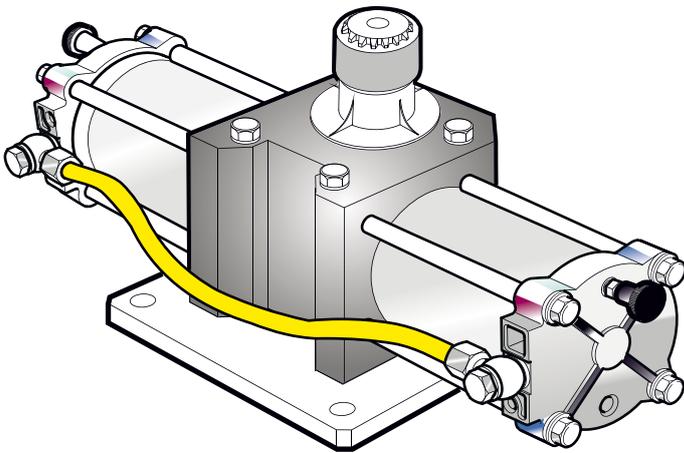
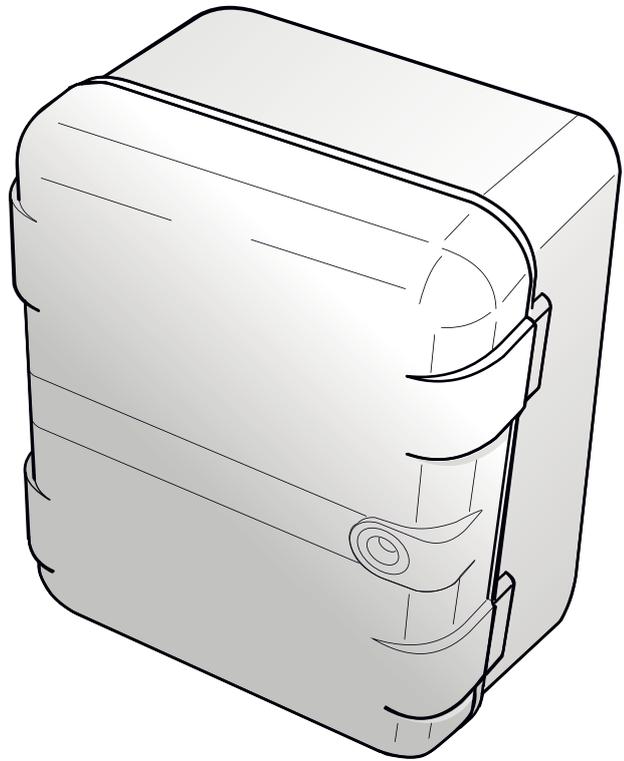


# 750



# FAAC

Leggere completamente questo manuale di istruzioni prima di iniziare l'installazione del prodotto.



Il simbolo evidenzia le note importanti per la sicurezza delle persone e l'integrità dell'automazione.



Il simbolo richiama l'attenzione sulle note riguardanti le caratteristiche od il funzionamento del prodotto.

Read this instruction manual to the letter before you begin to install the product.



Symbol highlights notes that are important for people's safety and for the good condition of the automated system.



Symbol draws your attention to the notes about the product's characteristics or operation.

Lire ce manuel d'instructions dans son entier avant de commencer l'installation du produit.



Le symbole met en évidence les remarques pour la sécurité des personnes et le parfait état de l'automatisme.



Le symbole attire l'attention sur les remarques concernant les caractéristiques ou le fonctionnement du produit.

Vor der Installation des Produkts sind die Anweisungen vollständig zu lesen.



Mit dem Symbol sind wichtige Anmerkungen für die Sicherheit der Personen und den störungsfreien Betrieb der Automation gekennzeichnet.



Mit dem Symbol wird auf Anmerkungen zu den Eigenschaften oder dem Betrieb des Produkts verwiesen.

Lean completamente este manual de instrucciones antes de empezar la instalación del producto.



El símbolo identifica notas importantes para la seguridad de las personas y para la integridad del automatismo.



El símbolo llama la atención sobre las notas relativas a las características o al funcionamiento del producto.

Lees deze instructiehandleiding helemaal door alvorens het product te installeren.



Het symbool is een aanduiding van opmerkingen die belangrijk zijn voor de veiligheid van personen en voor een goede automatische werking.



Het symbool vestigt de aandacht op opmerkingen over de eigenschappen of de werking van het product.

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**Notes on reading the instructions**

Read this instruction manual to the letter before you begin to install the product.

Symbol  highlights notes that are important for people’s safety and for the good condition of the automated system.

Symbol  draws your attention to the notes about the product’s characteristics or operation.

## CE DECLARATION OF CONFORMITY FOR MACHINES

(DIRECTIVE 2006/42/EC)

**Manufacturer:** FAAC S.p.A.

**Address:** Via Calari, 10 - 40069 Zola Predosa BOLOGNA - ITALY

**Declares that:** Operator mod. 750

is built to be integrated into a machine or to be assembled with other machinery to create a machine under the provisions of Directive 2006/42/EC

conforms to the essential safety requirements of the following EEC directives:

2006/95/EC Low Voltage Directive

2004/108/EC Electromagnetic Compatibility Directive

and also declares that it is prohibited to put into service the machinery until the machine in which it will be integrated or of which it will become a component has been identified and declared as conforming to the conditions of Directive 2006/42/EEC and subsequent amendments.

Bologna, 01-07-2009

The Managing Director  
A. Marcellan



## WARNINGS FOR THE INSTALLER

### GENERAL SAFETY OBLIGATIONS

- 1) **ATTENTION! To ensure the safety of people, it is important that you read all the following instructions. Incorrect installation or incorrect use of the product could cause serious harm to people.**
- 2) Carefully read the instructions before beginning to install the product.
- 3) Do not leave packing materials (plastic, polystyrene, etc.) within reach of children as such materials are potential sources of danger.
- 4) Store these instructions for future reference.
- 5) This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the good condition/operation of the product and/or be a source of danger.
- 6) FAAC declines all liability caused by improper use or use other than that for which the automated system was intended.
- 7) Do not install the equipment in an explosive atmosphere: the presence of inflammable gas or fumes is a serious danger to safety.
- 8) The mechanical parts must conform to the provisions of Standards EN 12604 and EN 12605.  
For non-EU countries, to obtain an adequate level of safety, the Standards mentioned above must be observed, in addition to national legal regulations.
- 9) FAAC is not responsible for failure to observe Good Technique in the construction of the closing elements to be motorised, or for any deformation that may occur during use.
- 10) The installation must conform to Standards EN 12453 and EN 12445.  
For non-EU countries, to obtain an adequate level of safety, the Standards mentioned above must be observed, in addition to national legal regulations.
- 11) Before attempting any job on the system, cut out electrical power.
- 12) The mains power supply of the automated system must be fitted with an all-pole switch with contact opening distance of 3 mm or greater. Use of a 6A thermal breaker with all-pole circuit break is recommended.
- 13) Make sure that a differential switch with threshold of 0.03 A is fitted upstream of the system.
- 14) Make sure that the earthing system is perfectly constructed and connect metal parts of the closure to it.
- 15) The automated system is supplied with an intrinsic anti-crushing safety device consisting of a torque control. Nevertheless, its tripping threshold must be checked as specified in the Standards indicated at point 10.
- 16) The safety devices (EN 12978 standard) protect any danger areas against **mechanical movement Risks**, such as crushing, dragging, and shearing.
- 17) Use of at least one indicator-light (e.g. FAACLIGHT) is recommended for every system, as well as a warning sign adequately secured to the frame structure, in addition to the devices mentioned at point "16".
- 18) FAAC declines all liability as concerns safety and efficient operation of the automated system, if system components not produced by FAAC are used.
- 19) For maintenance, strictly use original parts by FAAC.
- 20) Do not in any way modify the components of the automated system.
- 21) The installer shall supply all information concerning manual operation of the system in case of an emergency and shall hand over to the user the warnings handbook supplied with the product.
- 22) Do not allow children or adults to stay near the product while it is operating.
- 23) Keep radio controls or other pulse generators away from children, to prevent the automated system from being activated involuntarily.
- 24) Transit is permitted only when the automated system is idle.
- 25) The user must not attempt any kind of repair or direct action whatever and contact qualified personnel only.
- 26) Check at least every 6 months the efficiency of the system, particularly the efficiency of the safety devices (including, where foreseen, the operator thrust force) and of the release devices.
- 27) **Anything not expressly specified in these instructions is not permitted.**

# 750 AUTOMATED SYSTEM

The 750 system makes it possible to automate, in a virtually invisible way, leaf gates.

The automated system consists of an underground jack that transmits movement to the leaf and a hydraulic control unit that is usually fitted on the gate post. The two components are connected to each other using copper pipes or flexible tubes.

## 1 DESCRIPTION AND TECHNICAL SPECIFICATIONS

Fig.1-2

- ① Oil filler cap
- ② breather screw
- ③ release lever
- ④ by-pass screws
- ⑤ hydraulic connection fittings
- ⑥ air bleed screws
- ⑦ levelling set screws

Tab.1 - Technical Specifications for hydraulic control unit

AVAILABLE MODELS	750 CBAC	750 SB	750 SBS
Power voltage (V ~/Hz)	230 (+6% -10%)/50		
Absorbed power (W)	220		
Absorbed current (A)	1		
Electric motor (rpm)	4-pole 1400	6-pole 960	
Thrust capacitor (uF/V)	8/400		
Winding thermal cutout (°C)	120		
Duty cycle (cycles) (1)	45	30	
Amount of oil (l)	1		
Oil type	FAAC HP OIL		
Operating ambient temperature (°C)	-20 °C +55		
Protection class	IP 55 (with appropriate cable leads/ tube leads)		
Weight (Kg)	7,5		
Pump capacity (l/min)	0,75	0,5	
Max leaf length (m)	1,8	2,5	3,5
Hydraulic lock	when opening and closing	no	

 (1) Exposure to direct sunlight can determine a drop in usage frequency.

