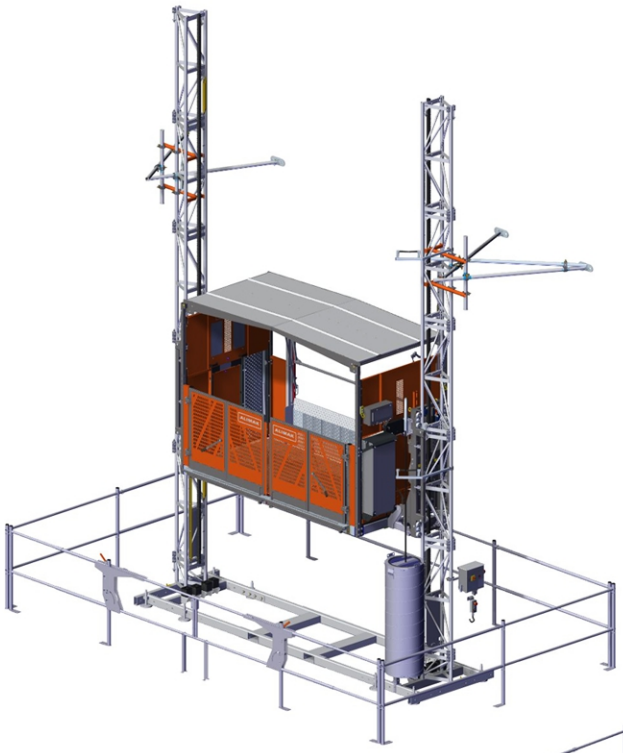
Alimak Manufacturing SL

2037001349 (EN)

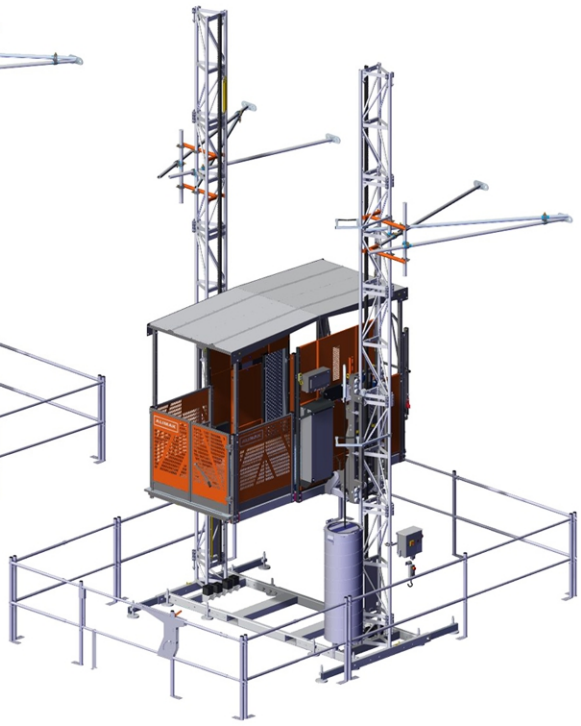
Revision 01.03 (03/03/2025)

ALIMAK VECTIO 350 20-32 and VECTIO 350 20-32D TRANSPORT PLATFORM AND MATERIAL HOIST

Operator's manual



ALIMAK VECTIO 350 20-32



ALIMAK VECTIO 350 20-32D

VEC-001B

Original instructions

CERTIFICATO DI ESAME CE DEL TIPO
EC TYPE EXAMINATION CERTIFICATE

Visto l'esito delle verifiche condotte in conformità con:
On the basis of our verifications carried out according to;

Allegato IX della Direttiva 2006/42/CE
Annex IX of the Directive 2006/42/EC

Si dichiara che il prodotto:
We declare that the product:

Montacarichi da Cantiere (MH) / Piattaforma di Trasporto (TP)
Material Hoist / Transport Platform

Marca / *Trade Mark* **Alimak**
Modello / *Model* **VECTIO 350 20**

Fabbricato da:
Manufactured by:

ALIMAK MANUFACTURING SL
POLIGONO INDUSTRIAL CENTROVIA
CALLE LOS ÁNGELES Nº 88 NAVE 1
50198 - LA MUELA (ZARAGOZA) - SPAIN

Soddisfa le disposizioni della:
Meets the requirements of the:

Direttiva 2006/42/CE
Directive 2006/42/EC

Norma di riferimento:
Reference standard:

EN 12158-1:2021 (MH)
EN 16719:2018 (TP)

Riferimento pratica IMQ
IMQ Reference

A2501-00381

Questo certificato è emesso da IMQ in qualità di Organismo Notificato per la Direttiva 2006/42/CE - Numero identificativo 0051
This certificate is issued by IMQ as Notified Body for the Directive 2006/42/EC - Identification number 0051.

Questo documento è composto da **4** pagine comprendenti 1 allegato | *This document is composed of* **4** *pages including 1 annex*

2025-02-17	2012-10-18	2029-03-31	Sostituisce e annulla il precedente del *This Certificate cancels and replaces the previous one*
Emissione corrente *Current issue*	Prima emissione *First issue*	Data di scadenza *Expiry date*	2024-09-26

IMQ

ALIMAK VECTIO 350 20-32 and VECTIO 350 20-32D TRANSPORT PLATFORM AND MATERIAL HOIST

EN-AL-03-00-0001-03B

Limited Warranty

Consult the warranty requirements in the general terms and conditions.

Reference standards

The lifting transportation system has been designed and certified according to the following standards:

- EN12158-1:2021 Builders' hoists for goods - Part 1: Hoists with accessible platforms.
- EN16719:2018 Transport platforms.

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Contents

1 Introduction

1.1 Symbols

EN-AL-04-02-0001-01

DANGER

Immediate or potentially imminent danger.
Failure to observe may result in injuries or damages:
- Death or serious injury.

WARNING

Potentially hazardous situation.
Failure to observe may result in injuries or damages:
- Moderate injury or material damage.

CAUTION

Dangerous situation.
Failure to observe may result in injuries or damages:
- Minor or moderate injury.

NOTICE

Useful tips for an optimum work process.
Failure to observe may result in injuries or damages:
- None.

1.2 Terms and definitions

EN-AL-04-04-0001-02

Terms	Definitions
Owner	Owner of the lifting transportation system and responsible for its application, operation and compliance with occupational health and safety regulations. The owner must have adequate technical expertise with regards to the applicable emergency and safety systems and components, and is responsible for training the operator on the lifting transportation system model to be operated. This training must be carried out in an area free of obstructions, under the direction of a qualified person and for sufficient time to determine that the operator demonstrates proficiency in the knowledge and operation of the lifting transportation system. The owner must have technical expertise to understand the basic mechanical/electrical parameters of the lifting transportation system. The owner is responsible for planning the installation of the product, as well as daily work and periodic inspections and maintenance.
Owner	Given that the owner has direct control over the accessibility and use of the lifting transportation system, in accordance with the recommendations of these instructions, it is their responsibility to decide whether to use the lifting transportation system or not.
Operator	Person authorised by the owner to operate the lifting transportation system. The owner must ensure that the operator has received the relevant training associated with the use and the work instructions before operating the lifting transportation system. Only personnel properly trained and instructed may operate the lifting transportation system. The operator must be fully familiarised with the emergency systems and components and be able to carry out the inspections prior to use. The operator must have knowledge of the handling and distribution of loads.
Installation technician and maintenance technician	Persons authorised by the owner to install and maintain the lifting transportation system. The owner must ensure that the installation technician and the maintenance technician have received the relevant training associated with installation, inspection and maintenance in accordance with the instructions in the manual and the manufacturer's recommendations. An authorised person is allowed to access restricted areas for maintenance, inspection and rescue operations. The person that carries out the service and inspection must have adequate technical expertise to understand the product in terms of construction and functionality for use and maintenance, configuration parameters and mechanical and electrical components. The persons responsible for the service must also be fully trained with regards to the emergency and safety systems and components.

1.3 Observations

EN-AL-04-01-0001-02

Only persons who have received the required familiarisation are authorised to use the lifting transportation system in accordance with the instructions in this manual.

Only the revision version of the manual supplied with the product is valid except with written authorisation from the manufacturer.

This manual must always be available to the personnel responsible for the installation, maintenance and operation of the lifting transportation system.

Additional copies may be requested from the manufacturer.

The contents of this manual (processes, components, descriptions, instructions, recommendations, requirements, etc.) are subject to change without prior notice.

Any additional cost related to or arising from any changes to the manuals does not entitle the customer to any form of compensation or other legal remedies.

NOTICE

The pictures and diagrams in this manual may not reflect the exact appearance, colours or layout of the Product. This does not have any impact on the Product's functionality or safety.

1.4 Cautions

EN-AL-04-03-0001-03

CAUTION

Risk of accident. Follow all of the instructions in order to prevent injuries.

1.4.1 Cautions about personnel

- Should be of legal age.
- Should be familiar with the accident prevention instructions and receive adequate training in terms of occupational health and safety.
- Must not use the lifting transportation system under the influence of alcohol or drugs that might compromise safety at the workplace.
- Must wear the personal protective equipment required for the specific application and that complies with current regulations.
- Only maintenance technicians are authorised to check the functional safety of the system in the case of repair or replacement of any component.
- Only maintenance technicians are authorised to check/ repair electrical installations, the drive system, the overspeed safety device and safety devices.

1.4.2 Cautions about use

CAUTION

Stop working immediately and inform the supervisor in case any damages or malfunctions occur during operation or in case circumstances arise that could jeopardise safety.

- Only persons with relevant familiarisation associated with using and performing daily inspections on the Alimak lifting transportation system are authorised to use and perform daily inspections on the lifting transportation system.
- Check that all the lifting transportation system components are available and fully functional.
- Observe the procedures for handling and lifting loads.
- Ensure on site that the reaction forces of the system are transferred safely to the foundation and ties.
- Do not place objects or stand under the lifting transportation system.
- Place the load so that it is stable on the platform and does not exceed the maximum load capacity.
- In low light conditions, illuminate the work area to ensure sufficient visibility.
- Do not use the lifting transportation system in adverse weather conditions, including wind speeds of more than 20 m/s, except where other more restrictive speeds are defined.

1.4.3 Cautions about installation and maintenance

- Inspect the lifting transportation system according to the planning established in the Installation and maintenance manual.
- Increase the frequency of inspections in the case of intensive operation or severe conditions of use.
- Switch off the electrical power supply for the lifting transportation system before carrying out any maintenance work.
- Sign and inform about the prohibition of use during maintenance tasks.
- Do not carry out installation and/or maintenance tasks in adverse weather conditions, including wind speeds of more than 12.5 m/s, except where other more restrictive speeds are defined.

1.4.4 Cautions about lifting transportation system parts

- Only use original Alimak parts.
- Use of non-original parts renders the manufacturer's warranty void and invalidates any type of approval.
- No warranty is provided against damage resulting from reconstruction or modification of equipment or use of non-original parts that are not approved by the manufacturer.
- No modification, extension or reconstruction of the lifting transportation system is permitted without the manufacturer's prior written consent.

NOTICE

The owner must check the need for third-party lifting transportation system inspections with local authorities and comply with any specified standards.

2 My Alimak - Digital information

2.1 How to access My Alimak

EN-AL-05-06-0001-03

My Alimak offers Digital connectivity for owners of Alimak Group products.

All the information of the machine is accessible in one portal from anywhere at anytime (internet connection required).

To access My Alimak scan one of QR codes available on the machine:

- Rating plate
- Base electric panel
- Platform electric panel (inside)

Figure 1 : My Alimak – Digital information access QR code

The QR code allows access to the following information:

Documentation:

All documentation and machine data is available online (manual, DoC, wiring diagrams,...)

BIM models:

Alimak's BIM Gallery contains 3D models with key embedded information about the machine. The BIM models can be configured to your needs i.e. platform size and lifting height and connection to a building and/or structure.

Alicalc:

Advanced tool for calculating mechanical forces in a more specific way.

Spare parts:

Catalogue with all genuine spare parts is available.

Aliguide:

All the information needed for installation, maintenance, and use is accessible from portable devices with interlinked navigation.

Monitoring:

All machines are connected offering online and updated data as well as statistical data.

3 General information

3.1 Purpose

EN-AL-05-01-0001-02

Use of the lifting transportation system is limited to authorised operators. Access to the base, assembly/ disassembly and use of the lifting transportation system is restricted and is prohibited for unauthorised persons.

The lifting transportation system is only used for:

- Transporting loads and persons between the different levels of the installation.

3.2 Scope

EN-AL-05-02-0001-03B

The Product details are described throughout this manual.

The Product comprises a lifting transportation system consisting of:

- Base frame
- Base level equipment
- Landing doors at upper levels
- Platform
- Drive system
- Overspeed safety device
- Control and power supply systems
- Safety devices
- Guiding system
- Platform levelling system

NOTICE

This manual contains the instructions for the Alimak VECTIO 350 20-32 and VECTIO 350 20-32D lifting transportation system models.

3.3 Exclusions

EN-AL-05-03-0001-02

The owner must supply at least the following interface components that are not included in the scope of delivery of the lifting transportation system:

- Power cable and required connectors.

NOTICE

If necessary, contact Alimak for assistance.

