INSTRUCTIONS MANUAL
FOR
USE AND
MAINTENANCE

AS40

PERSONS AND MATERIALS HOIST

Dear Customer,

Thank You for choosing one of the **SAFI** machines. It is our pleasure to put our Manual at Your disposal, to enable you to operate it safely. We strongly recommend moreover, letting the manual be carefully read by all the operators assigned to the machine operations to ensure that all the instructions are clearly understood and followed in all the various phases of use, maintenance, and repair.

We are at your disposal for any further information you may need, but also for any suggestions and ideas that may help us improve and make this manual as complete as possible, and meet the safety requirements for which it was written.

Our best regards

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1 Guide to consultation

1.1 Main prescriptions

During the first 100 working hours do not lubricate neither the pinions nor the racks. During this first work phase, impurities accumulate between the teeth of the pinions which must be removed with a prick punch of adequate dimensions. If this operation is not carried out, serious and dangerous defects in machine could occur.

In the event that during the use while rising or descending malfunctions or abnormal noises were heard, block immediately the machine and ask for the intervention of a qualified technician.

The Manufacturer declines any responsibility for inconveniences arising from the non-observance of the above mentioned rules and of all the prescriptions contained in this manual.

1.2 Provided documentation

Instructions manual (this manual, including the Attachments):

Model: **AS40**; Version: **2.19**; Revision: **00**

Year and month of printing: **2015 September**

Addressees:

USER;
MAINTENANCE TECHNICIAN.

1.3 Purpose and limits of the instructions manual

*This manual accompanies the machine sold and contains all indications related to installation, use and maintenance of the machine in compliance with the contents of the **Directive 2006/42/EC** ("Machine Directive") and subsequent amendments. All of the operations classified as normal use and regular maintenance of the machine have been taken into consideration during preparation of this manual. Therefore, for the correct and very best use, the instructions provided should be strictly respected.*

Before proceeding with any operation of installation and use of the machine, it is compulsory to read the text carefully with particular reference to all the provisions and indications related to its use in safety.

1.4 Where and how to keep the instructions manual

This manual should not in any way replace an adequate experience that operators should have previously acquired on similar machines or that they may acquire on this machine, guided by trained personnel.

Use of the machine and all of the operations that require intervention on its components should be entrusted to authorised and trained technical personnel.

This manual (or an integral copy) should always be available on the machine for any immediate consultation by the operator and should be kept in good condition.

1.5 Modifications and integrations to the instructions manual

Following constant and on-going improvements made by the Manufacturer to the product, the machine may differ in some technical aspects compared with the description provided in this manual: anyway, any alteration will always be accompanied by specific enclosures to illustrate functionality and characteristics. In case of differences from the basic content of the manual, ask immediately the Manufacturer for the relative additional technical sheet. An evolution in the technique, new experience gained, laws modifications, any of these reasons, may arise the need to update one's production and the instructions manuals accordingly. The Manufacturer reserves the right to do so without any obligation to intervene on the previous commercialised machines and on their relevant manuals.

1.6 Documentation

This manual includes:

A technical part indicating:

- The set-up date of the Hoist;
- The main characteristics of the Hoist;
- The technical characteristics of the hoisting system;
- The characteristics of the components for which compliance control is requested;
- The installation drawings inside the crane;
- The electrical layouts (attached).

A part destined to contain dated copies of the control reports and of visits with relative comments.

The manual should be updated in the following cases:

Important changes made to the Hoist;

Replacement of engines or important components;

Accidents.

1.7 Assistance

Talking about the best exploitation of machine performances and of scheduled maintenance operations, this manual can never replace the experience of trained and qualified fitters, users and maintenance engineers. The Technical Assistance Service provides information to Customers either by telephone or by mail and arranges interventions on site for training and maintenance operations.

When requesting servicing assistance, specify the type, model and serial number of the machine.

1.8 Spare parts

The request for spare parts (whose list, indicated separately, is attached to this manual) should necessarily include the following information:

Type of machine;

Year of manufacture;

Spare part code (if present).

2 General description

*The persons and materials hoist model **AS40** is a tower hoisting means that takes advantage of the principle of the control shaft and a pinion activated by electric engines to lift up - along the supporting structure of a crane - a cabin with a maximum loading capacity of 200Kg.*

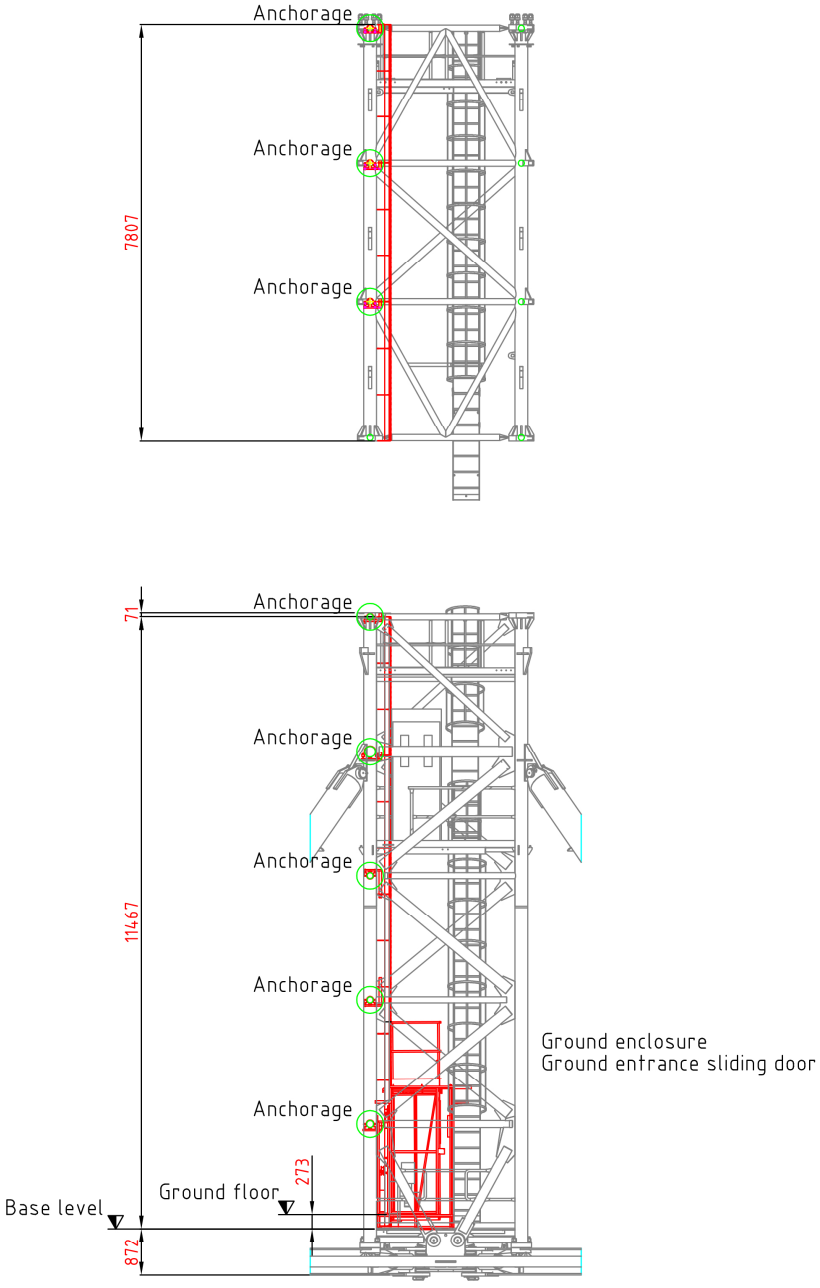


FIG. 1: Lay-out – general view of the installation

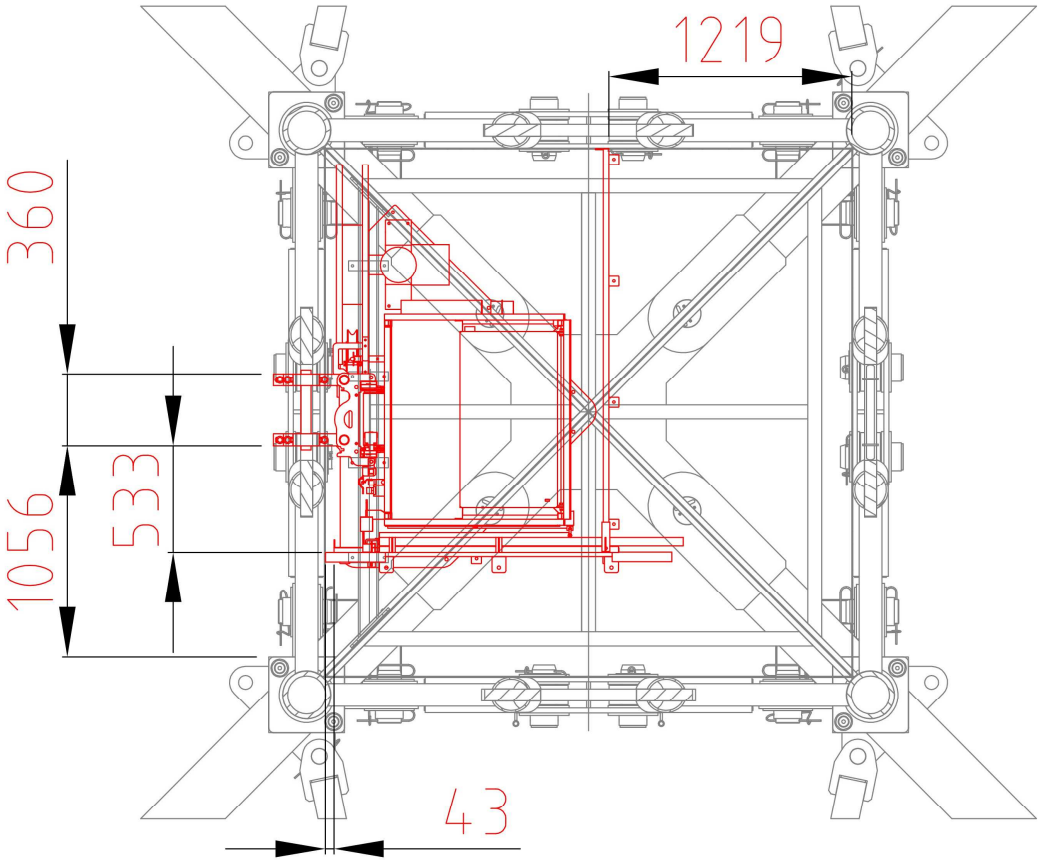


FIG. 2: Lay-out – general view of the installation

The persons and materials hoist model** AS 40 **mainly consists of the following elements:

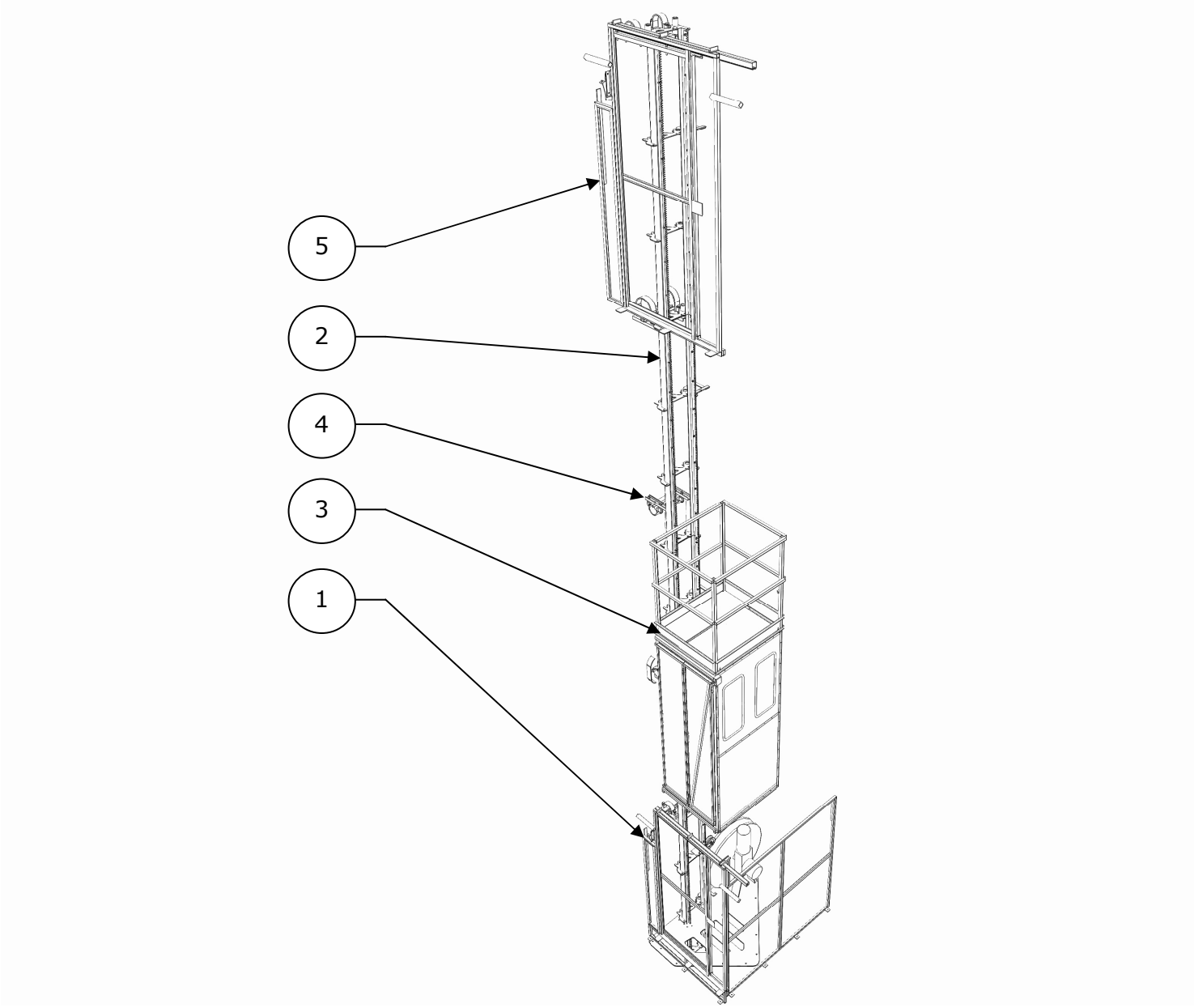


FIG. 3: Lay-out – general view of the hoist

Nr.	***Description***
1	*Ground fences with sliding door*
2	*Vertical guide*
3	*Lifting unit (motor group + cabin)*
4	*Anchorage ties*
5	*Floor fences with sliding door*

TAB. 1: Hoist components

3 General data

3.1 Identification data

Type: Rack and pinion hoist – guided along vertical masts
Name (model): **AS40**
Manufacturer: SAFI S.r.l.
Via S. Rocco, 8 - 31041 Cornuda (TV) - ITALY
References: Directive 2006/42/EC "Machine Directive"
Directive 2006/95/EC "Low Tension"
Directive 2004/108/EC "Electromagnetic compatibility"

	AS40
Final installation date	
Customer	*TRADEHOUSE Int. A/S*
Address	
Type	*Persons and materials hoist*
Country of construction	*Italy*
Year of construction	*2015*
Serial Nr.	
Gear motors serial Nr.	
Parachute brake serial Nr.	
Electrical drawings	*See annex*

TAB. 2: Identification data

3.2 Technical data

	AS40
Mast element weight	*40kg*
Mast element height	*2602mm*
Guides total height (H)	*91m*
Guides working height	*91m*
Distance between anchorages	*2.6m ca.*
Nr. of landings	*1 (at the ground) + 1 (at top position)*
Floor door internal dimensions (WxH)	*0.87x2.37m*
Cabin internal dimensions (WxLxH)	*0.97x0.84x2.30m*
Nr. of cabin access	*1*
Cabin door internal dimensions (WxH)	*0.76x2.26m*
Cabin weight	*400kg ca.*
Maximum Nr. of persons	*2*
Maximum payload	*200kg*
Travelling speed	*21m/min (or 40m/min if selected)*
Supply voltage	*400V*
Supply frequency	*50Hz*
Brakes supply voltage and frequency	*230V*
Secondary circuit tension	*24V DC*
Control panel at the ground	*-*

TAB. 3: Technical data

	AS40
Temperature range	*-20°C ÷55°C*
Humidity	*90%*
Wind speed (in service)	*72Km/h*
Wind speed (out of service)	*160Km/h*

TAB. 4: Weather conditions

ATTENTION! Do not carry out operations of assembly/disassembly in the presence of wind force higher than 45km/h.