Tab.2 - Technical specifications for hydraulic jack

AVAILABLE MODELS	JACK 100°	JACK 180°
Max leaf weight (Kg)	800	
Max rotation angle (°)	118	200
Max torque (Nm)	543 (750 CBAC/SB) - 272 (750 SBS)	
Angular speed (°/sec)	7,8° (750 CBAC/SB) - 5,2° (750 SBS)	
Amount of oil (l)	0,3	0,5
Protection class	IP 67	
Weight (Kg)	8	9

## 2 INSTALLING THE AUTOMATED SYSTEM

### 2.1 PRELIMINARY CHECKS

For correct operation of the automated system, the existing gate structure, or the one to be built, must feature the following:

- weight of each leaf no heavier than 800 kg;
- maximum length of each leaf must be 3.5 m (see tab.1);
- sturdy and rigid leaf structure;
- smooth and even movement of the leaves, without irregular friction during the entire stroke;
- good condition of the existing hinges;
- presence of mechanical limit stops.

We recommend that all blacksmith work be carried out before installing the automated system.

The condition of the structure directly affects the reliability and safety of the automated system.

### 2.2 INSTALLING THE JACK

Fig.3-4-5-6/a-6/b-7-8-9-10

Following are possible work conditions and steps to take:

a) Existing gate with fixed hinges:

- remove the gate;
- eliminate the bottom hinge.

If it is not possible to remove the gate, place a support shim under the leaf.

b) Existing gate with adjustable hinges:

- eliminate the bottom hinge;
- loosen the top hinge;
- rotate the leaf on the axis of the top hinge (fig.4).

c) Gate to build:

install the top hinge of the leaf, preferably adjustable.

 To avoid having to make niches at the base of the post, we recommend to keep a minimum distance between the rotation axis of the hinge and the post of 60 mm (fig.6/a).

- 1) Dig a foundation hole as shown in fig.5.
- 2) Bend the foundation plate anchor bolts.
- 3) Ensure that the plate is walled in perfectly level as shown in fig.6/a-b.
- 4) Lay a flexible PVC tube measuring 32mm in diameter, for passage of the copper pipes, that reaches the hydraulic control unit (fig.7).

This path must feature wide range curves to avoid preventing passage of the hydraulic connection tubes.

As an alternative, shape the copper pipes accordingly, using a tube bender, and later sheath them (fig.8).

We also recommend use of a rainwater drainage tube leading to the closest water recovery channel.

 **To correctly lay the tubes, temporarily position the jack protection box (fig.7/8).**

- 5) Wait for the cement in the foundation hole to harden.
- 6) Place the jack on the foundation plate as shown in fig. 6/a-b, and ensure that it is not resting on the levelling set screws (fig.2 - ref.7).

 **The axis of the pinion must be perfectly aligned with the leaf rotation axis.**

 **To facilitate jack positioning operations, a telescopic template is available as an accessory to be used as shown in fig.9.**

- 7) In models with bearing case, place the provided C-brackets at the base of the jack and weld directly to the foundation plate as shown in fig.10.

 **Do not weld the base of the jack to the foundation plate or to the C-bracket.  $\varnothing$  32 mm**

## 2.3 INSTALLING THE HYDRAULIC CONTROL UNIT

### Fig.11-12-13-14

- 1) Place the control unit box as close as possible to the jack. The maximum distance is 20 metres. The box can be fixed to a wall (fig.12) or walled in (fig.13). In both cases, use the provided rear plates.
- 2) Lay the 16 mm diameter PVC tube for passage of the 4-pole electrical cable, until it reaches the electronic control unit. To tighten the box, use the proper tube/box fittings (fig.14).
- 3) Perform the electrical connection to the control board (see corresponding instructions).

 **During installation, it will be necessary to temporarily remove the cover. Be extremely cautious when doing this to avoid damaging the hinges.**

## 2.4 HYDRAULIC CONNECTION

### Fig.15-16-17-18-19-20-21

The jack is connected to the control unit using copper pipes ( $\varnothing$  6/8 mm) or flexible tubes ( $\varnothing$  4/8 mm).

#### Copper pipe

Before installation we recommend thoroughly cleaning the pipe using compressed air.

- 1) Protect the end of the pipe using adhesive tape.
- 2) Insert the copper pipe in the previously laid flexible PVC tube, running from the control unit to the jack.
- 3) Bend the copper pipe accordingly to reach, by at least a few centimetres, the centre of the corresponding fittings (fig.15-16).

The control unit fitting beside the green by-pass screw must be connected to the jack fitting that is within the property boundaries (fig.17-ref.B).

The control unit fitting beside the red by-pass screw must be connected to the jack fitting that is outside the property boundaries (fig.17-ref.A).

These connections make it possible to adjust the power given to the gate when opening using the green by-pass screw and when closing using the red by-pass screw.

 **Ensure that the curves are wide range to avoid narrowing (fig.15-16).**

- 4) Remove the protection from the end of the pipe.
- 5) Cut the pipe using the proper tool. Maximum cleanliness is required during this operation.
- 6) Repeat the above steps when preparing the second copper pipe.
- 7) Connect and secure the copper pipes to the control unit and jack fittings using the provided hubs as shown in fig.18.
- 8) Remove and discard the control unit breather screw as shown in fig.19.
- 9) Top up the oil level using the references on the oil filler cap rod (fig.20). The provided FAAC HP OIL can fill a tube path of approximately 2 metres in length. For longer paths, to complete filling use only FAAC HP OIL.

#### Flexible tubes

To facilitate laying the hydraulic connection tube, especially for long paths and with many curves, use the flexible tube.

After positioning the tube and determining its length as described earlier, use the provided fixing fittings as shown in fig.21.

## 2.5 AIR BLEED OPERATIONS

### Fig.17-20-22

When connecting the control unit and the jack, air will inevitably enter the system.

The presence of air in the hydraulic system causes irregular operation of the automated system, which can be seen from the irregular movement of the leaf and excessive noise when in operation.

To avoid this inconvenience, proceed as follows:

- 1) command opening of the gate;
- 2) while the leaf is moving, temporarily remove the protective cap and loosen the air bleed screw for the opening movement (fig.17-ref.D) as shown in fig.22;
- 3) release any air from the hydraulic circuit until non-emulsified oil appears;
- 4) tighten the air bleed screw before the operator completes the opening cycle;
- 5) command closing of the gate;
- 6) while the leaf is moving, temporarily remove the protective cap and loosen the air bleed screw for the closing movement (fig.17-ref.C) as shown in fig.22;
- 7) release any air from the hydraulic circuit until non-emulsified oil appears;
- 8) tighten the air bleed screw before the operator completes the closing cycle.

We recommend to repeat this operation a few times for each air bleed screw.

- 9) Top up the oil level using the references on the oil filler cap rod (fig.20). Top up oil using only FAAC HP OIL.

## 2.6 INSTALLING THE GATE

### Fig.2-23-24/a-24/b-25-26/a-26/b-27

- 1) Unlock the system (see paragraph 6).
- 2) Turn the splined bushing, inserted on the pinion, in closing direction until it stops.
- 3) To avoid the piston reaching the internal mechanical stop, turn the bushing 5 degrees in the direction of opening.
- 4) Make the gate guide bracket:
  - take a U-section sized as shown in fig.23;
  - position the section on the splined bushing in the "leaf closed" position;
  - determine the correct position of the bushing by referring to the position of the leaf with respect to the rotation axis (fig.24/a-b);
  - weld the bushing to the section using two welding points;
  - check that the system timing is correct by simulating complete opening;
  - carefully weld the bushing to the section (fig.25);
  - close the U-section, on the post side, using a plate as shown in fig.26/a-b.
- 5) Lubricate the jack pinion using grease.
- 6) Insert the guide bracket on the pinion in the previous "leaf closed" position.
- 7) Place the gate in the bracket and hinge the top part.

 **The gate must rest on the guide bracket. To increase the jack height, turn the levelling set screws clockwise (fig.2-ref.7).**

 **In order to not compromise correct operation of the automated system, never weld the gate leaf to the guide bracket or directly to the splined bushing.**

- 8) Manually check that the gate freely opens completely, stopping on the external stops and that the movement of the leaf is smooth and without friction.
- 9) Correctly position the jack protection box as shown in fig.27.
- 10) Wall in the box using cement. To avoid possible deformation, also fix the box cover.

## 3 OPERATION

### 3.1. CHECKING THE SENSE OF ROTATION

- 1) Cut off power to the electronic control unit.
- 2) Manually place the gate in the centre of the opening angle.
- 3) Lock the system again (see paragraph 6).
- 4) Restore power.
- 5) Send an OPEN pulse and ensure that the gate opens.

If the first OPEN pulse commands closing, invert the phases of the electrical motor on the unit terminal board (brown and black wires).

### 3.2 SETTING OPERATION TIME

Opening/Closing time is determined by programming the electronic control unit (see corresponding instructions).

To obtain maximum efficiency of the hydraulic locking system, it is necessary to program an opening/closing time that allows maintaining the electric motor powered for a few seconds after the leaf has reached the mechanical stop.

