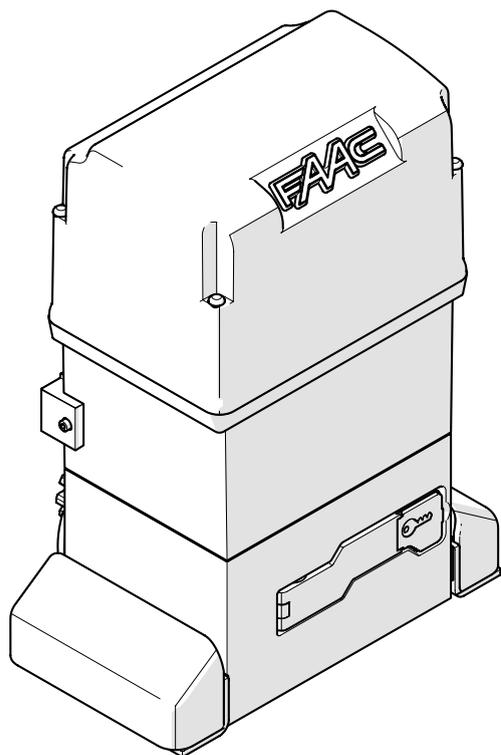


# 844 ER 3PH



**FAAC**

Translation of the original instructions

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De handleiding werd in 2020 gepubliceerd.

# FAAC

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**EU DECLARATION OF CONFORMITY**

The Manufacturer

**Company name:** FAAC S.p.A. Soc. Unipersonale  
**Address:** Via Calari, 10 - 40069 Zola Predosa BOLOGNA - ITALY

hereby declares on his sole responsibility that the following products:

**Description:** Gearmotor for sliding gates

**Models:** 844 ER 3PH

comply with the following applicable EU legislations:

- 2014/30/EU
- 2011/65/EU

Furthermore, the following harmonised standards have been applied:

- EN61000-6-2:2005
- EN61000-6-3:2007 + A1:2011

Bologna, Italy, 01-07-2020 CEO

A. Marcellan



**DECLARATION OF INCORPORATION FOR PARTLY COMPLETED MACHINERY**

(2006/42/EC ANNEX II P.1, B)

Manufacturer and person authorised to prepare the relevant technical documentation

**Company name:** FAAC S.p.A. Soc. Unipersonale  
**Address:** Via Calari, 10 - 40069 Zola Predosa BOLOGNA - ITALY

hereby declares that for the partly completed machinery:

**Description:** Gearmotors for sliding gates

**Model:** 844 ER 3PH

The essential requirements of the Machinery Directive 2006/42/EC (including all applicable amendments) that have been applied and fulfilled are as follows:

- 1.1.2, 1.1.3, 1.1.5, 1.1.6, 1.2.1, 1.2.3, 1.2.5, 1.2.6, 1.3.1, 1.3.2, 1.3.4, 1.3.6, 1.3.9, 1.4.1, 1.4.2.1, 1.5.1, 1.5.2, 1.5.5, 1.5.6, 1.5.7, 1.5.8, 1.5.10, 1.5.11, 1.6.1, 1.6.4, 1.7.1, 1.7.2, 1.7.3, 1.7.4.2, 1.7.4.3

and that the relevant technical documentation has been compiled in compliance with part B of Annex VII.

Furthermore, the following harmonised standards have been applied:

- EN12100:2010
- EN13849-1:2015 CAT.2 PL "C
- EN13849-2:2012

Other standards applied: EN 60335-1:2012+A11:2014+A13:2017  
 EN 60335-2-103:2015

And also undertakes to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery by mail or e-mail.

Finally, the manufacturer declares that the above-mentioned partly completed machinery must not be put into service until the final machine in which it is to be incorporated has been declared compliant with the requirements of the above-mentioned Machinery Directive 2006/42/EC.

Bologna, Italy, 01-07-2020 CEO

A. Marcellan



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# 1. INTRODUCTION TO THIS INSTRUCTION MANUAL

This manual provides the correct procedures and requirements for installing 844 ER 3PH and maintaining it in a safe condition.

When drafting the manual, the results of the risk assessment conducted by FAAC S.p.A. on the entire product life cycle have been taken into account in order to implement effective risk reduction measures. The following stages of the life cycle of the product have been considered:

- Delivery/handling
- Assembly and installation
- Set-up and commissioning
- Operation
- Maintenance/troubleshooting
- Disposal at the end of the product's life cycle

Risks arising from installation and using the product have been taken into consideration; these include:

- Risks for the installation/maintenance technician (technical personnel)
- Risks for the user of the automation system
- Risks to product integrity (damage)

In Europe, the automation of a gate falls under the Machinery Directive 2006/42/EC and the corresponding harmonised standards. Anyone automating a gate (new or existing) is classified as the Manufacturer of the Machine. They are therefore required by law, among other things, to carry out a risk analysis of the machine (automatic gate in its entirety) and take protective measures to fulfil the essential safety requirements specified in Annex I of the Machinery Directive.

FAAC S.p.A. recommends that you always comply with the EN 12453 standard and in particular that you adopt the safety criteria and devices indicated, without exception, including the dead-man function.

This manual also contains general information and guidelines, which are purely illustrative and not exhaustive, in order to facilitate the activities carried out by the Manufacturer of the Machine in all respects with regard to carrying out the risk analysis and drafting the instructions for use and maintenance of the machine. It should be clearly understood that FAAC S.p.A. accepts no liability for the reliability and/or completeness of the above instructions. As such, the manufacturer of the machine must carry out all the activities required by the Machinery Directive and the corresponding harmonised standards on the basis of the actual condition of the locations and structures where the product 844 ER 3PH will be installed, prior to commissioning the machine. These activities include the analysis of all the risks associated with the machine and subsequent implementation of all safety measures intended to fulfil the essential safety requirements.

This manual contains references to European standards. The automation of a gate must fully comply with any laws, standards and regulations applicable in the country where installation will take place.

 Unless otherwise specified, the measurements provided in the instructions are in mm.

## 1.1 MEANING OF THE SYMBOLS USED

### NOTES AND WARNINGS ON THE INSTRUCTIONS

-  WARNING ELECTRIC SHOCK HAZARD - The operation or step described must be carried out following the instructions provided and according to the safety regulations.
-  WARNING, personal injury hazard or risk of damage to components - The operation or step described must be carried out following the instructions provided and according to the safety regulations.
-  WARNING - Details and specifications which must be respected in order to ensure that the system operates correctly.
-  RECYCLING AND DISPOSAL - The materials used in manufacturing, the batteries and any electronic components must not be sent to landfill. They must be taken to authorised recycling and disposal centres.
-  FIGURE E.g.  1-3 see Figure 1 - item 3.
-  TABLE E.g.  1 see Table 1.
- § CHAPTER/SECTION E.g. §1.1 see Section 1.1.
- ○ STATUS OF THE LEDS ON THE BOARD
- \* ○ LED off ● LED on \* LED flashing

### SAFETY SIGNS AND SYMBOLS

-  GENERIC HAZARD  
Personal injury hazard or risk of damage to components.
-  ELECTROCUTION HAZARD  
Risk of electric shock from live parts.
-   CRUSHING HAZARD  
Risk of crushing to the hands/feet due to the presence of heavy parts.
-   CUTTING/AMPUTATION/PUNCTURE HAZARD  
Cutting hazard due to the presence of sharp components or the use of pointed/sharp tools (drill).
-   SHEARING/TRAPPING HAZARD  
Risk of fingers and hands being sheared or trapped due to moving parts.
-  BURNING OR SCALDING HAZARD  
Risk of burns due to the presence of high-temperature parts.

### PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment must be worn to protect against hazards (e.g. crushing, cutting, shearing etc.):

-  Obligation to wear mask/goggles to protect the eyes from the risk of fragments due to the use of drill or welder.
-  Obligation to wear work gloves.
-  Obligation to wear safety footwear.

## 2. SAFETY RECOMMENDATIONS

This product is placed onto the market as “partly completed machinery”, therefore it cannot be commissioned until the machine in which it has been incorporated has been identified and declared to conform to the Machinery Directive 2006/42/EC by the actual Manufacturer.

 Incorrect installation and/or incorrect use of the product might cause serious harm to people. Read and comply with all the instructions before starting any activity on the product. Keep these instructions for future reference.

Perform installation and other activities adhering to the sequences provided in the instructions manual.

Always comply with all the requirements contained in the instructions and warning tables at the beginning of the paragraphs. Always comply with the safety recommendations.

Only the installer and/or maintenance technician is authorised to work on the automation components. Do not modify the original components in any way.

Close off the work site (even temporarily) and prevent access/transit. EC countries must comply with the legislation that transposes the European Construction Site Directive 92/57/EC.

The installer is responsible for the installation/testing of the automation and for completing the Register of the system.

The installer must prove or declare to possess technical and professional proficiency to perform installation, testing and maintenance activities according to the requirements in these instructions.

### 2.1 INSTALLER SAFETY

Installation activities require special work conditions to reduce to the minimum the risks of accidents and serious damage. Furthermore, the suitable precautions must be taken to prevent risks of injury to persons or damage.

 The installer must be in good physical and mental condition, aware of and responsible for the hazards that may be generated when using the product.

The work area must be kept tidy and must not be left unattended.

Do not wear clothes or accessories (scarves, bracelets, etc.) that may get caught in moving parts.

Always wear the personal protective equipment recommended for the type of activity to be carried out.

The required level of workplace lighting must be equal to at least 200 lux.

Operate CE marked machinery and equipment in compliance with the manufacturer's instructions. Use work instruments in good conditions.

Use the transport and lifting equipment recommended in the instructions manual.

Use safety-compliant portable ladders of adequate size, fitted with anti-slip devices at the top and bottom, equipped with retainer hooks.

### 2.2 TRANSPORT AND STORAGE

 Follow the instructions on the package

#### WARNINGS ON PACKAGING

 Handle with care. Presence of fragile parts.

 Up indication.

 Keep away from water and moisture.

 Maximum number of stacked packages.

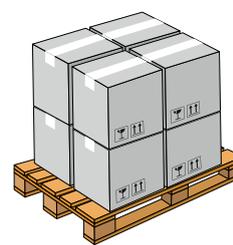
 CE marking.

#### PALLETISED SUPPLY

##### RISKS



##### PERSONAL PROTECTIVE EQUIPMENT



 Follow the instructions on the packaging during handling.

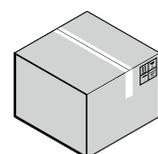
Use a forklift or pallet truck, following safety regulations to avoid the risk of impacts or collisions.

#### SINGLE PACKAGE

##### RISKS



##### PERSONAL PROTECTIVE EQUIPMENT



 Follow the instructions on the packaging during handling.

 For manual lifting, there should be one person for every 20 kg to be lifted.

Store the product in its original packaging, in closed and dry premises, protected from the sun and free from dust and aggressive substances. Protect from mechanical stress. If stored for more than 3 months, regularly check the condition of the components and the packaging.

- Storage temperature: 5°C to 30°C.
- Percentage of humidity: 30% to 70%.

## 2.3 UNPACKING AND HANDLING

### RISKS



### PERSONAL PROTECTIVE EQUIPMENT



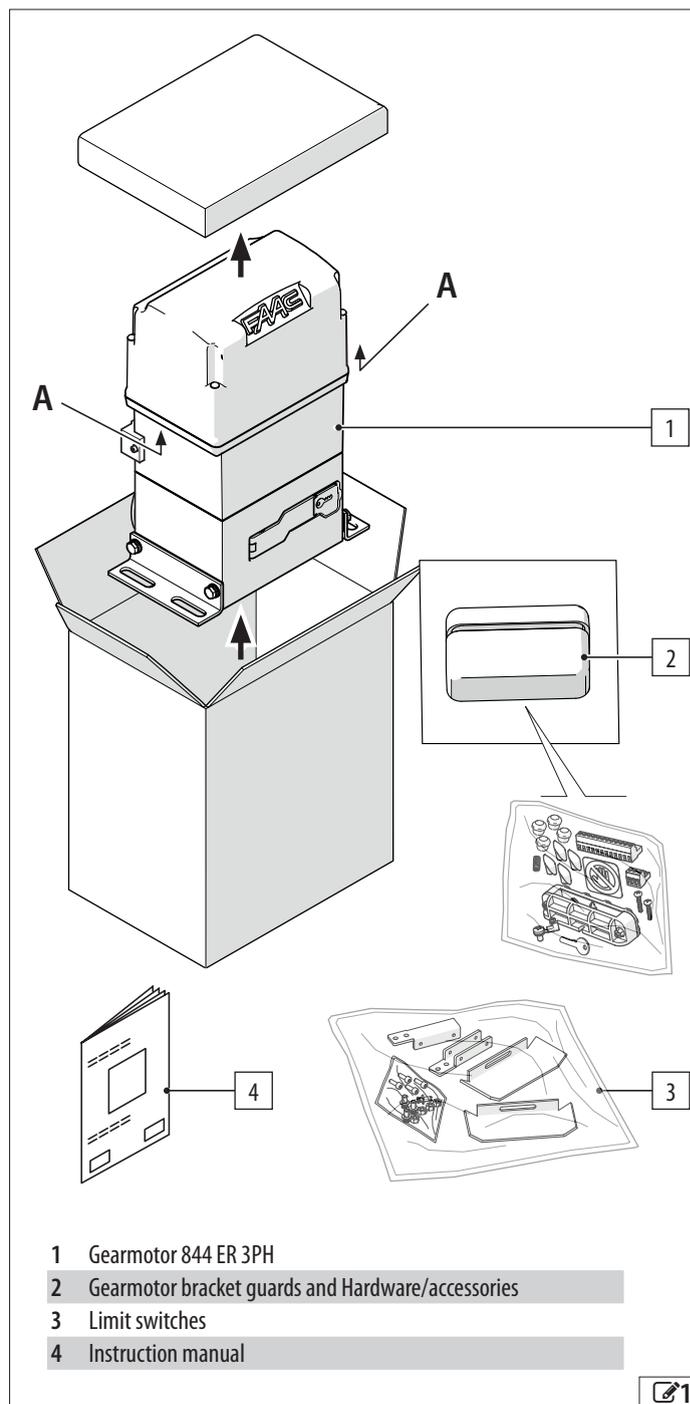
1. Open the package and remove the contents.
  - Do not lift the gearmotor by the casing or the electronic board. Grip the body of the gearmotor using the handholds A (🔪1).
2. Check that all components are present and intact (See § Component identification).

The packaging materials (plastic, polystyrene etc.) must not be left within reach of children as they are potential sources of danger.

When you have finished with them, dispose of the packaging in the appropriate containers, as per applicable waste disposal regulations.

