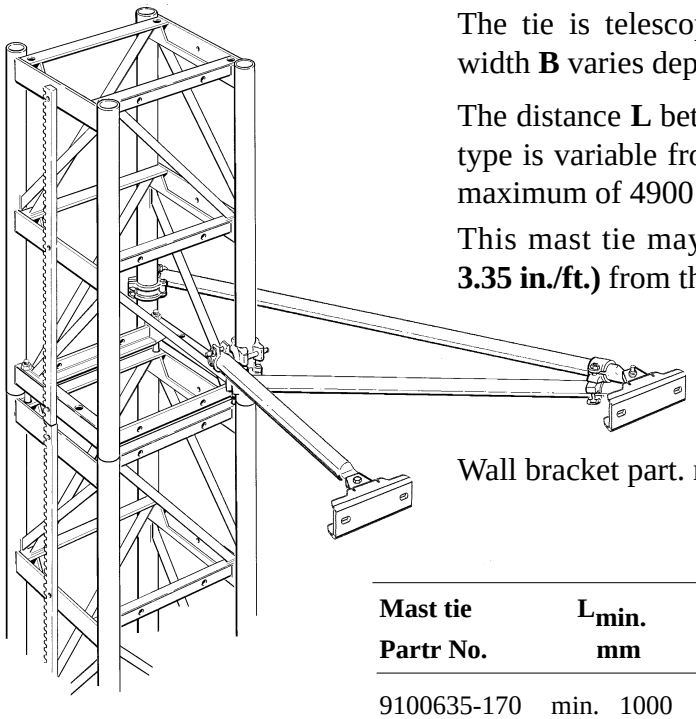
$$P = Ry \cdot \frac{L}{B} + \frac{Rx}{2}$$

Rx and Ry according to the table on page H6.

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







Mast tie type S1A-76 (tube dia, 76 mm or 3 in.)
(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 1000 mm **(3'- 3 1/4")** to a maximum of 4900 mm **(16'- 1")**.

This mast tie may be inclined between ± 15° (270 mm/m or **3.35 in./ft.)** from the horizontal.

Wall bracket part. no. 9100631-000.

mm x 0.03937 = **inches**

kN x 225 = **pound force**, **lbf.**

Mast tie Partr No.	**$L_{min.}$ mm**	**$L_{max.}$* mm**	**$B_{min.} - B_{max.}$ mm**	**P_{max} In service**	**P_{max} Out of serv.**
9100635-170	min. 1000		500 –	60 kN	67 kN
	– " –		– 850	60 kN	67 kN
		max. 1700	850 –	60 kN	60 kN
		– " –	– 1200	67 kN	67 kN
9100635-250	min. 1700		850 –	60 kN	60 kN
	– " –		– 1200	67 kN	67 kN
		max. 2500	1250 –	60 kN	60 kN
		– " –	– 1600	67 kN	67 kN
9100635-330	min. 2500		1250 –	60 kN	60 kN
	– " –		– 1600	67 kN	67 kN
		max. 3300	1650 –	36 kN	41 kN
		– " –	– 2000	34 kN	39 kN
9100635-410	min. 3300		1650 –	36 kN	41 kN
	– " –		– 2000	34 kN	39 kN
		max. 4100	2050 –	20 kN	23 kN
		– " –	– 2400	18 kN	21 kN
9100635-490	min. 4100		2050 –	20 kN	23 kN
	– " –		– 2400	18 kN	21 kN
		max. 4900	2450 –	11 kN	12 kN
		– " –	– 2800	10 kN	11 kN

***** ***Note:*** Wall bracket turned for installation towards face of structure will give additional 75 mm **(3 in.)**.

Reaction forces

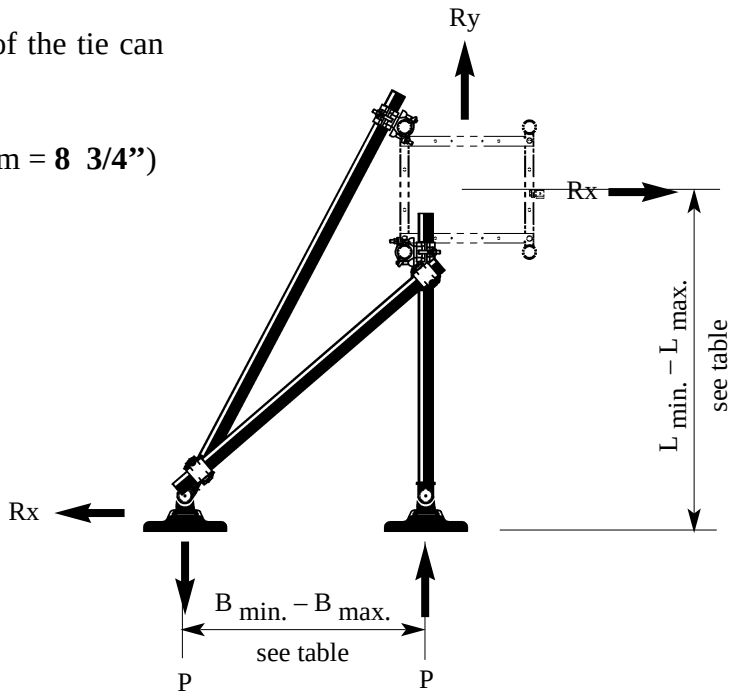
Maximum reaction force P in the wall anchorage of the tie can be calculated as follows:

$$P = Rx \cdot \frac{L}{B} + Ry \cdot \frac{(B + 225)}{B}$$ (225 mm = **8 3/4”**)

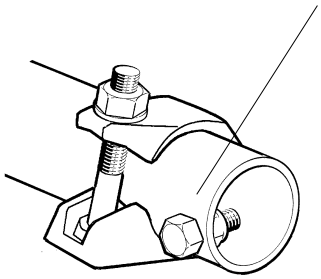
(All dimensions in mm or feet/inch respectively)

Rx and Ry according to the table on page H6.

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



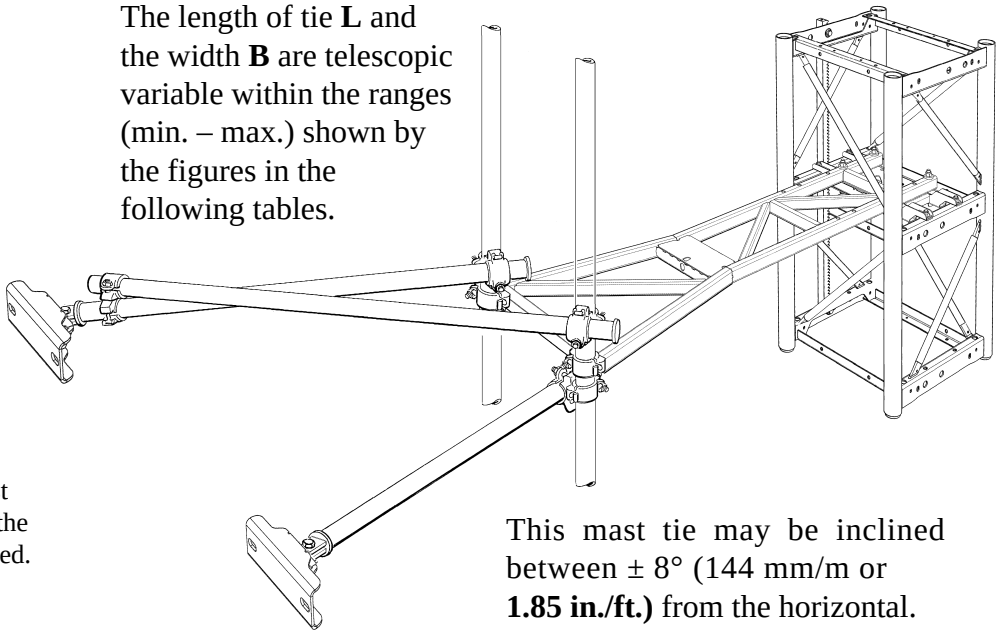
Each scaffold clamp must include a bolt and nut at the end of the tube as indicated.