	AS40
Rack module	*6*
Nr. of gear-motors	*1*
Motor pinion diameter	*84mm*
Parachute brake pinion diameter	*84mm*
Gear-motors rated power	*1x3kW*
Gear-motor type (FLENDER)	

TAB. 5: Lifting unit technical data

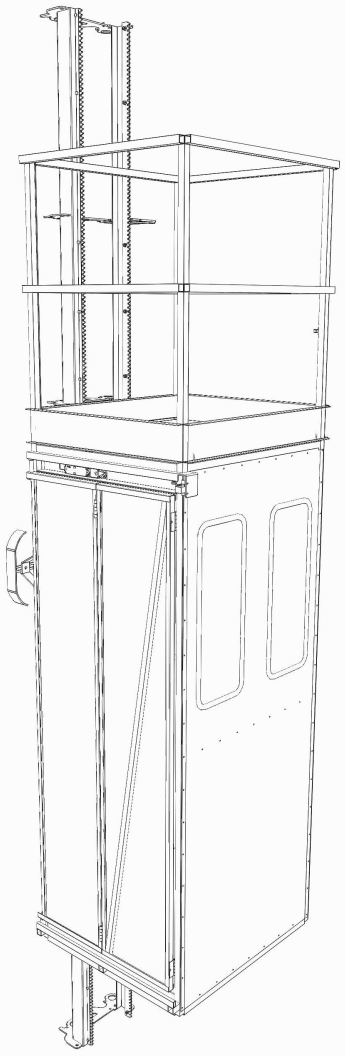


FIG. 4: Hoist – general view (complete lifting unit)

4 Components

*The persons and materials hoist model **AS40** is basically composed by the following elements:*

VERTICAL GUIDES; CABIN WITH MOTOR GROUP AND LIFTING DEVICES (with over speed detection device and parachute brake); ELECTRICAL CIRCUITS AND PANELS (with safety devices).

4.1 Vertical guide and hoist well

Mast elements:

Hot-dip galvanized modular square components in heavy-duty steel sections, which height is 2602mm. The masts are connected by means of galvanised steel tie rod screws 8.8 class with self-locking nut and flat washer;

The terminal element is supplied with the rack with reduced height in order to avoid the escape of the motor-group from the guides.

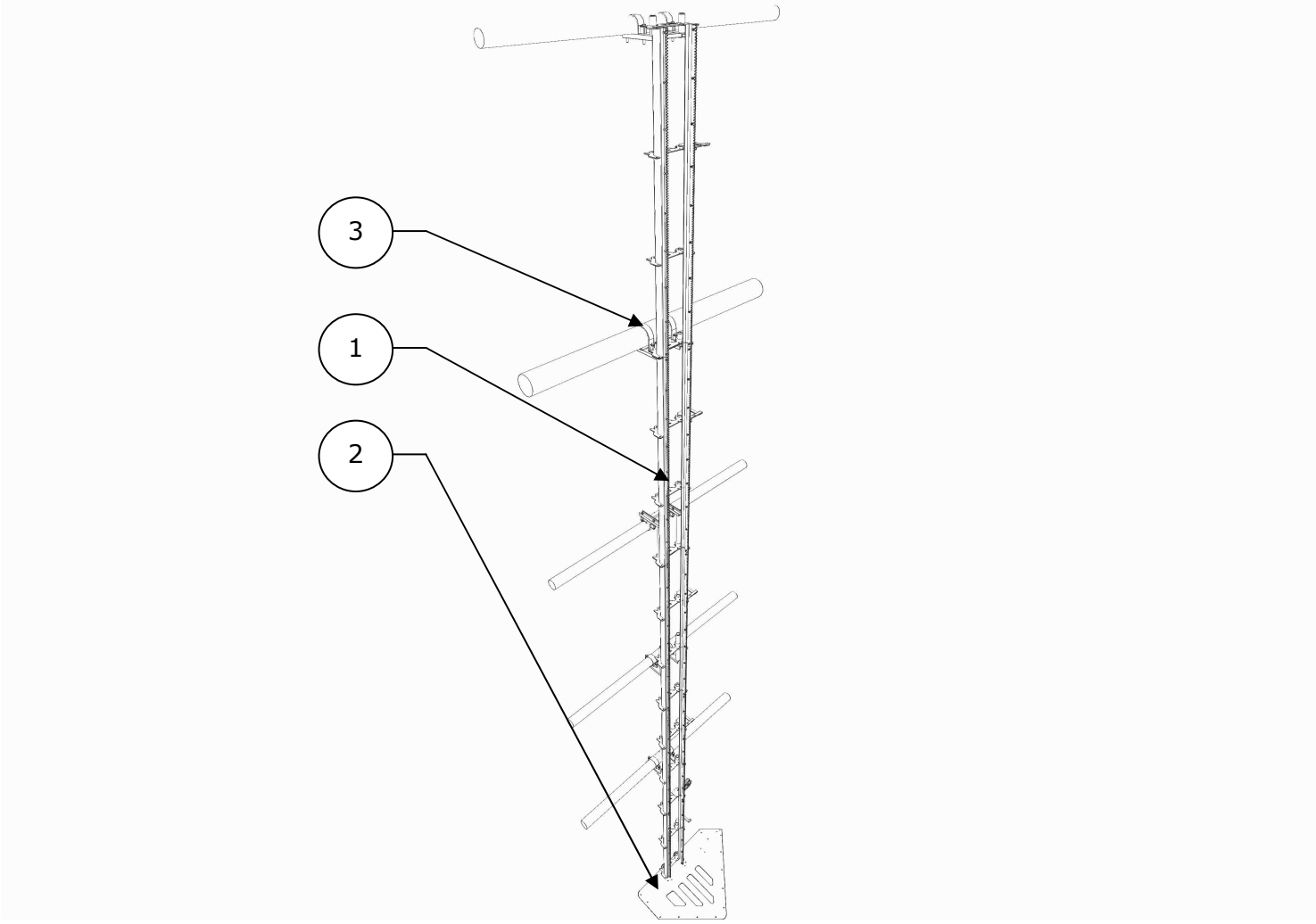


FIG. 5: Vertical guide – general view

Nr.	***Description***
1	*Vertical guide (mast elements with rack)*
2	*Basement*
3	*Anchorage tie*

TAB. 6: Vertical guide elements

Basement: Hot-dip galvanized frame in heavy-duty steel sections, directly fixed (by mean of dowels) on the beam cross in the bottom of the main structure.

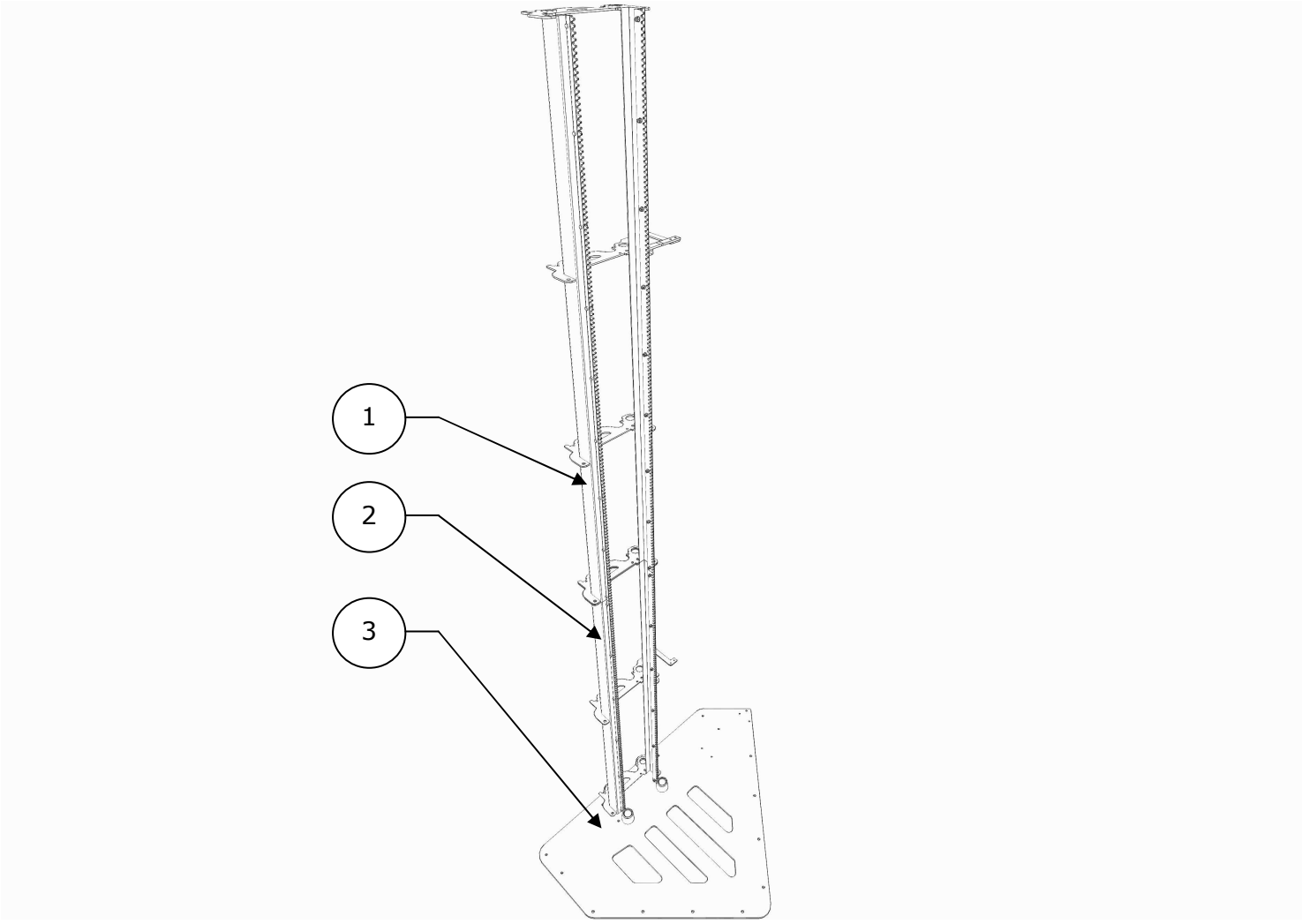


FIG. 6: Basement and bumpers

Nr.	*Description*
1	*Basement*
2	*Vertical element*
3	*Small vertical element*

TAB. 7: Basement elements

Anchorage ties: Hot-dip galvanized components in heavy-duty steel sections, directly fixed on the main structure.

Distance between the anchorages: maximum 2600mm ca.

ATTENTION! Never exceed the maximum distance between the anchorages.

Shaft type:	The hoist is installed inside a metallic structure. Only the protections at the floors are necessary.
Dimension of the shaft:	-
Nr. of landings:	Nr. 1 ground floor + 1 landing floor.
Protections at the ground floor:	Ground fences and sliding access door with full height.
Landing door type:	Frame made in heavy-duty steel sections with steel enclosure panelling, with VYNILIC painting treatment; Horizontally sliding door (single panel) for ground floor (fences) - fitted with mechanic lock type.

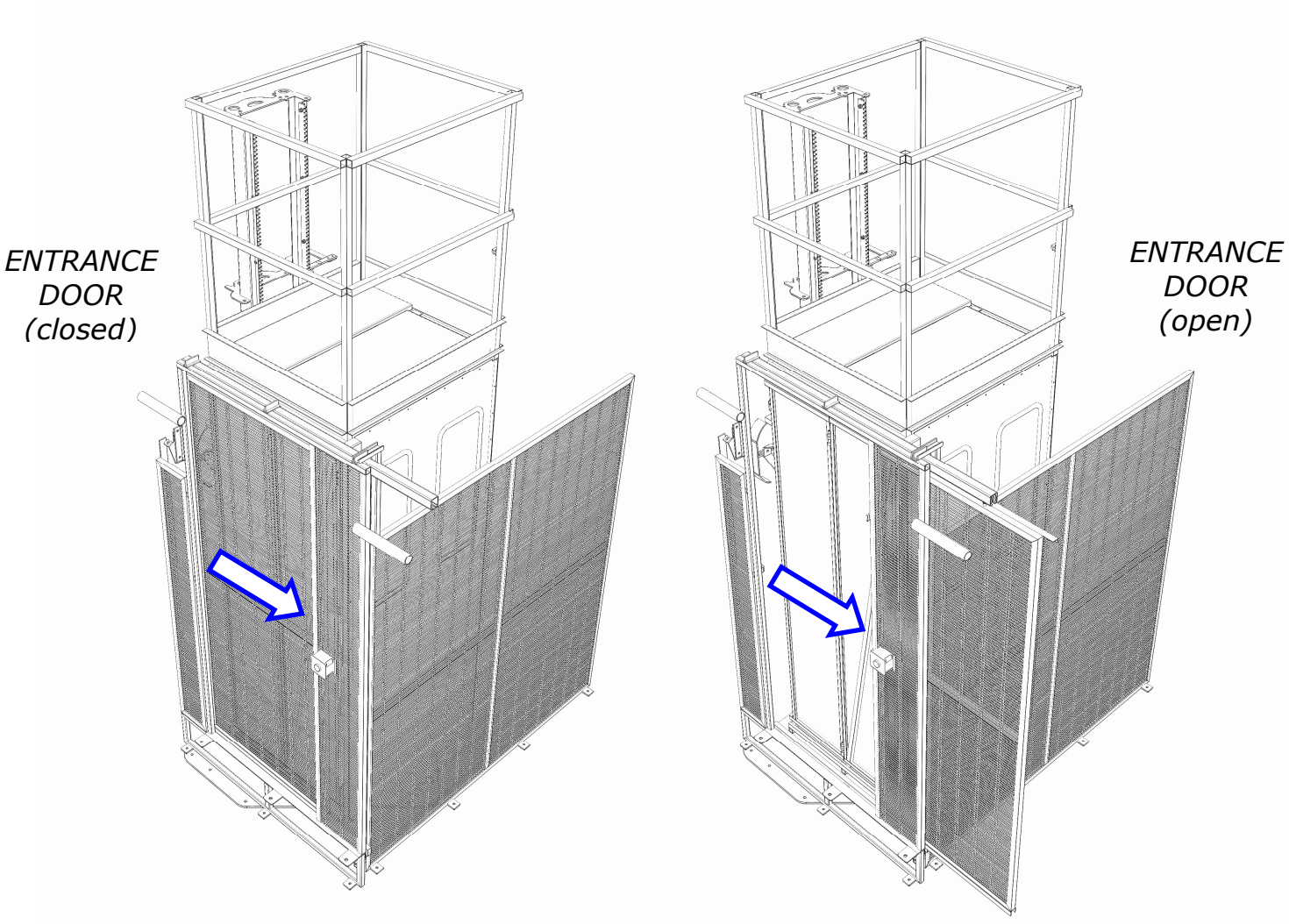


FIG. 7: Ground fences and access door

Ground door lock is deactivated by the presence of the cabin at bottom position.

Protections at the floor:	Landing door with full height.
Landing door type:	Frame made in heavy-duty steel sections with steel enclosure panelling, with VYNILIC painting treatment; Horizontally sliding door for landing floor - fitted with mechanic lock type.