### VENT CLOSURE

The 844 ER 3PH is supplied with the vent hole closed with a screw and washer (🔪2). Whenever the gearmotor is handled, the vent must be closed to prevent oil leaking out.

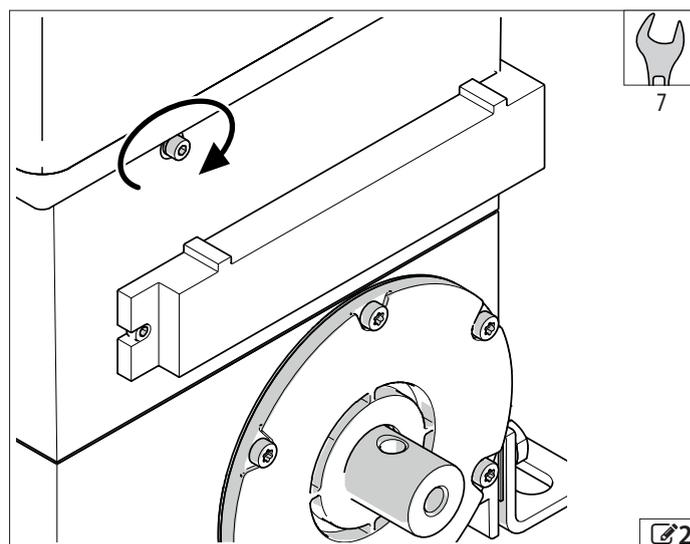


## 2.4 DISPOSAL OF THE PRODUCT

After having dismantled the product, dispose of it in compliance with the current waste disposal regulations.

Components and structural materials, batteries and electronic components must not be disposed of together with household waste. They must be taken to authorised disposal and recycling centres.

The oil must be gathered in a watertight container and given to an authorised disposal and recycling centre. Do not mix with other substances such as antifreeze or transmission fluids. Keep the used oil away from sources of heat and out of the children's reach. The fluid is not hazardous to health. In case of contact with eyes, skin or clothing, wash and rinse the affected parts. The technical data sheets of the fluids are available on request.



### 3. 844 ER 3PH

#### 3.1 INTENDED USE

The FAAC model 844 ER 3PH gearmotors have been designed to control horizontal movement sliding gates intended for installation in areas that are accessible to people, the main purpose of which is to provide safe access for goods, vehicles and people to industrial, commercial or residential buildings.

Only one gearmotor must be installed for each leaf. The system requires a special foundation plate, supplied separately, which is embedded in a plinth. The gate must be moved via a drive pinion and a rack (supplied separately). The 844 ER 3PH has a built-in electronic board, with specific instructions.

To move the gate manually, follow the instructions in section § Manual operation.



Any other use that is not expressly specified in these instructions is prohibited and could affect the integrity of the product and/or represent a source of danger.

#### 3.2 LIMITATIONS OF USE

The maximum force required to move the leaf by hand over its entire length of travel must be 225 N for residential areas and 260 N for industrial or commercial areas.

The maximum force required to start the movement must be less than the maximum torque at initial thrust of the operator indicated in the technical data.

The leaf must fall within the dimensional and weight limits indicated in the technical data.

The presence of weather conditions such as snow, ice and strong wind, even occasional, could affect the correct operation of the automation, the integrity of the components and be a potential source of danger (see § Emergency use).

844 ER 3PH is not designed to be a security (break-in protection) system.

If there is a pedestrian access gate integrated in the leaf of the gate, the motorised movement must be disabled when the pedestrian gate is not in a safe position.

The installation must be visible during the day and at night. If it is not, appropriate solutions must be provided to make the fixed and moving parts visible.

Implementing the automation requires the installation of the necessary safety devices, identified by the installer through an appropriate risk assessment of the installation site.

#### 3.3 UNAUTHORISED USE

- Uses other than the intended use are prohibited.
- It is prohibited to install the automation system outside of the limits specified in the Technical Data and Installation Requirements sections.
- It is forbidden to use 844 ER 3PH in a constructional configuration other than the one provided by the manufacturer.
- No component part of the product may be modified.
- It is prohibited to install the automation system on escape routes.
- It is prohibited to install the automation system to create fire doors.
- It is prohibited to install the automation system in environments in which there is a risk of explosion and/or fire: the presence of flammable gases or fumes is a serious safety hazard (the product is not ATEX certified).
- It is prohibited to power the system with energy sources other than those specified.
- It is prohibited to integrate commercial systems and/or equipment other than those specified, or use them for purposes not intended and authorised by their respective manufacturers.
- Do not allow water jets of any type or size to come into direct contact with the gear motor.
- Do not expose the gear motor to corrosive chemicals or atmospheric agents.
- It is prohibited to use and/or install accessories which have not been specifically approved by FAAC S.p.A.
- It is prohibited to use the automation system before performing commissioning.
- It is prohibited to use the automation system in the presence of faults which could compromise safety.
- It is prohibited to use the automation system with the fixed and/or mobile guards removed or altered.
- Do not use the automation system unless the area of operation is free of persons, animals or objects.
- Do not enter/remain in the area of operation of the automation system while it is moving.
- Do not try to prevent the movement of the automation system.
- Do not climb on, hold onto or let yourself be pulled by the leaf. Do not climb onto the gear motor.
- Do not allow children to approach or play in the area of operation of the automation system.
- Do not allow the control devices to be used by anyone who is not specifically authorised and trained to do so.
- Do not allow the control devices to be used by children or persons with mental and physical deficiencies unless they are supervised by an adult who is responsible for their safety.



During manual operation, gently guide the leaf the whole way, do not push it and let it slide freely.

#### 3.4 EMERGENCY USE

In emergencies or if there is a fault, turn off the power supply to the automation. If the leaf can be moved safely by hand, use the MANUAL OPERATION mode; otherwise place the automation out of service until it has been reset/repaired.

In the case of a breakdown, the automation must be reset/repaired exclusively by the installer/maintenance technician.

### 3.5 PRODUCT IDENTIFICATION

The product can be identified by the plate (3).

#### PRODUCT WARNINGS



The adhesive sign must be placed on the casing by the installer. It indicates the risk of trapping fingers / hands due to the rotation of the pinion.



Adhesive sign on the casing. It indicates the breather screw that must be removed before start-up.

### 3.6 TECHNICAL SPECIFICATIONS

Electromechanical oil-bath gearmotor, supplied without pinion. To choose the correct FAAC Module 4 pinion to install (Z12, Z16, Z20) see Technical data.

**Irreversible system** In order to be operated manually, the gearmotor has to be released using the key provided.

**Magnetic encoder** The encoder determines the position of the leaf and the speed of movement.

**Adjustable sensitivity obstacle detection** The electronic board detects the presence of an obstacle via the encoder. If an obstacle is detected during opening or closing, the gate reverses for 1 s and then the automation stops.

**Force limitation** The maximum force exerted by the gearmotor is adjusted by means of the mechanical twin-disk clutch in oil-bath.

**Inductive limit switches** To be fixed to the rack to set the opening and closing stop positions.

**End of travel slowdown** Adjustable electronic slowdown near to the open and closed positions.

**Board E844 3PH** The built-in electronic board is equipped with a display, programming buttons and a protective plastic cover.

**Equipment required** The following must be purchased:

- foundation plate
- pinion for module 4 rack
- rack module 4

FAAC S.p.A. Soc. Unipersonale  
Via Galati, 10 - 40069 Zola Predosa BOLOGNA  
Italy

Made in Italy  
Designed in Italy

Cod. .... Sale code

Mod. 844 ER 3PH Product name

MM/YY PROG Month/year of production + Progressive number for the month of production

..... V~ ..... Hz ..... W

.... Nm IP ....

\* REFERS TO 380 V ~ - 50Hz

0120 0001  
made in: January 2017 progressive: 0001

Cod. ... MMY PROG IDENTIFICATION NUMBER

3

#### 1 Technical data

<b>844 ER 3PH</b>	
Power supply voltage	220-240 V~ 50/60 Hz
Max power	950 W
Max thrust force*	2500 N (Z12), 1900 N (Z16), 1500 N (Z20)
Max torque at initial thrust*	1650 N (Z12), 1250 N (Z16), 1000 N (Z20)
Max leaf length*	30 m (Z12), 40 m (Z16), 50 m (Z20)
Max leaf weight*	2200 kg (Z12), 1600 kg (Z16), 1000 kg (Z20)
Leaf speed*	7.1 m/min (Z12), 9.5 m/min (Z16), 12 m/min (Z20)
Stopping space*	50 mm (Z12), 65 mm (Z16), 80 mm (Z20)
Type of use	Apartment complexes, Offices / Industrial
Ambient operating temperature	-20 °C to +55 °C
Continuous use time (ROT)	Continuous at 25°C
Protection rating	IP44
Dimensions (LxDxH)	275x191x388 mm
Gearmotor weight	16 kg
Oil	FAAC HP OIL
* according to the pinion used: Module 4 Z12, Z16, Z20	

## 3.7 COMPONENT IDENTIFICATION

### COMPONENTS SUPPLIED

#### Gearmotor

- 1 Casing
- 2 Electronic board E844 3PH with protective cover
- 3 Limit switch sensor
- 4 Magnet for encoder
- 5 Anti-crushing clutch adjustment screw
- 6 Oil filler plug
- 7 Earth connector
- 8 Gearmotor body
- 9 Key release
- 10 Fastening brackets

#### Hardware/accessories

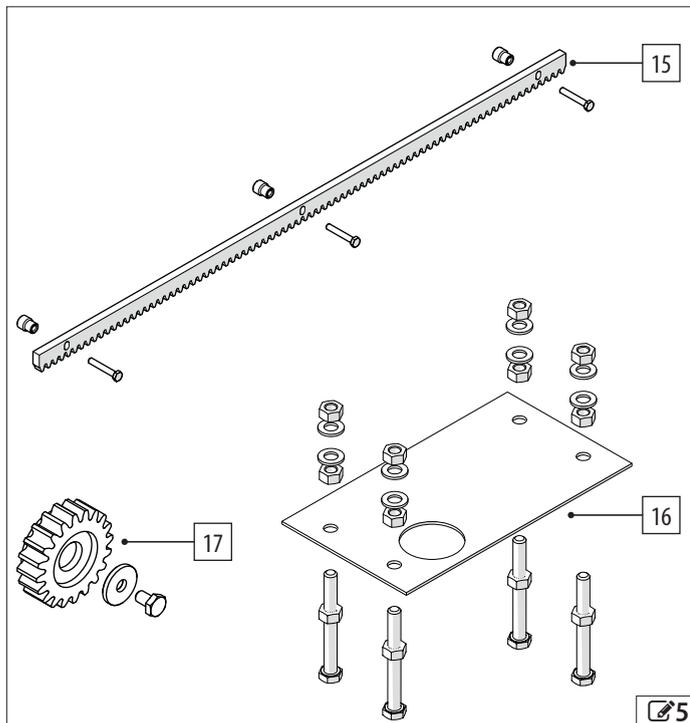
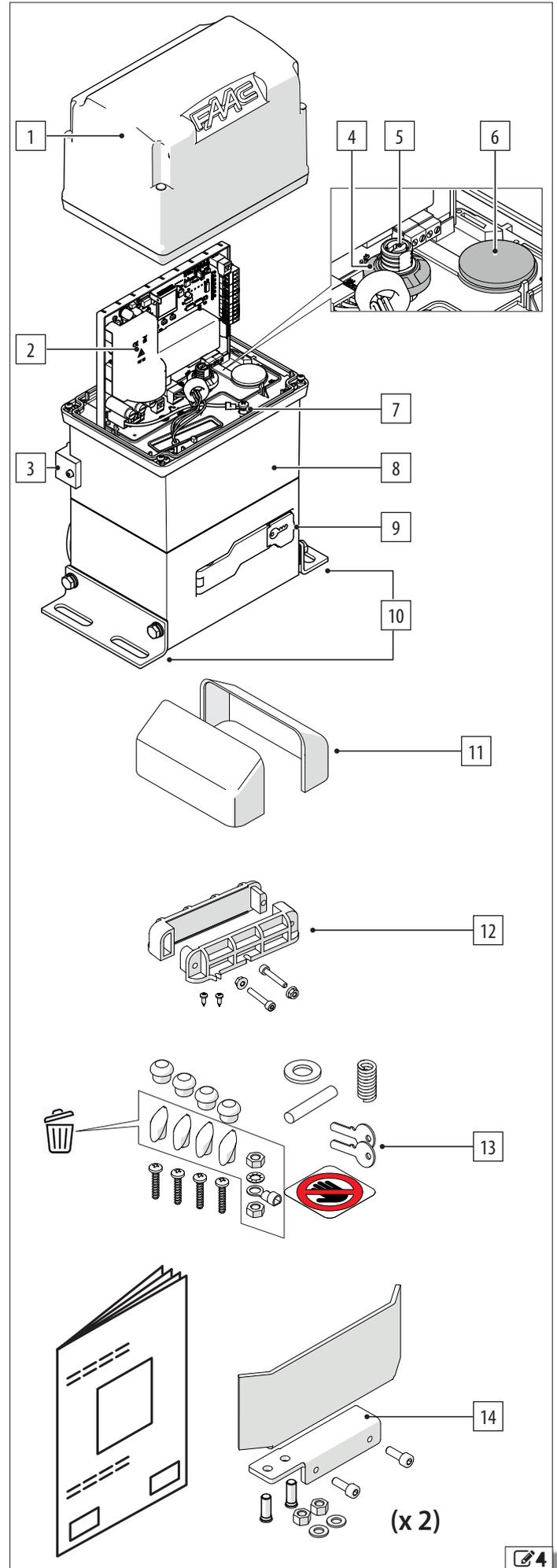
- 11 Gearmotor bracket guards
- 12 Cable glands to install in the board compartment
- 13 Dowel pin and washer for securing the Z16 and Z20 pinions, casing fastening screws with screw caps, clutch adjustment spring (for leaves weighing more than 1000 kg), adhesive hazard warning sign, release key. DO NOT use terminal boards, cable lugs for the earth cable, long screw caps.
- 14 Pair of plates for the inductive opening and closing limit switches

