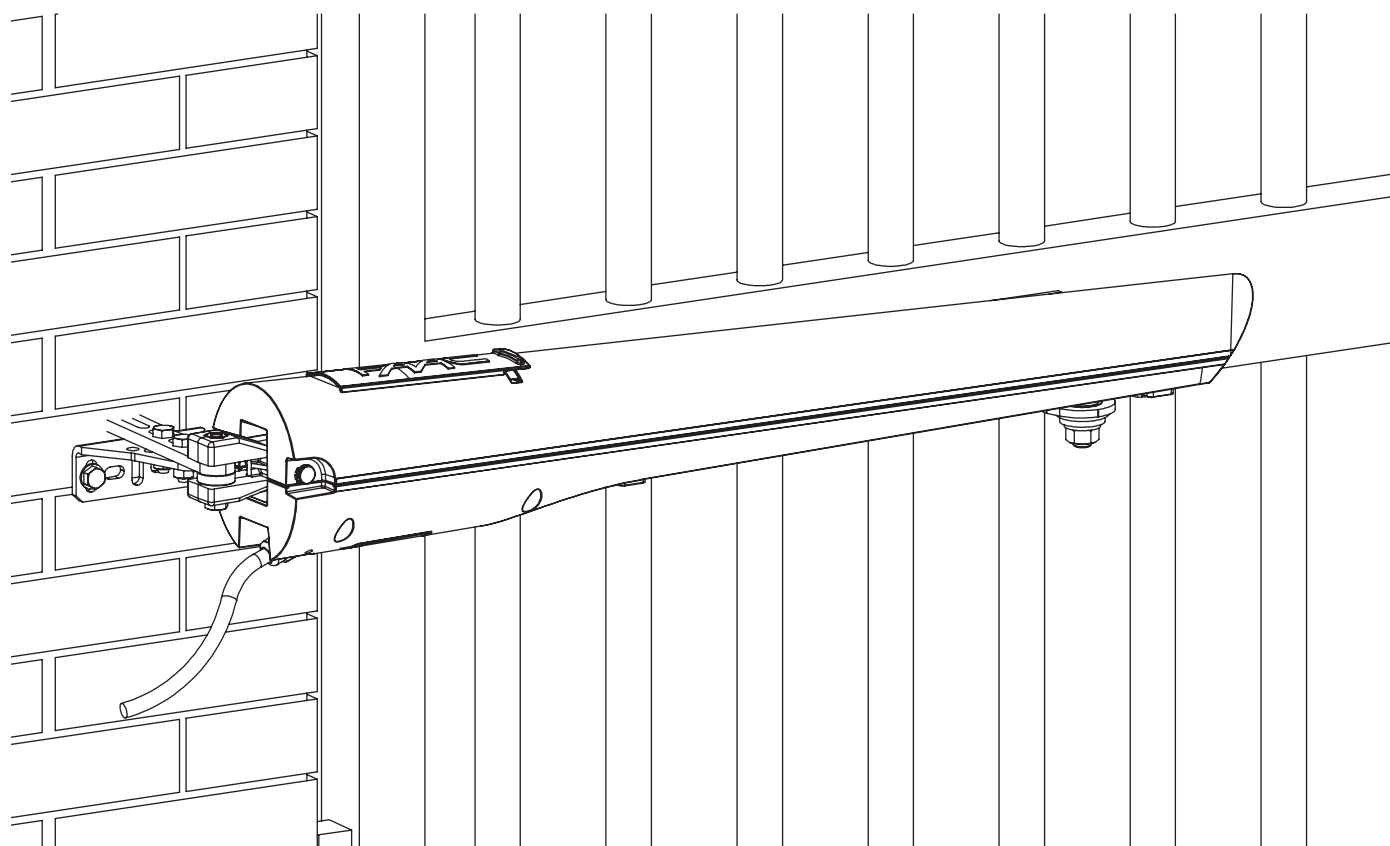


# S418



**FAAC**

# CE DECLARATION OF CONFORMITY FOR MACHINES (DIRECTIVE 98/37/EC)

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

**Address:** Via Benini, 1 - 40069 - Zola Predosa - Bologna - ITALY

**Declares that:** Operator mod. **S418**

- is built to be integrated into a machine or to be assembled with other machinery to create a machine under the provisions of Directive 98/37/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 89/392/EEC and subsequent modifications assimilated in Italian National legislation under Presidential decree No.459 of 24 July 1996.


