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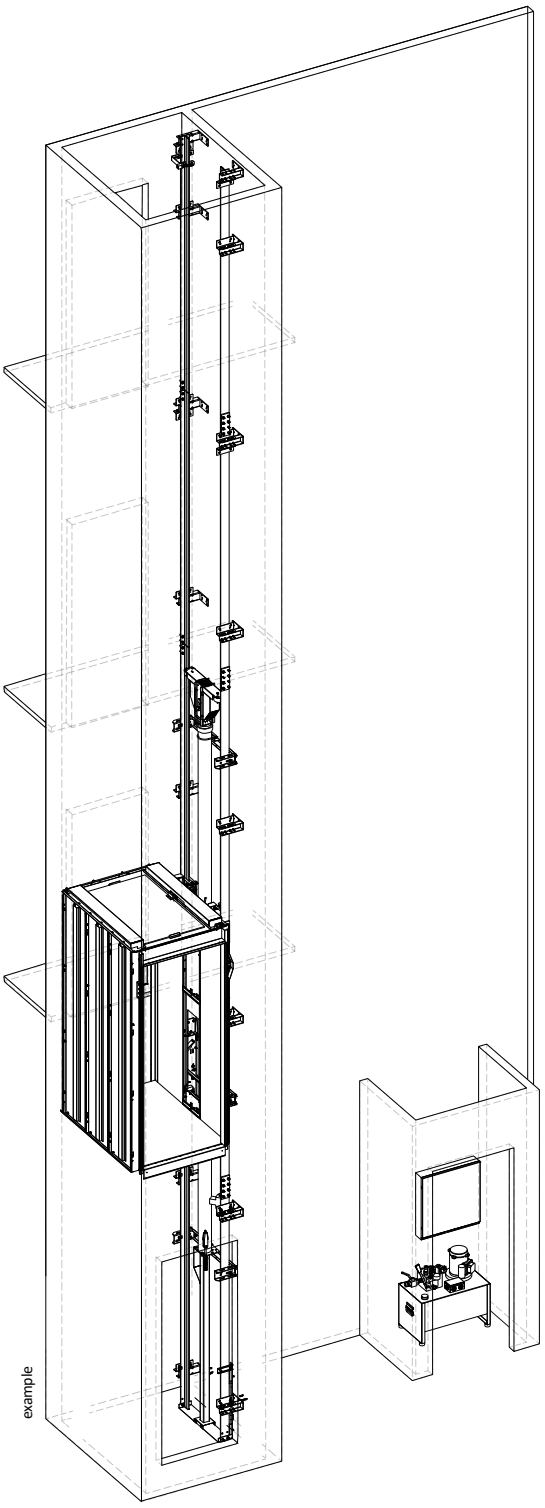
inDOMO HP

Platform lift



INSTALLATION INSTRUCTIONS

As far as the following items are concerned : general instructions, safety instructions, responsibility and warranty, material receiving and storage on site, packing, waste disposal, cleaning and maintenance, please consult the manual "**SAFETY AND MATERIAL HANDLING ON SITE**".

INDEX

13	Update pages 53, 67	05.08.2016
12	Update pages 23, 34, 47, 48, 49, 62, 66, 67, 70, 72, 73, 77	11.05.2016
11	Update pages 11, 21, 34, 40, 41, 43, 53-59, 68, Appendix	27.02.2014
10	General update and new layout	30.01.2013
9	Frame - car basement fixing - update	08.05.2012
8	General update	21.12.2011
Rev.	*Descrizione*	*Data*

0 MANUAL READING GUIDE

0.1 CHAPTER SYMBOLS

	General information		Positioning		2:1 lift specification
	Box content		Installation		1:1 lift specification
	Preliminary advice		Commissioning		
	Read carefully		Electrical Wiring		

0.2 IMPORTANT ITEMS

	General safety warning		Important notice		Read carefully
	Risk of electric shock		Risk of bodily injury (e.g. due to sharp angles or protruding parts)		Risk of damage to mechanical parts (e.g. during incorrect installation)
	Fire hazard		Hanging load		Risk of skin injury
	Risk of falling		No entry		Materials to be protected against bad weather conditions

0.3 INDIVIDUAL SAFETY DEVICES

	Hard hat		Ear protection		Safety harness and other accessories
	Overalls		Safety steel-toe boots with ankle protection		Safety glasses
	Dust masks		Work gloves Rubber gloves		First aid kit

The words **WARNING** and **CAUTION** are used to highlight the following risks of injury and damage:

WARNING	Serious danger to safety
CAUTION	Risk of damage to materials which may lead to safety risks

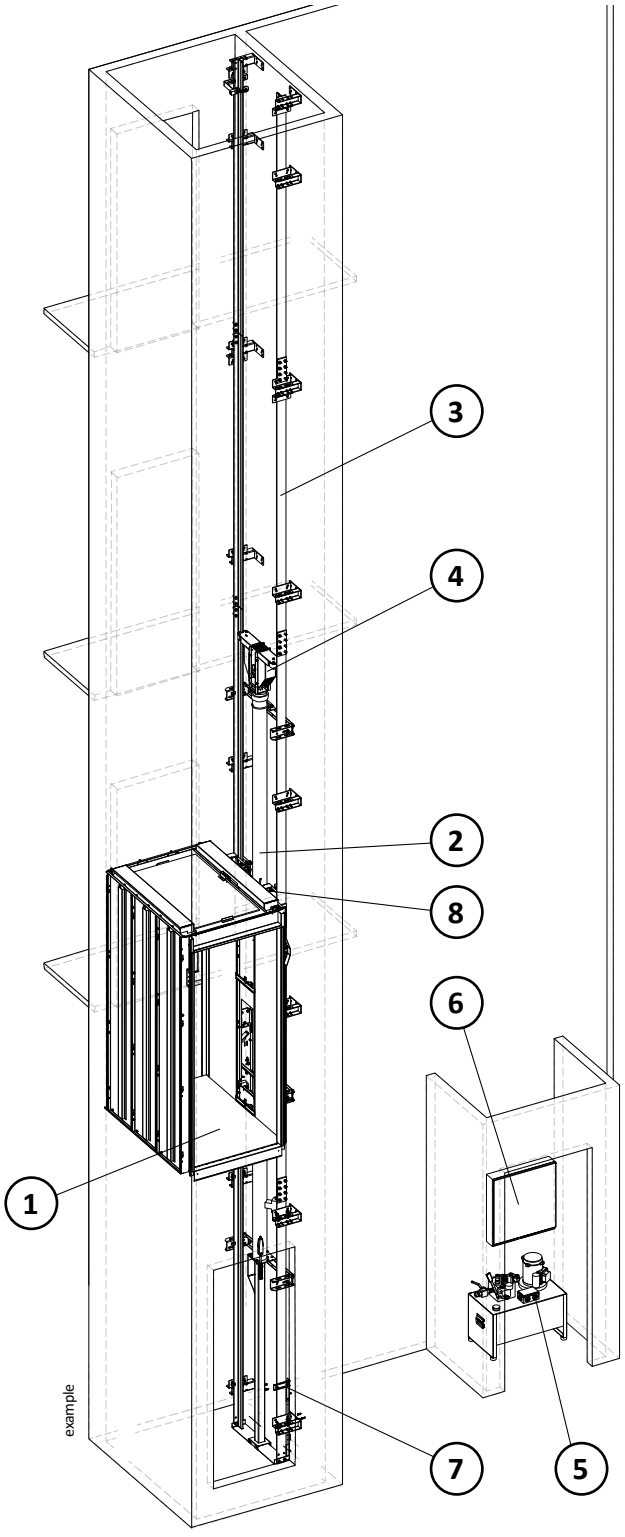
1 PLATFORM LIFT: GENERAL FEATURES AND DESCRIPTION

1.1 2:1 PLATFORM LIFT

The indirect 2:1 platform lift is a lifting platform used for vertical moving of people and goods.
This type of lift, having an indirect 2:1 cylinder, is suitable for the maximum 20 m travel.
The frame-car combination (1) is moved by means of an indirect hydraulic cylinder (2), positioned above a prop mounted in the pit and aligned with metal guide rails (3); the pulley is fixed on the stem (4).
When moving inside the shaft, the frame-car combination is directed by two metal guide rails fixed to one of the walls of the shaft and suspended by means of metal ropes.
The lift can be installed into a masonry shaft or a metal structure, both inside and ouside the building.
The cylinder is moved by means of the hydraulic unit (5), and controlled by the electrical control cabinet (6).
The safe position of the car during maintenance operation is guaranteed by the SAFE-PIT (7) and by the HEADROOM SPACER (8).
The landing access points are closed by landing doors, that can be both manual and automatic. The car can be supplied both with and without doors.

The 2:1 platform lift ensures several installation possibilities, in conformity with the following regulations:
- 2006/42/CE Machine Directive;
- EN81-41:2010 Platform Lift (EC).

One of the main objectives of LIFTINGITALIA S.r.l. is continuous improvement of the product range. Thus, the technical specifications of the lift may be changed without notice.



The images shown in this Manual are referred to the 2:1 Platform Lift.
Any different sequences of steps will be clearly described.

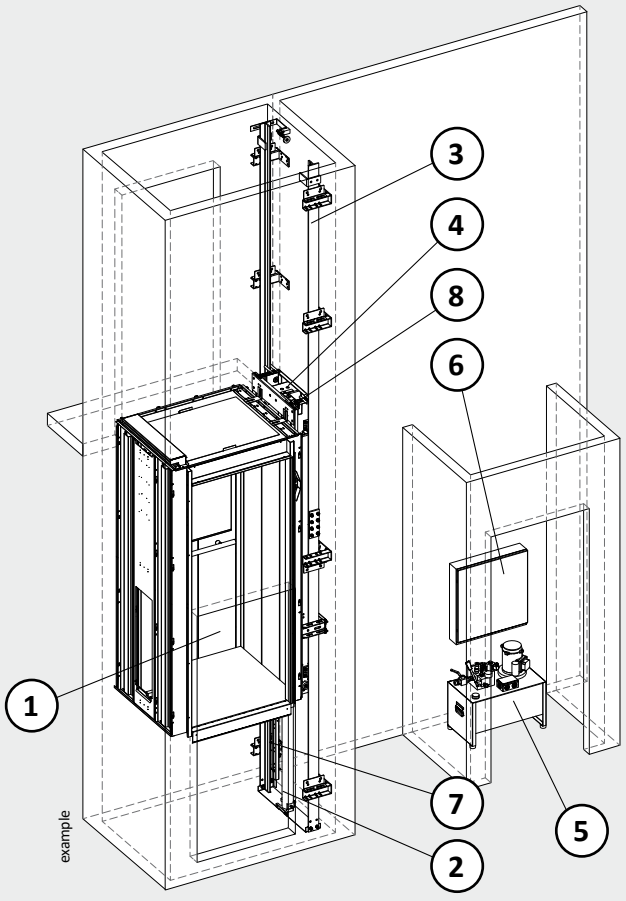
2:1 This symbol shows the specific sequence for the 2:1 platform lift.

1.2 1:1 PLATFORM LIFT

The direct telescopic 1:1 platform lift is a lifting platform used for vertical moving of people and goods.
This type of lift, having a direct telescopic1:1 cylinder, is suitable for the maximum 3,85 m travel.
The frame-car combination (1) is moved by means of a hydraulic telescopic cylinder (2), positioned in the pit and shifted by 10mm towards the car, in relation to the metal guide rails (3); the stem pushes onto the upper crossbeam of the frame (4).
When moving inside the shaft, the frame-car combination is directed by two metal guide rails fixed to one of the walls of the shaft.
The lift can be installed into a masonry shaft or a metal structure, both inside and ouside the building.
The cylinder is moved by means of the hydraulic unit (5), and controlled by the electrical control cabinet (6).
The safe position of the car during maintenance operation is guaranteed by the SAFE-PIT (7) and by the HEADROOM SPACER (8).
The landing access points are closed by landing doors, that can be both manual and automatic. The car can be supplied both with and without doors.

The 1:1 platform lift ensures several installation possibilities, in conformity with the following regulations:
- 2006/42/CE Machine Directive;
- EN81-41:2010 Platform Lift (EC).

One of the main objectives of LIFTINGITALIA S.r.l. is continuous improvement of the product range. Thus, the technical specifications of the lift may be changed without notice.



The images shown in this Manual are referred to the 2:1 Platform Lift.
Any different sequences of steps will be clearly described.

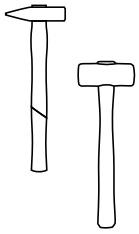
1:1

This symbol shows the specific sequence for the 1:1 platform lift.
The parts related to the 1:1 platform lift are put on a grey background.

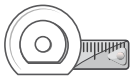
2 TOOLS REQUIRED FOR INSTALLATION

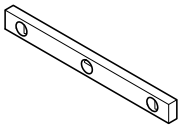
Hammer

Rubber hammer



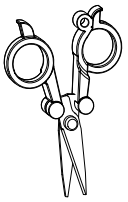
Tape measure





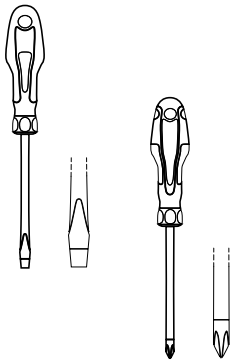
Spirit level

Scissors for electricians



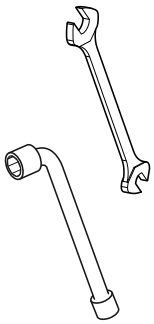
Flat-blade screwdriver

Phillips screwdriver



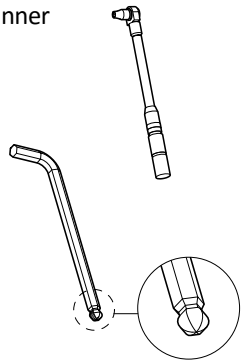
Spanner
5 ÷ 27 mm
2 each size

Socket wrench
5 to 27 mm



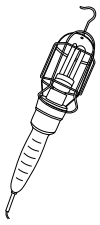
Ratcheting ring spanner
13 to 19 mm

Allen key
with ball end
2,5 to 8 mm



Adjustable pliers

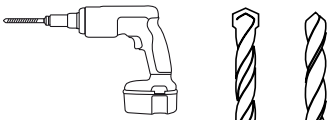
Portable lamp



5 steps collapsible or platform safety ladder

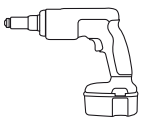
Lifting belts, load ≥ 500 kg, length ≥ 2 m

Drill

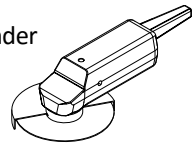


for Brickwork 6 to 22 mm
Metal 2 to 13 mm

Screwdriver
CH 6 ÷ 10 mm

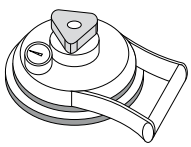


Corner grinder



· cutting disks
· metal grinding disks

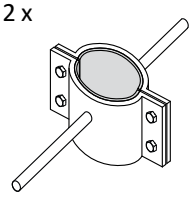
Suction cups
100 kg/each
2 x



Manual hoist, load ≥ 500 kg, length ≥ 15 m

Lever wrench for 2 piece cylinder joint
2 x

(supplied upon request)

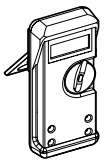


Insulating tape

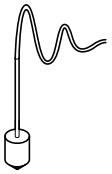
Double-sided adhesive

Chronometer

Digital multimeter



Plumb bob



3 BOX CONTENT

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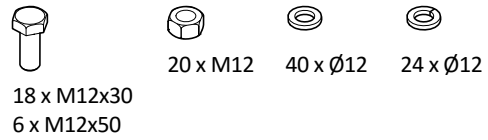

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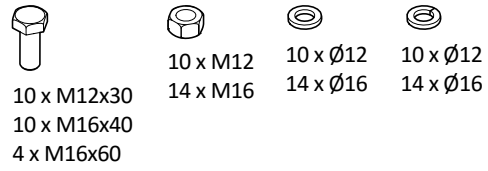

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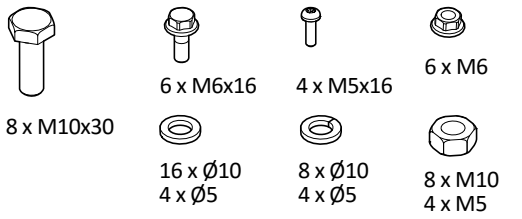

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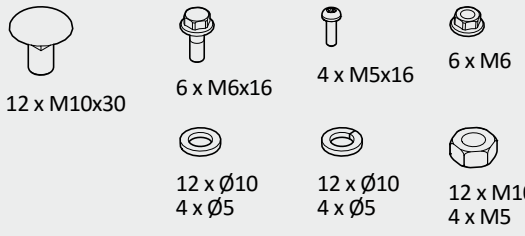

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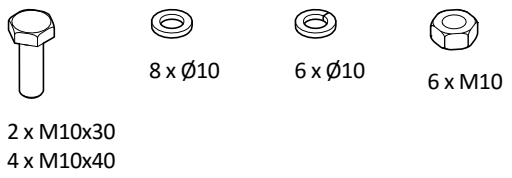

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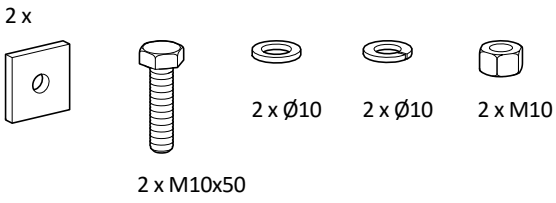

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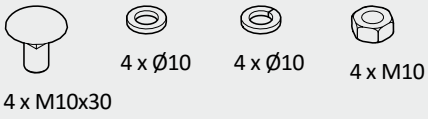

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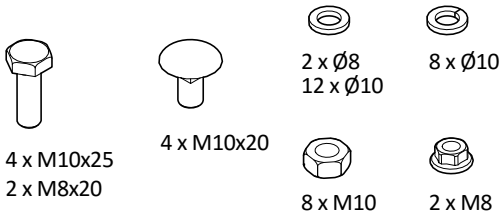

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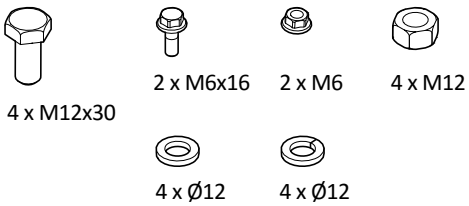

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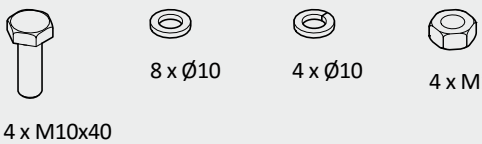

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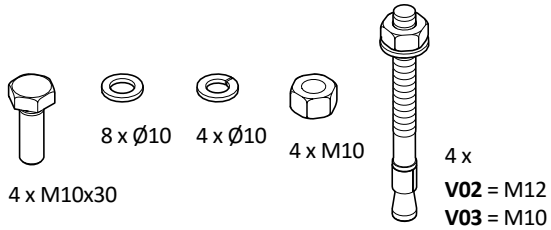

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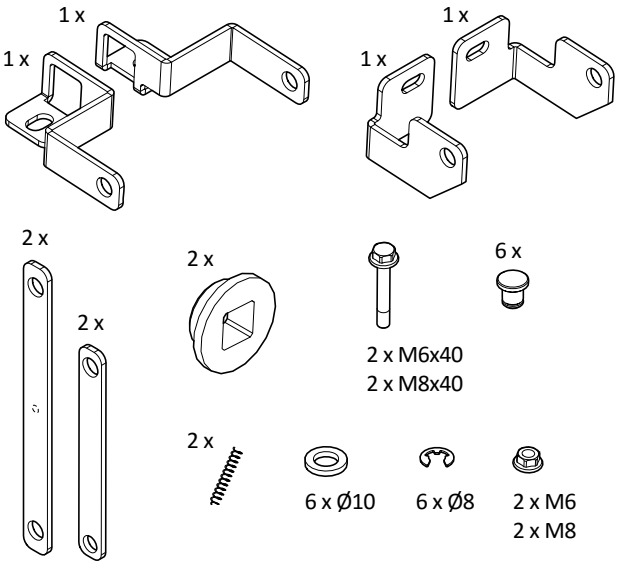

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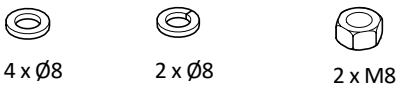

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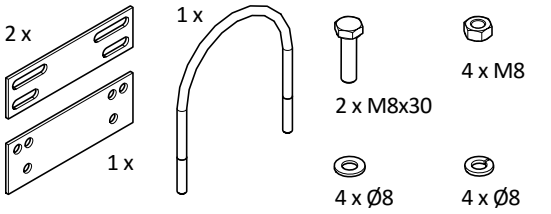

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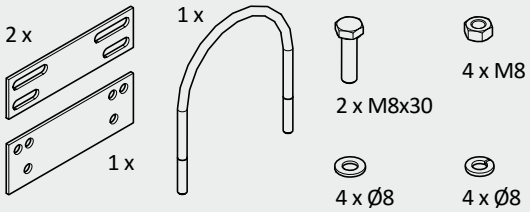

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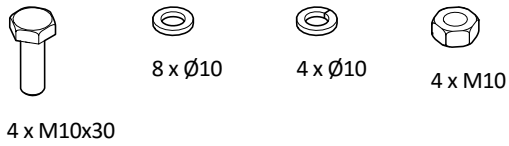

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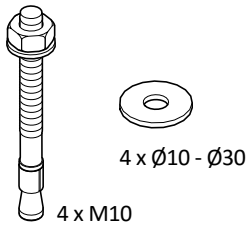

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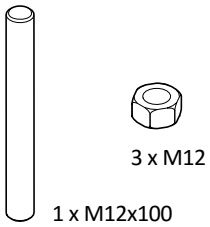

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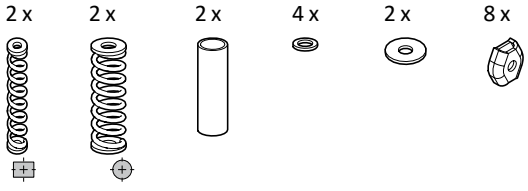

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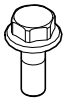

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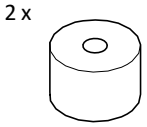

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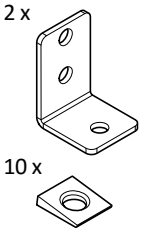
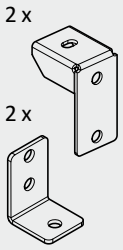


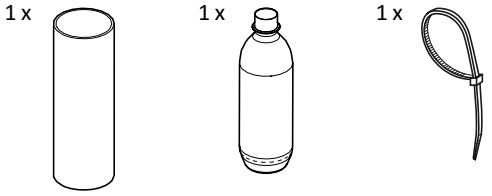
6 x M10x20
10 x M10
8 x Ø10
6 x Ø10

KIT F350.23.0035V03 1:1



6 x M10x20
4 x M10x30
4 x Ø10-Ø30
10 x
12 x Ø10
2 x Ø12
10 x Ø10
14 x M10
4 x M12

KIT F350.23.0037



Optional

KIT F350.23.0038

8 x M8x20
8 x Ø8
8 x Ø8
8 x M8

Optional

KIT F350.23.0039V02

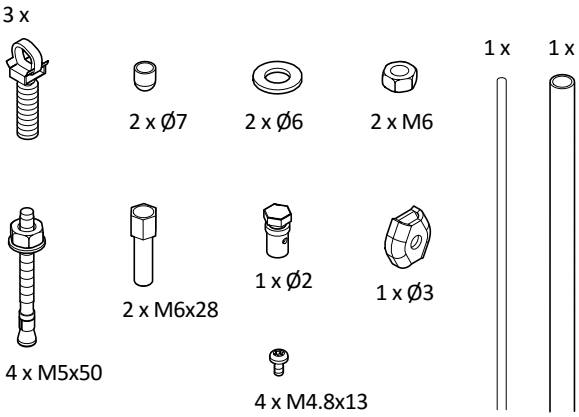
2 x M10x30
2 x M5x10
1 x M4.8x13
2 x Ø5
2 x Ø14
2 x Ø10
2 x M10

KIT F350.23.0039V01

2 x M10x30
2 x Ø10-Ø30
2 x Ø5
2 x Ø10
2 x Ø14
4 x Ø10
4 x M10

2 x M10x30
2 x M5x10
1 x M4.8x13

KIT F350.23.0040



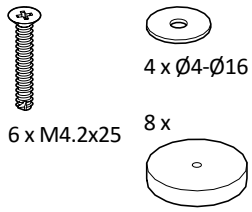
2 x Ø7
2 x Ø6
2 x M6
2 x M6x28
1 x Ø2
1 x Ø3
4 x M5x50
4 x M4.8x13

KIT F350.23.0041

25 x M4x30
10 x M5x50
6 x M4x20
6 x M6x20
2 x M8x20
20 x M3.9x13
20 x M3.9x19
6 x Ø4
12 x Ø6
4 x Ø8
6 x M6
2 x M8
10 x Ø6 - Ø18
6 x M4

Optional

KIT F350.23.0043



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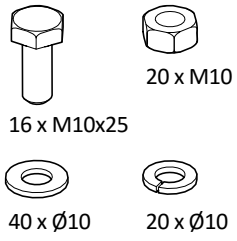
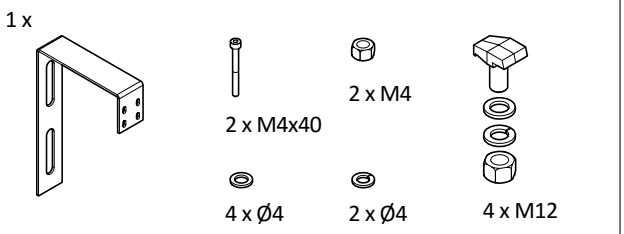
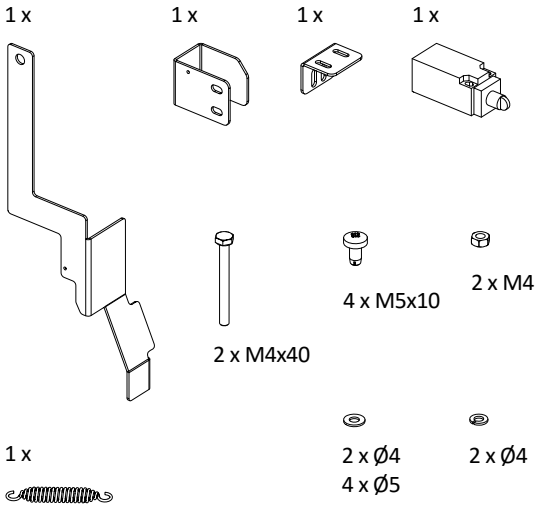


KIT F300.23.0010

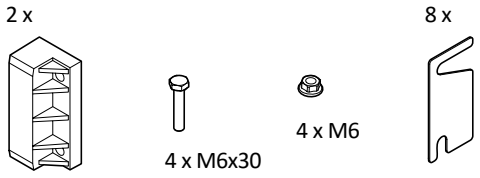


Optional

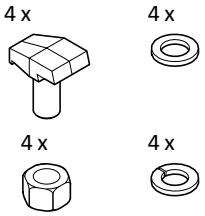
KIT F350.23.0045



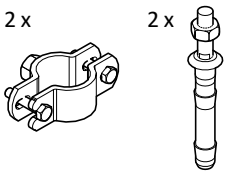
KIT F300.23.0013



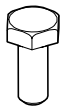
KIT V0301.04.0001



KIT Q401.05.9007



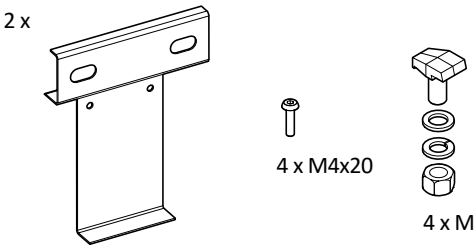
KIT F350.23.0046



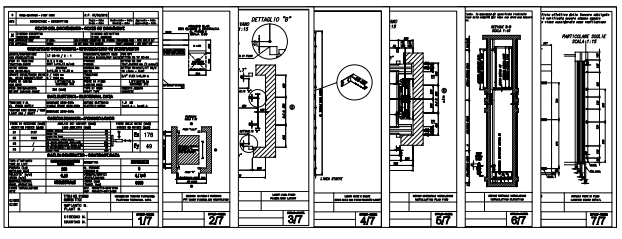
2 x M10x40

Optional

KIT E202.23.0001



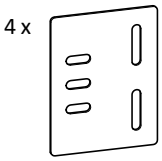
LAYOUTS



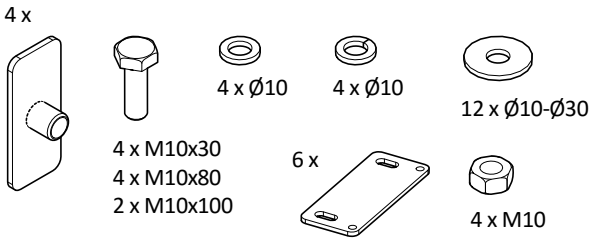
INSIDE THE CAR PACKAGE (as described in this manual)

Optional

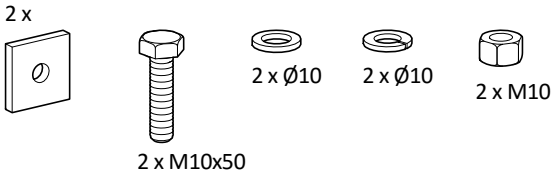
KIT C002.23.0009 - C002.23.0015



KIT F350.23.0004



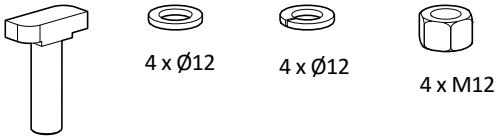
KIT F350.23.0005V01



INSIDE THE SHAFT PACKAGE (as described in this manual)

KIT S000.23.0008

KIT S102.23.0001 - S103.23.0001



4 x **S102** = M12x30
S103 = M12x30

4 MATERIAL HANDLING ON SITE

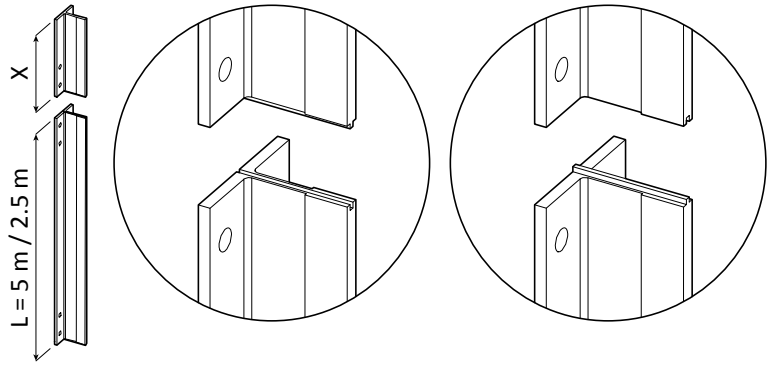
The correct material positioning on site is very important, because upon the completion of the scaffolding, some components may be difficult to handle.

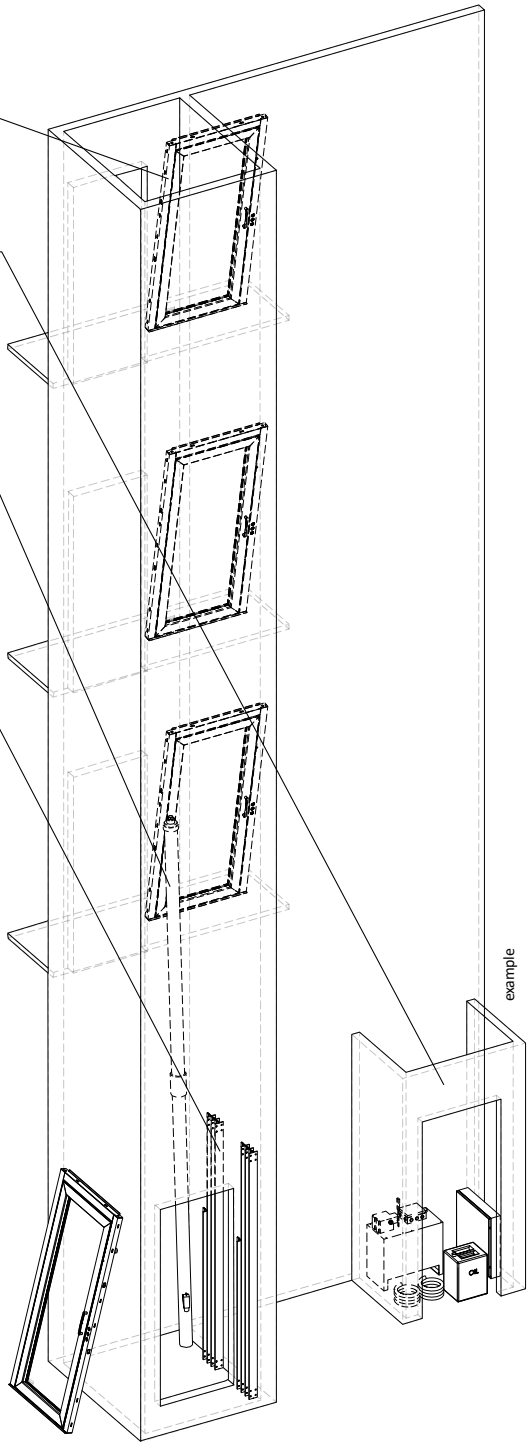
DOORS
Each door must be positioned nearby the installation position, which means on the related landing.

HYDRAULIC OIL, HOSES, HYDRAULIC UNIT, CONTROL BOARD AND CABINET (IF FORESEEN)
Machine room, or where the cabinet installation must be installed, in accordance with the project drawing.

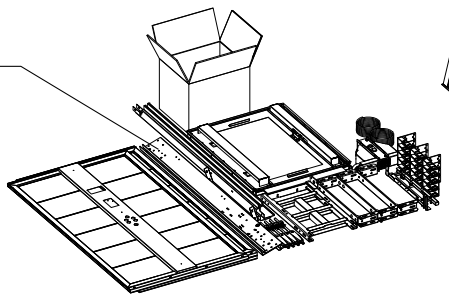
HYDRAULIC CYLINDER
To be positioned inside the shaft, close to the installation point indicated on the project drawing, and in a way that the guide rail fixing brackets installation cab be carried out safely.
The cylinder must be temporarily fixed to the wall by means of adequate tools (ropes, chains, etc.) to avoid an accidental fall.

GUIDE RAILS
BEFORE positioning inside the shaft, the guide rails must be divided into two groups compounding the two columns, and place them in the correct position, together with the related joints. Check the positioning of the short piece on the project drawing.
Example: if the short piece with a tap joint is to be positioned above, all the guide rails must be positioned with the tap joint down.





REMAINING MATERIAL
(FRAME, CAR, MECHANIC COMPONENTS, ELECTRIC COMPONENTS)
Nearby the lowest stop.



5 PRELIMINARY ADVICE

As far as the following items are concerned : general instructions, safety instructions, responsibility and warranty, material receiving and storage on site, packing, waste disposal, cleaning and maintenance, please consult the manual "**SAFETY AND MATERIAL HANDLING ON SITE**".

- Important notes:
  1. Fix the tools to prevent an accidental fall;
  2. Strictly follow the steps described in this manual;
  3. Be careful when assembling single components, there may be sharp flaws (production leftovers);

- Before starting installation, it is necessary to remove all the residual materials and waste from the shaft.

- We recommend that you use only the nuts and bolts supplied with the lift.

- The bags containing nuts and bolts must be opened in accordance with the installation step indicated in this Manual.

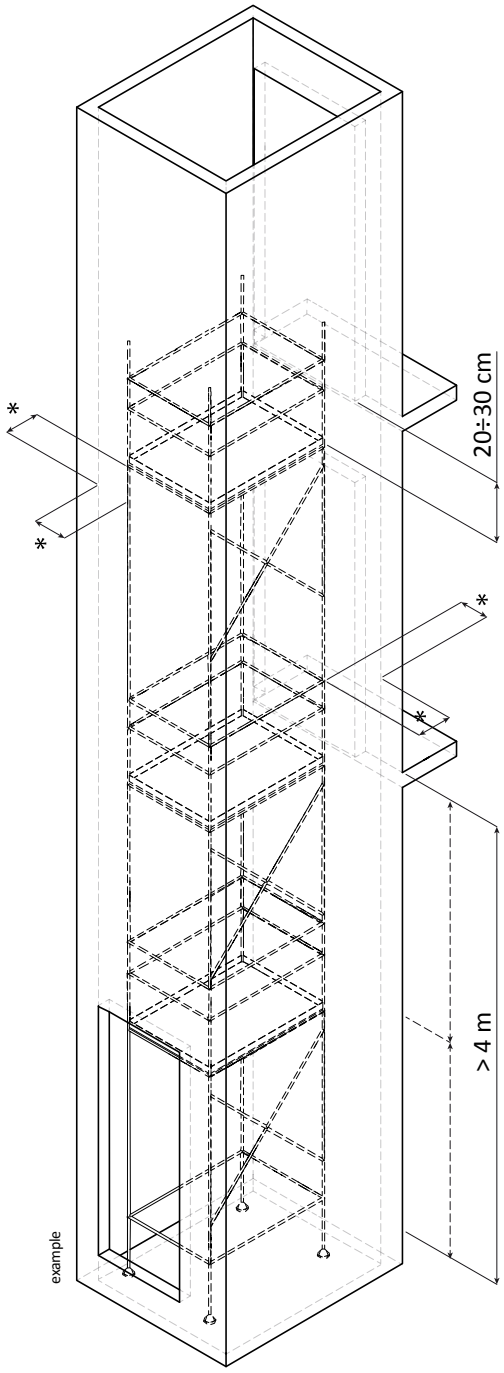
- The instructions stated in this Manual, are valid for a concrete shaft, where wall plugs must be used. For brickwall shafts, consult the Appendix 1 to the this Manual. For steel shafts, the same procedure is applied, replacing plugs with normal screws.

- The stops are indicated with numbers 0, 1, 2, 3 both in this Manual and in the electrical scheme, where “0” stands for the lowest floor: the COP numeration could be different, according to the special needs of the user (example –1, 0, etc.).

6 PRELIMINARY OPERATIONS

6.1 SCAFFOLDING FEATURES

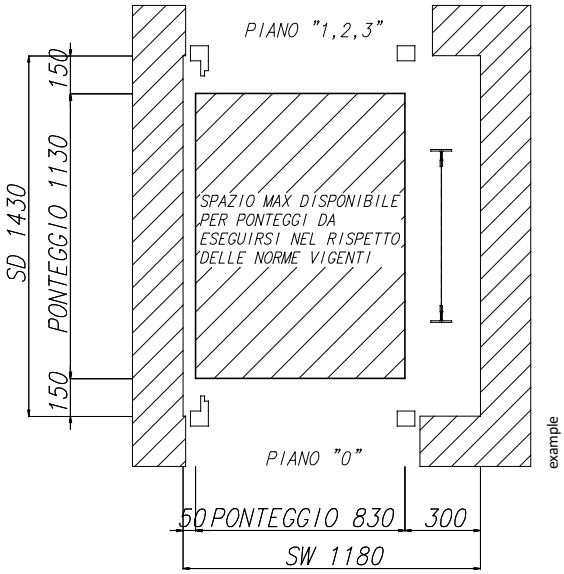
The scaffolding must be installed INSIDE THE SHAFT (steel shafts included), by skilled personnel.
The scaffolding must allow moving the guide rails inside the shaft.



∗ = indicated on the project drawing

The installation must be effected in full compliance with the current regulations.

The images are indicative, so the correct position of the scaffolding must be verified on the project drawings.



The following requirements must be matched during the installation:

- non-slip panels with anti-overturning blocks;
- distance from shaft walls in accordance with the project drawing.
  Should the distance be > 20 cm, install protection guards;
- 20÷30 cm under all the stops;
- Should the distance between floors be > 4 m, it is necessary to provide an intermediate surface inside the scaffolding.

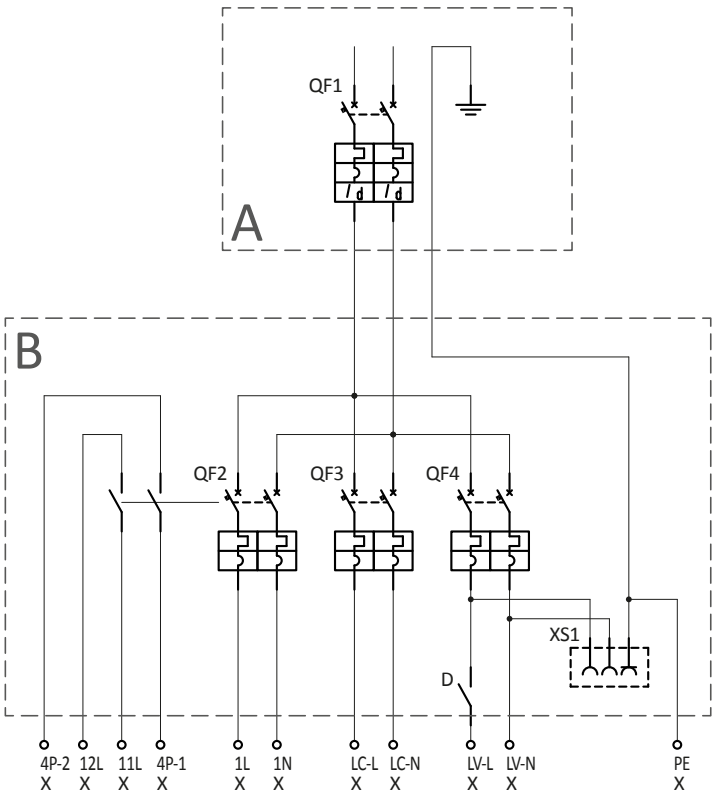
6.2 ELECTRICAL COMPONENTS : PREPARATION

The Power Supply Board (also known as Machine Room Electrical Board) must be installed in the machine room or close to the electrical cabinet: this can be supplied by LIFTINGITALIA (optional), or by the Customer.
Whenever the Power Supply Board is supplied by the Customer, it must match the following requirements:

- it must be realized in full compliance with the following electrical scheme and each component must be dimensioned in accordance with the electrical features of the lift;
- it must be equipped with protection devices in compliance with the mains supply on site and the related short circuit current, as per CEI 64-8 and subsequent rules (an adequately sized main magnetothermic switch and a 30mA safety differential);
- when calculating the wiring up to the control board and the safety devices, the installer must take into consideration that the minimum cable section must be 2,5mm^2.

The power supply board for platform "B" **MUST** be lockable.

Upon the installation of the power supply board, check the correct installation and register the procedure as per chapter **2.1** of the manual **"Final Check Procedures"**.



Legend:	
A	general power supply board
B	lift power supply board (lockable)
QF1	bipolar magnetothermic switch for power supply line
QF2	magnetothermic switch for motive power. Auxiliary contacts for battery exclusion (4P-1, 4P-2) and UPS exclusion (IF FORESEEN, 11L-12L)
QF3	bipolar magnetothermic switch for car lighting
QF4	bipolar magnetothermic switch for shaft lighting (IF FORESEEN) and XS1 socket
XS1	socket
D	shaft lighting deflector (IF FORESEEN)

6.3 INTERCOM DEVICE INSTALLATION

The standard scope of supply includes a bi-directional intercom device to allow communication between the car and the machine room.
Taking into account the principal users of these platform lifts (people with limited motor capabilities in private houses), LIFTINGITALIA S.r.l. recommend a permanent phone connection be established (phone assistance). Should there not be a ground phone line, a GSM system must be provided.

6.4 CONSTRUCTION WORKS: CHECK PROCEDURES

a. SHAFT: GENERAL CHECK PROCEDURES.

The shaft must be compliant with the national regulations and must be able to bear the forces deriving from : the lift, the guide rails during the safety devices intervention, the loading-unloading operations etc.