Mast tie type S2A (for vertical pipes)

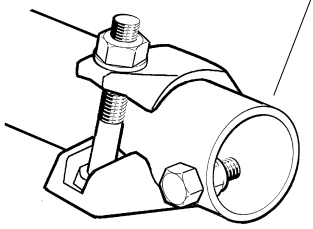
The tie is intended for both single and dual car hoists. The hoist ***must*** be equipped with vertical pipes for the landing equipment.

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



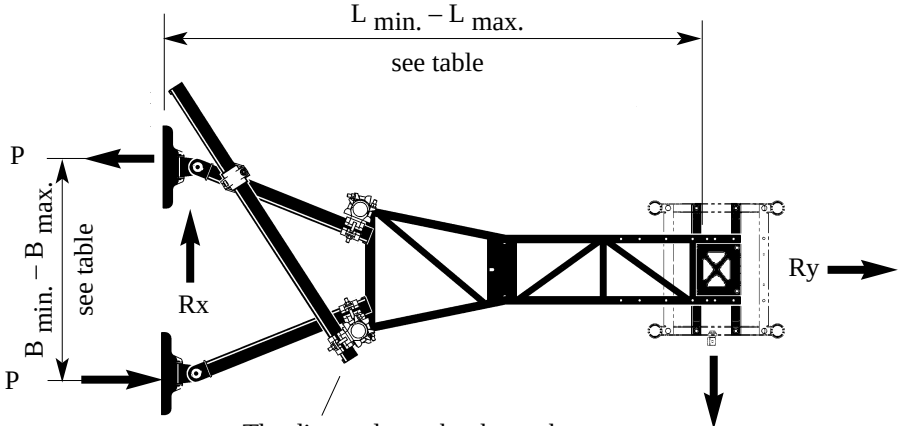
This mast tie may be inclined between ± 8° (144 mm/m or **1.85 in./ft.)** from the horizontal.

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



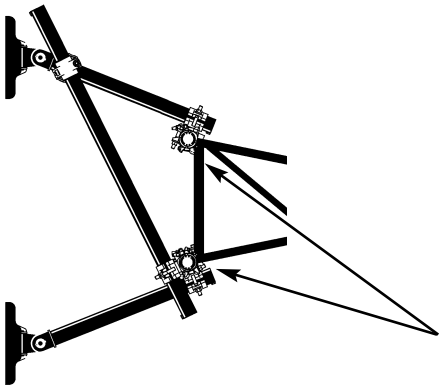
Reaction forces

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



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

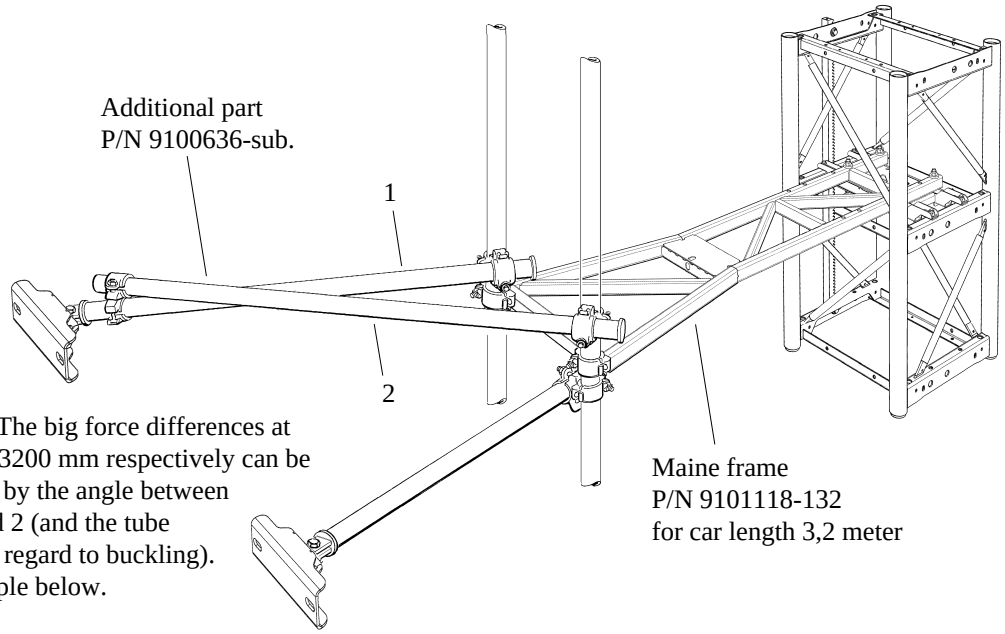
Rx and Ry according to the table on page H6.



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

Values stated in brackets ( ) in the following tables indicates maximum allowable force P_{max} with tube couplers applied OUTSIDE the vertical scaffold tubes.

Mast tie type S2A with main frame P/N 9101118-132 (for vertical pipes)

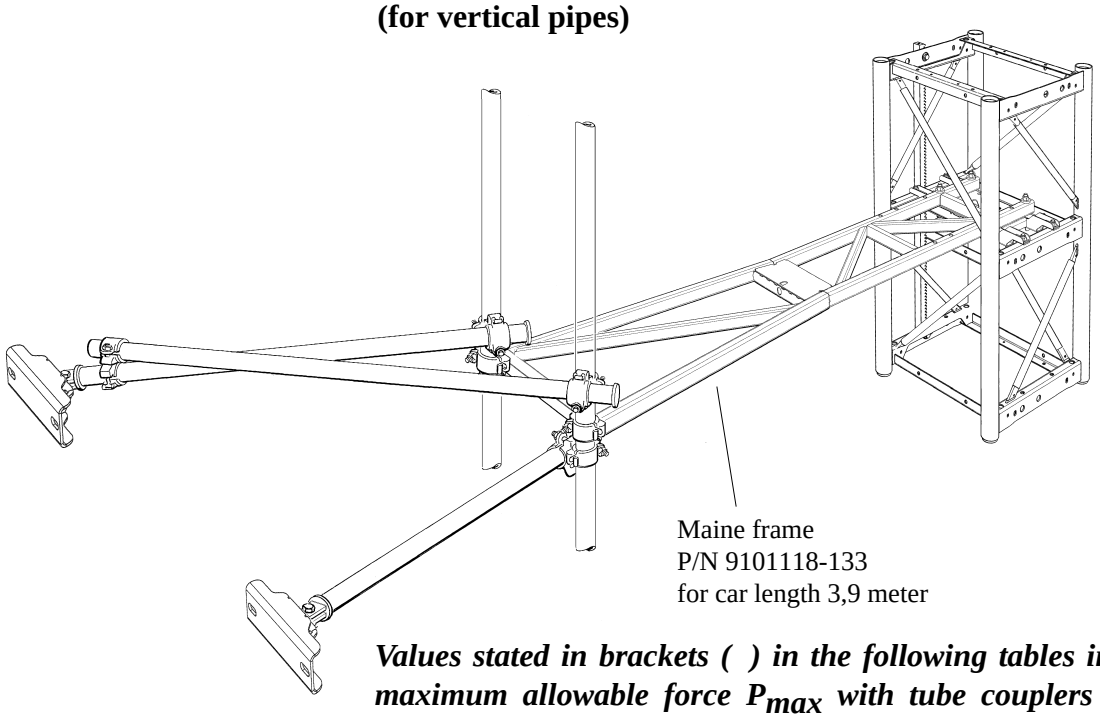


Remark: The big force differences at 1600 and 3200 mm respectively can be explained by the angle between tube 1 and 2 (and the tube lengths in regard to buckling). See example below.