3.4 Technical specifications

3.4.1 General specifications

EN-AL-05-04-0001-03B

Lifting transportation system			Alimak VECTIO 350 20-32	Alimak VECTIO 350 20-32D
General	Maximum number of people	TP	7	7
		MH	Not permitted	Not permitted
	Lifting transportation system speed	TP	12 m/min	12 m/min
		MH	24 m/min	24 m/min
	Drive system type		Rack - pinion	Rack - pinion
	Maximum wind speed in service		20 m/s	20 m/s
	Load capacity		2000 kg	2000 kg
	Maximum lifting height		100 m	100 m
	Base unit weight (including the base enclosure)		2300 kg	2400 kg
	Transport dimensions (length x width x height without FOPS)		5200 x 1900 x 2500 mm	3600 x 2300 x 2500 mm
Base frame	Base frame dimensions (length x width)		5170 x 1480 mm	3530 x 2605 mm
Mast	Mast section length		1508 mm	1508 mm
	Mast section weight		54 kg	54 kg
	Max. freestanding lifting height (in operation/during erection)		0 m / 6 m	0 m / 6 m
	Max. height		103 m	103 m
Ties	Max. height of first tie		6 m	6 m
	Max. distance between ties		7.5 m	7.5 m
	Max. permitted overhang		4.5 m	4.5 m
	Weight		43 kg	51 kg
Loading platform	Outer dimensions (length x width)		1600 x 3300 mm	3200 x 1600 mm
	Inner dimensions (length x width)		1500 x 3200 mm	3200 x 1500 mm
Base enclosure	Height		1100 mm	1100 mm

3.4.2 Electrical specifications

EN-AL-05-04-0003-03B

Lifting transportation system		Alimak VECTIO 350 20-32	Alimak VECTIO 350 20-32D
No. of motors/type		2/electric	2/electric
Power		7.6 / 15.2 kW	7.6 / 15.2 kW
Rated current		16.8 / 31.4 A	16.8 / 31.4 A
Electrical consumption		12 / 22 kVA	12 / 22 kVA
Electrical power supply		400 V / 50 Hz 3 Phases + N + PE	400 V / 50 Hz 3 Phases + N + PE
Fuse		32 A	32 A
Power and control cable	Lifting height H ≤ 70	4G6 + 12x1 mm^2 4G6 +1x2.5+12x1 mm^2	4G6 + 12x1 mm^2 4G6 + 1x2.5 + 12x1 mm^2
	Lifting height H ≤ 100 m	4G10 + 12x1.5 mm^2 4G10+1x2.5+12x1 mm^2	4G10 + 12x1.5 mm^2 4G10+1x2.5+12x1 mm^2
Control circuit electrical power supply		230Vac / 24Vdc	230Vac / 24Vdc
Power cable from the supply line to the base electric panel - up to 50 m		5G16 mm^2	5G16 mm^2

NOTICE

If using an auxiliary generator, the electrical consumption during start-up may be up to 6 times the nominal consumption.

3.4.3 Environmental specifications

EN-AL-05-04-0004-03B

Alimak VECTIO 350 20-32 and VECTIO 350 20-32D lifting transportation system	
Operating temperature	-15ºC / +40ºC
Max. noise level (LwA)	95 dB
Sound pressure level in the workplace (LpA)	72 dB

3.5 Informative signs and documentation

EN-AL-06-09-0001-03B

The informative signs and documentation included with the lifting transportation system should always be available and legible. They provide the operator with information about the lifting transportation system and instructions regarding safety and emergency situations.

Location	Description	Position
Drive unit	Serial number plate	1
Base electric panel	Use by authorised personnel	2
	Max. noise level	3
Platform	Installation information	4
	FOPS info	5
	Use and emergency information	6
	Rating plate	7
Document holder	Manual	8
	Electrical diagrams	9

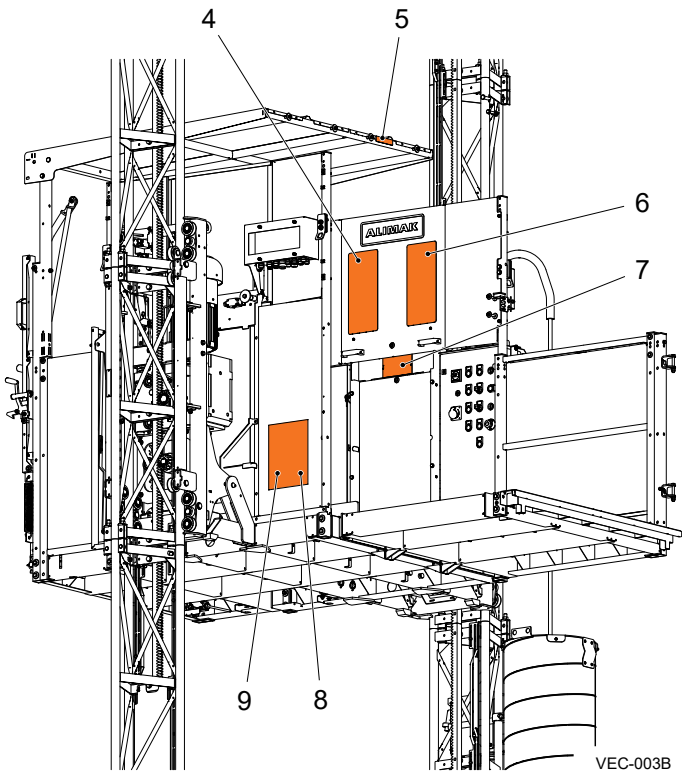
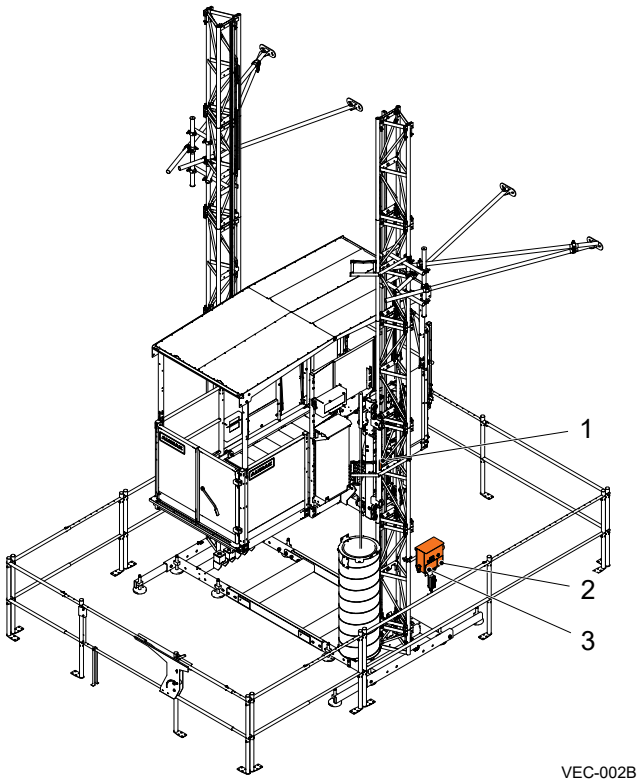


Figure 2 : Informative signs and documentation



3.6 Dimensions

3.6.1 Alimak VECTIO 350 20-32

3.6.1.1 General dimensions

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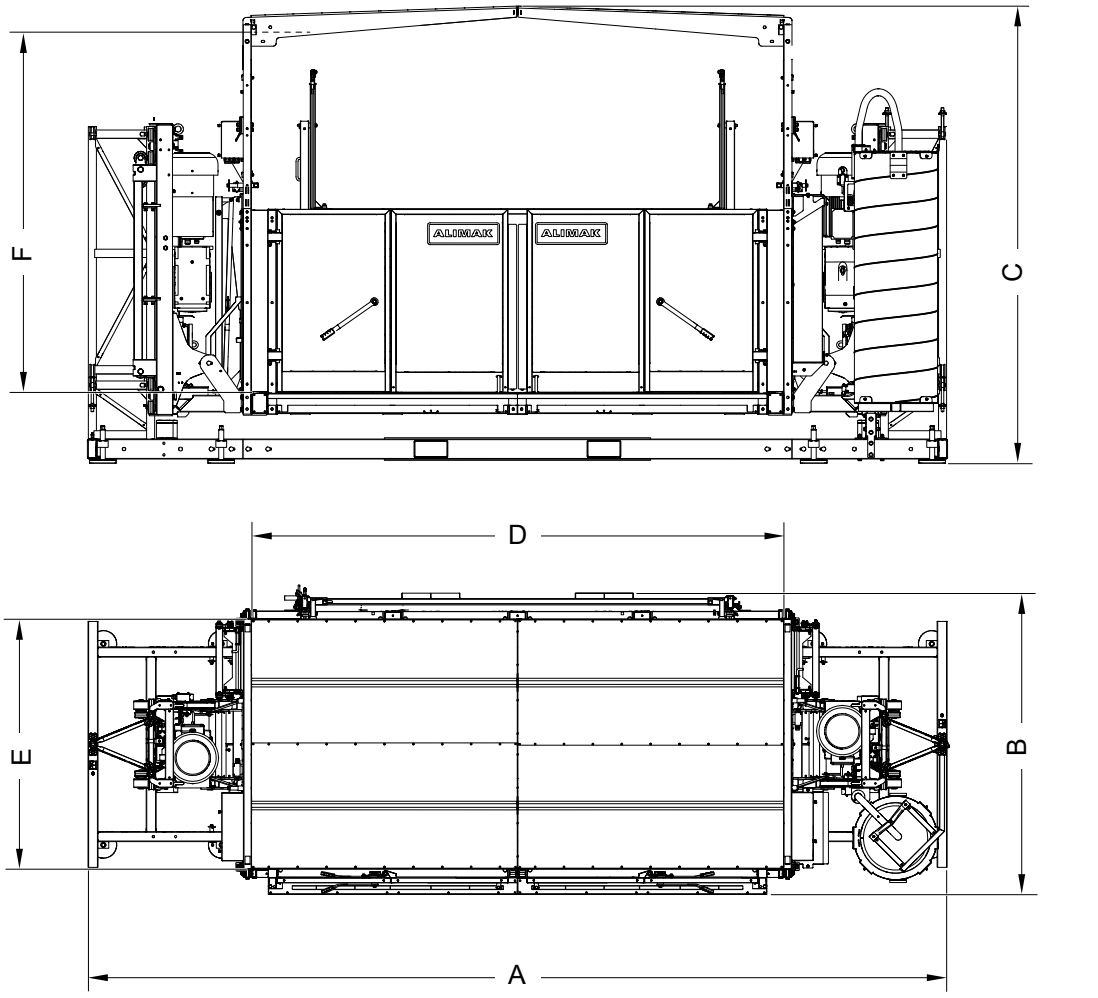


Figure 3 : General dimensions VECTIO 350 20-32

General dimensions VECTIO 350 20-32	
A	5200 mm
B	1900 mm
C	2900 mm (2500 mm without FOPS)
D	3200 mm (Loading platform inner dimension)
E	1500 mm (Loading platform inner dimension)
F	2100 mm (Max. height inner dimension)

3.6.2 Alimak VECTIO 350 20-32D

3.6.2.1 General dimensions

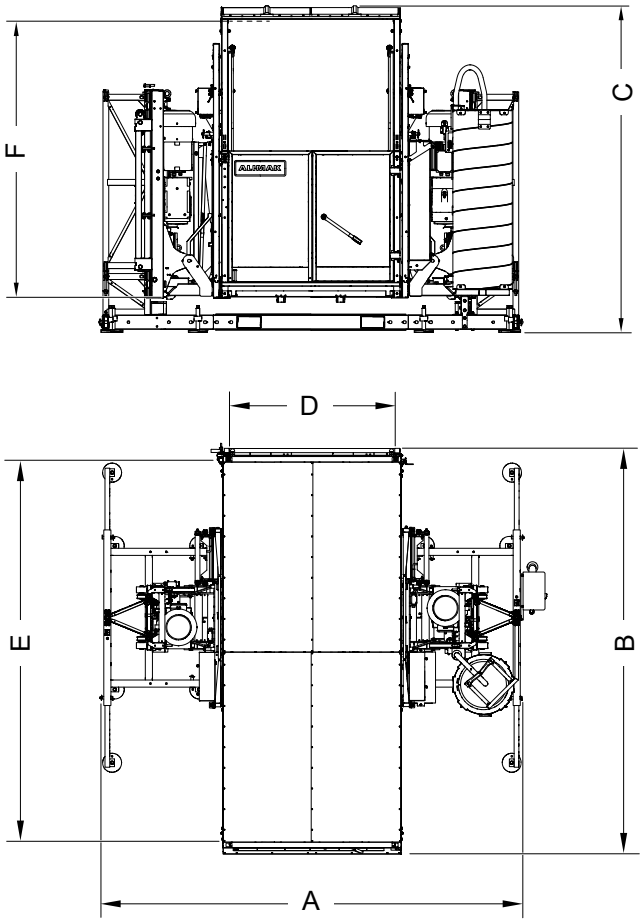


Figure 4 : General dimensions VECTIO 350 20-32D

General dimensions VECTIO 350 20-32D	
A	3550 mm
B	3500 mm
C	2900 mm (2500 mm without FOPS)
D	1400 mm (Loading platform inner dimension)
E	3200 mm (Loading platform inner dimension)
F	2200 mm (Max. height inner dimension)