Bologna, 6 March 2009

Managing Director  
A. Maccellari

ENGLISH

## IMPORTANT NOTICE FOR THE INSTALLER


### GENERAL SAFETY REGULATIONS


 **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.

1. Carefully read the instructions before beginning to install the product.
2. Do not leave packing materials (plastic, polystyrene, etc.) within reach of children as such materials are potential sources of danger.
3. Store these instructions for future reference.
4. 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.
5. FAAC declines all liability caused by improper use or use other than that for which the automated system was intended.
6. Do not install the equipment in an explosive atmosphere: the presence of inflammable gas or fumes is a serious danger to safety.
7. The mechanical parts must conform to the provisions of Standards EN 12604 and EN 12605.
8. 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.
11. Before attempting any job on the system, cut out electrical power and disconnect the batteries.
12. The mains power supply of the automated system must be fitted with an all-pole switch with contact opening distance of 3mm 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 means 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 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. The application cannot be used by children, by people with reduced physical, mental, sensorial capacity, or by people without experience or the necessary training.
24. Keep remote controls or other pulse generators away from children, to prevent the automated system from being activated involuntarily.
25. Transit through the leaves is allowed only when the gate is fully open.
26. The User must not in any way attempt to repair or to take direct action and must solely contact qualified FAAC personnel or FAAC service centres.
27. Anything not expressly specified in these instructions is not permitted.

### Notes on reading the instruction

Read this installation manual to the full before you begin installing the product.

The symbol  indicates notes that are important for the safety of persons and for the good condition of the automated system.

The symbol  draws your attention to the notes on the characteristics and operation of the product.

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# S418 AUTOMATED SYSTEM

## 1. DESCRIPTION

The S418 automated system for swing-leaf gates is an electromechanical operator which transmits its movement to the leaf by means of a Worm-screw system.

The irreversible system guarantees mechanical locking of the leaf when the motor is not operating. An easy-to-use release device permits movement of the leaf in case of malfunction or a power cut.

The low-voltage operation permits buffer batteries to be connected, thus compensating for temporary power cuts.

The adjustable rear bracket permits the operator to be installed on the most varied types of gates.

**⚠ Correct operation and the stated features are only obtained using accessories, safety devices and control unit from FAAC.**

*The lack of a mechanical clutch device requires, in order to guarantee the necessary anti-crushing safety system, the use of a control unit with adjustable electronic clutch.*

*The S418 automated system has been designed and constructed to control vehicle access in residential units; any other use must be avoided.*