mm x 0.03937 = **inches** kN x 225 = **pound force**, **lbf.**

Car length	Main frame Part No.	$L_{min.}$ mm	$L_{max.}$* mm	$B_{min.}$ – $B_{max.}$ mm	Additional part * Part No	P_{max} In service	P_{max} Out of serv.
3.2 m	9101118-132	2275		1100 – 1500	9100636-120	21kN (60 kN)	24 kN (68 kN)
	– ” –	– ” –		– 1500	– ” –	10 kN (44 kN)	11 kN (50 kN)
	– ” –		2775	1100 –	– ” –	48 kN (60 kN)	54 kN (68 kN)
	– ” –		– ” –	– 1500	– ” –	33 kN (53 kN)	41 kN (60 kN)
	– ” –	2775		1400 –	9100636-160	36 kN (57 kN)	41 kN (64 kN)
	– ” –	– ” –		– 1700	– ” –	28 kN (47 kN)	31 kN (53 kN)
	– ” –		3175	1400 –	– ” –	44 kN (60 kN)	49 kN (68 kN)
	– ” –		– ” –	– 1700	– ” –	35 kN (54 kN)	40 kN (60 kN)
	– ” –	3175		1400 –	9100636-200	44 kN (60 kN)	49 kN (68 kN)
	– ” –	– ” –		– 2000	– ” –	29 kN (45 kN)	33 kN (51 kN)
	– ” –		3575	1400 –	– ” –	49 kN (60 kN)	56 kN (68 kN)
	– ” –		– ” –	– 2000	– ” –	34 kN (51 kN)	39 kN (57 kN)
	– ” –	3575		1400 –	9100636-250	49 kN (60 kN)	55 kN (68 kN)
	– ” –	– ” –		– 2400	– ” –	28 kN (42 kN)	31 kN (48 kN)
	– ” –		4075	1400 –	– ” –	55 kN (60 kN)	62 kN (68 kN)
	– ” –		– ” –	– 2400	– ” –	33 kN (48 kN)	37 kN (54 kN)
	– ” –	4075		1600 –	9100636-300	49 kN (60 kN)	55 kN (68 kN)
	– ” –	– ” –		– 3200	– ” –	24 kN (36 kN)	27 kN (41 kN)
	– ” –		4575	1600 –	– ” –	54 kN (60 kN)	61 kN (68 kN)
	– ” –		– ” –	– 3200	– ” –	28 kN (41 kN)	31 kN (46 kN)
	– ” –	4575		1600 –	9100636-350	54 kN (60 kN)	61 kN (67 kN)
	– ” –	– ” –		– 3200	– ” –	28 kN (41 kN)	31 kN (46 kN)
	– ” –		5075	1600 –	– ” –	51 kN (60 kN)	57 kN (68 kN)
	– ” –		– ” –	– 3200	– ” –	23 kN (37 kN)	26 kN (42 kN)
	– ” –	5075		1600 –	9100636-400	51 kN (60 kN)	57 kN (68 kN)
	– ” –	– ” –		– 3200	– ” –	23 kN (37 kN)	26 kN (42 kN)
	– ” –		5575	1600 –	– ” –	37 kN (60 kN)	42 kN (68 kN)
	– ” –		– ” –	– 3200	– ” –	18 kN (32 kN)	20 kN (36 kN)

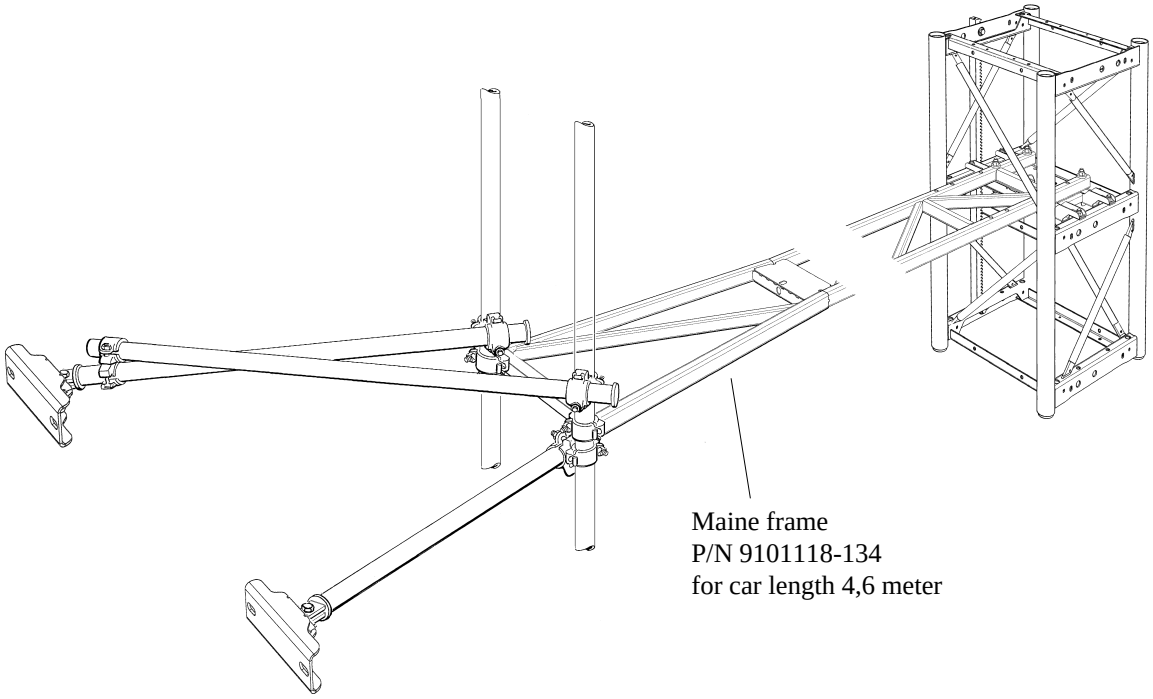
Mast tie type S2A with main frame P/N 9101118-133 (for vertical pipes)



Values stated in brackets ( ) in the following tables indicates maximum allowable force P_{max} with tube couplers applied OUTSIDE the vertical scaffold tubes.