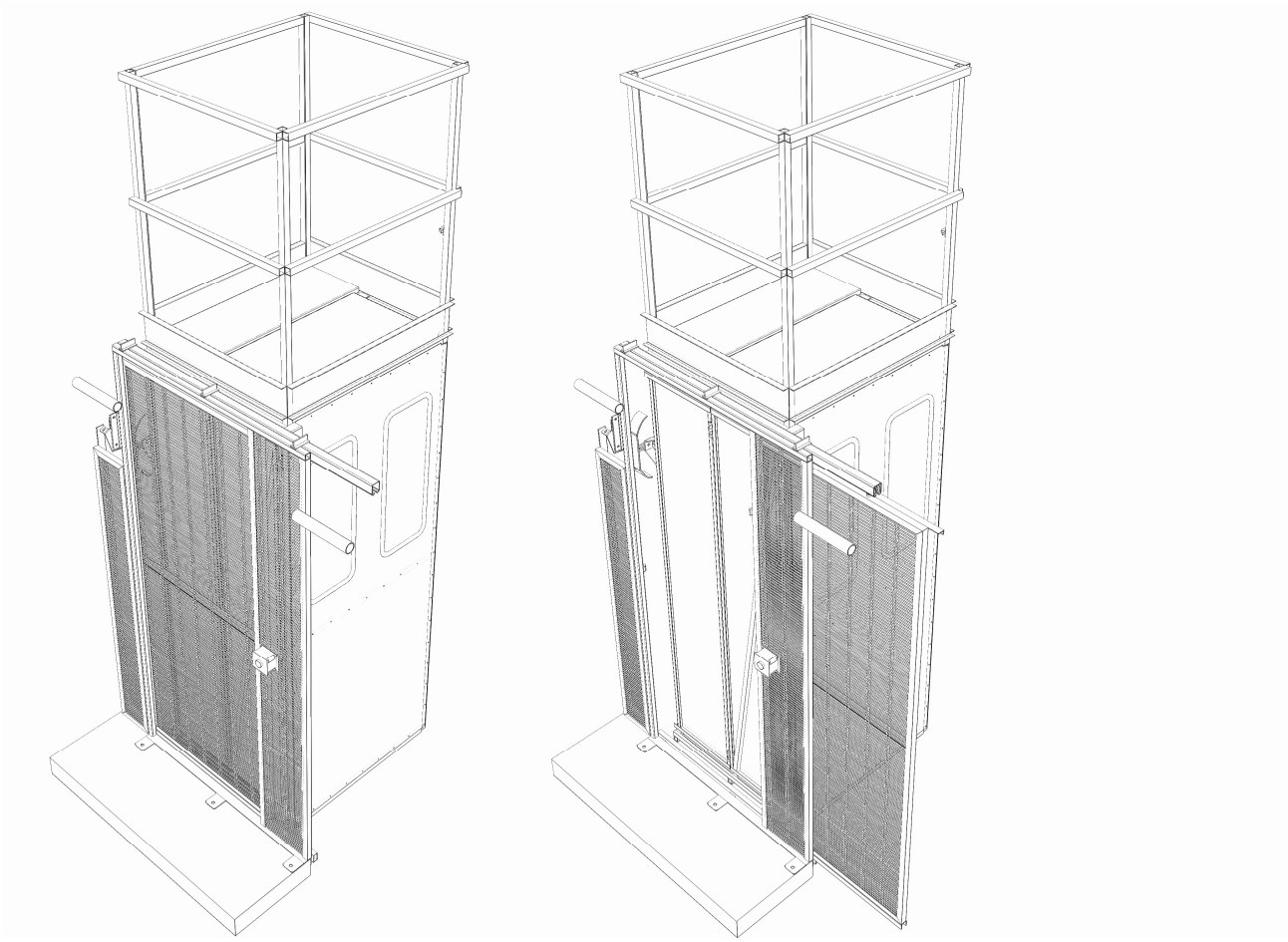


FIG. 8: Landing door

Landing door lock is deactivated by the presence of the cabin at the relevant floor.

Sliding plates for landing stop:	The plates define the floors limits for the hoist arrest; Made in hot-dip galvanized heavy-duty steel sections, the plates are fixed near the anchorage ties intercepting the motor-group limit switches. The plate position is regulated by means of sliding along the fixing tube and is defined in function of the lifting speed of the motor-group.

4.2 Motor-group and transmission devices

Motor-group type: Frame made in heavy-duty steel sections, hot-dip galvanized.

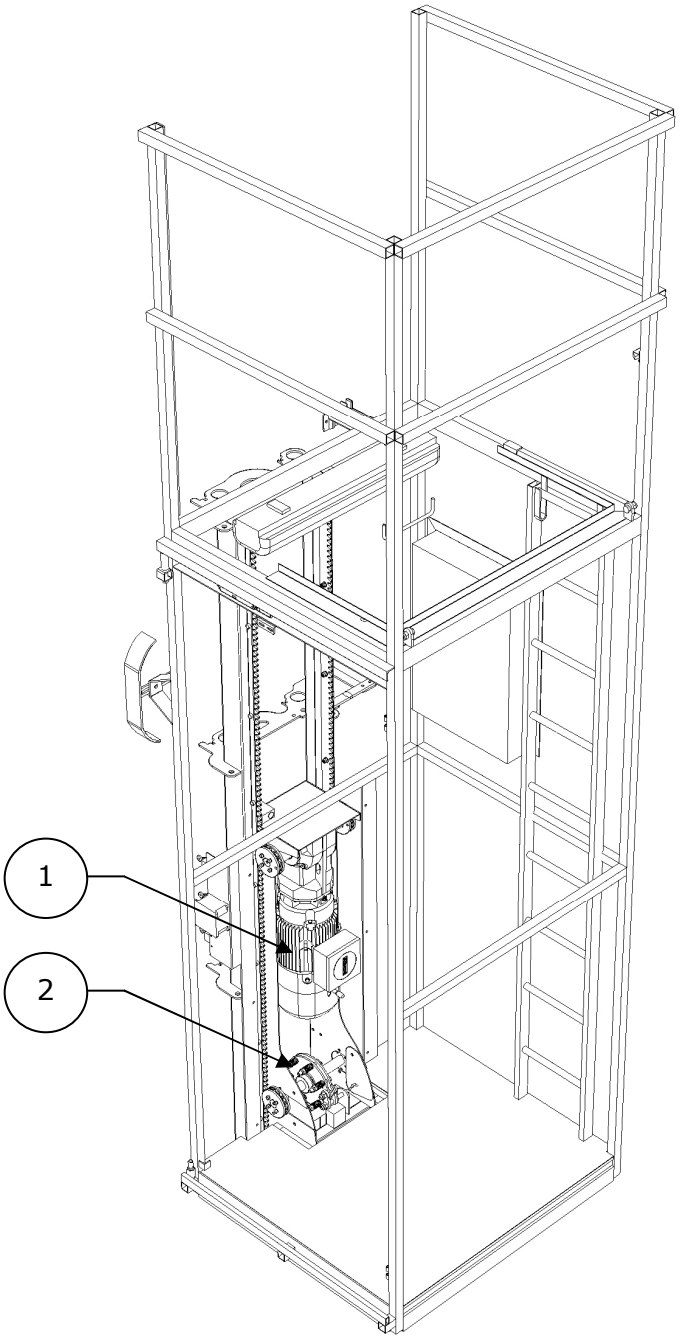


FIG. 9: Motor-group – general view

Nr.	*Description*
1	*Self-braking gear-motor (mod. KA69-LE100LK4E-L32/40GH)*
3	*Parachute brake (SAFI mod. G01)*

TAB. 8: Motor-group elements

Transmission type: Rack and pinion transmission with guide rollers and counter-rollers (mounted on bearings).

Gear-motor type:	Helical gear-motor with electromagnetic brakes.
Degrees of protection:	IP55
Supply voltage and frequency:	400V – 50Hz
Normal absorption:	6.2A
Starting absorption:	6.2A
Rated power:	3kW
Nominal torque:	184Nm
Lifting speed:	21m/min – 40m/min
Reduction ratio:	1: 9.34
Transmission pinion:	18 NiCrMo 5 steel - Dp = 84mm; m = 6; Z = 14
Rack:	S355JR steel – b = 46mm; m = 6; Z = 152
Lifting devices position:	On the lifting group; directly reachable from the cabin during maintenance operations.

4.3 Over speed detection device, Parachute brake

Emergency brake type:	Progressive centrifugal parachute.
Parachute brake pinion:	18 NiCrMo 5 steel - Dp = 84mm; m = 6; Z = 14
Intervention speed:	approx. lifting speed +5%
Braking torque:	300Nm
Parachute brake position:	Behind the gear-motor; directly reachable from the cabin during maintenance operations.

ATTENTION! Parachute brake maintenance can be managed only by authorized and well trained personnel.

4.4 Cabin

Cabin type: Frame made in heavy-duty steel sections with steel enclosure panelling, hot-dip galvanized;

Roof on which it is possible to walk: accessible by manhole for maintenance operations.

Cabin door type: Frame made in hot-dip galvanized heavy-duty steel sections with steel enclosure panelling;

Horizontally sliding landing doors; fitted with electro-mechanic lock type.

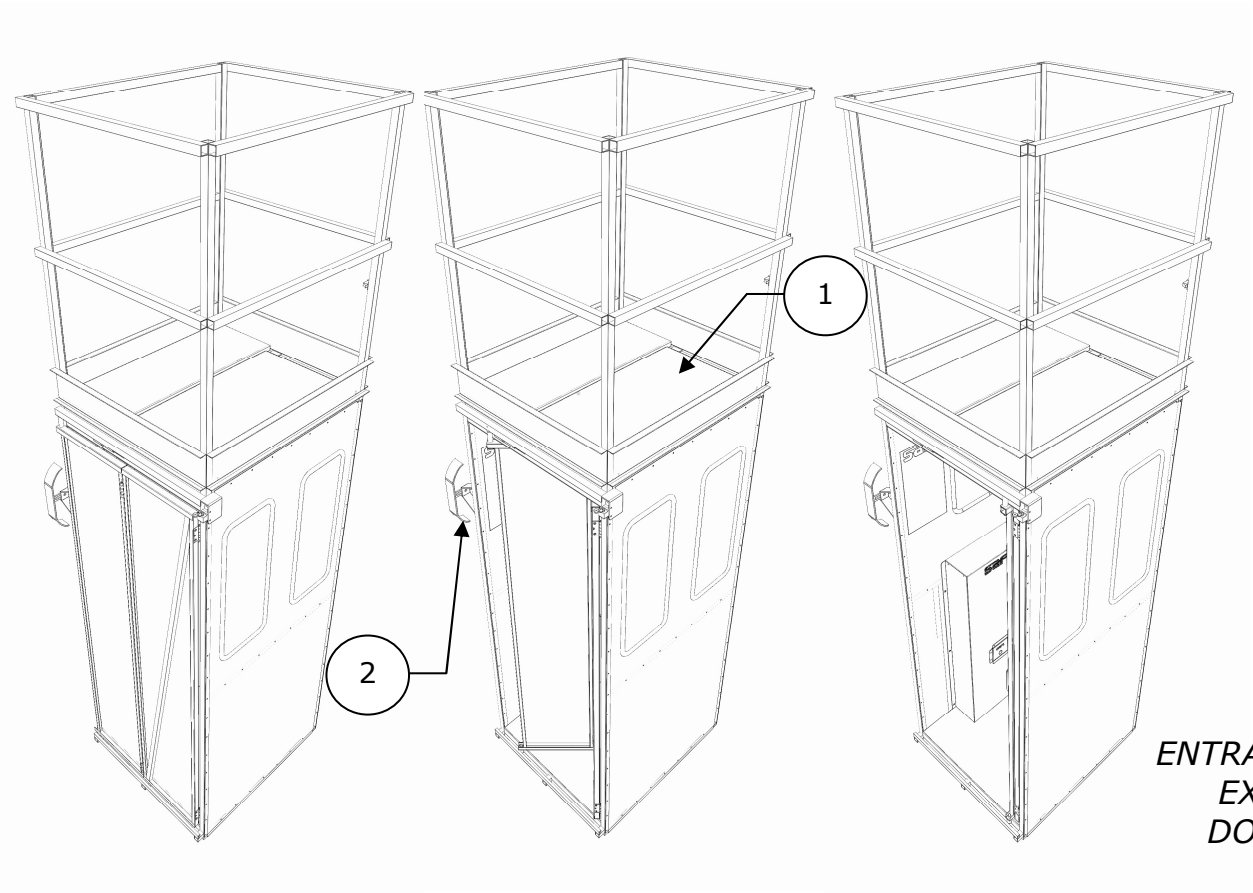


FIG. 10: Motor-group – general view

Nr.	*Description*
1	*Trap-door*
2	*Sliding plate to landing side*

TAB. 9: Motor-group elements

Cabin doors lock is deactivated by the presence of the cabin at the relevant floor.

Before you close the entry doors make sure that the control panel is not off or that the emergency button is pressed down. use the external control panel to switch off.

Electric circuits and panels[1]

Gear-motor supply:	400V
Gear-motor brake supply:	230V
Secondary circuit supply:	24V DC
Electrical panel at the ground:	Low tension box with general disconnector. Positioned on the ground; Built in conformity to the following standards: DIRECTIVE 2006/95/EC - "Low tension"; DIRECTIVE 2004/108/EC - "Electro-magnetic compatibility".
Control panel in the cabin:	Low tension box for hoist rise and descent. Positioned inside the cabin; Built in conformity to the following standards: DIRECTIVE 2006/95/EC - "Low tension"; DIRECTIVE 2004/108/EC - "Electro-magnetic compatibility".
Floor button panels:	Hoist radio call panel, positioned close to the floor doors.
Earthing:	Yes
Power supply type:	Power supply: flexible cable Trommelflex-PUR-HF type.

ATTENTION! Before giving supply, verify the earthing.

[1] For more details concerning the electric circuit, see the charter for interface with the operator and the electric drawings attached to the present manual.

Safety devices

Safety limit switches:

Safety switches for: rise (***1***), descent (***2***), emergency (**3**), deceleration switch (***4***); Overrun safety limit switch (**5**) electro-mechanical door lock (**6**); Trap-door (**7**);landing floor doors (**8**); parachute brake intervention (**9**).