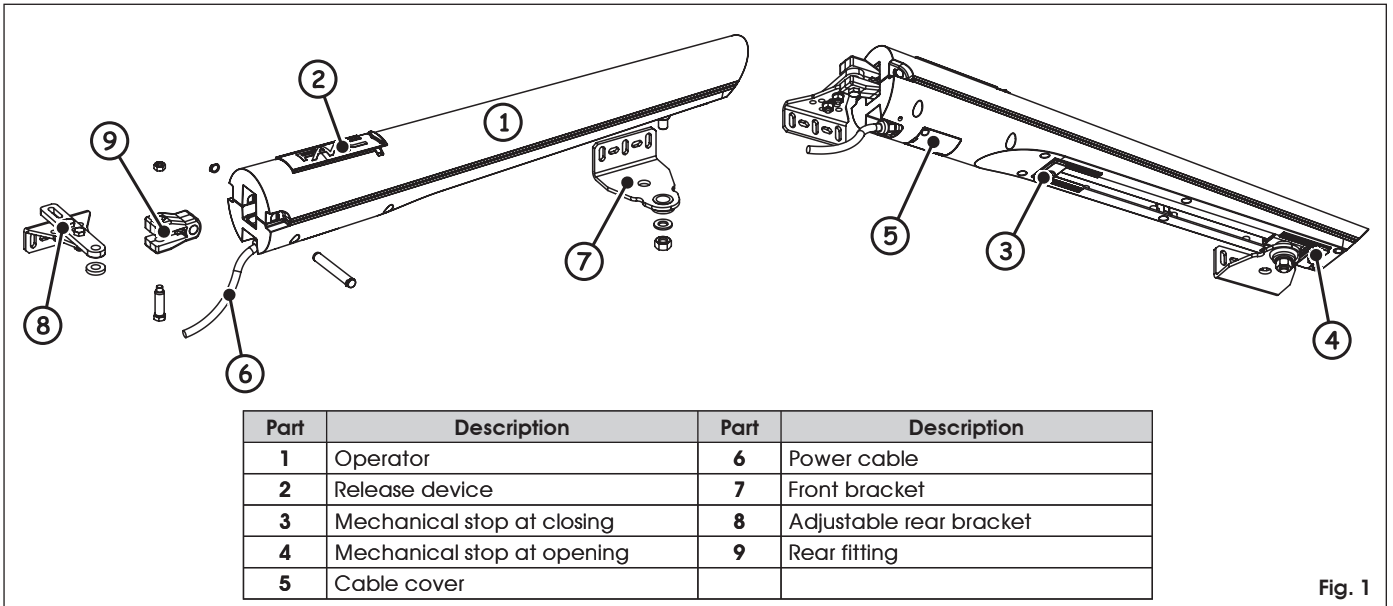


Fig. 1

### 1.1. DIMENSIONS

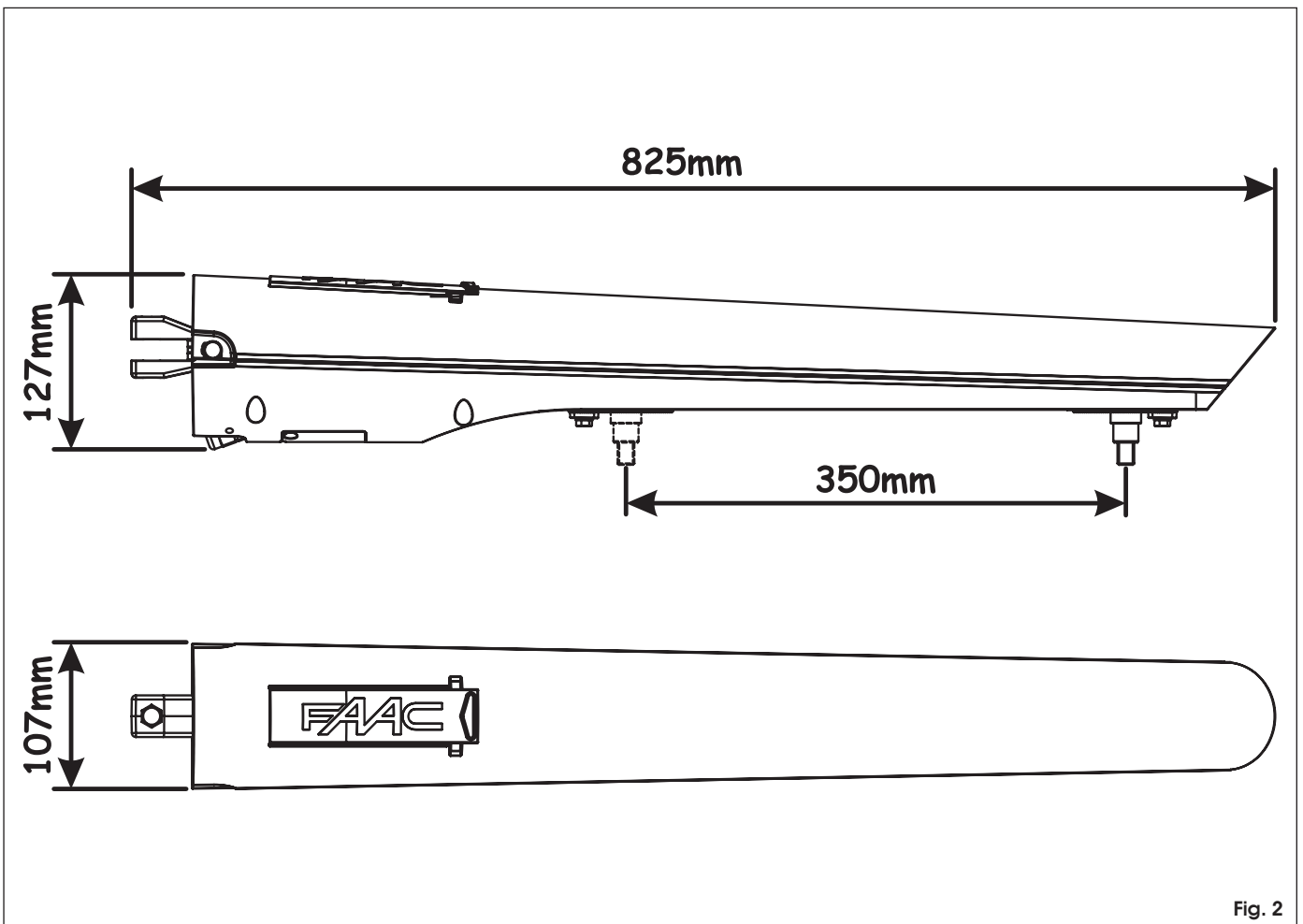


Fig. 2

## 2. TECHNICAL SPECIFICATIONS

Technical specifications	S418
Power supply (Vdc)	24
Nominal power (W)	35
Absorbed current (A)	1.5
Maximum thrust force (daN)	180
Stroke (mm)	350 <sup>ⓐ</sup>
Speed (cm/sec)	1.8
Maximum size of leaf (m)	2.7 <sup>ⓑ</sup>
Type and frequency of use at 20°C	80 cycles/day
Consecutive cycles at 20°C	30
Operating ambient temperature (°C)	-20 +55
Operator weight (KG)	6
Protection class	IP54
Operator dimensions	See fig. 2

<sup>ⓐ</sup> If you should not wish to use the mechanical stops on opening and closing, the operator stroke becomes 390 mm.