Car length	Main frame Part No.	$L_{min.}$ mm	$L_{max.}$* mm	$B_{min.}$ – $B_{max.}$ mm	Additional part * Part No	P_{max} In service	P_{max} Out of serv.
3.9 m	9101118-133	2625		1100 – 1500	9100636-120	20 kN (60 kN)	23 kN (68 kN)
	– ” –	– ” –		– 1500	– ” –	9 kN (45 kN)	11 kN (51 kN)
	– ” –		3125	1100 –	– ” –	46 kN (60 kN)	52 kN (68 kN)
	– ” –		– ” –	– 1500	– ” –	25 kN (59 kN)	28 kN (67 kN)
	– ” –	3125		1400 –	9100636-160	35 kN (60 kN)	39 kN (68 kN)
	– ” –	– ” –		– 1700	– ” –	27 kN (51 kN)	30 kN (57 kN)
	– ” –		3525	1400 –	– ” –	41 kN (60 kN)	46 kN (68 kN)
	– ” –		– ” –	– 1700	– ” –	34 kN (59 kN)	38 kN (66 kN)
	– ” –	3525		1400 – 1500	9100636-200	41 kN (60 kN)	46 kN (68 kN)
	– ” –	– ” –		1100 – 2000	– ” –	28 kN (49 kN)	31 kN (55 kN)
	– ” –		3925	1400 – 1500	– ” –	46 kN (60 kN)	52 kN (68 kN)
	– ” –		– ” –	1100 – 2000	– ” –	32 kN (55 kN)	36 kN (62 kN)
	– ” –	3925		1400 –	9100636-250	46 kN (49 kN)	52 kN (55 kN)
	– ” –	– ” –		– 2400	– ” –	26 kN (45 kN)	29 kN (51 kN)
	– ” –		4425	1400 –	– ” –	52 kN (60 kN)	58 kN (68 kN)
	– ” –		– ” –	– 2400	– ” –	31 kN (52 kN)	35 kN (58 kN)
	– ” –	4425		1600 –	9100636-300	46 kN (60 kN)	52 kN (68 kN)
	– ” –	– ” –		– 3200	– ” –	22 kN (37 kN)	25 kN (42 kN)
	– ” –		4925	1600 –	– ” –	50 kN (60 kN)	57 kN (68 kN)
	– ” –		– ” –	– 3200	– ” –	25 kN (41 kN)	28 kN (46 kN)
	– ” –	4925		1600 –	9100636-350	50 kN (60 kN)	27 kN (68 kN)
	– ” –	– ” –		– 3200	– ” –	25 kN (41 kN)	28 kN (46 kN)
	– ” –		5425	1600 –	– ” –	46 kN (60 kN)	50 kN (68 kN)
	– ” –		– ” –	– 3200	– ” –	20 kN (33 kN)	23 kN (38 kN)
	– ” –	5425		1600 –	9100636-400	46 kN (60 kN)	50 kN (68 kN)
	– ” –	– ” –		– 3200	– ” –	20 kN (33 kN)	23 kN (38 kN)
	– ” –		5925	1600 –	– ” –	35 kN (60 kN)	40 kN (68 kN)
	– ” –		– ” –	– 3200	– ” –	17 kN (28 kN)	20 kN (32 kN)

Mast tie type S2A with main frame P/N 9101118-134 (for vertical pipes)



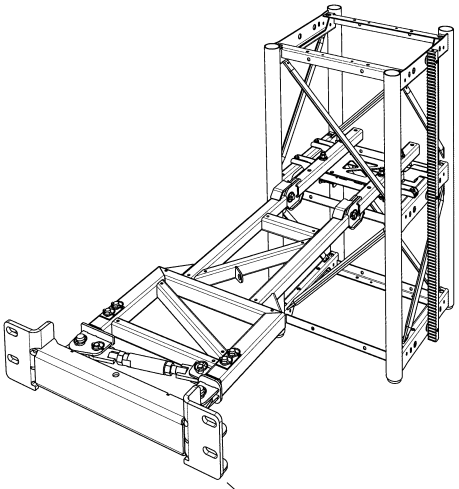
Car length	Main frame Part No.	$L_{min.}$ mm	$L_{max.}$* mm	$B_{min.}$ – $B_{max.}$ mm	Additional part * Part No	P_{max} In service	P_{max} Out of serv.
4.6 m	9101118-134	2975		1100 – 1500	9100636-120	20 kN (60 kN)	23 kN (68 kN)
	– ” –	– ” –		– 1500	– ” –	9 kN (44 kN)	10 kN (50 kN)
	– ” –		3475	1100 –	– ” –	44 kN (60 kN)	50 kN (68 kN)
	– ” –		– ” –	– 1500	– ” –	31 kN (53 kN)	35 kN (59 kN)
	– ” –	3475		1400 –	9100636-160	34 kN (56 kN)	38 kN (63 kN)
	– ” –	– ” –		– 1700	– ” –	26 kN (46 kN)	29 kN (52 kN)
	– ” –		3875	1400 –	– ” –	40 kN (60 kN)	45 kN (68 kN)
	– ” –		– ” –	– 1700	– ” –	32 kN (52 kN)	36 kN (58 kN)
	– ” –	3875		1400 –	9100636-200	40 kN (60 kN)	45 kN (68kN)
	– ” –	– ” –		– 2000	– ” –	26 kN (44 kN)	30 kN (49 kN)
	– ” –		4275	1400 –	– ” –	44 kN (60 kN)	50 kN (68 kN)
	– ” –		– ” –	– 2000	– ” –	31 kN (48 kN)	35 kN (54 kN)
	– ” –	4275		1400 –	9100636-250	44 kN (60 kN)	50 kN (68 kN)
	– ” –	– ” –		– 2400	– ” –	25 kN (40 kN)	28 kN (45 kN)
	– ” –		4775	1400 –	– ” –	49 kN (60 kN)	55 kN (68 kN)
	– ” –		– ” –	– 2400	– ” –	29 kN (45 kN)	33 kN (50 kN)
	– ” –	4775		1600 –	9100636-300	43 kN (60 kN)	49 kN (68 kN)
	– ” –	– ” –		– 3200	– ” –	21 kN (34 kN)	15 kN (38 kN)
	– ” –		5275	1600 –	– ” –	47 kN (60 kN)	53 kN (68 kN)
	– ” –		– ” –	– 3200	– ” –	23 kN (37 kN)	26 kN (42 kN)
	– ” –	5275		1600 –	9100636-350	47 kN (60 kN)	53 kN (68 kN)
	– ” –	– ” –		– 3200	– ” –	23 kN (37 kN)	26 kN (42 kN)
	– ” –		5775	1600 –	– ” –	42 kN (60 kN)	47 kN (68 kN)
	– ” –		– ” –	– 3200	– ” –	19 kN (31 kN)	21 kN (35 kN)
	– ” –	5775		1600 –	9100636-400	42 kN (60 kN)	47 kN (68 kN)
	– ” –	– ” –		– 3200	– ” –	23 kN (31 kN)	26 kN (35 kN)
	– ” –		6275	1600 –	– ” –	33 kN (59 kN)	37 kN (67 kN)
	– ” –		– ” –	– 3200	– ” –	10 kN (26 kN)	18 kN (29 kN)

Mast tie type S3A
with additional part P/N 9102800-sub.
(for single or dual car installation)