### 3.3. SETTING THE ANTI-CRUSHING SYSTEM

#### Fig.28

With inward opening, the 750 automated system features an anti-crushing system that guarantees stopping the movement

in the presence of an obstacle.

We recommend calibrating this torque regulator in compliance with the laws in force.

To do this accurately, use a linear torque wrench as a strength measuring tool.

Setting of the anti-crushing system tripping threshold is done using the by-pass screws as shown in fig. 28.

The red screw adjusts the closing torque of the leaf.

The green screw adjusts the opening torque of the leaf.

To increase torque, turn the screws clockwise.

To reduce torque, turn the screws anticlockwise.

## 4 TESTING THE AUTOMATED SYSTEM

### 5 MANUAL OPERATION

#### Fig.29

Should manually operating the gate be required due to power cut-offs or automated system inefficiency, use the release lever as shown in fig.29.

To lock the system again, place the lever in its original position and ensure that it reaches the stop.

## 6 MAINTENANCE

#### Fig.20

During maintenance, periodically check the oil level using the references on the oil filler cap rod (fig.20).

Check the gate structure every 6 months.

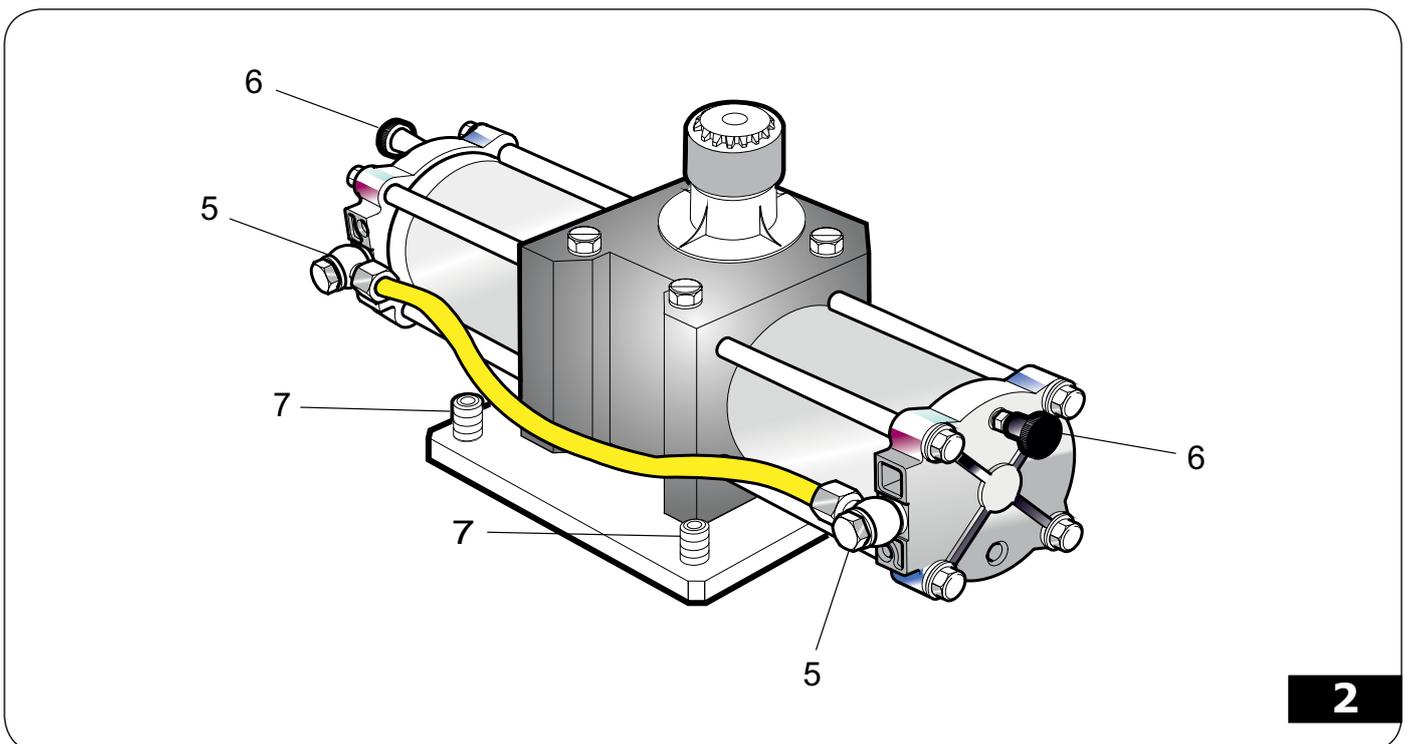
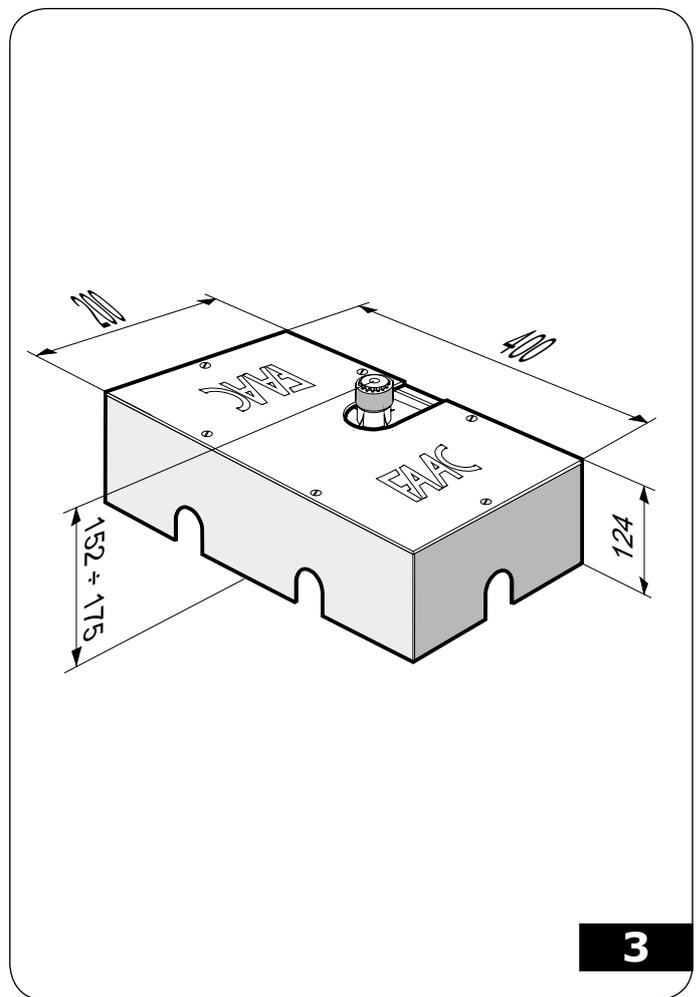
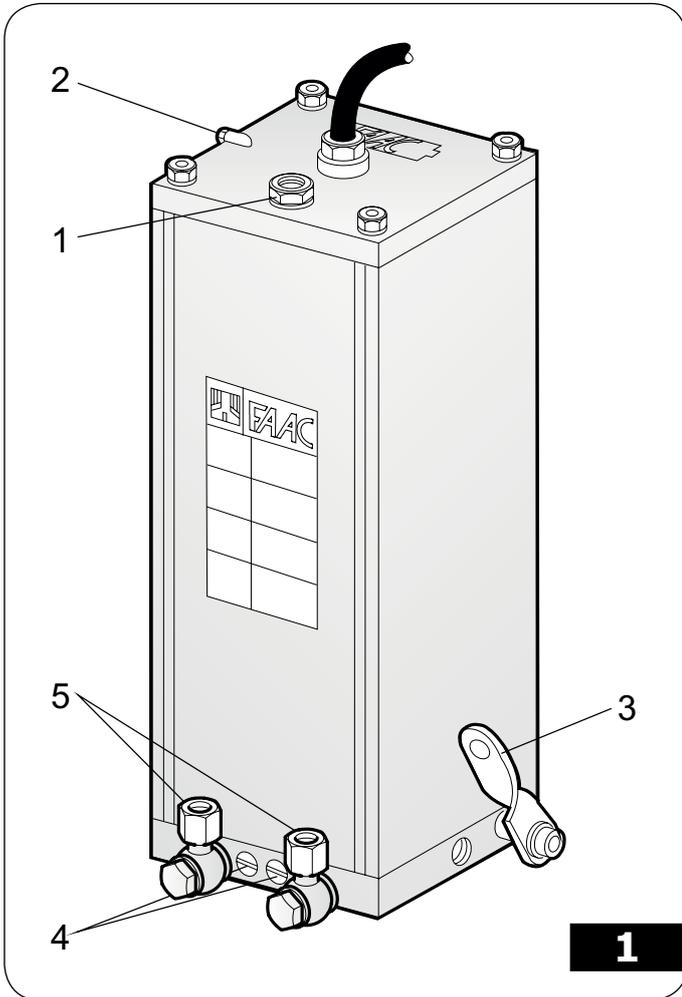
When required, top up oil using only FAAC HP OIL.