<sup>ⓑ</sup> With leaves of over 2.3 m, an electric lock must be installed to ensure locking of the leaf.

## 3. INSTALLATION

### 3.1. ELECTRICAL PREPARATIONS (standard system)

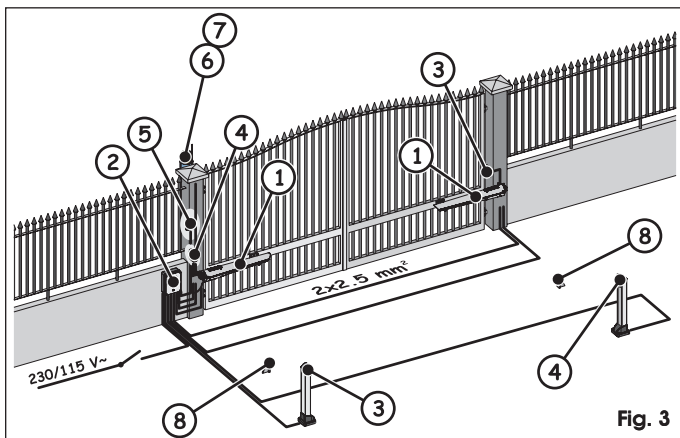


Fig. 3

Part	Description	Cables
1	Operators	Supplied
2	Control unit	3x1.5 mm <sup>2</sup> (power supply)
3	TX photocells	4x0.5 mm <sup>2</sup> (2x0.5 mm <sup>2</sup> Bus)
4	RX photocells	2x0.5 mm <sup>2</sup>
5	Key selector	2x0.5 mm <sup>2</sup> (1 contact) 3x0.5 mm <sup>2</sup> (2 contacts)
6	Flashing lamp	2x1.5 mm <sup>2</sup>
7	External antenna	Coaxial cable
8	Mechanical stops	

To lay the electrical cables, use adequate rigid and/or flexible tubes.