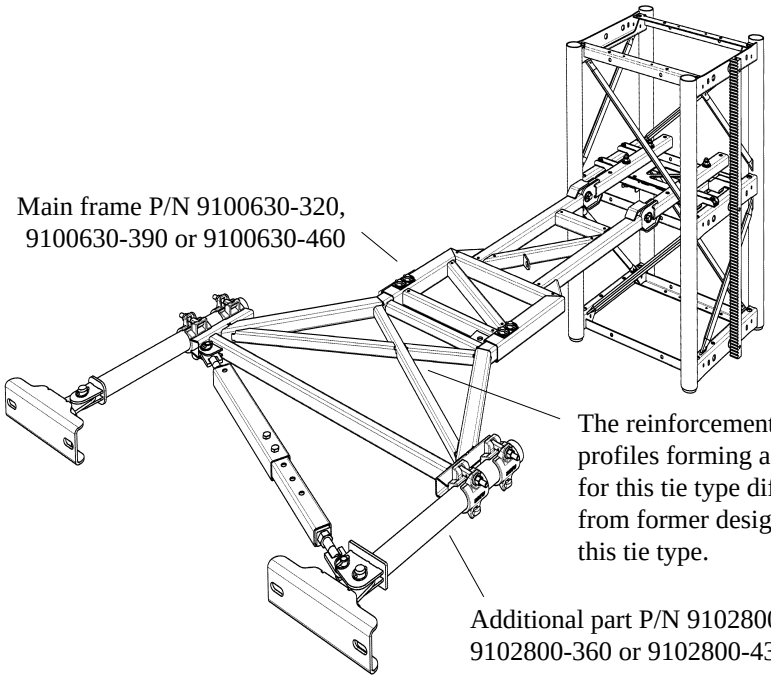
The tie is intended both for single and dual car hoists with or without counterweight. The hoist ***must not*** be equipped with vertical pipes for landing equipment.

The tie is available with 3 main sections with 4 different additional parts. The length of the tie **L** is variable within the range (max. – min.) shown by the figures in the table below.
The additional part P/N 9101500-210 is variable in increments of 50 mm **(2")** within the range $L_{max.} - L_{min}$ only.
Remaining versions are fully telescopic variable.

The width **B** for this type of mast tie is ***fixed.***



Additional part
P/N 9101500-210

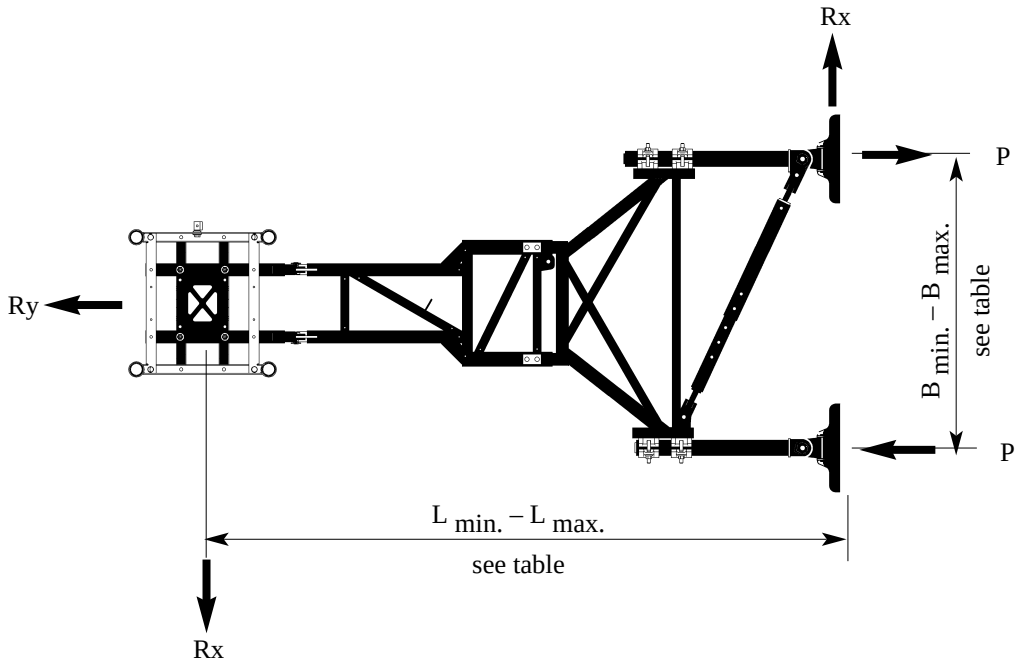


This mast tie may be inclined between ± 8° (144 mm/m or **1.85 in./ft.)** from the horizontal. The value ± 8° can be increased to maximum 15° or 270 mm/m **(3.35 in./ft.)** – provided that the given restriction on the following page is fulfilled.

IMPORTANT: Allowable maximum force P_{max} for this tie type of former design is NOT in accordance with the following.

Car length	Main frame Part No.	$L_{min.}$ mm	$L_{max.}$* mm	B mm	Additional part Part No	P_{max} In service	P_{max} Out of serv.
The values below are valid for mast tie inclinations up to 8°							
3.2 m	9100630-320	1995	2190	890	9101500-210	65 kN	74 kN
	– ” –	2690	3080	1420	9102800-310	58 kN	65 kN
	– ” –	2990	3680	1720	9102800-360	57 kN	64 kN
	– ” –	3590	4280	2020	9102800-430	57 kN	64 kN
3.9 m	9100630-390	2345	2540	890	9101500-210	76 kN	86 kN
	– ” –	3040	3430	1420	9102800-310	64 kN	72 kN
	– ” –	3340	4030	1720	9102800-360	62 kN	70 kN
	– ” –	3940	4630	2020	9102800-430	61 kN	69 kN
4.6 m	9100630-460	2695	2890	890	9101500-210	86 kN	97 kN
	– ” –	3390	3780	1420	9102800-310	71 kN	80 kN
	– ” –	3690	4380	1720	9102800-360	68 kN	76 kN
	– ” –	4290	4980	2020	9102800-430	66 kN	74 kN

Note: Reduce the maximum allowable reaction forces, Pmax by 8% for each 1° above 8°up to stated maximum 15°.



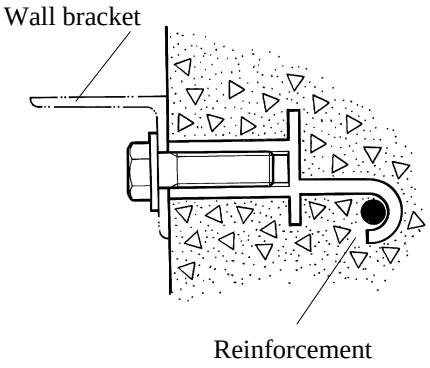
Reaction forces

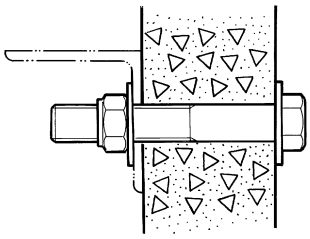
Maximum reaction force P in the wall anchorage of the tie can be calculated as follows:

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

Rx and Ry according to the table on page H6.

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





h 16

Attachment of ties

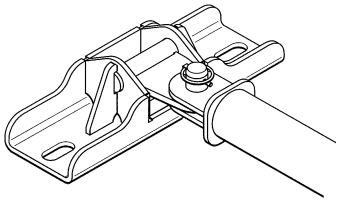
The ties are attached to the building by bolts, washers and nuts into the holes which are drilled at the installation or embedment sets or other approved suitable wall bracket attachments.

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).***

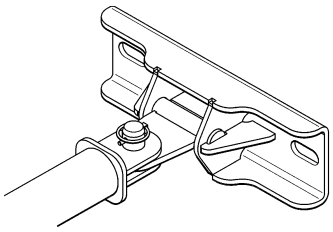
If other type of bolt is used such as epoxy cast in bolt or expansion bolt, it is important to choose an approved type which can take the calculated force in this application with a satisfactory safety factor.

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

Wall brackets can be installed either on slab...