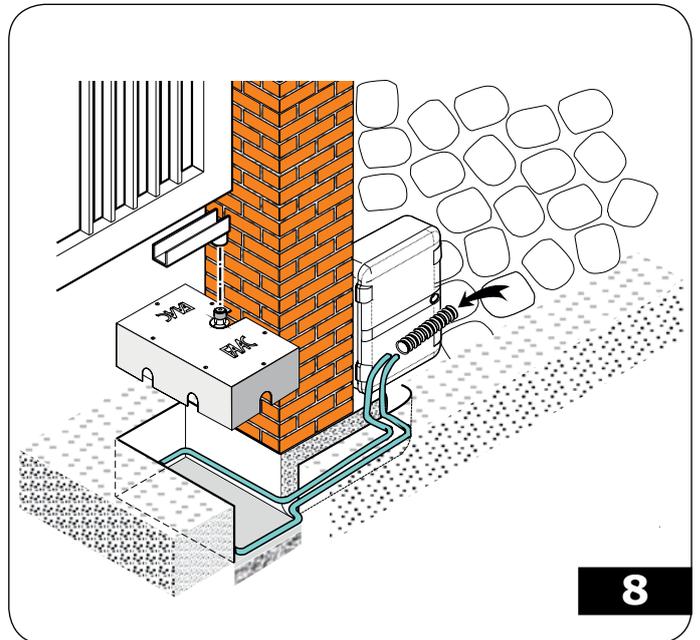
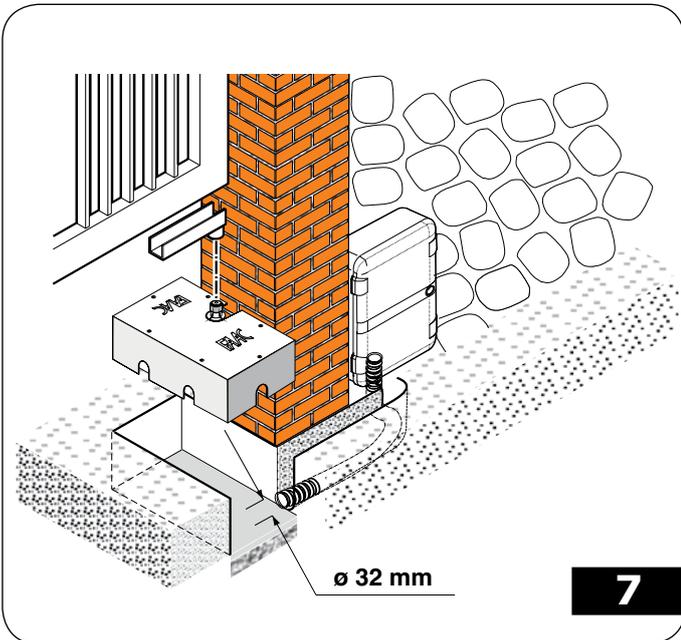
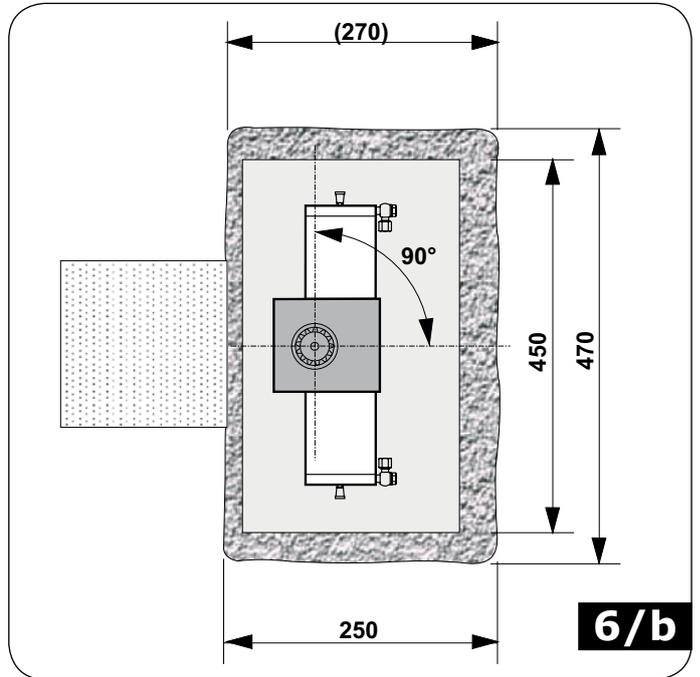
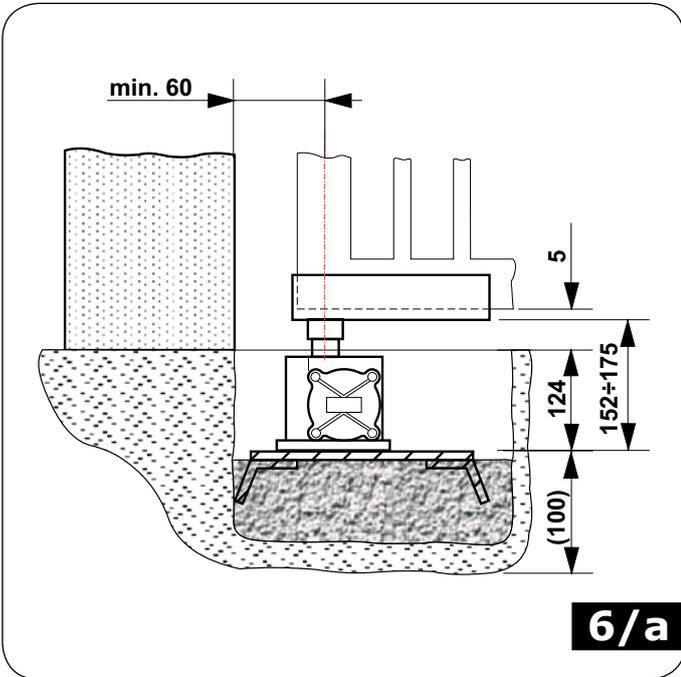
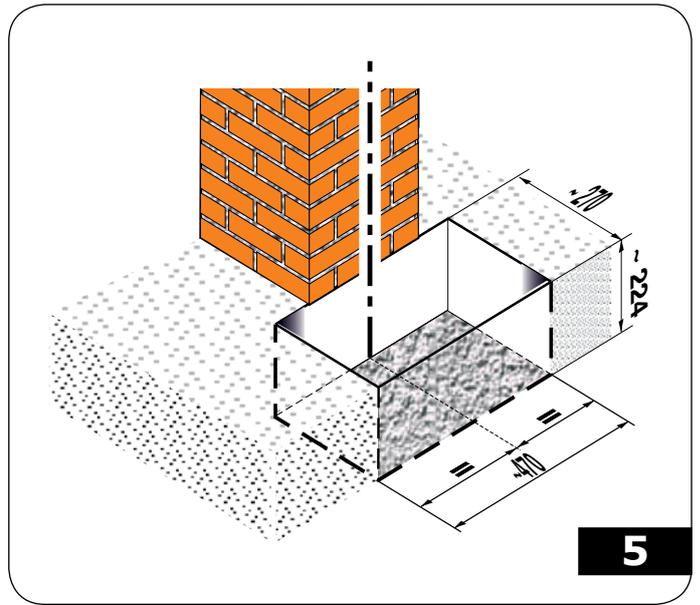
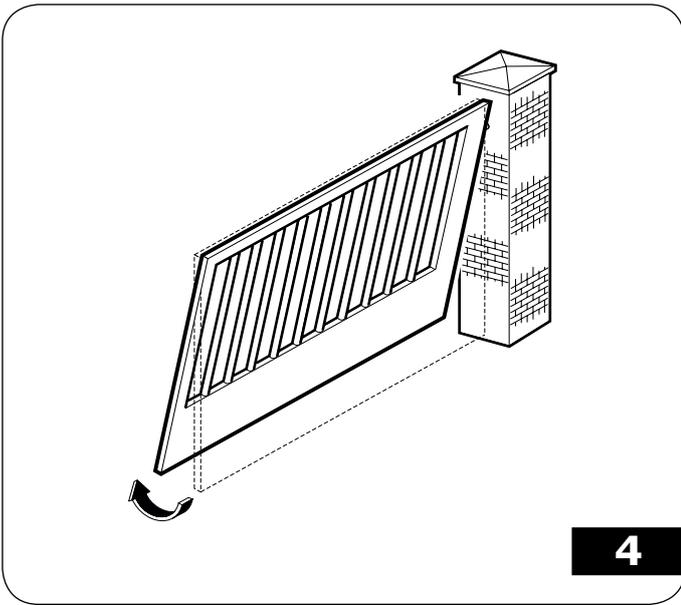
It is also necessary to periodically check both the correct setting of the by-pass screws and the efficiency of the release system (see the corresponding paragraphs).