To avoid any type of interference, we advise you to always separate the low-voltage accessories and command connection cables from the power supply cables, using separate sheaths.

### 3.2. PRELIMINARY CHECKS

For correct operation of the automated system, the structure of the existing gate, or that to be fitted, must have the following requisites:

- The mechanical construction parts must conform to the provisions of Standards EN 12604 and EN 12605.
- The length of leaf must conform to what is shown in the technical characteristics of the operator (paragraph 2).
- The structure of the leaves must be sturdy and rigid, suitable for an automated system.
- There must be regular and uniform movement of the leaves, with

no rubbing or sticking along their entire movement.

- Hinges must be suitably sturdy and in good condition
- Mechanical opening and closing stop-points must be present on the ground (not necessary if mechanical operator stops are used).

It is recommended that any metalwork operations should be performed prior to installing the automated system.

The structure of the gate directly influences the reliability and safety of the automated system.

### 3.3. INSTALLATION VALUES

Determine the assembly position of the operator, referring to figure 4 and related table. It is a good idea at this stage to choose whether you want to use the mechanical operator stops or not; this is because eliminating the mechanical stops increases the working stroke of the operator and values **A** and **B** must be changed.

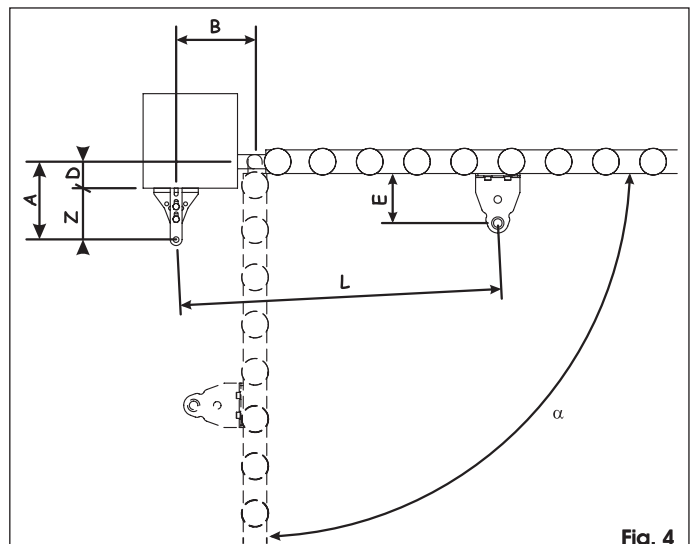


Fig. 4

	$\alpha$	A	B	C <sup>ⓐ</sup>	D <sup>ⓑ</sup>	Z <sup>ⓐ</sup>	L	E <sup>ⓐ</sup>
With mechanical stops	90°	165	165	330	90	75	690	105
		175	175	350	90	85	690	105
	110°	150	150	340	80	70	690	105
With mechanical stop at opening	90°	175	165	340	100	75	708	105
		180	180	360	100	80	708	105
	110°	160	160	360	90	70	708	105
With no stops	90°	180	180	360	110	70	708	105
	110°	170	170	380	100	70	708	105

<sup>ⓐ</sup> Working stroke of the operator.

<sup>ⓑ</sup> Maximum value.

<sup>ⓐ</sup> Minimum value.

Once the operator has been installed, check that the value of "X" in figure 5 is greater than 500 mm. If the value of "X" is less than 500 mm, an impact test must be performed as described by standard UNI EN 12445, checking that the values found comply with what is established by standard UNI EN 12453. If the values found should not correspond to what is established by the standard, the area MUST be protected with a protecting device complying with standard UNI EN 12978.