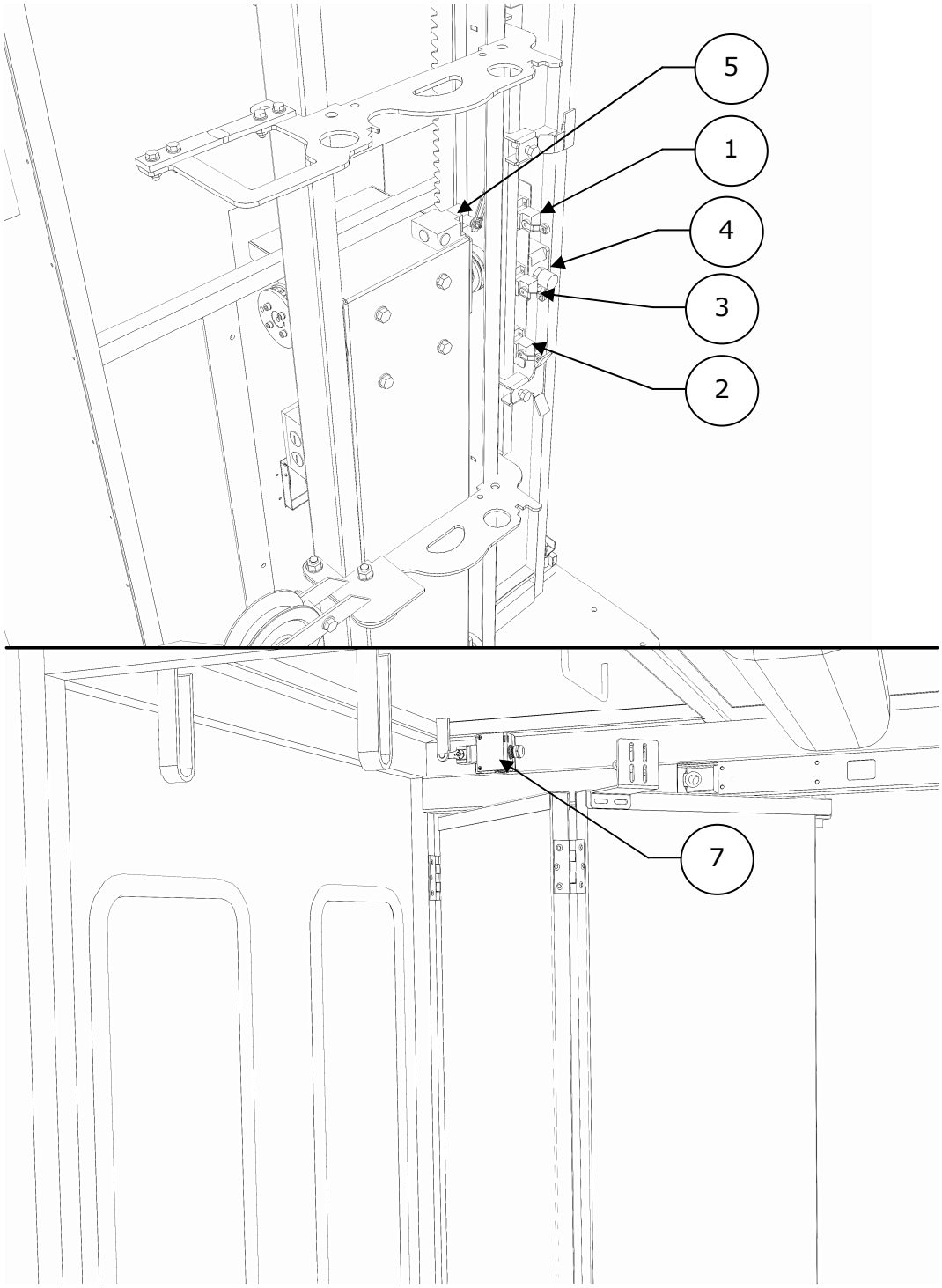


FIG. 11a: Safety switches

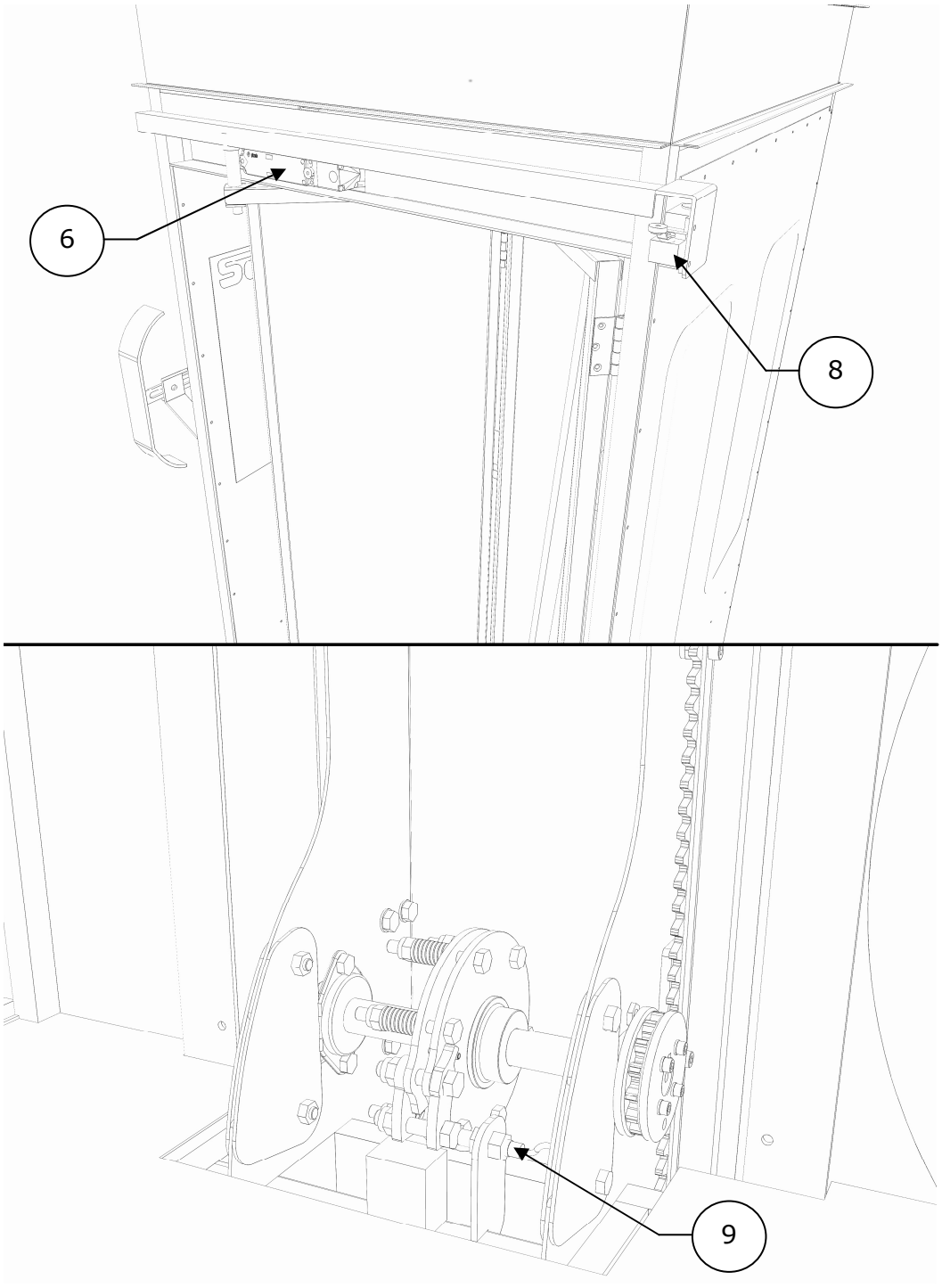


FIG. 11b: Safety switches

Door lock system:

Electro-mechanical door lock for cabin.

Mechanical door lock for floor doors.

All the electric locks of the hoists are **unlocked** and they **MUST** be manually locked **before** the start up of the equipment.

Here below the instructions to follow:

Lock and Manual unlock of the electric lock:

The electric lock can be manually unlocked so that to allow the opening of the door even in case of power failure.

To unlock the device, remove completely the screw and turn clockwise the central metal insert until it stops.

DO NOT TIGHTEN BACK THE SCREW TO AVOID DAMAGE TO THE BLOCK

FIG. 12: UNLOCKED Electric lock

To manually lock the electric lock, turn anticlockwise the central metal insert until it stops and then replace the screw.

Once hand-locked, it will be possible to unlock it only electrically.

FIG. 13 : Locked electric lock

Other devices:

Terminal element with the rack with reduced height;

Lockable general switch-off;

Brakes: Progressive centrifugal parachute with over speed detection device (see specific chapter);

Self-braking gear-motor (see specific chapter).

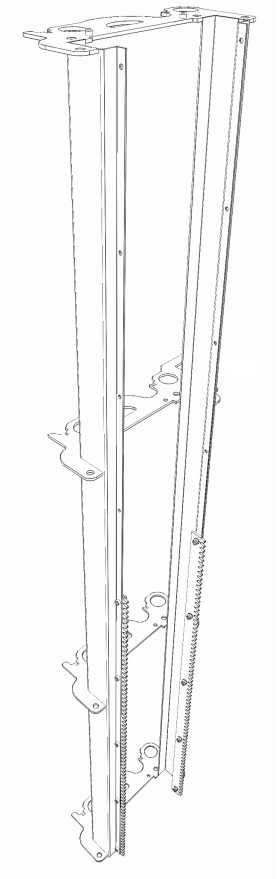


FIG. 14 : Terminal element

Bumpers (on the bottom): Mounted on the base plate.

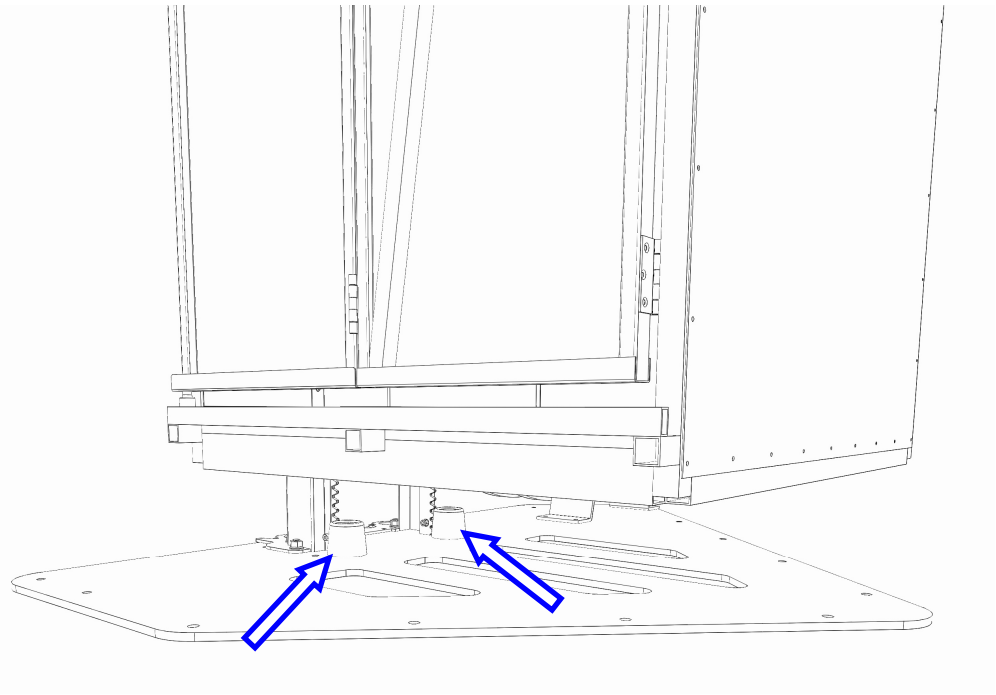


FIG. 15 : Bumpers

Lighting devices: Emergency lights (on the main control panel);
Cabin emergency light;
Flashing pilot light for parachute brake triggering;
Pilot light for engaged hoist.

Acoustic device: Siren;

Signalling description:

SIGNALLINGS ANOMALY	DESCRIPTION
Anomaly alarm red light	*Generic anomaly*
Thermic alarm red light	*Thermic gear-motor or brake supply anomaly*
Emergency brake alarm red light +siren	*Parachute brake inserted*
Rectifier alarm red light + siren	*Rectifier gear-motor anomaly*
Door red light +siren	*Door open*

TAB. 10: Anomaly descriptions

Installation procedures

4.5 Warning

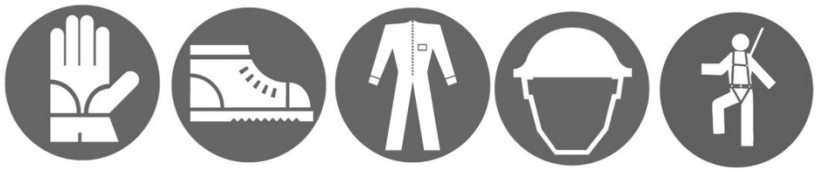
This work method statement is part of the Site Safety Plan (in charge of the Customer).

This plan should include:

Introduction Training;
Register of Hazardous Substances;
Work Method Statement;
Safety Procedures;
Responsibilities Flow Chart;
Rehabilitation Policy.

Qualified personnel - involved in the installation procedures - has to observe proper safety precautions reported in that plan during all the operations connected to the following activities.

In those operations all the "Personal Protection Equipment" (PPE) reported in the "Risk analysis" of the manufacturer are compulsory.



ATTENTION! Due to the fact that the hoist AS40 is a self-installing machine - in order to manage all the installation procedures directly from the lifting unit - the power supply from the site is COMPULSORY.

If power supply is NOT directly available with the requested values (400V-50Hz), a power generator can be used.

The generator should supply minimum 50KVA.

ATTENTION! The installation of some components (like ground fences and/or landing doors) could require some modifications and/or fixings on site.

For that reason, some HOT ZONES (E.g.: at the ground and at the landing floors) have to be defined in order to allow welding and/or cutting (with grinder) procedures.

These areas have to be available during the standard installation procedures.

4.6 Basement Positioning (Step#1)

The basement is supplied with two mast element and the lifting group already installed.

In order to start with the installation of the lift, the first step consist in the basement positioning (e.g. by means of a forklift) on the bottom beam cross of the crane. This is just a preliminary position, cause the definitive one has to be defined by the first anchorage.

As per client specification, the first mast has been supplied with raw finish. This is due to the fact is has to be cut at approximately 1055mm high, than welded again to a connection plate of our supply.

This mast has to be mounted on the basement by means of supplied bolts.

A first anchorage MUST be carefully positioned on the first horizontal pipe of the structure (Fig. 2).

N.B. Pipes have to be absolutely vertical in order to permit coupling with masts. Ensure the angle by grub screw at the bottom of the lower part of the anchorage.

Then, connect a standard mast to the anchorage. Lower it till it reach the upper connecting plate of the first mast. Make sure it is completely vertical, then move the basement till the two columns can fit properly. This is the definitive position of the basement. Ensure the position by means of supply bolts, a drilling machine might be needed in this phase.

The position of the basement has to be verified in order to avoid any obstacle along the car travel and to allow the correct installation of accessories like landing doors, etc.

After the first step, the car assembling can start.

4.7 Lifting Car Assembling (Step#2)

At least, a small vertical element and a standard one are needed (the weight of a standard single mast element is approx. 40Kg).

With the first anchorage mounted on the crane, it is safe to install the cabin.

The cabin is supplied with a mast attached, hence the assembly must be lifted by a second crane and insert into the crane shaft from the top of the bottom mast. Before starting this procedure make sure the second anchorage is connected to the second connecting plate of the mast.

Once the downward moving column has reached the lower one, ensure the anchorage by adding the upper parts and tighten it by bolts.

After that, we can proceed installing the cable winder to the basement, and giving power supply to the cabin by pulling the cable from the top of the cabin. Plug in the cable to the electric panel on the roof, not before having ensured it to the guide arm.

The cable MUST pass through a roller connected the the first mast. This will provide verticalizing the cable, reducing the risk of interferences with the cable guider.

Once on the roof install the removable parapet using bolts.

This last operation concludes the cabin completion and allows starting operating with the machine.

If power supply is NOT available, use the power generator.

From now on, operators on the cabin are completely safe and protected (the installation of the machine will be managed through the remote control panel from the cabin roof).

4.8 Mounting of the first vertical element (Step#3)

The machine is ready to be used to install the first mast elements.

The element will be loaded on the cabin roof in order to proceed with its installation directly from the roof.

- Position and set the **DOWN/EMERGENCY** slide switch so that to have the motor stop at approx. 20cm from the buffers.

  These allow the stop the cabin at the ground.

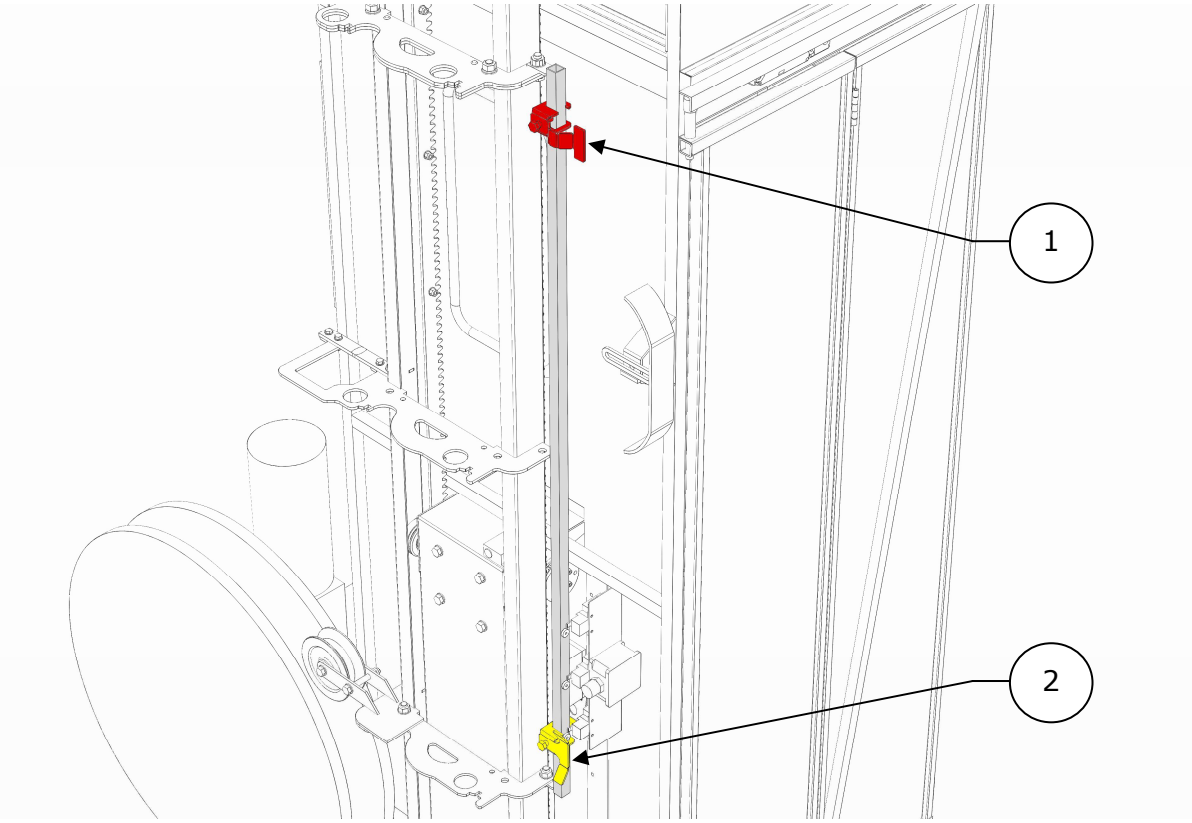


FIG. 16: Positioning of the slide

Nr.	*Description*
1	*De-acceleration slide (mount it approx. 1500mm above the stop)*
2	*Stop slide*

TAB. 10: Slides

4.9 Vertical Guide Erection (Step#4)

The machine is ready to be used for mounting of the column until a maximum height 91m.