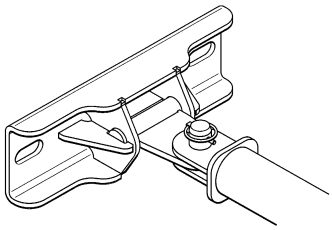


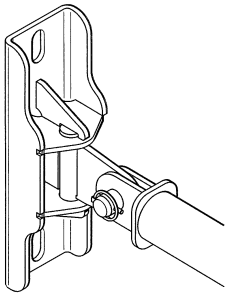
... or against face of structure

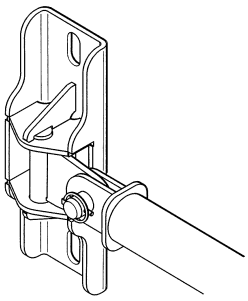


Wall bracket P/N 9100631-000

Hole dia. 26 mm for bolt dimension M24
c/c between bolts 320 mm **(1'- 0 1/2'')**



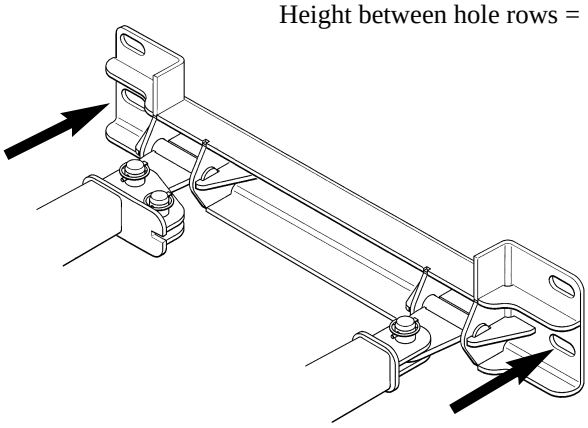




Note: Location of the wall brackets affects the bolt reaction forces. In doubtful cases we kindly ask you to contact Alimak for advice.

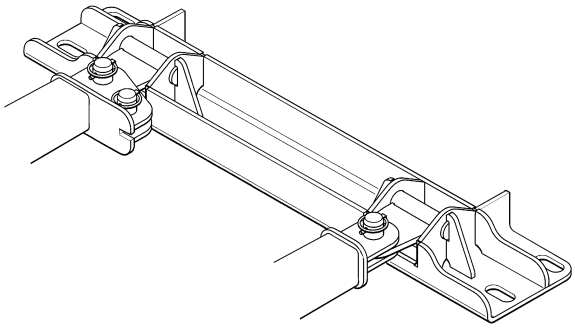
Wall bracket P/N 9101019-000

Hole dia. 26 mm for bolt dimension M24 c/c between bolts 890 mm **(2’- 11’’).**
Height between hole rows = 110 mm **(4 1/4’’).**



Vertical application of the dual wall bracket

Bolts in two (2) holes ONLY are required.
Note: These bolts **MUST** be located as indicated above.



Vertical application of the dual wall bracket

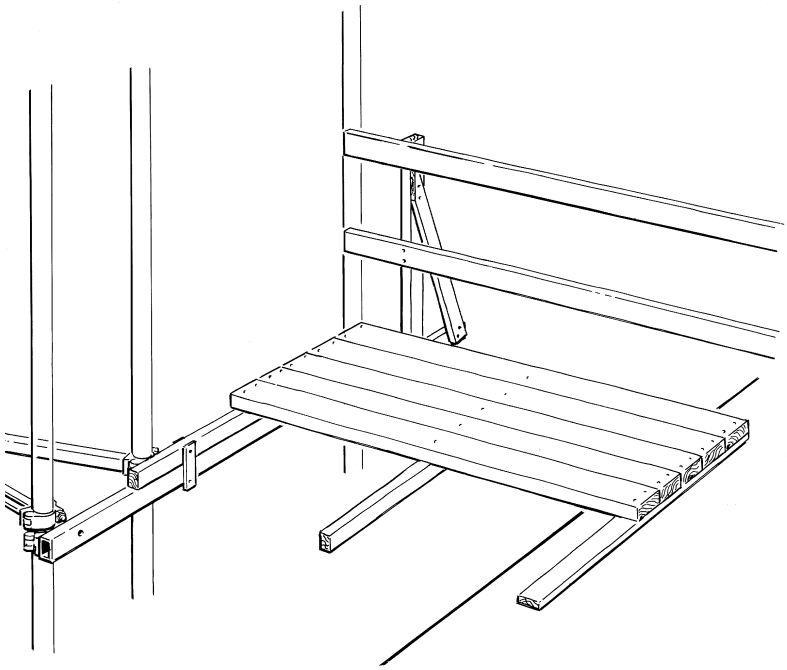
Bolts in **ALL** four (4) holes are required.

The reaction forces can be reduced by sortering the overhang

See page H9 for more detailed information

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.



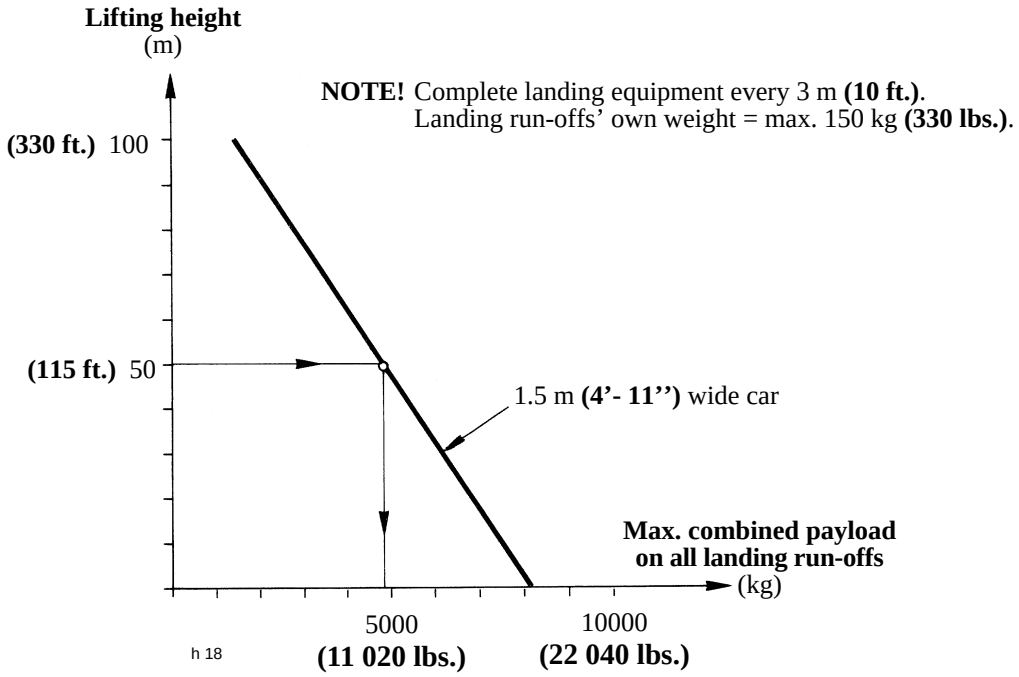
The maximum allowable payload on all the landings combined is shown on the diagram to the right. The load is understood to be equally distributed on the respective landing run-offs.

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

Example:

For a single car hoist type Scando 650 DOL 20/32 (car dimension 1.5 x 3.2) the maximum allowable payload for all the landing run-offs combined is 4800 kg **(10580 lbs.)** at a 50 m **(115 ft.)** lifting height.