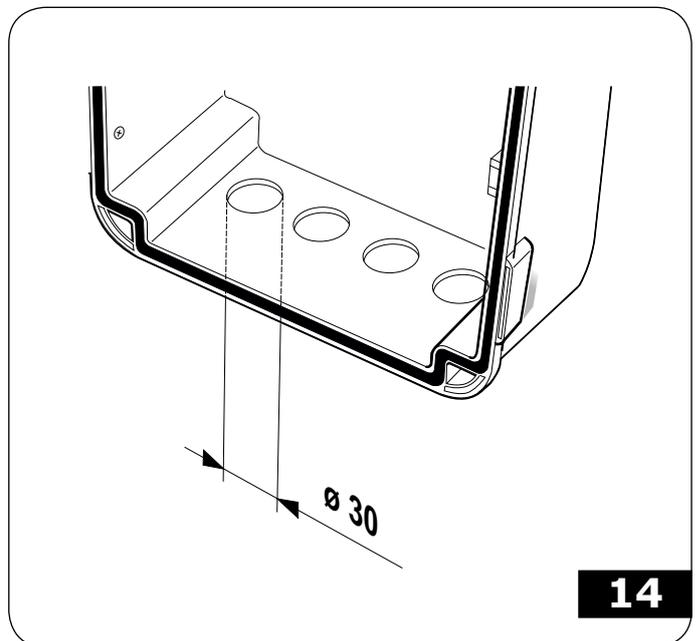
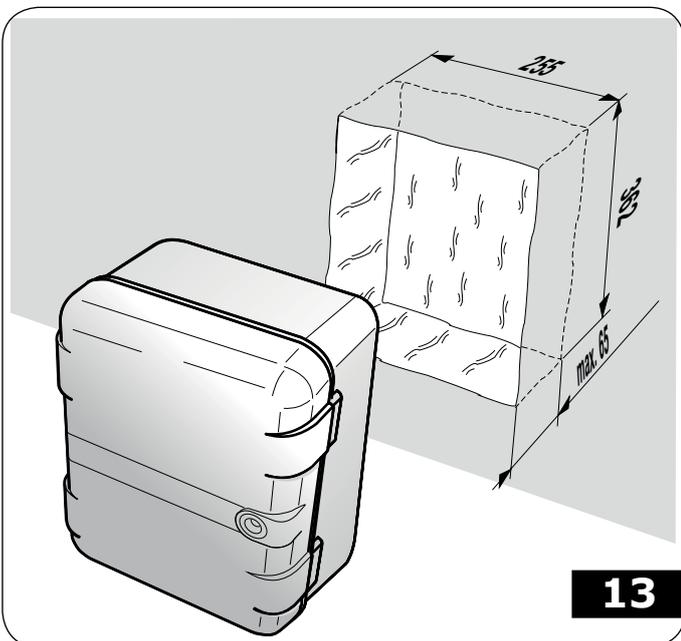
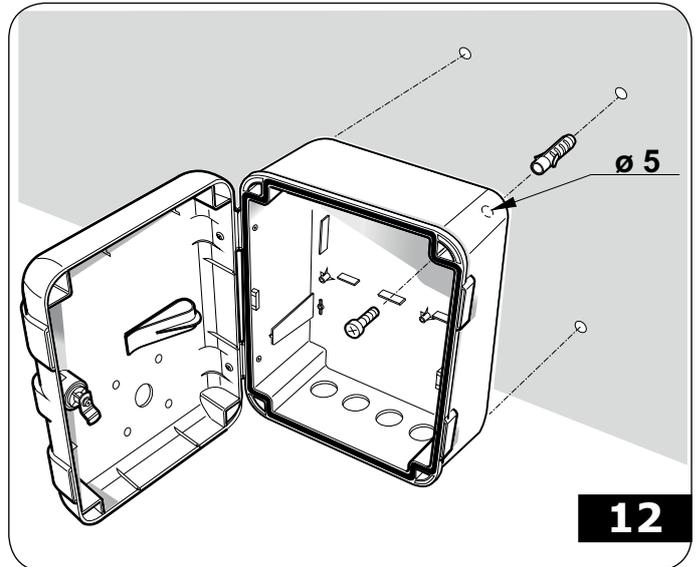
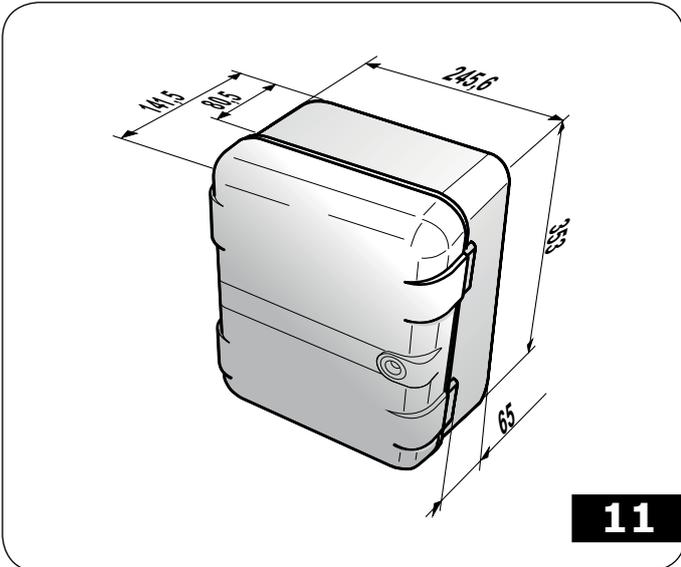
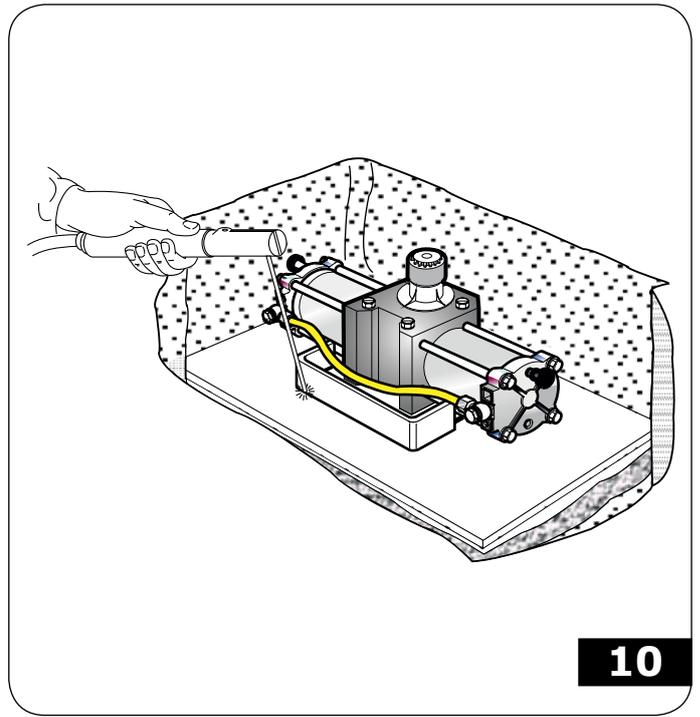
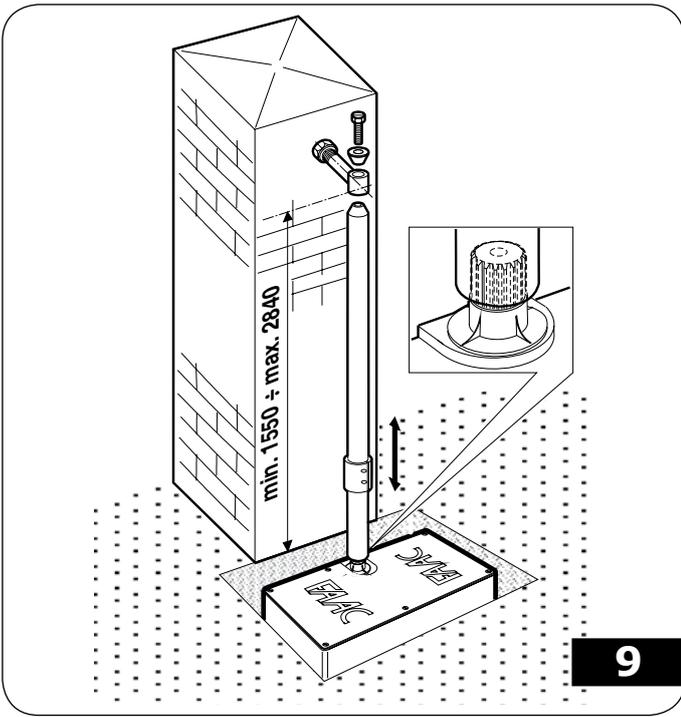
Also periodically check the gate structure and in particular ensure that the top hinge is in perfect working condition.

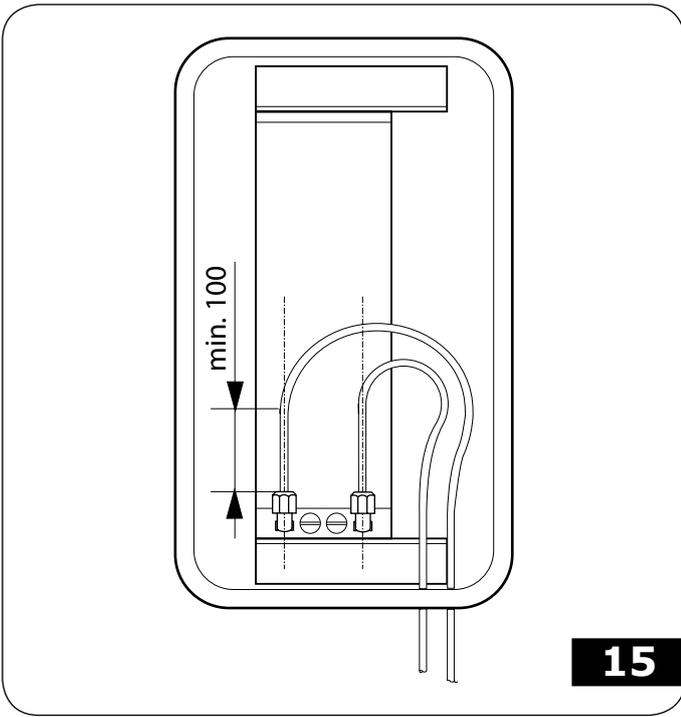
The system's safety devices must be checked every 6 months.