### COMPONENTS SUPPLIED SEPARATELY

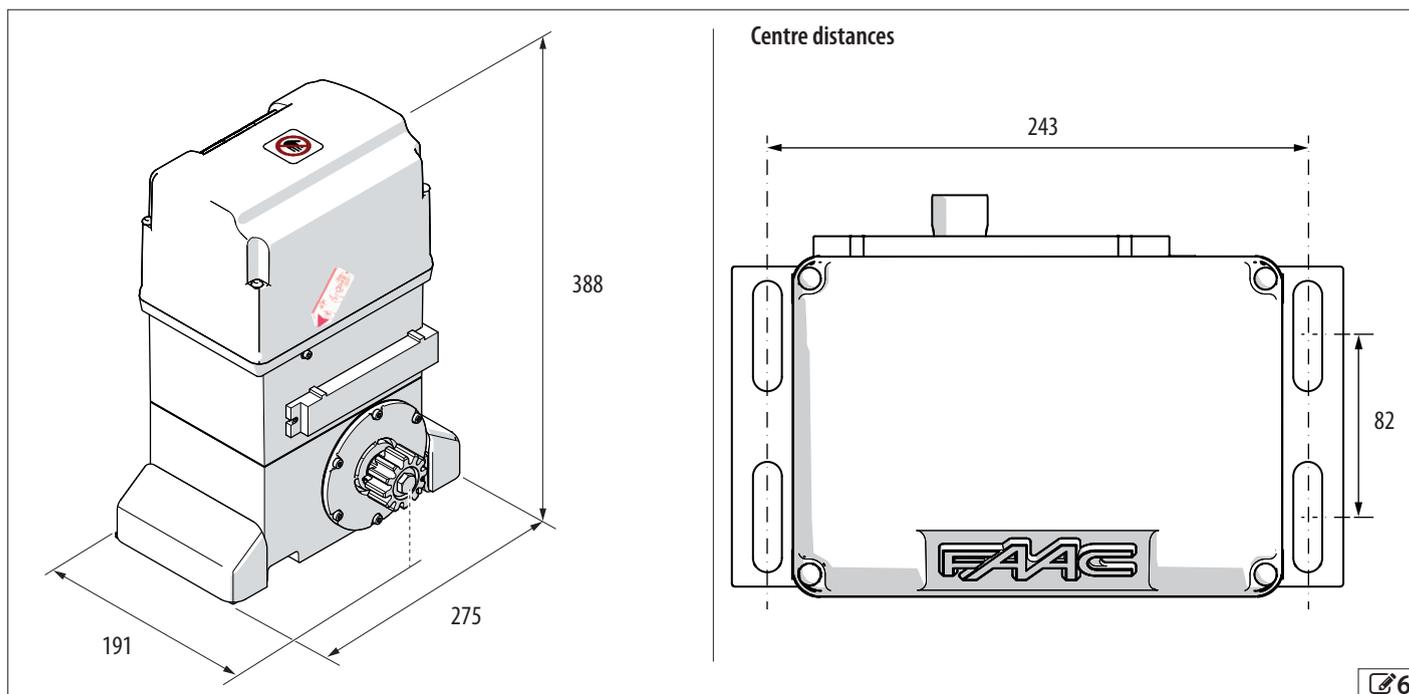
The installation requires the following FAAC components that are supplied separately:

- 15 Steel rack with spacers (to be screwed or welded on)
- 16 Foundation plate with mounting hardware
- 17 Module 4 Pinion Z20, or Z16, or Z12

**DANGER, AUTOMATIC MOVEMENT** warning sign



### 3.8 DIMENSIONS



### 3.9 MANUAL OPERATION

In order to operate the leaf manually, the gearmotor has to be released using the key provided.

**⚠** Disconnect the power supply from the automation before releasing the gearmotor.

During manual operation, gently guide the leaf the whole way. Do not push it and let it slide freely.

Do not leave the gearmotor in the released mode: restore automatic operation after moving it manually.

#### RELEASING THE GEARMOTOR

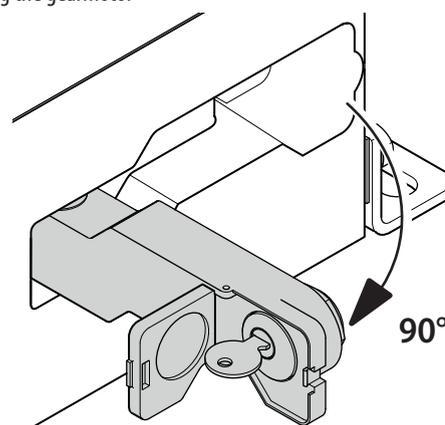
1. Open the lock cover.
2. Insert the key and turn it clockwise by 90°.
3. Open the release lever by 90° (6).

#### RESTORING OPERATION

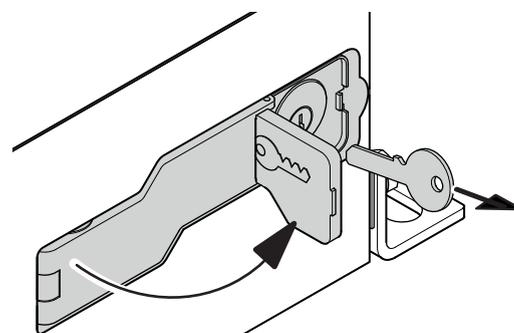
1. Close the release lever. Turn the key to the vertical position and remove it (7).
2. Close the lock cover.
3. Move the leaf manually to make sure that the mechanical system meshes correctly.

**⚠** Make sure that the gate is at its opening or closing end of travel position (the relative limit switch must be engaged) before turning the power back on and operating the automation.

Releasing the gearmotor



Restoring operation



## 4. INSTALLATION REQUIREMENTS

### 4.1 MECHANICAL REQUIREMENTS

The mechanical structural components must comply with the requirements of EN 12604. Before installing the automation, the suitability of the mechanical requirements must be established and any work that is necessary in order to meet them carried out.

The essential mechanical requirements are as follows:



Solid ground to support the weight of the gate, the structures present and the gearmotor. Flat, horizontal paving in the area of movement of the leaf. There must be no chance of water accumulating in the installation area.

The structure (columns, guides, mechanical stops, leaf and counterweights) must be solid and there must be no risk of detachment or collapse (considering the weight of the leaf and the forces applied by the gearmotor and wind action). Perform structural calculations where necessary.

The structure must show no signs of corrosion or cracking.

The leaf must remain vertical throughout the entire length of travel, with a regular, smooth and uniform movement. The path along which the leaf slides must be perfectly horizontal (the leaf must not have a tendency to open or close spontaneously when it is released).

Appropriate devices must be installed to prevent the leaf from falling.

There should be a solid surface on the leaf sufficiently large to attach the rack to.

The sliding guides must be in good condition; they must be straight and not deformed, they must be fastened securely and there must be no obstacles along their entire length. The diameter of the guide wheels must be appropriate for the weight and length of the leaf and their profile section must coincide with that of the sliding guide. The number and position of the wheels must ensure an adequate and constant distribution of the weight. A solid guide system for the suspended leaf in the case of a cantilever gate.

Presence of upper containing guide to prevent vertical oscillation of the leaf. The leaf must not under any circumstances come out from its guides and fall. Wheels, rollers and bearings in good condition, lubricated and free from play or friction.

Presence of external mechanical limit stops to limit the travel of the leaf when opening and closing. The stops must be suitably sized and solidly fastened so that they resist any impact of the leaf in the event of improper use (leaf pushed and left to slide freely). The mechanical limit stops must be positioned at 50 mm beyond the stop position of the leaf, and must ensure that the leaf remains inside its sliding guides.

The thresholds and protrusions of the paving must be appropriately shaped in order to prevent the risk of sliding or slipping.

For the creation of detection loops, refer to the specific instructions.

Presence of a safety area between the wall (or other fixed element) and the furthest protruding part of the open leaf, to protect against the risk of persons becoming trapped/crushed. Alternatively, check that the opening force required falls within the maximum permissible limits according to applicable standards and legislation.

Presence of safety areas between the fixed and moving parts, to protect against the risk of hands being trapped. Alternatively, apply protective elements that prevent fingers from being introduced.

Presence of a safety area between the paving and lower edge of the leaf, along its entire path, providing protection from the risk of feet becoming caught in and crushed beneath the wheels. Alternatively, apply protective elements preventing the introduction of feet.

No sharp edges or protruding parts should be present to ensure there are no cutting, hooking or perforation hazards. Alternatively, eliminate or protect any sharp edges and protruding parts.

No slots or openings should be present on the sliding leaf or the fencing to prevent the creation of a shearing hazard. Alternatively, apply protective mesh to any such openings. The mesh should be sufficiently fine to prevent introduction of body parts requiring protection, in relation to the distance between the fixed and moving parts.

For the minimum dimensions to prevent crushing/shearing of body parts, refer to EN 349. For the safety distances required to prevent danger zones being reached, refer to ISO 13857.

If the area of installation gives rise to the risk of impact by vehicles, provide an appropriate protective structure to protect the gearmotor.

### 4.2 ELECTRICAL SYSTEM



Always shut off the power supply before performing any work. If the disconnect switch is not in view, apply a warning sign stating "WARNING - Maintenance in Progress".



The electrical system must comply with applicable legislation in the country of installation.

Use components and materials with CE marking which are compliant with the Low Voltage Directive 2014/35/EU and EMC Directive 2014/30/EU.

The power supply line for the automation must be fitted with a multi-pole circuit breaker, with a suitable tripping threshold, a contact opening distance of at least 3 mm and a breaking capacity that complies with current regulations.

The power supply for the automation must be fitted with a 30 mA differential switch.

The metal parts of the structure must be earthed.

Check that the protective earthing system complies with applicable regulations in the country of installation.

The electrical cables of the automation system must be of a size and insulation class that is compliant with current legislation and laid in appropriate rigid or flexible conduits, either above or below ground.

Use separate conduits for the power supply and the 12-24 V control devices / accessories cables.

Check buried cable plans to ensure that there are no other electrical cables in proximity to the planned digging/drilling locations to prevent the risk of electrocution.

Check that there are no pipes in the vicinity as well.

The conduit fittings and the cable glands must prevent the entry of moisture, insects and small animals.

Protect extension connections using junction boxes with an IP 67 protection rating or higher.

The overall length of the BUS cables must not exceed 100 m.

It is recommended to install a flashing light in a visible position to indicate when it is moving.

For the creation of detection loops, refer to the relative instructions.

The control accessories must be positioned in areas that are always accessible and not dangerous for the user. It is recommended to position the control accessories within the field of view of the automation. This is mandatory in the case of hold-to-run controls.

The hold-to-run controls in the dead-man mode of operation, must comply with standard EN 60947-5-1.

If an emergency stop button has been installed, it must be EN13850 compliant.

Comply with the following heights from the ground:

- control accessories = minimum 150 cm

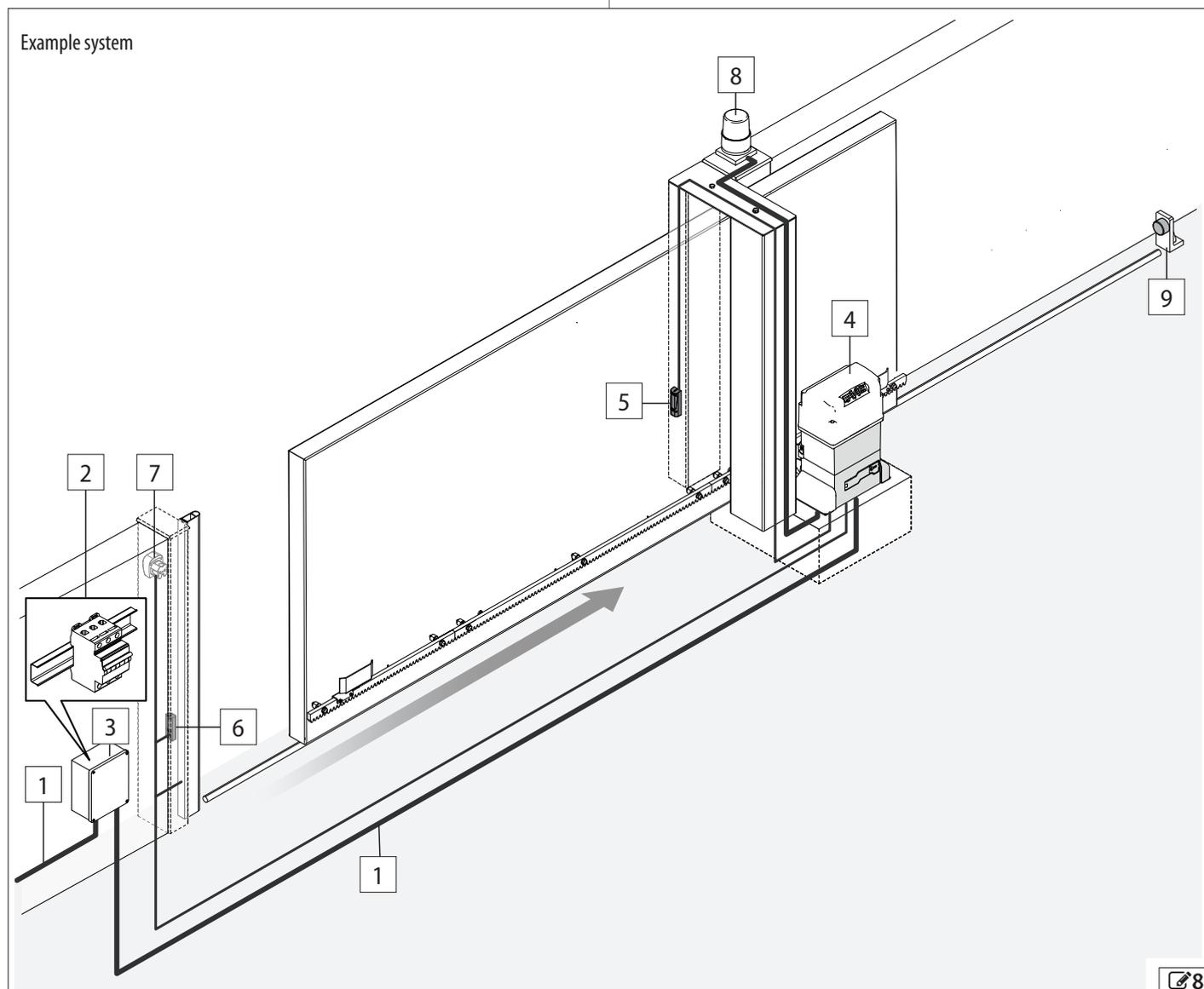
- emergency buttons = maximum 120 cm

If the manual controls are intended to be used by disabled or infirm persons, highlight them with suitable pictograms and make sure that these users are able to access them.

### 4.3 EXAMPLE SYSTEM

The example is an illustration only and is just one of the possible applications of the 844 ER 3PH.