The shaft must have the following features:

- Walls must be plastered in full height;
- Plumb tolerance must be +2,5 cm for each side, in full height (unless differently stated in the project specification);
- Concrete pit bottom must be able to bear loads indicated in the project drawing;
- Water-proof pit bottom against water damage;
- Presence of wiring passages and hydraulic pipeways, plus smoke discharge openings (if foreseen);
- The shaft cannot be used differently: therefore no foreing objects, devices or cables can be stored therein.

b. SHAFT VERTICAL DIMENSION: CHECK PROCEDURES.

The following dimensions must be checked:

- Travel
- Headroom
- Pit
- Landing door openings
- Plumbing

The dimensions must be compliant with the project drawings (shaft section).

c. PLAN SHAFT DIMENSION: CHECK PROCEDURES.

The following dimensions must be checked:

- Width
- Depth
- Square
- Landing doors position

The dimensions must be compliant with the project drawings (shaft plan).

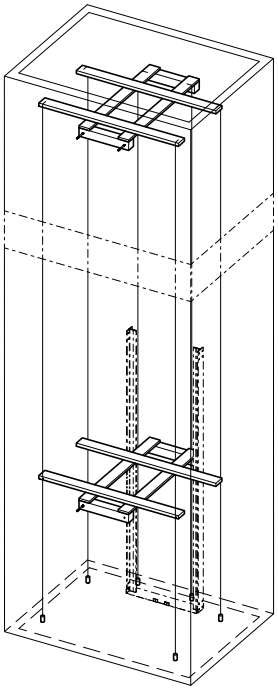
d. MACHINE ROOM: CHECK PROCEDURES.

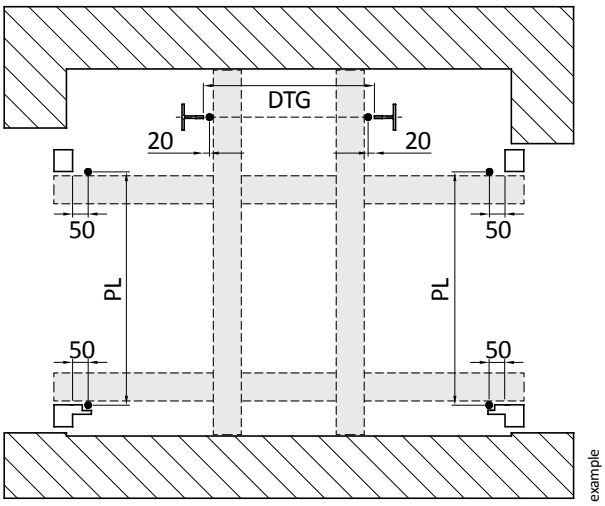
The machine room (where the control cabinet will be placed) must have the following features:

- Protection against bad weather and humidity;
- Temperature range between +5 and +40°C;
- The area in front of the entrance door must be clear and accessible as per the project drawings;
- Presence of wiring passages and hydraulic pipeways, plus smoke discharge openings (if foreseen);
- Sufficient height and light;
- The machine room cannot be used differently: therefore no foreing objects, devices or cables can be stored therein.This paragraph must be strictly applied to the electrical cabinet if it is used as machine room;
- The lighting and power supply equipment must comply with the features of the lift as well as with the current regulations. Check the grounding.

7 GUIDE RAILS INSTALLATION

7.1 PLUMBS FOR GUIDE RAILS INSTALLATION



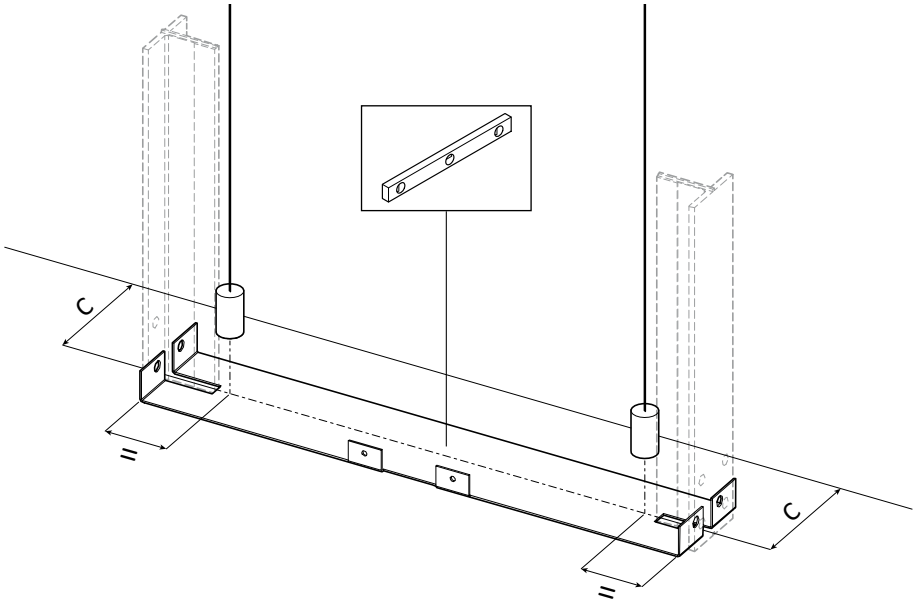


The images are indicative, so the plumb positioning must be checked using the project drawings, in order to estimate the plumbing axes position.

- Position and fix the wooden axes in the upper part of the shaft.
- Low down the guide rail plumbs.
- Low down the door plumbs.
- Check the exact position of the plumbs and fix them downwards.

7.2 STARTING TEMPLATE POSITIONING

This operation must be carried out correctly, to avoid complication during the frame and car installation. The correct distance between the landing and car doorsteps.



- align the template with the plumbs;
- check the distance between the wall and the template, using the project drawing;
- check the distance from the door flush, using the project drawing;
- center the bubble with the template, add shims if needed.

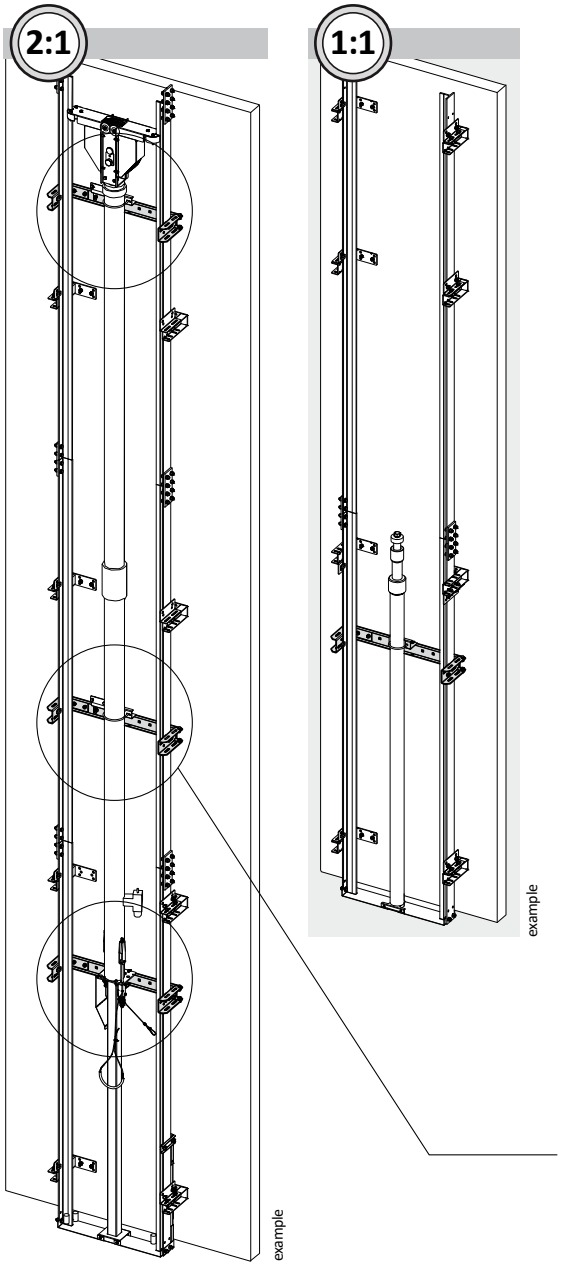
C = check on the project drawing.

7.3 GUIDE RAILS ASSEMBLY

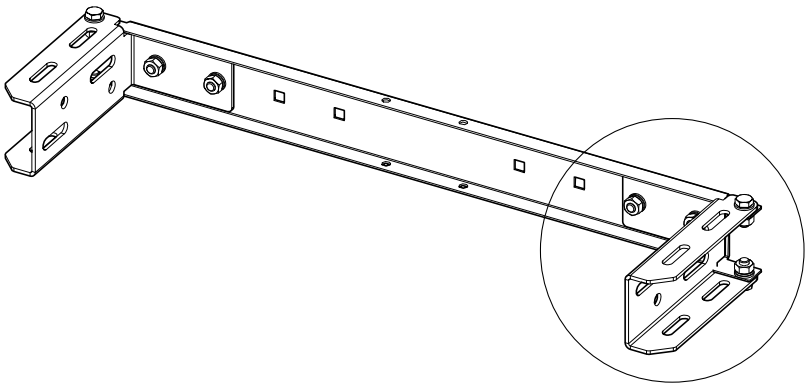
Guide rails assembly and adjustment must be carried out carefully.
For a correct and plumbed guide rails positioning, pay attention to the steps described in this Manual.

This Manual mainly describes the guide rail brackets assembly in a concrete shaft by means of screw anchors. The installation by means of other systems (chemical anchors, in-built brackets and wire passages, welded blackets etc.) can be done following the below figures.

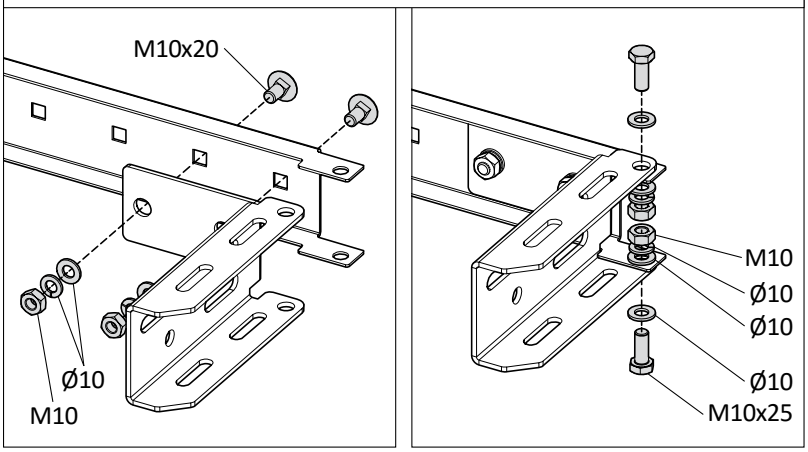
CYLINDER FIXING BRACKETS PRE-ASSEMBLY



· Pre-assemble the brackets.



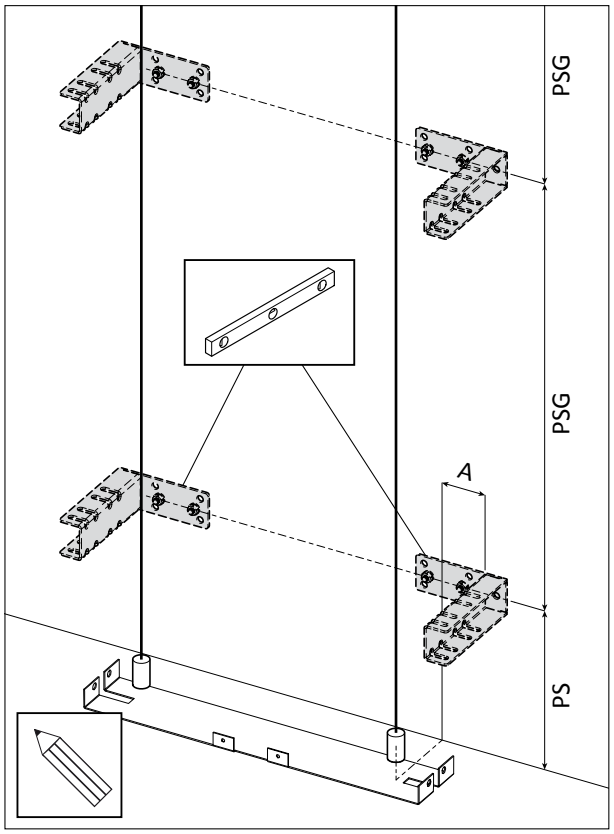
KIT F350.23.0006

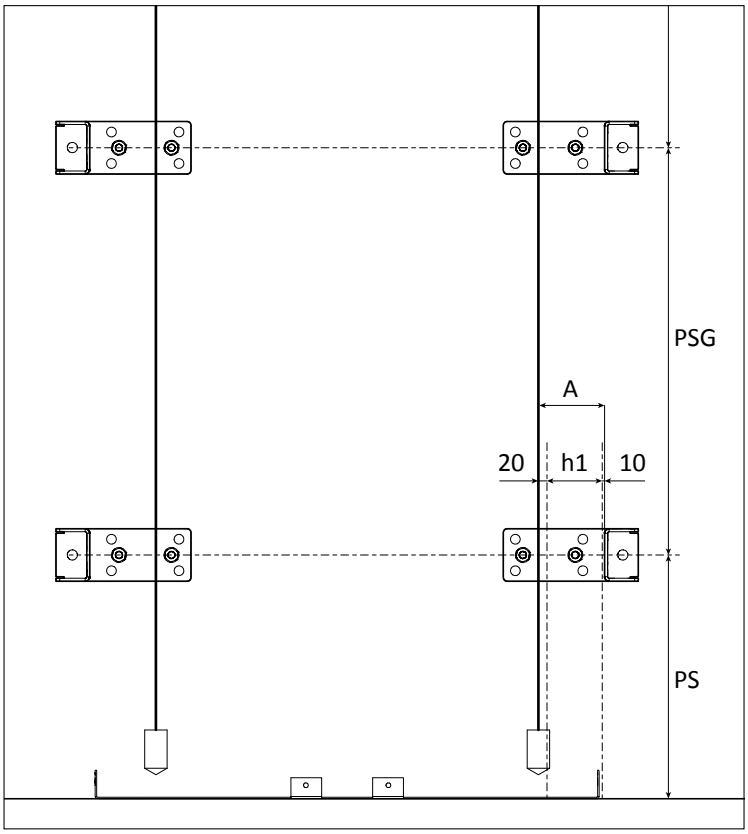


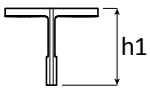
The third bracked is foreseen for travel > 9 m only.

GUIDE RAIL FIXING BRACKETS ASSEMBLY

- Check the position of the guide rail fixing brackets, using the project drawing.
- Mark the positioning points.

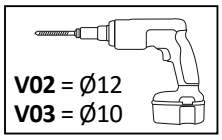


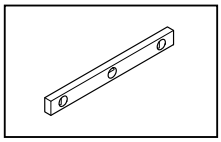


Legend:				
PS	Distance btw pit/ first guide rail fixing bracket		A	Guide rail height + 30 mm
PSG	Distance between guide rail fixing brackets		h1	Guide rail height 

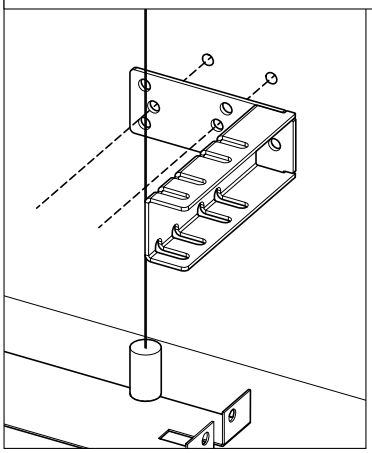
- Drill the walls and fix the blackets.

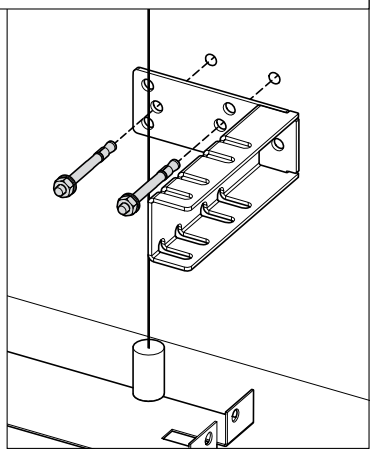
For chemical anchors use KIT F350.23.0025 o 0026.



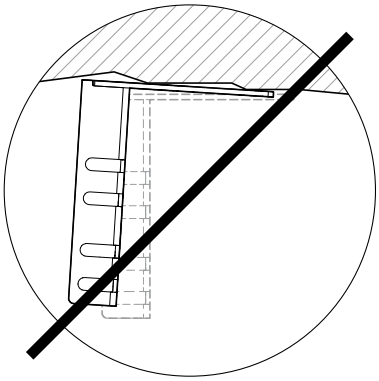


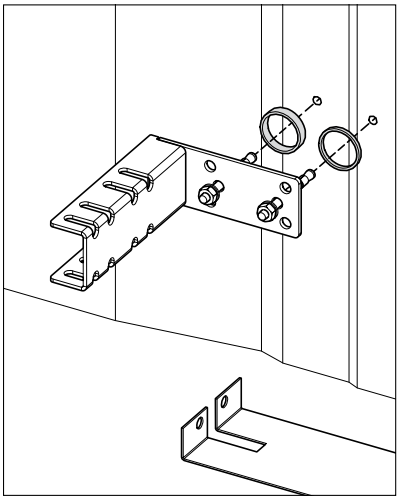
KIT F350.23.0010

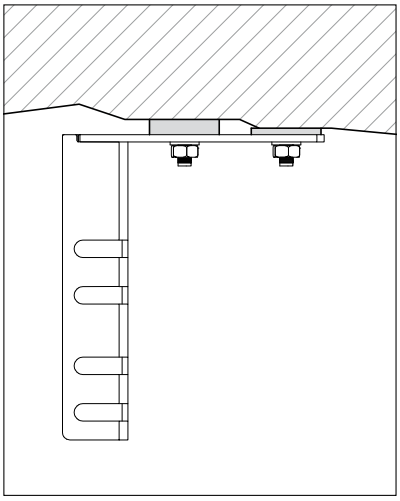




Check the PERPENDICULARITY of the brackets. If necessary provide shims between walls and brackets.

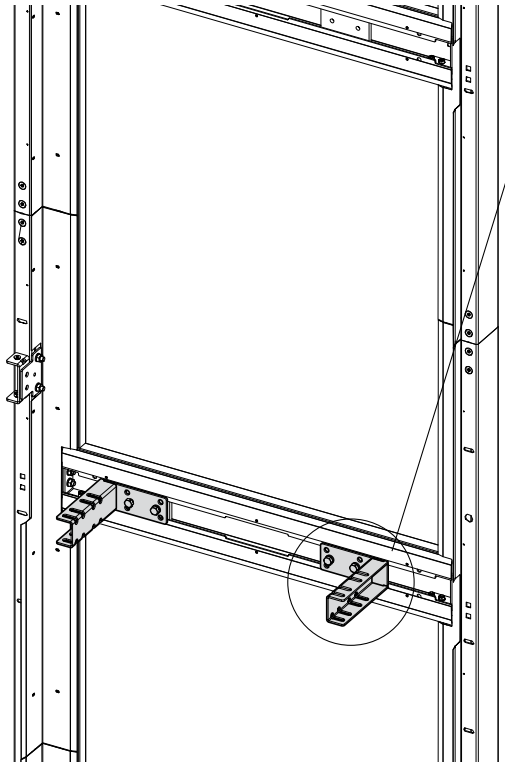




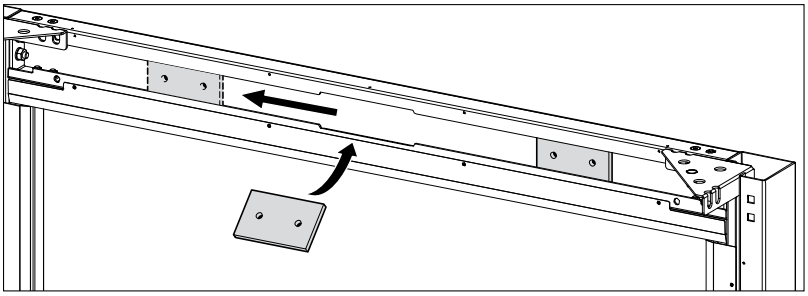


Note: in case of metal structure, the machine side cladding must be mounted before starting to assemble the guide rails.

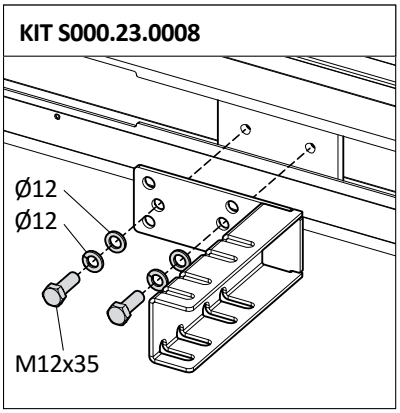
· Check the position of the guide rail fixing brackets on the project drawings, the proceed with assembly.

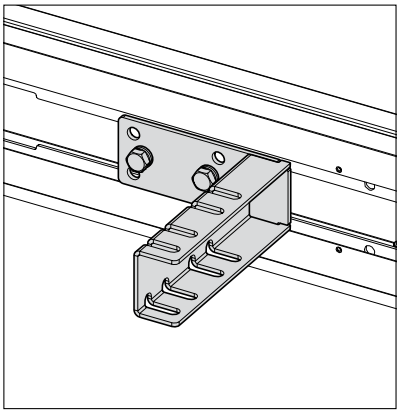


GUIDE RAIL FIXING BRACKETS ASSEMBLY



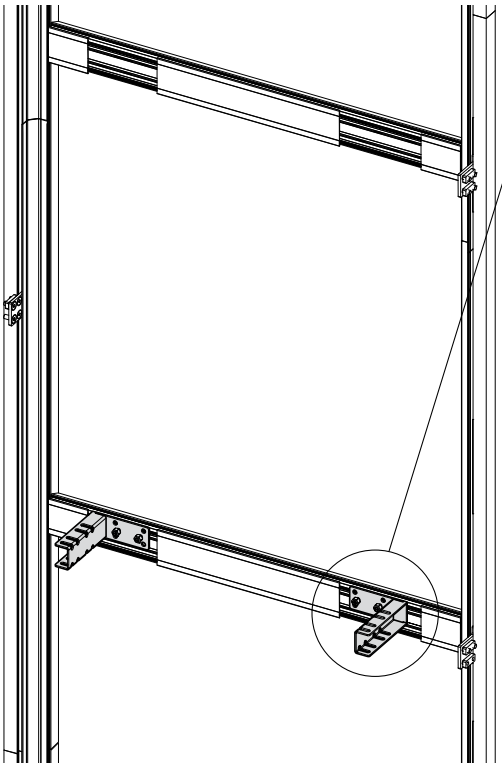
KIT S000.23.0008





Note: in case of metal structure, the machine side cladding must be mounted before starting to assemble the guide rails.

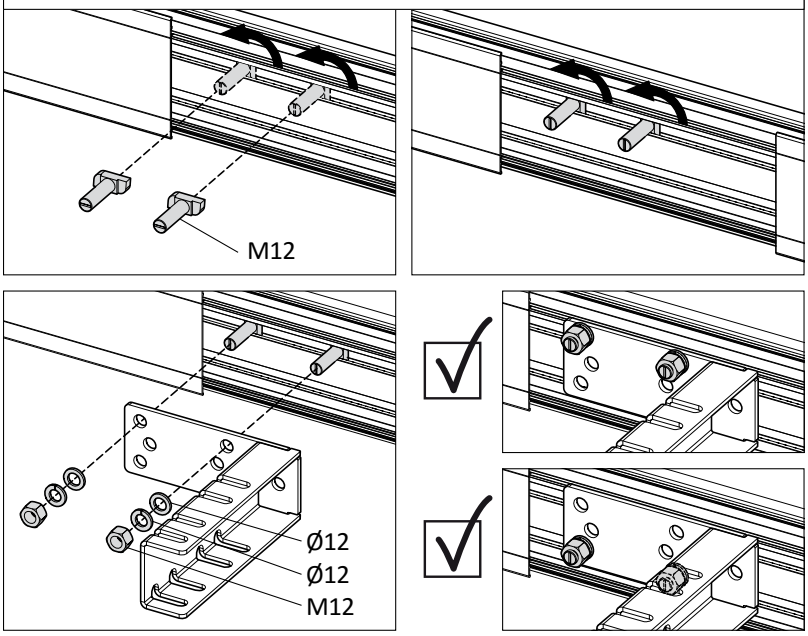
· Check the position of the guide rail fixing brackets on the project drawings, the proceed with assembly.



GUIDE RAIL FIXING BRACKETS ASSEMBLY

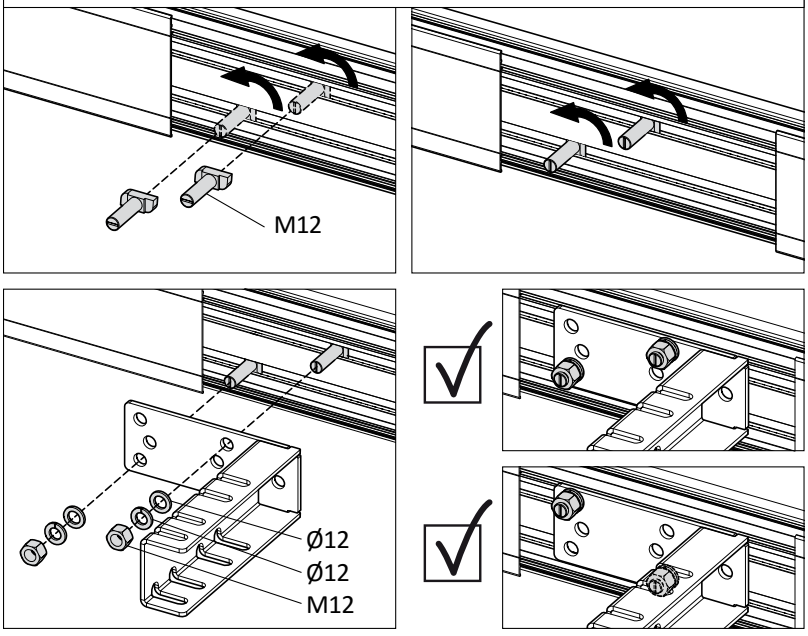
A **for CROSS 38**

KIT S102.23.0001

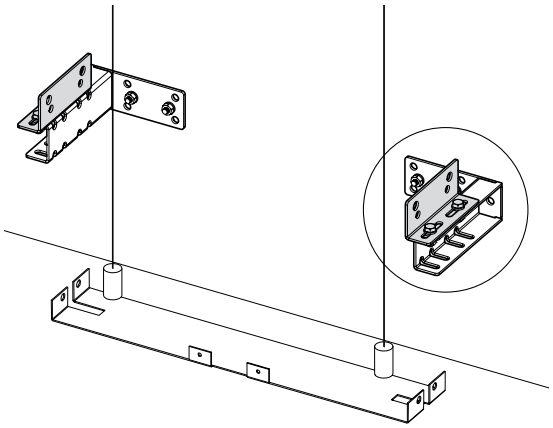


B **for CROSS 38R**

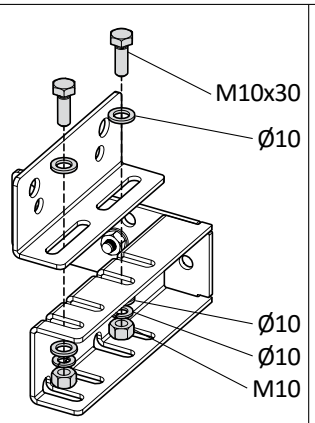
KIT S103.23.0001

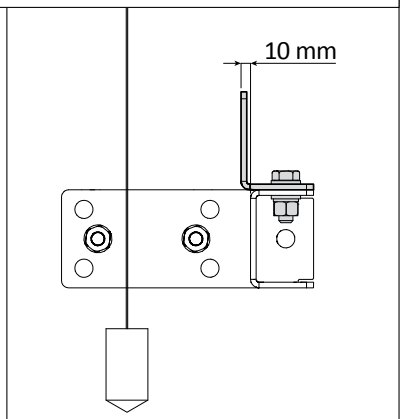


GUIDE RAIL BRACKETS ASSEMBLY



KIT F350.23.0010

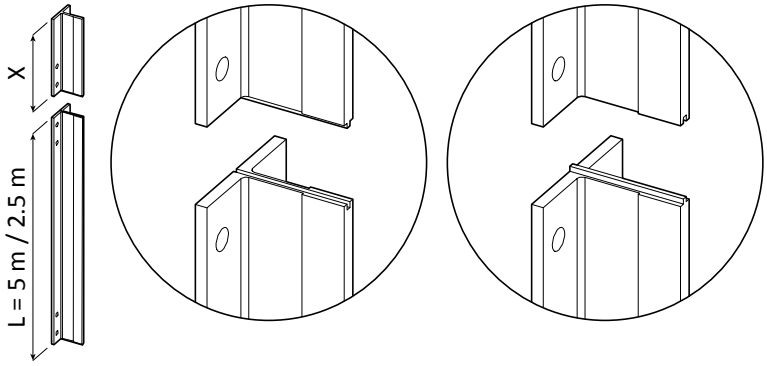




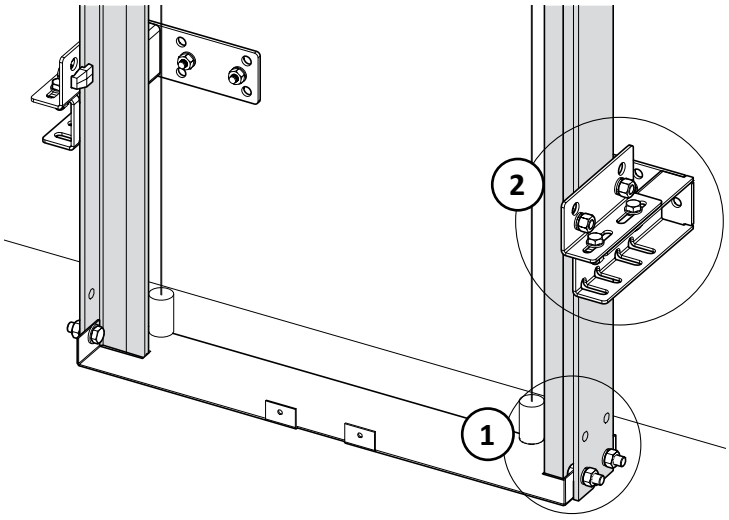
For chemical anchors fixing use nuts and bolts of KIT F350.23.0016

Do not fasten the screws to end, since guide rail fixing bracket adjustment will be necessary.

GUIDE RAILS ASSEMBLY



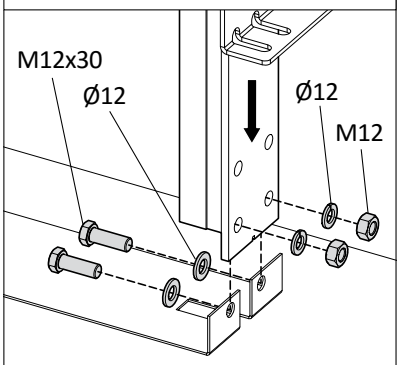
Example: if the short piece with a tap joint is to be positioned above, all the guide rails must be positioned with the tap joint down.



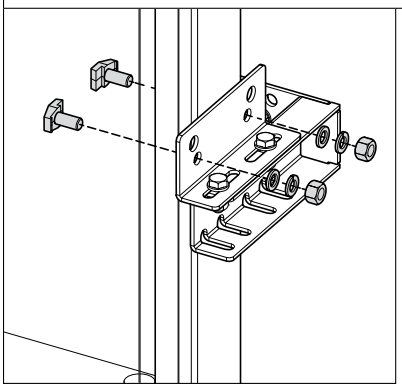
Guide rails (whole or pieces) assembly sequence must follow the project drawing.

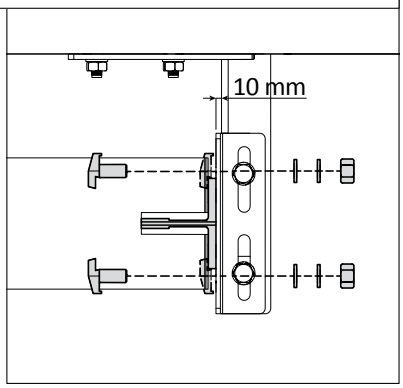
· Fix the first two guide rails in the pit, onto the brackets previously mounted.

1 **KIT F350.23.0008**

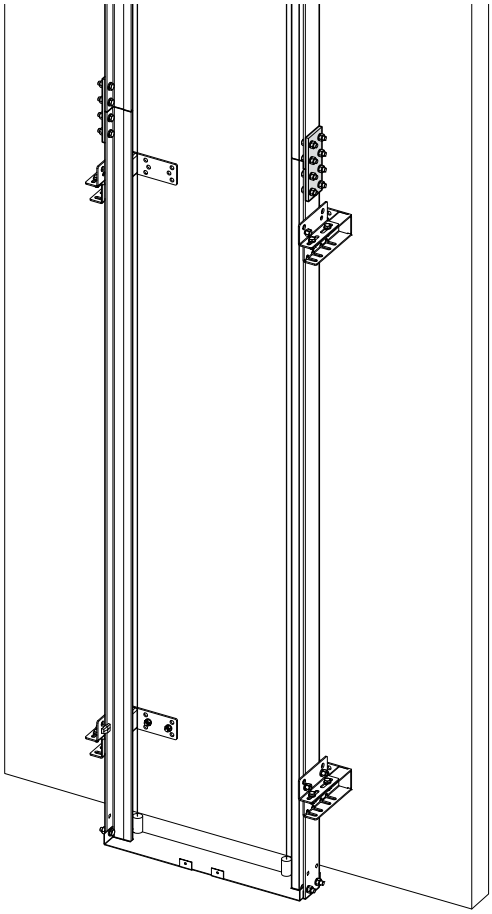


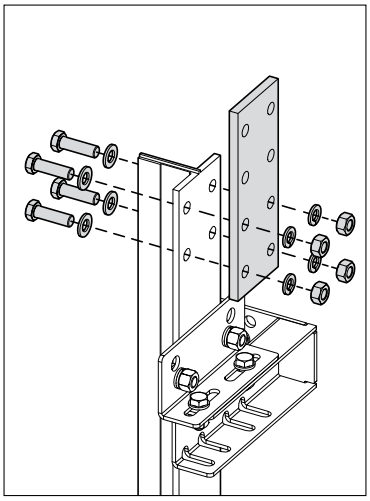
2 **KIT V0301.04.0001**

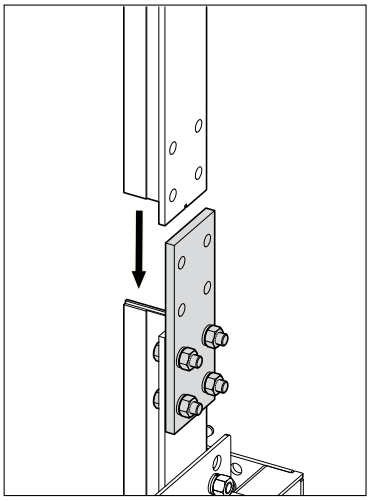


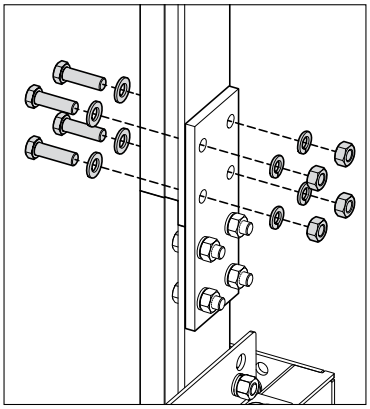


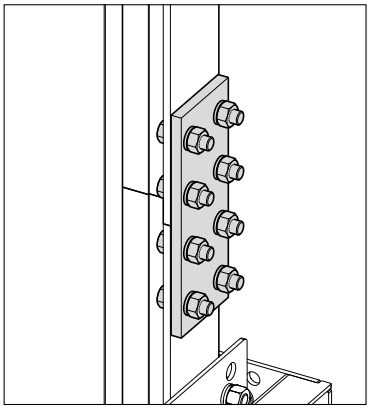
· Joint the guide rails using the plates and nuts and bolts supplied with the lift.



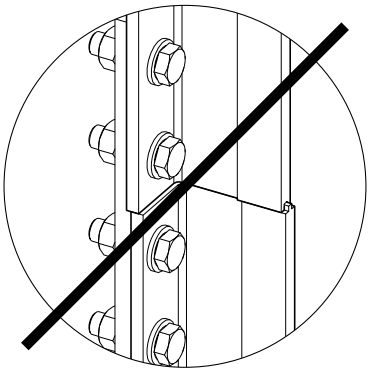


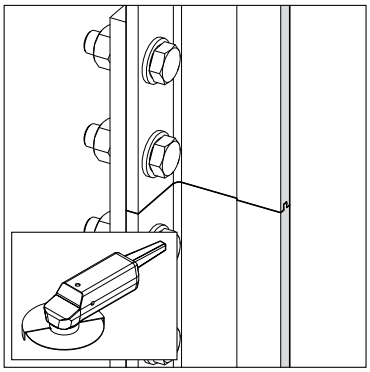




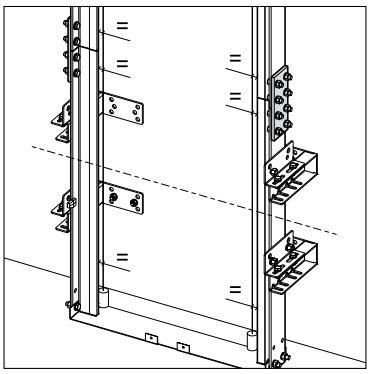


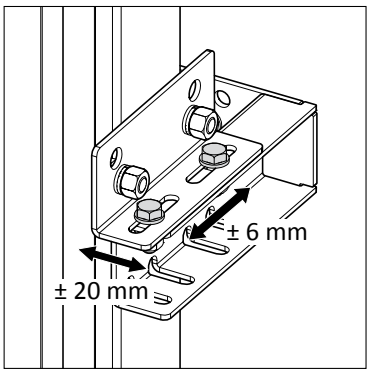
Check if the sliding surfaces are perfectly aligned (without steps).





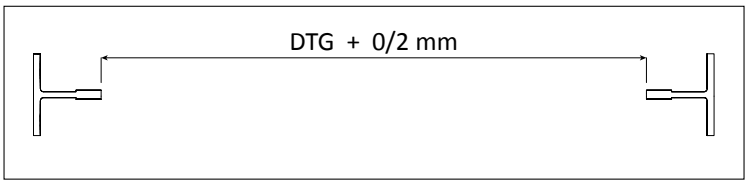
Check the guide rails alignment using the plumb.



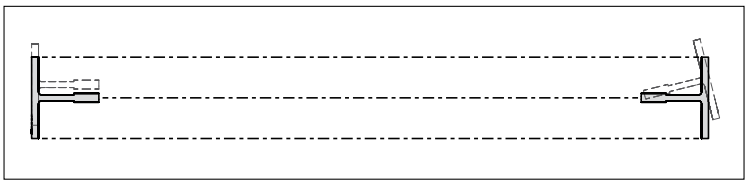


GUIDE RAILS ALIGNMENT CHECK

Check if the distance between the guide rails (DTG) matches the value stated in the project drawing.



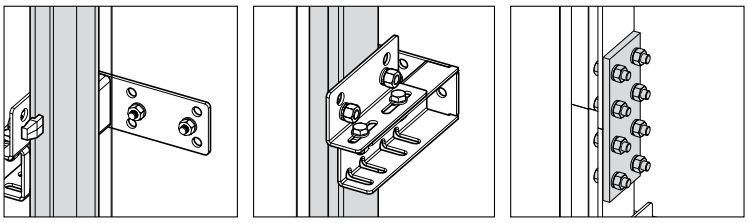
Check the collinearity and parallelism between the guide rails.



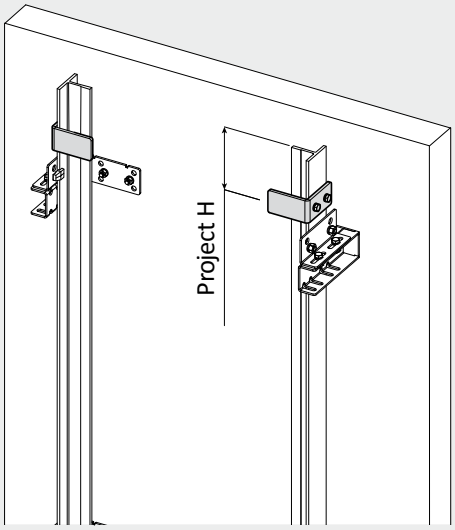
· Proceed with the assembly up to the last upper guide rail pieces.

FASTEN THE SCREWS

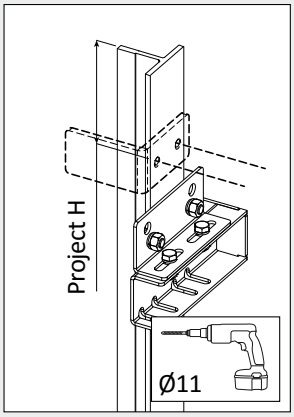
· Fasten the screws to end.



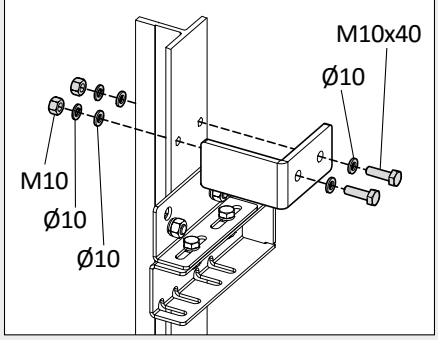
1:1



· Assembly the mechanic blocks to the far ends of the guide rails, following the instructions stated in the project drawings. Use the blocks as templates.



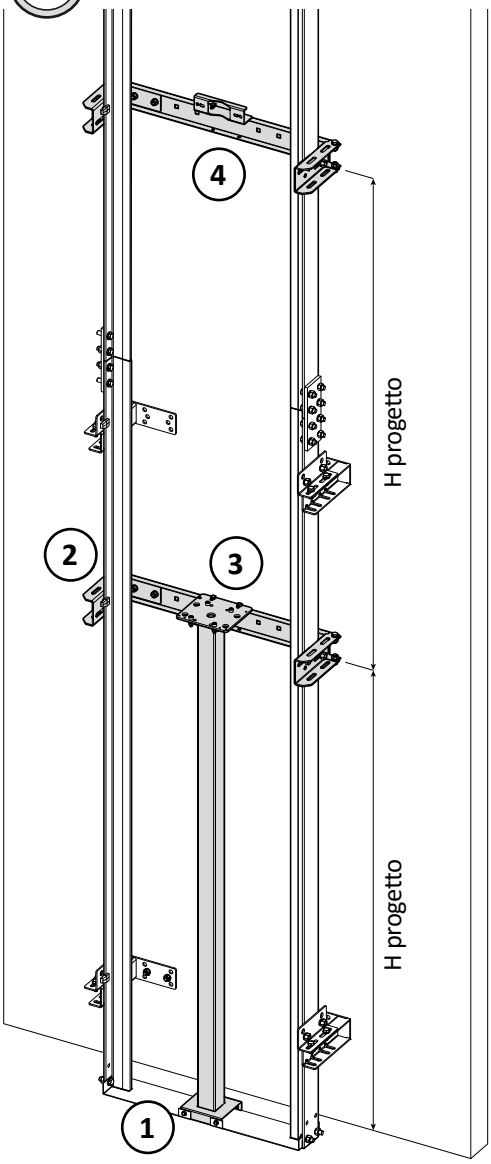
KIT F350.23.0009



8 CYLINDER AND ROPES INSTALLATION

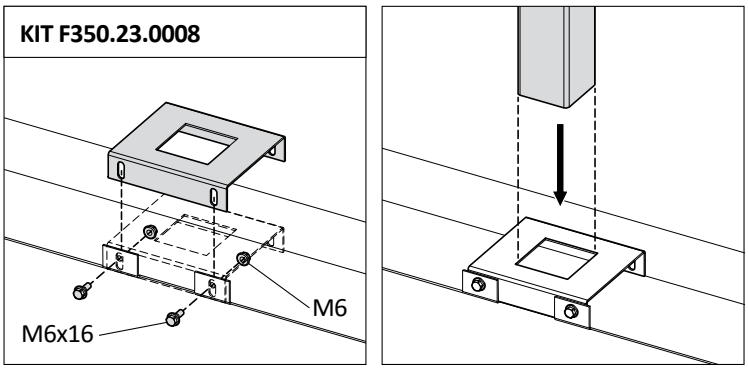
8.1 PRE-ARRANGEMENT FOR CYLINDER POSITIONING

2:1

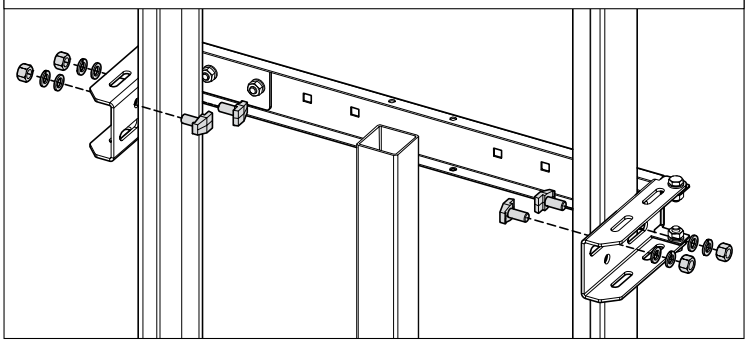


- Place the prop centering on the template.
- Position the prop inside the centering plate.
- Fix TEMPORARILY the cylinder fixing brackets to the guide rails at the height stated in the project drawing.
- Mount the cylinder centering onto the top of the prop.
- Mount the cylinder fixing bracket.