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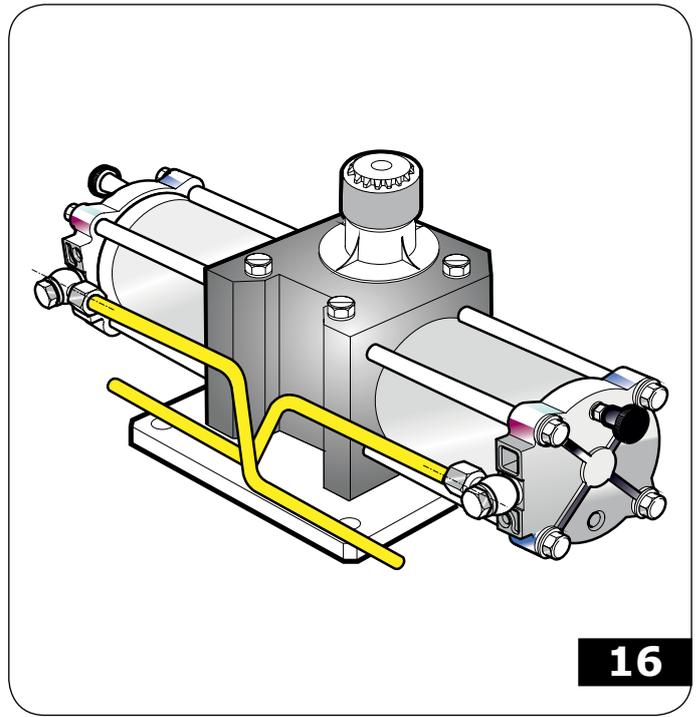