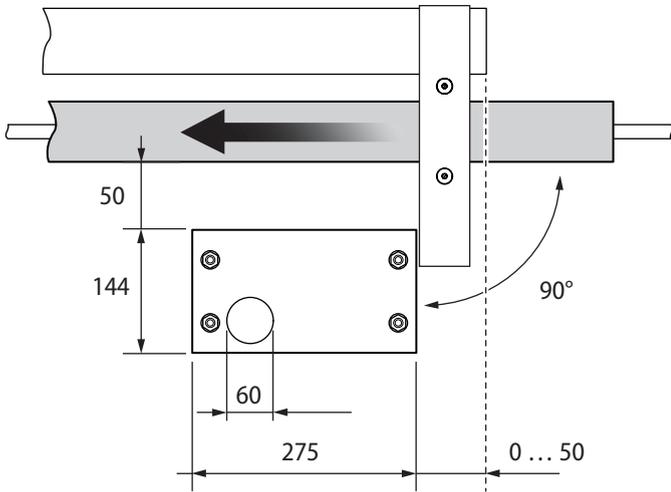
1	Mains power supply	4G 1.5 mm <sup>2</sup>
2	Circuit breaker	
3	Junction box	
4	Gearmotor power supply	
5	Gearmotor 844 ER 3PH	
6	Mechanical stop	
7	Flashing light	
8	Photocell TX	
9	Photocell RX	
10	Key button	



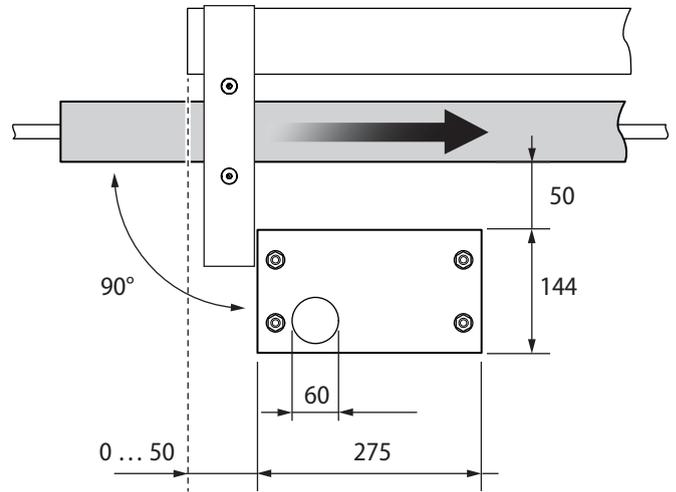
**4.4 INSTALLATION DIMENSIONS**

■ **FOUNDATION PLATE**

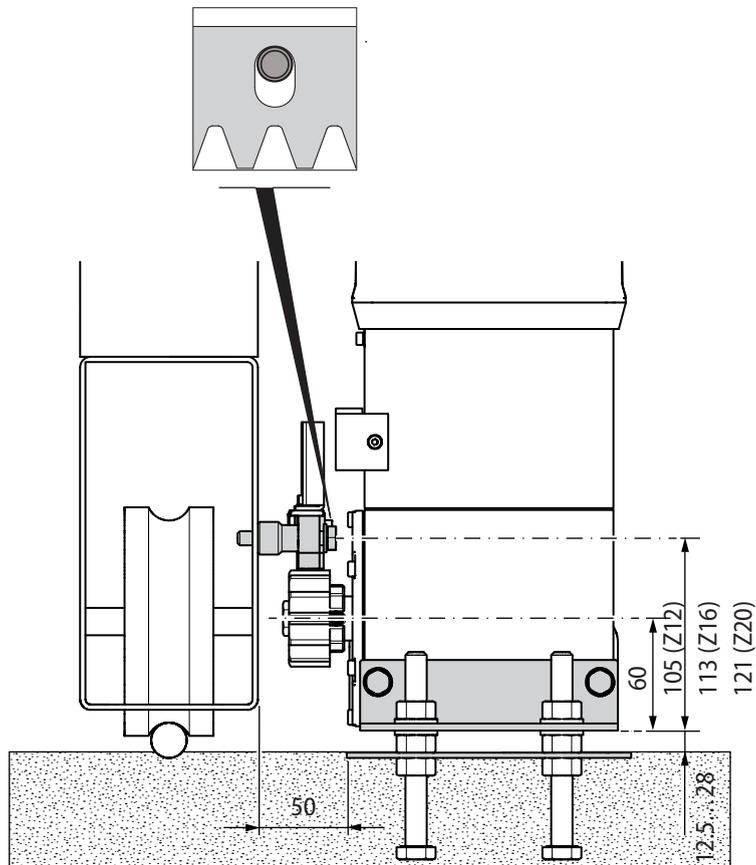
Opening to the left



Opening to the right



■ **STEEL RACK**



## 5. MECHANICAL INSTALLATION



The installation must comply with standard EN 12453. Mark off the work site and prohibit access/transit.

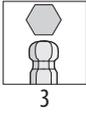
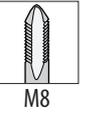
Installation must be carried out when it is not raining. In case of rain, a suitable shelter for the gearmotor must be provided until the mechanical and electronic installation has been completed.

Never handle the gearmotor by the electronic board.

### TOOLS REQUIRED



Use appropriate tools and equipment in working environments which comply with applicable legislation. The tools required are indicated below.

 Spanner 7, 10, 13, 19	 Hex key 3	 Drill bit for metal 5, 6.5	 Threading tap (for screw-on steel rack) M8
 Level	 Angle grinder	 Wire strippers	 Electrician's scissors
 Screw clamp	 Welder (for weld-on steel rack)	 Flat-head screwdriver 2.5, 6	 PHILLIPS SCREWDRIVERS 3, 8
 TORQUE WRENCH - if necessary for safety, a torque wrench and the TIGHTENING TORQUE will be specified x.x Nm			E.g.: SPANNER 7 set at 2.5 Nm  2.5 Nm 7

### 5.1 REPLACING THE SPRING (FOR LEAVES WEIGHING MORE THAN 1000 KG)

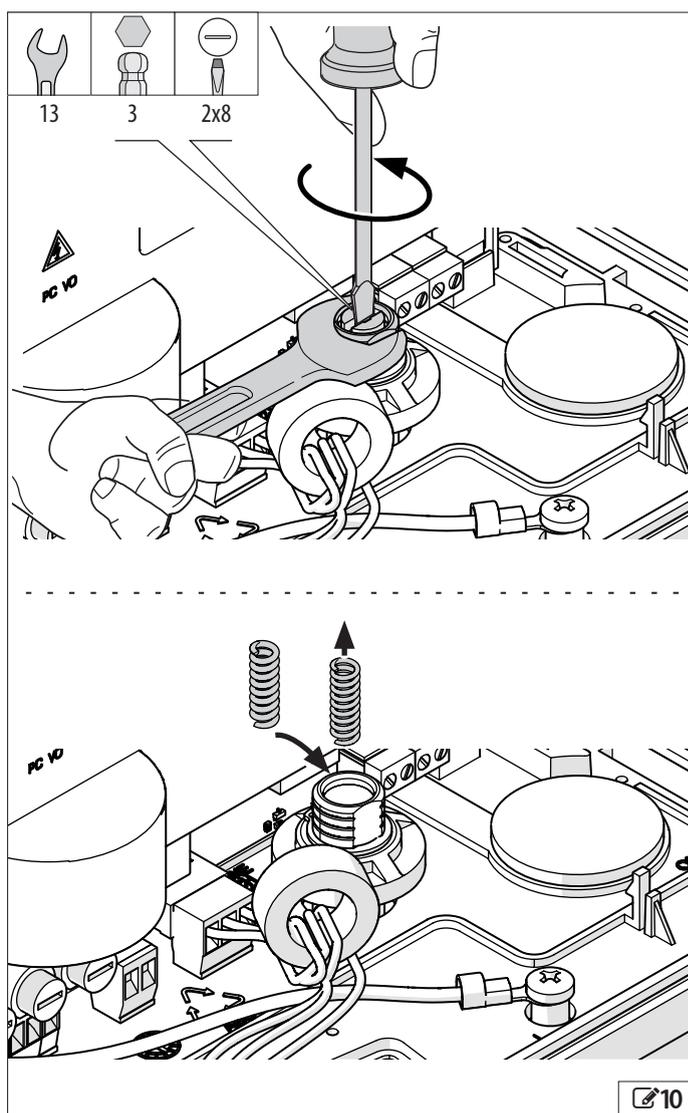
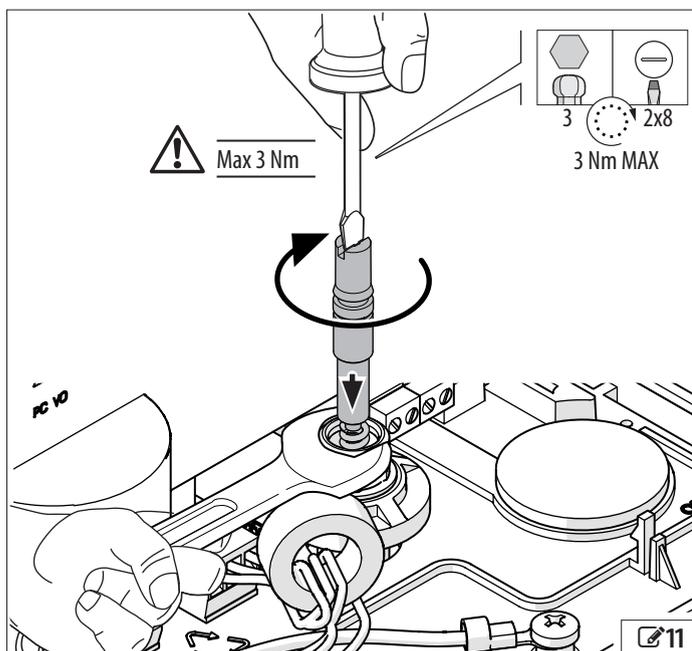
If the 844 ER 3PH is installed on a leaf that weighs more than 1000 kg, the clutch adjustment spring has to be replaced with the other spring supplied with the hardware/accessories (with a greater wire diameter and more resistant to compression).

Remove the screw whilst holding the drive shaft in position (10) (turn the screw using a flat-head screwdriver or Allen key). Remove the spring and install the other spring.

Replace the screw and tighten it to the maximum specified torque (11).



During the start-up phase, the anti-crushing system has to be adjusted.



## 5.2 INSTALLING THE FOUNDATION PLATE

### RISKS



### PERSONAL PROTECTIVE EQUIPMENT



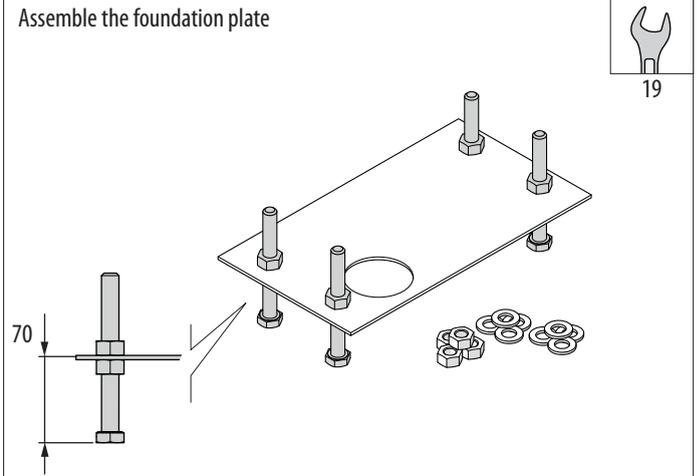
- Carry out the work with the power supply disconnected.
- The 844 ER 3PH must be installed with the foundation plate.
- The installer is responsible for the evaluation of the foundation materials and dimensions on the basis of the characteristics of the ground and place of installation. Perform structural calculations where necessary.

1. Assemble the foundation plate.
2. Make the hole in the ground. Fill it with concrete, making sure that the cable conduits protrude in the correct position with respect to the gearmotor. Place the plate at the centre of the foundation, leaving its surface uncovered.
3. Clean any concrete from the surface of the plate and the nuts with washers so that they can be subsequently adjusted. Check the plate is horizontal using a spirit level.
4. Wait for the concrete to set.

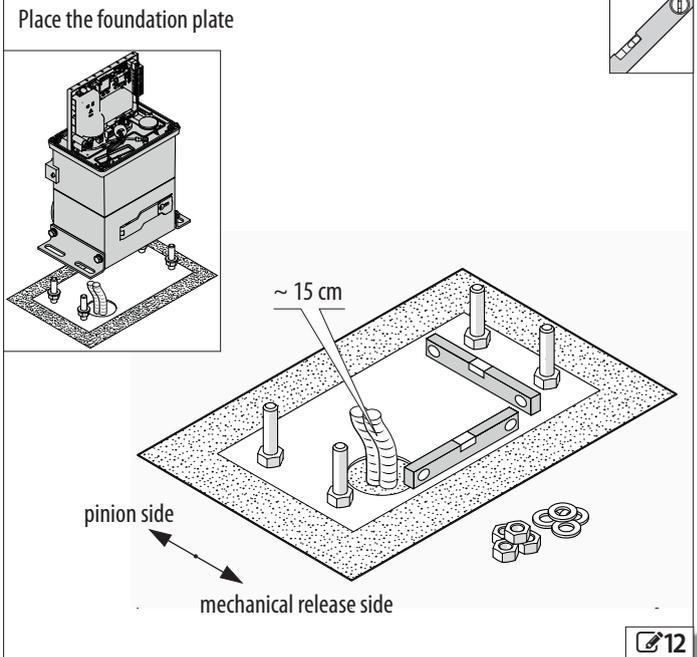
## 5.3 INSTALLING THE PINION

1. Insert the pin into the drive shaft.
- Use the dowel pin provided to install the Z16/Z20 pinion. Use the split pin included in the package for the Z12 pinion.
2. Insert the pinion and secure it using the washer provided.