The elements will be loaded on the cabin roof in order to proceed with their installation directly from the roof.

(If a crane is present in the building site, the mast elements can be pre-assembled at the ground and then positioned by means of the same crane).

ATTENTION! Before proceeding with the installation of the vertical guide, it is necessary to verify the installation of the bumpers on the bottom of the motor group.

Mast element installation - tighten the four mast bolts to the required torque (75Kgm). Then elevate the cabin.

Repeat the two steps until the quote for the first anchorage (+2.6m max) is reached.

Anchor every single mast to the crane in the junction.

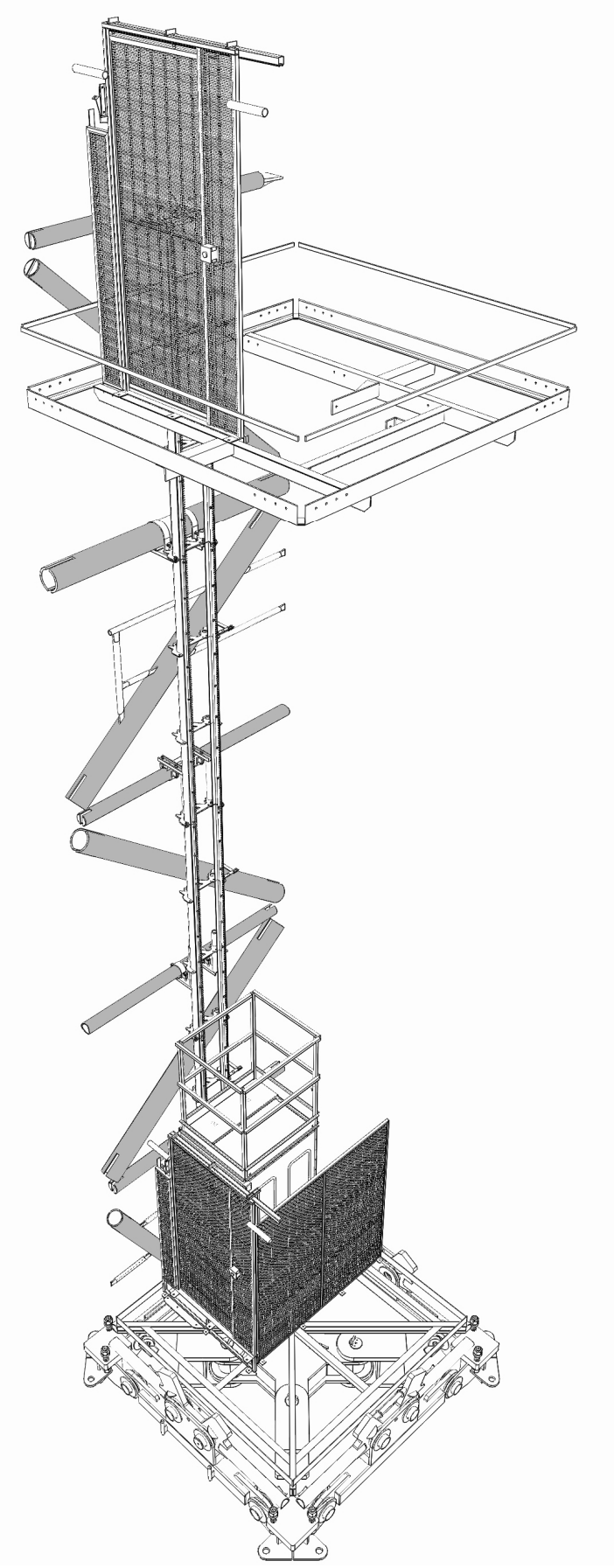


FIG. 17: Mounting scheme

Anchorages

The tie anchorage is fixed by means of:

Semi circular plates, tightened by visible screws; grub screws underneath to ensure verticality of anchorage's pipes (as pointed out in the following image).

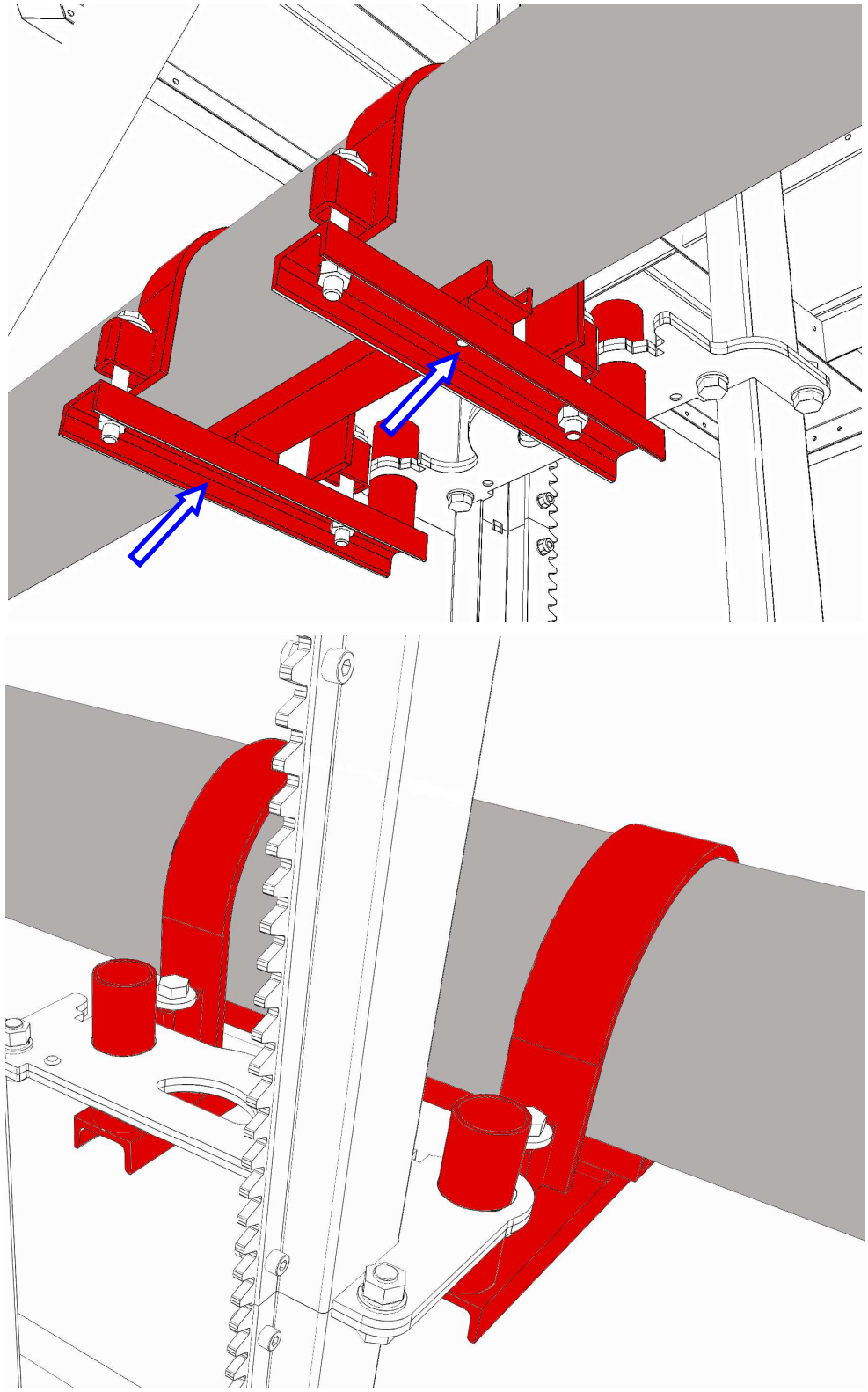


FIG. 18: Anchorage tie positioning

The anchorage reactions to the fixing structure are calculated in:

- Fx=33kN (during normal conditions).

- Fy=6kN (during normal conditions).

The structure (where to fix the anchorage ties) has to be verified for these loads.

The terminal vertical element must be anchored to the summit; where it might result impossible, do not rise with more than one element after the last anchorage!

Check once a month at least that screw anchors and elements junction screws are well closed!

4.10 Ground Protection Installation (Step#5)

Once the vertical guide is fixed to the main structure, the ground protection should be installed.

The cabin has to be taken down.

The sliding plates for the descent limit (that happens to be the same for the emergency switch) switches has to be regulated, in order to stop the downwards movement of the cabin exactly at discharging platform's level.

The installation of the ground protection conclude the operation at the base.

Now the area around the machine is completely safe.

4.11 Vertical Guide Completion (Step#6)

ATTENTION! Do not carry out operations of assembly/disassembly in the presence of wind force higher than 45km/h.

The installation of the vertical guide continues until the top is reached.

During the installation other anchorages have to be realized (max. distance between two anchorages = 2600mm, every single mast has to be anchored though).

The last one has to be installed in correspondence to the last vertical element.

ATTENTION! Never exceed the maximum distance between the anchorages.

4.12 Landing Doors Installation (Step#7)

Once the installation of the vertical guide is completed, all the landing doors can be installed at each landing floor, in this specific case at top position.

It is very important to proceed carefully with this operation in order to regulate correctly the door locking devices.

After having installed the doors, the specific electrical circuit (call push buttons) as to be completed.

Landing doors: details.

The installation of the doors has to be made carefully, in order to guarantee:

The correct working of the movable elements (panels and door lock);

The correct position of the interlocking devices that connect the landing door with the cabin door.

It is also necessary to fix and adjust the slides devices to the column, to guarantee a correct stop at the floor.

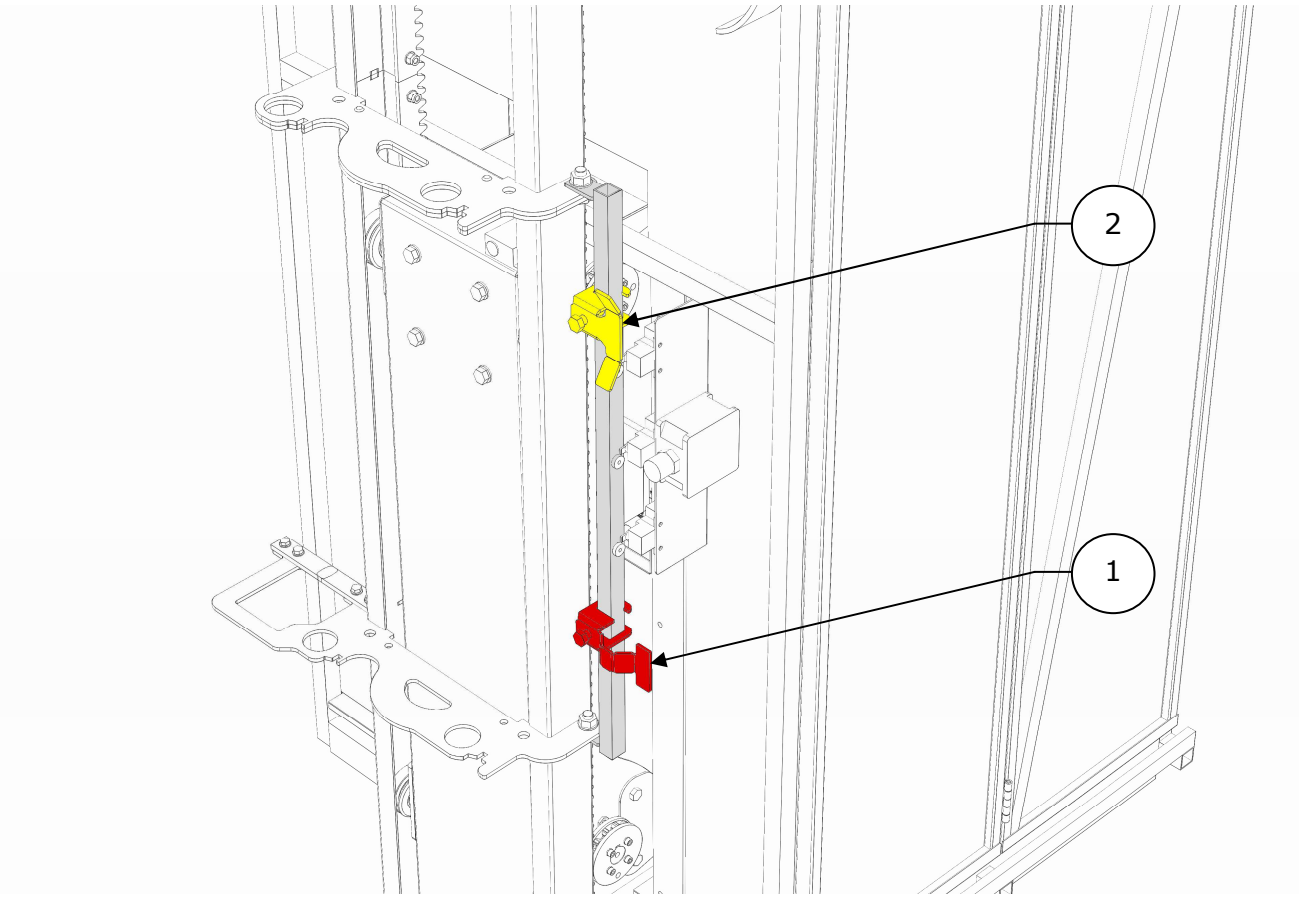


FIG. 19: Positioning of the slide

Nr.	*Description*
1	*De-acceleration slide (mount it approx. 500mm below the stop)*
2	*Stop slide*

TAB. 11: Slides

ATTENTION! Always verify the availability of the HOT ZONE, in order to manage potential modifications and/or fixings.

4.13 Final Commissioning (Step#8)

Once the installation is completed, all the elements of the machine will have to be controlled following a specific "test and commissioning procedures".

4.14 Procedure Options and Variations

After cabin completion - if a crane (big enough to cover the entire height of the installation) is available on site - the vertical guide erection can be managed following the variant described in the following pages.

Mast elements can be pre-assembled at the ground in order to proceed with their installation directly with the crane (with a maximum quantity of approx. 3 elements).

Doing that way the entire installation procedure can be faster avoiding the "step by step" installation for every single mast element.

These vertical guide pieces (which length is approx. 7.8m) can be positioned by means of the crane and fixed to the main structure directly from the same.

After having installed the entire vertical guide (anchorages included), ground fences and landing doors installation can proceed (as previously described) in order to complete the machine.

5 Personnel in charge of running the hoist

ATTENTION! Running of the hoist is reserved to specifically trained personnel!

The Owner of the plant must assign a suitable number of duly trained and specialised employees to run the hoist.

The number must be such as to guarantee, during the hours of operation, constant presence of at least two employees in the following locations:

One worker in the cabin;

One worker on the ground (close to the presided location).

The employees in charge of running the hoist are able, in cases of inconveniences, faults or accidents, to launch emergency recovery operations, to provide first aid to people, to launch the manoeuvres for evacuation of people in the hoist.

The employees in charge of running the hoist should be trained and educated by the installation company or by the maintenance company.

The instructions and training should be appropriate for the specific plant and regularly updated.

The installation company declines any responsibilities from accidents or damages caused by use of the hoist by personnel that has not undergone training.

6 Use - interface with the operator

ATTENTION! It is necessary to take back the lift to the floor level when the wind blowing speed is faster than 72km/h.

Use of the Hoist may be characterised by two different conditions of use:

NORMAL

MAINTENANCE

These two types of use can be summarised as follows:

6.1 Normal

The Hoist is controlled from inside the cabin fitted with "FLOOR CALL" push-button (to reach the desired floor) and from the floors using the hoist call buttons.

- ✓ **From the cabin panel**

Once in the cabin, use the "FLOOR CALL" buttons to start the ride. The hoist will automatically stop to the desired floor. Then the cabin door and the landing floor door will be unlocked[2];

In case of need - to interrupt the ride of the hoist - press the STOP button;

- ✓ **From the floors**

The hoist call buttons can be found on each floor;

The call from each floor is delayed compared with the cabin command.

6.2 Maintenance

The Hoist can also be controlled - during installation/maintenance - from a remote panel (connected to the connection electrical panel on top of the cabin).

During installation/maintenance procedures the hoist is controlled only by means of the remote panel; No floor calls are allowed.

The remote panel allows only to rise and descent with "man present" push buttons (no automatic runs to the floors).