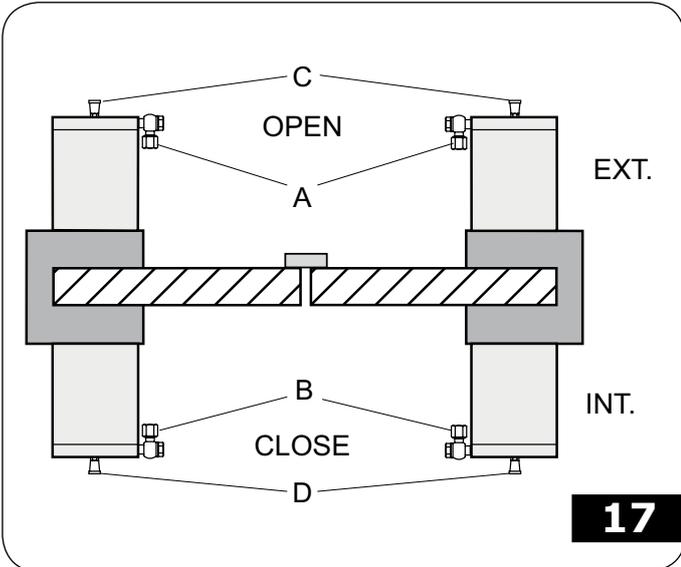




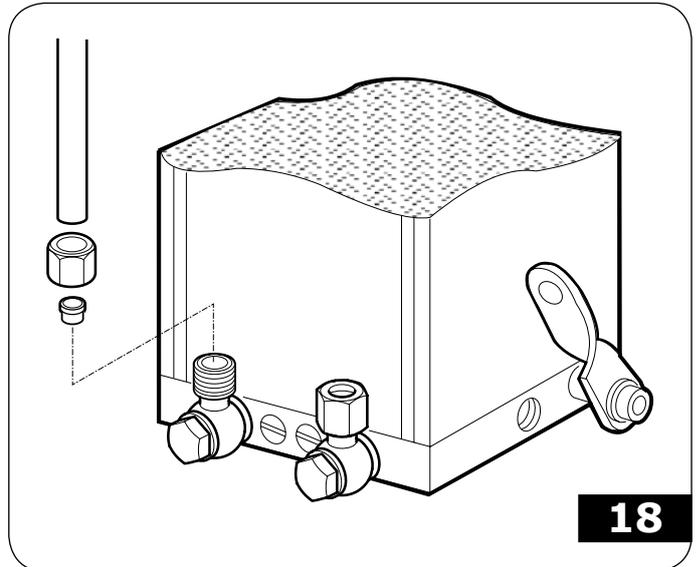
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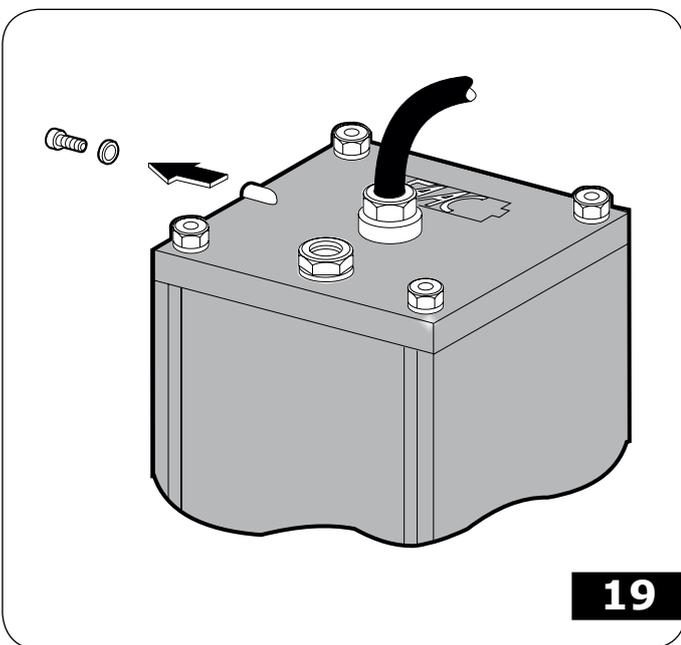
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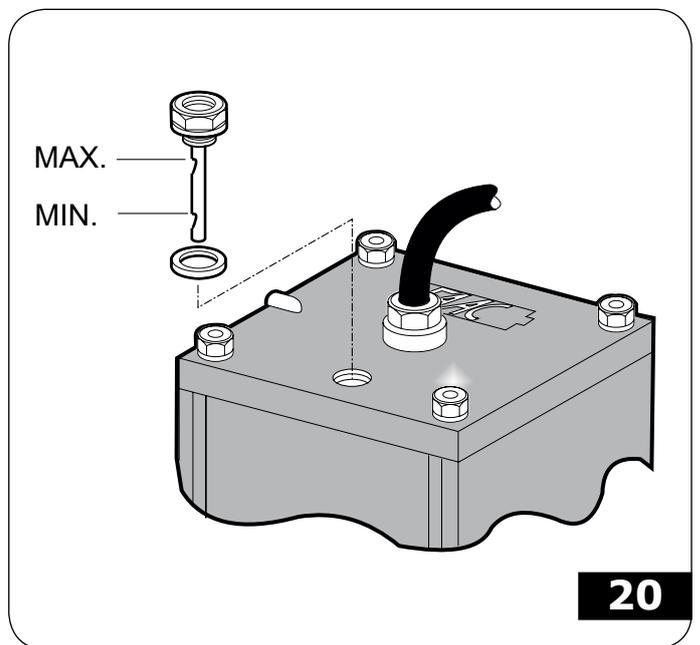
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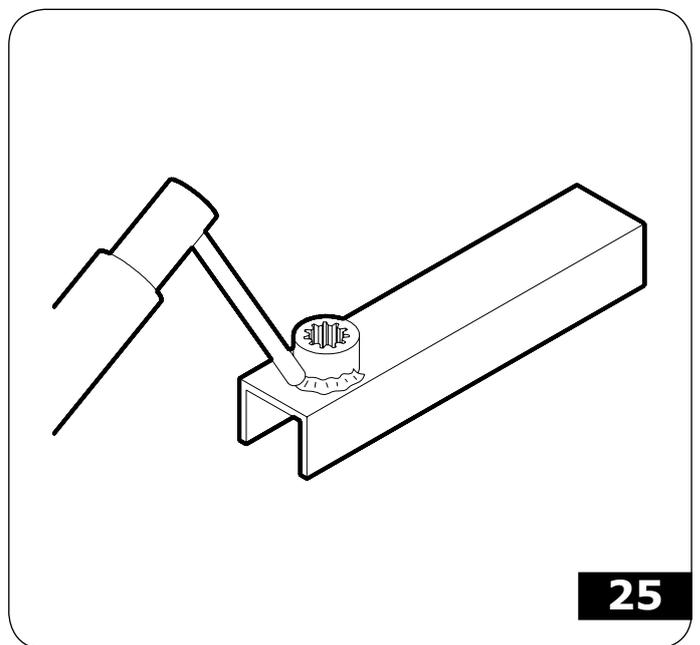
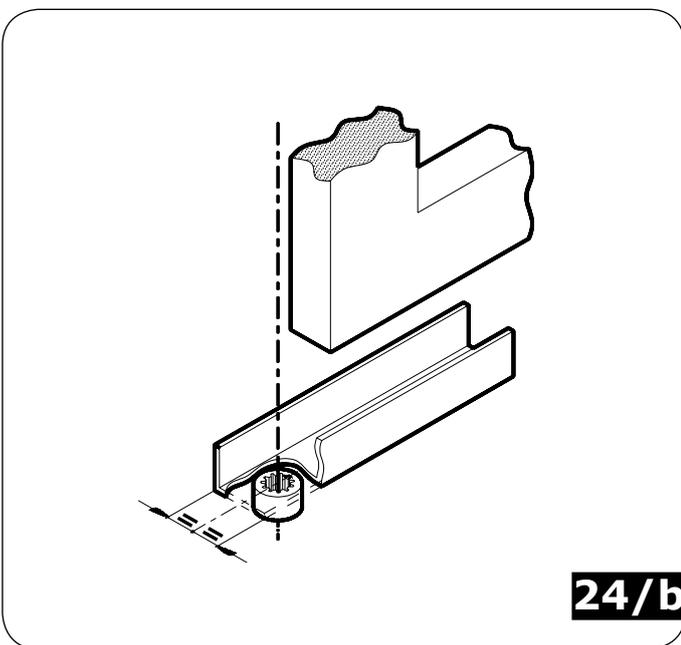
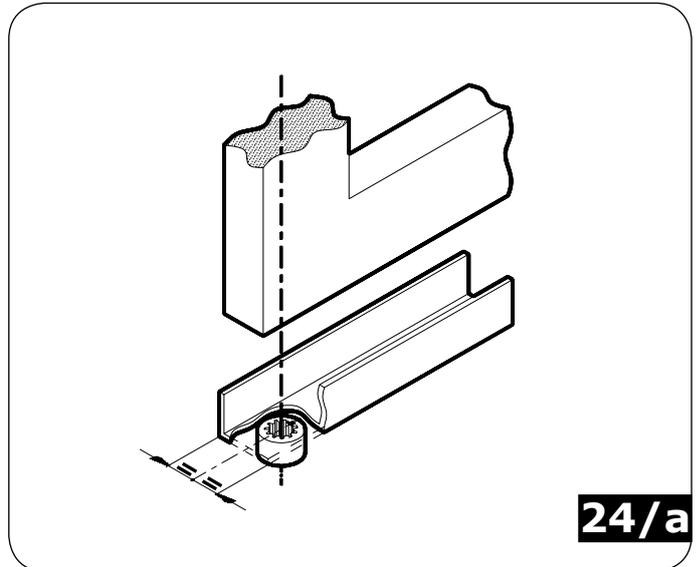
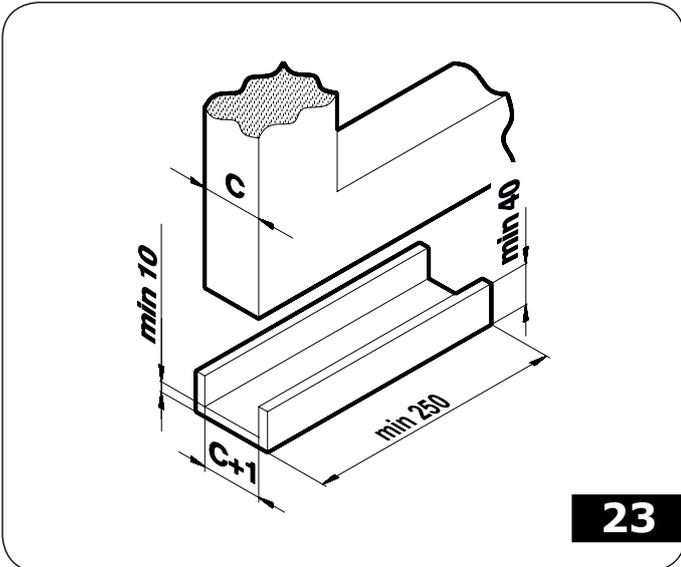
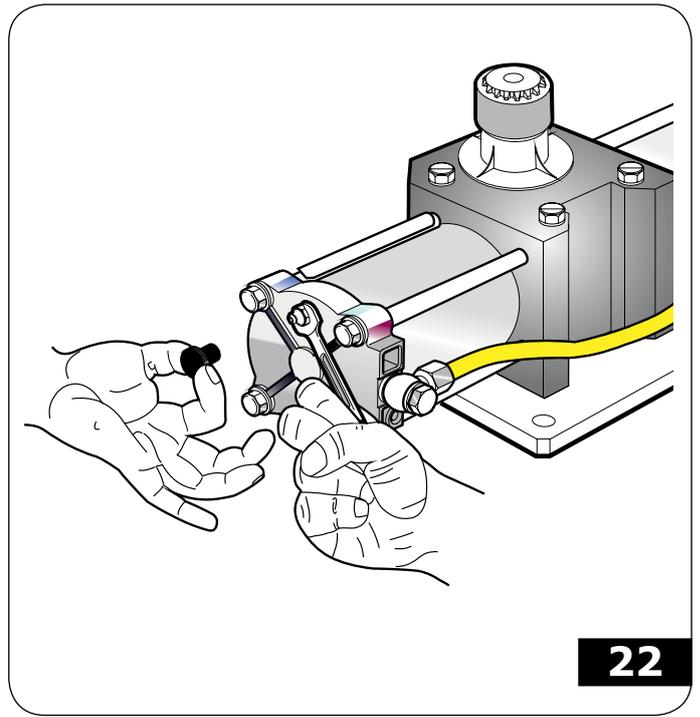
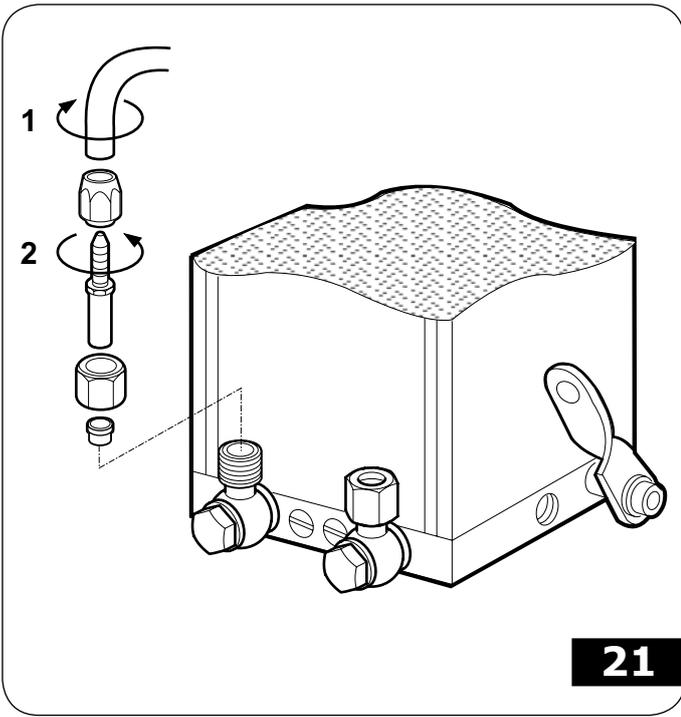
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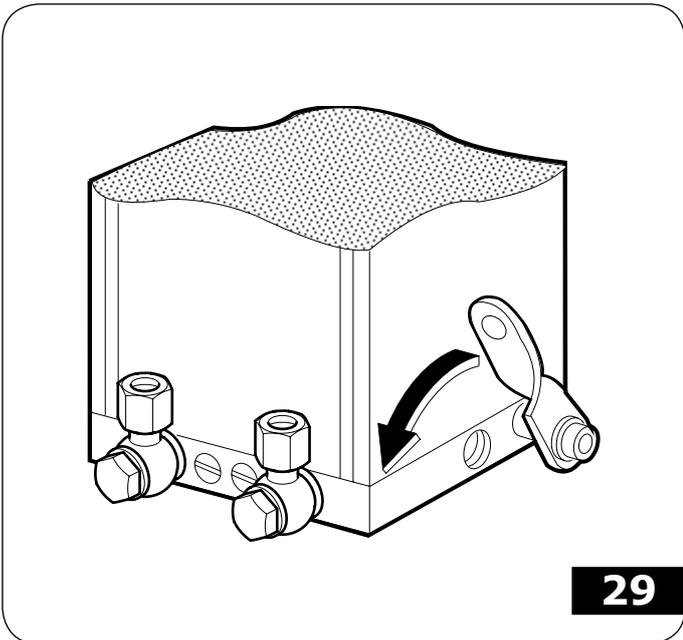
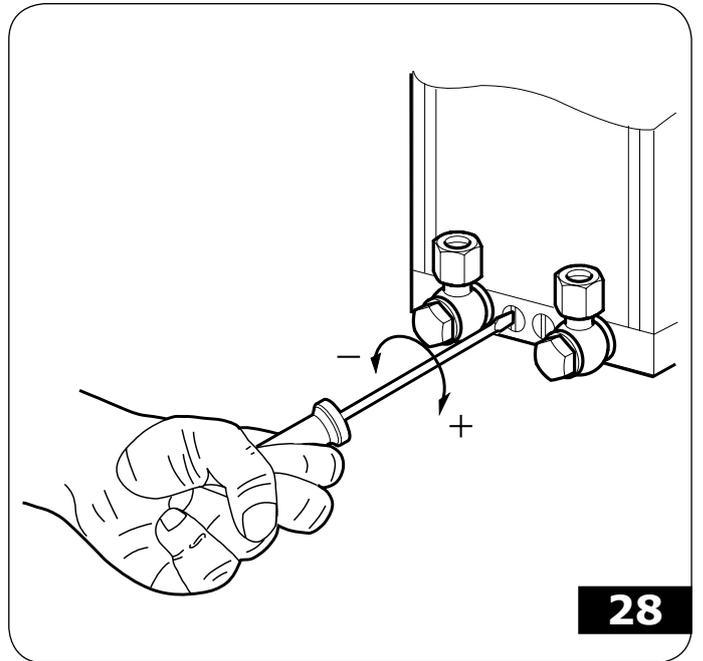
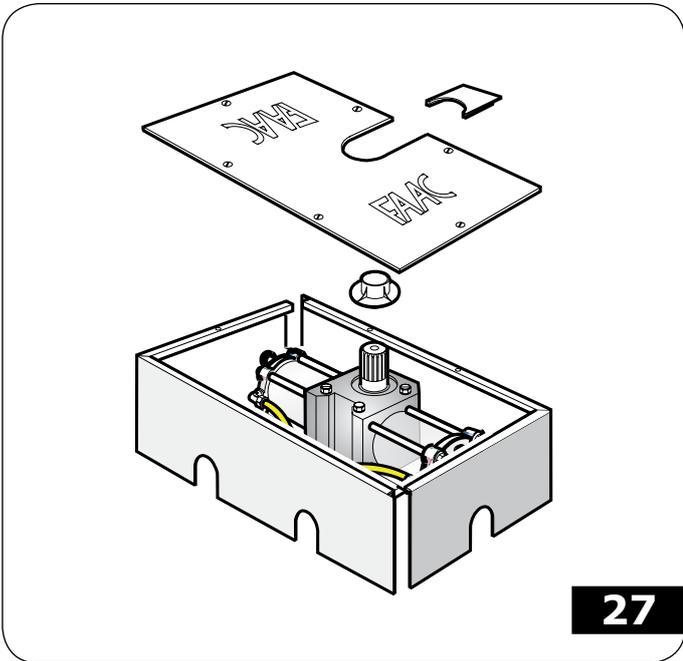
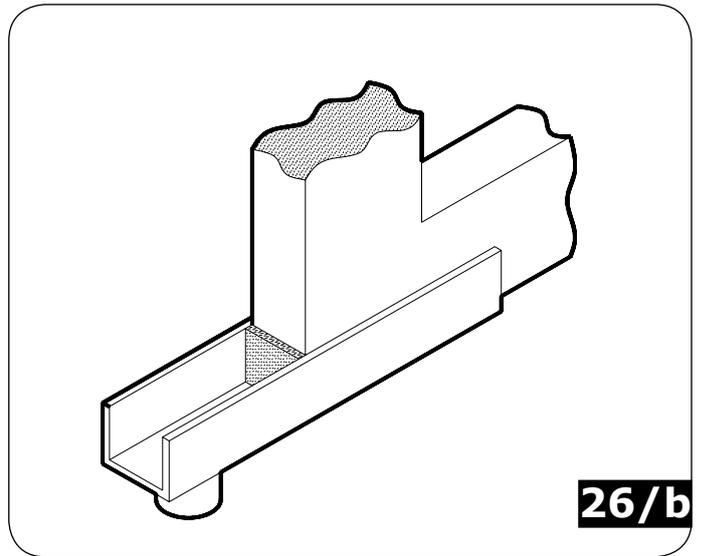
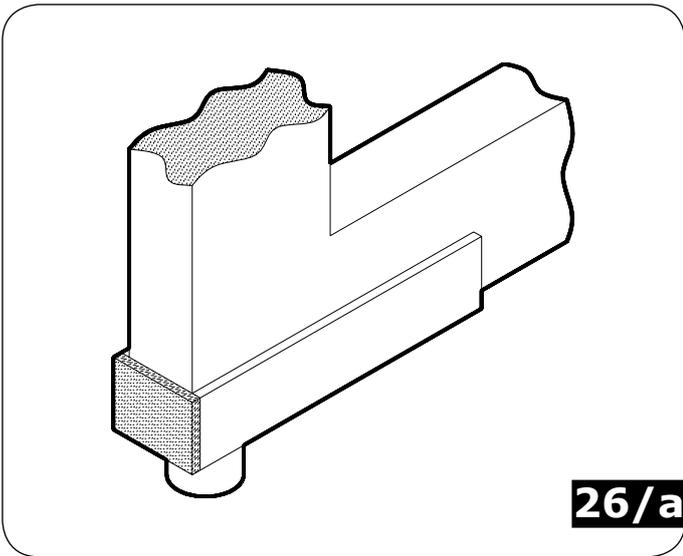