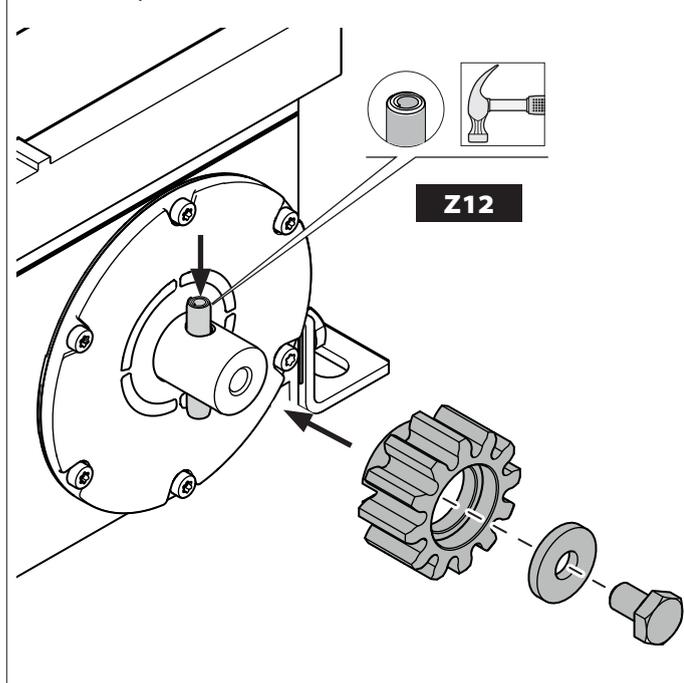
### Assemble the foundation plate



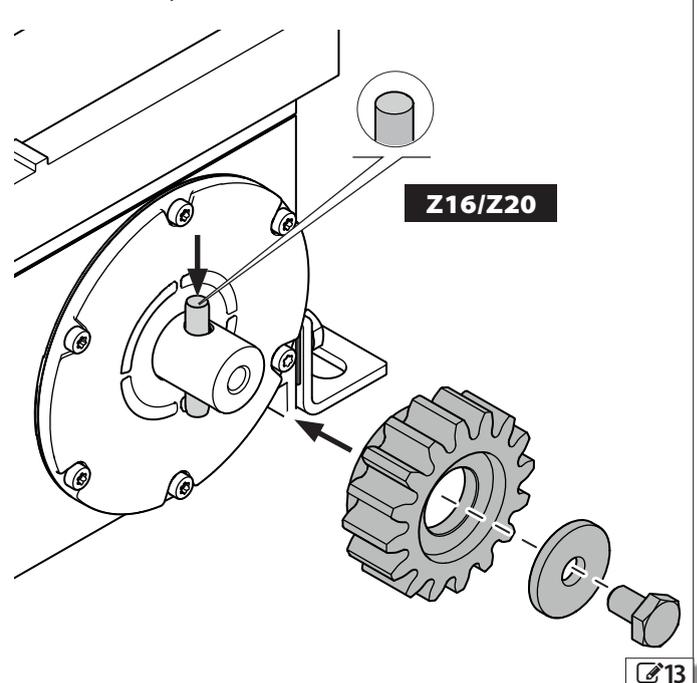
### Place the foundation plate



### Install the Z12 pinion



### Install the Z16/Z20 pinion



## 5.4 INSTALLING THE GEARMOTOR

### RISKS



### PERSONAL PROTECTIVE EQUIPMENT



Carry out the work with the power supply disconnected.

1. Make sure that the concrete of the plinth has set completely, then adjust all the support nuts to the height H indicated (14).
2. Place the washers on the nuts.
3. Remove the casing from the gearmotor. Position the gearmotor in correspondence with the 4 fasteners (15).
  - Pass the electric cables through the hole on the base and as far as the board.

Be careful not to damage the electrical cable tubes.

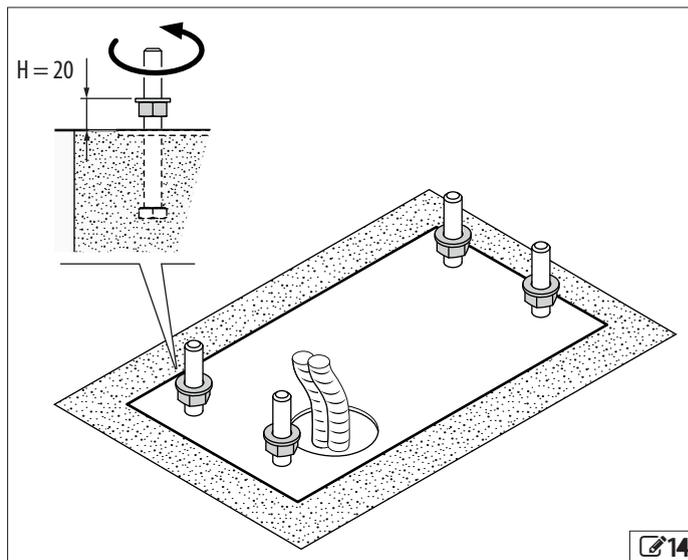
4. Make sure that the gearmotor is level. Position the washers and nuts (16).
  - Do not tighten the nuts so that the height can be adjusted when the rack is being installed.

### OPEN THE VENT HOLE

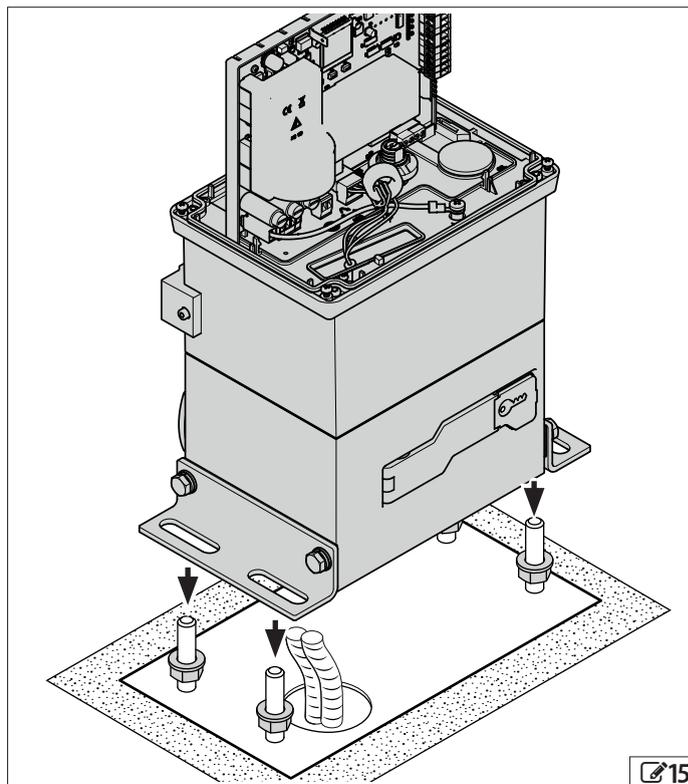
Open the vent hole by removing the breather screw and washer (17).

A few drops of oil may leak out after the vent hole has been opened, even due to the initial movements.

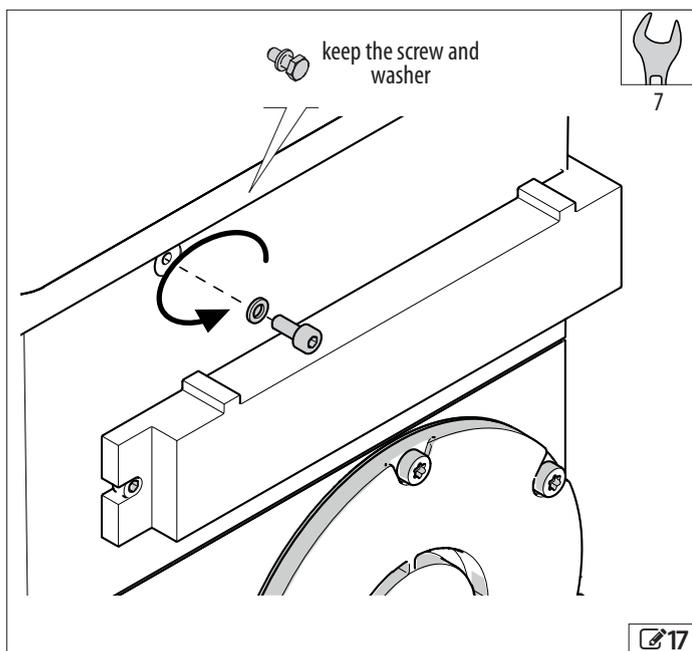
Keep the screw and washer as they will have to be reinstalled if the gearmotor has to be removed and subsequently transported.



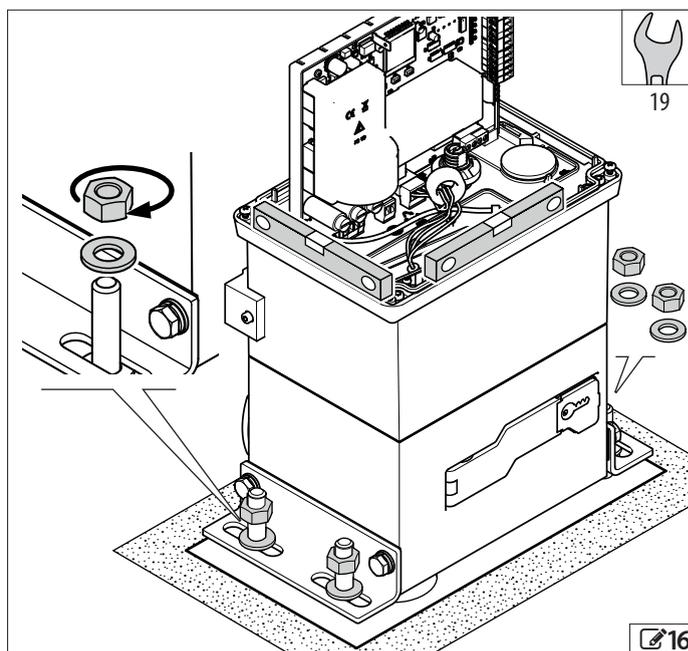
14



15



17



16

## 5.5 INSTALLING THE RACK

### RISKS



### PERSONAL PROTECTIVE EQUIPMENT



- ⚠ - DO NOT weld the spacers onto the racks.
- ⚠ - DO NOT weld the elements of the rack together.
- ⚠ - DO NOT apply grease or other lubricants to the racks.

Mounting the rack involves moving the leaf manually several times.

- ⚠ Comply with the safety information § Manual operation.

### STEEL RACK - WELD-ON FASTENINGS

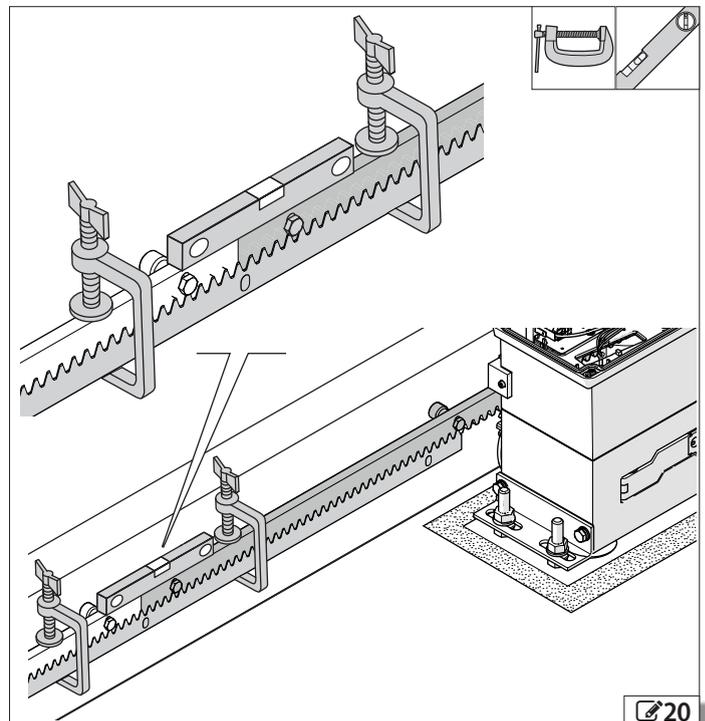
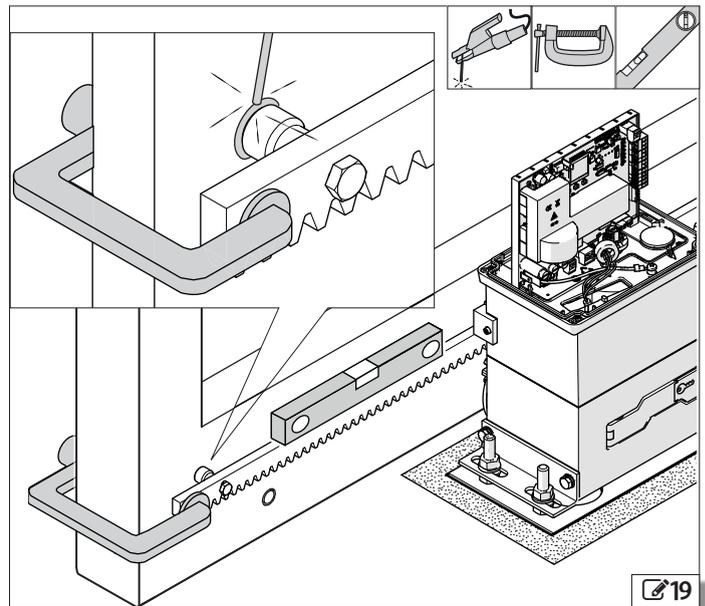
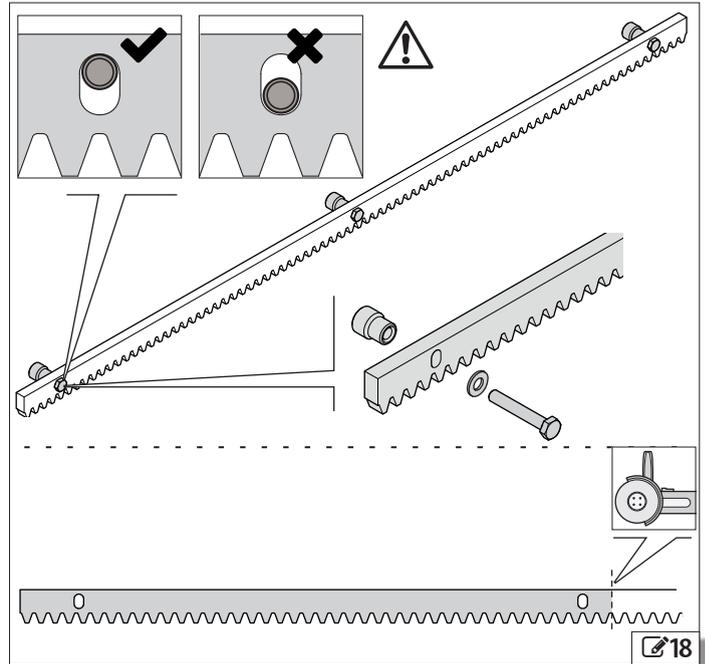
- ⚠ Welding must be carried out in a workmanlike manner. Safety may be affected if it is carried out badly.

- ⓘ Rack thickness:
  - 8 mm for leaves weighing up to 400 kg max
  - 12 mm for leaves weighing more than 400 kg

1. Prepare all the elements of the rack that are required for the length of the leaf (🔗18):
  - screw 3 spacers onto each element of the rack
  - position the spacers so that they touch the top of the slots, this will allow future adjustments if the guide were to move downwards
  - if an element of the rack needs to be shortened, cut it with an angle grinder away from the slot.
2. Open the leaf manually.
3. Rest an element of the rack on the pinion. Make sure that it is level using a spirit level and secure it to the leaf using a screw clamp.
4. Weld the first spacer to the leaf (🔗19), then move the leaf with the rack resting on the pinion. Make sure that it is horizontal and weld on the other spacers.