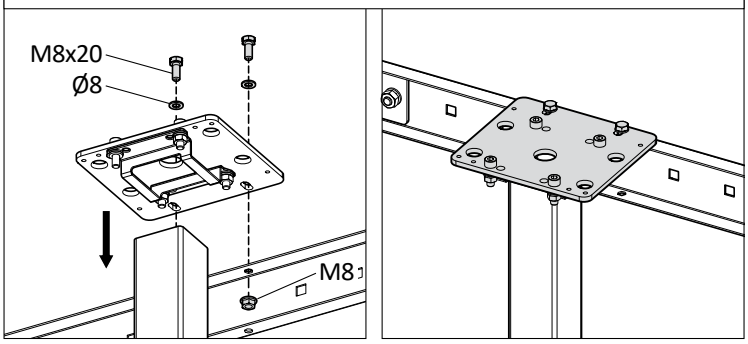
1 **KIT F350.23.0008**



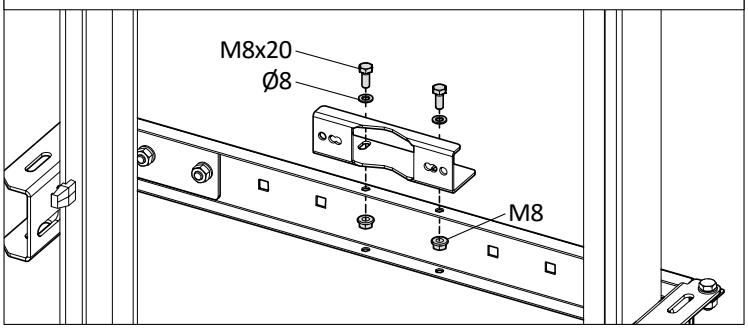
2 **V0301.04.0001**



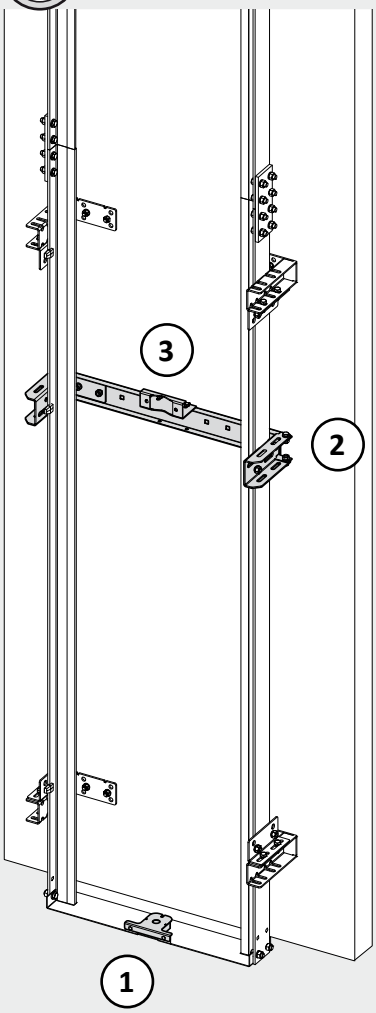
3 **KIT F350.23.0006**



4 **KIT F350.23.0006 + KIT F350.23.0014**

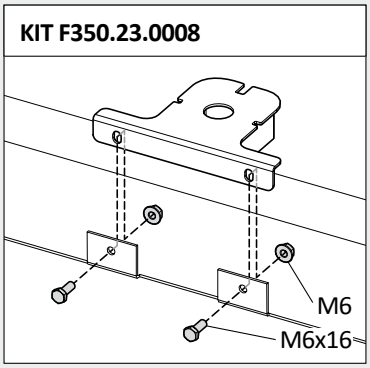


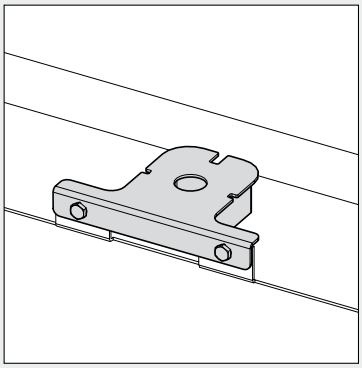
1:1



· Place the cylinder centering on the template.

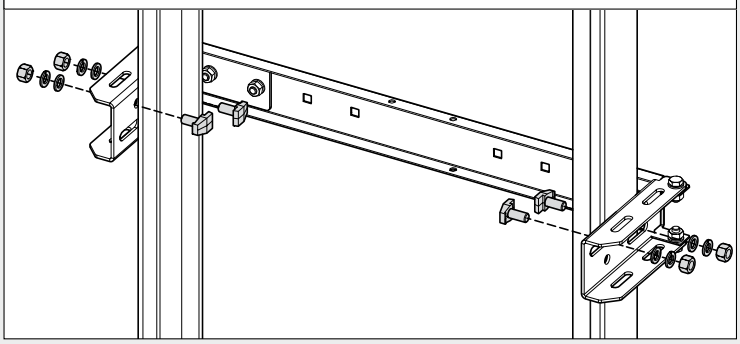
1 **KIT F350.23.0008**





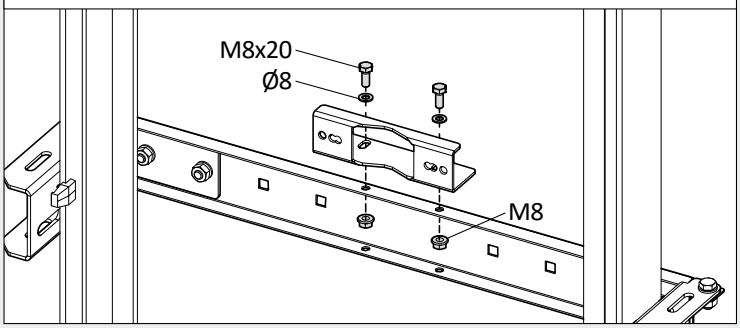
· Fix TEMPORARILY the cylinder fixing brackets to the guide rails at the height stated in the project drawing.

2 **V0301.04.0001**



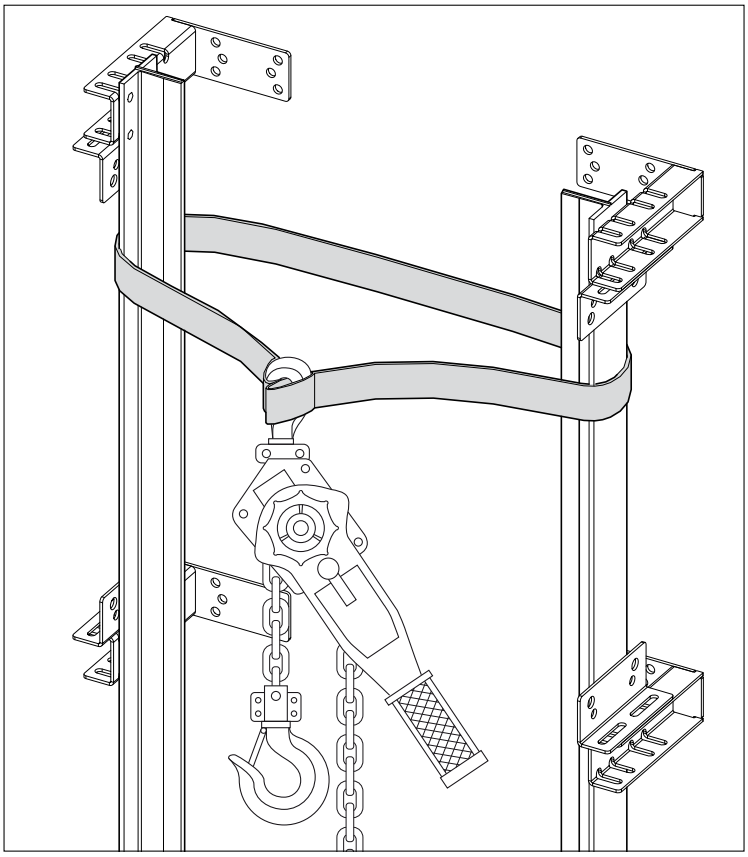
· Mount the cylinder fixing bracket.

3 **KIT F350.23.0006 + KIT F350.23.0014**

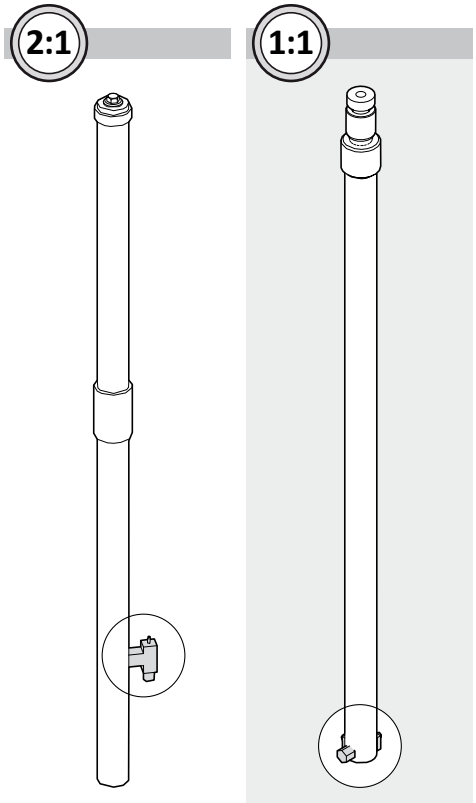


8.2 CYLINDER POSITIONING

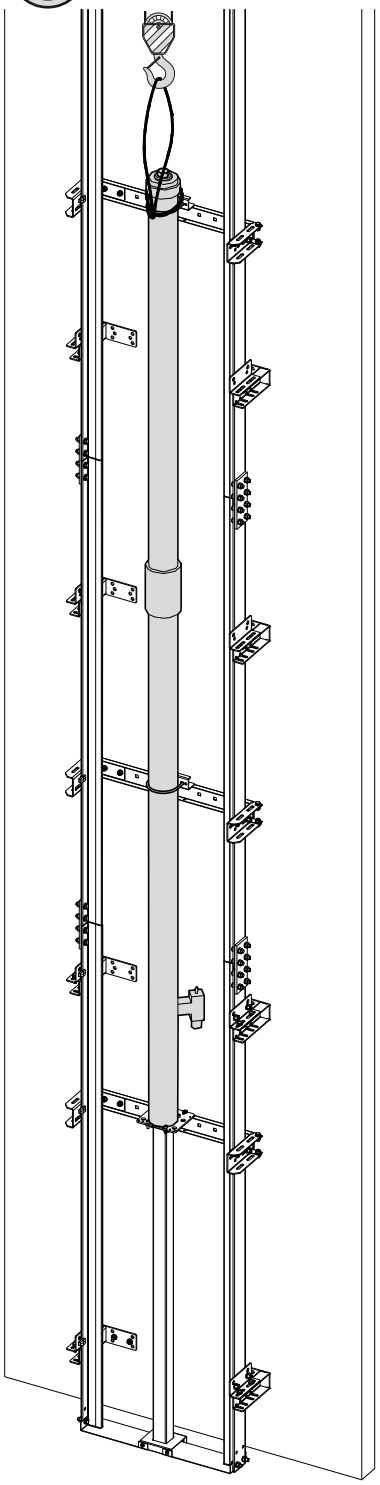
Provide a hook system for moving heavy loads. Hook a lifting belt aroung the guide rails, above one of the upper bracket layers, and fix the hoist thereto.



Check if the safety valve has been assembled on the cylinder. Otherwise assemble the valve, following the instructions available inside the hydraulic unit package.

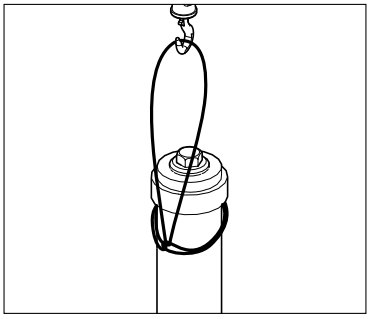


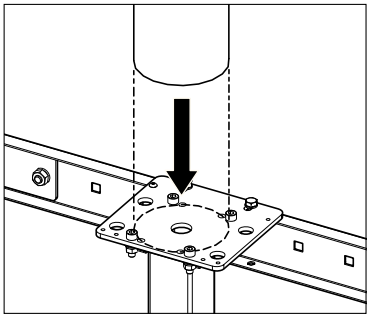
2:1



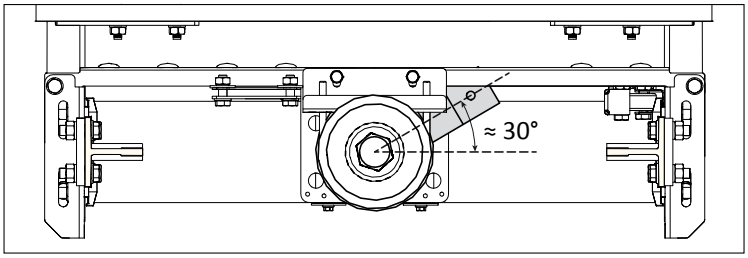
- Lift the cylinder and sling it by the top.
- Position the cylinder in the centering plate.

For 2-piece cylinders: joint the pieces, following the instructions available inside the hydraulic unit package.



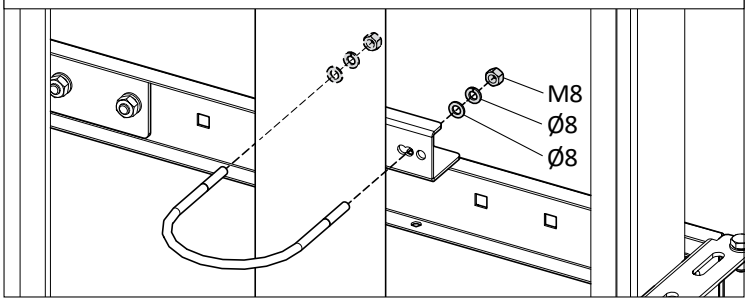


Position the cylinder in a way that the valve is at a 30° angle to the guide rail axis, towards the guide rail fixing side.

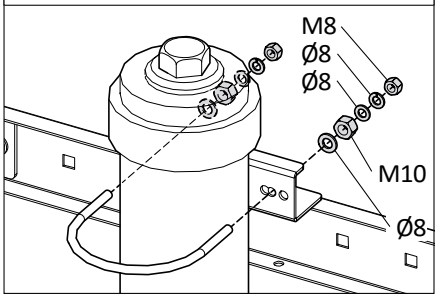


- Fix the U-bolt without fastening the screws.

KIT F350.23.0014

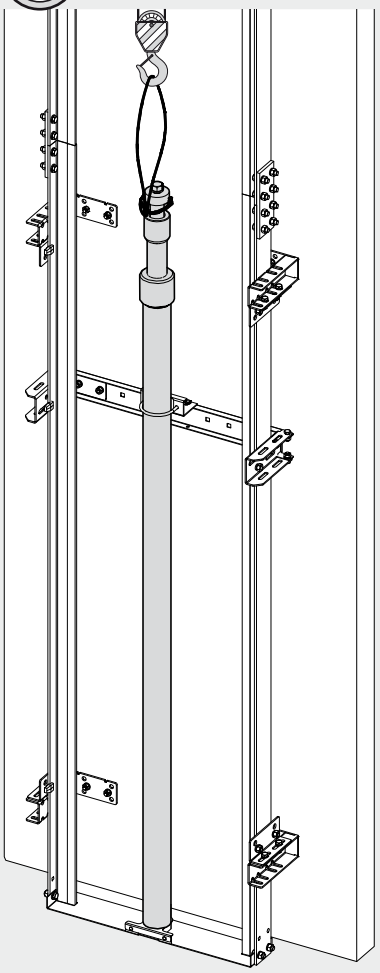


KIT F350.23.0014

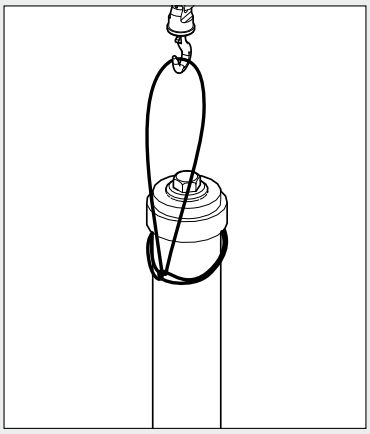


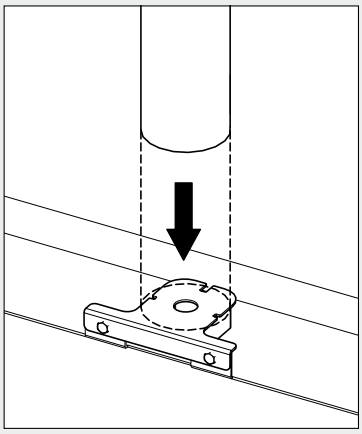
If the screw of the U-bolt is not sufficiently long, add another screw as shown, in order to fasten it.

1:1

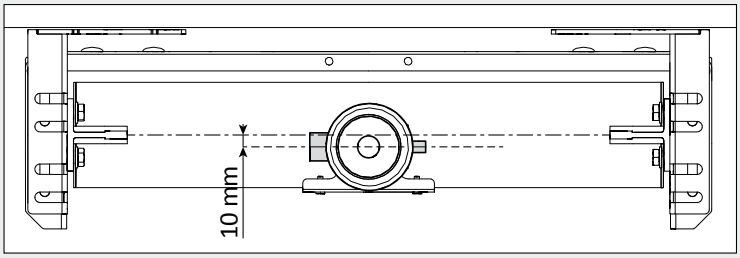


· Lift the cylinder and sling it by the top.
· Position the cylinder in the centering plate.



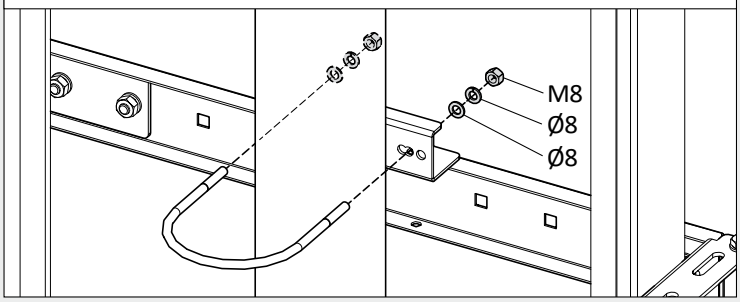


Position the cylinder in a way that the valve is parallel to the guide rail axis, the axis being shifted by 10 mm towards the car.

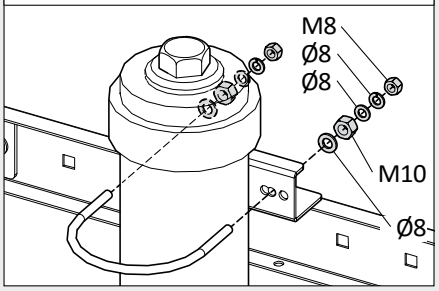


· Fix the U-Bolt without fastening the screws.

KIT F350.23.0014



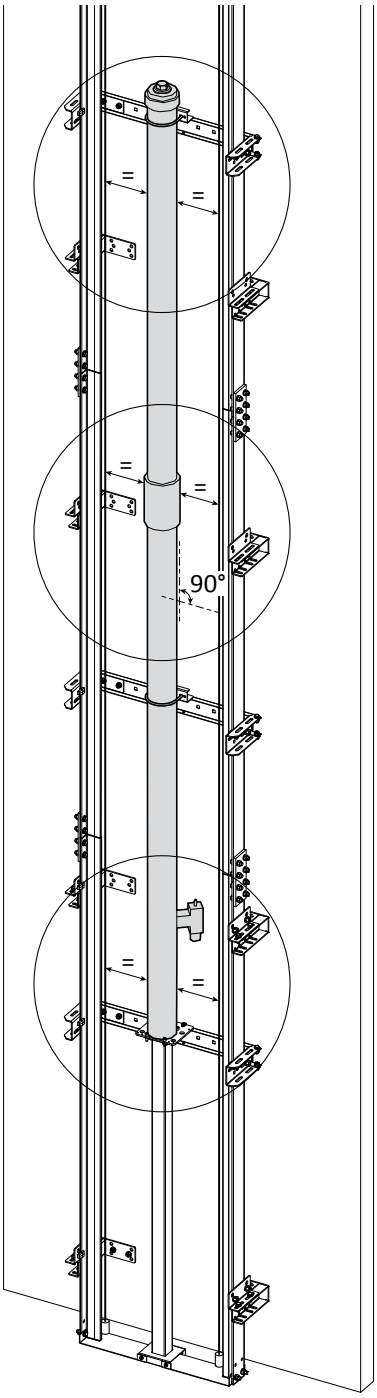
KIT F350.23.0014



If the screw of the U-bolt is not sufficiently long, add another screw as shown, in order to fasten it.

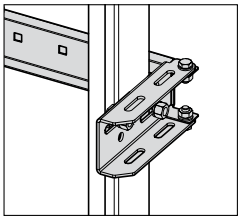
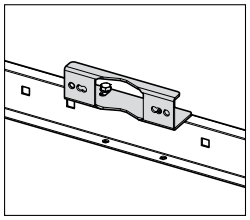
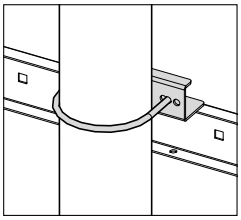
CYLINDER ALIGNMENT CHECK

Check if the cylinder is aligned with the plumb line.



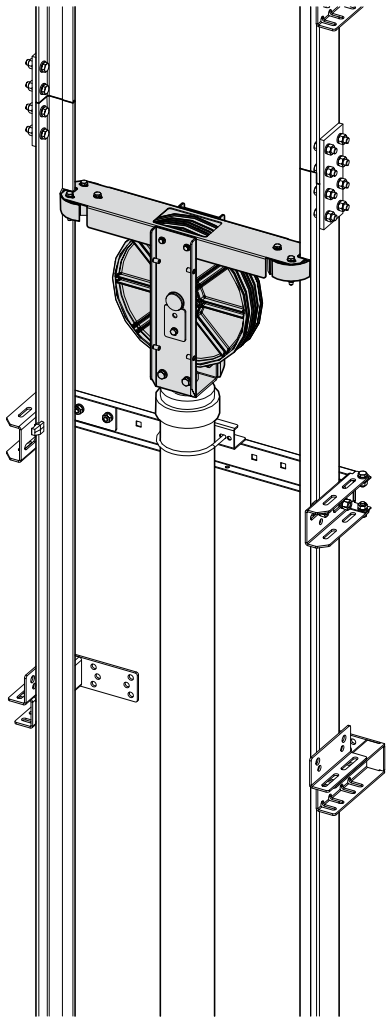
FASTEN THE SCREWS

· Fasten the mounted screws to end.

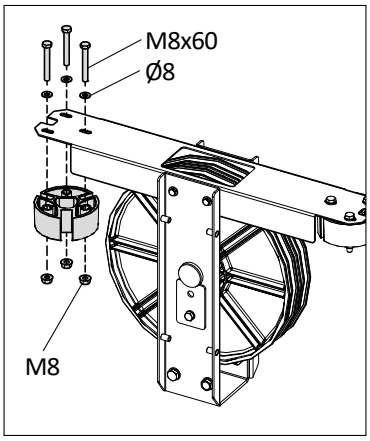




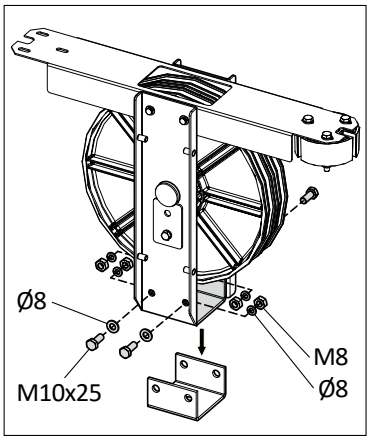
2:1

8.3 YOKE POSITIONING

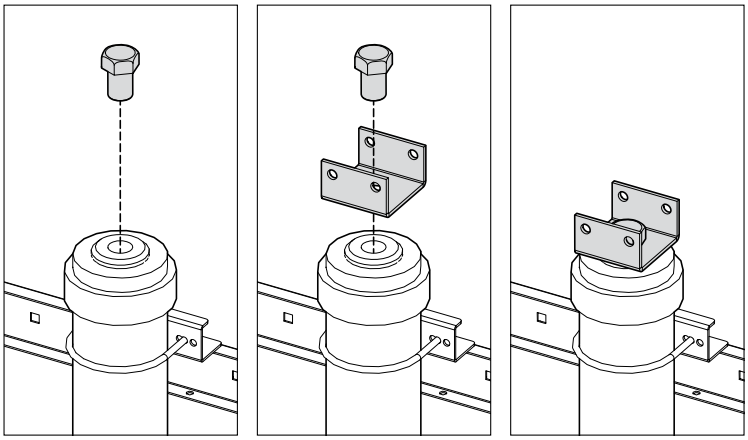


· Remove a siding shoe and the bottom plate from the yoke.

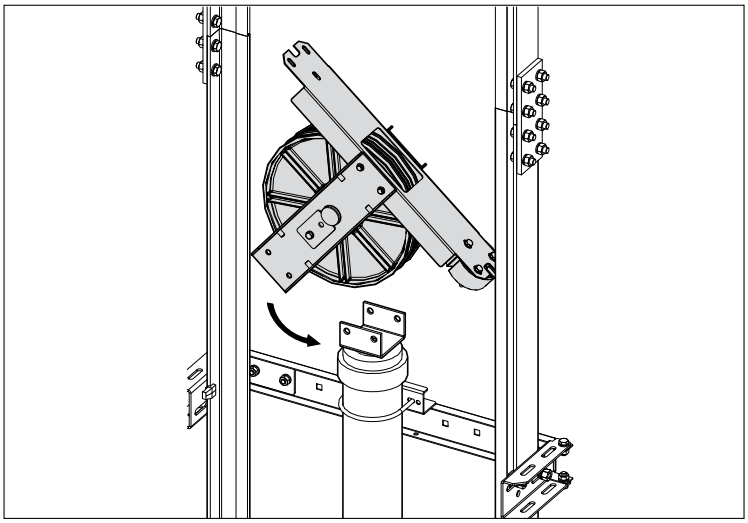




· Assembly the bottom plate onto the cylinder, using the screw.

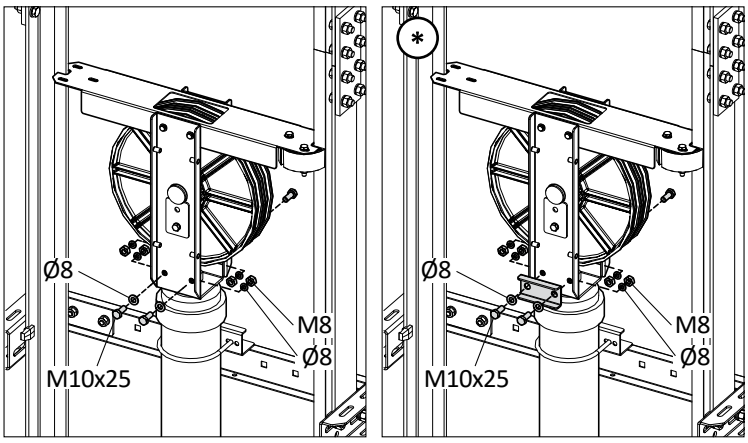


· Position the yoke.



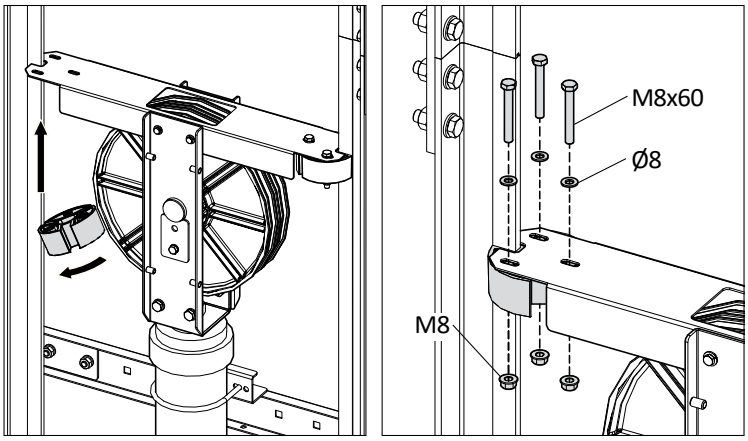
2:1

· Fix the yoke to the bottom plate, using the removed screws.

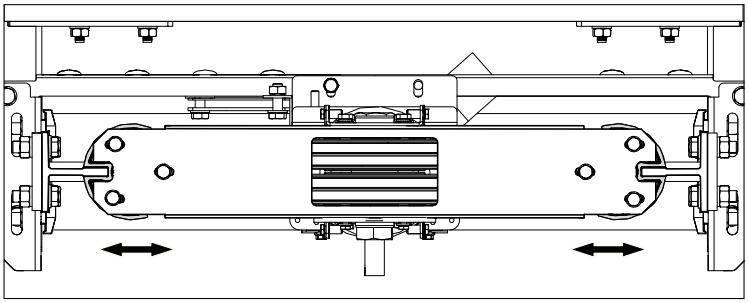


(*) In case of reduced headroom installation, the headroom spacer bracket is required on the car side.

· Re-assembly the shoe, using the removed screws.

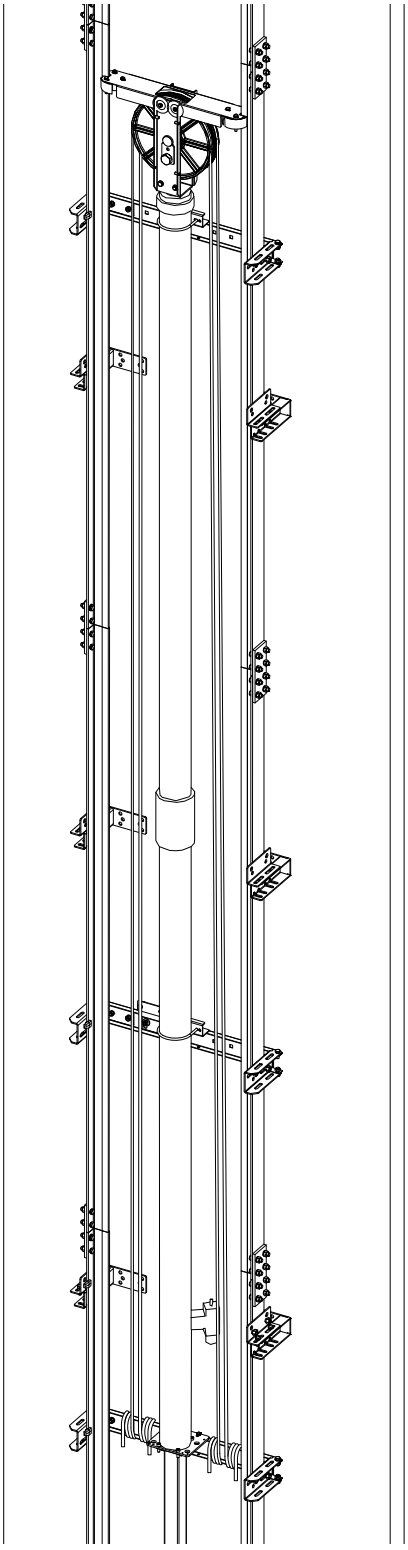


· Position the shoes at equal distance from the guide rails.The total play between shoes and rails must be 0.5÷1 mm.



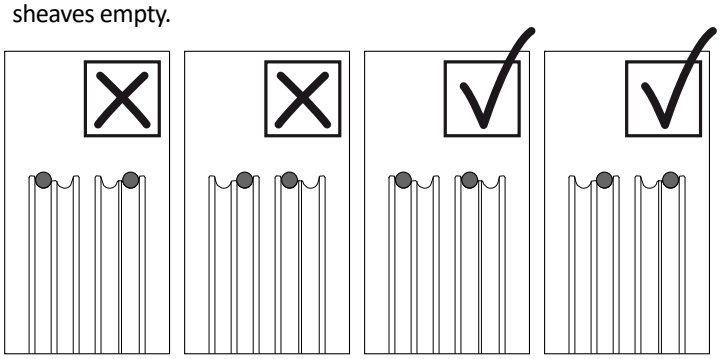
2:1

8.4 ROPES POSITIONING



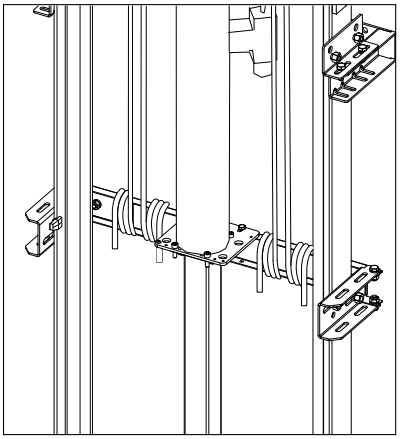
· Insert the ropes inside the pulley sheaves and lower them down to the lowest end of the cylinder.

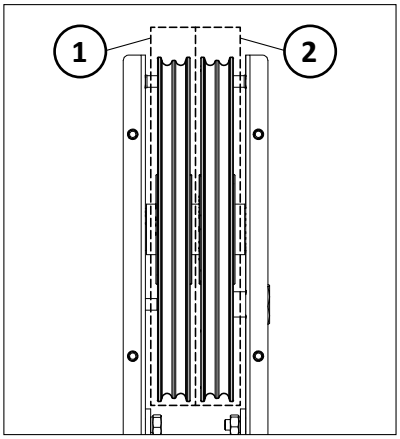
The pulleys are counter-rotating.
With 2 ropes: each of them is to be positioned onto a pulley leaving sheaves empty.



With 4 ropes: with the yoke head on, the ropes at the same side of the cylinder will be positioned onto the same pulley.

· The far endrs are to be temporarily fixed to the cylinder starting bracket.





· Assembly the protection guards.

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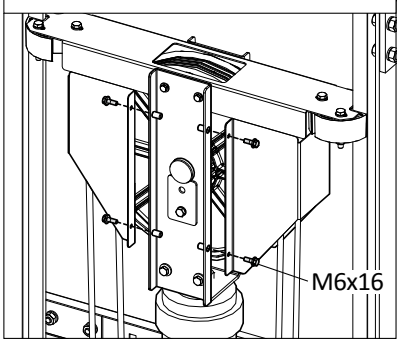


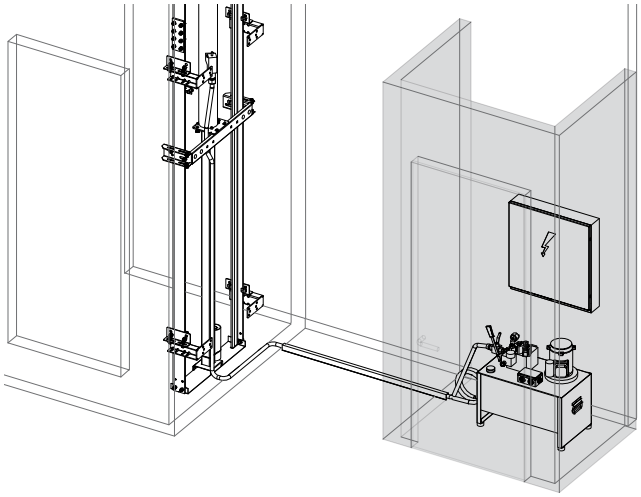
9 HYDRAULIC UNIT & CONTROL BOARD

9.1 MACHINE ROOM PRE-ARRANGEMENT

The related regulation requires that the Hydraulic Unit and the Control Board be positioned in a separate room (the so-called MACHINE ROOM) with a limited access. This measure is to prevent unauthorized personnel from accessing the equipment.

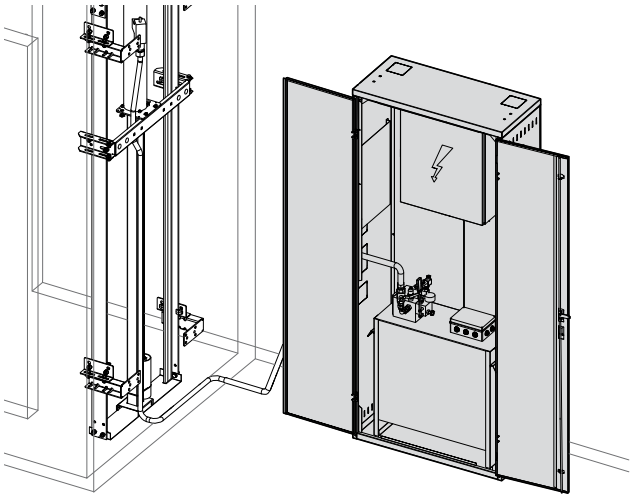
CASE 1 - MACHINE ROOM = ROOM LOCKED WITH KEY

The hydraulic unit and the control board (protected by a special box) are positioned inside the room.



CASE 2 - MACHINE ROOM = METAL CABINET

The cabinet accommodates both the hydraulic unit and the control board (without a special box).



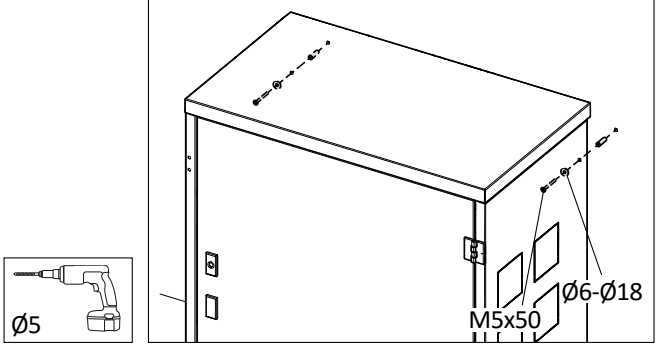
For cabinet assembly please refer to App. A2 and A3.

The area in front of the cabinet must be left clear, to guarantee an easy access to the authorized staff.

9.2 HYDRAULIC UNIT BOX POSITIONING

- Install the metal box as per attached instructions.
- Position and fix the box, in accordance with the project drawing.

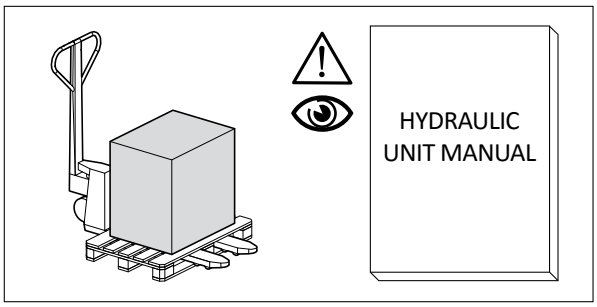
KIT F350.23.0041



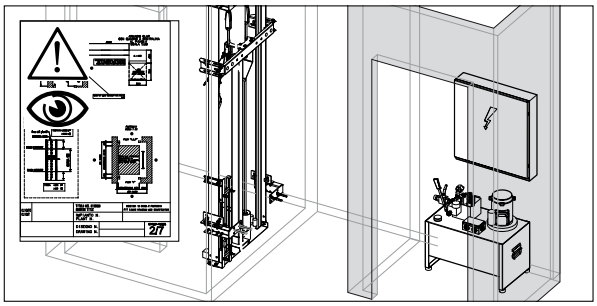
9.3 HYDRAULIC UNIT POSITIONING

The manuals related to the hydraulic unit and piston can be found in the hydraulic unit package (inside a plastic bag).

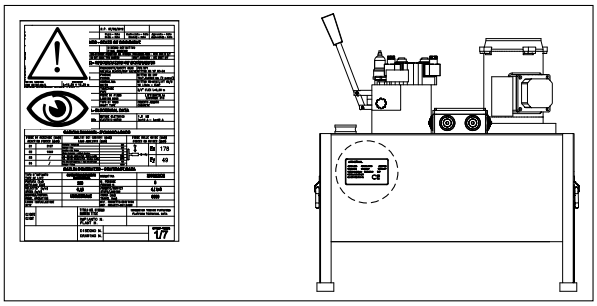
· To avoid damaging the tank and/or external tank components, always consult the specific instructions, when handling the hydraulic unit .



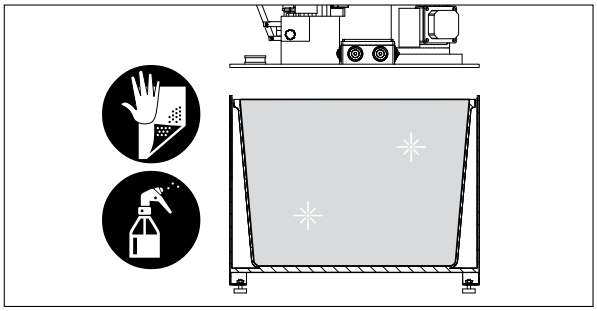
· Position the hydraulic unit as foreseen by the project drawing, checking for the pre-arranged machine room or a special cabinet.



· Check if the data stated on the plate match the project drawing.

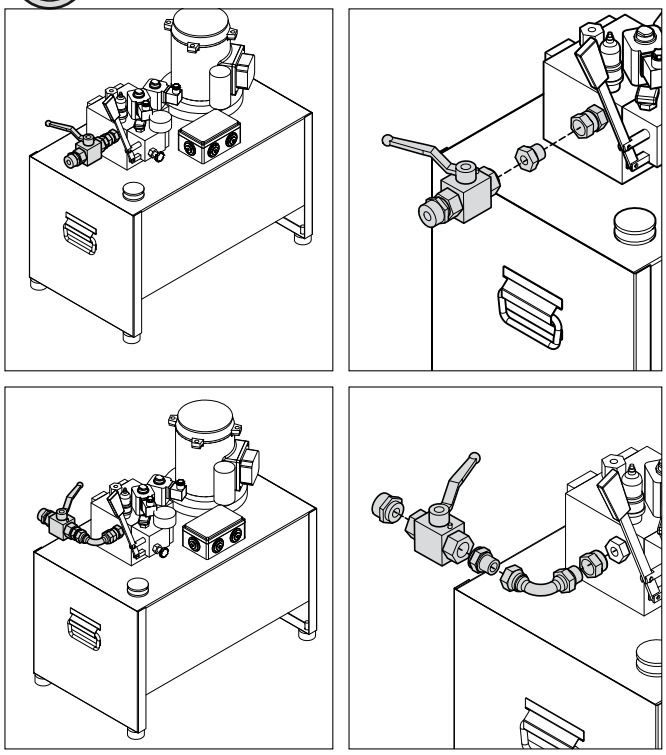


· Make sure the tank is perfectly clean, otherwise remove any traces of dirt using a cloth.