ATTENTION! During installation/maintenance:

Make sure that the hoist is not controlled at the same time by the ground panel;

Affix a sign indicating: "MAINTENANCE UNDERWAY DO NOT TOUCH";

Before moving the Hoist the operator must make assure the absence of people in risk areas and should constantly maintain total vision of the movements commanded;

In the event of an emergency an emergency button is available;

In the case of intervention of a safety device (emergency stop, blocking of the doors, end stop, thermal brakes etc.) in order to restore normal operation of the hoist, the running button should be pressed.

ATTENTION! Once the board has been opened, the light and plug circuits remain in tension.

In order to split these circuits act on the relative switch;

In order to carry out the parachute re-arming procedure, the panel should be opened, the board switch should be rearmed, restore the gear to provide tension to the motors and act

on the key switch located internally. For the operative indications, refer to the paragraph related to the parachute brakes.

In the event of intervention to one of the magneto-thermal switches or differentials, open the board and try to rearm them by moving the hoist to the first possible floor. Call the maintenance company in order to check the reason for the fault.

In the case of intervention of a safety device (emergency stop, blocking of the doors, end stop, thermal brakes etc) in order to restore normal operation of the hoist the gear switch should be pressed.

ATTENTION! Restoring running may be dangerous. Before restoring normal running, the following should be performed:

Check that there is nobody in any of the dangerous areas; identify the cause and undertake all necessary action in order to restore the normal status of the plant.

If it is not possible to identify and eliminate the cause, contact the maintenance company.

6.3 Control panel (inside the cabin)

✓ **Manual controls and pilot-lights**

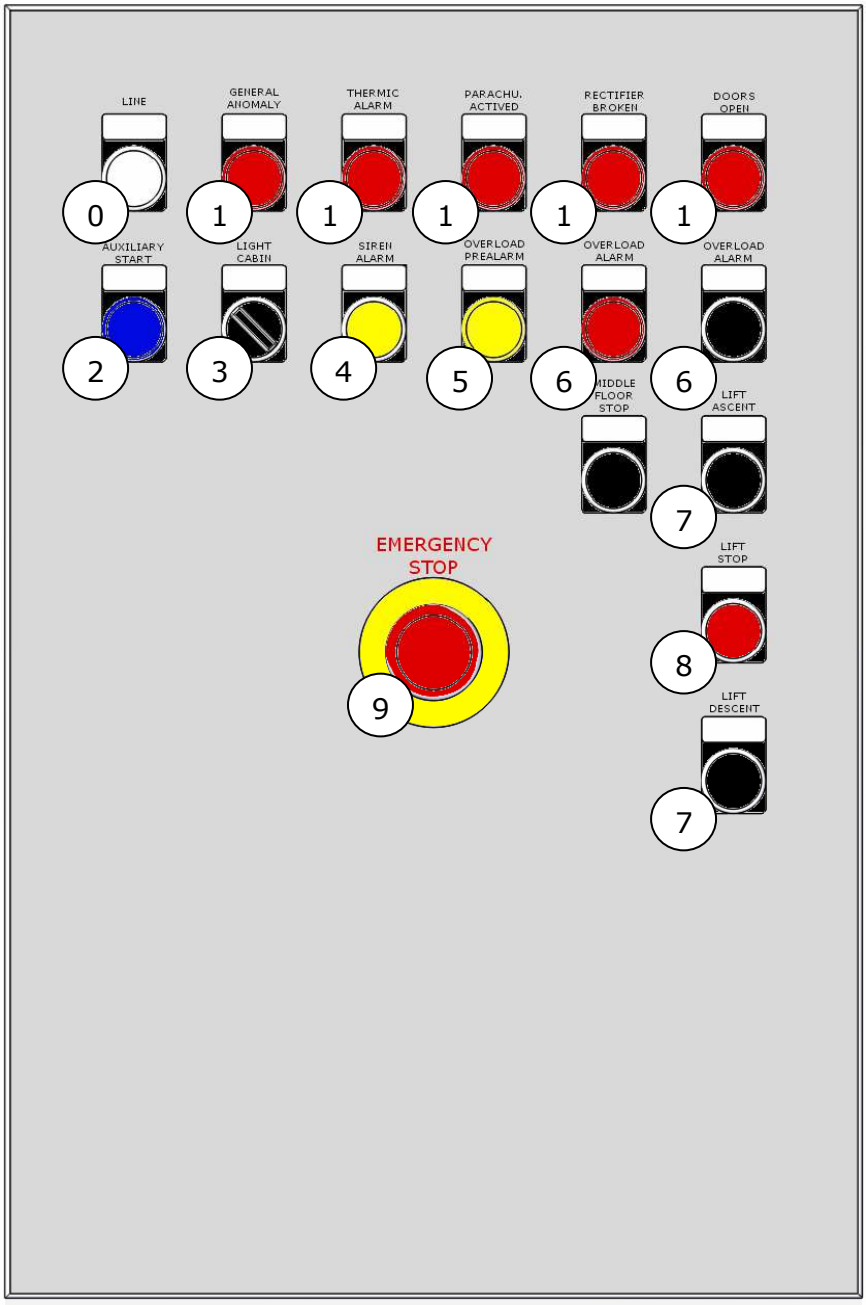


FIG. 12: Box frontal panel

Nr.	*Description*
0	*"WHITE" light for secondary tension on the electrical box*
1	*"RED" light for anomalies (emergency brake, brake rectifier, etc.)*
2	*"BLU" push button for start*
3	*Cabin light selector*
4	*"YELLOW" push button for siren*
5	*"YELLOW" light for overload pre alarm*
6	*"RED" light for overload alarm & acoustic alarm*
7	*"BLACK" automatic push buttons for floors*

8	*"RED" push button for stop*
9	*"RED" push button for emergency*

TAB. 12: Box frontal panel elements

6.4 Ground floor button panel

Positioned on the ground fence, close to the access doors. Fitted with:

- ✓ **Manual controls and pilot-lights**

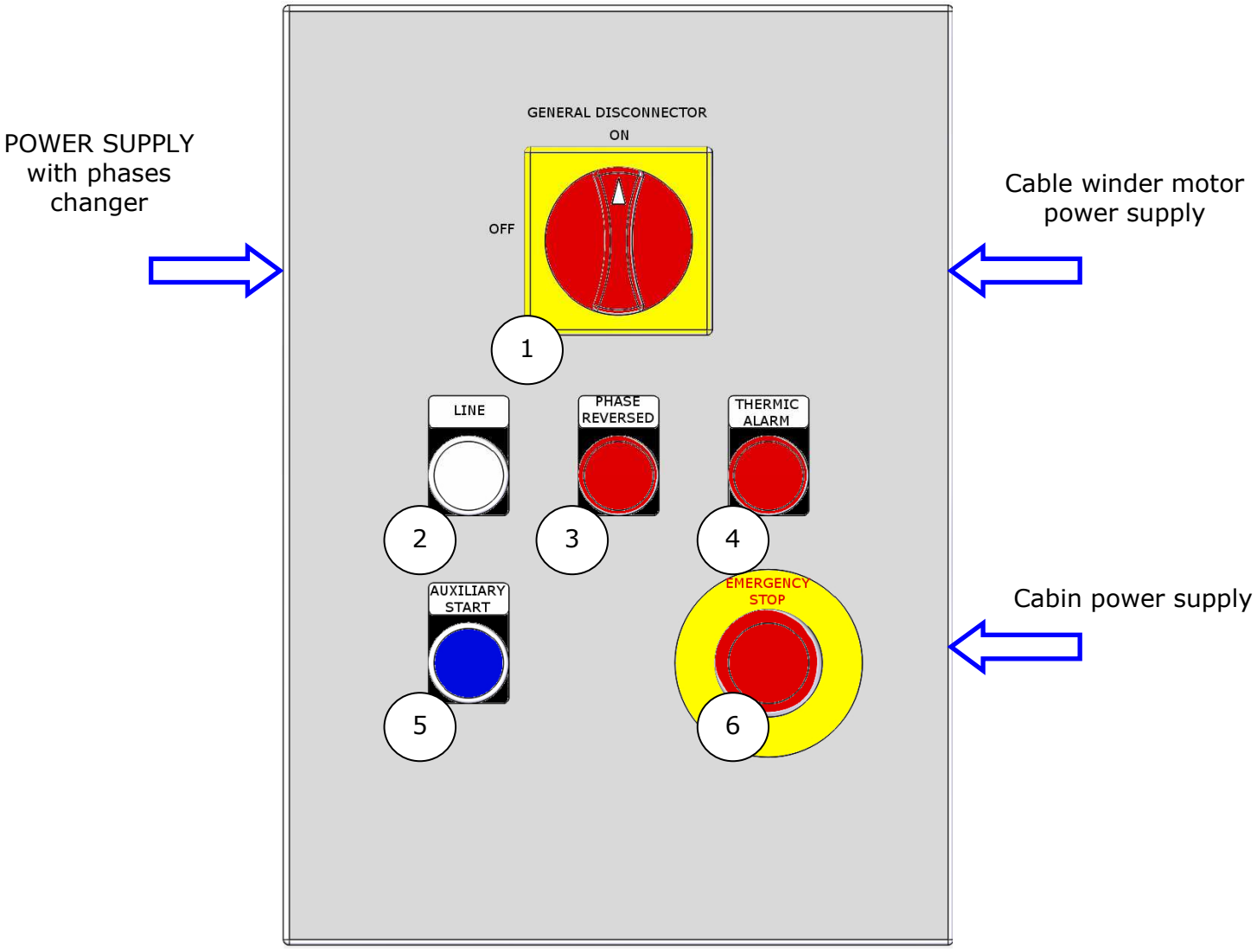


FIG. 13: Ground floor button panel

Nr.	***Description***
1	*General disconnector (lockable)*
2	*"WHITE" light for secondary tension on the electrical box*
3	*"RED" light to indicate wrong phases coming into the panel. (SWICH PHASES IN THE PLUG)*
4	*"RED" light for cable winder thermic alarm*
5	*"BLU" push button for start*
6	*"RED" push button for emergency*

TAB. 13: Ground floor button panel elements

6.5 *Landing floors button panel*

Positioned on each floor, close to the access doors. Fitted with:

- ✓ **Manual controls and pilot-lights**

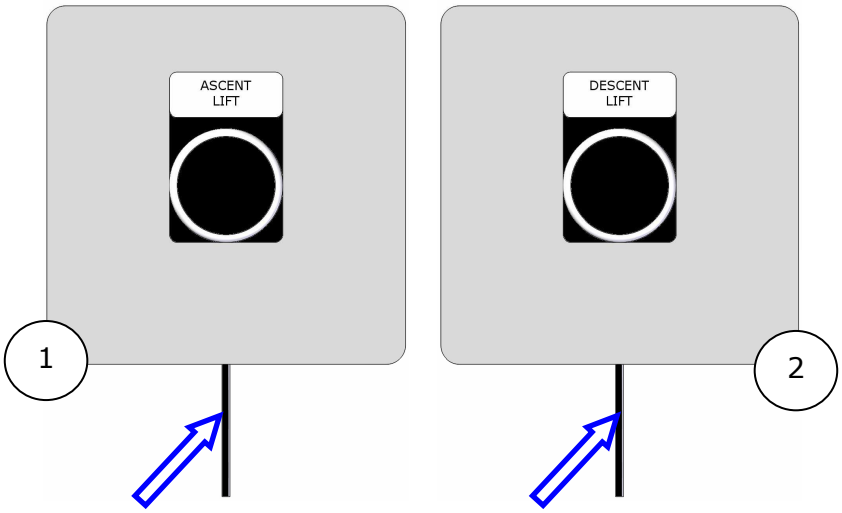


FIG. 14: Landing floor button panel

Nr.	*Description*
1	*"CALL" button for top floor*
2	*"CALL" button for ground floor*

TAB. 14: Landing floor button panels

For a detailed description of main internal components, please refer to the attached electrical drawing and the specific "USER MANUAL" for the electric circuit.

ATTENTION! DO NOT DAMAGE THE WIRE POINTED OUT IN THE FIGURE. That is the transmitter antenna.

6.6 Maintenance panel

The remote panel can be inserted into the connecting panel (on the roof of the).

The connection of the remote panel, automatically enables the manual mode.

The upward and downward commands are with MAINTAINED ACTION.

Manual controls

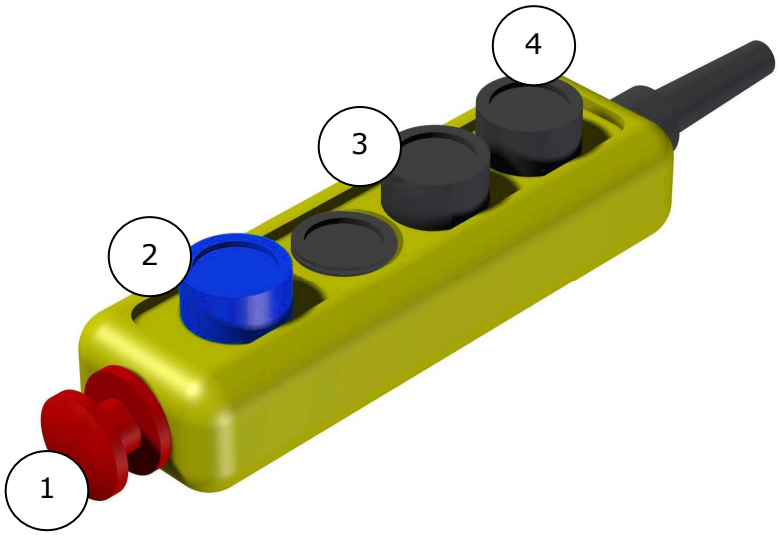


FIG. 15: Maintenance panel

Nr.	*Description*
1	*"RED" push button for emergency*
2	*"BLU" push button for start*
3	*"BLACK" push button for descend*
4	*"BLACK" push button for rise*

TAB. 15: Maintenance panel elements

For a detailed description of main internal components, please refer to the attached electrical drawing and the specific "USER MANUAL" for the electric circuit.

6.7 Safety devices & emergency manoeuvers

✓ Emergency brake

This hoist is equipped with a progressive centrifugal parachute brake, with over speed detection device.

This emergency brake arrests the hoist if its speed overcome the nominal travelling speed (due for example to a failure on a transmission component).

After the parachute brake has triggered (and after having verified the cause of its intervention), it must be released to reset its running.

The parachute brake can be released pressing the light BLUE button "AUXILIARY RELAYS RESETTING". While executing these operations, the RISE of the hoist will be forced and the brakes

released by-passing the inverter which is not working because the voltage is off (the triggering of the parachute brake makes the emergency circuit open). When the brake goes up, it automatically resumes its run and is ready for another possible intervention.

- ✓ **DROP-TEST**

ATTENTION! The test should be carried out in the absence of people in the cabin.

The DROP-TEST operation is only possible by connecting the DROP-TEST remote panel to the connecting box.

Connecting it to the panel on the roof of the cabin allows only up and down movement for hoist installation and maintenance operations.

To enable the testing operations to the parachute brake (to be carried out only by technicians specifically trained for this purpose) turn the selector to the "DROP-TEST" position.

At this point - by pressing the down button - only the motor brake will be opened and the free fall of the hoist will follow until the parachute brake triggers.

When the parachute brake triggers, the whole system will enter into an emergency condition. To reset the system, restore the parachute brake by carrying out the aforesaid operations.

7 Maintenance

7.1 Introduction

Periodical maintenance is necessary to maintain the hoist and its accessories in good condition for purposes related to a safe use.

Therefore all of the obligations and methods to be performed for correct maintenance are listed below.

7.2 Obligations of the owner of the plant

The owner should keep the plant in conditions of safe operation. In order to do this the owner should use the services of a qualified maintenance service. The maintenance company should have an adequate and sufficient insurance cover.

The owner of the plant should comply with every possible normal action or other regulation, whenever relevant, and relative implications on maintenance.

The owner of the plant should performed programmed maintenance, at the latest when the plant has been set-up or when the plant is stopped for a long period of time before being set-up for the first time.

The owner of the plant should maintain the two-way communication device in an efficient manner and connected with a 24 hour assistance service for the entire period in which the plant may be used.

The owner should close the hoist when the two-way communication device is not in working order.

The owner should close the hoist in the case of dangerous situations.

The owner of the plant should inform the maintenance company in the following cases:

- Immediately if he notices any possible fault to the plant or in the case of an unusual change in the environment directly connected with the plant;
- Immediately after having stopped the plant in the case of a dangerous situation;
- After every form of intervention performed by trained and authorised personnel;
- Before any modification related to the plant and/or the surrounding environment or use.