- ⚠ Protect the gearmotor from weld spatter. DO NOT connect the earth of the welder to the gearmotor.

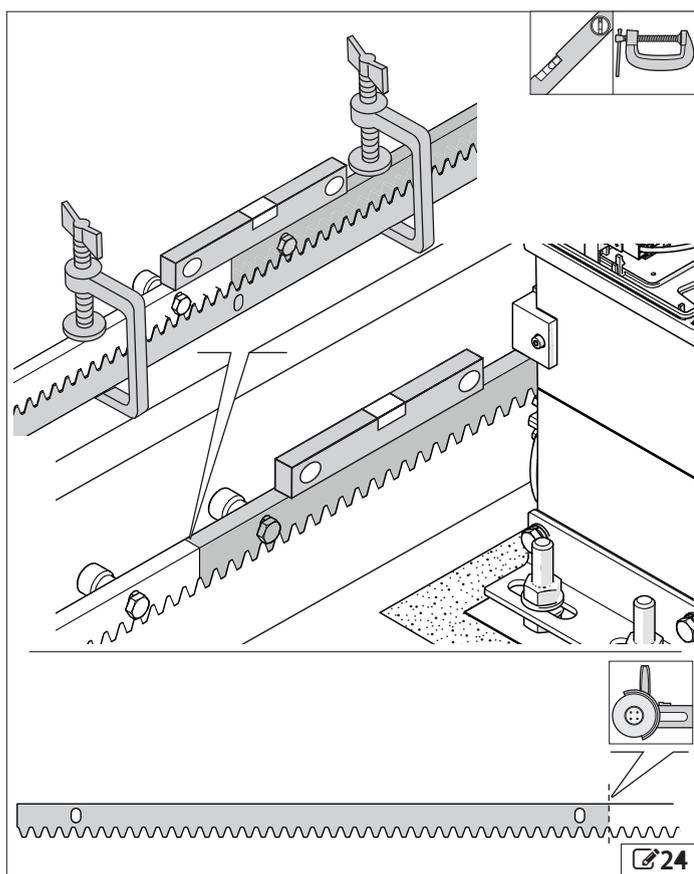
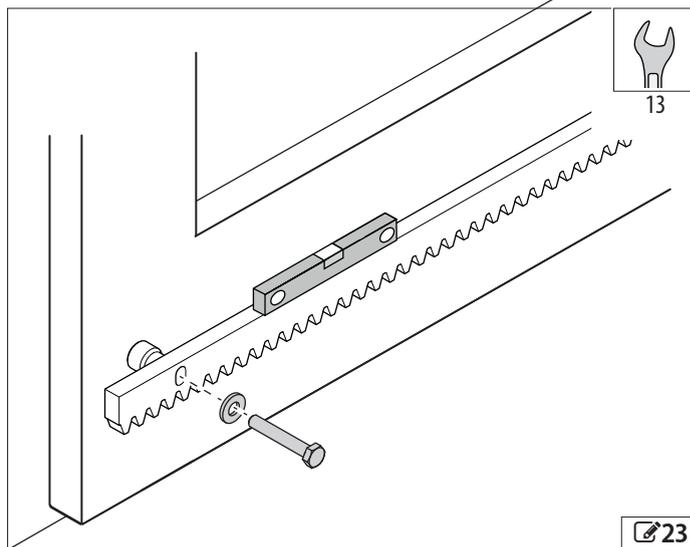
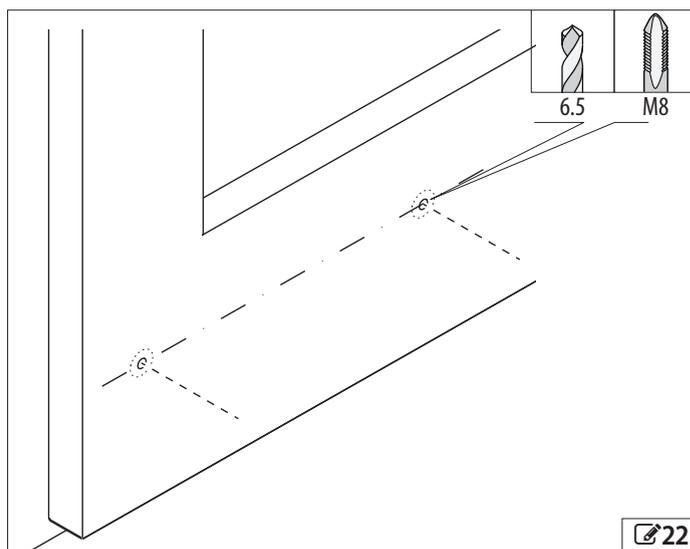
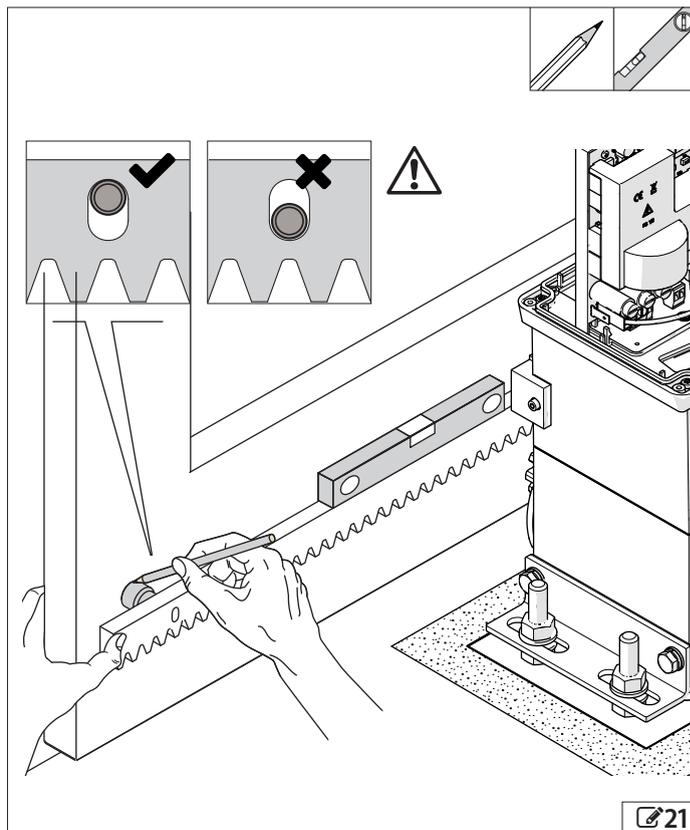
5. Move the leaf. Rest the next element of the rack on the pinion so that it touches the previous element.
  - Line up the teeth by resting them on an element of the rack and assemble temporarily using screw clamps (🔗20).
6. Make sure that it is horizontal using a spirit level. Weld the spacers (as in step 4). Remove the screw clamps.
7. Repeat from step 5 for all elements of the rack.



**STEEL RACK - SCREW-ON FASTENINGS**

**i** Rack thickness:  
 8 mm for leaves weighing up to 400 kg max  
 12 mm for leaves weighing more than 400 kg  
 The rack installation accessories contain screws for aluminium or steel leaves. Use specific screws for other materials.

1. Open the leaf manually.
2. Rest an element of the rack on the pinion.
3. Place a spacer between the rack and the leaf. Make sure that it is horizontal using a spirit level. Mark the hole to be drilled on the leaf (🔧21).
  - Position the spacers so that they touch the top of the slots, this will allow future adjustments if the guide were to move downwards.
4. Drill the hole and make a thread in it (🔧22).
5. Fasten using the screw and washer (🔧23).
6. Move the leaf with the rack resting on the pinion. Repeat steps 3 ... 5 for the other fixing points.
7. Move the leaf. Rest the next element of the rack on the pinion so that it is touching the previous element.
  - Line up the teeth by resting them on an element of the rack and assemble temporarily using screw clamps (🔧24).
8. Repeat steps 3 ... 6 for the other fixing points. Remove the screw clamps.
9. Repeat from step 7 for all elements of the rack that are required for the length of the leaf.
  - If an element of the rack needs to be shortened, cut it with an angle grinder away from the slot.



ENGLISH

Translation of the original instructions

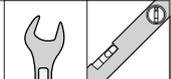
**5.6 ADJUSTING AND CHECKING**

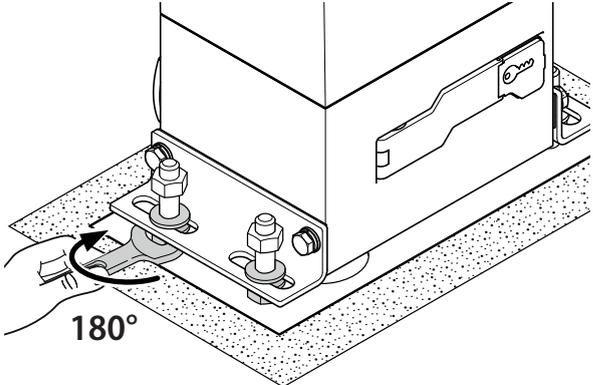
1. In order for it to work correctly, the rack must never rest on the pinion. Turn all the support nuts clockwise by half a turn in order to lower the gearmotor. In this way, a constant distance between pinion and rack is obtained for the entire length of travel (🔧25-A). Make sure that the gearmotor is level by using a spirit level.
2. Check: when the distance between rack and pinion is correct, with the gearmotor stopped, it is possible to rock the leaf manually to the left and right by a few millimetres.
3. Make sure that the rack is centred on the pinion (🔧25-B).  
Move the leaf manually to repeat the checks along the entire length of travel for all the elements of the rack.

⚠️ Comply with the safety information § Manual operation.

**5.7 FASTENING THE GEARMOTOR PERMANENTLY**

1. Tighten the upper nuts to the fastening torques indicated in the figure.
2. Press the guards onto the brackets.

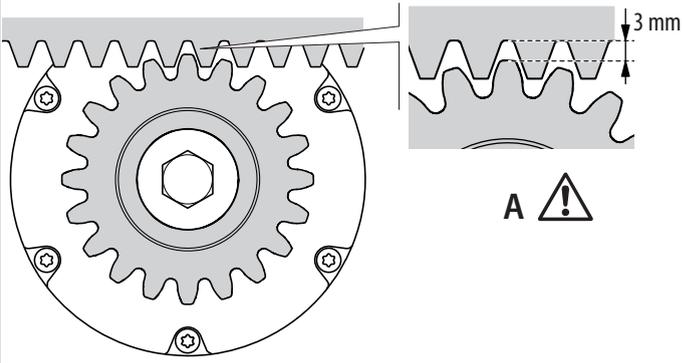
Lower the gearmotor making sure that it is level.  19



180°

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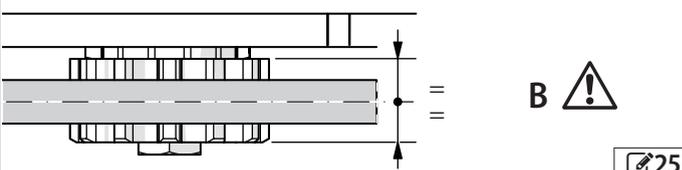
Make sure that the rack is not resting on the pinion.



3 mm  
A ⚠️

---

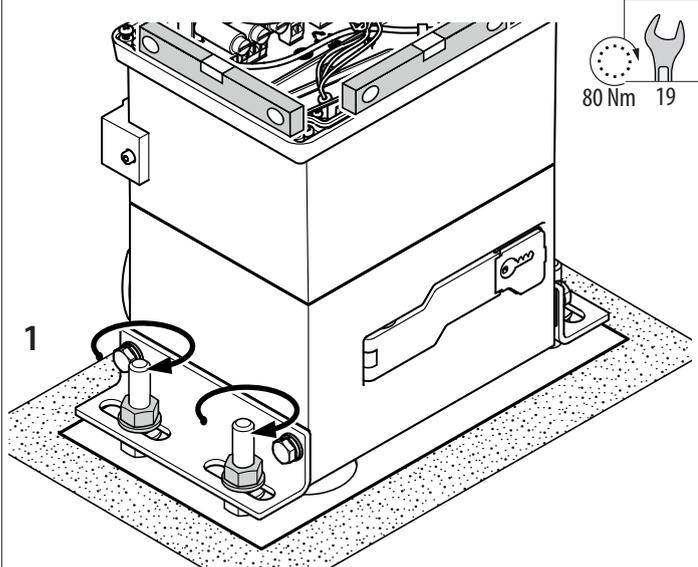
Make sure that the rack is centred on the pinion.



B ⚠️

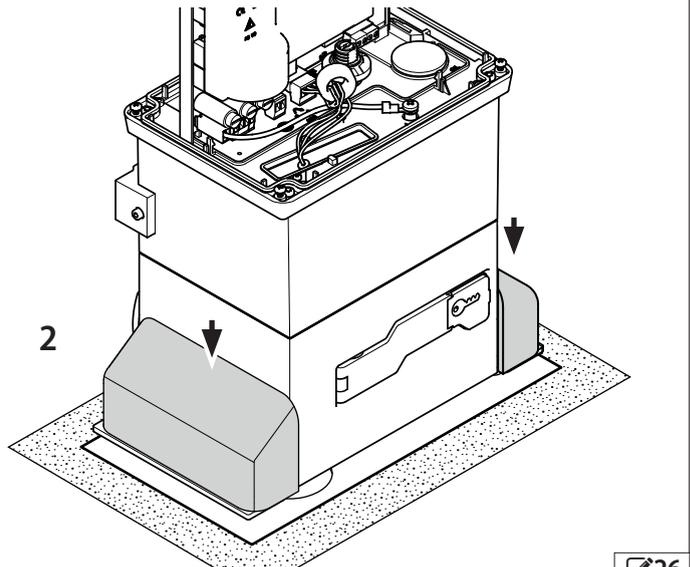
🔧25

Fastening permanently.  80 Nm 19



1

Press the guards.