4 Description

4.1 Overview of the lifting transportation system

4.1.1 Alimak VECTIO 350 20-32 and VECTIO 350 20-32D

EN-AL-05-04-0002-03B

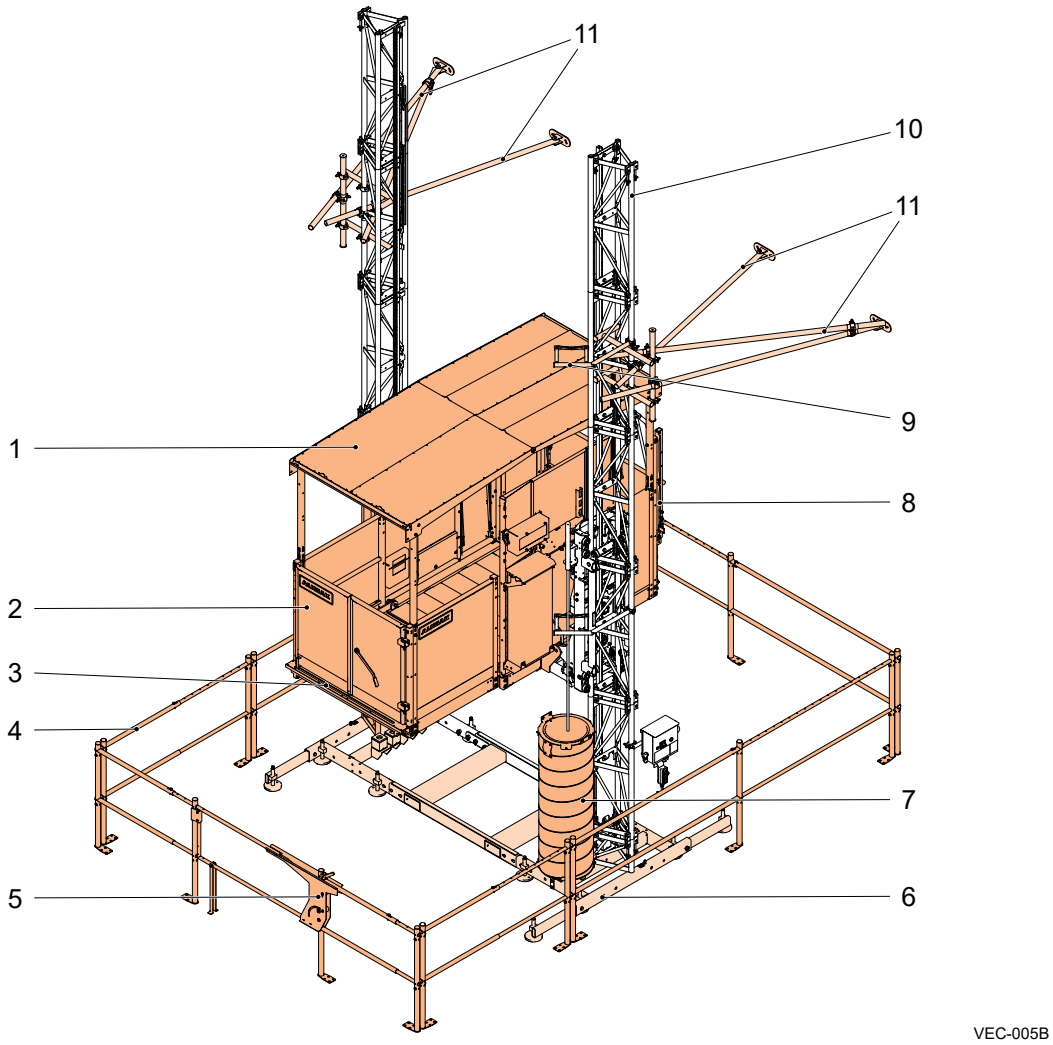


Figure 5 : Overview of the lifting transportation system

Overview of the lifting transportation system			
1	FOPS	7	Cable collect bin
2	Entrance gate	8	Exit ramp
3	Platform	9	Cable guide
4	Base enclosure	10	Mast
5	Base landing door	11	Tie
6	Base frame		

4.2 Height components

4.2.1 Mast

EN-AL-06-01-0007-02

The mast allows the drive unit to be guided along its travel path.

The rack is located at the front and is screwed to the mast.

The connecting components between the sections that make up the mast are captive and allow correct alignment and transfer of loads.

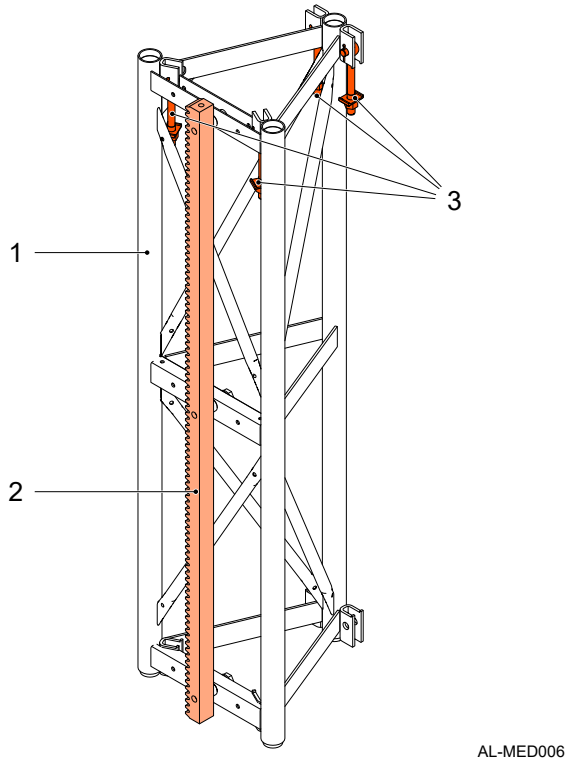


Figure 6 : Mast

Mast	
1	Mast
2	Rack
3	Mast connection system

4.2.2 Mast ties

EN-AL-06-01-0006-02

The ties form a structure that allows the mast to be fixed to the support structure.

There are two types of tie structure available:

- Side tie structure (the support structure is located on the side of the mast)
- Rear tie structure (the support structure is located to the rear of the mast)

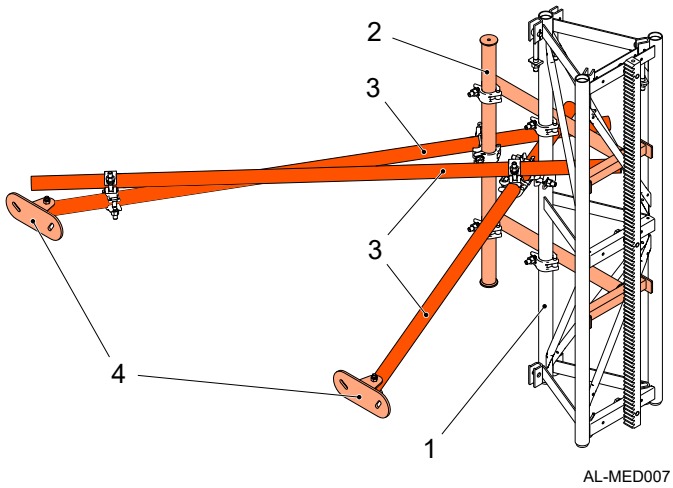


Figure 7 : Side tie structure

Side tie structure	
1	Mast
2	Side tie frame
3	Side tie tubes
4	Wall brackets (only for facade assembly)

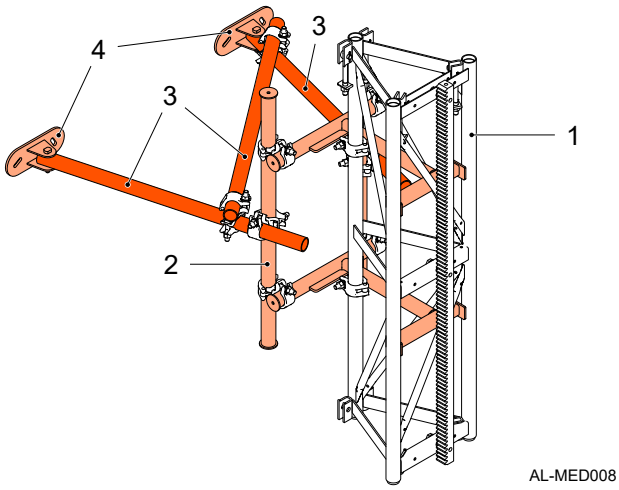


Figure 8 : Rear tie structure

Rear tie structure	
1	Mast
2	Rear tie frame
3	Rear tie tubes
4	Wall brackets (only for facade assembly)

4.2.3 Guided cable management system

EN-AL-06-07-0001-03B

In the guided cable management system the drive unit pulls the cable during ascent uncoiling it from a cable collect bin.

The cable guides are installed on the mast along the travel path to reduce cable movement.

The cable collect bin is located on the base frame.

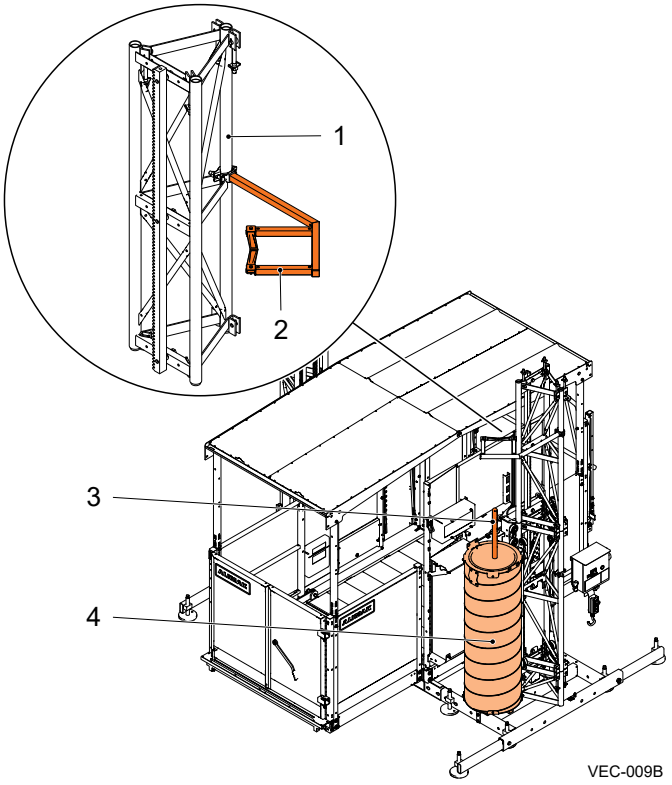


Figure 9 : Guided cable management system

Guided cable management system	
1	Mast
2	Cable guide
3	Cable arm
4	Cable collect bin

4.3 Drive unit

4.3.1 General description

EN-AL-06-01-0001-03B

The drive unit consists of the following main elements:

- Drive unit frame
- Lifting eye bolts[1)]
- Gearmotor
- Drive system
- Overload detection device
- Overspeed safety device
- Platform levelling system

WARNING

[1)]Risk of breakage. Do not use the lifting eye bolts to lift the complete base unit.

Only use the lifting eye bolts to lift the drive unit.

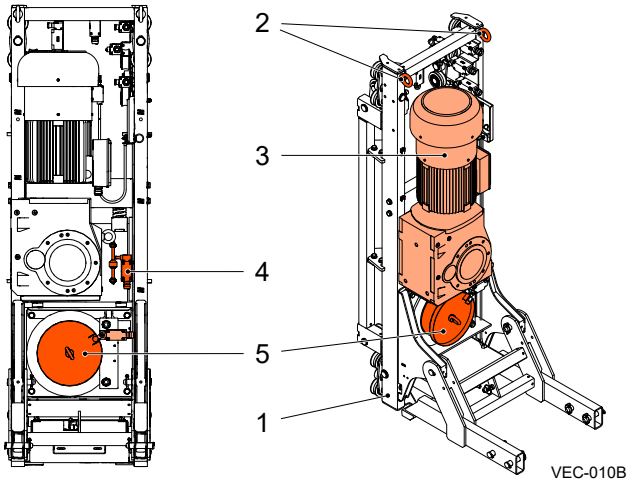


Figure 10 : Drive unit

Drive unit	
1	Drive unit frame
2	Lifting eye bolts
3	Drive system
4	Overload detection device
5	Overspeed safety device

4.3.2 Drive system

EN-AL-06-01-0002-03B

The drive system is responsible for the movement of the drive unit along the mast.

The drive system gearmotor is equipped with an electromagnetic brake. It stops the system when there is a stop command or in the event of a power failure.

The electromagnetic motor brake release lever allows the electromagnetic motor brake to be released manually for manual lowering [Refer to section *Emergency manual lowering, see on page 39*].

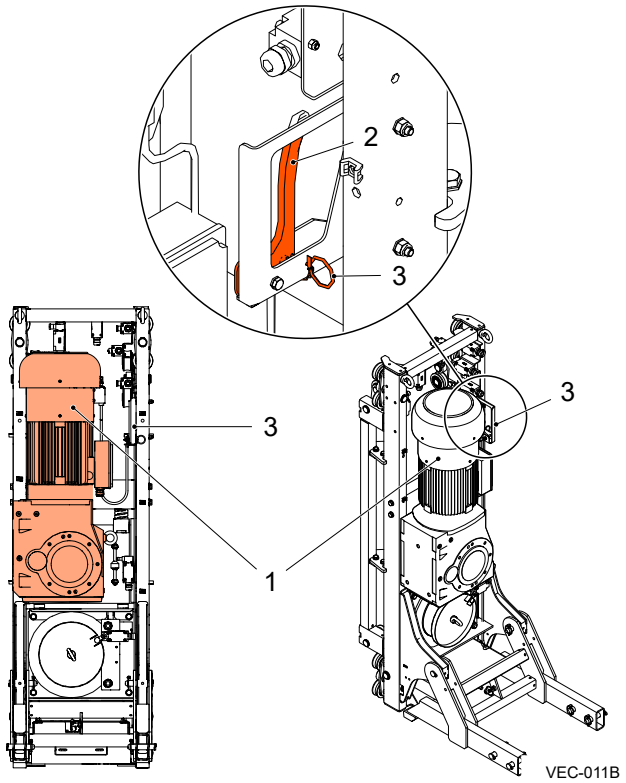


Figure 11 : Drive system

Drive system	
1	Gearmotor
2	Electromagnetic motor brake release lever
3	Safety seal

4.3.3 Overload detection device

EN-AL-06-06-0005-03B

DANGER

Risk of accident. Performing a manual lowering in case of overload is prohibited.

The overload detection device prevents the ascent and descent of the lifting transportation system in case of overload.

An indicator light and an acoustic buzzer on the platform electric panel indicate the overload [Refer to section *Platform electric panel, see on page 19*].