The owner of the plant should receive relevant maintenance instructions from the company carrying out the modifications to be given to the maintenance company :

- Before any inspection or job, other than maintenance, is carried out on the plant by third parties ;
- Before stopping the plant for an extended period;
- Before setting up the plant after an extended period of time in which it was out of order.

The owner of the plant should consider the consequences of risk assessment performed by the maintenance company.

The owner of the plant should make sure that risk assessment for maintenance is performed:

- If the maintenance company has been replaced;
- If use of the building and/or of the plant has changed;
- After an important modification to the plant or to the building;
- If after an accident that has involved the plant:

The owner of the building must guarantee, through risk assessment, that:

- the premises are safe and do not have any risks on health in as far as is possible. This includes access to the building and to the equipment of the plant, as well as work

materials and the substances used, in accordance with regulation related to use of the equipment in working areas;

- People that use the buildings are informed on residual risks;
- Every activity to be performed as a consequence of its risk analysis has been completed.

With regards to access routes to the areas reserved to maintenance personnel, the owner of the plant should inform the maintenance company in particular with regards to:

- The access routes to be used and the evacuation procedures of the building in the event of a fire;
- The place in which the access keys to the reserved areas can be found;
- If necessary, the people that should accompany maintenance personnel to the plant;
- If necessary the individual protection devices to be used in the access routes and, possibly, where they are located.

The information should be available on site for the maintenance company;

The owner of the plant must guarantee that the name and telephone number of the maintenance company are always available for the user of the plant, affixed in a permanent way and clearly visible;

The owner of the plant must guarantee that the keys to the doors and to the trap doors are permanently available in the building and are only used by personnel authorised to gain access;

The owner of the plant must guarantee to the maintenance company involved in saving people, in every circumstance, safe access to the building and to the plant;

The owner of the plant should maintain access to the working areas and to the working premises so that they are safe and free for maintenance personnel and should inform the maintenance company of every possible danger or change in the areas and/or in the access routes (illumination, obstructions, conditions of the land etc);

The owner of the plant should regularly, in his own interests, carry out the controls and tests entrusted to the maintenance company:

- A complete upward and downward run in order to assess every change in the quality of the run or damages to the equipment;
- A control on the following elements in order to check that they are in position, not damaged and in correct working order:
- Floor doors and lower guides of the doors;
- Precision in the stop at each floor;
- Indicators that they are not in reserved areas;
- Floor buttons;
- Cabin buttons;
- Normal illumination of the cabin;
- Door opening device;
- Emergency stop buttons;
- Safety signals and pictograms.

7.3 Risk assessment

The owner of the plant and the maintenance company, each one within the field of his own competence, should carry out a RISK ASSESSMENT for every maintenance and assistance operation, according to the working area including all access routes.

For this objective the following should be taken into consideration:

- The presence of one or more operators involved in maintenance in a working area;
- Planned action by people other than those in charge of maintenance (for example people that open or close power circuits or connected circuits or lighting circuits or those who try to use the plant during maintenance operations etc.).
- Possible conditions of the plant (normal or abnormal due to predictable faults to its components, external disturbances, disturbances in energy distribution etc.).

Maintenance operations refer to:

- The operations considered necessary for correct and safe use of the plant and of its components, after completion of the installation;
- The operations considered necessary during the "life" of some components, defining , in as far as is possible, the time and conditions after which operation or the integrity of the component are no longer guaranteed, even if they have undergone correct maintenance.

7.4 Marking, signs, pictograms and written notices

If risk assessment performed by the maintenance company indicates that further specific notices are required for execution of maintenance, they should be fixed directly to the plant/component or, if this is not possible, in the area immediately close by.

Markings, signs, pictograms and written notices should be immediately understandable and clear. Signs and pictograms immediately understandable should be preferred to written notices.

Signs or written notices indicating only "DANGER" should not be used.

The information applied directly to the plant/component should be permanent and legible.

Every marking, sign, pictogram and written notice applied to the plant should be replaced if they are illegible.

The written notices should be prepared in the official language of the country in which the plant is installed.

7.5 Information regarding safety

All maintenance operations should be carried out with the hoist lowered down.

Do not stay under the elevator.

When carrying out maintenance operations give the utmost possible attention to objects (utensils etc.) left on the hoist and not adequately fixed.

Maintenance operations should be carried out by suitably trained personnel, who have experience on similar types of machines and who can operate in total safety because they know the risks associated to such machines. In case of doubts on the operations to be carried out, contact the Manufacturer technical department.

For what might not have been mentioned in this section concerning maintenance operations and their accomplishment in safety conditions, contact the Manufacturer.

ATTENTION! Immediately remove any faulty hoist from service.

It is compulsory to repair all failures or malfunctioning before using the platform.

The operator should point out any problem found on the machine to the person in charge of controls and maintenance and, in the event of an operator change, to the new replacement.

The person in charge of maintenance should wear the IPD's identified in the risk assessment by the maintenance company and in particular; protection helmets, accident prevention shoes and gloves.

7.6 Preliminary and periodical controls

After the set-up of the Hoist, controls and regular tests should be carried out to make sure that the hoist is in good conditions.

These controls and regular tests should be performed as indicated below.

The controls and regular tests should not be stricter than the ones requested before the Hoist was set up for the first time.

These periodical tests should not, due to repetition, cause excessive degradation or impose pressure so as to reduce the safety of the Hoist.

This, in particular, is the case of the components test such as the parachute or the buffers.

These components, if subject to tests, should be performed with an empty cabin and at a limited speed.

The person in charge of the regular tests should make sure that these components (that do not work during normal service) are still in working order at the end of the test.

A copy of the test report should be attached to the leaflet or to the book.

For the perfect operating of the hoist and for a long duration of it, carry out periodical checks, verifications and maintenance operations as specified here to follow:

- ✓ **Visual controls before the start of work**

Check:

The guiding rollers;
Hoisting pinions;
State of preservation of the control shafts;
Fixing screws.

- ✓ **Elements that require regular lubrication**

Parts	***Lubricant***
Rack	*Grease*
Connection screws	*Grease*
Speed reducer	*Oil*
Parachute brake	*Grease*

TAB. 16: Mechanical elements and relative lubricants

With regards to maintenance of the adapter, it is sufficient to check the oil level and replace it after 10,000 hours of service or every two hears. If synthetic lubricants are used, the lubrication interval may be doubled, therefore 20,000 hours or every four years.

ATTENTION! Do not mix synthetic lubricants with mineral oils.

- ✓ **Weekly controls**

Check that none of the screws of the electric engines, reducers, flanges and frames are broken or loose;
Check that the gasket blocking screws of the structure are not loose or broken;
Check that the teeth of the control shaft are not broken or do not have any reasons for lack of safety during normal engagement and sliding of the pinions;
Check that the supports are not broken in any way;
Check that the end stop devices are in the right position;
Check the integrity of the power cable.

✓ Regular controls

Carry out these controls every 4 to 6 months. They refer to the following parts or elements in order to check their condition of wear.

Structure:

- Welded parts.

Electric installation:

- Check the state of efficiency all over the equipment and in particular on the power cables. A leaflet should be created for controls, indicating the controls and intervention performed.

✓ Controls after important modifications or after accidents

After important modifications or after an accident, controls and tests should be carried out to make sure that the hoist is still compliant with relative norms.

These controls and tests should be carried out as indicated below.

Important transformations and accidents should be registered in the technical part of the leaflet or book.

In particular the following are considered as important transformations:

Changes:

- Of nominal speed;
- Of capacity;
- Of the mass of the cabin;
- Of the run.

Changes or replacements :

- Of the type of blocking devices (replacement of a block device with another one of the same kind it not considered as an important transformation);
- Of the electrical manoeuvre boards ;
- Of the guides or the type of guide;
- Of the type of doors (or addition of one or more doors or cabins);
- Of the cabin;
- Of the buffers;
- Of the parachute.

For tests to be performed after an important change or after an accident, the documents and information necessary should be sent to the person or to the authority in charge.

This person or this authority will judge the opportunity of submitting the modified or replaced elements to tests.

These tests will be the ones requested for the original elements before the set-up of the hoist.

7.7 List of the maintenance controls

The following table indicates the list of regular maintenance controls.

Type of control	Activity description
General	Check that all of the components are clean and do not have any dust and corrosion
The hoist shaft pit	Check that the pit area is clean, dry and does not have any waste
Buffers	Check fixing.
Electric engines	Check the state of wear of the bushings and sleeves Check lubrication
Pinion and Rack	Check the state of wear of the gears
Brakes	Check the brake system Check the braking parts for wear Check the precision of the stop
Electric panels	Check that the cabinet is clean, dry and dust free
Parachute brake	Check fixing Check free movement Check the wear of the pinion Check operation Check electrical contacts
Tower and guide of the cabin	Check fixing
Guide runners of the cabin	Check the wear of the runners and the rolls Check fixing Check lubrication whenever necessary
Electric wires	Check insulation
Cabin	Check emergency illumination, the switches of the cabin Check fixing of the panels
Floor doors	Check operation of the blocking devices of the floor doors Check that the doors slide freely Check the guides of the doors Check the clearance of the doors Check the emergency release device of the door Check lubrication
The cabin door	Check the closing or blocking contact Check that the doors slide freely Check the guides of the door Check the clearance of the doors Check the device of the door for passenger protection Check lubrication
Floor levelling	Check the precision of the stop
Stopper switches	Check operation
Electrical safety devices	Check operation Check the electrical safety chain Check that the fuses are suitable for the circuit to be protected
Emergency alarm device	Check operation
Command and signals on each floor	Check operation
Illumination of the stopper	Check operation

TAB. 17: Regular inspections

7.8 Maintenance of the self-braking groups

It is sufficient to keep the air cooling circulation channels clean and check the bushings. Should the bearings be replaced, use only high temperature resistant grease (Esso Unirex N 3).

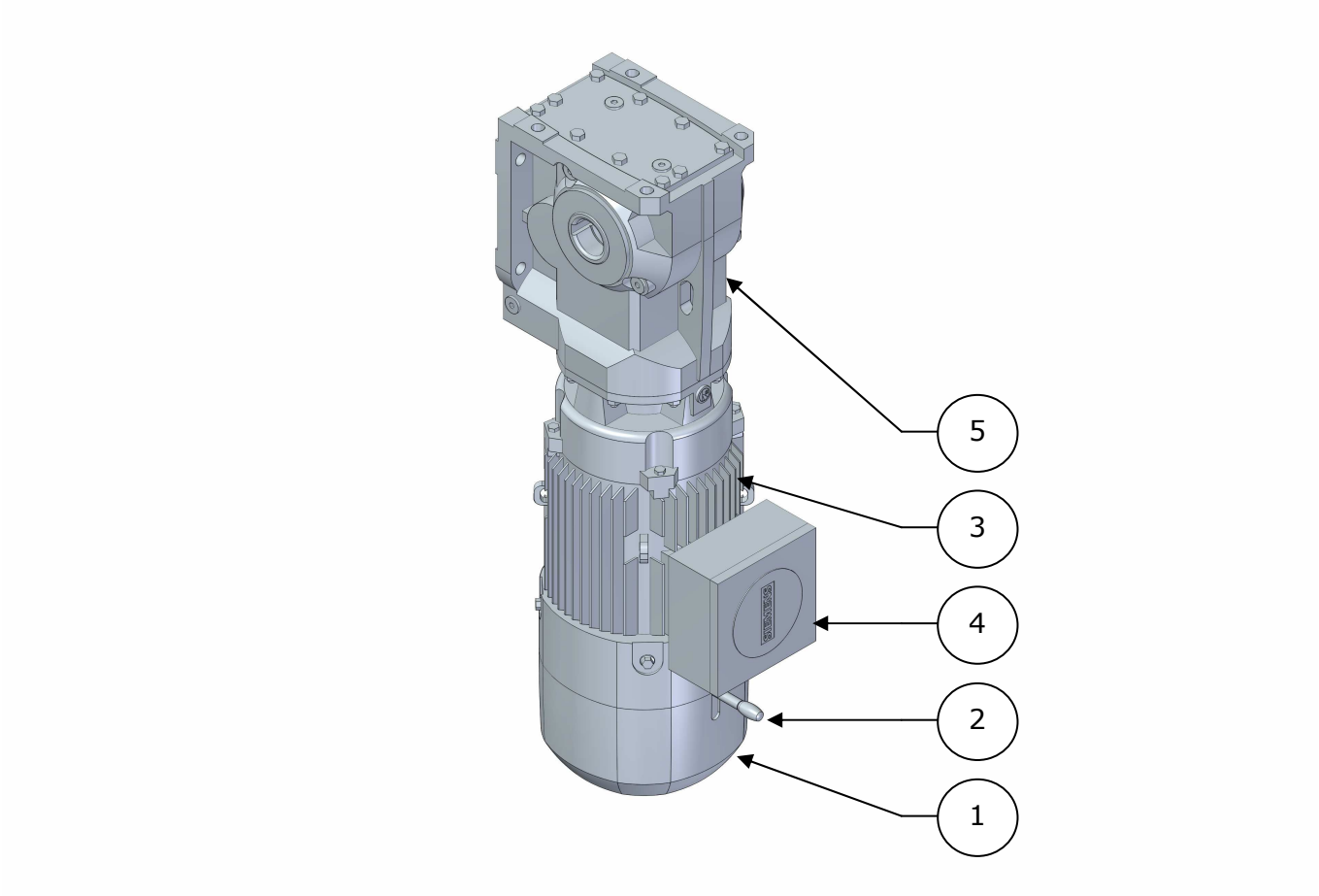


FIG. 16: Gear-motor

Nr.	Description
1	Electro-magnetic brake
2	Release lever
3	Electric motor
4	Terminal box
5	Reducer

TAB. 18: Gear-motor elements

✓ Maintenance operations

As to the maintenance of the speed reducers used, take into account that:

- After the first setting at work of the reducer, change the oil after 10,000 hours of operation, anyway not later than after 3 years;
- Subsequent oil changes must always be carried out with the same time intervals;
- Check the oil level inside the reducer at least once a month, verifying this way the normal operating conditions of this component;
- Due to not such an important use, mineral oil with a level of viscosity of CLP PG VG220 is recommended, suitable for use in temperatures from -20°C to 50°C (±10°C);

ATTENTION! For the oil change it is very important to use the same type of oil used before. Different kind of oils must not be mixed up. Different kinds of oils must not be mixed up. If synthetic oil is used instead of mineral oil, or synthetic oil of any kind to any other kind of oil, carefully wash the transmission with the type of oil!

- Clean the blow-off plug at least once every 3 months to check its perfect working order.

7.9 Parachute brake maintenance

The parachute brake is an emergency device that intervenes during descent when the machine exceeds its nominal speed (this event only occurs in unusual cases and is due to breakage of the transmission elements).

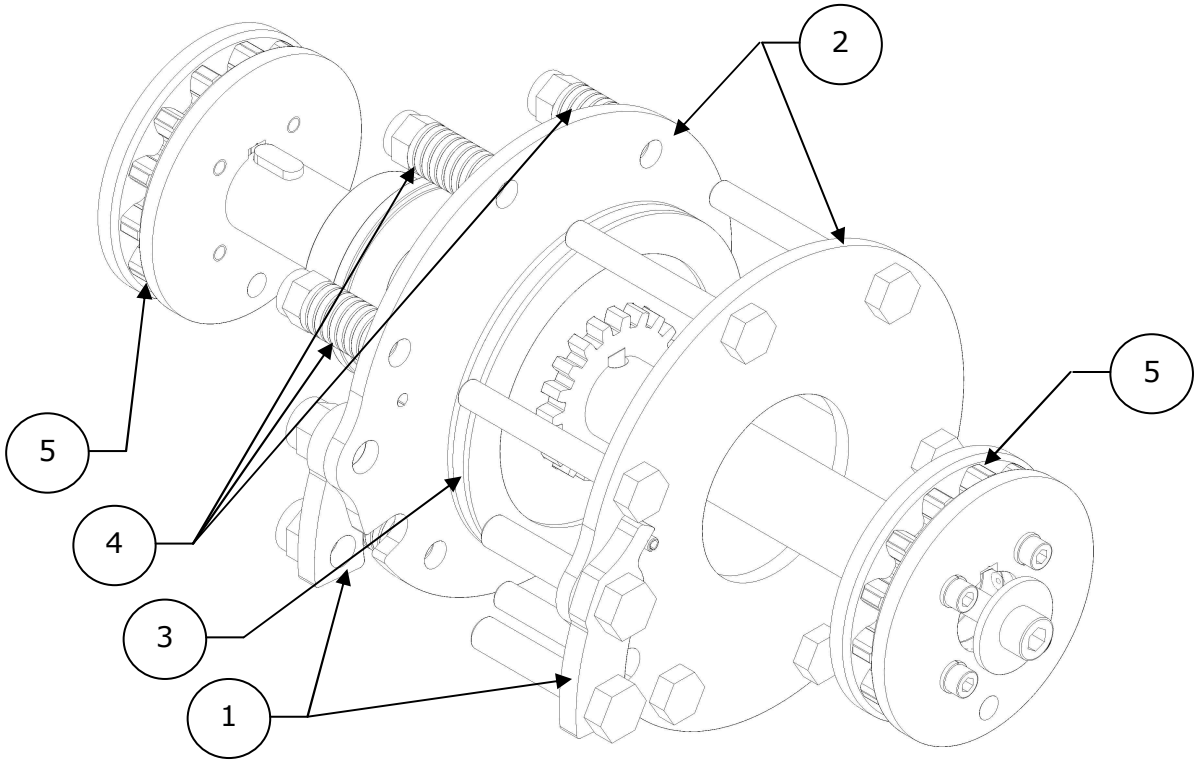


FIG. 17: Parachute brake for crane operator hoist applications (single disk version)

In this case the centrifuge mass (1) expands, it fixes itself to metal plate welded on the frame of the lift and causes the stop of the external flange (2). The brake disk (3), by the relative grooves, continues to move until the pressure between the two external flanges, due to the springs (4), causes the stop of the brake disk and of the pinions (5).