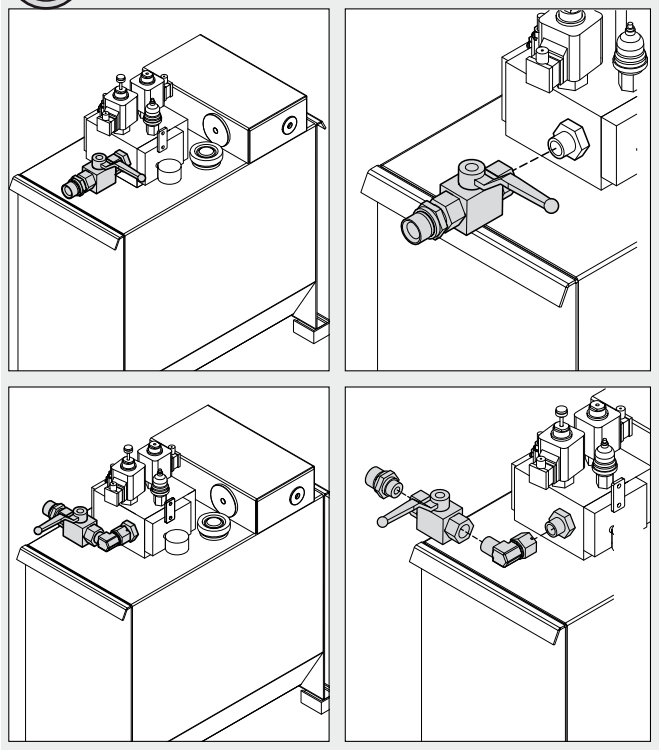


· Assembly the globe valve on the valve group, insert a curve sleeve, if necessary.

2:1

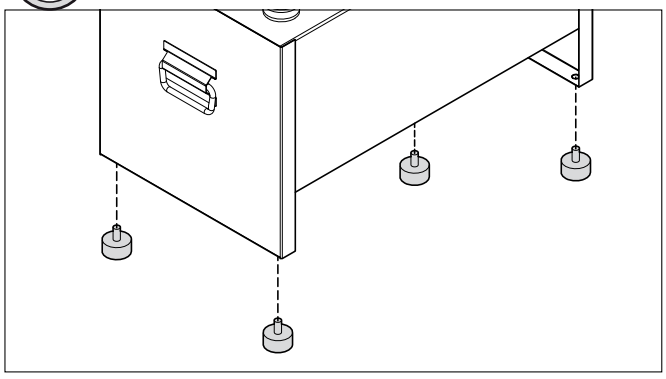


1:1

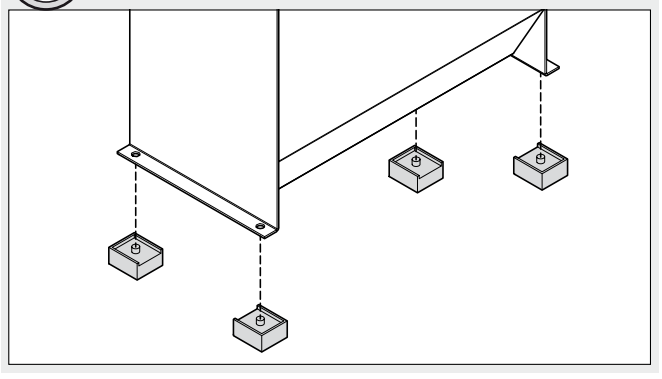


· Insert anti-vibration pads under the base of the hydraulic unit.

2:1



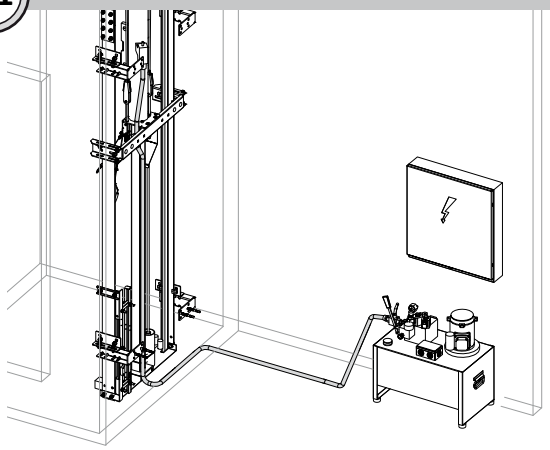
1:1



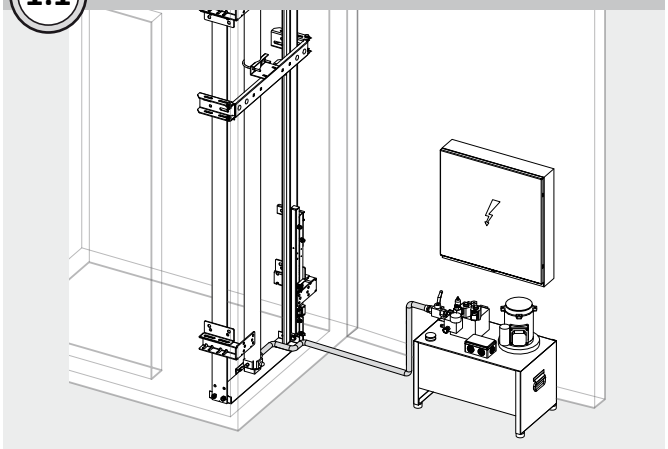
9.4 HYDRAULIC HOSE CONNECTION

· Extend the oil hose between the hydraulic unit and the safety valve installed on the cylinder.
Check the correct positioning, using the project drawing.

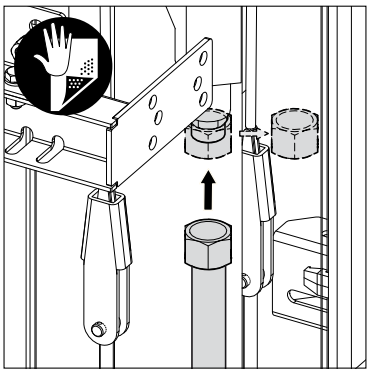
2:1

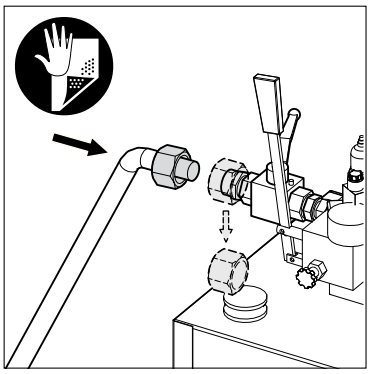


1:1

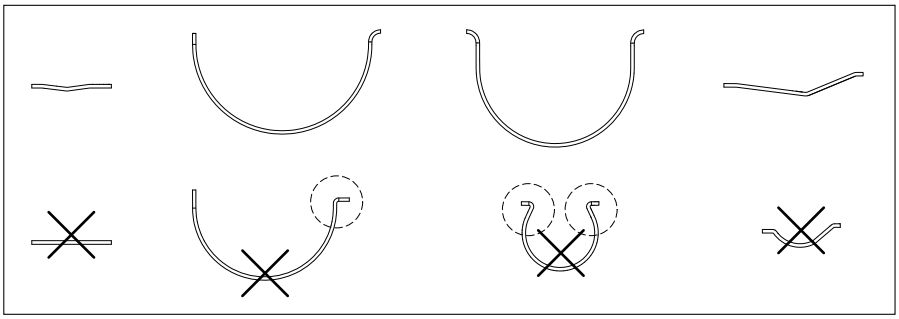


· Remove any protection covers from threaded manifolds.
· Check if the parts to be connected are perfectly clean.
· Join the hose (if supplied in several parts).
· Fasten the threaded manifolds tubo/centralina e tubo/valvola paracadute.

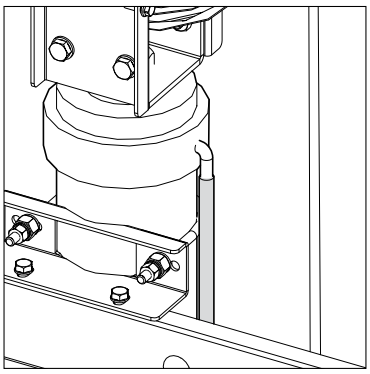




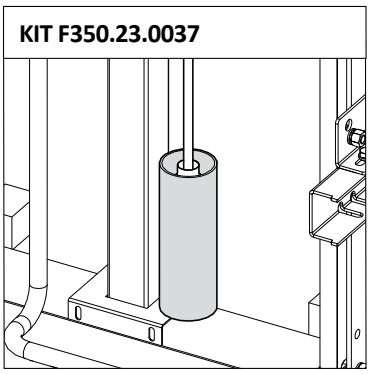
· Make sure that: the hose is not stretched; no curves with R < 500 mm



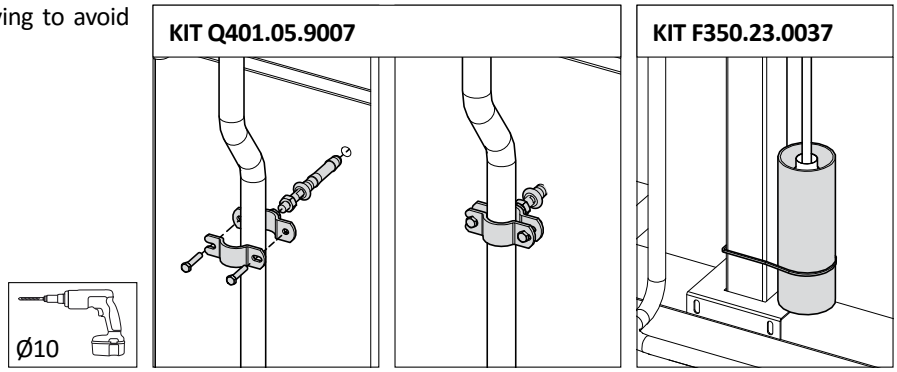
· Insert the oil recovery hose into the pin on the top of the cylinder, the other far end must be put inside a container (a PET bottle can be enough).



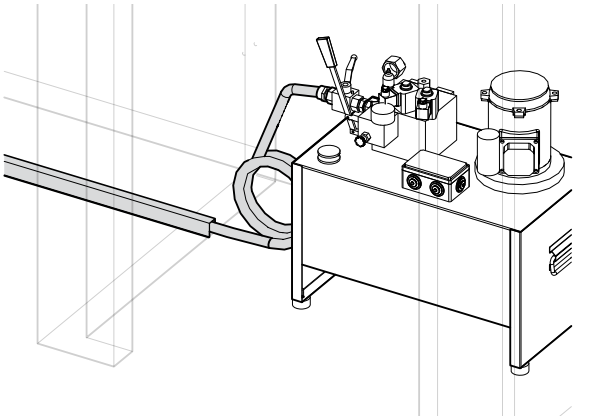
KIT F350.23.0037



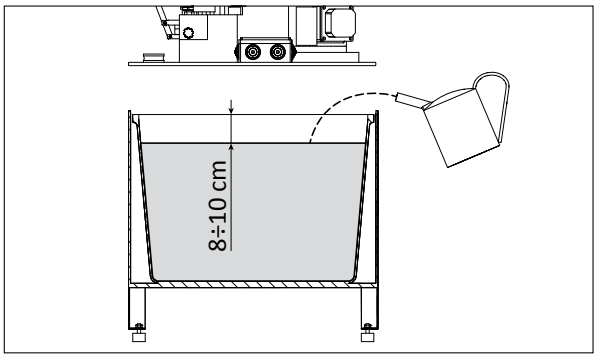
· Fix the hoses and oil recovery tank, trying to avoid overlapping.



· Collect the exceeding hose close to the hydraulic unit, paying attention to the correct flexure of the hose.
· Protect the exposed and through wall sections of the hose.

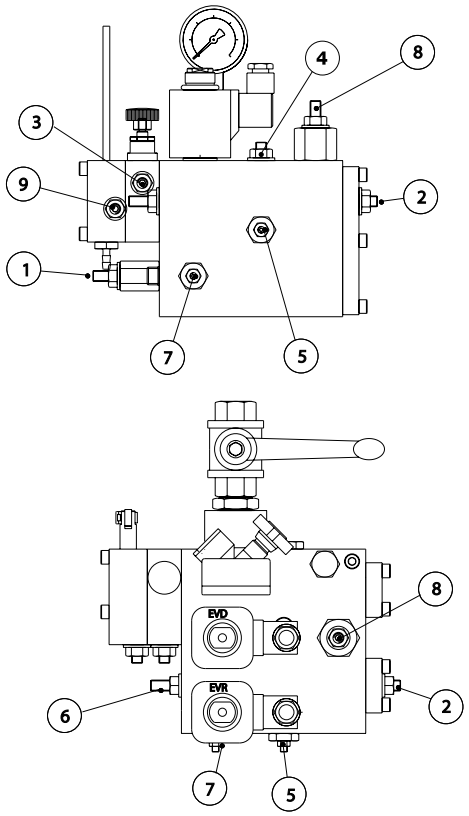


· Fill the tank up to 8÷10 cm from the rim, using the hydraulic oil supplied with the unit.

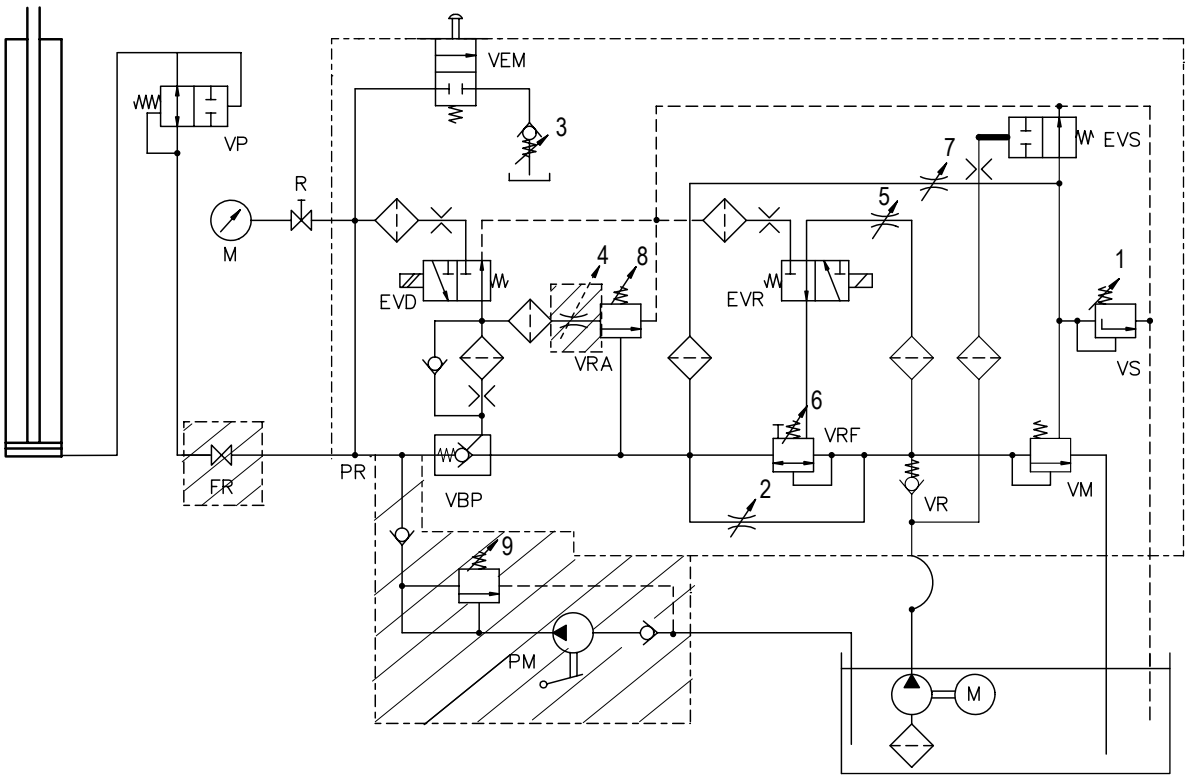


2:1

9.5 2 SPEED HYDRAULIC UNIT : TECHNICAL SPECIFICATION



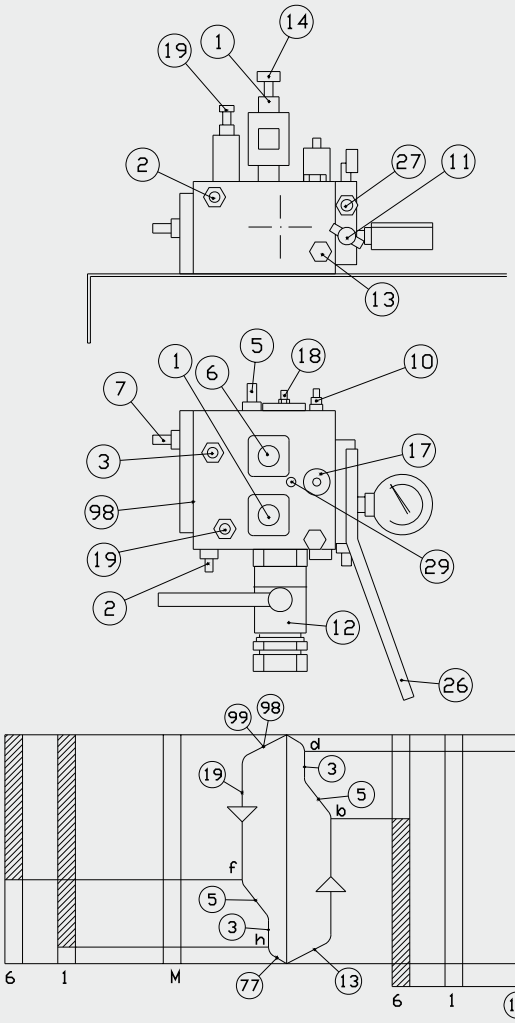
LEGEND	
1	Maximum pressure valve settings
2	Low speed adjustment (UP and DOWN)
3	Rope guard and counter pressure settings
4	Pressure valve reaction test
5	Narrowing device for speed reduction (UP and DOWN)
6	Ascent speed limit control
7	Narrowing device for pressure control and ascent start
8	Descent speed limit control
9	Manual pump pressure settings
EVD	Descent electro valve
EVR	Flow adjustment electro valve
EVS	Ascent valve
FR	Tap filter
M	Manometer
PM	Manual pump
PR	Pressure switch connection
R	Tap and Rubinetto 1/2" gas connection for control manometer
VBP	Controlled block valve
VEM	Manual Emergency
VM	Maximum pressure valve
VP	Safety valve
VR	Check valve
VRA	Descent balancing valve
VRF	Flow adjustment valve
VS	Safety valve



EN

1:1

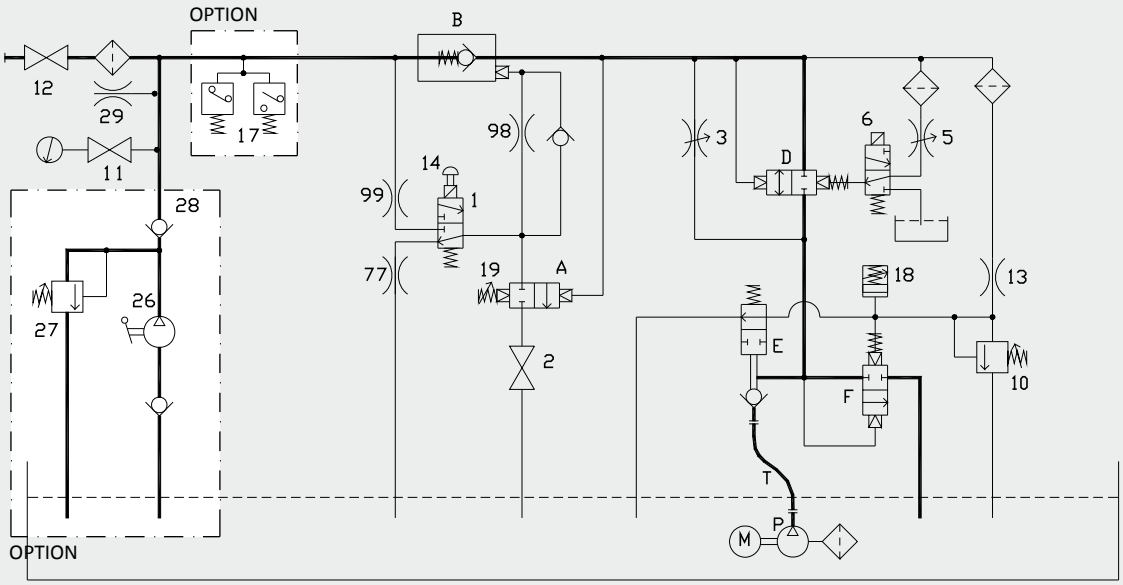
9.6 2 SPEED HYDRAULIC UNIT : TECHNICAL SPECIFICATION



1	Descent electro valve	
2	Safety valve test tap	
3	Low speed adjustment during ascent and descent	- screw to decrease (-) - unscrew to increase (+)
5	Speed change time adjustment	- screw to increase (+) - unscrew to decrease (-)
6	Elettrovalvola di alta velocità	
7	Maximum speed adjustment (*)	
10	Safety valve pressure adjustment	- screw to increase (+) - unscrew to decrease (-)
11	Pressure gauge exclusion tap	
12	Valve group exclusion tap	
13	Narrowing device for ascent start	
14	Manual descent button	
(17)	Pressure switch ***(option)***	
18	Starting speed time adjustment	- screw to decrease (-) - unscrew to increase (+)
19	Descent speed time adjustment	- screw to increase (+) - unscrew to decrease (-)
(26)	Manual pump ***(option)***	
(27)	Manual pump safety valve ***(option)***	- screw to increase (+) - unscrew to decrease (-)
(28)	Manual pump check valve ***(option)***	
29	Manual pump escape screw	
77-98-99	Adjustment narrowing devices (*)	
A	Pressure adjustment	
B	Controlled check valve	
D	Speed passage valve	
E	One-way distribution valve	
F	Safety and ascent starting valve	
M	Drive	
P	Pump	
T	Hose	

(*) ADJUSTMENT DURING FACTORY TEST RUN, TO CHANGE THE PARAMETERS REFER TO THE HYDRAULIC UNIT MANUAL

h	Descent stop contact
f	Slow-down descent contact
d	Ascent stop contact
b	Slow-down ascent contact



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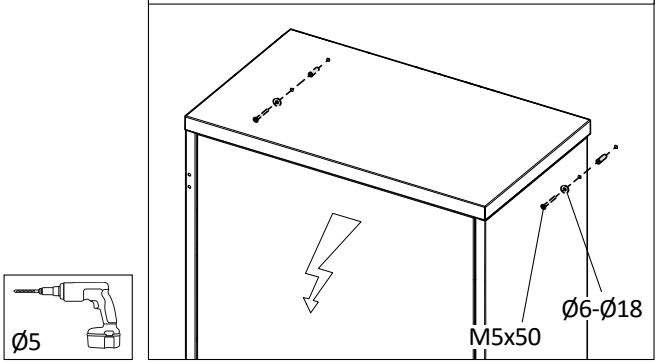
9.7 CONTROL BOARD POSITIONING

Position the control board according to the project drawing.

CASE 1 - CONTROL BOARD IN MACHINE ROOM

· Fix the cabinet inside the room.

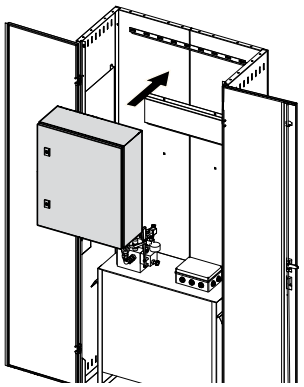
KIT F350.23.0041



CASE 2 - CONTROL BOARD INSIDE HYDRAULIC UNIT CABINET

· If foreseen, fix the control box to the bracket inside the hydraulic unit cabinet, then hang it onto the bracket situated on the hydraulic unit box.

For cabinet assembly please refer to App. A2 and A3.



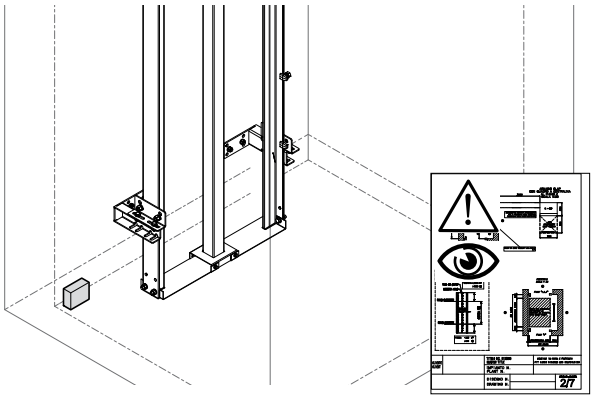
To effect al the connections correctly, the project drawing and installation instructions must be strictly followed.
The first connections to be effected in the control board are:

· with the grounding connector;
· with the power supply board installed in the machine room;
· with the electrical drive, termistors and thermostat of the hydraulic unit.

10 ELECTRICAL CONTROL DEVICES

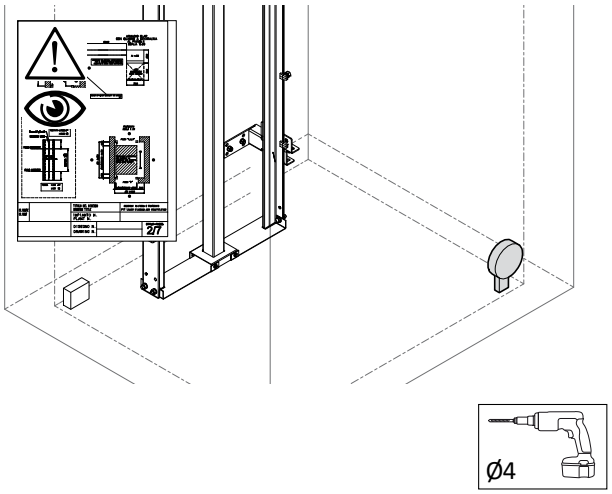
The manual explains how to install (mechanically) the electronic control devices, for electrical connections refer to the electrical schemes of single components, to be found in the related packages.

10.1 JUNCTION BOX IN PIT



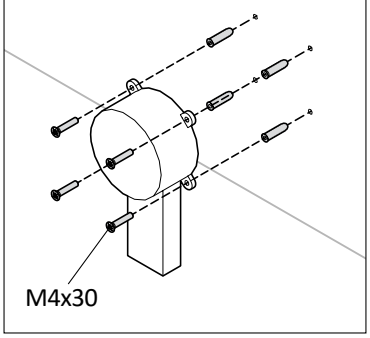
- Position the box in the pit as shown on the project drawing. The box is to be put on the floor, without wall fixing.

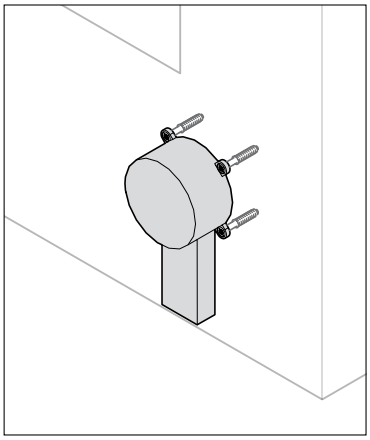
10.2 STOP IN PIT



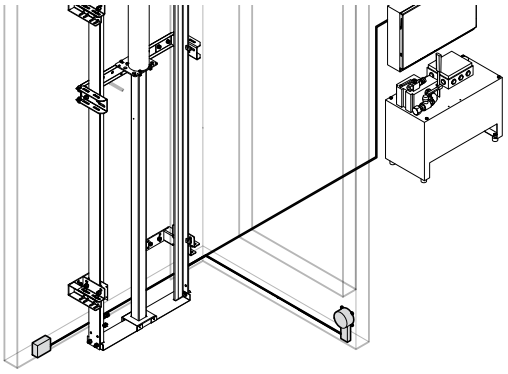
- Position the STOP in the pit as shown on the project drawing.

KIT F350.23.0041



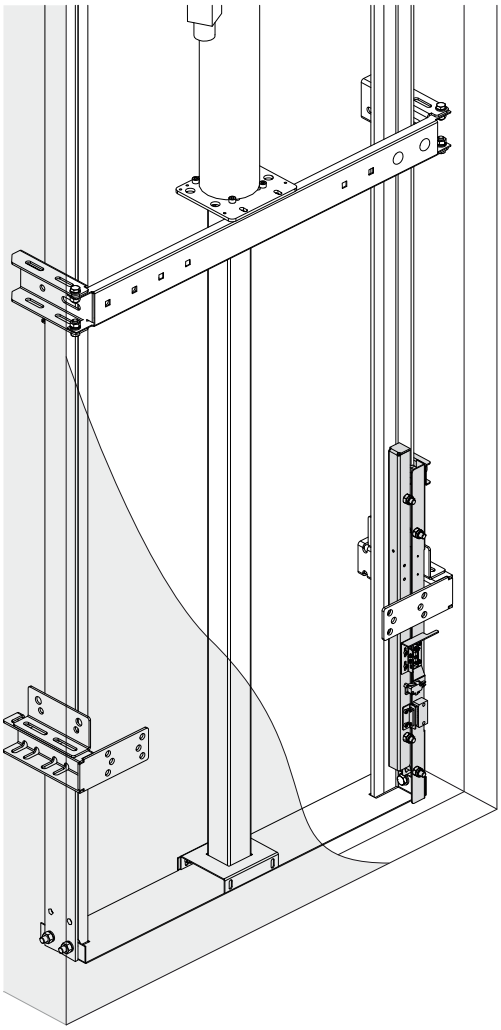


10.3 JUNCTION BOX CABLE IN PIT and STOP IN PIT



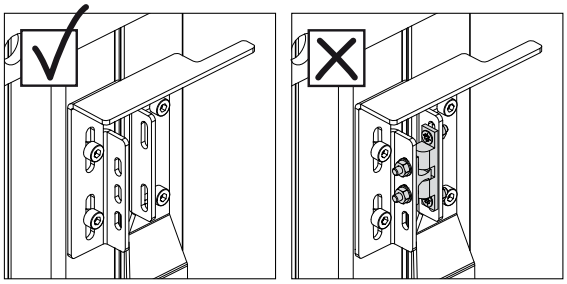
- Connect the junction box to the "stop" using the supplied cable.

10.4 PILLAR SAFE-PIT DEVICE (artificial pit)



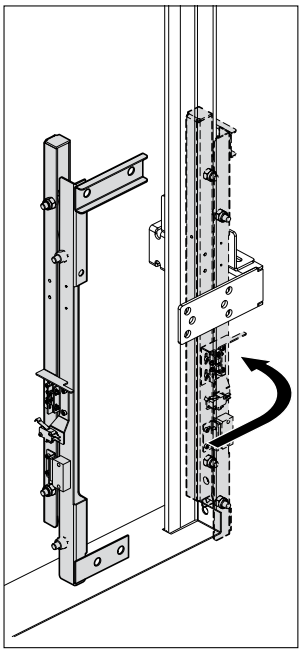
FOR PIT ACCESS
strictly follow the istructions stated in paragraph **1.4.2** of **"Maintenance Instructions"** manual.

IN CASE OF FRONTAL PIT ACCESS, REMOVE BLOCKING LATCH



· Fix the Safe-Pit device to the guide rail.
Position it as shown on the project drawing.

For a further fixing, unscrew the fixing screws of the template, position the Safe-Pit and then re-assembly the screws.



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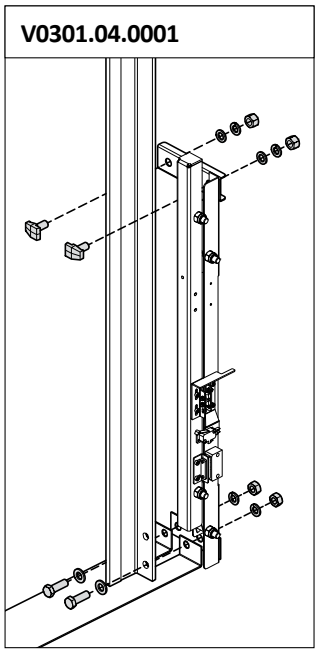
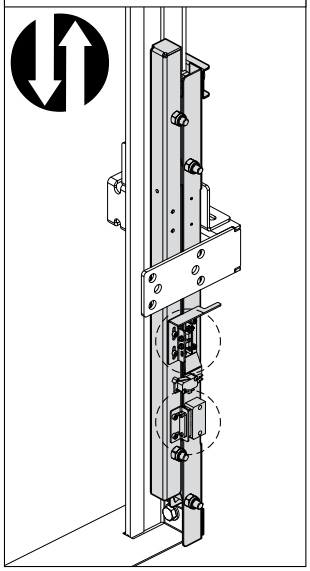
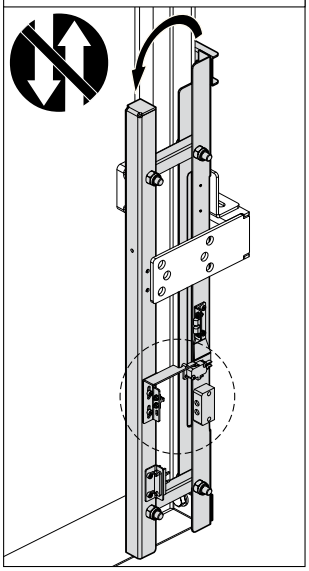


· Make sure the micro switches move and function correctly.

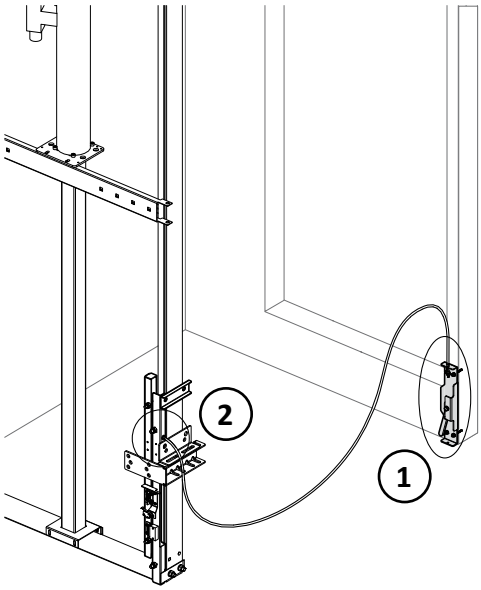
SAFE-PIT CLOSED



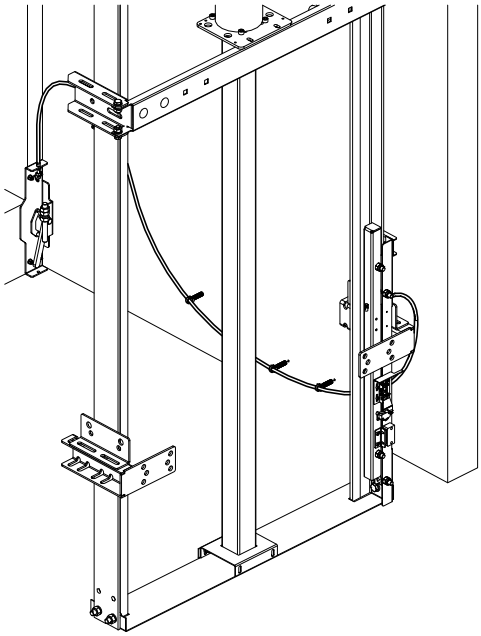
SAFE-PIT OPEN



IN CASE OF FRONTAL PIT ACCESS



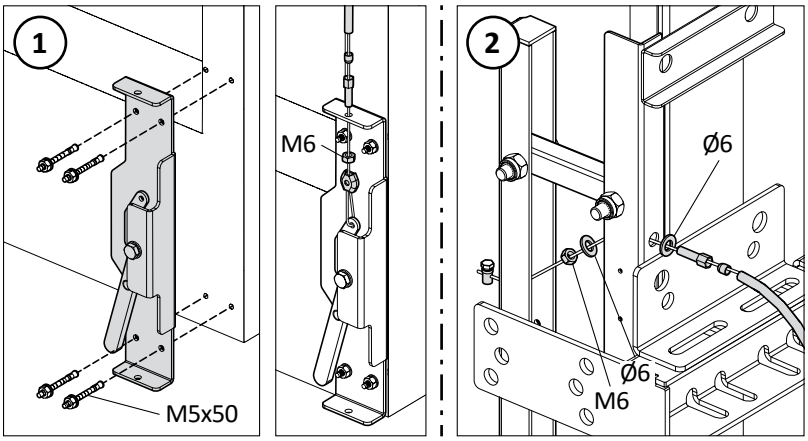
In case of a lift with a metal shaft, the lever must be fixed by means of auto-perforating screws instead of wall plugs.



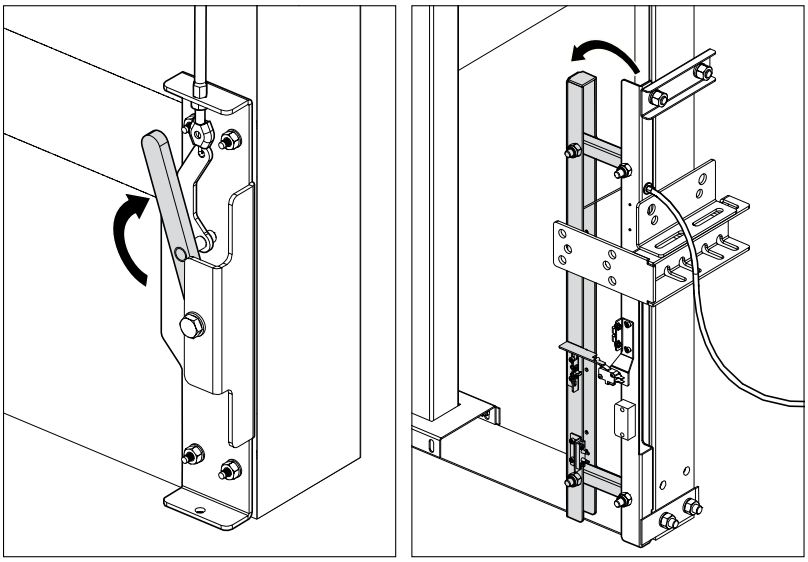
In case of frontal pit access it is necessary to provide a lever close to the entrance, in order to enable the Safe-Pit.

KIT F350.23.0040

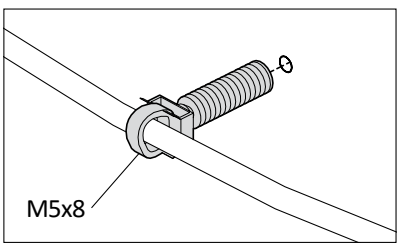
· Fix and connect the lever, as shown on the project drawing.
In absence of precise indications, position the lever so that it may be easily reached from outside the shaft, and make sure that the cable does not hamper with maintenance or normal operations.



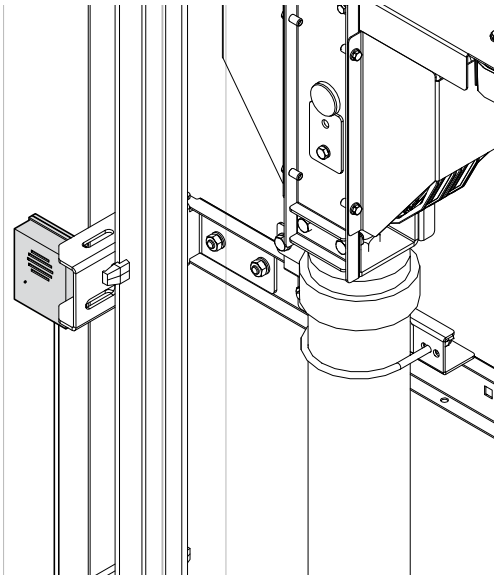
· Fix the cable inside the casing, so as to enable the Safe-Pit upon lifting the lever.



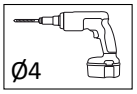
· Fix the casing by means of supplied clamps.



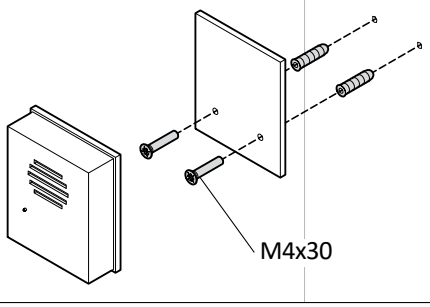
10.5 ALARM SIGNAL



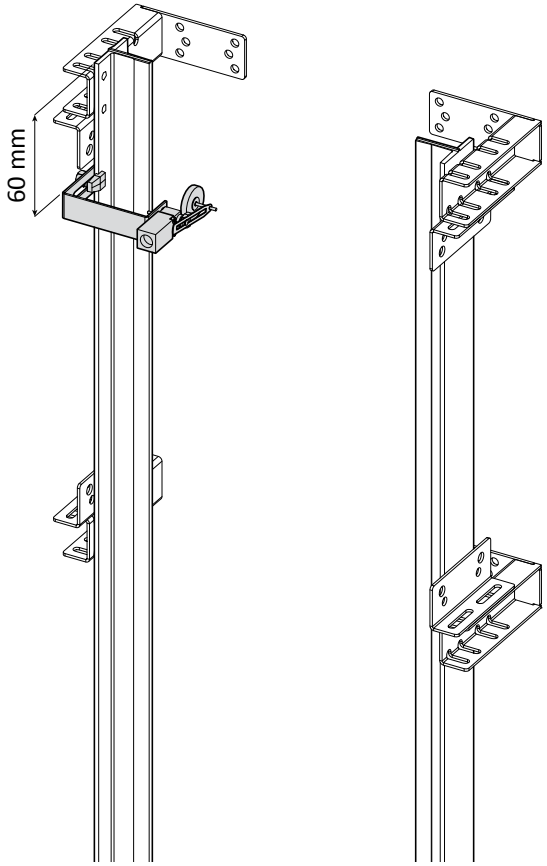
- Fix the alarm in the shaft, so as to make it audible when enabled.



KIT F350.23.0041

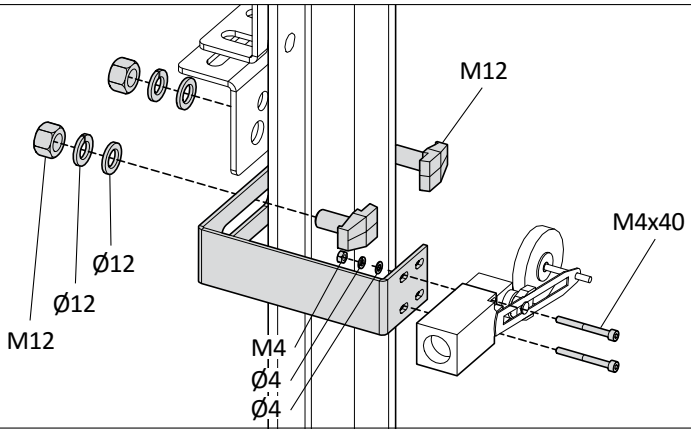


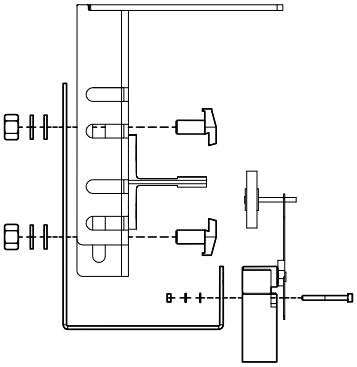
10.6 UPPER OVERRUN CONTACT



- Fix the contact at 60 mm distance from the top of the guide rail.
- Check the reference guide rail on the project drawing.