The corresponding maximum allowable payload for a dual car hoist SCANDO 650 DOL 20/32 at 50 m lifting height is 2 x 4800 kg = 9600 kg **(21160 lbs.)**.



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 m **(330 ft.).**

General ..... **I 1**
Permission ..... **I 1**
Erection place..... **I 1**
Foundation ..... **I 1**
Delivery check-up ..... **I 1**
Arrangement of power supply..... **I 2**
Client's power supply..... **I 2**
Power supply from generator set at jobsite **I 4**
Voltage drop in the power supply ..... **I 4**
Dimensioning hoist cables..... **I 6**

Preparations before installation

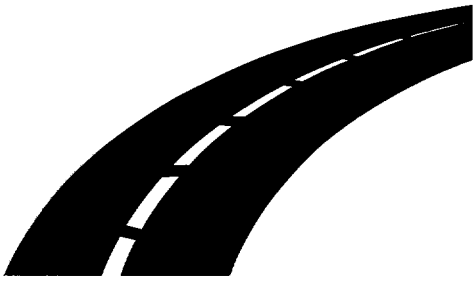
To install your rack and pinion hoist as efficiently and safely as possible and at lowest cost, it is important that the following preparations are made before the erector is called and the installation is started.

i 1

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.

Erection place



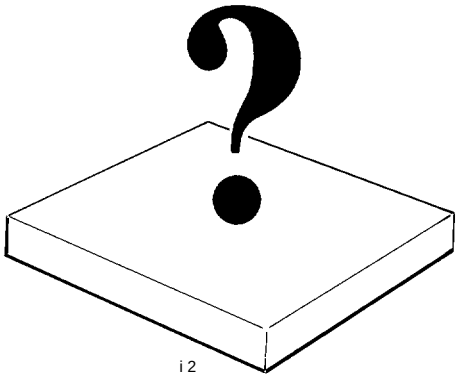
Prepare the installation site so that electric power, light, lifting equipment and tools are available and there is adequate access for the lift transporter – beware of overhead obstructions.

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

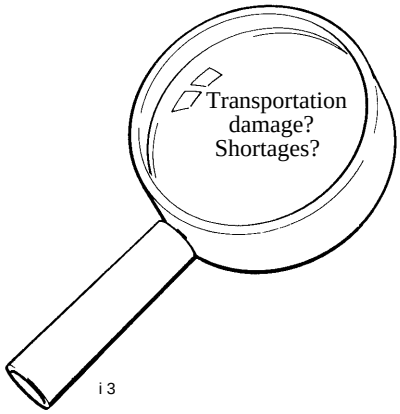

i 2

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.

Delivery check-up

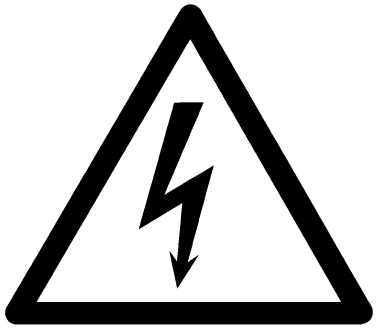


i 3

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 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.***

Client’s power supply

Supply cables to hoists with DOL or Y/D starting

f4

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	11 / 13 kW	12.6 / 15 kW	a = L x 0.25 mm^2	10 mm^2	35 AT
2	11 / 13 kW	12.6 / 15 kW	a = L x 0.49 mm^2	16 mm^2	63 AT

a = Conductor area mm^2, Cu. To be rounded up to standard sizes, i.e. 10, 16, 25, 35 mm^2 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 mm^2 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) mm^2
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 650

Model	Machinery	Speed	Max. load	Fuse	Gen. set size
Sc 650 DOL	2 x 11 kW	38 m/min.	2100 kg	63A	200kVA
			2400 kg	80A	200kVA
Sc 650 FC	2 x 11 kW	0 – 42 m/min.	2100 kg	63A	50kVA
			2400 kg	80A	50kVA
Sc 650 FC	2 x 11 kW	0 – 54 m/min.	1200 kg	63A	50kVA
			1900 kg	80A	55kVA
Sc 650 FC	3 x 11 kW	0 – 54 m/min.	2900 kg	100A	70kVA
			3200 kg	125A	80kVA
Sc 650 FC	3 x 11 kW	0 – 65 m/min.	2900 kg	100A	70kVA
			2500 kg	125A	80kVA

Gen. set must be able to continuously 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.
   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
Motor rated power 1 or 2 x 11 kW and 2 x 7.5 kW

Drive unit Rated power	Speed	Fixed feeding cable	Trailing power cable	Maximum lifting height 440V 50Hz		480V60Hz	
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	0.6 m/s	–	4G10	100 m		100 m	**(330')**
	125 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 – 140 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			dia.	weight
4G10+3x5x1 hybrid	for cable basket	P/N. 3000162-210	nom. 26.3 mm	1.02 kg/m
4G10+12x1 hybrid	for cable trolley	P/N. 3002198-406	nom. 26.3 mm	1.00 kg/m
4G16+3x2.5 hybrid	– " –			
4G25+3x2.5 hybrid	– " –			
4G35+3x2.5 hybrid	– " –	P/N. 3002198-500	nom. 26.3 mm	1.00 kg/m
4G16	– " –	P/N. 3002198-401	nom. 24.0 mm	1.10 kg/m
4G25	– " –	P/N. 3002198-402	nom. 26.8 mm	1.50 kg/m
7G2.5 + 9x1.5	– " –	P/N. 3002198-403	nom. 22.8 mm	0.73 kg/m (control cable)

Dimensioning hoist cables
Motor rated power 1, 2 or 3 x 11 kW

Drive unit Rated power	Speed	Fixed feeding cable	Trailing power cable	Maximum lifting height 440V 50Hz	480V60Hz
Scando 650					
2 x 11 kW DOL	0.6 m/s	–	4G10	74 m	91 m **(290')**
	125 fpm	3x16/16	4G10	79 m	100 m **(330')**
		3x16/16	4G16	111 m	138 m **(450')**
		3x25/16	4G16	140 m	173 m **(565')**
		3x35/16	4G16	160 m	198 m **(650')**
		3x25/16	4G25	188 m	230 m **(755')**
		3x35/16	4G25	213 m	270 m **(885')**
		3x50/16	4G25	NA	NA
2 x 11 kW FC	0 – 0.7 m/s	–	4G10	99 m	100 m **(330')**
	0 – 140 fpm	3x16/16	4G10	109 m	168 m **(550')**
		3x16/16	4G16	150 m	225 m **(735')**
		3x25/16	4G16	188 m	280 m **(915')**
		3x35/16	4G16	213 m	320 m **(1045')**
		3x25/16	4G25	245 m	365 m **(1195')**
		3x35/16	4G25	290 m	400 m **(1310')**
		3x50/16	4G25	330 m	400 m
2 x 11 kW FC	0 – 0.9 m/s	–	4G10	NA	NA
	0 – 175 fpm	3x16/16	4G10	NA	NA
		3x16/16	4G16	128 m	195 m **(635')**
		3x25/16	4G16	160 m	240 m **(785')**
		3x35/16	4G16	183 m	275 m **(900')**
		3x25/16	4G25	213 m	315 m **(1030')**
		3x35/16	4G25	250 m	375 m **(1230')**
		3x50/16	4G25	290 m	400 m **(1310')**
3 x 11 kW FC	0 – 0.9 m/s	–	4G10	NA	NA
	0 – 175 fpm	3x16/16	4G10	NA	NA
		3x16/16	4G16	NA	NA
		3x25/16	4G16	NA	NA
		3x35/16	4G16	NA	NA
		3x25/16	4G25	137 m	208 m **(680')**
		3x35/16	4G25	164 m	245 m **(800')**
		3x50/16	4G25	190 m	285 m **(935')**
3 x 11 kW FC	0 – 1.1 m/s	–	4G10	NA	NA
	0 – 215 fpm	3x16/16	4G10	NA	NA
		3x16/16	4G16	NA	NA
		3x25/16	4G16	NA	NA
		3x35/16	4G16	NA	NA
		3x25/16	4G25	134 m	203 m **(665')**
		3x35/16	4G25	159 m	240 m **(785')**
		3x50/16	4G25	185 m	275 m **(900')**