The space for stopping is determined by the compression of the springs adjustable through the special screws.

The expansion force of the centrifugal mass at the pre-set speed is determined by a spring.

Description	Nr.	Dimensions
Centrifugal mass	1	-
Spring series « UNI 8737-B GR2 » (diameter)	4	10.5mm
Brake disk (diameter)	3	131.5mm
External flange (diameter)	2	190mm
Pinion (primitive diameter)	5	84mm

TAB. 19: Components of the parachute brake

For further safety, the specific end limit is connected with the parachute brake that intervenes by disabling any further descend operation as soon as the brake is operated.

✓ Maintenance operations

As far as the maintenance operations on the parachute brake are concerned, always remember that it is supplied sealed and therefore cannot be tampered with for any reason. It is supplied already regulated for specific use.

ATTENTION! The parachute brake has to be maintained at least once in a year. Only qualified personnel, AUTHORISED by the Manufacturer may perform maintenance on the parachute brake.

Should there be any malfunctions, immediately contact the personnel assigned to maintenance operations.

Have greasing of the brakes performed just once every 3 or 4 months!

✓ Resetting procedure

Power is never cut off completely, for that reason in order to reset the parachute, the hoist needs to rise, restoring - after a short rise (about 200mm)- the parachute brake);

Operate as usual for the elevator using.

This operation should only be carried out by qualified personnel after having checked the reasons for intervention of the brake.

✓ Intervention check - Drop-test

Insert the relative pushbutton panel into the cabin;

Move the Hoist to a floor ;

Make sure that nobody is in the cabin;

Using the pushbutton panel to make the hoist rise by approximately 2.5 metres;

Use the Drop test pushbutton panel to allow the hoist to fall until the parachute intervenes;

In order to release the brakes, allow the hoist to rise and take it back to a floor;

Disconnect the pushbutton panel and restore normal operation.

7.10 Maintenance to the safety devices

The safety devices listed below should be covered by maintenance according to the indications of the Manufacturer, attached to this manual:

A stopping device in the pit, on the roof and on the ground;

A blocking and closing control device of the door on each floor and the cabin;

An inter-blocking device of the trap door of the roof of the cabin;

A parachute device;

An end stop device;

Extra run devices;

Buffers;

An overload device.

8 Safety plan - rescue operations

The Owner of the plant and the maintenance company, each according to their own competence, should prepare an EMERGENCY PLAN or procedures to rescue people trapped in the cabin.

Indications are provided below in order to prepare this emergency plan.

8.1 In the event of absence of electricity

✓ **The hoist does not go up or down**

Check that the protection switches of the ground panel have not intervened.

In this case the person in charge of running the cabin should launch the manual emergency descent procedure, by releasing the brakes of the engines acting on the relative levers.

The descent movement should occur at a reduced speed and in sections so as not to overheat the brakes or activate intervention of the parachute.

Stop the cabin when it reaches the closest floor door;

Use the release key to open the door of the cabin (from inside);

Open the landing door (from the outside);

Evacuate everybody in the cabin and close the doors using the key.

ATTENTION! Always close the doors at the floor level.

Put the lift out-of-order by turning the switch to the "0" position and contact the maintenance company in order to restore normal operation.

ATTENTION! With the switch of the panel in the "0" position, the light and plug circuits of the pit are still activated.

8.2 In the case of intervention of the parachute brake

Intervention of the parachute brake may occur due to a fault in operation of the brakes or due to breakage of the engine shafts.

✓ **Intervention of the parachute due to breakage of the engine shafts**

In this case, very rare, the lift is blocked and the maintenance company should be contacted in order to restore the fault.

The function of parachute rearming from the control panel does not work as the engines cannot lift the machine.

Contact the maintenance company.

Rescue may only by performed by the maintenance company or by the Fire Brigade and should occur, for example, using the following procedure:

Wear a body harness against falls;

Fix the harness to the cord of a retractable device;

Connect the retractable device cord, of the floor immediately above the cabin, capable of supporting, in the case of a an arrest, a power of 12kN (1200kgf);

Use the relative key to open the floor door making sure that you do not fall into the unit;

Using ladders to be supported on the roof of the cabin, protected by means of body harnesses, move down inside until reaching the cabin.

If passengers are not injured, ask them to wear the body harnesses connected with the retractable device cord so that they can be evacuated using the ladders, allowing them to move one by one up to the roof of the cabin.

If passengers are injured, first aid should be provided and, if urgent, they should be immediately rescued using a stretcher with safety belts and suitable hoisting systems.

8.2..1 Intervention of the parachute for anomalies to the brakes

In this case launch the parachute rearming manoeuvre from the roof of the cabin by lifting the machine until exceeding by 2.5 metres the limit of the floor immediately above;

Leaving the rearming command, the machine will fall rapidly until the parachute intervenes;

Check that the cabin does not stop too much below the limit of the floor (max. 0.5m);

Open the doors of the cabin and the floor using the relative key in order to save passengers;

Contact the maintenance company;

If the cabin is in a position close to the last floor and therefore it is not possible to go upwards, use the rearming key to move the lift upwards as much as possible in order to release the parachute and allow the cabin to fall. Repeat this operation until the floor immediately below is reached;

If the rearming command (the same as the upward command) is given at regular intervals, the descent may be stopped without having the intervention of the parachute.

8.3 In the event of illness or injury of the person in charge of the cabin

The person in charge on the ground should contact the passengers using the interphone system, providing them with indications for normal manoeuvre or in an emergency of the lift;

In the absence of conscious people in the cabin, the maintenance company and/or Fire Brigade should be contacted;

Even in the case of the contemporary absence of power, the maintenance company and/or Fire Brigade should be contacted.

Rescue may only be performed by the maintenance company or by the Fire Brigade and should be carried out, for example, using the procedure indicated in the previous paragraphs.

8.4 First aid to people in the pit

For first aid to people in the pit, using the resetting parachute command lift the cabin, push the emergency button on the ground panel and use the releasing key to open the door on the ground floor.

9 Marking

Tables must be easily read and fixed to the machine in a permanent way.

Here to follow the list of the provided tables and pictures with indications of their positioning on the machine:

Identification plate located on the engine unit.

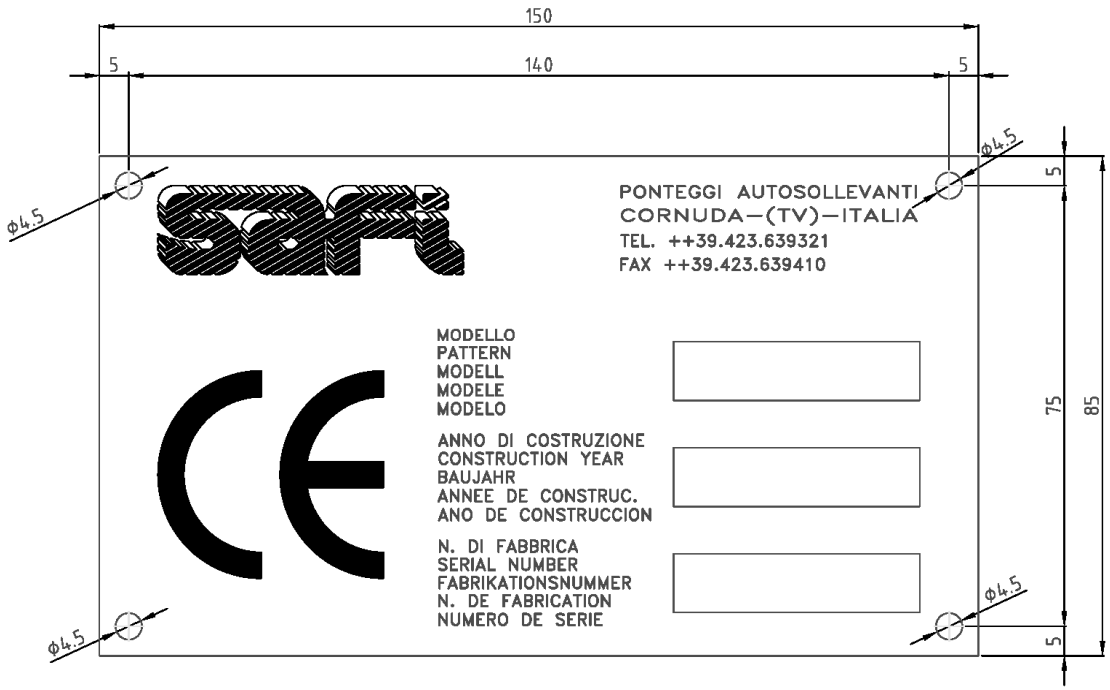


FIG. 18: Identification plate

10 Register of controls performed on the lift

✓ **Instructions on how to use the register**

These instructions are supplied according to the known provisions at the date the machine was put on the market.

New provisions may intervene and modify the user's obligations.

The register is given for the purpose of annotating, according to the proposed layout, the following events that regard the operational life of the lift:

Date of Delivery to the first user;

Transfer of ownership rights;

Controls effected after machine installation;

Replacement of motors, mechanisms, structural elements, electric components, safety devices and other components;

Breakdowns of a certain degree and relative repairs;

Regular controls foreseen by maintenance.

If the pages of the register are insufficient, add the necessary pages according to the procedures indicated. The user must indicate on the added pages, the platform type, the serial number registered and the year of manufacture.

Added sheets will form integral part with this Register.

✓ **Preservation Instructions**

This register of controls is considered as part of the machine and must go with it for the duration of its lifespan, until it is out of service and dismantled.

10.1 Delivery to the first owner

Machine ownership			
Registration Nr.		*Year of manufacture*	
SAFI *declares that it has delivered the machine and all the necessary documentation of the same (instructions manual)*			
On (date)			
To (company)			
According to the provisions of the sales contract (technical characteristics, dimensions and specified functions).			

10.2 Transfer of ownership rights

Ownership transfer			
Registration Nr.		*Year of Manufacture*	
Date			
The property of the said machine transferred to the company			
We declare that the technical characteristics (dimensions, capacity, …) conform to the original provisions and all variations hereafter have been annotated on this Register			
The seller (stamp and signature)		*The buyer (stamp and signature)*	

Ownership transfer			
Registration Nr.		*Year of Manufacture*	
Date			
The ownership of said machine is transferred to the company			
We declare that the technical characteristics (dimension, capacity, …) conform to the original provisions and that all variations hereafter have been annotated on the Register			
The seller (stamp and signature)		*The buyer (stamp and signature)*	

10.3 Mechanism replacements

Mechanism replacements			
Date		*Description of components*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

Mechanism replacements			
Date		*Description of components*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

Mechanism replacements			
Date		*Description of components*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

Mechanism replacements			
Date		*Description of components*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

10.4 Replacement of structural elements

Replacement of structural elements			
Date		*Description Of element*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

Replacement of structural elements			
Date		*Description Of element*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

Replacement of structural elements			
Date		*Description Of element*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

Replacement of structural elements			
Date		*Description Of element*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

10.5 Replacement of electric components

Replacement of electric components			
Date		*Description of element*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

Replacement of electric components			
Date		*Description of element*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

Replacement of electric components			
Date		*Description of element*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

Replacement of electric components			
Date		*Description of element*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

10.6 Replacement of safety devices

Replacement of safety devices			
Date		*Description of element*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

Replacement of safety devices			
Date		*Description of element*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

Replacement of safety devices			
Date		*Description of element*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

Replacement of safety devices			
Date		*Description of element*	
Manufacturer		*Supplied by*	
Cause of replacement			
Director of company assigned to effect replacement		*The User*	

10.7 Serious breakdowns and relative repairs

Serious breakdowns and relative repairs			
Date		*Description of breakdown*	
Repairs			
Possible replacement			
Director of company assigned to effect repair		*The User*	

Serious breakdowns and relative repairs			
Date		*Description of breakdown*	
Repairs			
Possible replacement			
Director of company assigned to effect repair		*The User*	

Serious breakdowns and relative repairs			
Date		*Description of breakdown*	
Repairs			
Possible replacement			
Director of company assigned to effect repair		*The User*	

Serious breakdowns and relative repairs			
Date		*Description of breakdown*	
Repairs			
Possible replacement			
Director of company assigned to effect repair		*The User*	

10.8 Periodical Inspections

The assigned personnel and technicians - mechanical and electricians - have the obligation to respect the maintenance and control plans specified in this manual of instructions and must fill in the periodical controls chart.

Nbr.	Date	Description of intervention	Signature of technician

TAB. 20: Periodical inspections

NOTES

11 Spare parts

11.1 Procedure

All the requests for spare parts, as well as any other request for information and/or clarifications on machine operations, must be addressed to:

"Customer Technical Assistance":

SAFI S.r.l.

via S. Rocco, 8 - 31041 - Cornuda - TV - Italy

tel.: +39 0423 639321 - fax: +39 0423 639410

Web site: www.safi.it - e-mail: box@safi.it

When requesting spare parts please state the following information:

Type and model of the machine;
Serial number;
Year of manufacture;
Code of the required part.

ATTENTION! Any tampering and/or replacement of components with NON-original parts - not approved by the Manufacturer - cause the automatic invalidation of the machine's guarantee.

The Manufacturer declines any responsibility for any harm caused to people, domestic animals or objects arising from the use of such components.

Events that regard the operational life of the platform such as replacement of motors, mechanisms, structural elements, electrical components, safety devices and relative components, must be registered on the special record book enclosed to the machine manual.

11.2 Spare parts list

A list of the basic data for spare part identification is given here below. As far as the electric panel's internal components are concerned (electromagnetic, thermal switches, and so on) it is recommended to consult their layout in the wiring diagrams attached to the manual.

Description		Spare code
Vertical guides		
	Vertical element	*WCEVK*
	Rack	*2.19.14.001*
	Anchorage tie for bottom mast Ø114.3	*2.19.17.009*
	Anchorage tie for bottom mast Ø133	*2.19.17.013*
	Anchorage tie for bottom mast Ø203	*2.19.17.017*
	Anchorage tie for mast Ø114.3 top tube	*2.19.17.006*
	Anchorage tie for mast Ø114.3 adjustable	*2.19.17.004*
Lifting motor group		
	Gear-motor	*RASGR/1*
	Rectifier	*BM4060*
	Electro-magnetic brake	*BM4092*
	Complete gear-motor pinion	*2.19.01.011*
	Parachute brake	*2.19.01.015*
	Parachute brake pinion	*2.19.01.011*
	Parachute brake limit switch	*BE2256*
	Contrast brake roller with pin and bearings	*2.19.01.022*
Cabin		
	Electro-mechanical door lock	*BE20142*
Landing floor		
	Mechanical door lock	*7.00.11.124*
Electrical plant		
	Complete main electrical box	*2.19.36.001*
	Complete control panel	*2.19.36.002*
	Landing floor push buttons panel	*2.19.36.003*
	Remote maintenance panel	*2.1936.004*
	INVERTER	*BEF165*
	PLC	*BE21072*
	PLC Extension	*BE21075*
	Brake resistor	*BE6060*

TAB. 21: Spare parts list