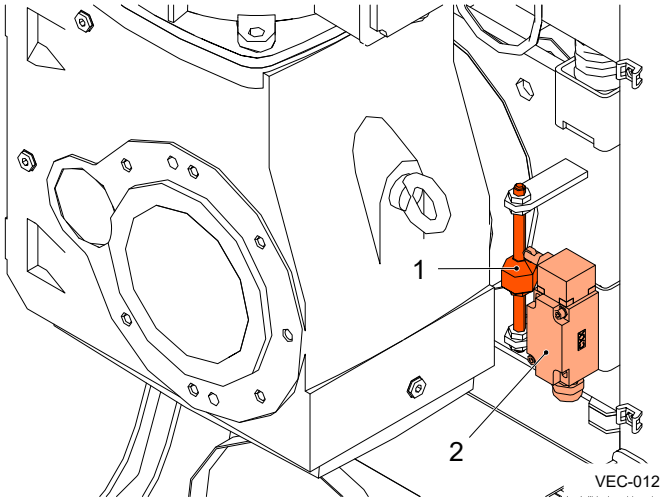


Figure 12 : Overload detection device

Overload detection device	
1	Overload detection device cam
2	Overload detection device switch

4.3.4 Overspeed safety device

EN-AL-06-01-0005-03

The overspeed safety device is a mechanical device that stops the drive unit in the event of a drive system failure.

In case of activation, the overspeed safety device acts on the overspeed safety device switch, which interrupts the control of the lifting transportation system.

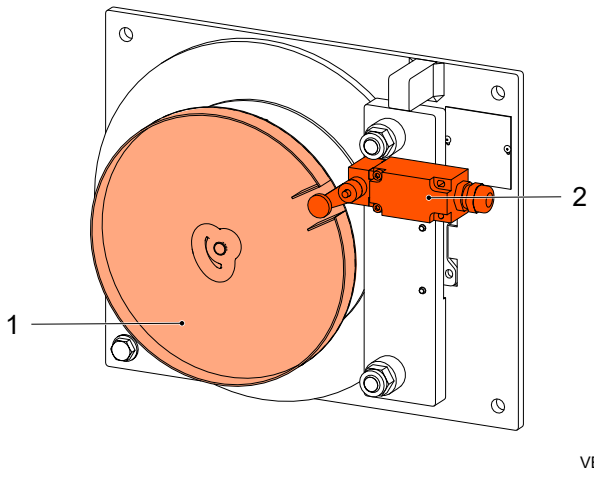


Figure 13 : Overspeed safety device

Overspeed safety device	
1	Switch activation cam
2	Overspeed safety device switch

NOTICE

The overspeed safety device can only be reset by authorised technical personnel, once the problem that caused the activation has been eliminated.

4.3.5 Platform levelling system

EN-AL-06-01-0006-03B

The platform levelling system regulates the speed of the drive systems to level the platform within a range of ±2º during ascent and descent.

If the platform levelling system detects a maximum platform inclination of 4º, the overrun levelling limit switch [Refer to figure *Platform levelling system, see on page 17*] is activated and the lifting transport system stops, therefore only manual lowering is possible.

When all limits of other levelling control system are, for any reason, exceeded, the adapter, by design, is limiting mechanically the inclination of platform to a max of 6°.

In the case of platform inclination of less than 4º, the operator can level the platform as follows[1)]:

1. Place a spirit level in the middle of the platform.
2. Press and hold the Stop button (Drive Unit 1) or the Stop button (Drive Unit 2) on the platform electric panel [Refer to section *Platform electric panel, see on page 19*] depending on the drive unit that must be held stopped for levelling.
3. Press and hold the UP button or the DOWN button on the platform electric panel [Refer to section *Platform electric panel, see on page 19*] until the platform is in a horizontal position.

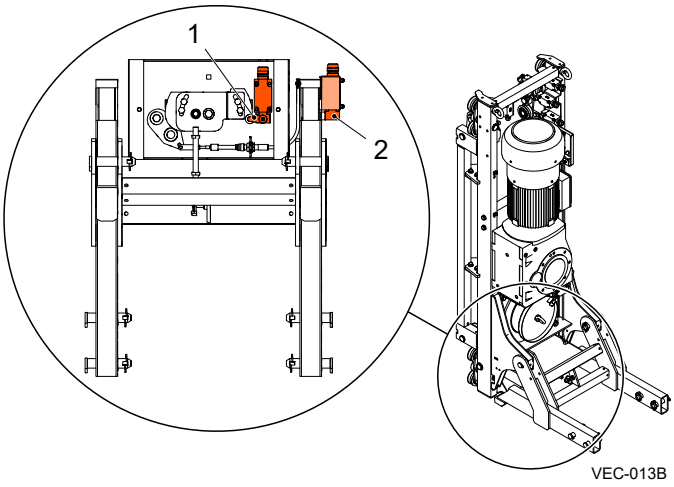


Figure 14 : Platform levelling system

Platform levelling system	
1	Levelling limit switch
2	Overrun levelling limit switch

NOTICE

[1)]In the case of platform inclination greater than 4º, refer to Appendix: Levelling system adjustment, in the Installation and Maintenance manual

4.4 Safety devices

4.4.1 Landing stop limit switch

EN-AL-06-05-0001-03

By pressing the next landing button, the landing limit switch stops the ascent or descent of the platform by detecting the landing stop cam located on the different landing levels of the installation.

4.4.2 2-meter zone limit switch

EN-AL-06-05-0003-03

The 2-meter zone limit switch stops the platform from descending when the safety height of 2-meter is reached.

An acoustic buzzer on the main control box indicates the descending movement of the platform in the travel path section between a height of 2-meter and the base. Regardless of the operation mode, movement speed is limited.

NOTICE

The controls must be kept pressed down to lower the lifting transportation system to below the safety height of 2-meter.

4.4.3 Rack presence limit switch

EN-AL-06-05-0007-03

The rack presence limit switch stops the platform from ascending when the rack is not detected along the travel path.

The descent of the platform is possible if the rack presence limit switch is activated.

4.4.4 Top limit switch

EN-AL-06-02-0004-03

The top limit switch stops the platform from ascending when it comes into contact with the top limit cam located on the mast.

The descent of the platform is possible if the top limit switch is activated.

4.4.5 Emergency limit switch (bottom and top)

EN-AL-06-06-0006-03

The emergency limit switch stops the platform from descending when it comes into contact with the emergency bottom limit cam located on the mast in the event of failure of the bottom limit switch.

The ascent of the platform is possible if the Bypass selector is turned and held in the Bypass mode position [Refer to section *Special operations, see on page 39*].

The emergency limit switch stops the platform from ascending when it comes into contact with the emergency top limit cam located on the mast in the event of failure of the top limit switch.

The emergency top limit switch interrupts the control of the lifting transportation system, therefore only manual lowering is possible.

4.4.6 Bottom limit switch

EN-AL-06-06-0009-03

The bottom limit switch stops the platform from descending when it comes into contact with the bottom limit cam located on the mast.

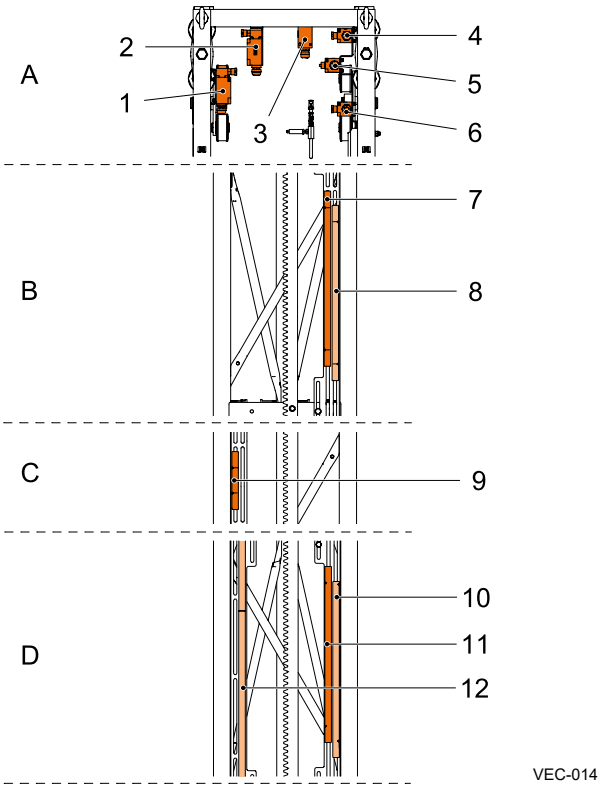


Figure 15 : Safety limit switches and sensors

Safety limit switches and sensors	
1	Landing stop limit switch
2	2-meter zone limit switch
3	Rack presence switch / sensor
4	Top limit switch
5	Emergency limit switch (bottom and top)
6	Bottom limit switch
7	Emergency top limit cam
8	Top limit cam
9	Landing cam
10	Bottom limit cam
11	Emergency bottom limit cam
12	2-meter zone cam
A	Drive unit
B	Top section of the mast
C	Intermediate sections of the mast
D	Bottom section of the mast

4.5 Base level

4.5.1 Base enclosure

EN-AL-06-04-0001-03

DANGER

[1)]Risk of accident. The storage of goods inside the base enclosure is prohibited.

The platform movement area is protected by a base enclosure so that the distance to moving parts is a minimum of 0.5 m.[1)].

The base enclosure and door are composed of a 1.1 m high modular tubular structure.

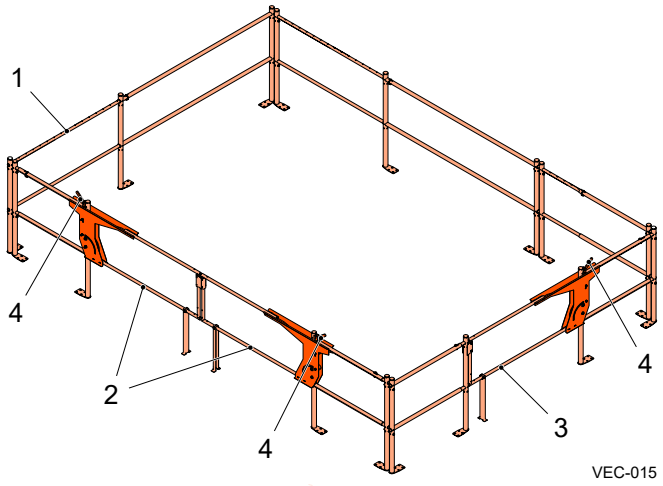


Figure 16 : Base enclosure

Base enclosure	
1	Base enclosure
2	Base enclosure double door
3	Base enclosure single door
4	Opening lever

NOTICE

[1)]The minimum distance to moving parts may be more restrictive depending on other applicable local regulations.

4.5.2 Base electric panel

EN-AL-06-08-0001-03

The base electric panel is located in the base unit.

A connector on the side of the base electric panel allows the electrical power supply connector to be connected.

The base electric panel is equipped with an indicator light that indicates if any of the landing doors on any of the levels are not ready for use (the door is not closed or the emergency-stop button is activated).

NOTICE

The main switch can be locked in the OFF position using a padlock.

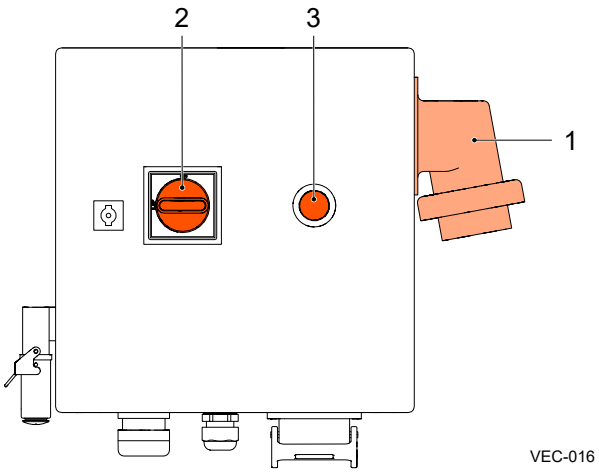


Figure 17 : Base electric panel

Base electric panel	
1	Electrical power supply connector (32A)
2	Main switch with padlock lock
3	Landing doors not ready indicator light

4.5.3 Base control station

EN-AL-06-04-0005-02

The base control station allows the lifting transportation system to be controlled from outside the base enclosure.

The base control station has the following controls:

- Emergency-stop button
- UP button
- Next landing button
- DOWN button

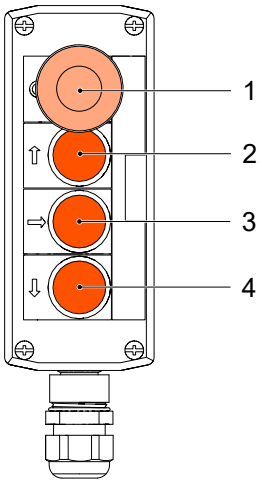


Figure 18 : Base control station

Base control station	
1	Emergency-stop button
2	UP button
3	Next landing button
4	DOWN button

4.6 Platform

4.6.1 Platform electric panel

EN-AL-06-01-0008-03B

The platform electric panel allows the lifting transportation system to be controlled from inside the platform.

The platform electric panel has the following controls:

- UP button
- Next landing button
- DOWN button
- TP Reserved button
- Emergency-stop button
- Stop button (Drive unit 1)
- Stop button (Drive unit 2)

The platform electric panel is also equipped with indicator lights which turn on in the following cases:

- Lifting transportation system ready (green)
- Overload (red)
- Incorrect phase sequence (blue)
- Motor malfunction (red)

The platform electric panel is also equipped with the following components:

- Disconnector with padlock lock[1)]
- Mode of use selector (MH / TP / Smart)
- An acoustic warning buzzer
- 230V electric outlet (max.10A)
- Bypass selector

NOTICE

1) Use of the disconnector is exclusively for maintenance tasks.