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# USER MANUAL

## 750 AUTOMATED SYSTEM

Carefully read the instructions before using the product and keep for future use.

### GENERAL SAFETY RULES

The 750 automated system, if correctly installed and used, guarantees a high level of safety.

A few simple rules can avoid accidental inconveniences:

- Do not stand and do not allow children, people or things to stand near the automated system, especially during operation.
- Keep out of the reach of children all remote controls or any other pulse emitter that may involuntarily activate the automated system.
- Do not allow children to play with the automated system.
- Do not voluntarily prevent movement of the automated system.
- Remove any branches or bushes that may interfere with movement of the gate.
- Ensure that the system light signals are kept efficient and are perfectly visible.
- Do not attempt to manually operate the gate unless it has been released.
- In case of malfunction, release the gate to allow access and wait for the technical intervention of qualified personnel.
- Once manual operation is prepared for, before restoring normal operation, cut off power to the system.
- Do not modify any of the automated system components.
- Do not attempt repairs or direct intervention and refer only to qualified FAAC personnel.
- Have the efficiency of the automated system, the safety devices and the earthing checked at least every 6 months by qualified personnel.

### DESCRIPTION

The FAAC 750 automated system is ideal for controlling vehicle access in residential areas.

The 750 system makes it possible to automate, in a virtually invisible way, leaf gates.

The automated system consists of an underground jack that transmits movement to the leaf and a hydraulic control unit that is usually fitted on the gate post. The two components are connected to each other using copper pipes or flexible tubes. If automatic operation has been set, by sending a pulse, the gate will close again only after the selected pause time has elapsed.

If semi-automatic operation has been set, it is necessary to send a second pulse for it to close again.

An OPEN pulse sent during the closing phase will always cause reverse movement.

A STOP pulse (if this feature is present) will always stop movement.

For detailed behaviour of the leaf gate in the various operation logic modes, refer to the installation technician.

The automated systems feature safety devices (photocells) that prevent closing the gate again when an obstacle is present in the area monitored by them.

The system guarantees hydraulic locking when the motor is not in operation and therefore installation of a lock is not required (only CBAC version).

Manual opening is therefore possible only by using the installed release system.

750 operators are equipped with special adjustable by-pass valves that allow safe use of the automated system.

The electronic control equipment is built into the provided box.

A handy manual release makes it possible to manoeuvre the gate in case of black-out or inefficiency

The light signal indicates that gate movement is in progress.

## MANUAL OPERATION

Should manually operating the gate be required due to power cut-offs or automated system inefficiency, use the release device as described below.

- Open the guard door using the provided triangular key (see Fig. 1).
- Manually turn anticlockwise the release lever shown in fig. 2.
- Close the door and manually open or close the gate.

## RESTORING NORMAL OPERATION.

- Open the guard door using the provided triangular key (see Fig. 1).
- Manually turn clockwise the release lever shown in fig. 2 until it reaches the mechanical stop.
- Close the guard door.

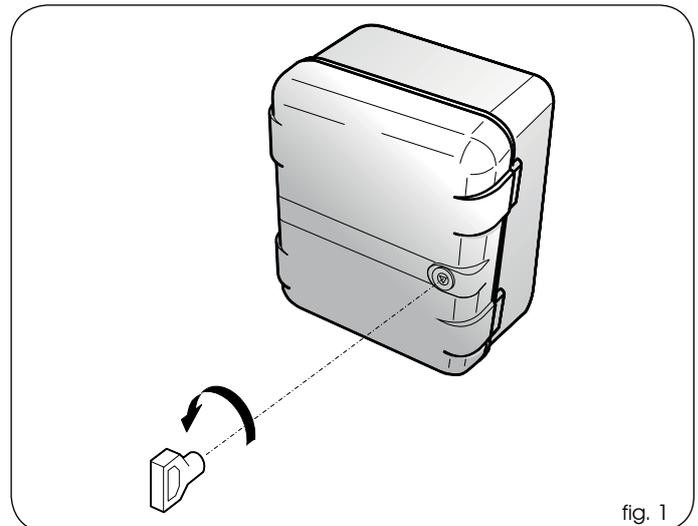


fig. 1

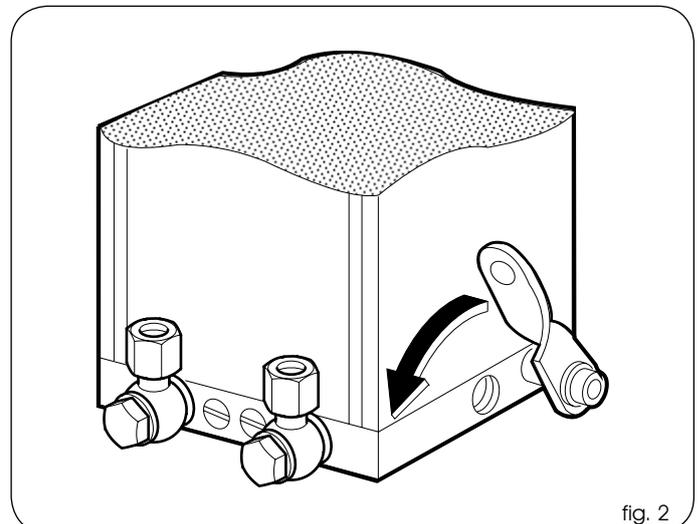


fig. 2



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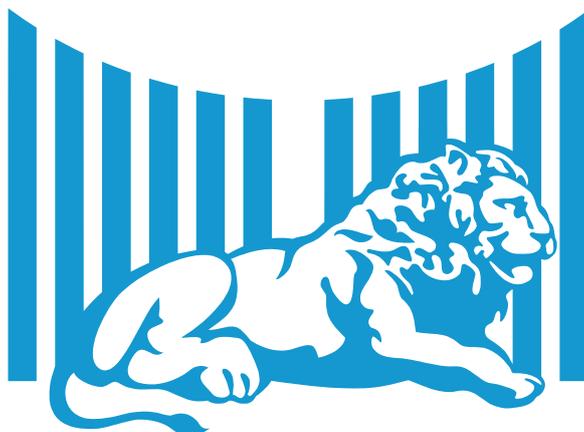
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