Feeding fixed cables			**dia.**	**weight**
3x10/10	P/N. 3000319-054	power cable	nom. 19.5 mm	0.73 kg/m
3x16/16	P/N. 3000319-045	– " –	nom. 22.4 mm	0.97 kg/m
3x25/16	P/N. 3000319-046	– " –	nom. 23.9 mm	1.20 kg/m
3x35/16	P/N. 3000319-047	– " –	nom. 29.5 mm	1.56 kg/m
3x50/25	P/N. 3000319-048	– " –	nom. 30.4 mm	2.13 kg/m
3x50/25	P/N. 3002103-218	control cable	nom. 21.4 mm	0.85 kg/m

Dimensioning hoist cables, Motor rated power 3 x 22 kW (High speed)

Using Step-Up transformer with trailing and control cable

Drive unit rated power	Speed	Fixed feeding cable	Trailing power cable	Trailing control cable	Maximum lifting height 400V 50Hz	Maximum lifting height 480V60Hz
Scando 650 FC-S /39 High Speed, Maximum payload 3100 kg (refer to data sheet No. 1295)						
3 x 11 kW FC	0 – 1.3 m/s **0 – 260 fpm**	3x35/16	4G25	7G2.5 + 9x1.5	200 m	200 m **(660')**
Scando 650 FC-S /39 High Speed, Maximum payload 2900 kg						
3 x 11 kW FC	0 – 1.3 m/s	3x35/16	4G25	7G2.5 + 9x1.5	250 m	250 m **(820')**
Scando 650 FC-S /39 High Speed, Maximum payload 2800 kg						
3 x 11 kW FC	0 – 1.3 m/s	3x35/16	4G25	7G2.5 + 9x1.5	300 m	300 m **(985')**
Scando 650 FC-S /46 High Speed, Maximum payload 2900 kg (refer to data sheet No. 1307)						
3 x 11 kW FC	0 – 1.3 m/s	3x35/16	4G25	7G2.5 + 9x1.5	200 m	200 m **(660')**
Scando 650 FC-S /46 High Speed, Maximum payload 2700 kg						
3 x 11 kW FC	0 – 1.3 m/s	3x35/16	4G25	7G2.5 + 9x1.5	250 m	250 m **(820')**
Scando 650 FC-S /46 High Speed, Maximum payload 2600 kg						
3 x 11 kW FC	0 – 1.3 m/s	3x35/16	4G25	7G2.5 + 9x1.5	300 m	300 m **(985')**

Using Step-Up transformer and hybrid cable (trailing / control cable)

Drive unit rated power	Speed	Fixed feeding cable	Trailing power cable	Trailing control cable	Maximum lifting height 400V 50Hz	Maximum lifting height 480V60Hz
Scando 650 FC-S /39 High Speed, Maximum payload 3100 kg						
3 x 22 kW FC	0 – 1.3 m/s	3x50/16	4G35+3x5x1	–	300 m	300 m **(985')**
Scando 650 FC-S /46 High Speed, Maximum payload 2900 kg						
3 x 22 kW FC	0 – 1.3 m/s	3x50/16	4G35+3x5x1	–	300 m	300 m **(985')**

Using Step-Up / Step-Down transformer with trailing and control cable

Drive unit rated power	Speed	Fixed feeding cable	Trailing power cable	Trailing control cable	Maximum lifting height 400V 50Hz	Maximum lifting height 480V60Hz
Scando 650 FC-S /39 High Speed, Maximum payload 3100 kg (refer to data sheet No. 1294)						
3 x 11 kW FC	0 – 1.3 m/s **0 – 260 fpm**	3x35/16	4G25	7G2.5 + 9x1.5	300 m	300 m **(985')**
Scando 650 FC-S /39 High Speed, Maximum payload 2900 kg						
3 x 11 kW FC	0 – 1.3 m/s	3x35/16	4G25	7G2.5 + 9x1.5	350 m	350 m **(1150')**
Scando 650 FC-S /39 High Speed, Maximum payload 2800 kg						
3 x 11 kW FC	0 – 1.3 m/s	3x35/16	4G25	7G2.5 + 9x1.5	400 m	400 m **(1310'**
Scando 650 FC-S /46 High Speed, Maximum payload 2800 kg (refer to data sheet No. 1308)						
3 x 11 kW FC	0 – 1.3 m/s	3x35/16	4G25	7G2.5 + 9x1.5	300 m	300 m **(985')**
Scando 650 FC-S /46 High Speed, Maximum payload 2700 kg						
3 x 11 kW FC	0 – 1.3 m/s	3x35/16	4G25	7G2.5 + 9x1.5	350 m	350 m **(1150')**
Scando 650 FC-S /46 High Speed, Maximum payload 2600 kg						
3 x 11 kW FC	0 – 1.3 m/s	3x35/16	4G25	7G2.5 + 9x1.5	400 m	400 m **(1310')**

Using Step-Up/Step-Down transformer transformer and hybrid cable

Drive unit rated power	Speed	Fixed feeding cable	Trailing power cable	Trailing control cable	Maximum lifting height 400V 50Hz	Maximum lifting height 480V60Hz
Scando 650 FC-S /39 High Speed, Maximum payload 3100 kg						
3 x 22 kW FC	0 – 1.3 m/s	3x35/16	4G25+3x5x1	–	300 m	350 m **(1150')**
Scando 650 FC-S /39 High Speed, Maximum payload 2900 kg						
3 x 22 kW FC	0 – 1.3 m/s	3x35/16	4G25+3x5x1	–	300 m	400 m **(1310')**
Scando 650 FC-S /46 High Speed, Maximum payload 2900 kg						
3 x 22 kW FC	0 – 1.3 m/s	3x50/16	4G35+3x5x1	–	400 m	350 m **(1150')**
Scando 650 FC-S /46 High Speed, Maximum payload 2800 kg						
3 x 22 kW FC	0 – 1.3 m/s	3x50/16	4G35+3x5x1	–	400 m	400 m **(1310')**

Conversion table mm² to AWG

AWG No. (American Wire Gauge)	mm²	Nearest IEC std. mm²
0000	107.2	95 alt. 120
000	85.03	70 alt. 95
00	67.43	70
0	53.48	50
1	42.41	35 alt. 50
2	33.63	35
4	21.15	16 alt. 25
6	13.3	10 alt. 16
8	8.366	6 alt. 10
10	5.261	4 alt. 6
12	3.309	2.5 alt. 4
14	2.081	1.5 alt. 2.5
16	1.309	1.5
18	0.8231	0.75 alt. 1.0

HOIST
capacity 2400 kg
or 24 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