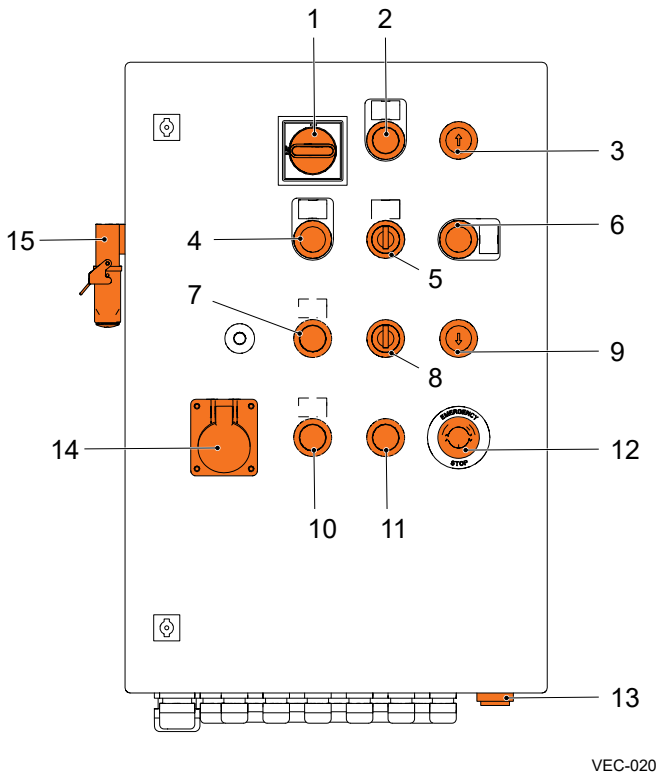


Figure 19 : Platform electric panel

Platform electric panel	
1	Disconnector with padlock lock
2	Acoustic warning buzzer
3	Overload indicator light (red)
4	230V electric outlet (max. 10A)
5	Motor malfunction indicator light (red)
6	Stop button (Drive unit 2)
7	Incorrect phase sequence indicator light (blue)
8	Stop button (Drive unit 1)
9	Emergency-stop button
10	Bypass selector
11	DOWN button
12	Mode of use selector (MH / TP / Smart)
13	Next landing button
14	UP button
15	TP Reserved button and indicator light (white)
16	Ready indicator light (green)

4.6.2 Mast railing

EN-AL-06-04-0008-03B

WARNING

Risk of injuries. Press the emergency-stop button on the platform electric panel before carrying out any inspection or maintenance operation with the mast railing open.

The platform is equipped with a mast railing.

The mast railing is equipped with a safety switch that, when open, prevents movement of the platform.

A perforation in the mast railing allows the safety device switches located on the top of the drive unit and the activation cams on the mast to be viewed from inside the platform.

The mast railing[1)] is opened using a triangular key.

NOTICE

1)Opening the mast railing is only permitted for inspection and maintenance operations or to access the electromagnetic motor brake release lever for manual lowering.

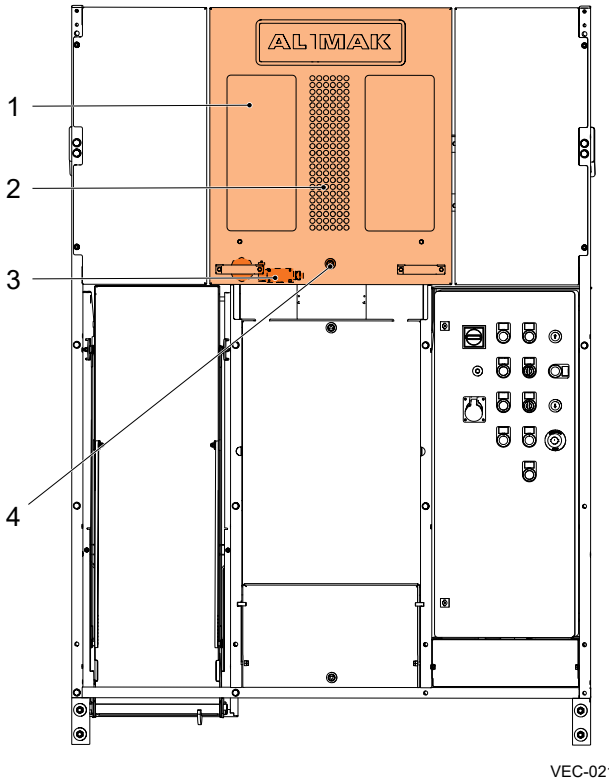


Figure 20 : Mast railing

Mast railing	
1	Mast railing
2	Perforated area
3	Mast railing safety switch
4	Lock (Triangular key 8mm)

4.6.3 Platform gates

4.6.3.1 Entrance gates

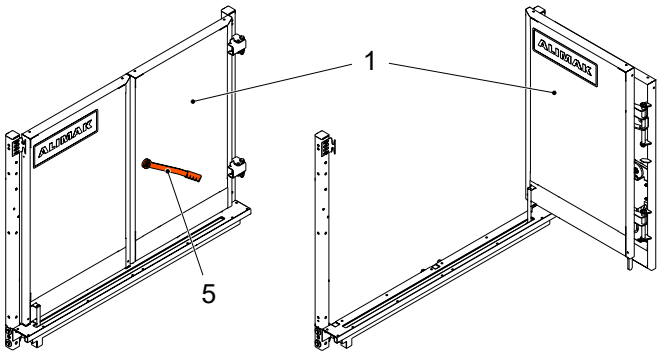
EN-AL-06-04-0010-03

A bifolding gate, flap gate, or load ramp equipped with a mechanical locking system[1)] can be installed for platform access on the bottom landing.

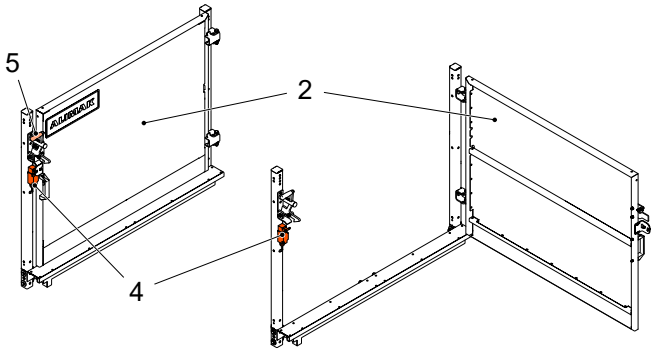
A switch monitors the opening status of the entrance gate to prevent movement of the platform if the platform gate or load ramp is open.

NOTICE

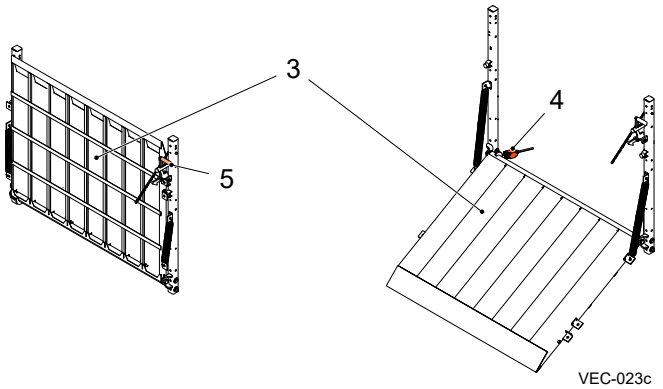
[1)]Entrance gates are equipped with a double action mechanical locking system for opening.



VEC-023a



VEC-023b



VEC-023c

Figure 21 : Entrance gates

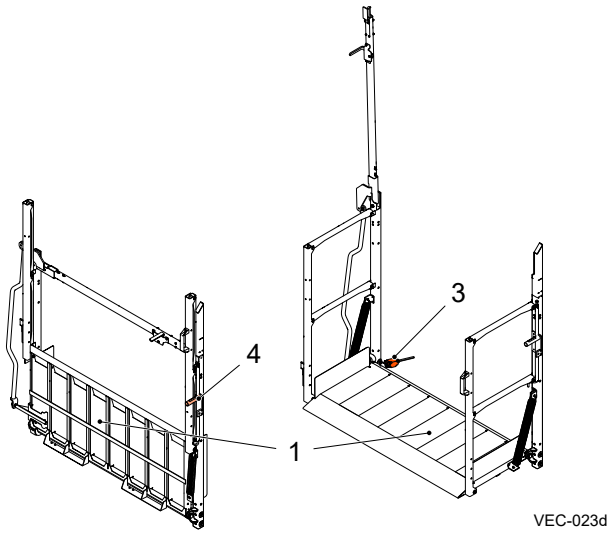
Entrance gates	
1	Bifolding gate
2	Flap gate
3	Load ramp
4	Gate/ramp monitoring switch
5	Opening lever

4.6.3.2 Exit gates

EN-AL-06-04-0009-03

Exit ramp with vertical opening bar and exit ramp with horizontal opening bar equipped with a double-action mechanical locking system can be installed to exit the platform on the top levels.

A switch monitors the opening status of the platform exit ramp to prevent movement of the platform if the platform exit ramp is open.



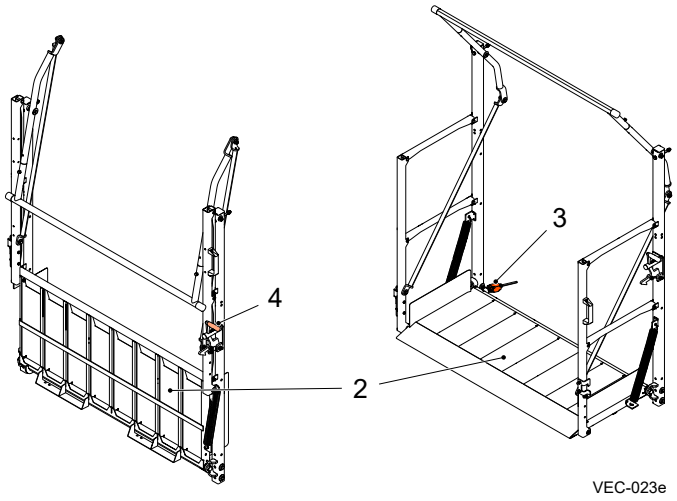


Figure 22 : Exit gates

Exit gates	
1	Exit ramp vertical
2	Exit ramp with horizontal opening bar
3	Exit ramp monitoring switch
4	Opening lever

4.6.3.3 Special gates

EN-AL-06-04-0011-03

For special doors and particular applications, contact Alimak for assistance.

4.6.4 Falling Object Protection System (FOPS)[1)]

EN-AL-06-05-0002-03B

DANGER

Risk of accident. Standing or placing objects on top of the FOPS is prohibited.

DANGER

[1)]Installing FOPS is mandatory for TP or Smart modes of use.

Dismantling or folding the FOPS is only allowed in MH use mode and for installation and maintenance works.

The platform is equipped with two cantilever FOPS that protects persons on the platform against falling objects and weather conditions. These two FOPS are connected with bolts that needs to be removed before starting the folding process.

To fold the FOPS, the fixing bolts (x2) found on both sides must be removed. The fixing bolts must be reassembled once the FOPS is lowered to prevent it from unfolding due to the wind.

Once the FOPS has been folded, in most cases the FOPS should be removed from the platform to provide accesibility to the mast zones and gates.

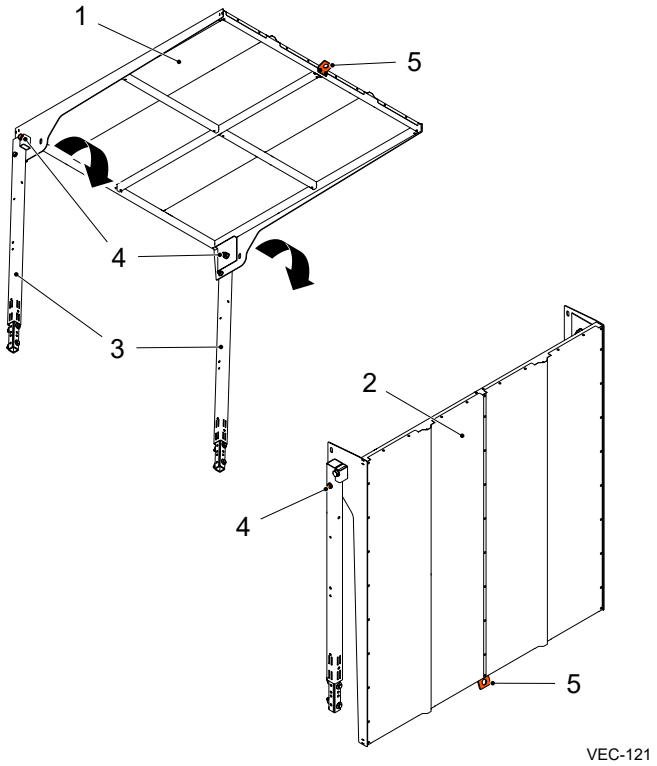


Figure 23 : Falling Object Protection System (FOPS)

Falling Object Protection System (FOPS)	
1	Falling Object Protection System (FOPS) deployed
2	Falling Object Protection System (FOPS) folded
3	Fixing pillars
4	Fixing bolt

4.7 Access to different landing levels

4.7.1 Landing control panels

EN-AL-06-04-0012-03

The landing control panels are located close to the landing door on different levels of the installation.

The landing control panels allow external control of the lifting transportation system from each landing of the installation.