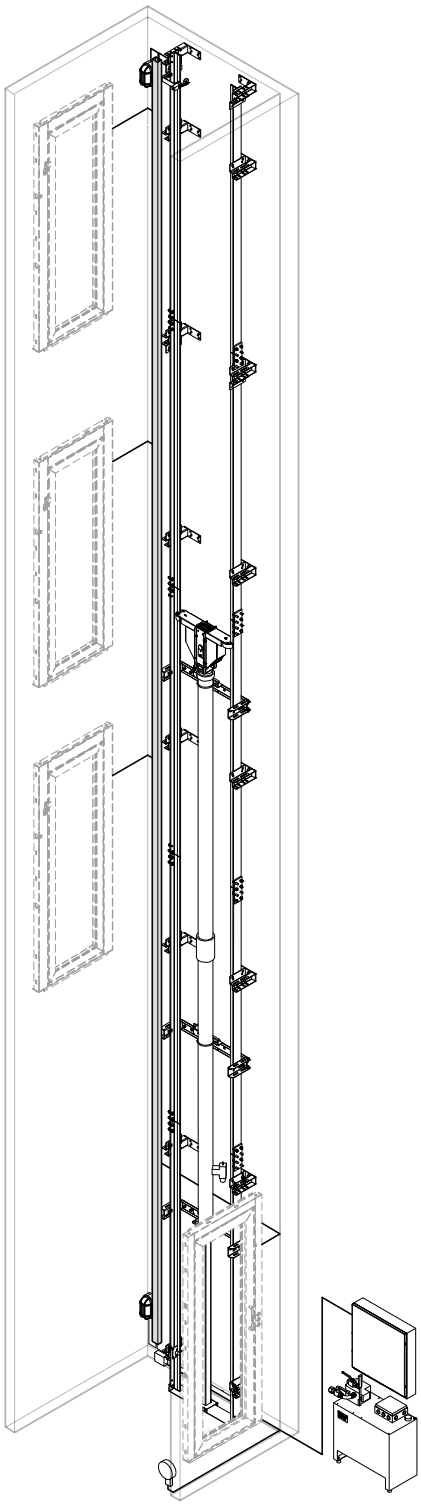
KIT F300.23.0010





The final adjustment is carried out during the first trial runs.

10.7 PRE-WIRED ELECTRICAL GRID IN SHAFT

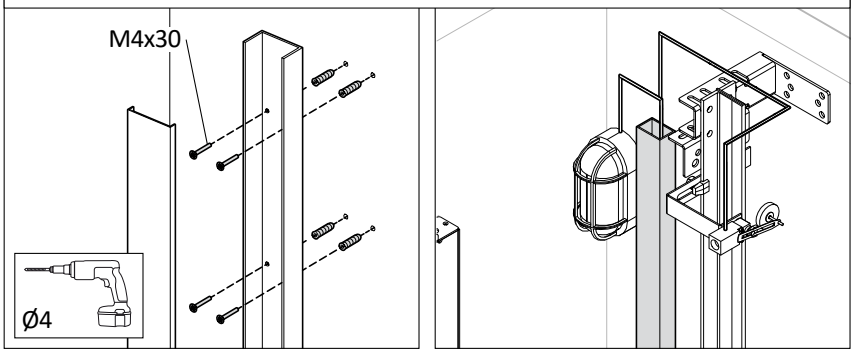


The shaft grid allows the following connections to the control board:

- overrun contact;
- landing doors safety contacts;
- landing door frames grounding;
- landing operation panels grounding;
- pushbuttons and signals on landing operation panels;
- car lighting (if foreseen)
- electro locks and unblocking contacts (if foreseen).

CASE 1 - ELECTRICAL GRID WITH CABLE DUCTS AND SHAFT COIL

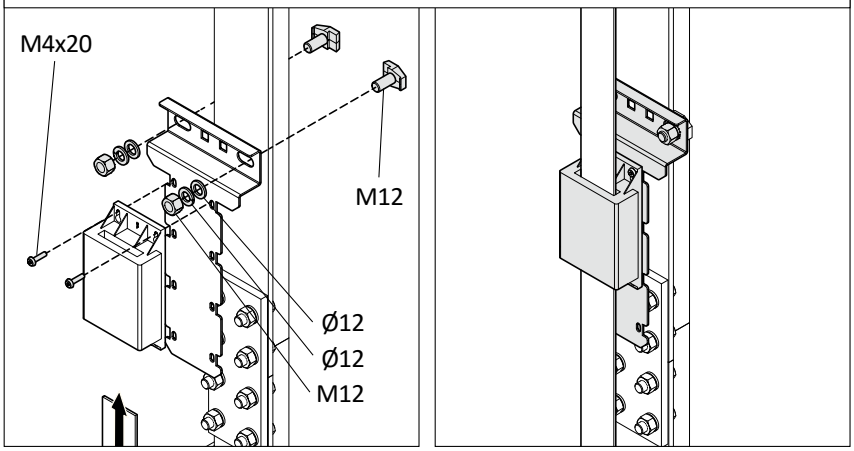
KIT F350.23.0041



- Fix the cable duct to the wall and insert the flat cable and the related extensions.

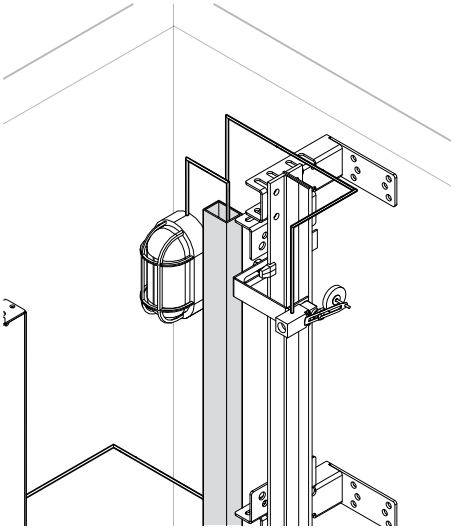
CASE 2 - ELECTRICAL GRID WITH FLAT CABLE AND KONBOX JUNCTION BOXES

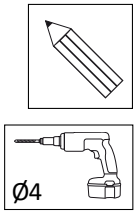
KIT E202.23.0001



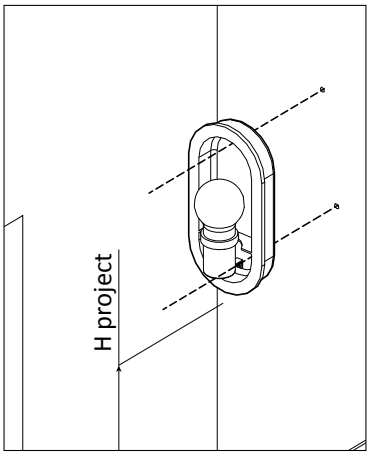
- Fix one KONBOX per entrance, above the door frame.

10.8 LIGHTING IN SHAFT (if foreseen)

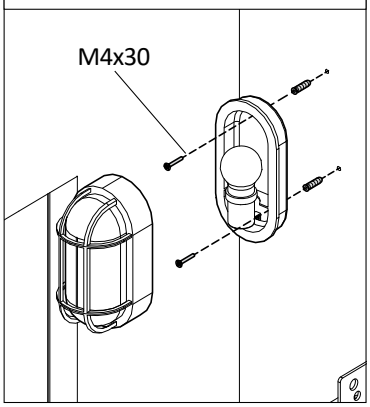




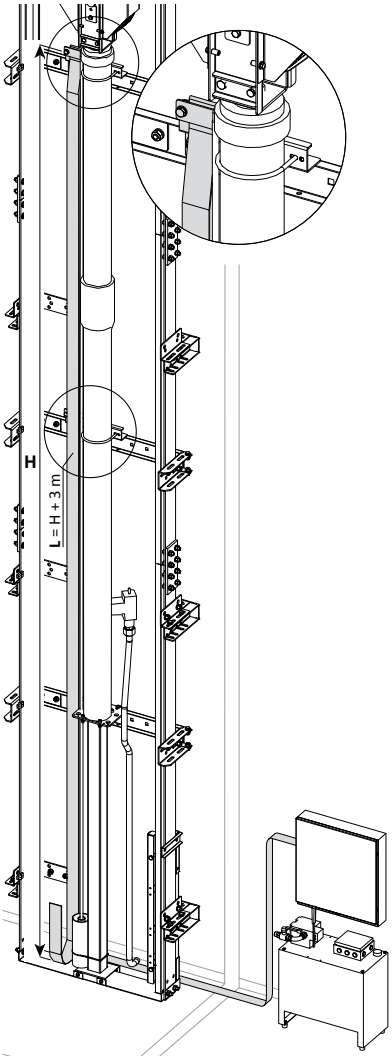
· Fix the lamp as indicated in the project drawing.



KIT F350.23.0041



10.9 FLAT CABLE

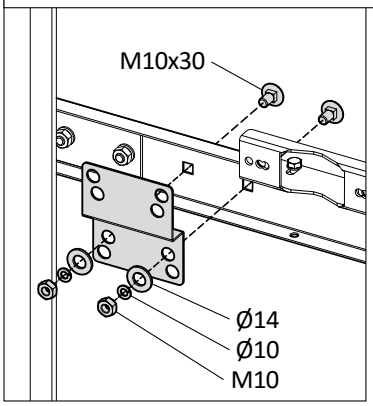


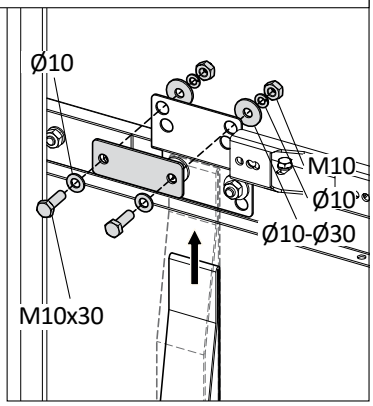
· Fix the flexible cable as shown on the project drawing.

Fix the flat cable as to have the length **L = H + 3 m** (frame side).

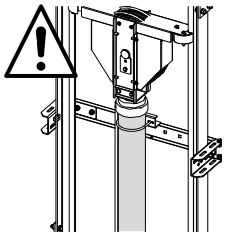
CASE 1 - with GAP ≥ 550

KIT F350.23.0039V01



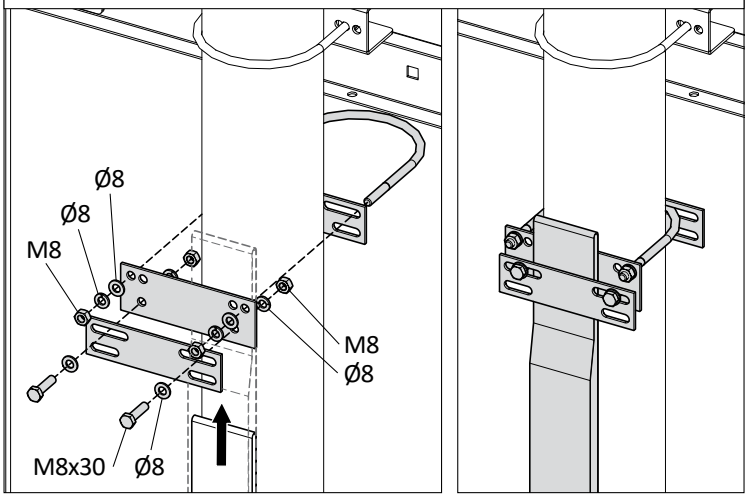


In case of a lift with 3 cylinder large brackets, a fixing to the second bracket must be provided.

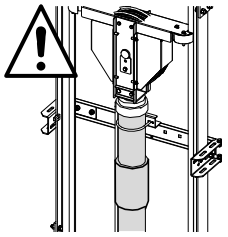


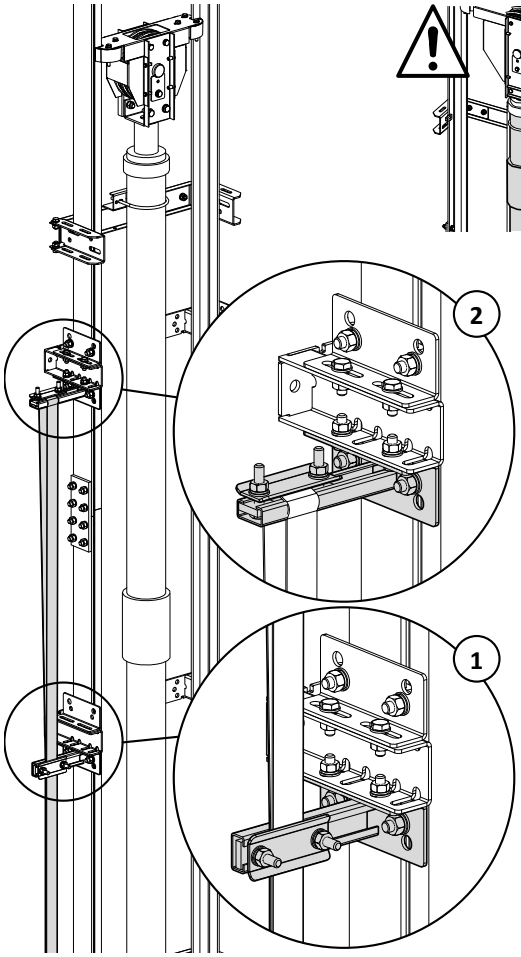
CASE 2A - with GAP = 350 mm and CYLINDER in ONE PIECE

KIT F350.23.0015

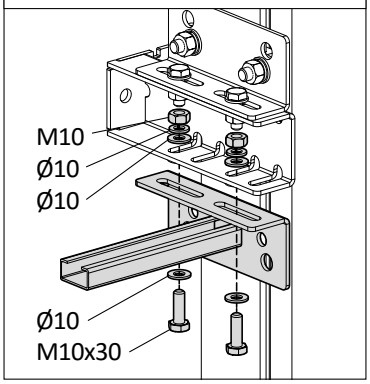


CASE 2A - with GAP = 350 mm and CYLINDER in TWO PIECES

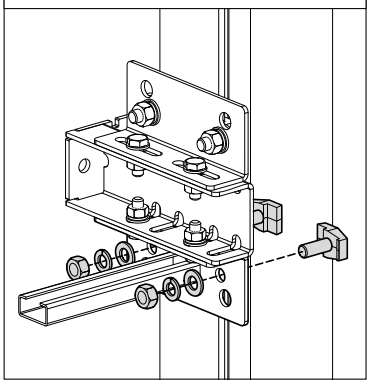




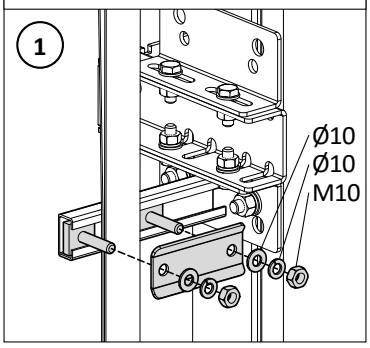
KIT F350.23.0010



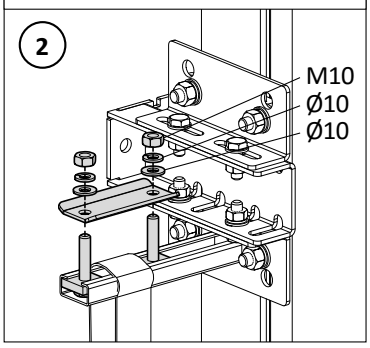
KIT V0301.04.0001



KIT F350.23.0005V01



KIT F350.23.0005V01



- Lay the remaning cable up to the control board.
- Connect the connectors to the control board.

Protect the cable where exposed and in the wall-through passage.

In case of LOAD ≥ 500 kg and DISTANCE BETWEEN GUIDES = 550 mm, refer to CASE 2A for correct fixing instructions.

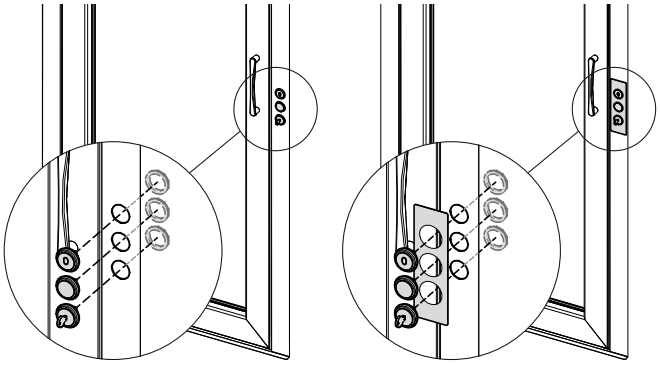
11 LANDING DOORS

For the landing doors installation, strictly follow the related installation manuals (supplied in the door package).

12 LANDING OPERATION PANELS

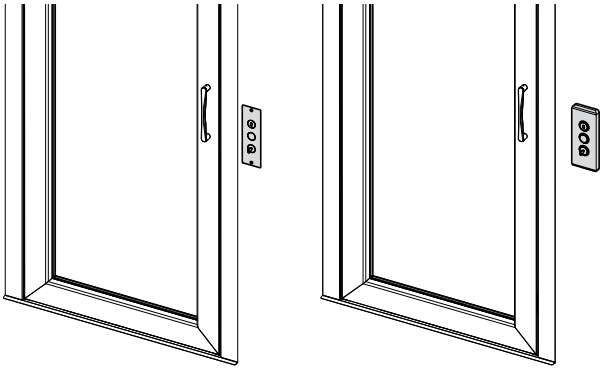
CASE 1 - ON-JAMB BUTTONS

· Fix the button to the jamb and proceed with wiring.
The plates (if foreseen) are supplied with the buttons.



CASE 2 - ON-WALL BUTTONS

· Fix the LOP as advised by the supplier.
The instructions are supplied in the package.

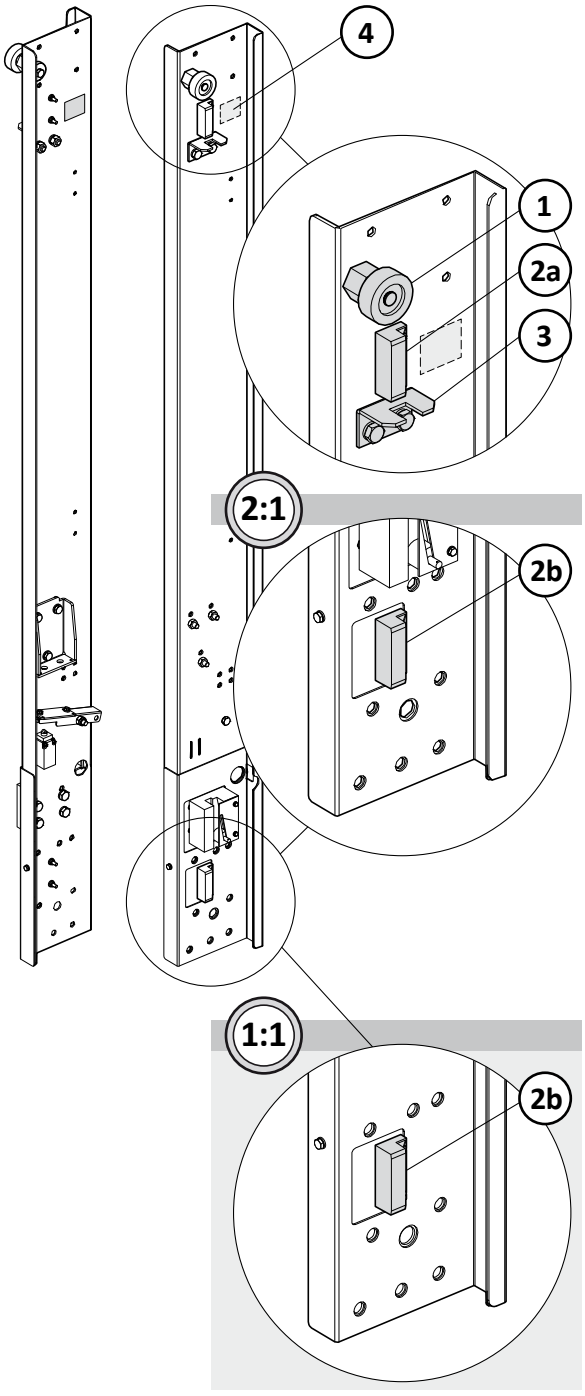


13 FRAME ASSEMBLY

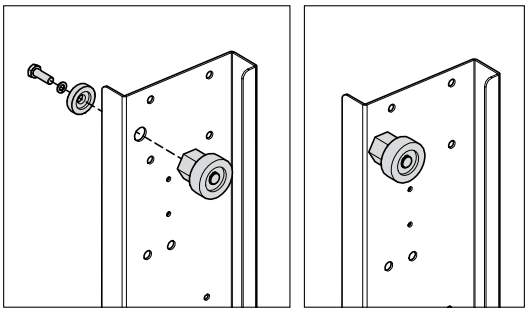
THOROUGHLY CLEAN the GUIDE RAILS with a cloth (or some clean paper) to remove dust and metal leftovers.

DISASSEMBLE THE SCAFFOLDING INSIDE THE SHAFT.

13.1 UPRIGHTS PRE-ARRANGEMENT

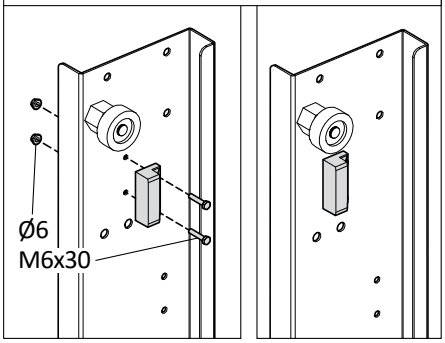


1

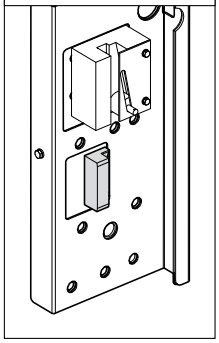


2 **KIT F300.23.0013**

2a - UPPER

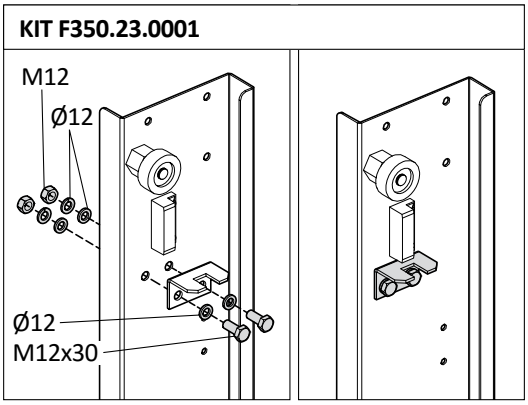


2b - LOWER

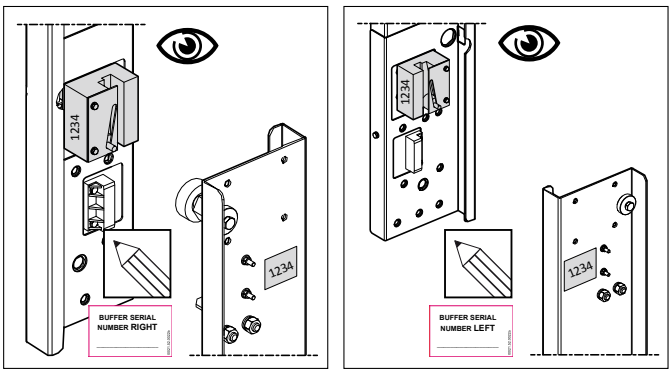


Keep the shims that will be useful during the final adjustment.

3 **KIT F350.23.0001**



4

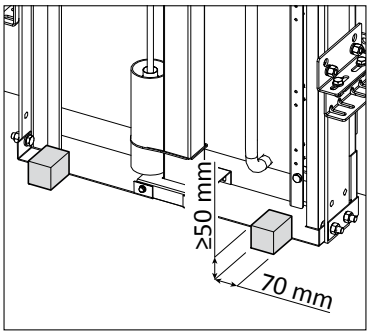


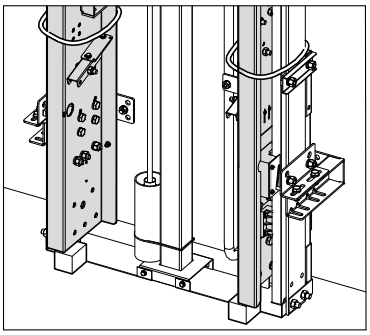
13.2 UPRIGHTS AND FRAME BASE INSTALLATION

⚠ Place yourself in the PIT.

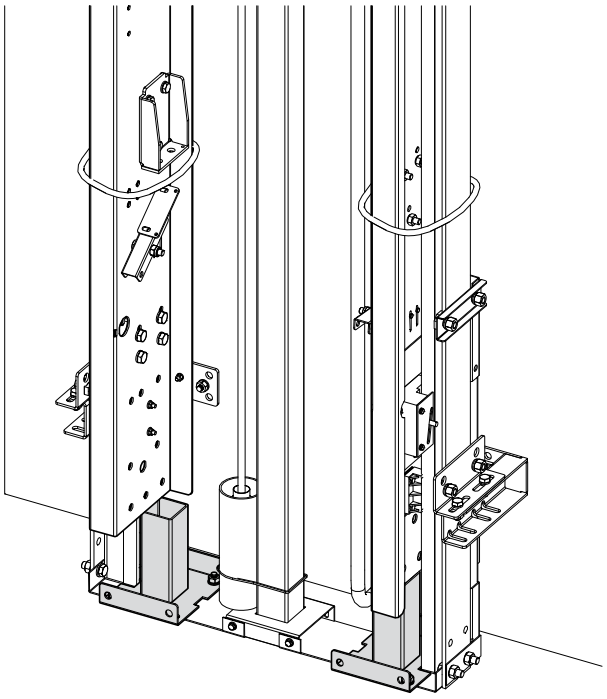
- Position small wooden blocks (H ≥ 50 mm, foreseen for uprights positioning), at a distance of approximately 70 mm from the guide rails.
- Lean the uprights against the guide rails and put the wooden blocks onto them.
- Temporarily tie the uprights to the guide rails.

⚠ Follow the assembly direction of the uprights.

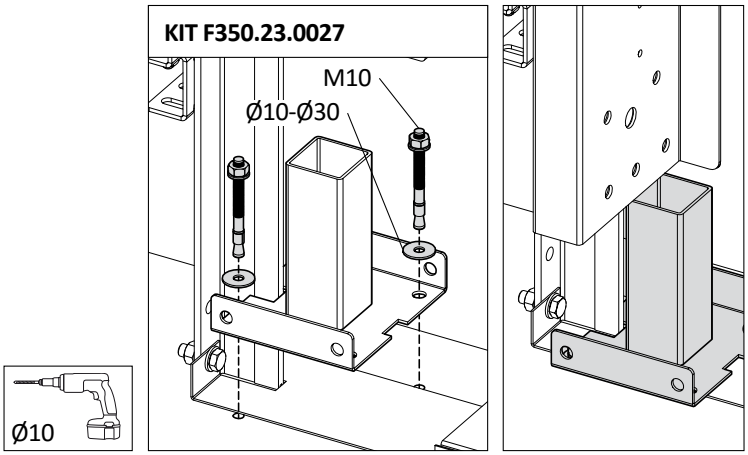


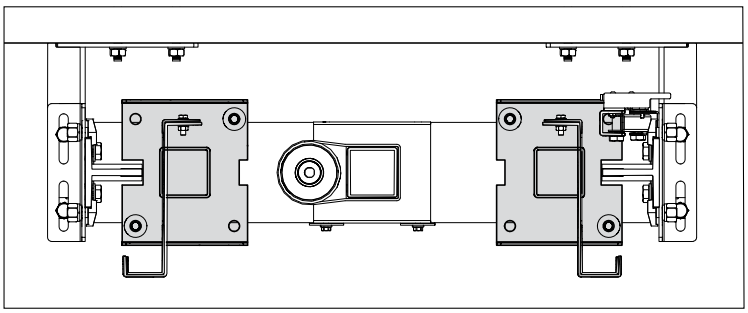


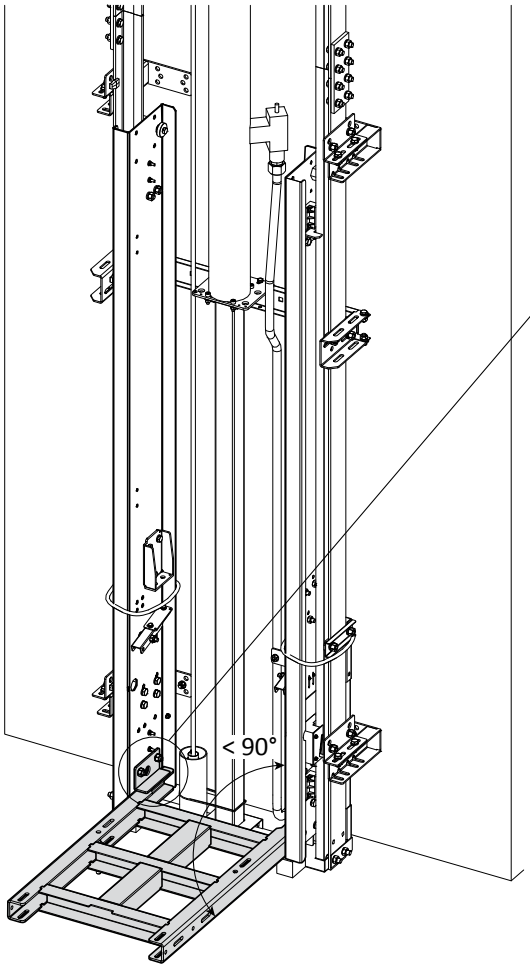
IN CASE OF PIT > 250 mm



- Install the two pit props on the bottom.
- Position the uprights upon the props.
- Temporarily tie the uprights to the guide rails.







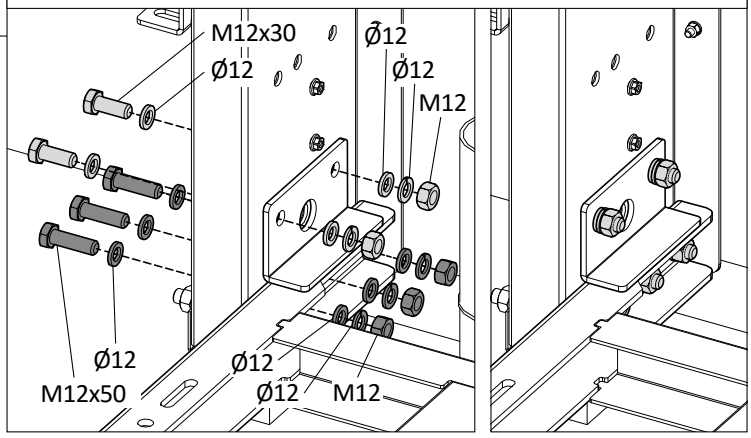
The frame base will be slightly inclined.
It will become plain after the installation.

- Insert the frame base inside the uprights.
- Temporarily fix the lower part of the uprights to the frame base, on both the uprights.

mod. FRAME B1

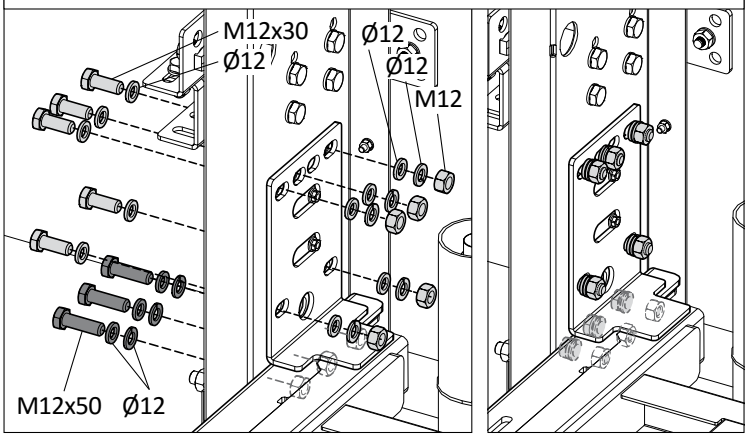
KIT F350.23.0001

2 x



mod. FRAME B2 and B3

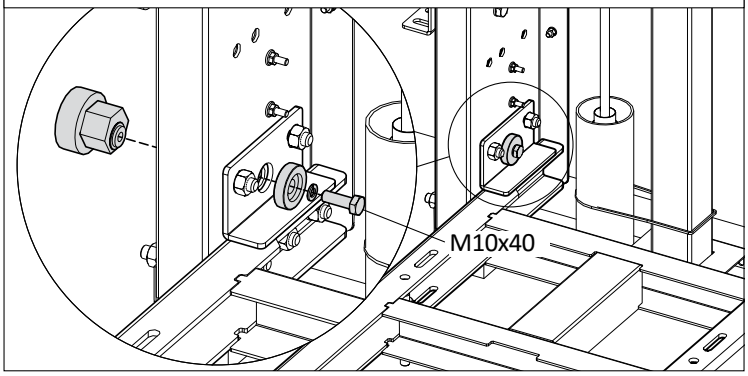
2 x **KIT F350.23.0001**



- Install the two lower roller shoes.

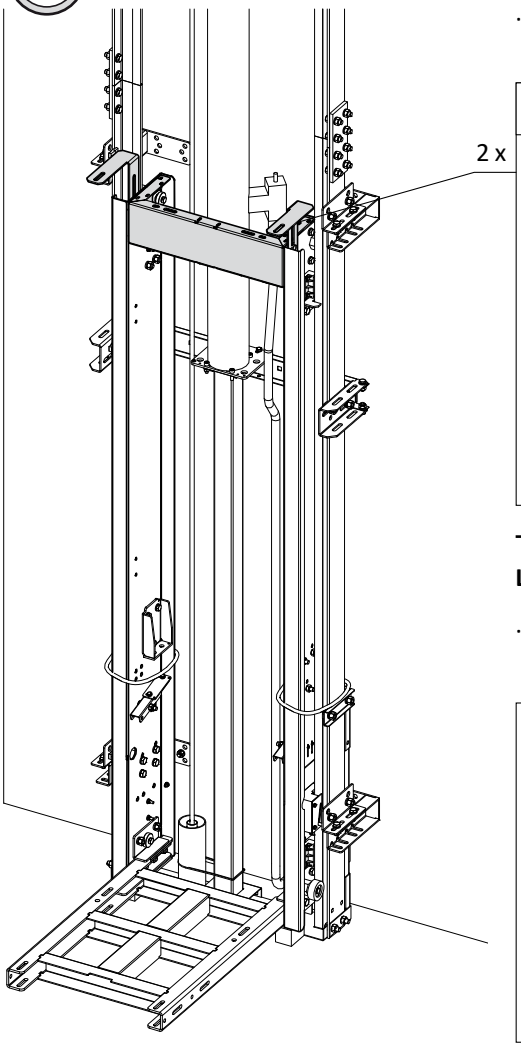
Don't use the fixing screws supplied with the shoe, but refer to the KIT.

KIT F350.23.0046



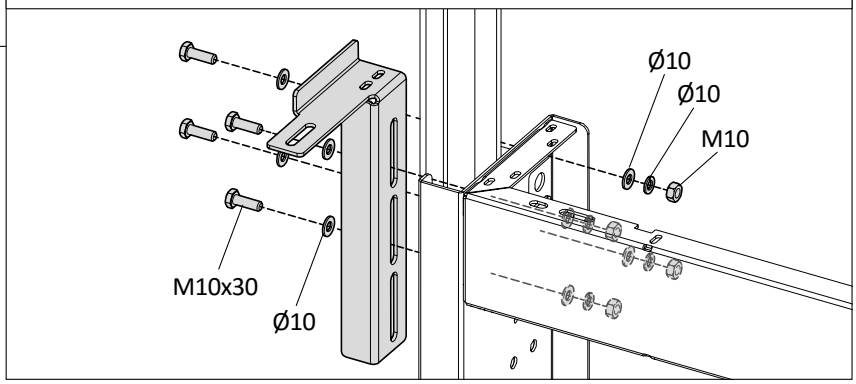
13.3 FRAME CROSS BEAM INSTALLATION

2:1



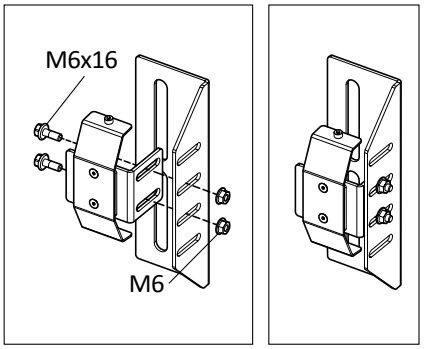
· Fix the upper frame crossbeam onto the uprights using the car pressing brackets. The brackets will be adjusted upon the car installation.

KIT F350.23.0002V01

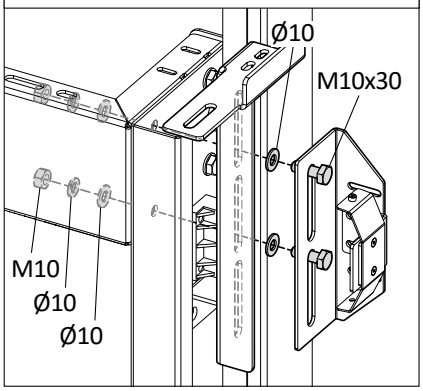


LOCK CONTACT (if foreseen)

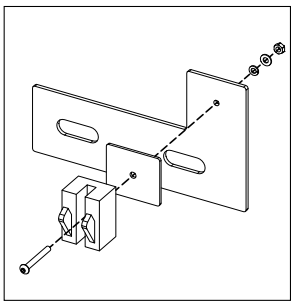
· Pre-assemble the fixing brackets and contacts.



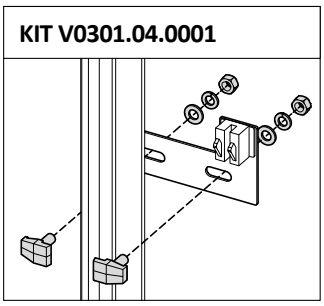
KIT F350.23.0002V01

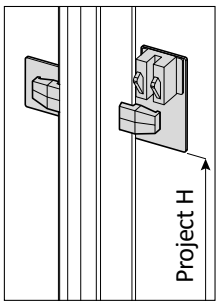


· Fix the brackets to the guide rail adjacent to the shaft grid



KIT V0301.04.0001

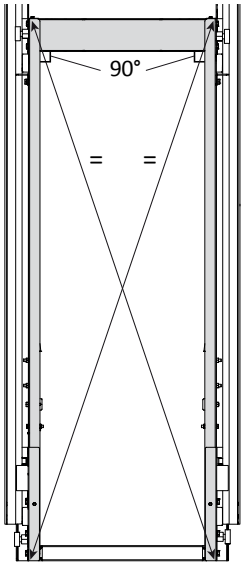




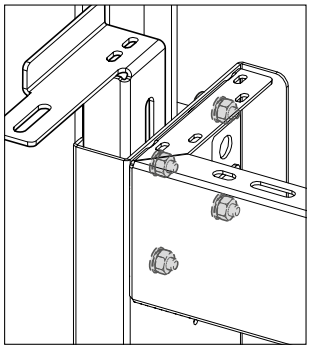
The quantity must match the number of stops.

Position the contacts along the guide rails, one contact each guide rail. The adjustment will be made durig the first trial run.

2:1

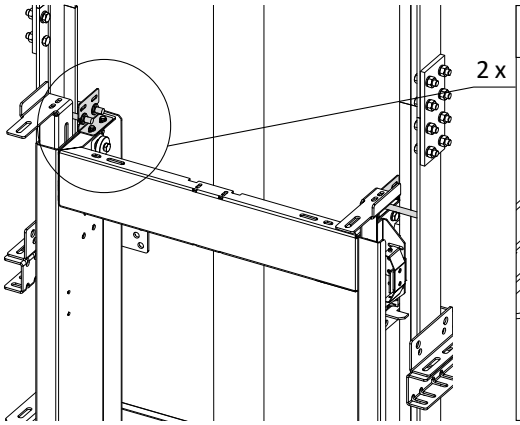


- Make sure that the frame crossbeam and uprighs have been assembled squarely.
- Fasten the screws between the cross beam and uprights.

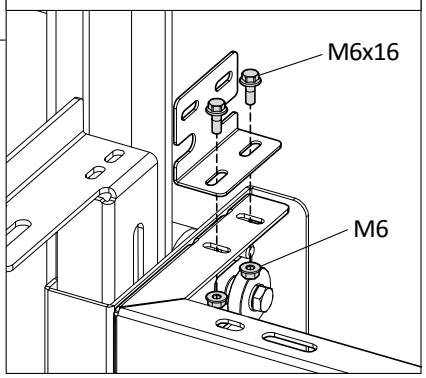


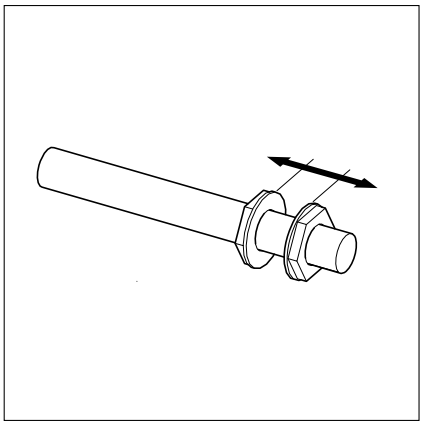
- Assembly the magnetic sensors onto the upper crossbeam.