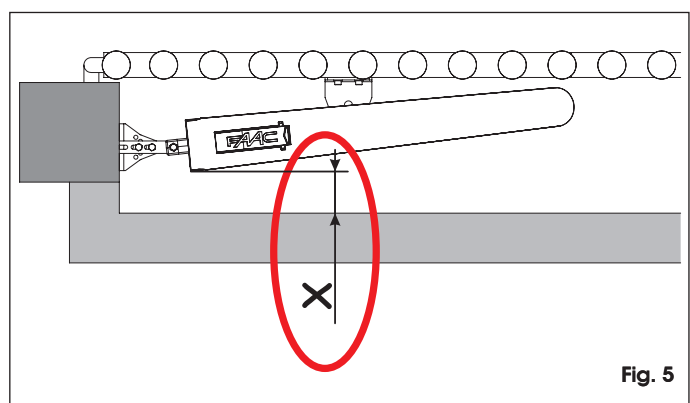


Fig. 5

If the size of the pilaster or the position of the hinge should not permit installation of the operator, a niche will have to be made in the pilaster in order not to change value **A**, as indicated in figure 6. The size of the niche must be such as to permit easy installation of the operator, not limiting its rotation and allowing activation of the release device.

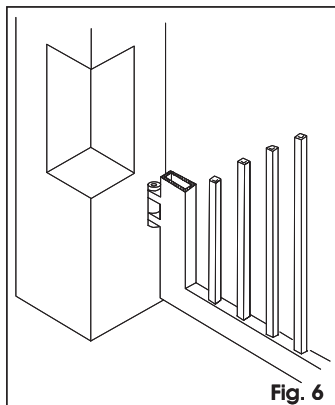


Fig. 6

The rear bracket, adjustable to different positions, facilitates the installation procedure, being adaptable to different types of gate and limiting any modifications necessary to satisfy installation values **A** and **B**. Figure 7 shows certain positions which the bracket can take; all positions intermediate to those shown may be obtained.

Positions must be chosen which permit assembly of the bracket, using both the securing screws.

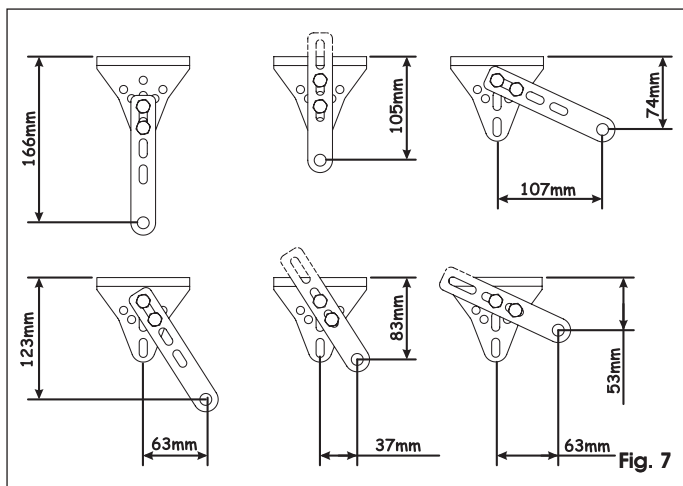


Fig. 7

### 3.3.1. GENERAL RULES FOR DETERMINATION OF THE INSTALLATION VALUES

- To obtain opening of the leaf to  $90^\circ$  :  $A+B=C$ .
- To obtain opening of the leaf more than  $90^\circ$  :  $A+B < C$
- Lower values of **A** and **B** produce higher peripheral leaf speeds.
- Limit the difference between value **A** and value **B** to within 4 cm, greater differences cause variations in speed during movement of the gate on opening and closing.
- Keep the value **Z** so that the operator does not strike against the pilaster.
- The mechanical stops intervene in the first and final 50 mm of the stroke. Not exploiting the entire operator stroke could limit the field of regulation or reduce it to zero.

### 3.4. INSTALLATION OF THE OPERATORS

To correctly install the operators, follow the procedure indicated:

1. Secure the fixed part of the rear bracket in the position determined previously, using suitable assembly systems. In the case of iron pillars, the bracket may be welded directly to the pilaster, see figures 8 and 9.