The landing control panels have the following controls:

- UP button
- Next landing button
- DOWN button
- Emergency-stop button

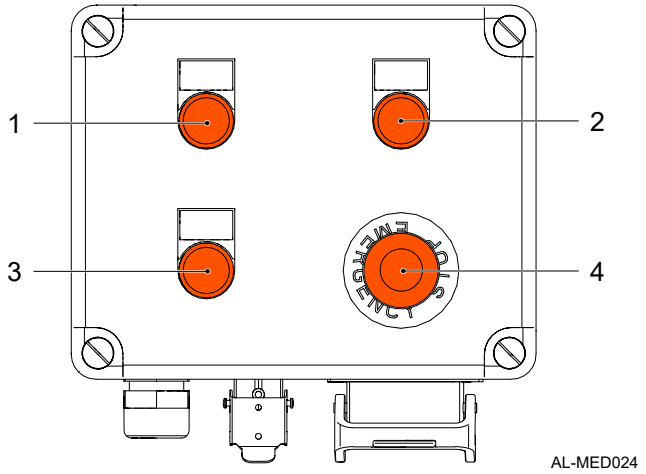


Figure 24 : Landing control panel

Landing control panel	
1	UP button
2	Next landing button
3	DOWN button
4	Emergency-stop button

4.7.2 Full height landing doors

EN-AL-06-04-0013-03

Full height landing doors are equipped with a mechanical interlocking system that allows them to open only when the platform is level with the landing door.

NOTICE

Full height landing doors are equipped with a manual release using a triangular key to open the door. Manual release is only permitted for evacuation and rescue operations.

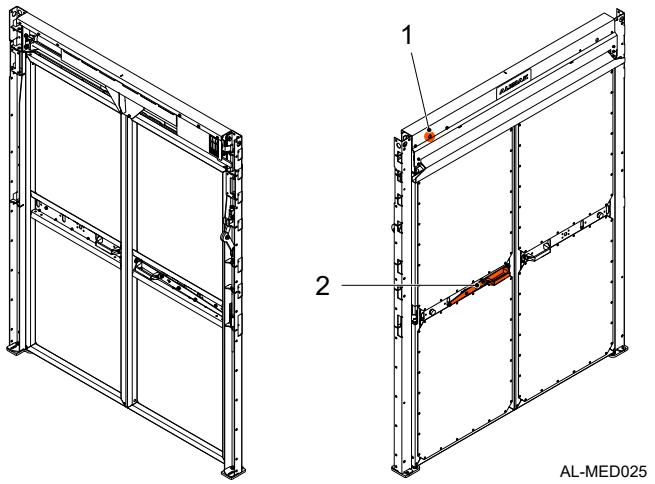


Figure 25 : Full height landing doors

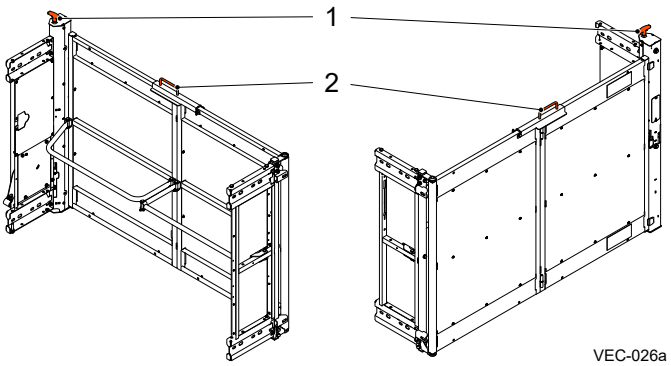
Full height landing doors	
1	Manual release with an 8 mm triangular key
2	Opening lever

4.7.3 Reduced height landing doors

EN-AL-06-04-0004-03

Reduced height landing doors may be folding or sliding, with opening on the left or right.

Reduced height landing doors are equipped with a mechanical interlocking system that allows them to open only when the platform is level with the landing door.



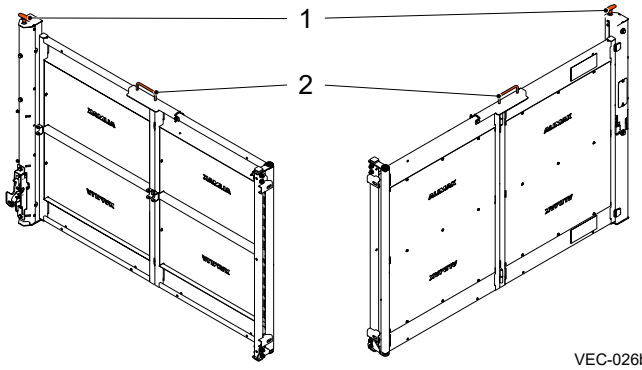
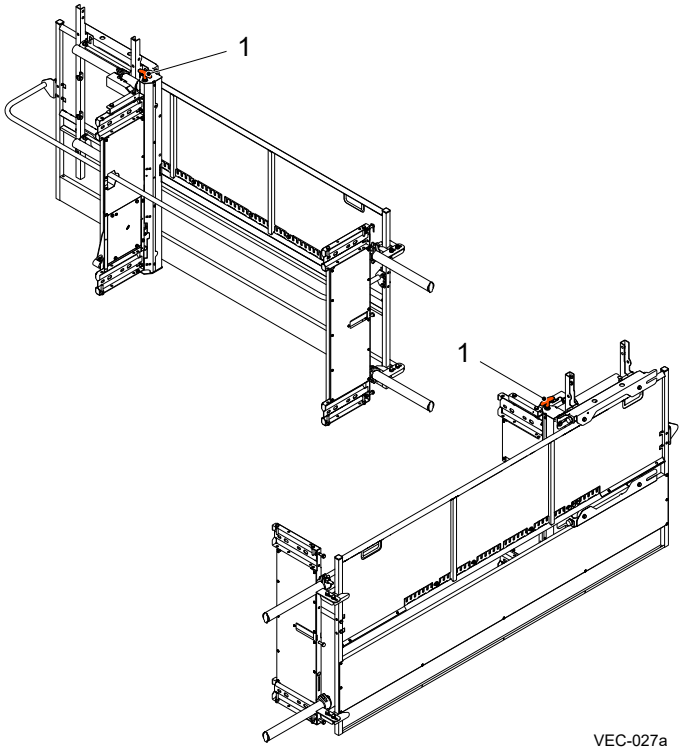


Figure 26 : Reduced height folding landing doors

Reduced height folding landing doors	
1	Opening handle
2	Central hinge release handle



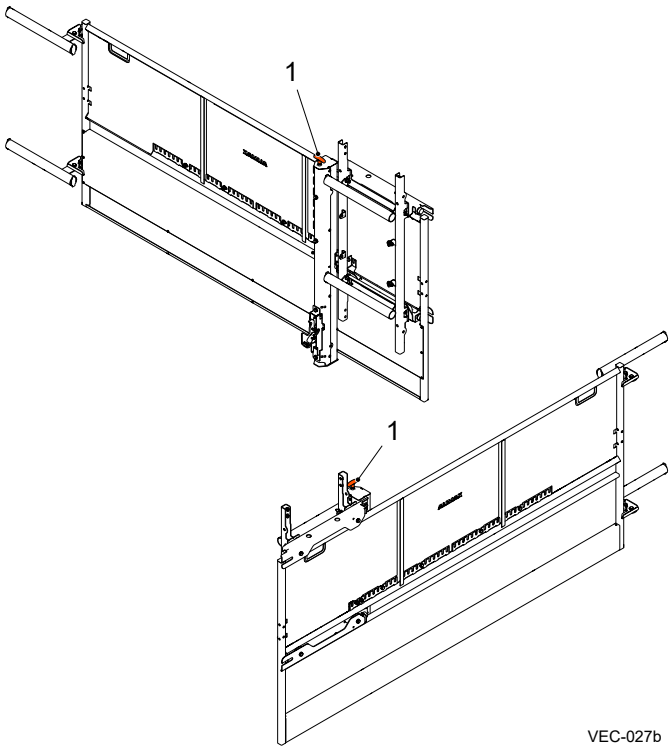
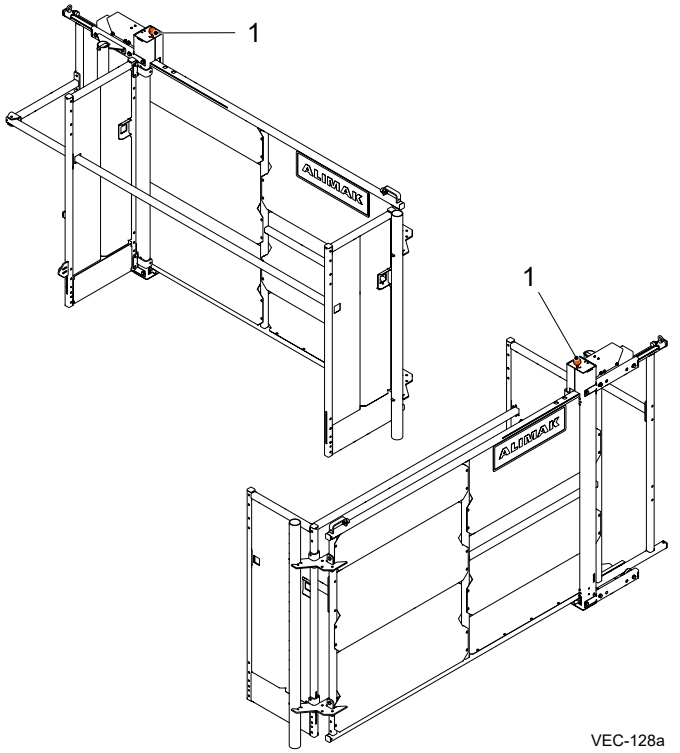


Figure 27 : Reduced height sliding landing doors

Reduced height sliding landing doors	
1	Opening handle



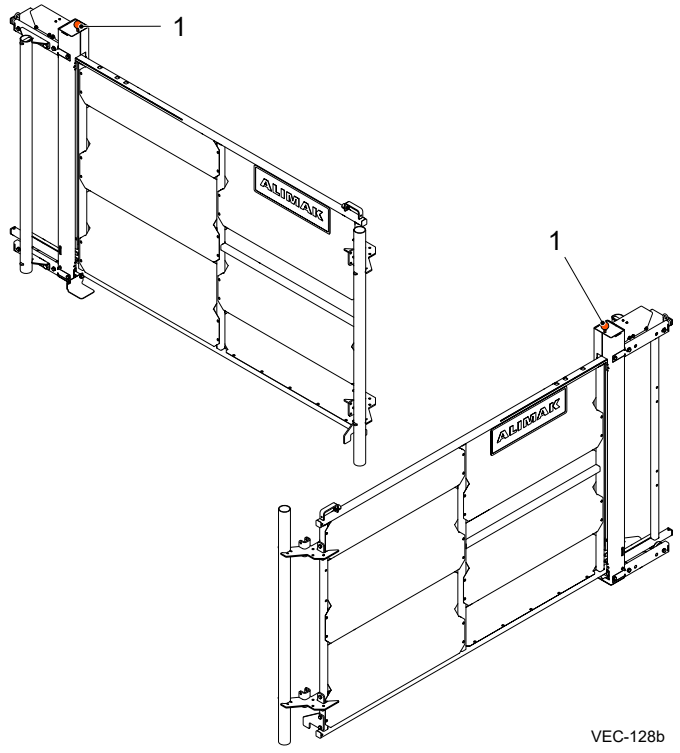


Figure 28 : Reduced height sliding Celer landing door

Reduced height sliding Celer landing door	
1	Opening handle

5 Using the lifting transportation system

5.1 Prohibited uses

EN-AL-08-01-0001-02

DANGER

Risk of injuries. Failing to observe the warnings may have extremely dangerous consequences for the physical well-being of the operators.

The following actions are prohibited:

- Using the lifting transportation system for purposes other than those intended.
- Using the lifting transportation system by unauthorised persons.
- Using the lifting transportation system without being familiarised with the safety and operating instructions.
- Manipulating switches, sensors or safety devices.
- Attempting to repair the lifting transportation system components. Only authorised technicians are authorised to perform maintenance tasks on the lifting transportation system.

5.2 Safety instructions

EN-AL-10-13-0001-02

WARNING

The lifting transportation system must always be used in accordance with applicable local regulations regarding work and safety.

NOTICE

In case of conflict between what is described in this manual and local regulations, the most restrictive will always take precedence.

5.2.1 Safety instructions prior to use

EN-AL-10-14-0002-03

- The lifting transportation system must always be in optimal operating condition and must not show any signs of having been mishandled.
- The electrical system must be in optimal operating condition and must not have any damage that could compromise operation during use.
- The surface on which the lifting transportation system rests and the adjustment of the base plates must be in optimal operating condition.
- The masts, ties and cable guides must be in optimal operating condition.
- The platform travel path must be free of obstacles.
- The enclosures and protections of the levels must be in optimal operating condition.

5.2.1.1 Safety instructions during use

EN-AL-10-03-0000-03

WARNING

Do not use the lifting transportation system in adverse weather conditions, including wind speeds of more than 20 m/s.

- The platform travel path must be free of obstacles.
- Do not place objects or stand under the platform.
- Do not overload the platform with loads that exceed the rated load.
- Do not access the platform with heavy systems for moving loads, such as electric forklifts, as they may overload the machine.
- Place the load on the platform in such a way that the weight is distributed.
- Fix and secure the load to prevent it from moving when the platform moves.
- In low light conditions, illuminate the work area to ensure sufficient visibility.
- Stop working immediately and inform the supervisor in case any damages or malfunctions occur during operation or in case circumstances arise that could jeopardise safety.

5.2.2 Safety instructions after use

EN-AL-10-11-0001-03

- Once finished using the lifting transportation system, place the platform on the bottom landing.
- Disconnect and lock the main switch on the base panel to prevent misuse.

NOTICE

Do not turn off the platform electric panel disconnector. Only use in case of inspection or maintenance operations.

5.3 Daily inspection

EN-AL-10-11-0002-02

NOTICE

Only authorised persons with the relevant training can perform a safety inspection before operation of the Alimak lifting transportation system. Additional checks may be required in accordance with applicable local regulations.