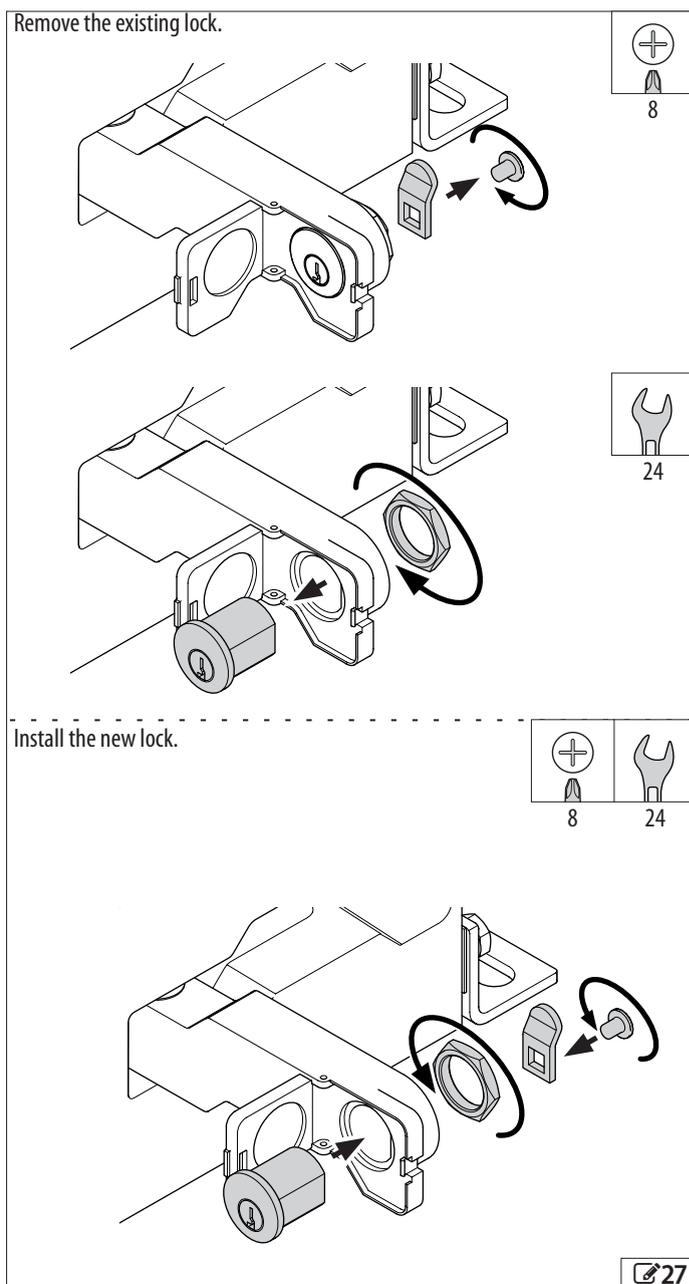
2

🔧26

## 6. OPTIONAL EQUIPMENT

### 6.1 RELEASE LOCK WITH PERSONALISED KEY

1. Open the release lever using the key. Remove the screw and the locking lever, then remove the nut and the existing lock.
2. Install the new lock and fasten it using the nut. Insert the locking lever vertically and fasten it using the screw.
3. Make sure that the release lever works, using the new keys.



## 7. START-UP

RISKS



PERSONAL PROTECTIVE EQUIPMENT



**!** During operation there is a risk of fingers and hands being trapped between the rack, pinion and casing.  
Under certain conditions, as a result of prolonged continuous operation, the body of the gearmotor can reach high temperatures. Avoid touching it.

### 7.1 ELECTRICAL CONNECTIONS

Refer to the specific instructions for the electronic board.

### 7.2 EARTHING THE GEARMOTOR

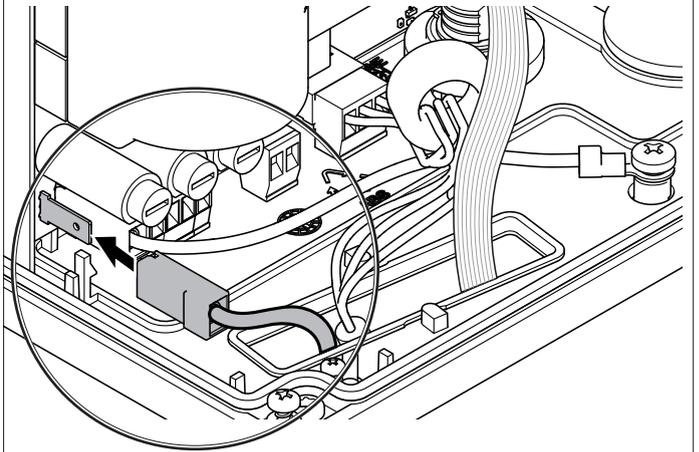
**⚡** Carry out the work with the power supply disconnected.

Connect the earth of the system to the free faston connector on board E844 3PH.

### 7.3 INSTALLING THE CABLE GLANDS

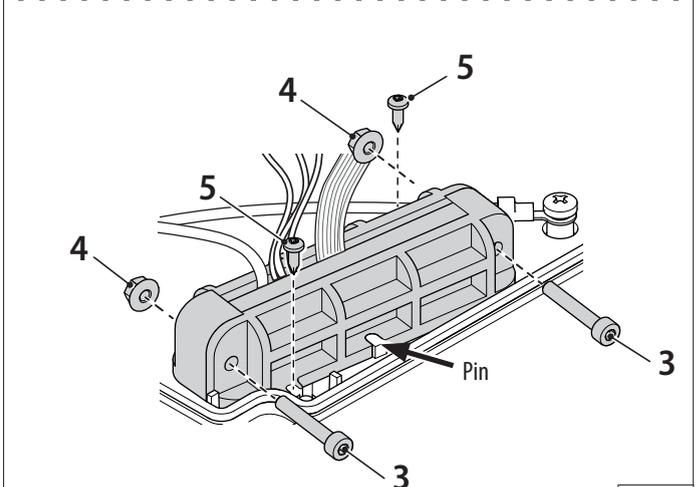
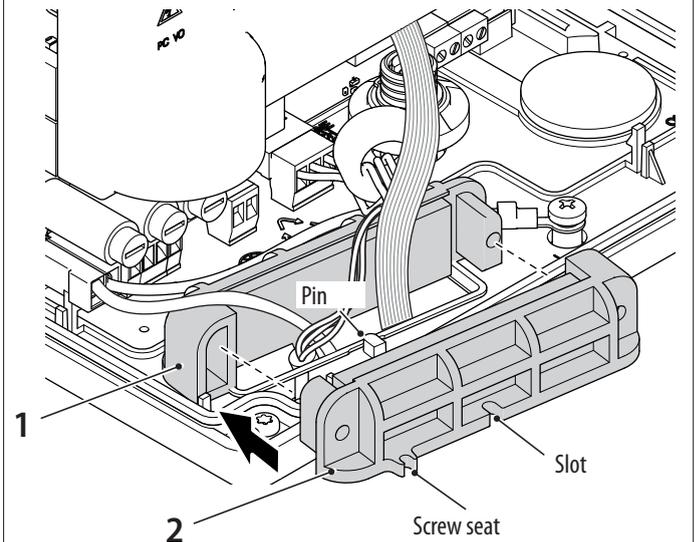
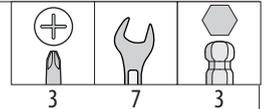
1. Position elements 1 and 2 (with the slot of each inserted in the pin).
2. Remove the sheath in order to separate the individual wires. Arrange the wires on the rubber strip.
3. Tighten the two elements and fasten them using the screws 3 and the nuts 4.
4. Fasten to the surface using the screws 5.

Connecting the earth to the gearmotor.



29

Installing the cable glands.



28

## 7.4 INSTALLING THE END OF TRAVEL PLATES

**!** Installing the limit switches involves moving the leaf manually several times. Comply with the safety information § Manual operation.

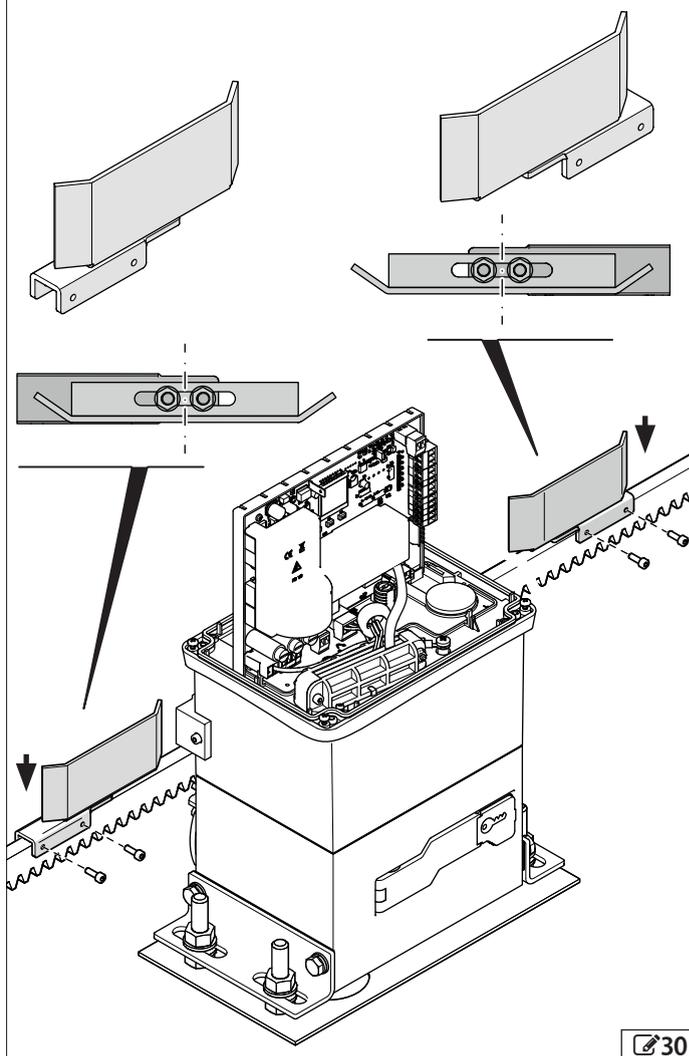
1. Fasten each plate to its support, centring the slot with respect to the threaded pins.
2. Make sure that the flat limit switch cable is connected according to the opening direction of the gate.

**i** The opening direction is established by looking at the 844 ER 3PH from the release device side (31).

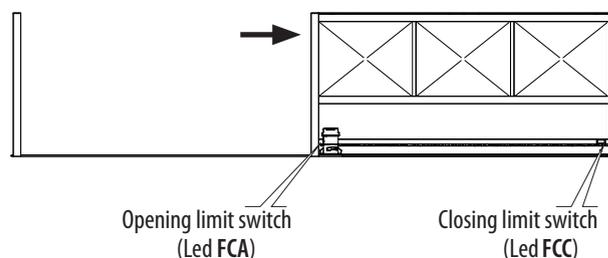
If necessary, move the connection onto the correct connector.

3. Turn the power on.
4. Release the gearmotor and open the leaf manually, leaving a distance of at least 2 cm from the mechanical stop.
5. Position a plate at the end of the rack and slide it in the opening direction until the FCA LED on the board switches off. Slide it along for another 4 cm.
6. Fasten using the screws provided.
7. Close the leaf manually leaving a distance of at least 2 cm from the mechanical stop.
8. Position the other plate at the end of the rack and slide it in the closing direction until the FCC LED on the board switches off. Slide it along for another 4 cm.
9. Fasten using the screws provided.
10. Lock the gearmotor and carry out a complete cycle to check that the limit switches operate correctly. For a more precise adjustment, regulate the position of the plates via the slots.

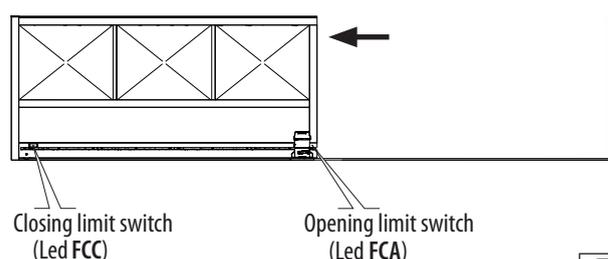
Installing the end of travel plates.



Opening to the right



Opening to the left



31

**7.5 STARTING THE AUTOMATION**

Start the automation following instructions for the E844 3PH board.

**7.6 ADJUSTING THE ANTI-CRUSHING SYSTEM**

The anti-crushing system is realised by a combination of the limitation of static force exerted by the operator in the event of impact and the reverse movement following the detection of the obstacle.

We suggest:

- limit the static force to a value lower than 150 N
- set the sensitivity of the obstacle detection system so that obstacles are not detected by mistake
- make sure that the anti-crushing system has been adjusted correctly by using an impact force tester in accordance with standard EN 12453

Refine the adjustments if necessary.

**LIMITING THE STATIC FORCE**

The static force is limited by adjusting the mechanical clutch.

 The clutch must be adjusted with the power supply disconnected.

 The 844 ER 3PH is supplied with the clutch adjusted for maximum thrust force.

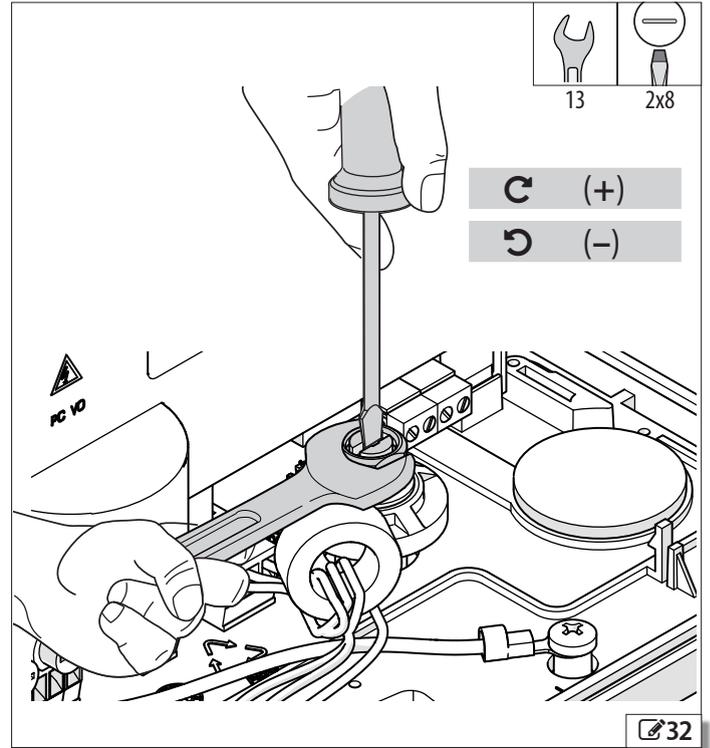
1. Turn off the power supply and remove the protective cover from the board.
2. Hold the drive shaft in position using a spanner and adjust the screw of the clutch using a screwdriver ( 32):
  -  (+) turn clockwise to increase the force
  -  (-) turn anti-clockwise to decrease the force
3. Put back the protective cover on the board and turn the power back on.

**OBSTACLE DETECTION**

The electronic board determines the position of the leaf and the speed of movement via the encoder and detects the presence of an obstacle in the event of impact.

Adjust the sensitivity of the detection system (if it is too sensitive, it can lead to obstacles to be detected by mistake): function  in advanced programming.

 Do not disable the obstacle detection system.