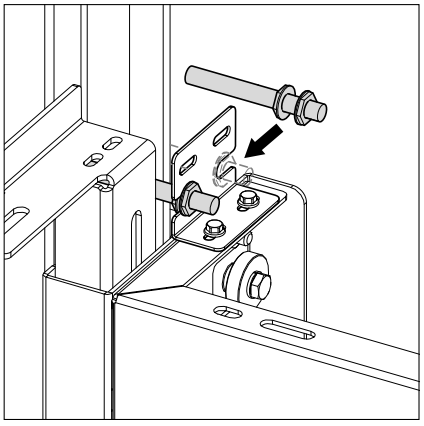
CASE 1 - 4 MONOSTABLE SENSORS

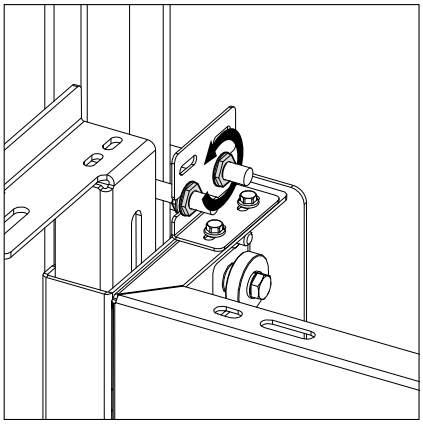


KIT E505.23.0001



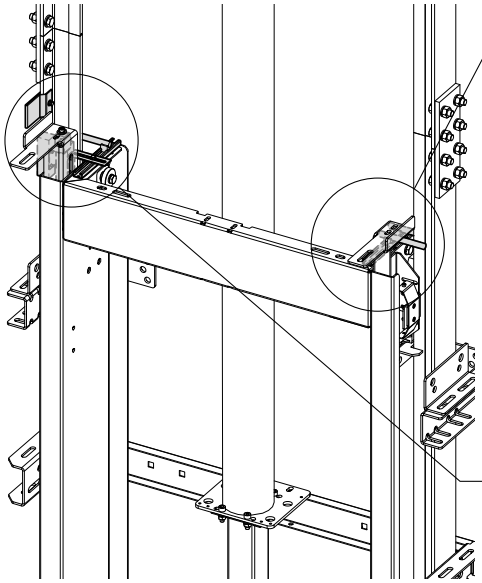




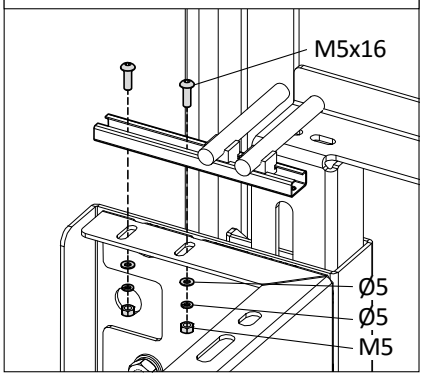


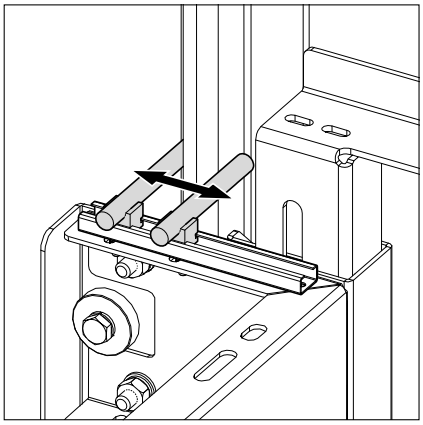
2:1

CASE 2 - 3 MONOSTABLE SENSORS + 2 BISTABLE SENSORS

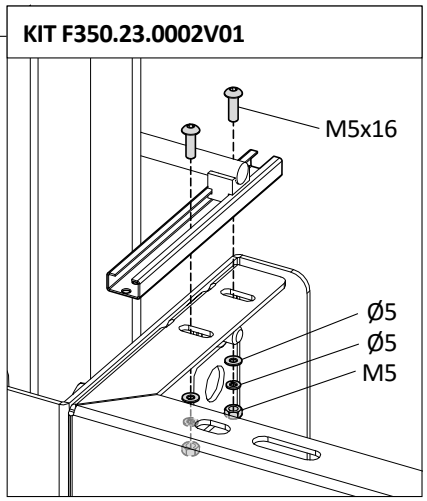


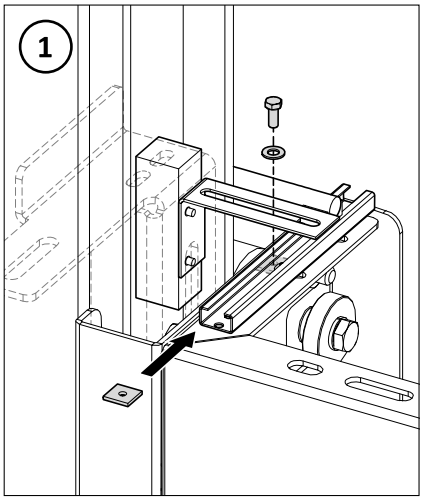
KIT F350.23.0002V01



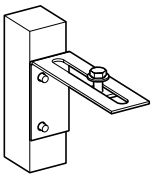


KIT F350.23.0002V01

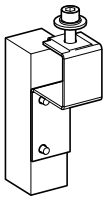




1

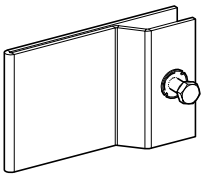


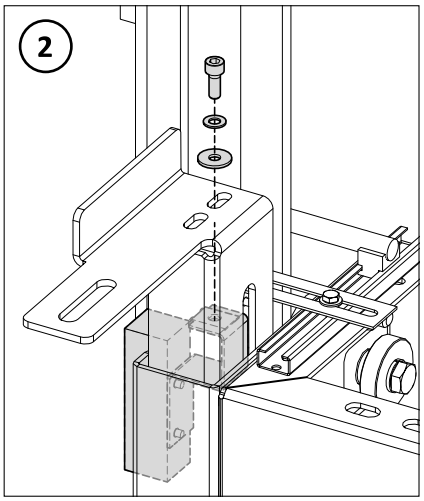
2

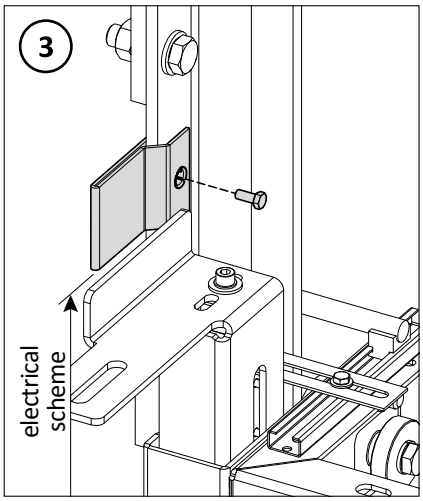


Both the sensors and the magnets are supplied with the electrical equipment (in the same package).

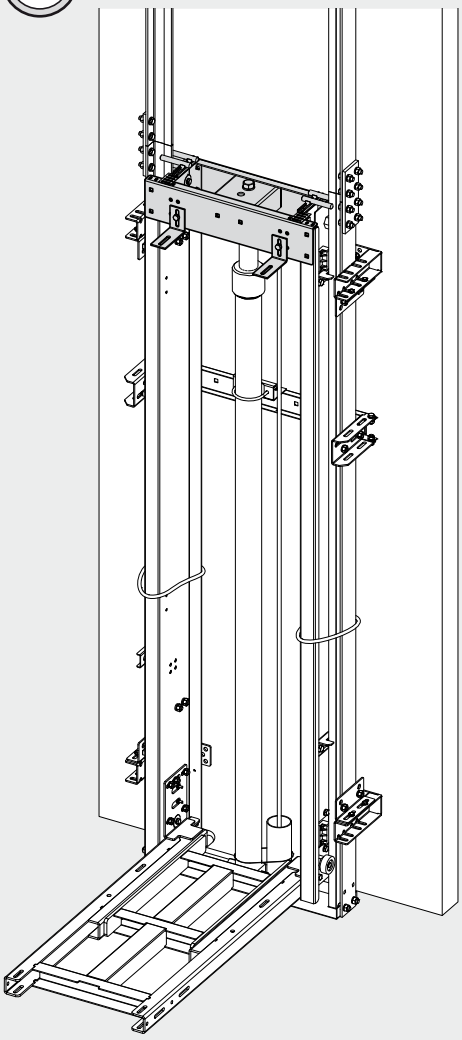
3





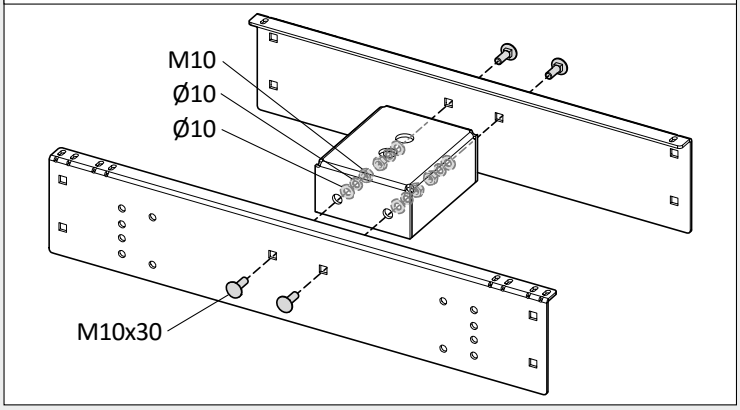


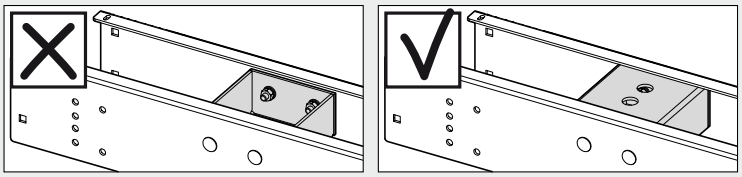
1:1



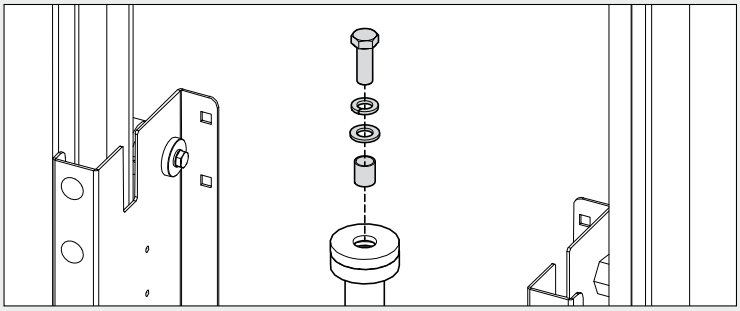
· Pre-assemble the upper crossbeam.

KIT F350.23.0002V02





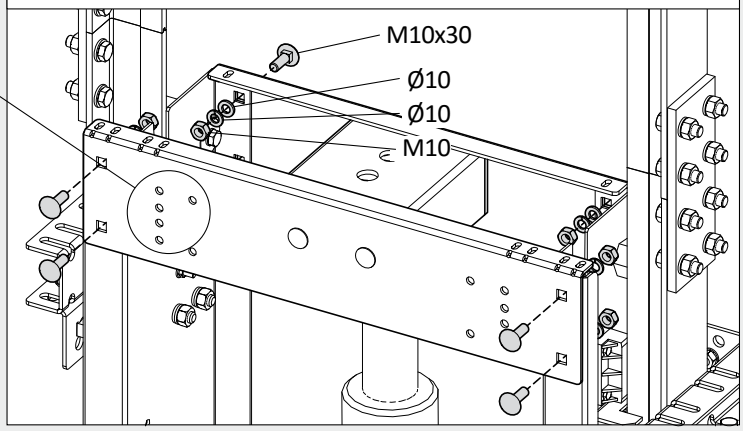
· Unscrew the screws on the top of the piston.



· Install the crossbeam onto the frame uprights.

Make sure that the crossbeam is assembled on the right side, with car-oriented holes.

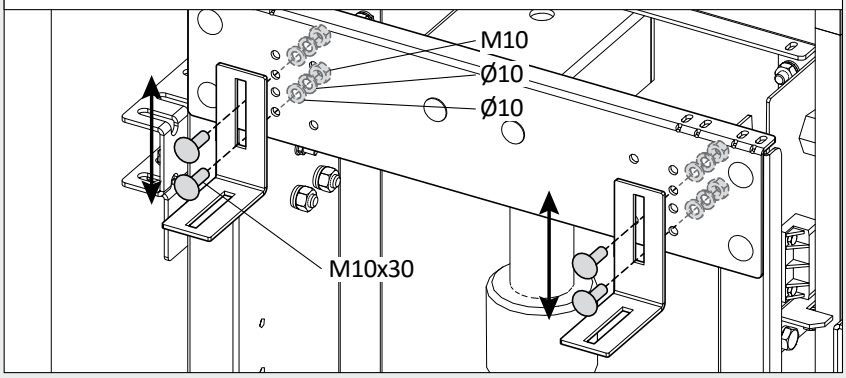
KIT F350.23.0002V02



1:1

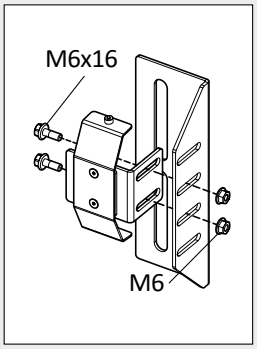
· Pre-assemble the car pressing brackets.

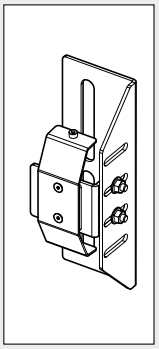
KIT F350.23.0005V02



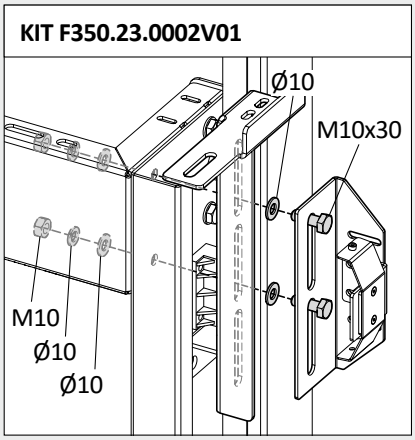
LOCK CONTACT (if foreseen)

· Pre-assemble the fixing brackets and contacts.

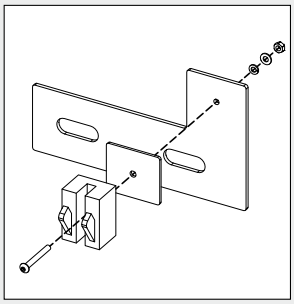




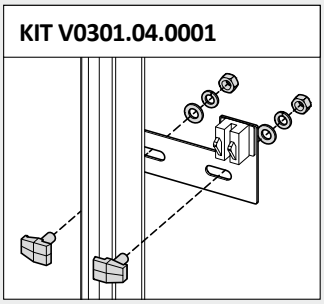
KIT F350.23.0002V01

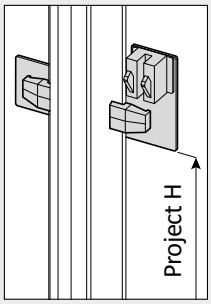


· Fix the brackets to the guide rail adjacent to the shaft grid



KIT V0301.04.0001

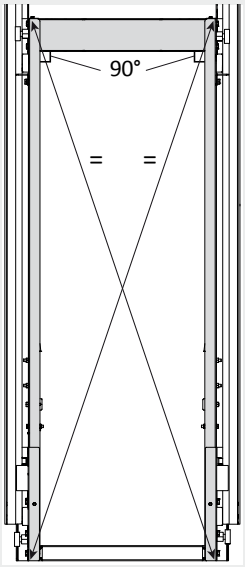




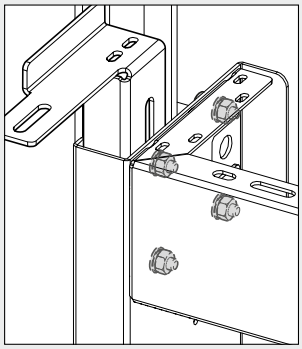
The quantity must match the number of stops.

Position the contacts along the guide rails, one contact each guide rail. The adjustment will be made durig the first trial run.

1:1

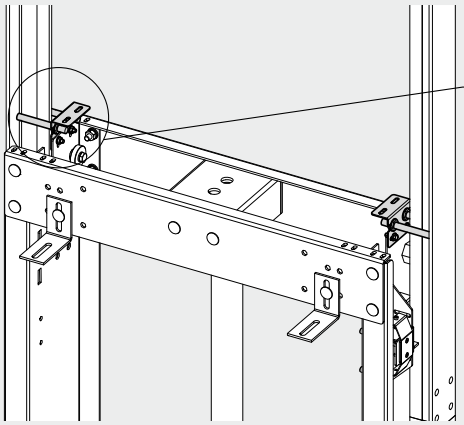


- Make sure that the frame crossbeam and uprighs have been assembled squarely.
- Fasten the screws between the cross beam and uprights.

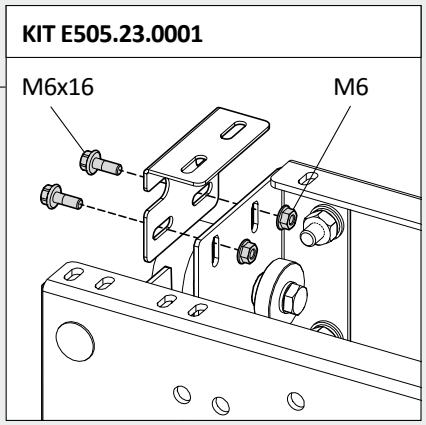


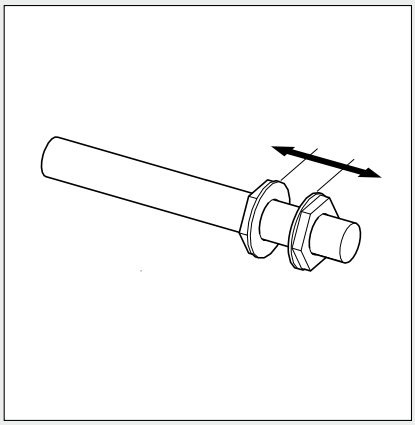
- Assembly the magnetic sensors onto the upper crossbeam.

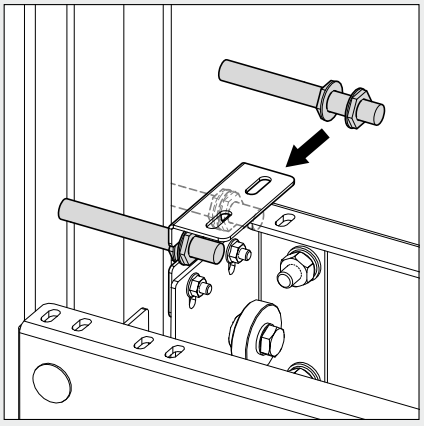
CASE 1 - 4 MONOSTABLE SENSORS

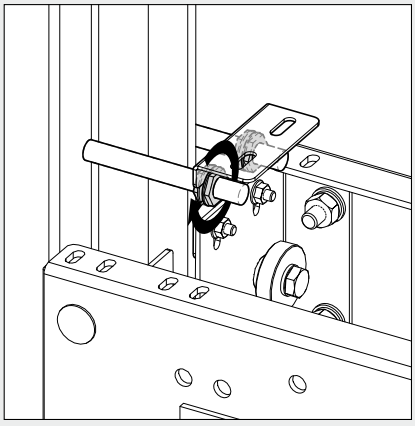


KIT E505.23.0001



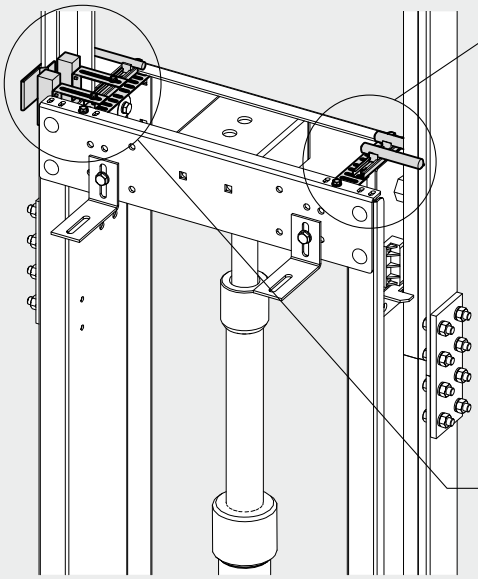






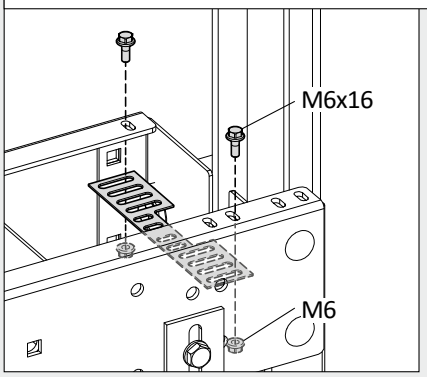
In case of LOAD ≥ 500 kg, refer to CASE 2 for monostable sensor fixing instructions.

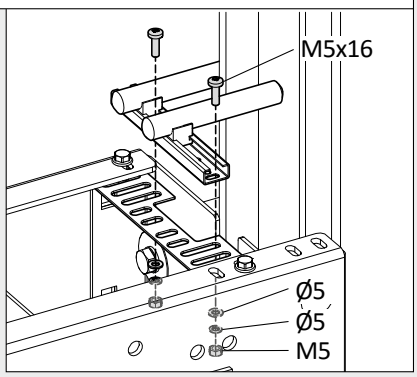
1:1



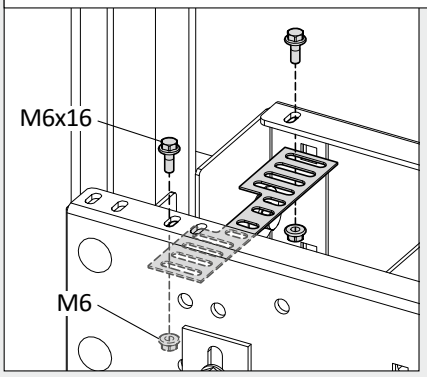
CASE 2 - 3 MONOSTABLE SENSORS + 2 BISTABLE SENSORS

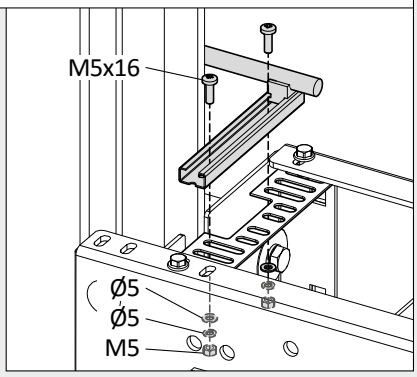
KIT F350.23.0002V01

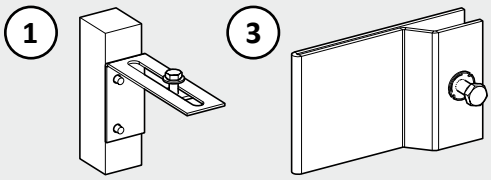




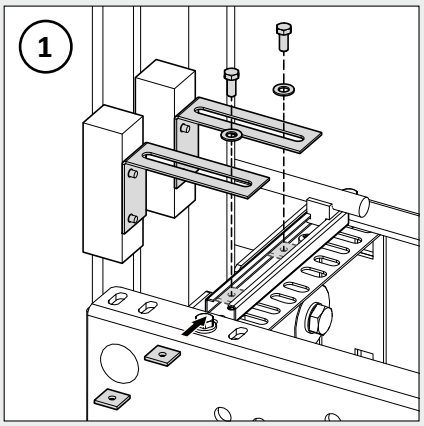
KIT F350.23.0002V01

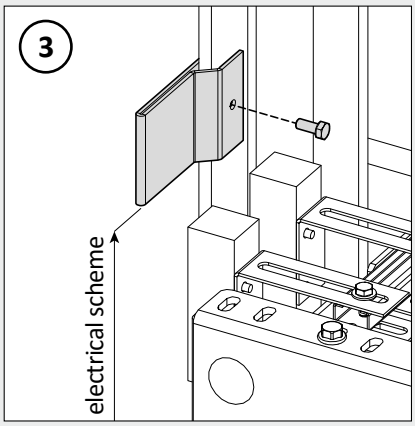




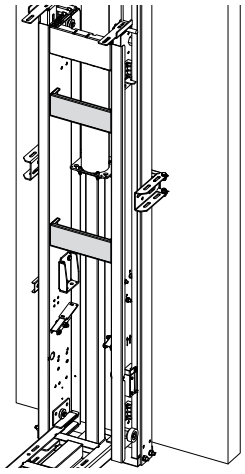


Both the sensors and the magnets are supplied with the electrical equipment (in the same package).



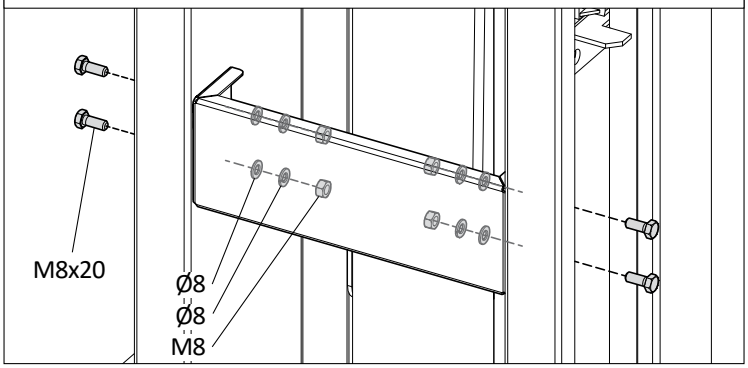


DISTANCE BETWEEN GUIDES (DTG) = 350 mm

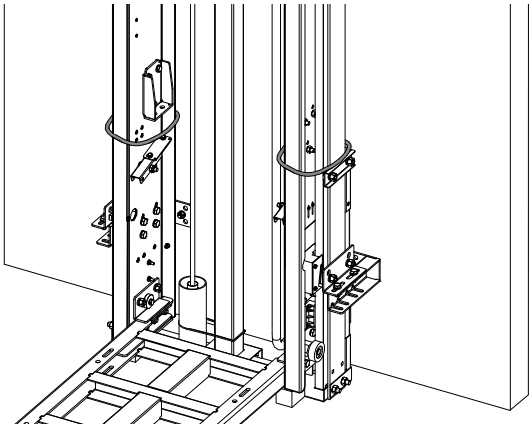


· Assemble the upright supports onto the frame.

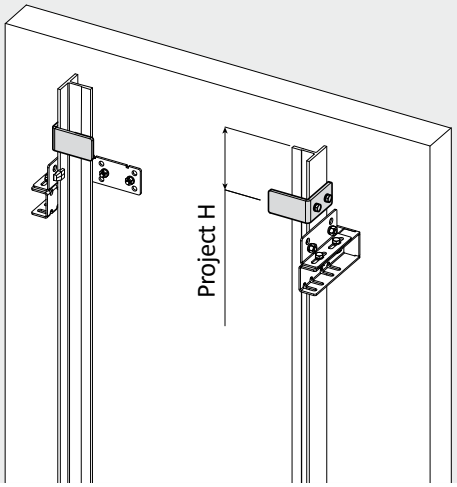
2 x **KIT F350.23.0038**



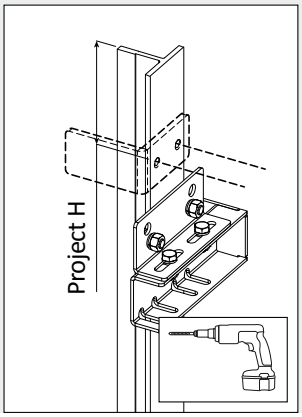
· Remove the tiers that temporaly tied the uprights guide rails together.



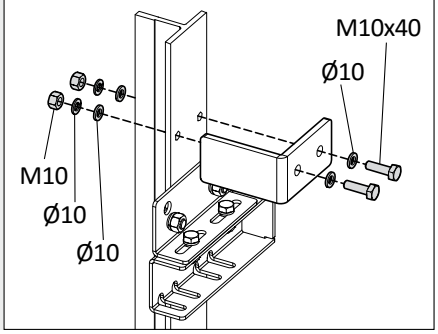
1:1



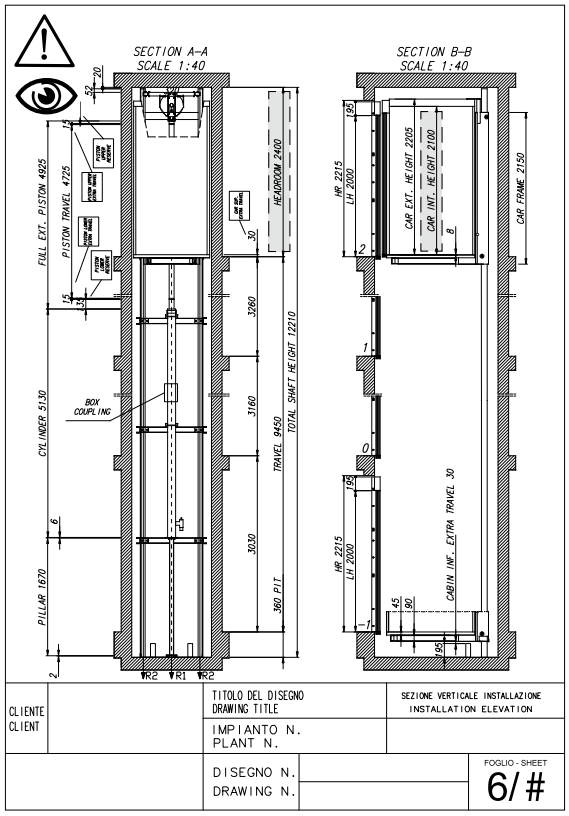
· Assembly the mechanic blocks to the guide rails, following the instructions stated in the project drawings. Use the blocks as templates.



KIT F350.23.0009



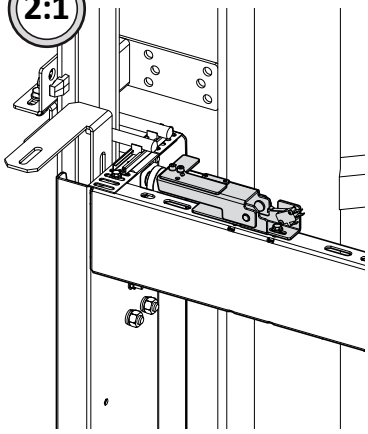
IN CASE OF HEADROOM SPACE < 350 mm



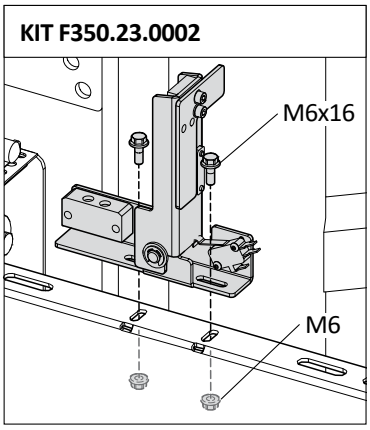
· In case of headroom safety space ("HEADROOM" - "CAR INT. HEIGHT") < 350 mm a SAFE-HEAD is required.

CASO 1 - STANDARD ("HEADROOM" - "CAR INT. HEIGHT"=350mm)

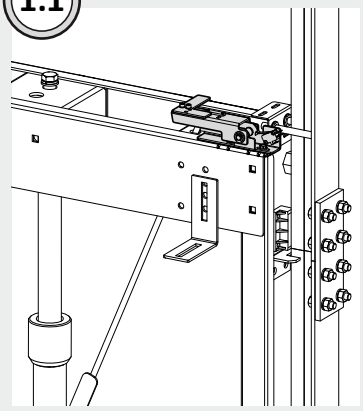
2:1



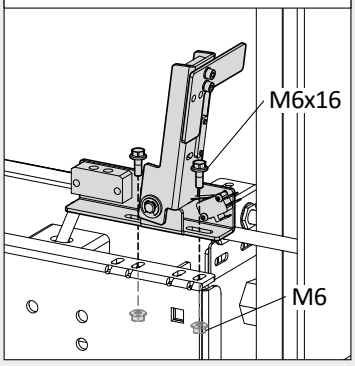
KIT F350.23.0002

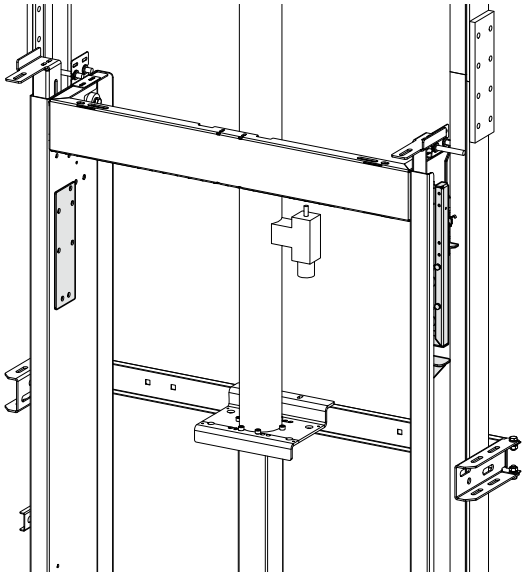


1:1



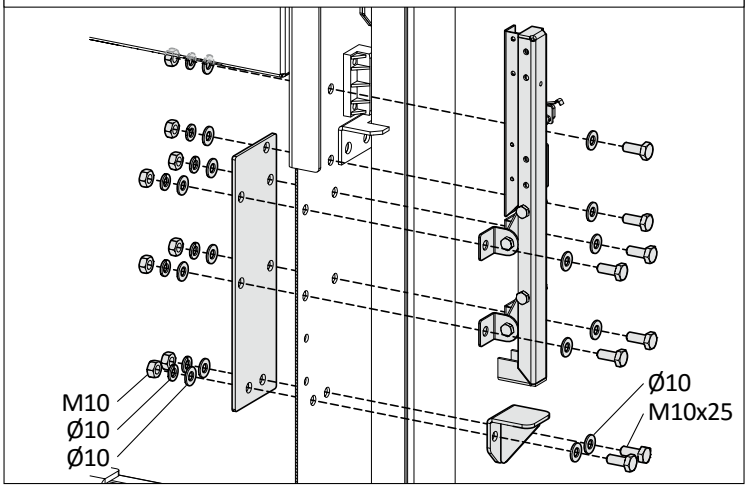
KIT F350.23.0002



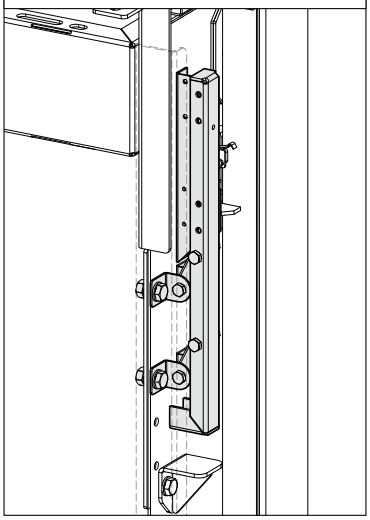


CASO 2 - OPTIONAL ("HEADROOM" - "CAR INT. HEIGHT"=1000mm)

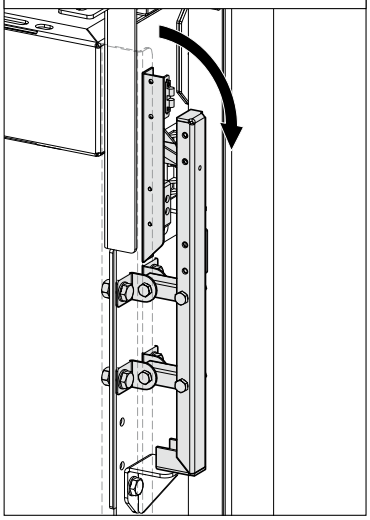
KIT F350.23.0044

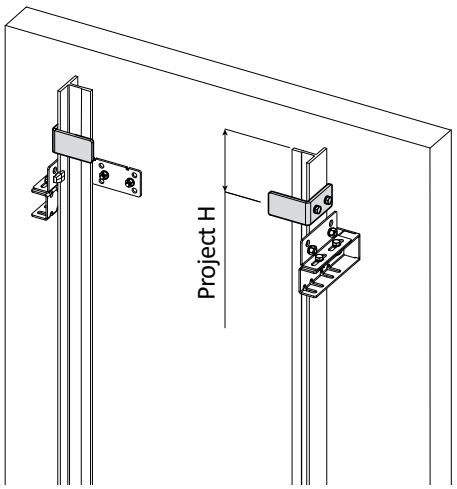


SAFE-HEAD CLOSED

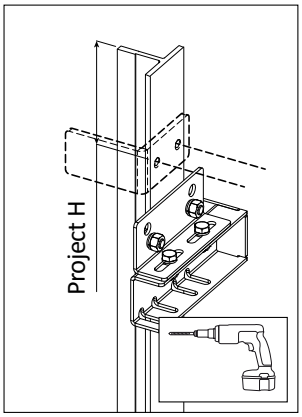


SAFE-HEAD OPEN

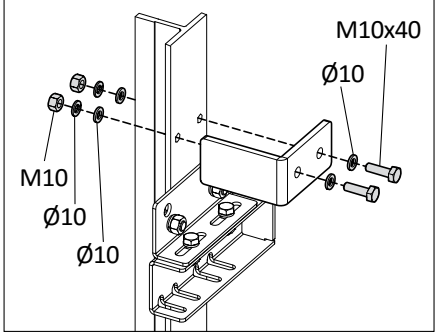




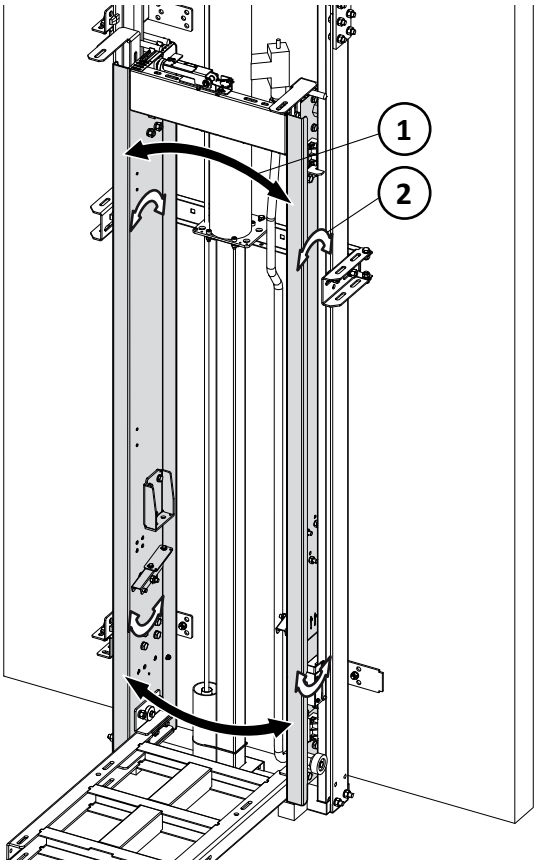
· Assembly the mechanic blocks to the guide rails, following the instructions stated in the project drawings. Use the blocks as templates.



KIT F350.23.0009



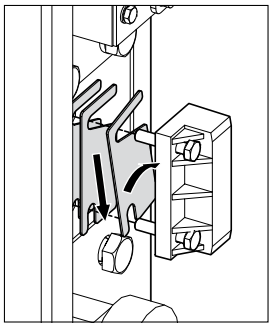
13.4 ADJUSTMENT



· Use the upper/lower shoes to square and level the uprights.

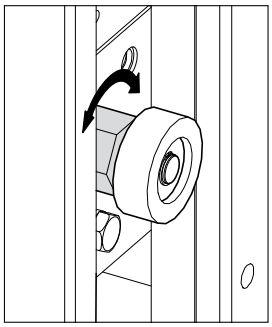
1 Guide rail axis parallel rotation

· If necessary, inserirt the shims between the shoes and the uprights.

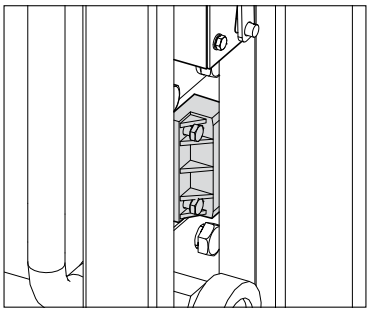


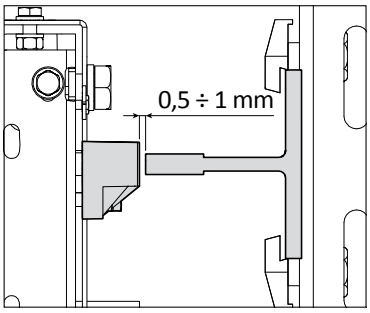
2 Guide rail axis perpendicular rotation

· If necessary, rotate the roller shoes.



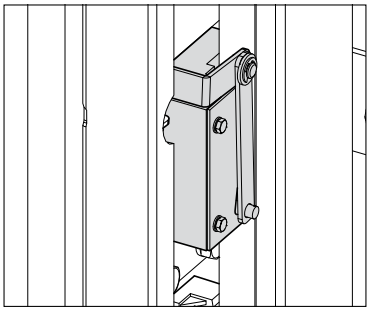
· Make sure that the strike shoes are placed at the same distance from the guide rails (total play 0,5÷1 mm).

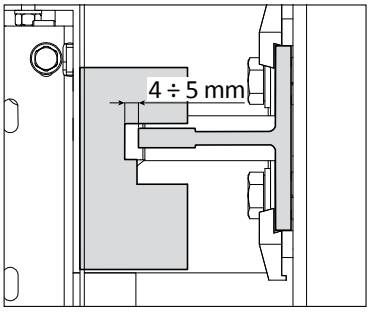




2:1

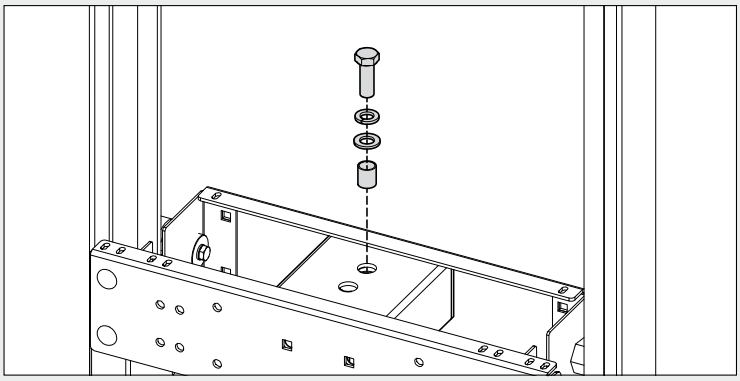
· Make sure the distance between the groove of the safety valve and the top of the rail is 4÷5 mm per side.

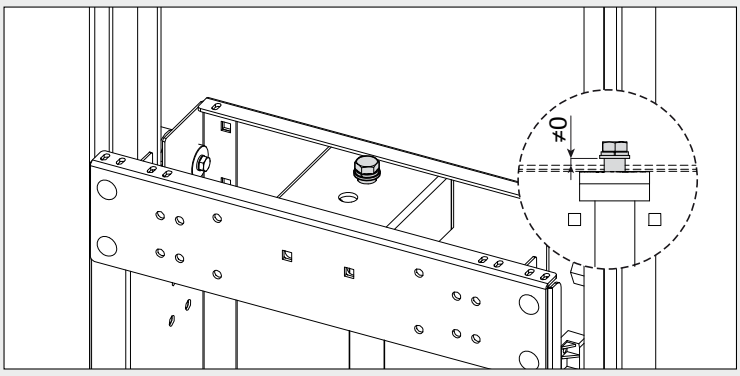




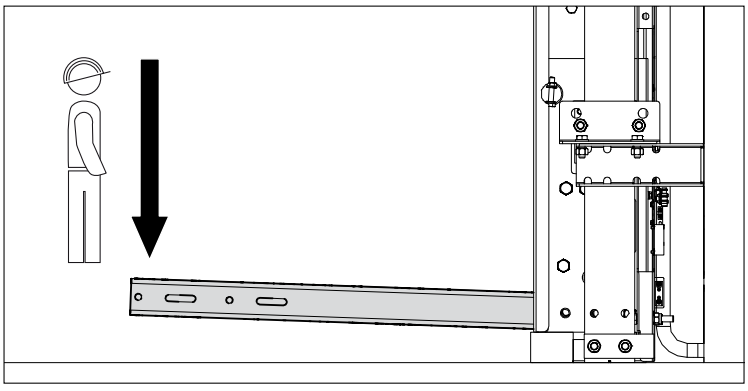
1:1

- Fix the stem to the crossbeam and re-position the screws.

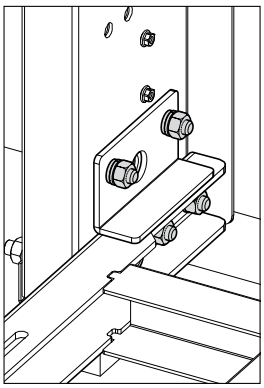


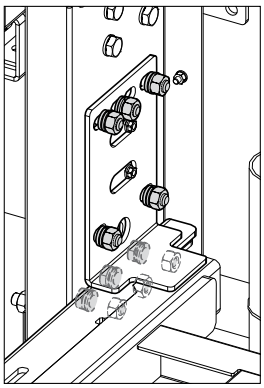


- Stand on the cantilevered end of the frame base to regain the play of the threaded joints.



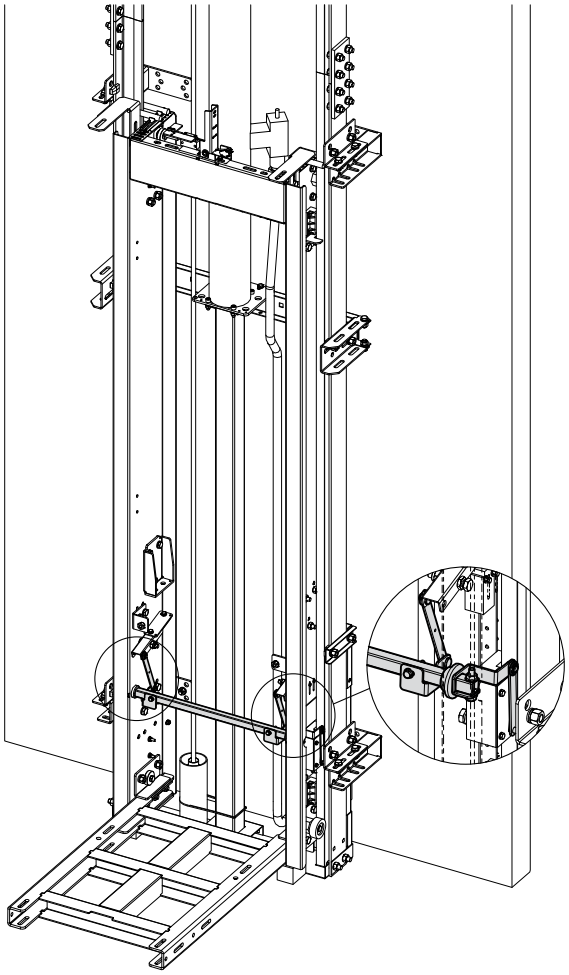
- Fasten to end the frame base fixing screws.