NOTICE

Record the result of the safety inspection before operation in the Appendix: Daily inspection log.
Alternatively, the operator can access My Alimak by scanning the QR code on the machine to record and store the Daily inspection online.

5.3.1 Visual inspection

EN-AL-11-00-0005-03B

Function / System	Operations
Lifting transportation system	Visually check that there are no cracks, dents or disparities on the following parts of the lifting transportation system and components: • Drive system • Platform levelling system • Guiding system • Overspeed safety device • Platform electric panel • Base electric panel • Switches and sensors • Electrical cables, elements for securing cables and electrical connections • Mast section • Absence of oil leaks on the drive unit • Informative signs and documentation • Base frame – Buffers – Cable collect bin – Bottom limit cam – Emergency bottom limit cam – First mast section and rack – Base frame level and mast in vertical position – Base plates
Installation components	• Visually check that there are no cracks, dents or disparities on the following parts of the installation components: – Mast sections – Tie system – Cable guiding system
Travel path	• Visually check that there are no obstacles in the travel path of the platform.

5.3.2 Functional check

EN-AL-11-04-0014-03B

Function / System	Operations
Main switch	**1.** Turn the main switch on the base electric panel to the OFF position [Refer to section *Base electric panel, see on page 18*]. **2.** Turn the Mode of use selector on the platform electric panel to the TP Mode position [Refer to section *Platform electric panel, see on page 19*]. **3.** Press the UP button on the platform electric panel, release it and then press the DOWN button. **The platform should not ascend or descend.** **4.** Turn the main switch on the base electric panel to the ON position.
Emergency-stop button (base control station / platform electric panel) and Bottom limit switch	**1.** Turn the Mode of use selector on the platform electric panel to the MH or Smart Mode position [Refer to section *Platform electric panel, see on page 19*]. **2.** Press the UP button on the base control station to ascend the platform approximately 1 m. [Refer to section *Base control station, see on page 19*]. **3.** Push the emergency-stop button on the base control station. **The landing doors not ready indicator light should light up on the base electric panel [Refer to section *Base electric panel, see on page 18*].** **4.** Press the UP button on the base control station, release it and then press the DOWN button. **The platform should not ascend or descend.** **5.** Deactivate the emergency-stop button. **6.** Descend the platform until the bottom limit switch comes into contact with the bottom limit cam [Refer to section *Bottom limit switch, see on page 18*]. **The platform should stop.** **7.** Enter the platform and turn the Mode of use selector on the platform electric panel to the TP or Smart Mode position. **8.** Press the UP button on the platform electric panel to ascend the platform approximately 1 m. **9.** Push the emergency-stop button on the platform electric panel. **10.** Press the UP button on the platform electric panel, release it and then press the DOWN button. **The platform should not ascend or descend.** **11.** Deactivate the emergency-stop button. **12.** Press the DOWN button on the platform electric panel to descend the platform to the bottom landing.
Platform gates and Top limit switch	**1.** Enter the platform from the bottom landing. **2.** Close the base enclosure door but do not close the platform entrance gate. **3.** Turn the Mode of use selector on the platform electric panel to the TP or Smart Mode position [Refer to section *Platform electric panel, see on page 19*]. **4.** Press the UP button on the platform electric panel to ascend. **The platform should not ascend.** **5.** Now close the platform entrance gate. **6.** Ascend the platform until the top limit switch comes into contact with the top limit cam [Refer to section *Top limit switch, see on page 17*]. **7.** Open the platform exit gate. **8.** Press the UP button on the platform electric panel, release it and then press the DOWN button. **The platform should not ascend or descend.** **9.** Close the platform exit gate. **10.** Press the DOWN button on the platform electric panel to descend the platform to the bottom landing.

Function / System	Operations
Hour counter	**1.** Turn the disconnector on the platform electric panel to the OFF position [Refer to section *Platform electric panel, see on page 19*]. **2.** Open the platform electric panel door. **3.** Check the reading of the hour counter. **Record the hour counter reading on the Operator log [Refer to appendix *A.2 Daily inspection log, see on page 43*].** **4.** Close the platform electric panel door. **5.** Turn the disconnector on the platform electric panel to the ON position.

5.3.3 Out of service

EN-AL-07-01-0016-02

If the lifting transportation system is not in optimal condition after carrying out the inspection prior to use:

- Turn the main switch to the OFF position and lock with a padlock to prevent unintentional operation of the lifting transportation system.
- Record that the lifting transportation system is out of service in the Appendix: Operator log and inform the supervisor.

5.4 Using the lifting transportation system

5.4.1 TP Mode / MH Mode / Smart Mode

EN-AL-07-01-0019-03

WARNING

The person responsible for the use of the lifting transportation system must keep the Mode of use selector key.

The platform electric panel has a Mode of use selector (TP Mode / MH Mode / Smart Mode).

The mode of use selector in the TP Mode position allows movement of the platform exclusively from inside in “Hold to Run Mode” (Up or Down button must be pressed all the time). If installed, landing call function is no longer available.

The mode of use selector in the MH Mode position allows movement of the platform exclusively from outside in automatic mode. If installed, landing call function is available.

The mode of use selector in the Smart mode position allows movement of the platform both from inside and from outside, in TP and MH mode, respectively, based on how the operators act over the machine.

5.4.2 Using the lifting transportation system from inside of the platform (TP Mode)

EN-AL-11-04-0001-03B

DANGER

Risk of injuries. Strictly comply with all safety instructions described in this manual and those provided by the operator when using the lifting transportation system.

WARNING

Landing call function is not available in this mode. The operator must access the platform to operate it.

1. Open the landing/enclosure door.
2. Open the platform gate.
3. Enter and place the load in the platform if applicable.
4. Close the landing/enclosure door.
5. Close the platform gate.
6. Press and hold the UP button or the DOWN button on the platform electric panel [Refer to section *Platform electric panel, see on page 19*] to ascend or descend the lifting transportation system.
7. Press the next landing button on the platform electric panel after having exceeded the landing immediately preceding the one where the platform should stop (except on the bottom and top levels where the bottom or top limit switch will stop the platform).

   The platform will stop once the landing immediately above or below has been reached.
8. Open the platform gate.
9. Open the landing/enclosure door.
10. Remove the load from inside the platform if applicable.
11. Exit the platform.

5.4.3 Using the lifting transportation system from outside the platform (MH Mode)

EN-AL-11-04-0002-03

DANGER

Risk of accident. Transporting persons in MH Mode is prohibited.

DANGER

Risk of injuries. Strictly comply with all safety instructions described in this manual and those provided by the operator when using the lifting transportation system.

WARNING

In MH mode all movements are preceded by an audible alarm and a time delay.

1. If the platform is at a top or bottom landing, press the DOWN button or UP button to call or send the platform [Refer to section *Base control station, see on page 19* or section *Landing control panels, see on page 23*].
2. Press the next landing button after having exceeded the landing immediately preceding the one where the platform should stop (except on the bottom and top levels, where the bottom or top limit switch will stop the platform).

   The platform will stop once the landing immediately above or below has been reached.
3. Open the landing/enclosure door.
4. Open the platform gate.
5. Enter and place the load in the platform.
6. Exit the platform once the load has been placed.
7. Close the platform gate.
8. Close the landing/enclosure door.
9. Press the DOWN button or the UP button on the control to call or send the platform.
10. Press the next landing button after having exceeded the landing immediately preceding the one where the platform should stop (except on the lowest and top levels, where the bottom or top limit switch will stop the platform).

    The platform will stop once the landing immediately above or below has been reached.
11. Open the landing/enclosure door.
12. Open the platform gate.

13. Enter and remove the load from inside the platform.

14. Exit the platform.

NOTICE

Once finished using the lifting transportation system, close in this order: platform gate and landing/enclosure door so that the call function is available.

5.4.4 2-meter zone

EN-AL-11-04-0004-03

For safety reasons, controlling the movement of the lifting transportation system within the first two metres is different from the rest of the travel path. Regardless of the operation mode, movement speed is limited.

- **If the platform is at the bottom landing level within the 2-meter zone:**

  press the UP button and the platform will start to move after a time delay and audible alarm. The platform will move in automatic or hold-to-run mode according to the mode selected.

- **If the platform is moving down and reaches the 2-meter zone:**

  the platform will stop moving and switch to hold-to-run mode when the 2-meter zone is reached. Press and hold the DOWN button from the base control station or the platform electric panel and the platform will start to move after a time delay and audible alarm. The platform will move down until the lowermost position is reached.

5.4.5 Using the lifting transportation system in Smart Mode

EN-AL-11-04-0005-03B

DANGER

Risk of injuries. Strictly comply with all safety instructions described in this manual and those provided by the operator when using the lifting transportation system.

WARNING

In case of a power loss event or an emergency button activation, once energy is restored the lifting transportation system will automatically be set to MH Mode.

The lifting transportation system switches automatically between MH and TP Modes.

Actions enabling the TP Mode [Refer to section *Using the lifting transportation system from inside of the platform (TP Mode)*, see on page 30]:

When the TP mode is active, TP Mode light is on and not flashing.

- If TP reserved button is pressed the lifting transportation system will switch to TP mode.
- If any button of the platform electric panel is pressed the lifting transportation system will switch to TP mode.

Actions enabling the MH Mode [Refer to section *Using the lifting transportation system from outside the platform (MH Mode)*, see on page 30]:

Before enabling MH Mode a time delay and audible alarm precedes the movement of the platform.

At any time the procedure can be overridden if a specific action is performed (Actions enabling the TP Mode) or if any door or gate is open.

6 Troubleshooting

EN-AL-07-15-0001-03

DANGER

Risk of injuries. In case of damage or malfunction, stop the lifting transportation system immediately. Observe the instructions, procedures, conditions of use, and warnings in this manual at all times.

DANGER

Risk of falling. A damaged or defective drive system or overspeed safety device seriously compromises the safety of the lifting transportation system. In case of damage or malfunction, replace or repair the drive system or overspeed safety device immediately.

DANGER

Electrical hazard. Switch off the electrical power supply before opening any control panels on the lifting transportation system.

Only maintenance technicians are authorised to perform maintenance and repair tasks on the lifting transportation system.

The content described below aims to resolve problems that are within the operator’s scope and prevent more serious problems that may cause situations of risk.

6.1 Prior checks in case of stoppage or malfunction

EN-AL-07-15-0002-03

Before continuing with a more in-depth analysis of the cause of the lifting transportation system stopping or malfunctioning, check the points described below that cover the most common malfunctions that may occur during use.

PRIOR CHECKS IN CASE OF STOPPAGE OR MALFUNCTION	
Check	***Operation***
Base electric panel	
Check the power supply on the lifting transportation system	**1.** Turn the main switch ON. **2.** Activate the emergency-stop button. **The landing doors not ready indicator light should turn on.** **3.** Deactivate the emergency-stop button.
Accesses and emergency-stop buttons	
Check the accesses and emergency-stop buttons	**1.** Close the landing doors on all levels of the installation. **2.** Deactivate all of the emergency-stop buttons of the installation. **The landing doors not ready indicator light should not turn on.**
Platform electric panel	
Check the power supply on the platform electric panel	**1.** Enter the platform. **2.** Turn the disconnector to the ON position.

6.2 Troubleshooting and possible malfunctions

EN-AL-07-15-0003-03B

Cause	*Solution*
THE PLATFORM DOES NOT ASCEND OR DESCEND	
A1 Main switch	
Main switch is in the OFF position.	Turn the main switch ON.
A2 Emergency stop	
Emergency-stop button activated on the base control station, on the platform electric panel or on any landing control panel.	Deactivate the emergency-stop button.
A3 Power failure	
Power cable	1. Check the connection of the electrical power supply connector to the base electric panel. 2. Visually check whether the power cable is damaged or severed. 3. Replace the power cable if necessary.
Protections	1. Open the base electric panel. 2. Check whether any protection has tripped. 3. Reset the protection.
Phase relay	1. Check whether the incorrect phase sequence indicator light (blue) on the platform electric panel is on. 2. If the incorrect phase sequence indicator light (blue) is on, correct the phase sequence on the electrical power supply connector of the base electric panel.
A4 Lifting transportation system call system	
Landing doors not ready	1. Check whether the landing doors not ready indicator light is lit on the base electric panel. 2. Close the landing door. 3. Check the landing door emergency-stop button.
Mode of use selector	1. Check that the Mode of use selector on the platform electric panel is in the MH or Smart Mode position.
A5 Safety devices	
Gate open.	Check the platform gate is fully closed.
Mast railing open.	Close the mast railing.
Erection crane installed and positioned for use.	Remove the erection crane or rotate it to the standby position on the erection crane support.

Cause	*Solution*
THE PLATFORM DOES NOT ASCEND OR DESCEND	
A6 Emergency safety devices	
Emergency limit switch activated with the emergency bottom limit cam.	**1.** Raise the system until the emergency bottom limit switch is released from the activation cam. **2.** Check whether or not it is necessary to adjust or repair the emergency bottom limit switch or cam. **3.** Check whether or not it is necessary to adjust or repair the bottom limit switch or cam.
Emergency limit switch activated with the emergency top limit cam.	**1.** Perform a manual lowering to an accessible landing. **2.** Check whether or not it is necessary to adjust or repair the emergency top limit switch. **3.** Check whether or not it is necessary to adjust or repair the top limit switch.
Rack presence switch deactivated.	**1.** Perform a manual lowering to an accessible landing. **2.** Check whether or not it is necessary to adjust or repair the rack presence switch.
Overspeed safety device activated as a result of the drive system failing.	**1.** Block the use of the lifting transportation system. **2.** Inform the supervisor.
A7 Control circuit and power supply	
Electrical power supply interrupted or control failure.	**1.** Check that the disconnector on the platform electric panel is in the ON position. **2.** Identify the cause of the failure or wait until the electrical power supply is restored. **3.** Perform a manual lowering to an accessible landing. **4.** Check for possible failures in the lifting transportation system control circuit.
Guided cable severed or damaged.	**1.** Visually check whether the guided cable is damaged or severed. **2.** Perform a manual lowering to an accessible landing. **3.** Replace the guided cable if necessary. **4.** Check the guided cable connection.
Malfunction in the lifting transportation system DOWN control circuit.	Check and, if necessary, repair connections, wiring and relays.
Malfunction in the lifting transportation system UP control circuit.	Check and, if necessary, repair connections, wiring and relays.
A8 Motor malfunction. The motor malfunction indicator light (red) lights up on the platform electric panel	
Lack of cooling to motor.	Clean the motor cover or unclog the air inlet if clogged.
Motor phase malfunction.	Correct the motor phase malfunction.