## 8. PUTTING INTO SERVICE

### RISKS



### PERSONAL PROTECTIVE EQUIPMENT



### 8.1 FINAL CHECKS

1. Make sure that the forces generated by the leaf are within the limits permitted by the current regulations. Use an impact force tester in accordance with standard EN 12453. For non-EU countries, if there are no specific local regulations, the static force must be less than 150 N. If necessary, adjust the anti-crushing system and the sensitivity of the obstacle detection system.
2. Make sure that the maximum force required to move the leaf manually is less than 225 N in residential areas and 260 N in industrial or commercial areas.

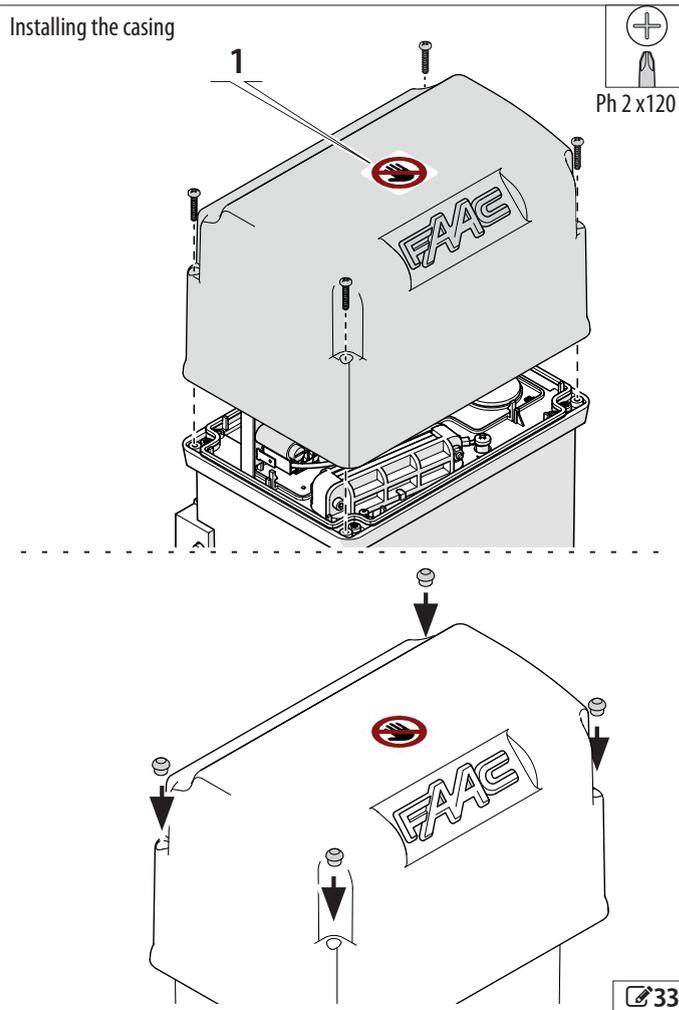
### 8.2 INSTALLING THE CASING

 The casing protects the electronic components and prevents access to moving parts. Never leave the gearmotor unattended without the casing fitted until installation has been completed.

1. Apply the adhesive sign 1 to the casing: risk of fingers and hands being trapped due to the rotation of the pinion and the movement of the rack.
2. Install and fasten the casing.
3. Press the screw caps on.

### 8.3 FINAL OPERATIONS

1. Highlight all areas with adequate warning signs in which there are still residual risks, even if all possible safety measures having been adopted.
2. Place a "DANGER, AUTOMATIC MOVEMENT" sign (not supplied) in a prominent position on the gate.
3. Attach the CE marking to the gate.
4. Fill out the EC declaration of conformity and the system register.
5. Give the EC Declaration, the system register with the maintenance plan and the instructions for use of the automation to the system owner/operator.



## 9. MAINTENANCE

### RISKS



### PERSONAL PROTECTIVE EQUIPMENT



Before performing any maintenance, disconnect the mains power supply. If the disconnecting switch is not visible, apply a "ATTENTION - Maintenance in progress" sign. Restore the power supply once maintenance is complete and after tidying up the area.

Maintenance must be performed by the installer/maintenance technician. Comply with all the safety instructions and recommendations provided in this manual. Close off the work site and prevent access/transit. Do not leave the work site unattended. The work area must be kept tidy and clear upon completing maintenance. Before starting activities, wait for the components subject to heating to cool down. Do not modify the original components in any way. FAAC S.p.A. disclaims any liability for damage caused by components that are modified or tampered with.

The warranty shall be forfeited in the event of tampering with components. For replacements, use only original spare parts FAAC.

### 9.1 ROUTINE MAINTENANCE

The table **2** lists the operations that must be performed on a regular basis in order to keep the automation working reliably and safely; these are given purely as a guideline and should not be considered exhaustive. The installer/machine manufacturer is responsible for drawing up the maintenance plan for the automation, supplementing this list or modifying the maintenance intervals according to the machine characteristics.

#### **2** Scheduled maintenance

Operations	Frequency [months]
<b>Structures</b>	
Check the plinth, the structures and components of the building/fence adjacent to the automation, ensuring there is no damage, cracking or subsidence.	12
Check the gate's area of movement, ensuring it is free from obstacles, objects or deposits which would reduce the effectiveness of the safety measures.	12
Check that there are no gaps in the perimeter fence and that any protective grilles in the area where it overlaps with the mobile leaf are intact.	12
Ensure that there are no sharp protrusions which could represent a perforation or hooking hazard.	12
<b>Gate</b>	
Check the gate, ensuring it is intact and free of deformations, rust etc.	12
Check that there are no slots/openings on the leaf and that any protective grilles are intact.	12
Check that screws and bolts are correctly tightened.	12
Check that the sliding guides are straight and not excessively worn.	12
Check that the bearings are in good condition and there is no friction.	12
Check that the mechanical stops are fastened solidly and in good condition. This check must be performed on both sides, simulating any knocks which could occur during use.	12
Check the wheels, ensuring that they are intact, correctly fastened and free of deformation, wear and rust.	12
Check the rack, ensure it is straight, not worn, that it is the correct distance from the pinion along its entire length and correctly fastened to the gate.	12
Cantilever gates, check the solidity of the guide system for the suspended leaf and the counterweight, where present.	12

Check the containing guide and the anti-tipping column, ensuring they are correctly fastened and intact.	12
Perform a general clean of the area of movement of the gate.	12
<b>Gearmotor</b>	
Check that the gearmotor is intact and correctly fastened.	12
Check that the pinion is correctly keyed to the shaft and tightened correctly.	12
Check that it is irreversible.	12
Check that there are no oil leaks.	12
Check the condition of the cables, cable glands and junction boxes.	12
<b>Electronic equipment</b>	
Check the condition of the power cables and connections, cable glands and junction boxes.	12
Check that the connectors and wiring are intact.	12
Check that there are no signs of overheating, burning etc. of electronic components.	12
Check that the earth connections are intact.	12
Check the operation of the circuit breaker and differential switch.	12
Check that the limit switch is intact and that it operates correctly.	12
<b>Control devices</b>	
Check that the installed devices and radio controls are in good condition and that they operate correctly.	12
<b>Sensitive edges</b>	
Check condition, fastening and correct operation.	6
<b>Deformable edges</b>	
Check that they are intact and correctly fastened.	12
<b>Photocells</b>	
Check condition, fastening and correct operation.	6
Check the columns, making sure that they are intact, correctly fastened and that they are not deformed etc.	6
<b>Flashing light</b>	
Check condition, fastening and correct operation.	12
<b>Electric locks</b>	
Check condition, fastening and correct operation.	12
Clean the seats.	12
<b>Access control</b>	
Check that the gate opens only when an authorised user is recognised.	12
<b>Complete automation system</b>	
Check that the automation operates correctly, following the set logic, when using the various control devices.	12
Check that the gate moves correctly - smooth, regular and without abnormal noise.	12
Check that both the opening and closing speed are correct and that the stop positions and slow-downs provided for are respected.	12
Check that the manual release operates correctly: when the release mechanism is activated, it must only be possible to move the gate manually and not electrically.	6
Check that the caps on the locks are present.	
Check that the maximum force required to move the leaf manually is less than 225 N in residential areas and 260 N in industrial or commercial areas.	6
Check that the sensitive edges operate correctly when an obstacle is detected.	6
Check that the encoder operates correctly when an obstacle is detected.	6
Check that each pair of photocells is working correctly.	6
Check that there is no optical/light interference between the pairs of photocells.	6
Check the force limitation curve (standard EN 12453).	6
Check that all necessary signage and warnings are present, intact and legible: residual risks, exclusive use etc.	12
Check that the gate's CE marking and the DANGER, AUTOMATIC MOVEMENT warning sign is present, intact and legible.	12

## 10. INSTRUCTIONS FOR USE

It is the responsibility of the machine installer/manufacturer to draft the user instructions of the automation in accordance with the Machinery Directive, including all the required information and instructions based on the characteristics of the automation.

The guidelines below, which are purely indicative and in no way exhaustive, help the installer draft the user instructions.



The installer must provide the owner/operator of the automation with the EC Declaration, the system Logbook with the maintenance schedule and the user instructions of the automation.

The installer must inform the owner/operator of any residual risks and the intended use and ways in which the machine should not be used.

The owner is responsible for operating the automation and must:

- comply with all User instructions provided by the installer/maintenance technician and the Safety recommendations
- keep the user instructions
- have the maintenance schedule implemented
- keep the system Logbook, which must be completed by the maintenance technician at the end of all servicing

### 10.1 SAFETY RECOMMENDATIONS

Systems that use FAAC 844 ER 3PH series gearmotors are designed to control sliding gates in areas that are accessible to people and vehicles in industrial, commercial or residential buildings.

The user must be in good physical and mental health and be aware of and responsible for the dangers which use of the product can lead to.



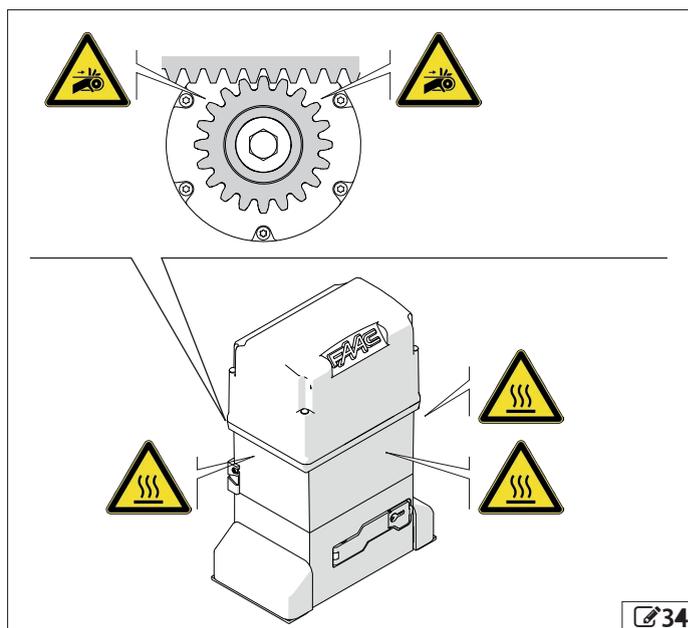
- Do not remain in or walk/drive through the area of operation of the automation while it is moving.
- Do not use the automation when the area of operation is not free of persons, animals or objects.
- Do not allow children to approach or play in the area of operation of the automation.
- Do not try to prevent the movement of the automation.
- Do not climb on, hold onto or let yourself be pulled by the leaf. Do not climb onto or sit on the gearmotor.
- Do not allow the devices to be used by anyone who is not specifically authorised and trained to do so.
- Do not allow the devices to be controlled by children or persons with mental and physical deficiencies unless they are supervised by an adult who is responsible for their safety.
- Do not use the automation with the fixed and/or mobile guards removed or altered.
- Do not use the automation in the presence of faults which could compromise safety.
- Do not expose the automation to corrosive chemicals or atmospheric agents. Do not allow water jets of any type or size to come into direct contact with the gearmotor.
- Do not expose the automation to flammable gases or fumes.
- Do not perform any work on the components of the automation.



During operation, there is a risk of fingers and hands being trapped between the rack, pinion and casing.



Under certain conditions, as a result of prolonged continuous operation, the body of the gearmotor can reach high temperatures. Avoid touching it



**10.2 EMERGENCY USE**

Environmental phenomena, even occasional, such as ice, snow and strong wind may hinder correct operation of the automation and affect component integrity and may become a potential source of danger.

In emergencies or if there is a fault, turn off the power supply to the automation. If the leaf can be moved safely by hand, use the **MANUAL OPERATION** mode; otherwise place the automation out of service until it has been reset/repaired.

In the case of a breakdown, the automation must be reset/repaired exclusively by the installer/maintenance technician.

**10.3 MANUAL OPERATION**

In order to operate the leaf manually, the gearmotor has to be released using the key provided.

-  **Disconnect the power supply from the automation before releasing the gearmotor.**
- During manual operation, gently guide the leaf the whole way. Do not push it and let it slide freely.
- Do not leave the gearmotor in the released mode: restore automatic operation after moving it manually.

**RELEASING THE GEARMOTOR**

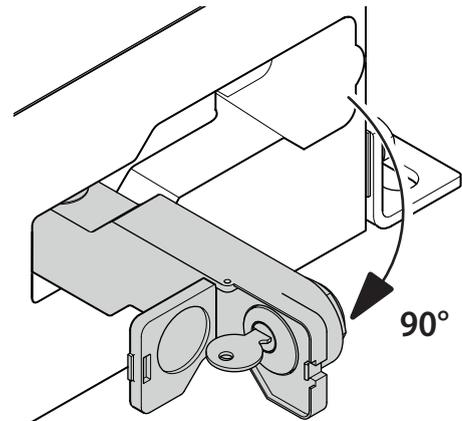
1. Open the lock cover.
2. Insert the key and turn it clockwise by 90°.
3. Open the release lever by 90° (🔧36).

**RESTORING OPERATION**

1. Close the release lever. Turn the key so that it is vertical and remove it (🔧36).
2. Close the lock cover.
3. Move the leaf manually to make sure that the mechanical system meshes correctly.

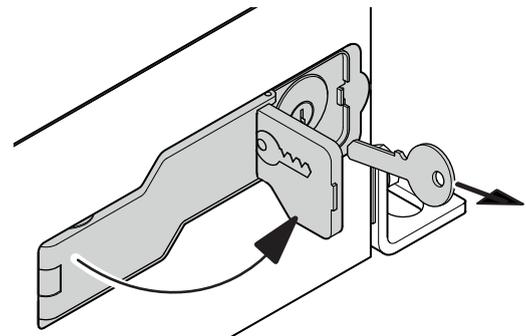
-  **Make sure that the gate is at its opening or closing end of travel position (the relative limit switch must be engaged) before turning the power back on and operating the automation.**

Releasing the gearmotor



🔧35

Restoring operation



🔧36









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