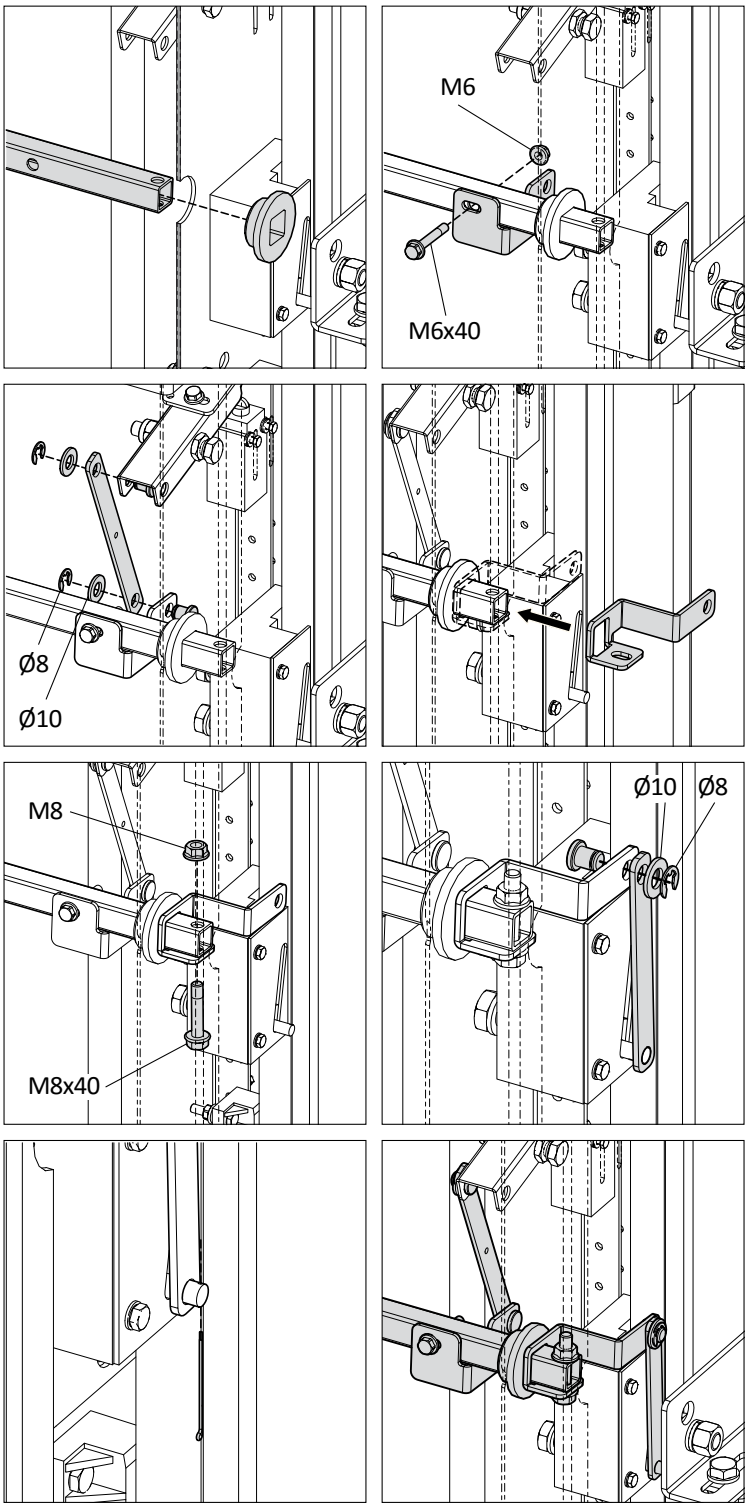
2:1

13.5 SAFETY VALVE LEVERAGE INSTALLATION



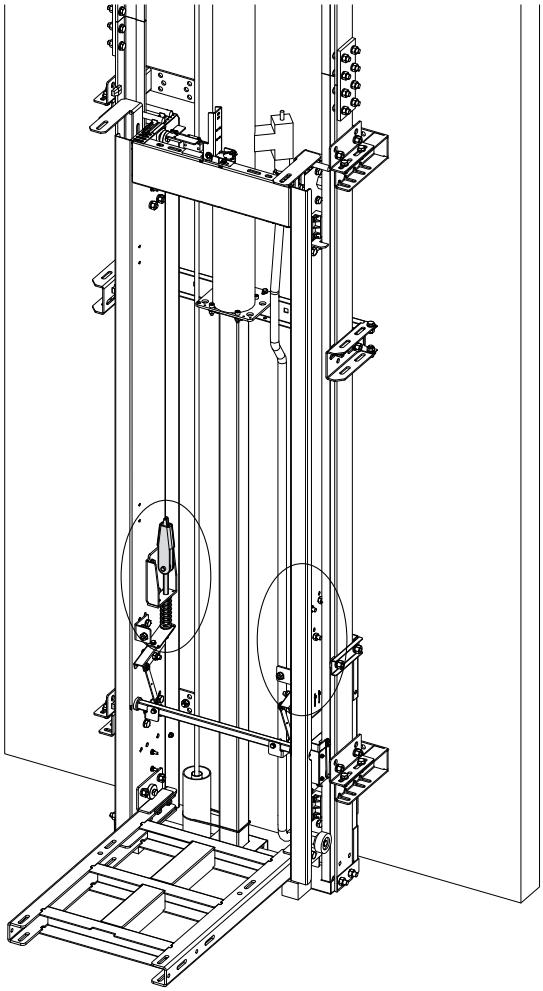
- Assembly the bushes onto the uprights by means of the synchronyzing hose;
- Insert the brackets in the synchronyzing hose;
- Install the levers between the brackets in the synchronyzing hose, then mount the pre-assembled components onto the uprights;
- Insert the bracket onto the far end of the synchronyzing hose;
- Fix the bracket;
- Install the lever between the lastly assembled bracket and the safety valve roller.

KIT F350.23.0012



2:1

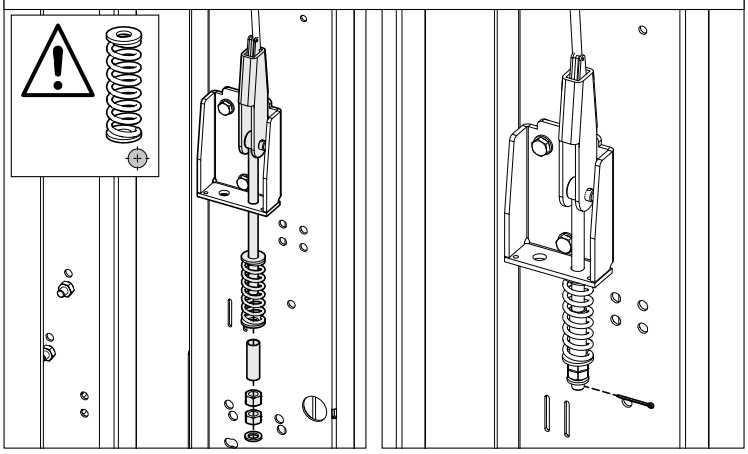
13.6 ROPE POSITIONING



- Untie the ropes at the frame side.
- Assembly the rope terminal to the free end.
- Install the rope terminals on frame ends according to the "exit" side of the rope.

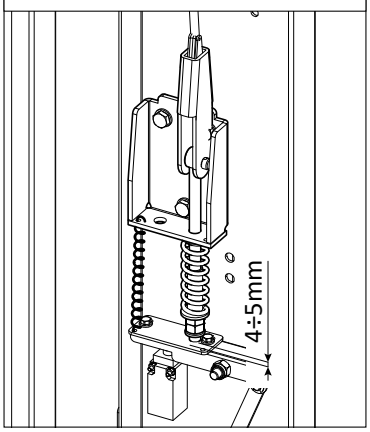
With 2 ropes: use the nearest hole to the fulcrum of the lifting system.
With 4 ropes: make sure the ropes do not cross.

KIT F350.23.0029

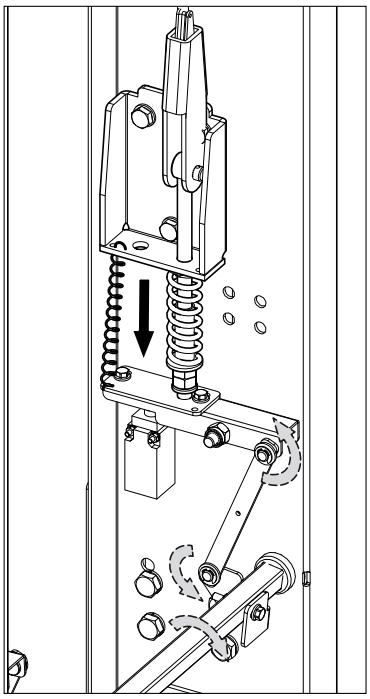


- Fix the slack robe little dishes to tensioning springs.
- Adjust dado and locknut so that the stem ends of the headrope is 4/5 mm far from the little dishes.

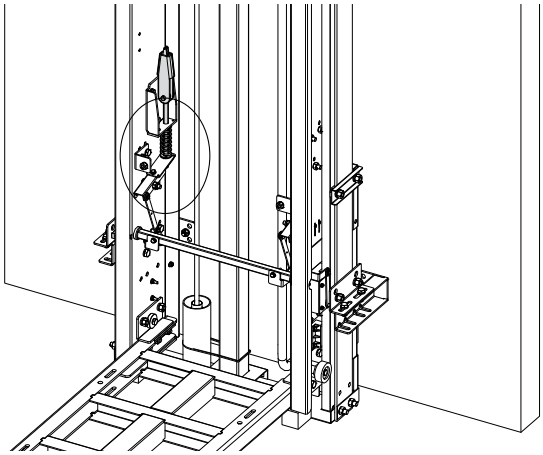
KIT F350.23.0012

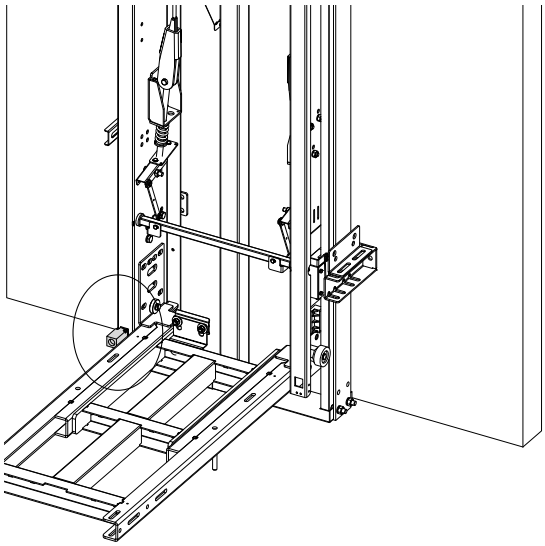


- Check the mobility of the rope slackening system, by making pressure on the leverage.



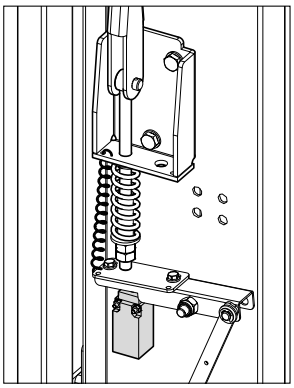
13.7 SWITCH FOR LOOSENING ROPES





CASE 1 - STANDARD

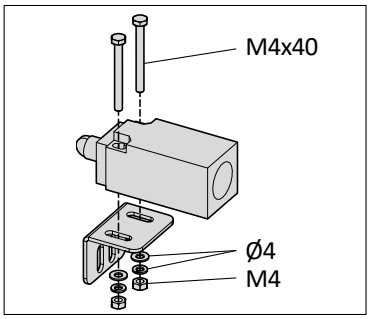
· Switch preinstalled onto the car frame upright.

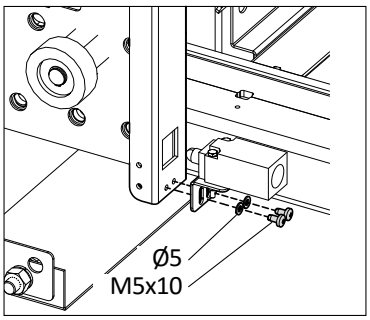


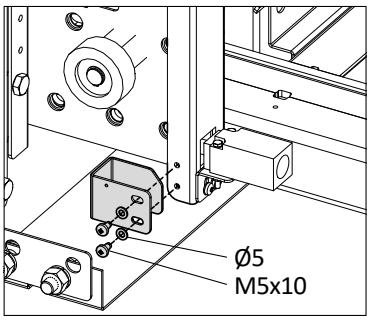
CASE 2 - OPTIONAL

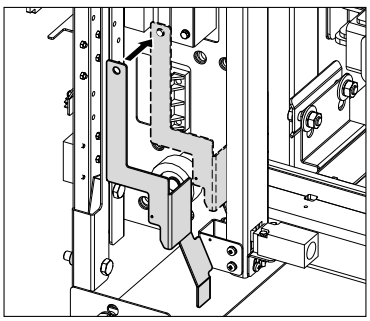
KIT F350.23.0045

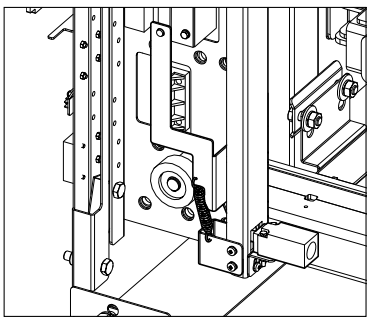
· Switch to be fixed to the car frame upright.



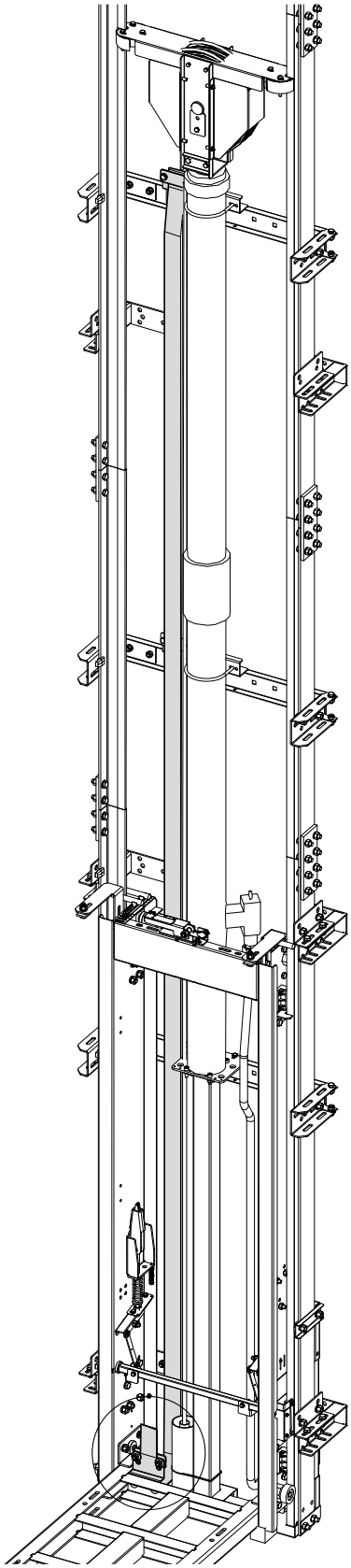






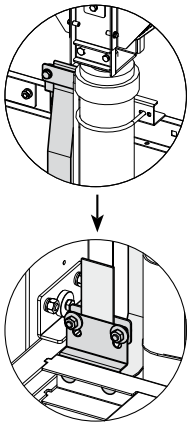


13.8 FIXING FLAT CABLE TO FRAME BASE

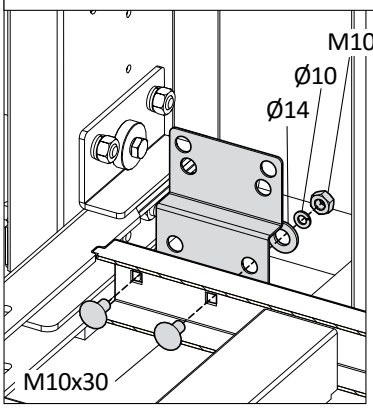


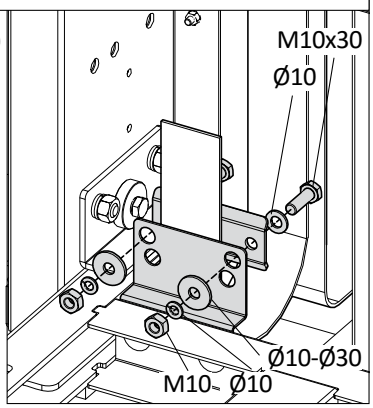
· Fix the flat cable end (car side) to the frame shelf.

CASE 1 - GAP ≥ 550

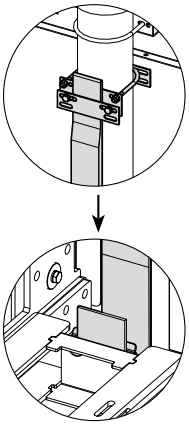


KIT F350.23.0039V01

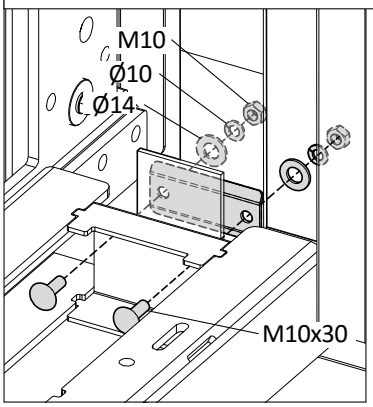


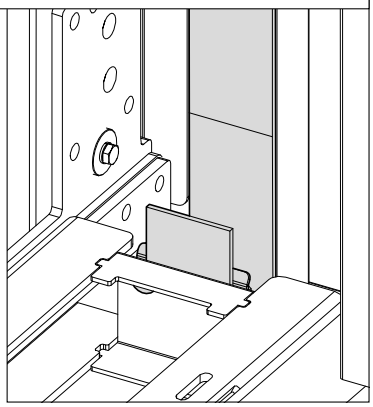


CASE 2 - GAP = 350

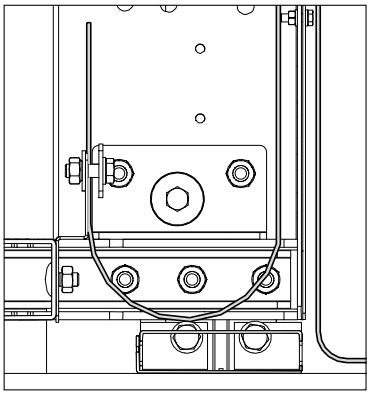


KIT F350.23.0039V02





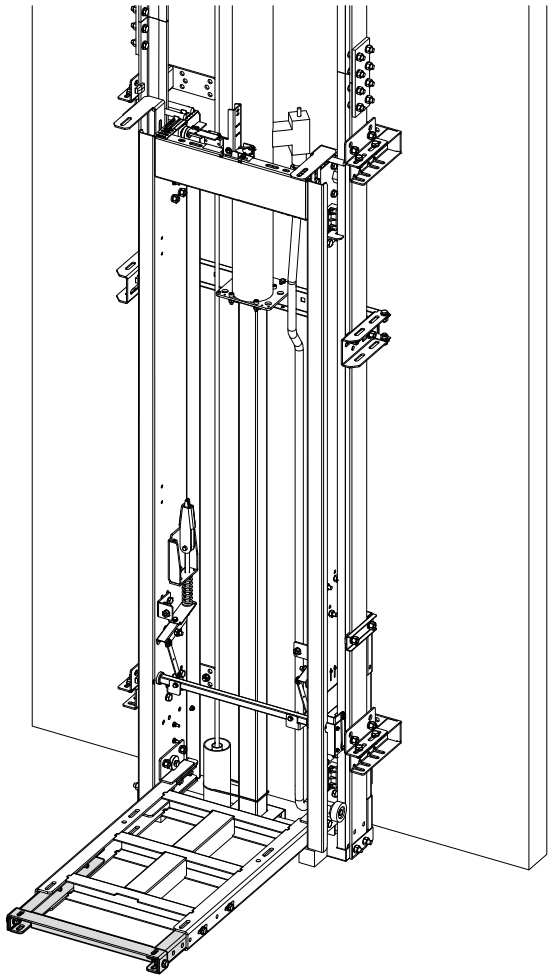
· Make sure that the cable is not crushed, when the frame base is in lower overrun. The cable must touch the pit bottom lightly.



In case of travel > 9 m, an additional flat cable fixing kit will be provided (to be anchored to the cylinder bracket).

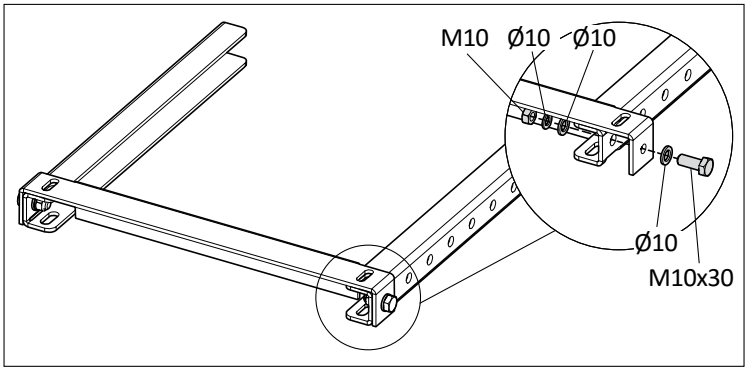
13.9 ULTIMATE ON-FRAME INSTALLATION (if foreseen)

FRAME BASE EXTENSION

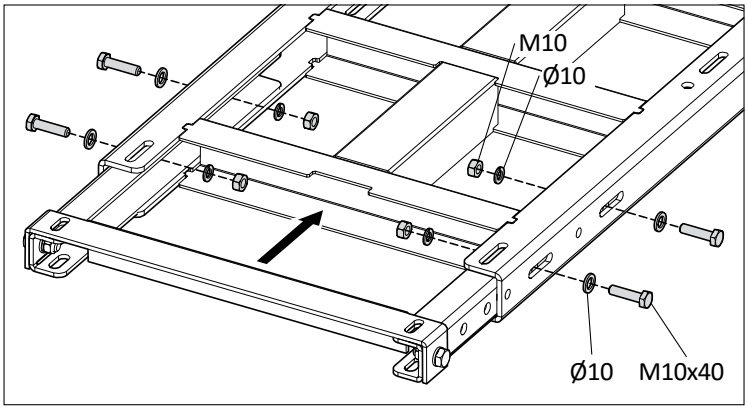


· Joint the extension to the frame base.

KIT F350.23.0003

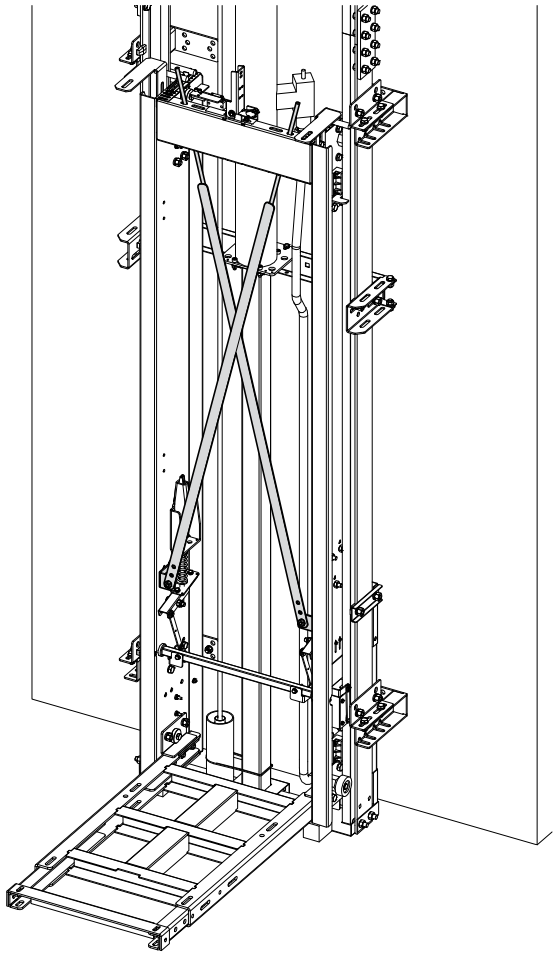


· Install the extension on the frame base.



The length adjustment can be done during the car base assembly.

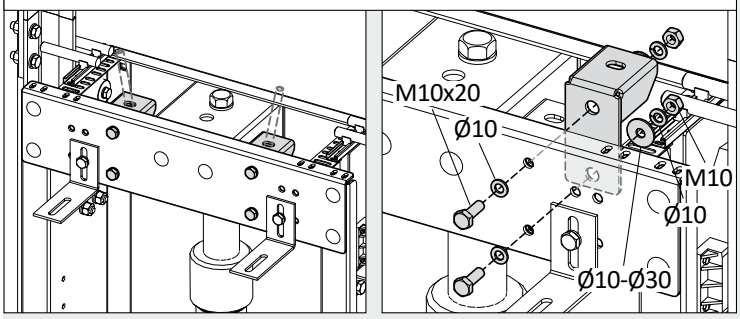
TRANSVERSE TIE-RODS



1:1

· Fix the upper bracket to the frame crossbeam.

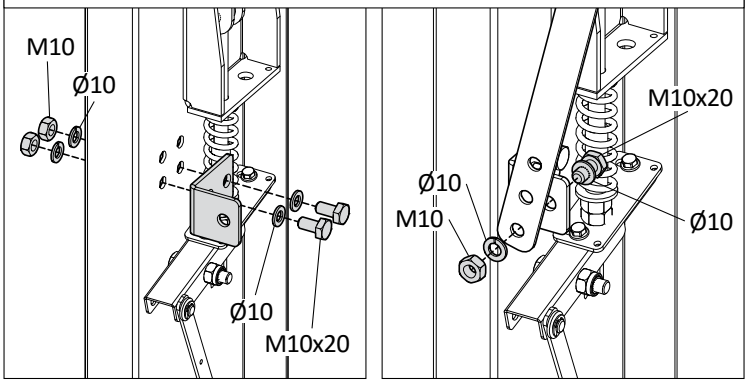
KIT F350.23.0035V03



· Fix the tie-rod below using the supplied bracket and screws.

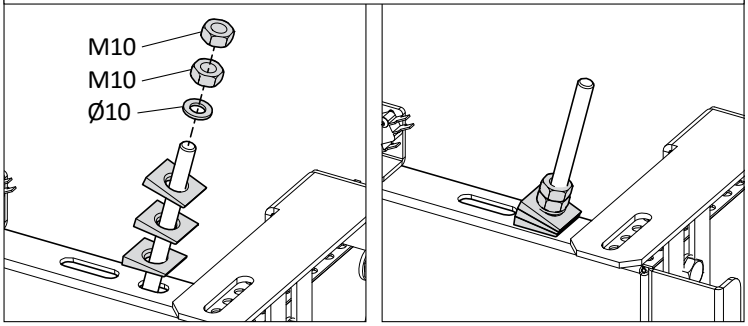
Before fixing the tie-rod, insert the upper part in the pre-arranged hole (frame crossbeam).

KIT F350.23.0035



· Fix the tie-rod above, using the supplied spacers.

KIT F350.23.0035V01

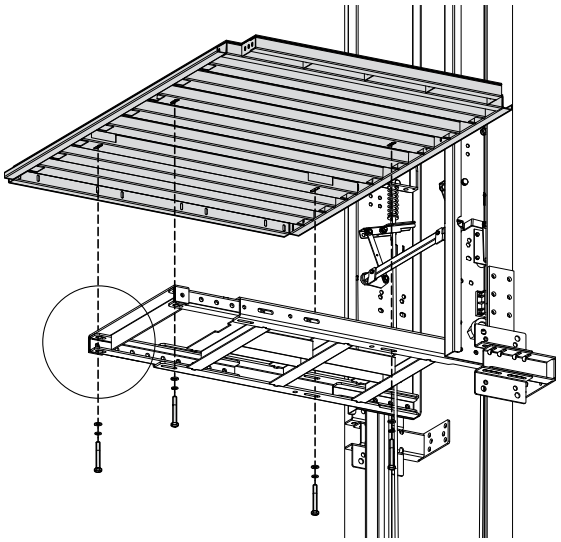


The threaded part of the tension-rod can be longer.
If so, shorten it by means of a radar.

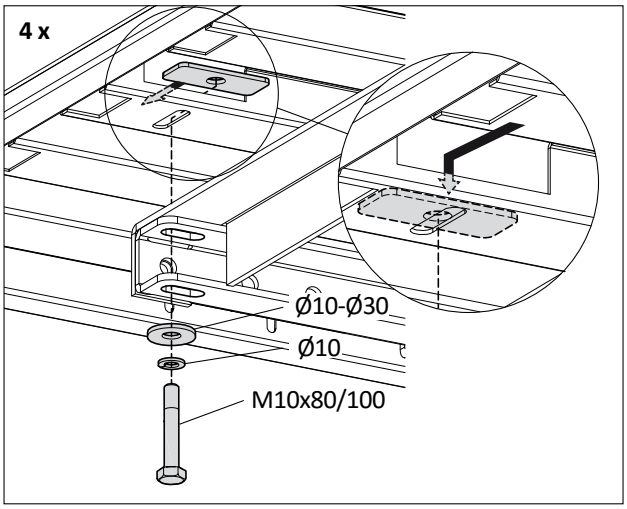
14 CAR BASEMENT ASSEMBLY

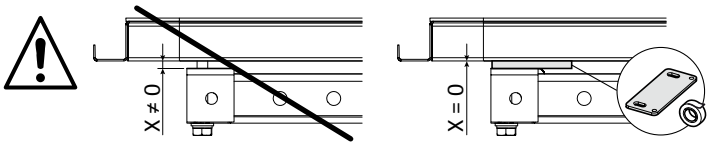
CAR BASEMENT ASSEMBLY, PIT ≥ 140 mm

· Install the basement using the pre-arranged holes.



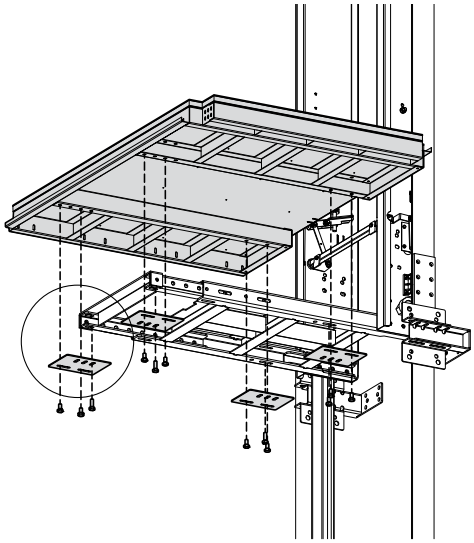
KIT F350.23.0004



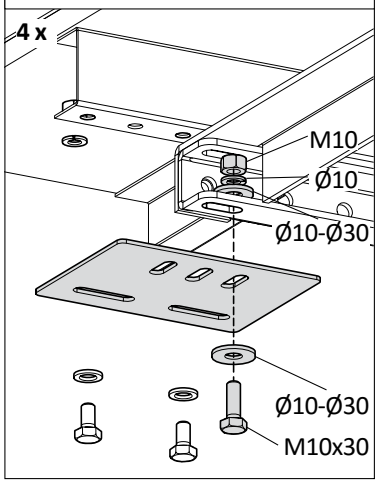


CAR BASEMENT ASSEMBLY, 100 mm ≤ PIT < 140 mm

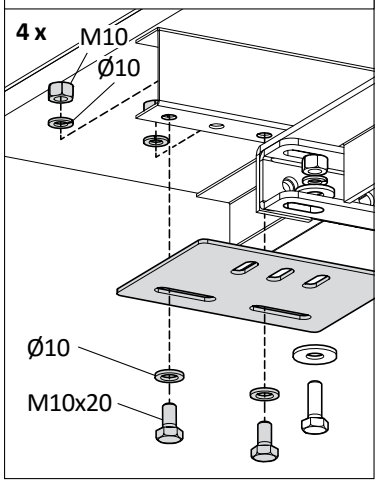
· Install the basement using the pre-arranged holes.

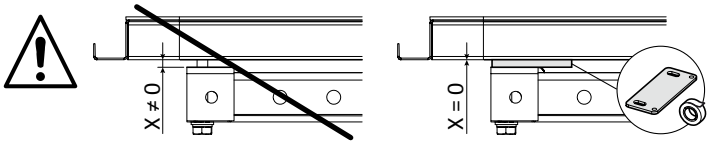


KIT F350.23.0004



KIT C002.23.0009 / 0015



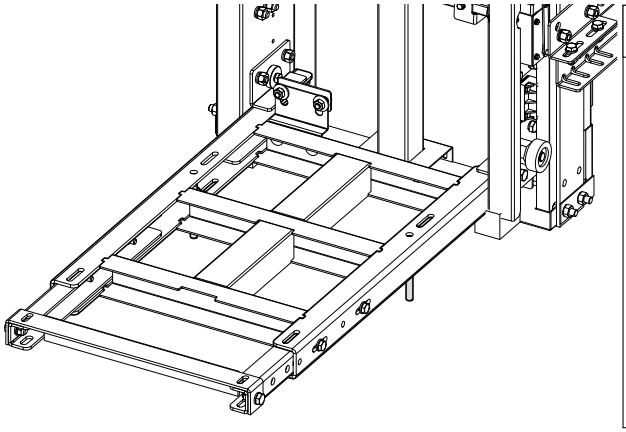


15 TAKING IN THE SLACK

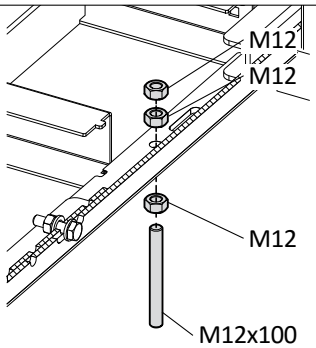
Upon completion of the above described operations, the lift is ready to be taken in the slack.
The following sequence of steps is to be followed:

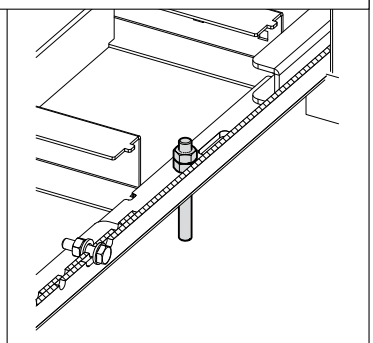
- Check the correct electrical connection of the hydraulic unit (in accordance with the the electrical scheme and the instructions stated on the lid of the clamp box;
- Check if the oil tank has been filled (paragraph **9.4**);
- Unscrew the escape valve on the top of the cylinder;
- Close the main tap and open the tap of the pressure gauge;
- Switch the power of the control cabinet on;
- Start the drive and check the pressure increase on the pressure gauge. In case of 3 phase power supply, if the pump rotation is wrong, the pressure will not increase and the pump will make a strong sharp noise. In such cases switch the drive off immediately, cut the power and change the electrical drive connection, inverting two of the three phases. Repeat the test to check the correct functioning of the pump (pressure increase and absence of sharp noise).
- Switch the drive off.
- Open the main tap and close the tap of the pressure gauge;
- Switch the drive on for 5÷8s and then switch it off for 15÷20s. This allows the air to escape rom the outlet hose and from the cylinder, through the escape valve.
- Repeat the procedure from the previous point for several times, until clear oil starts coming out of the escape valve (without bubbles). Then, close the escape valve again;
- Switch the hydraulic unit drive on until the frame will be lifted by 10÷15 cm;
- Remove the two wooden blocks positioned previously (paragraph **13.2**) under the frame uprights;

- Assembly the supporting screws under the two shelves;



KIT F350.23.0028



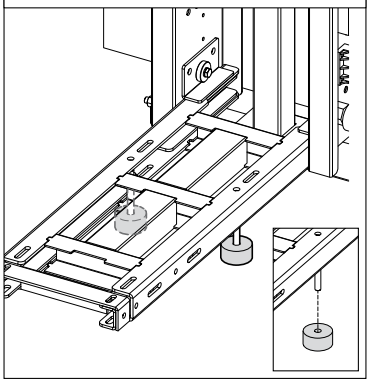


CASE 1

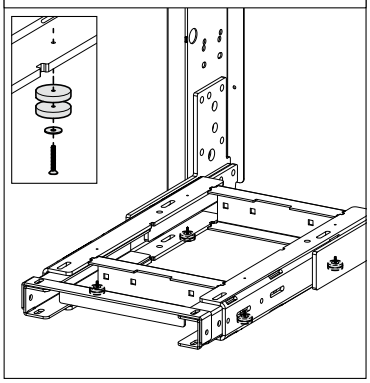
CASE 2 - OPTIONAL

- Assembly anti-vibration pads, if foreseen;

KIT F350.23.0033



KIT F350.23.0043

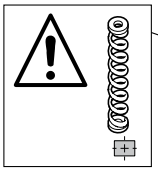


- Bring the piston to the lower end;
- Remove the piston from the cylinder up to the point indicated on the project drawings (use the manual pump (2:1) or control board (1:1));

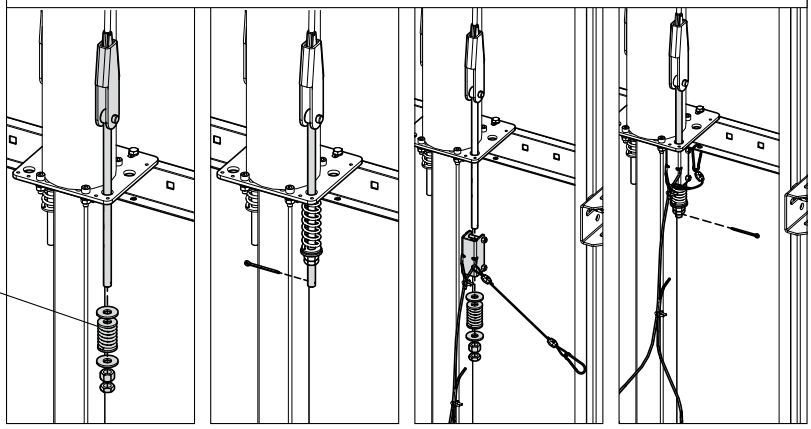
2:1

- With the piston in the same position, fix the rope terminal (cylinder side) and adjust the tension;
- Check the equal compression of the compensation springs;

Install the safety test device in the rope terminal (lowest landing door side) and fix it to the large bracket by means of a snap-hook.

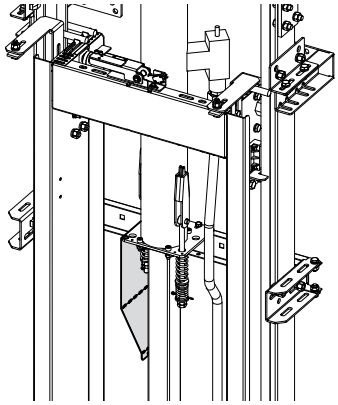


KIT F350.23.0029

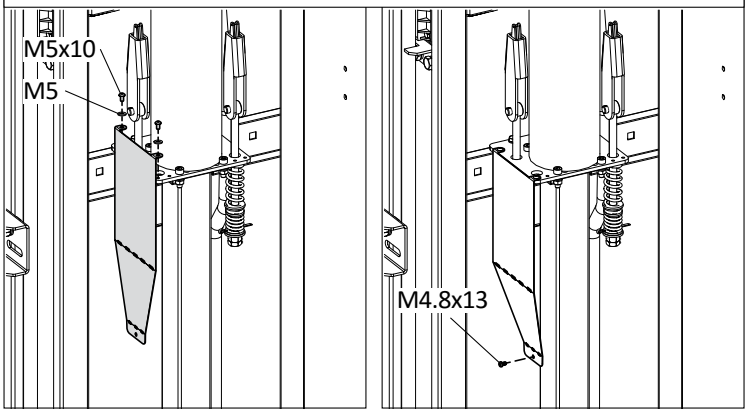


- Check the manual pump. To prime the manual pump (see schemes in paragraph **9.5** or **9.6** and Hydraulic Unit manual) close the main tap, unscrew the counterpressure screw of the cylinder, release the pressure pushing the manual (red) emergency button and e activate the manual pump lever very quickly. As soon as the pump has been primed, fasten the counterpressure screws of the cylinder, then open the main tap;

- Assembly the rope anchorage slide.



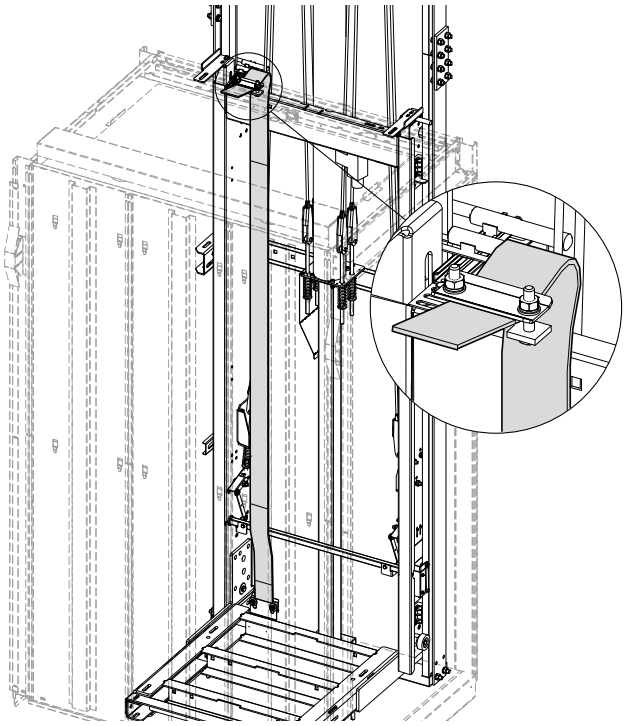
KIT F350.23.0039



16 CAR ASSEMBLY

Please refer to the car installation manual, available in the car package.

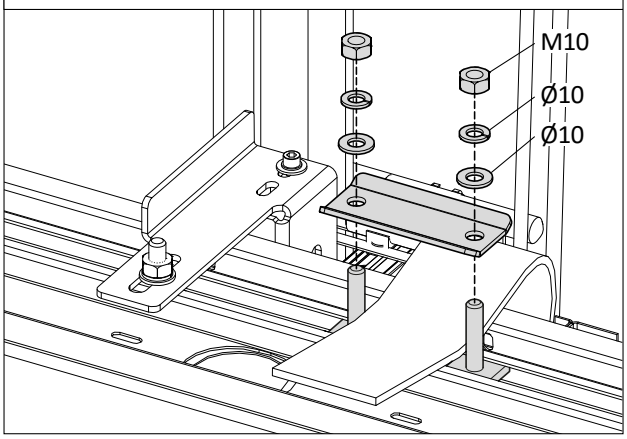
16.1 FIXING THE FLAT CABLE TO THE ROOF



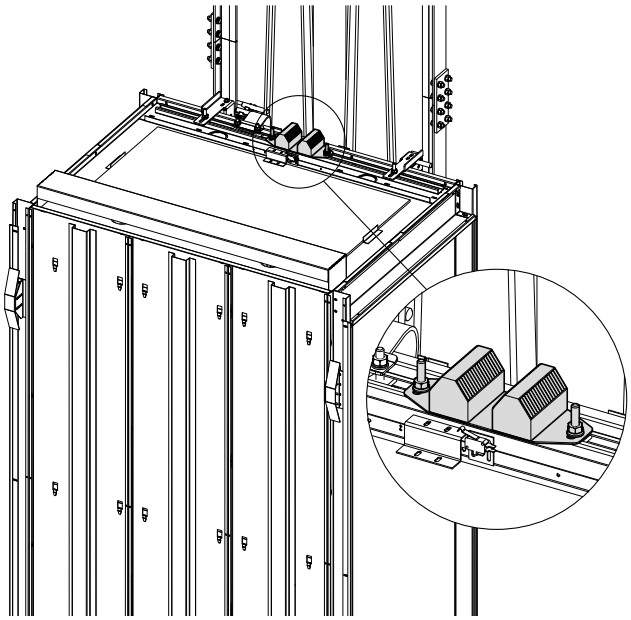
- Fix the end of the flat cable to the roof using the screws previously inserted in the roof conduit.