Cause	*Solution*
A9 Platform exceeds the inclination limit	
Levelling system malfunction	1. Visually check the levelling system. 2. Perform a manual lowering to an accessible landing. 3. Repair or adjust the levelling system.
Motor malfunction	1. Perform a manual lowering to an accessible landing. 2. Repair the motor malfunction.
THE MOTOR STARTS WITH DIFFICULTY OR DOES NOT START	
B1 Electrical power supply	
Motor input voltage too low.	1. Measure the voltage and current consumption on the motor. 2. Correct voltage of electrical power supply.
B2 Electromagnetic motor brake	
Electromagnetic motor brake closed.	Repair any power faults or replace electromagnetic motor brake.
Electromagnetic motor brake defective.	Replace the defective electromagnetic motor brake.
Rectifier defective.	Replace defective rectifier.
B3 Overload system	
The overload system is not properly adjusted.	1. Descend the platform to the bottom landing. 2. Adjust the overload system.
THE PLATFORM DOES NOT STOP AT THE CORRECT HEIGHT	
C1 Landing cam	
Landing cam poorly adjusted or damaged	1. Visually check whether the landing cam is poorly adjusted or damaged. 2. Adjust the landing cam or replace if necessary.
C2 Electromagnetic brake	
Electromagnetic motor brake misadjusted.	1. Stop the lifting transportation system immediately. **The electromagnetic motor brake must be adjusted.** 2. Inform the supervisor.
Electromagnetic motor brake worn.	1. Stop the lifting transportation system immediately. **The electromagnetic motor brake must be replaced.** 2. Inform the supervisor.
Electromagnetic motor brake defective.	1. Stop the lifting transportation system immediately. **The electromagnetic motor brake must be replaced.** 2. Inform the supervisor.
THE PLATFORM DOES NOT STOP AT SOME OF THE INTERMEDIATE LEVELS	
D1 Landing cam	
Landing cam not installed.	1. Visually check whether the landing cam is installed. 2. Install the landing cam.

Cause	*Solution*
THE PLATFORM DOES NOT STOP AT ANY OF THE INTERMEDIATE LANDINGS	
E1 Landing limit switch	
Landing limit switch misadjusted or damaged.	1. Visually check whether the landing limit switch is poorly adjusted or damaged. 2. Adjust the landing limit switch or replace if necessary.
THE LIFTING TRANSPORTATION SYSTEM DOES NOT UNLOCK ANY TOP LANDING DOOR	
F1 Interlocking landing cam for platform gates	
Interlocking landing cam poorly adjusted or not installed.	1. Visually check whether the interlocking landing cam is poorly adjusted or not installed. 2. Adjust the interlocking landing cam or install if necessary.
THE LIFTING TRANSPORTATION SYSTEM HAS STOPPED UNEXPECTEDLY	
G1 Electrical power supply	
Power failure.	Identify the cause of the failure or wait until the electrical power supply is restored.
Maximum height of guided cable exceeded.	Check whether the maximum height of the guided cable has been exceeded in the installation.
G2 Overspeed safety device	
Overspeed safety device activated as a result of the drive system failing.	1. Stop the lifting transportation system immediately. 2. Inform the supervisor.
Overspeed safety device activated as a result of the rack failing.	1. Stop the lifting transportation system immediately. 2. Inform the supervisor.
G3 Levelling system max. working inclination exceeded	
Levelling system max. working inclination exceeded.	1. Descent to an accessible landing. 2. Inform the supervisor.
THE GUIDED CABLE DOES NOT COIL CORRECTLY INSIDE THE CABLE COLLECT BIN	
H1 Cable guiding system	
Cable guiding system poorly adjusted or cable guides damaged.	1. Visually check whether the cable guiding system is poorly adjusted or the cable guides are damaged. 2. Adjust the cable guiding system or replace the cable guides if necessary.
H2 Cable collect bin	
Cable collect bin damaged or lack of lubricant on the inner wall of the cable collect bin.	1. Visually check whether the cable collect bin is damaged or there is a lack of lubricant on the inner wall. 2. Repair the damage to the cable collect bin or replace it if necessary. 3. Apply lubricant to the inner wall of the cable collect bin if necessary.
H3 Cable	
Cable damaged or deformed.	1. Visually check whether the cable is damaged or deformed due to wind, low temperatures or any snagging on other components in the installation. 2. Replace the cable if necessary.
Lack of lubricant on the cable.	Apply lubricant to the cable if necessary.

Cause	*Solution*
HIGH NOISE LEVEL OF THE DRIVE SYSTEM, BUT THE LIFTING TRANSPORTATION SYSTEM CAN ASCEND AND DESCEND	
I1 Rack	
Rack insufficiently lubricated.	Lubricate the rack.
The rack is dirty or has metal shavings.	Clean and lubricate the rack.
Rack worn.	Replace the worn rack sections.
I2 Drive pinion	
Drive pinion worn.	Replace the worn drive pinion.
I3 Guiding system	
Guiding system worn.	Replace guide rollers
I4 Drive system	
Drive system defective.	1. Stop the lifting transportation system immediately. 2. Inform the supervisor.
THE LIFTING TRANSPORTATION SYSTEM IS TILTED (MISALIGNED) EXCESSIVELY	
J1 Ties	
Ties are not sufficiently tightened or are damaged.	1. Check there are no tie connections that are poorly tightened. 2. Check whether the ties are installed incorrectly or damaged. 3. Apply the correct torque to the tie connections or replace them if necessary.
J2 Mast	
Incorrect installation of the mast.	1. Check there are no connections that are poorly tightened. 2. Check that the ties are installed correctly. 3. Check that the fixing plates for the tie system brackets are installed correctly on the mast.
J3 Base frame support points	
Base frame support points are not tightened sufficiently.	1. Check that there are no base frame support points that are poorly tightened. 2. Level the base frame and apply the correct torque to the support points if necessary.
J4 Levelling system	
The levelling system is not properly adjusted	1. Check the levelling system. 2. Adjust the levelling system.

7 Special operations

EN-AL-11-00-0004-03

DANGER

These operations are only contemplated in case of emergency and must at no time be understood as part of normal operation of the lifting transportation system

Only persons with specific training are authorised to carry out the operations described in this section.

Inform the supervisor upon completion of any of these operations in order to assess the scope of the problem and block the use of the lifting transportation system in case of risk.

7.1 Emergency manual lowering

EN-AL-11-04-0000-03B

WARNING

Try to resolve the problem causing the malfunction before carrying out the manual lowering operation [Refer to section Troubleshooting, see on page 32]

WARNING

[1)]A seal prevents unauthorised use and allows control of the possible use of the electromagnetic motor brake release lever.

The manual lowering speed must not exceed the rated speed, otherwise the overspeed safety device will be activated automatically causing the platform to stop.

The manual lowering system allows the platform to be lowered in case of a power failure or in certain installation, inspection and maintenance operations.

Function / System	Operations
Manual lowering	**1.** Unlock the mast railing using an 8 mm triangular key. **2.** Open the mast railing to access the electromagnetic motor brake release lever. **3.** Operate the electromagnetic motor brake release lever[1)]. **The platform will begin to descend.** **During the emergency lowering:** • **Do not exceed the rated speed.** • **Prevent brake overheating (mandatory pause lowering every 10 meters for at least 1 minute).** **When the maximum inclination of the platform is achieved the brake release becomes inoperative.** **Go to the opposite drive unit and resume the manual lowering until the brake release becomes inoperative.** **Repeat this process as many times as needed.** **4.** Descend to a landing of the installation that allows safe exit from the platform. **5.** Inform the supervisor and record the manual lowering in the Appendix: Daily inspection log. **6.** Return the lifting transportation system to service. **7.** Place a new seal. If necessary contact Alimak to request new seals.

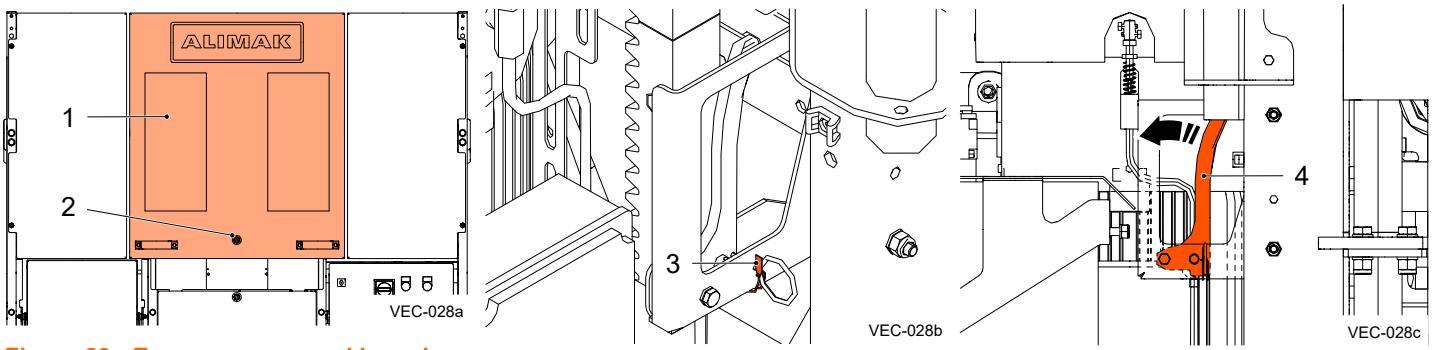


Figure 29 : Emergency manual lowering

Emergency manual lowering	
1	Mast railing
2	8 mm triangular key lock
3	Lever seal
4	Electromagnetic motor brake release lever

7.2 Using the lifting transportation system in Bypass Mode

EN-AL-11-00-0006-03

WARNING

The person responsible for the use of the lifting transportation system must keep the Mode of use selector key.

WARNING

[1)]Before resuming operation of the lifting transportation system, determine the cause of activation of the overspeed safety device and make sure the problem has been resolved.

In case of detecting serious faults, stop the lifting transportation system immediately and contact Alimak for assistance.

Bypass Mode is a mode of use exclusively for maintenance tasks or emergency situations.

The most common situations in which it will be necessary to use the lifting transportation system in Bypass Mode are:

Cause	Operations
Activation of the emergency bottom limit switch	**1.** Check the Mode of use selector is in TP mode. If not selected, an acoustic buzzer will activate. **2.** Turn and hold the Bypass selector on the platform electric panel in Bypass Mode. **3.** Press the UP button on the platform electric panel to ascend the platform a few centimetres until the emergency bottom limit switch is deactivated. **Once the emergency bottom limit switch has been deactivated, the lifting transportation system can be used.** **4.** Turn the Mode of use selector on the platform electric panel to the desired mode.
Activation of the overspeed safety device	**1.** Check the Mode of use selector is in TP mode. If not selected, an acoustic buzzer will activate. **2.** Turn and hold the Bypass selector on the platform electric panel in Bypass Mode. **3.** Press the UP button on the platform electric panel to ascend the platform a few centimetres until the overspeed safety device is unlocked[1)]. **4.** Turn the Mode of use selector on the platform electric panel to the desired mode.

Appendix

A.1 Daily inspection checklist

EN-AL-12-06-0002-03

Installation information			
Date:		**Serial no. of the lifting transportation system:**	
Name of the operators:		**Serial no. of the drive system:**	
Hour counter reading:		**Serial no. of the overspeed safety device:**	
Installation address:			

Checklist			
5.3.1 Visual inspection	**OK**	**NOK**	**Incidents and comments**
Lifting transportation system			
Installation components			
Travel path			
5.3.2 Functional check	**OK**	**NOK**	**Incidents and comments**
Main switch			
Emergency-stop button (base control station / platform electric panel) and Bottom limit switch			
Platform gates and Top limit switch			

Result of inspection prior to use	**OK**	**NOK**	**Incidents and comments**
The lifting transportation system is suitable for use			

Name of the operator (in capital letters):	
Signature:	

NOTICE

Mark "X" in the OK or NOK field to indicate the result of the verification.

A.2 Daily inspection log

EN-AL-12-01-0001-02

Record the results of the daily inspections on the pages of the Operator log.

Date and time	General result		Hour counter	Incidents and comments	Name (in capitals)	Signature
	OK	NOK				

NOTICE

Mark "X" in the OK or NOK field to indicate the result of the verification.

Date and time	General result		Hour counter	Incidents and comments	Name (in capitals)	Signature
	OK	NOK				

NOTICE

Mark "X" in the OK or NOK field to indicate the result of the verification.

Date and time	General result		Hour counter	Incidents and comments	Name (in capitals)	Signature
	OK	NOK				

NOTICE

Mark "X" in the OK or NOK field to indicate the result of the verification.

Change log

EN-AL-02-00-0001-03B

Revision	Date [month/year]	Description
01.01	07/2024	ALIMAK VECTIO 350 20-32 and VECTIO 350 20-32D lifting transportation system operator's manual (EC certification draft)
01.02	01/2025	Sections 3.4.2 and 4.4.3 updated (EC certification draft)
01.03	03/2025	EC certification updated. Terminology updated. New numbering appendices.

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