During assembly procedures, check that the bracket is perfectly horizontal using a spirit level.

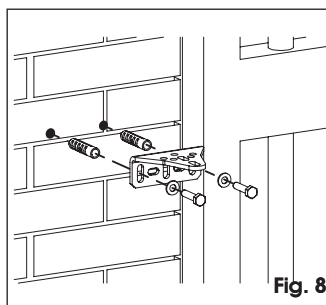


Fig. 8

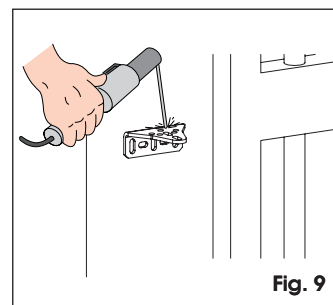


Fig. 9

2. Secure the rear bracket, as indicated in figure 10, so as to satisfy values **A** and **B** determined previously.

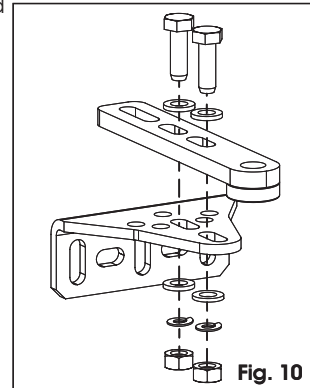


Fig. 10

3. Secure the rear fitting of the operator as indicated in figure 11.

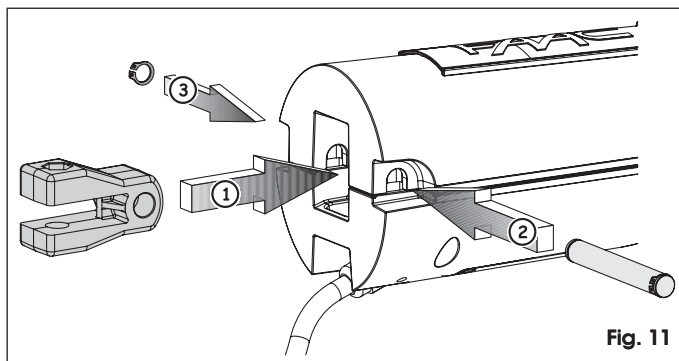


Fig. 11

4. Check that the front fitting is in the position indicated in figure 12 (with the mechanical stop at closing) or in figure 13 (with no mechanical stop at closing). If this should not occur, the operator must be temporarily powered, in order to bring the fitting into position.

To do this, a 12 V DC battery may be used.

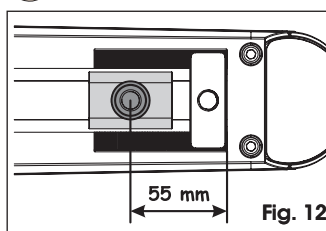


Fig. 12

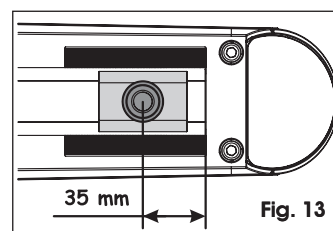


Fig. 13

5. Secure the front bracket as indicated in figure 14.

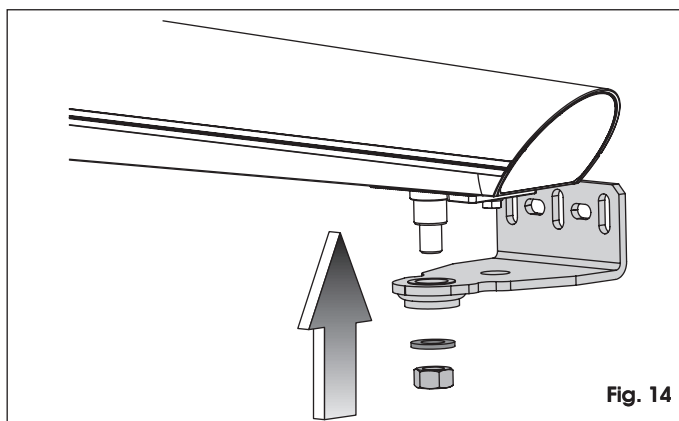


Fig. 14

- 6. Secure the operator to the rear bracket using the appropriate bolt supplied, as indicated in figure 15.