The flat cable must be placed between the frame and the car to avoid excessive movements.

KIT F350.23.0005V01

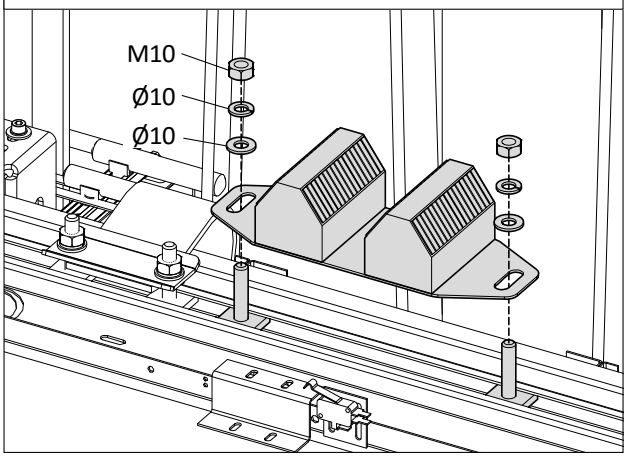


16.2 FIXING THE CLAMP BOX TO THE ROOF



- Fix the plate of the box to the roof using the screws previously inserted in the roof conduit.

KIT F350.23.0005V01



17 FIRST TEST RUN

Before the first run please follow this sequence of steps:

- thoroughly clean the guide rails and lubricate them with a suitable oil (for example ISO VG-320, without EP additives for high pressure environment);
- load the car basement to arrive to the minimum 6 bar pressure, to be checked on the gauge. The frame might fail descent with a lower pressure. This is also to avoid frame bouncing which might lead to the safety brake enabling;
- Check the absence of evident obstacles or protruding material which might interfere with the frame and/or the basement;
- Make sure all the STOP commands are disabled;
- Check if the Safe-Pit device has been disabled;
- Switch the power on and choose the MAINTENANCE mode for the control board;
- Lift the frame pushing the upper floor button;
- Pay attention to the flat cable length during the run;
- With frame standing at the upper floor:
  a) check the upper frame margin on the guide rails, it must match the value advised on the project drawings;
  b) Register the position of the ovverrun contact to be enabled after 30 mm overrun.
- Bring the frame to uper ovverrun and check the oil level in the hydraulic unit: in similar conditions it must above (2÷3mm) the reference notch inside the tank or on the measurement stick. Upon the filling completed, some refill might be required.

2:1

- Using the manual pump, lift the all the way up (meanwhile check if the yoke does not overcome the guide rails).

1:1

- Using the control board, lift the piston all the way up until it reaches the metal blocks.

- Using the emergency descent valve, lower the piston to release the upper ovverrun contact.
- Effect several complete travels, to check:
  a) Flat cable movement;
  b) Any abnormal rumour;
  c) Any obstacle for the contacts.

Register the procedure as per paragraph **2.1** of the **"Final Test"** manual.

18 FINAL ELECTRICAL CONNECTION

For : general information, safety instructions, responsibility and warranty conditions, material handling; please consult the manual "**SAFETY RULES AND BUILDING SITE RUNNING INSTRUCTIONS**".

18.1 CAR LIGHTING

Connect the lighting devices foreseen for the car.

18.2 MAGNETIC SENSORS FOR SHAFT DATA COLLECTION

Position the magnets on the guide rails, according to the distances indicated on the electrical schemes.
Switch the electrical scheme off and install the following sensors on the guide rails:

- landing stops magnetic sensors;
- landing slow-down and speed-up magnetic sensors;
- relevelling magnetic sensors;
- rephasing magnetic sensors.

18.3 ELECTRICAL CONNECTION IN CAR

The principal car connections are: C.O.P., photocells or light barriers. The project electrical scheme is to be strictly followed.
The most common devices to be electrically connected in car are as follows:

- car operation buttons (retroilluminated to show the car position);
- STOP button;
- alarm button;
- emergency lighting;
- light and/or acustic overload signal;
- command enabling key (optional);
- phone dialler or emergency call system (recommended option).

Ceiling safety contact and COP safety contact are also to be connected.

18.4 UNDER FRAME CONNECTION

In the lower part of the frame, provide connection of the safety contact related to the rope slackening device and adjust the position of the rope slackening microcontact on the right frame upright.

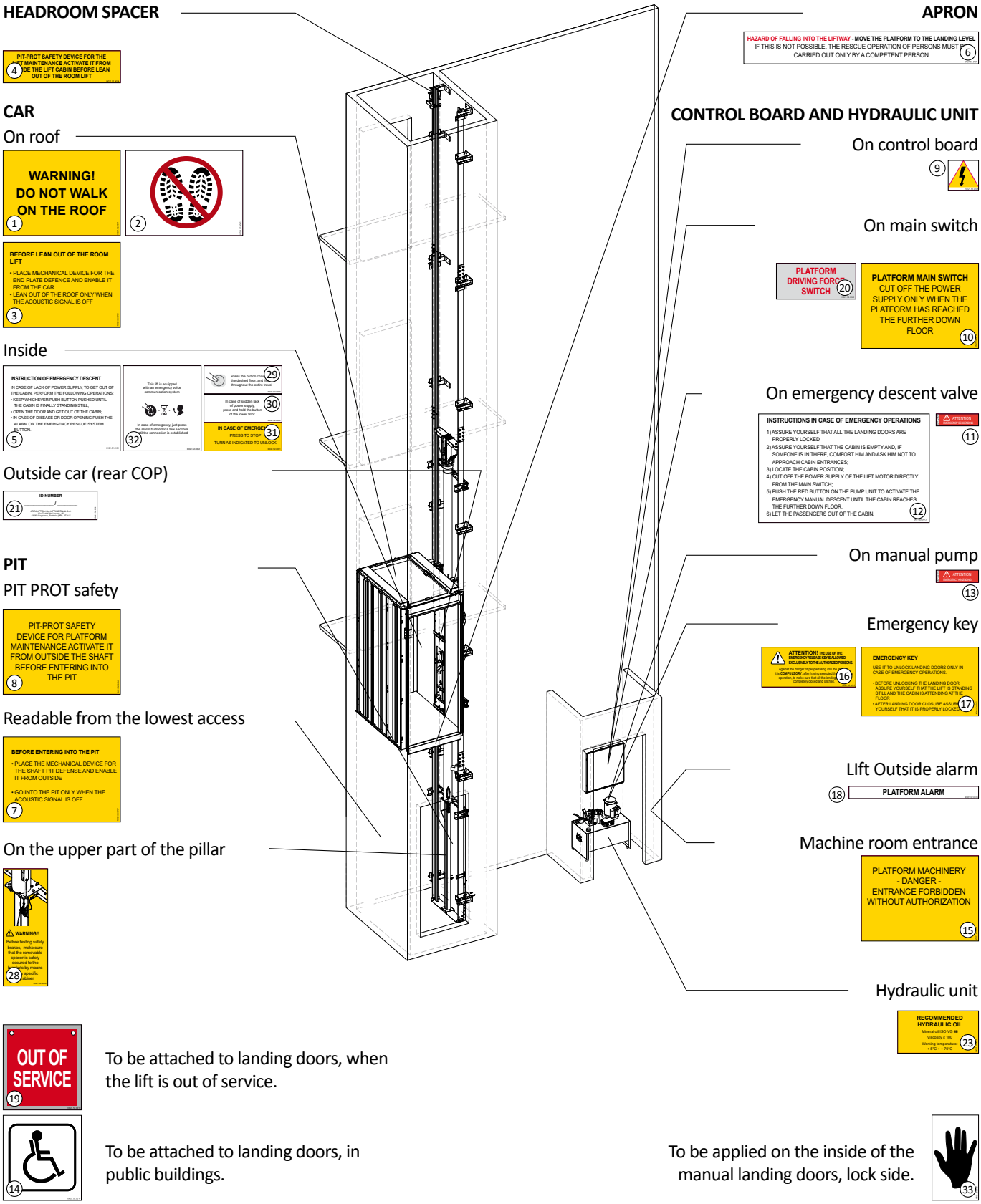
18.5 CHECKING THE CONNECTION IN THE CONTROL BOARD AND INSULATION TEST

Check the completion of all the electrical connections, using the supplied electrical scheme.
Effect circuit insulation tests in terms of the grounding, with the help of the following steps:

- bring the car out of the floor, in order to close the safety chain;
- switch off the driving force circuit and the car lighting;
- disconnect the operation circuit from the grounding and any batteries;
- connect one of the tips of the ohmmeter (usually the black one) to an outer unit (for example, the drive frame or the center of a socket, if grounded.)
  Test all the circuits, using the other tip (driving force, operation circuit, light signal circuit, car lighting, pump drive power supply, alarm circuit);
- Remove the black tip from the outer unit and connect it to a clamp of the operation circuit, to be tested with all the other circuits;
- Repeat the operation, in order to test the insulation between all the circuits.

INSULATION RESISTANCE		
Nominal tension V	Test tension (c.c.) V	Insulation resistance MΩ
SELV	250	> 0.25
< 500	500	> 0.50
> 500	1000	> 1.00

19 PLATES TO BE ATTACHED TO THE LIFT



2:1

20 SAFETY VALVE TEST

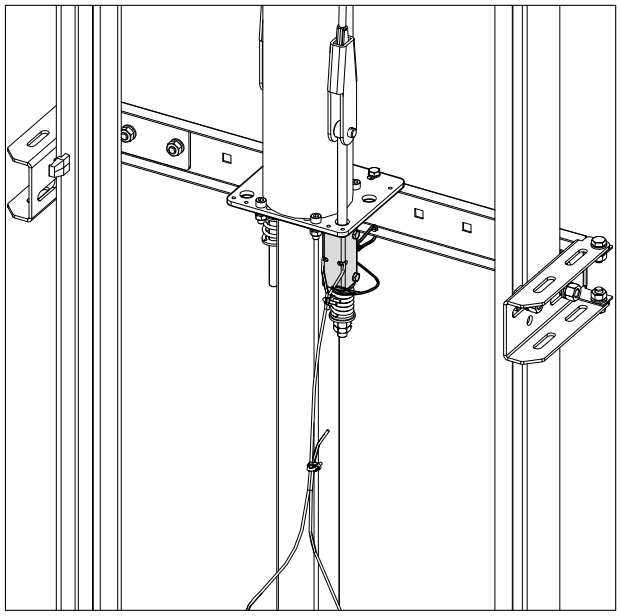
This test is meant to check the correct installation of the safety device as well as the related leverage.
The first testing is to be effected with the empty car and the second one with the nonimal load.

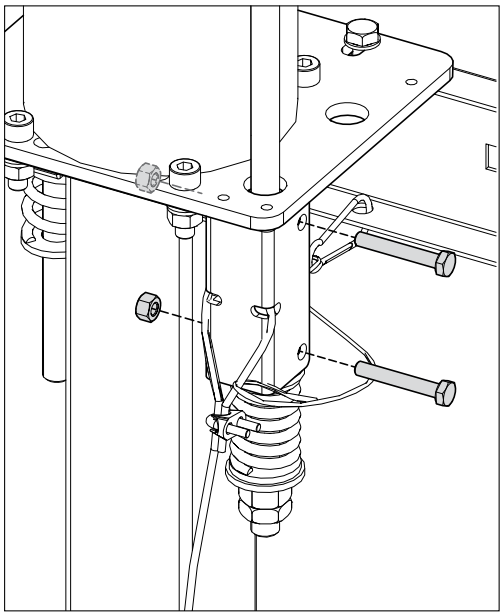
During the safety test, the person in charge must remain outside the shaft.

The safe-pit device must always be actuated before accessing the pit.

Two people are required to effect the test procedure: one in front of the control board and the other in front of the lowest landing door.

a. check the leverage moving (the synchronyzing leverage of the two safety blocks);
b. prepare the rope slackening device, by removing the two screws, temporarily snap-hook it to the bracket;





c. Function test:
   c2. bring the car to the approx 2 meters' height from the pit bottom, open the lowest landing door, stand on the landing and and grab the action rope;
   c3. activate the car descent from the control board;
   c4. pull the rope of the rope slackening device, so to activate the safety device;
   c5. continue commanding the descent, so that the ropes slacken together with the springs and the car remains suspended on the safety brakes;
   c6. activate the ascent: the command will not have any effect;
   c7. using the manual pump, pull the ropes and proceed with the acsent, in order to unblock the safety device;
   c8. check the correct return of the ropes and mobile parts to the original position, then reset the safety valve contact from the control board;
   c9. activate the ascent: the car will start ascending correctly; bring the car to the approx 3 meters' height from the pit bottom;
   c10. enter the pit (**the SafePit device must be enabled beforehand**) and activate the rope slackening device;
   c11. check the two imprints left by the safety device on the guide rails, the imprints must have the same length (±5mm) and be located at the same height (±10mm);
   c12. restore the lift.
d. register the test effected, as per paragraph **2.1** of the **"Final Test"** manual.

21 FINAL TEST AND ADJUSTMENT

Now, it is possible to proceed with the final general test of the lift and the final adjustment of the hydraulic unit, in order to ensure a high level of comfort during the operation. Eventually the commissioning test must be effected, as foreseen by the technical regulations (see paragraph **2** of the **"Final Test"** manual).

The operations as described in this paragraph are to bene carried out by the qualified and authorized personnel.

21.1 GENERAL STEPS

Make sure the lift features match the contract details, the project drawings and the electrical scheme.
In particular:

- tension values in general and for each electrical device;
- duty load;
- speed;
- hydraulic unit features (load, tension, electric drive absorption, etc.);
- safety devices activation for hydraulic unit drive;
- landing door levelling;
- difference in height between emtpy car and full car when at stops;
- type and function of landing doors;
- safety chain;
- safety distances;
- electrical insulation towards grounding, between operation circuit and driving force and between operation circuit and lighting.

21.2 HYDRAULIC UNIT ADJUSTMENT

The adjustment to be effected on the hydraulic unit, are fully described on the related manual and briefly reported here below.
First of all, should excessive car elevation or lowering take place with the load variation, the lift must be stopped for several hours, the cylinder being closed, then air escape must be allowed.

The valves to be adjusted are the following:

- maximum pressure;
- stem counter pressure;
- slowdown;
- descent speed limit;
- pressure activation and hill start;
- manual pump pressure. (2:1)

Ascent speed is not variable, since it is determined by the capacity of the hydraulic volume pump.
The features of the pump - cylinder combination allow the maximum speed of 0,15 m/s. This value it to be checked and confirmed at the final commissioning (see paragraph **2.9** of the **"Final Test" manual**).
To adjust the a.m. valves it is necessary to fasten or unscrew the related adjustment screw, as stated in the manual. Usually the adjustment is made by rotating these screws 1/4 of a round (90°) or 1/8 of a round (45°) . It is recommended that the screws direction be registered before proceeding with adjustment, in order to bring the screws back to the original position.

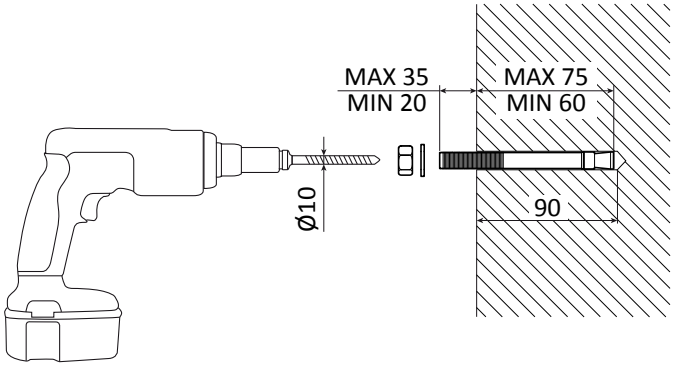
22 NOISE EMISSION

The main source of the noise emission is the hydraulic unit, especially during the ascent with the maximum load (max overload included).
The hydraulic unit is located in a pre-arranged machine room or in a special metal box.
The operator's position is inside the car, so the operator is not exposed to direct noise emission deriving from the hydraulic unit.
Despite this assumption, another measurement has been effected at 1 m distance from the hydraulic unit, in an industrial environment, without other machinery in function.
In different contexts analysed, the results were under 70dB(A).

Appendix. 1 ANCHOR BOLTS usage instruction

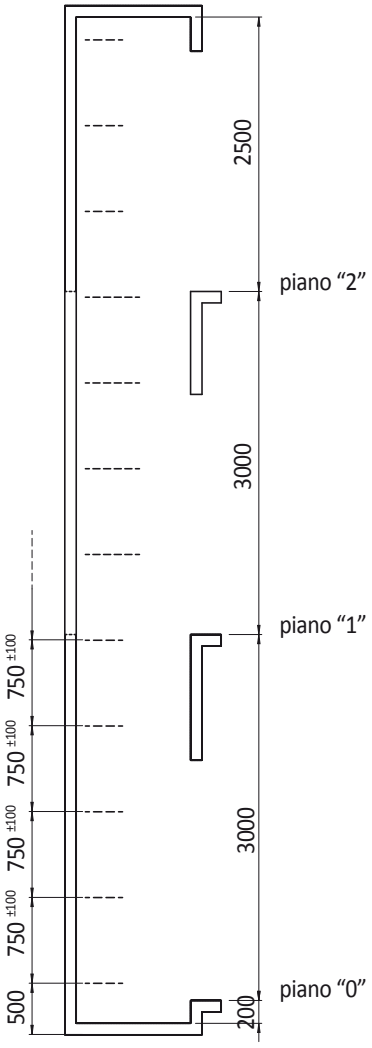
Appendix.1.1 CONCRETE SHAFT

Unless differently specified, all the anchor bolts are M10 and require holes to be arranged using the 10 mm drill bit, to the minimum 90 mm depth. The anchor bolt must be inserted in the hole up to 70 mm approximately.



Appendix.1.2 MASONRY SHAFT

The guide rail brackets assembly (shafts being constructed in either hollow or solid bricks), requires a certain gap reduction, to make up for the minor mechanical resistance of the walls.
The recommended gap is 750 mm, to be increased by 100 mm to avoid the guide rail junction, starting from the pit bottom ≤ 500 mm.
The number of bracket perimeters, with the standard values for pit (140÷200 mm), distance between floors (3000÷3200 mm) and headroom (2400÷2600 mm), is 4 for each stop.

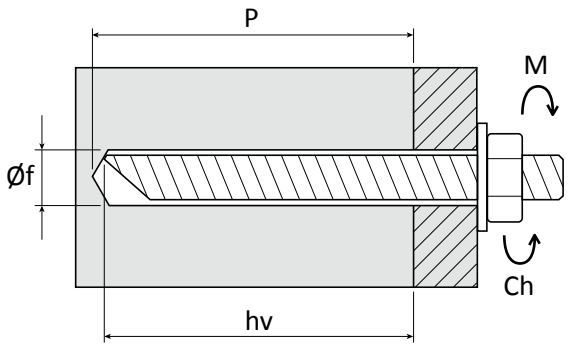


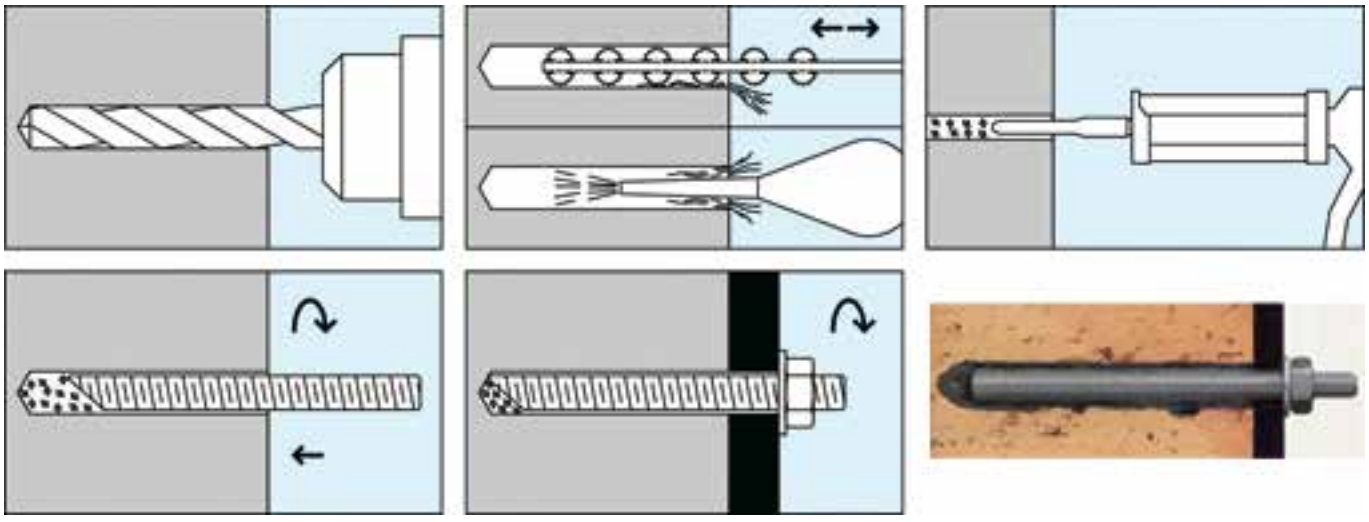
SOLID BRICKS

The special kit F350.23.0026V01 for chemical bolts application is composed of:
- n° 16 zinc coated THREADED BARS M10x110, 45° cut (anti rotation);
- n° 2 300 ml vinyl ester CARTRIDGES (styrene free), suitable for elevated loads and application in humid holes, to be used with standard caulking guns;
- n° 2 multipurpose MIXERS ø9 mm, additionally to the 4 mixers foreseen for the cartridges.

Each kit is sufficient for 8 brackets, required for approx. 1 stop.
For instance, 3 F350.23.0026V01 kits are required for a 3 stops' lift, the brackets being positioned as per the sample drawing.
The following procedure explains the correct use of chemical bolts in case of solid bricks:

Bolt features			
Bar threading	Ø b	mm	M10
Total bar length	L	mm	110
Space to be closed	S	mm	max 15
Hole preparation			
Nominal bit diameter	Ø f	mm	10
Drilling depth	P	mm	≥ 140
Bar insertion depth	hv	mm	≈ 75
Resin filling volume			≈ 3/4 hole (≈ 18÷28 ml)



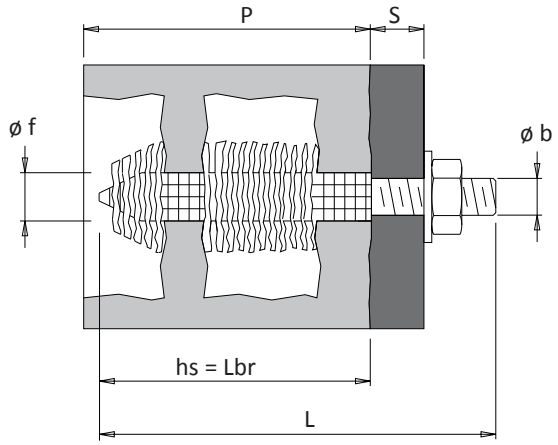


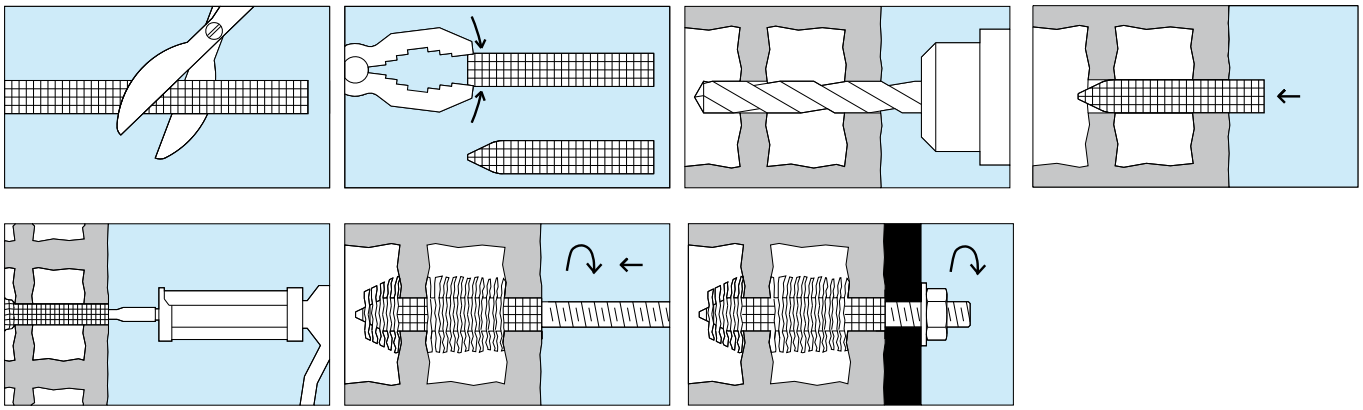
HOLLOW BRICKS

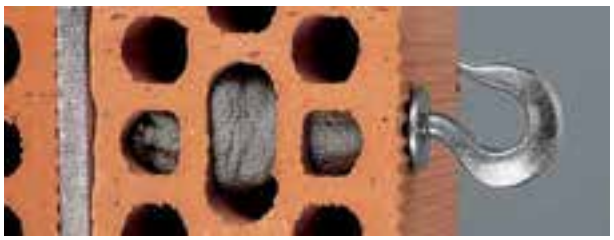
The special kit F350.23.0025V01 for chemical bolts application is composed of:
- n° 16 zinc coated THREADED BARS M10x110, 45° cut (anti rotation);
- n° 2 300 ml vinyl ester CARTRIDGES (styrene free), suitable for elevated loads and application in humid holes, to be used with standard caulking guns;
- n° 2 multipurpose MIXERS ø9 mm, additionally to the 4 mixers foreseen for the cartridges;
- n° 2 NET COVERED bolts ø16 mm, length 1 mt each.

Each kit is sufficient for 8 brackets, required for approx. 1 stop.
For instance, 3 F350.23.0025V01 kitskits are required for a 3 stops' lift, the brackets being positioned as per the sample drawing.
The following procedure explains the correct use of chemical bolts in case of hollow bricks:

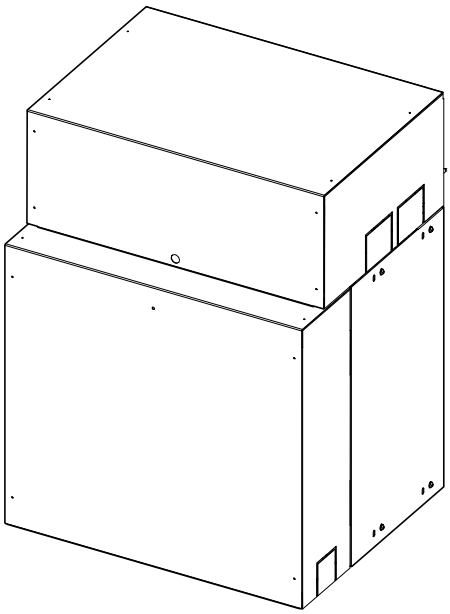
Bolt features			
Net bolt	Ø x L	mm	16 x 100
Bar threading	Ø b	mm	M10
Total bar length	L	mm	110
Space to be closed	S	mm	max 15
Hole preparation			
Nominal bit diameter	Ø f	mm	16
Drilling depth	P	mm	≥ 140
Bar insertion depth	hv	mm	≈ 75
Resin filling volume			≈ 3/4 del foro (≈ 18÷28 ml)





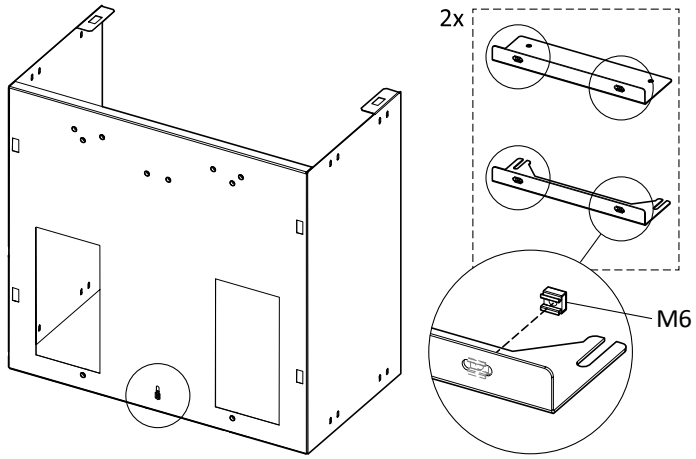


Appendix.2 CLAP2 CABINET ASSEMBLY



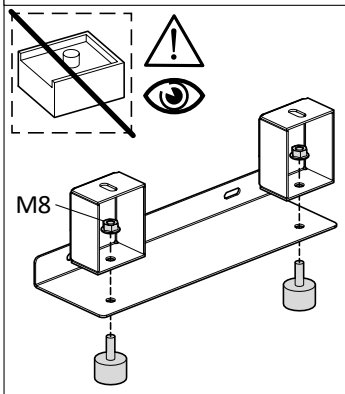
KIT I0021.23.0001

KIT I0021.23.0002

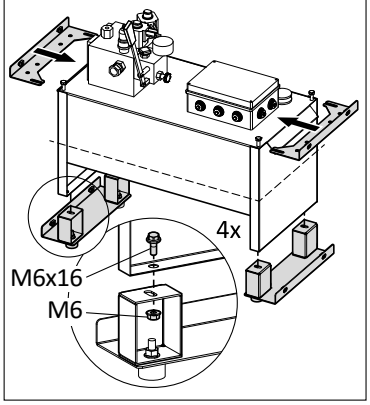


- Pre-mount the cage nuts;
- Pre-mount the brackets with anti-vibration base;
- Assembly the (upper and lower) brackets to the hydraulic unit;

KIT I0021.23.0003

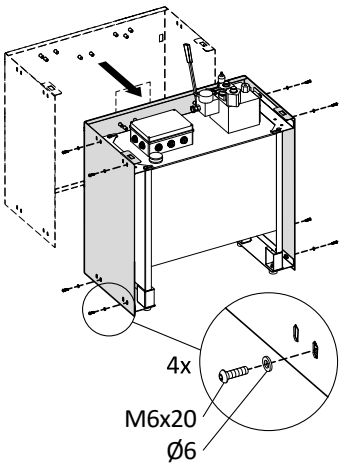


KIT I0021.23.0002

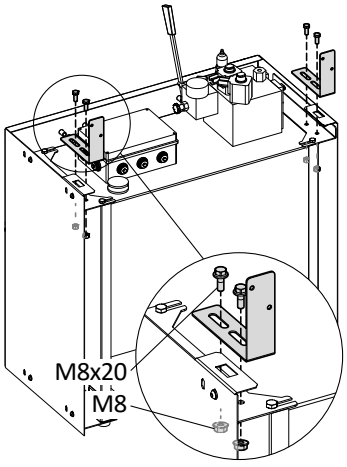


- Assembly the front cover of the hydraulic unit;
- Assembly the fixing brackets to the wall;

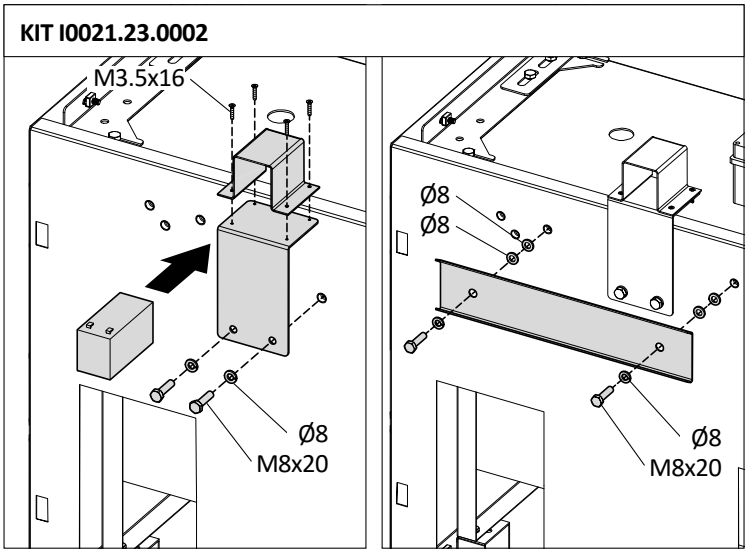
KIT I0021.23.0002



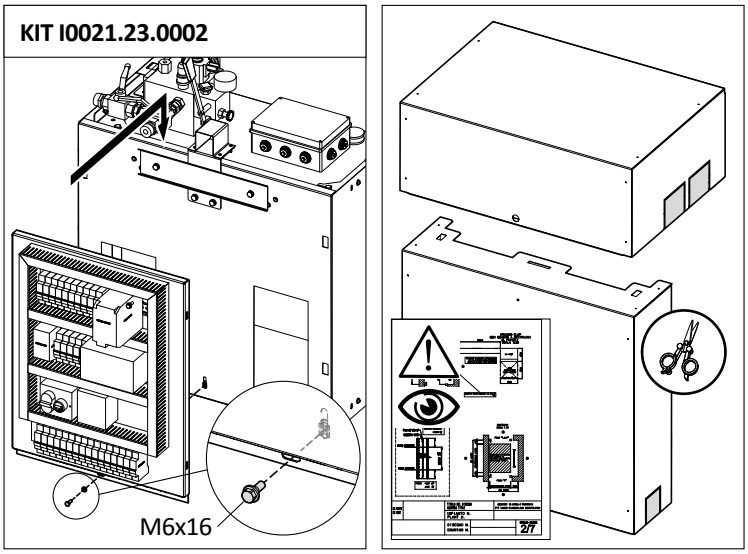
KIT I0021.23.0004



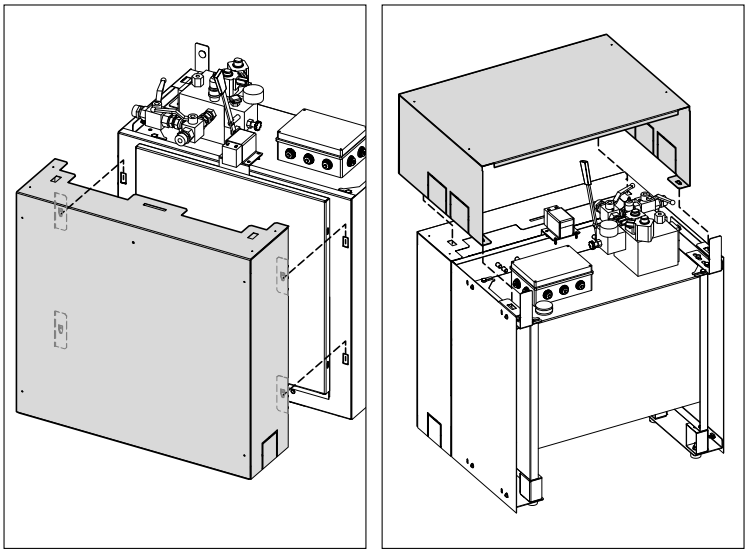
- Assembly the battery supporting brackets;
- Assembly the control board fixing bracket;

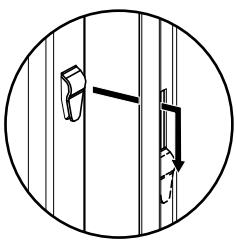


- Fix the control board;
- Open the side panels according to the hydraulic unit type, to lay the wiring and hoses;

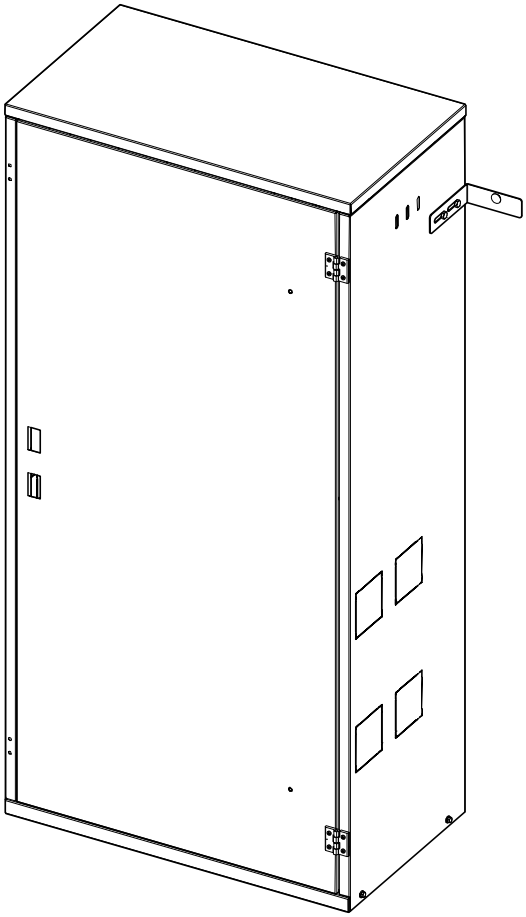


- Mount the front closing panel;
- Mount the upper closing panel.



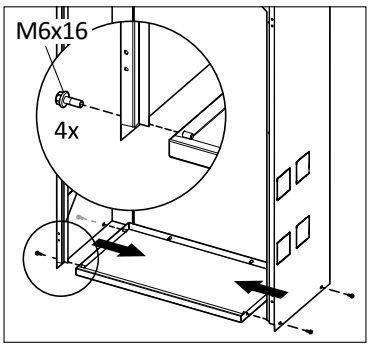


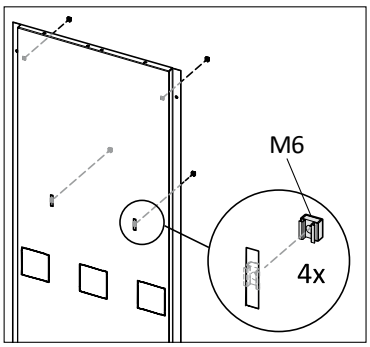
Appendix.3 MRC2 CABINET ASSEMBLY

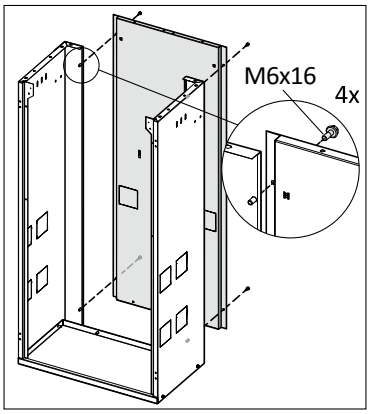


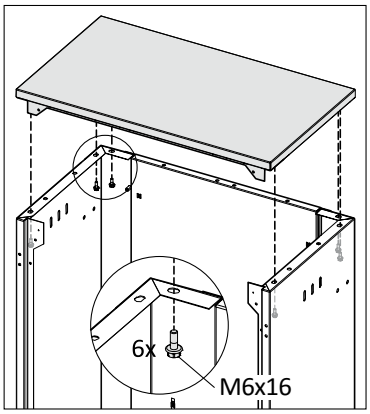
- Position the base onto a flat surface;
- Fix the two side panels to the base;
- Pre-mount the cage nuts on the bottom panel;
- Fix the bottom panel;
- Fix the lid;
- Position the cabinet according to the project drawing;
- Open the side panels according to the hydraulic unit type, to lay wiring and hoses;
- Fix the wall fixing side brackets for (if necessary);
- Fix the crossbeams to the bottom;

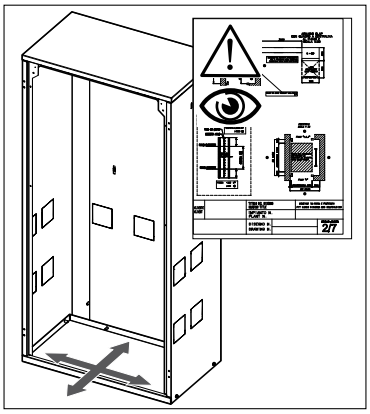
KIT I0021.23.0005

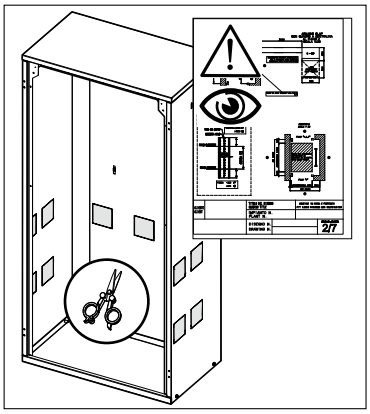


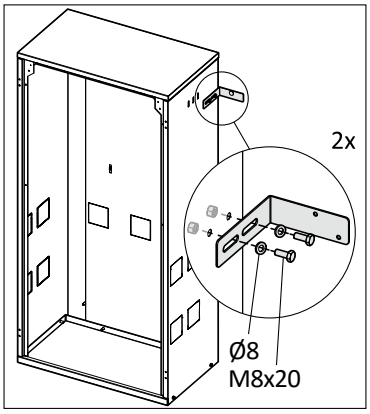


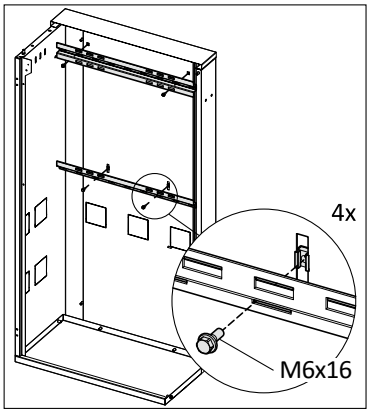






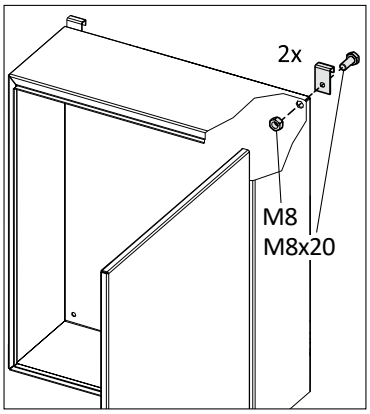


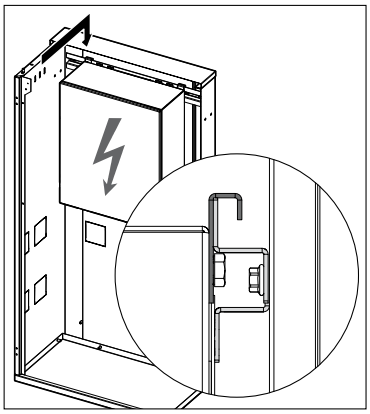




CASE 1 – CONTROL BOARD INSIDE A METAL BOX

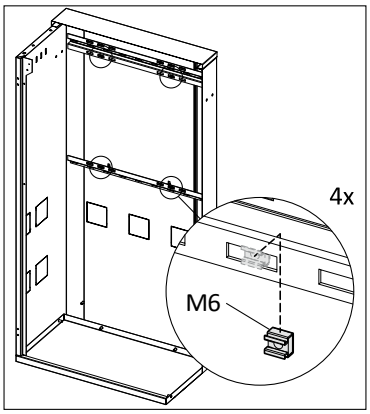
- Pre-assembly the brackets on the rear side of the cabinet;
- Hang the cabinet onto the crossbeams.

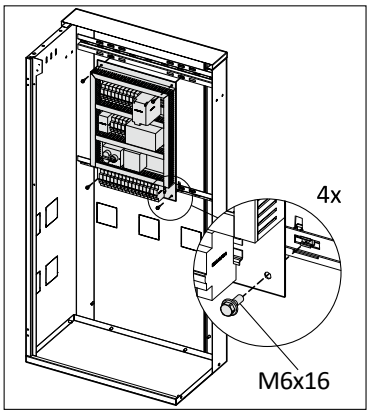




CASE 2 – CONTROL BOARD ON A PLATE

- Insert the cage nuts inside the prearranged holes in the crossbeams;
- Fix the plate to the crossbeams.





- Assembly the door.