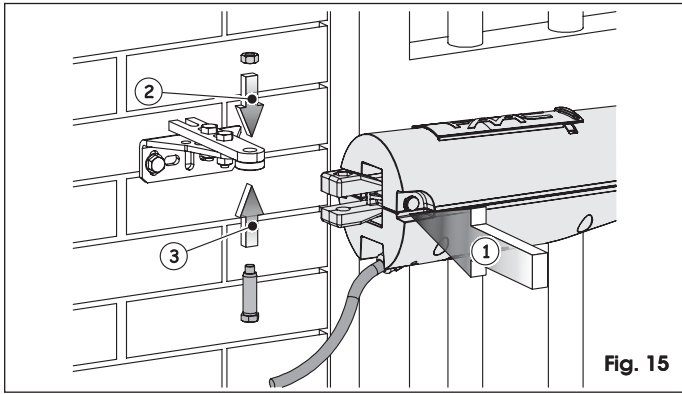


Fig. 15

- 7. Bring the leaf of the gate to the closure position.
- 8. Bring the operator, together with the related bracket, alongside the leaf.
- 9. Check that the operator is horizontal using a spirit level, as indicated in figure 16, and provisionally secure it with clamps or two welding points.

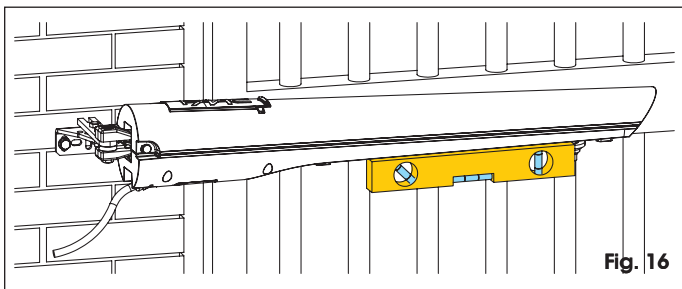


Fig. 16

The axis of the securing holes of the front bracket must be aligned with the axis of the securing holes of the rear bracket, see figure 17. If the structure of the gate should not permit reliable securing, the structure of the gate must be adapted to provide a solid supporting base.

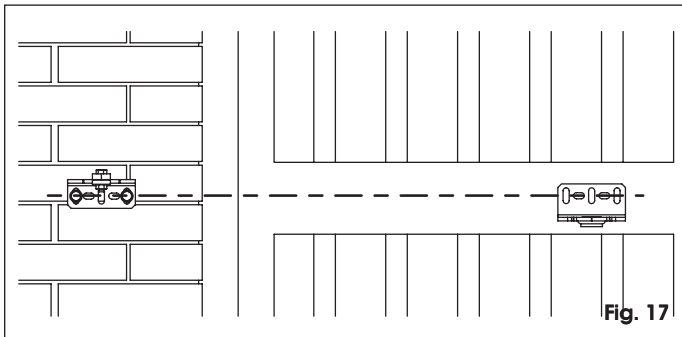


Fig. 17

- 10. Prepare the operator for manual operation, see paragraph 5, and move the leaf manually, checking that it completes the entire opening operation required, stopping at the mechanical stops.

If, during the test, the operator should strike against the leaf of the gate, value **E** may be increased, see figure 4, up to a maximum of 115 mm, using appropriate spacers placed between the front bracket and the leaf of the gate.

- 11. Perform any corrective measures necessary and repeat the procedures from point 9.
- 12. Definitively secure the front bracket, using a suitable securing system as indicated in figure 18.

If it is decided to weld the bracket directly onto the leaf, the operator must be released temporarily. Wait for the bracket to cool before reassembling the operator.

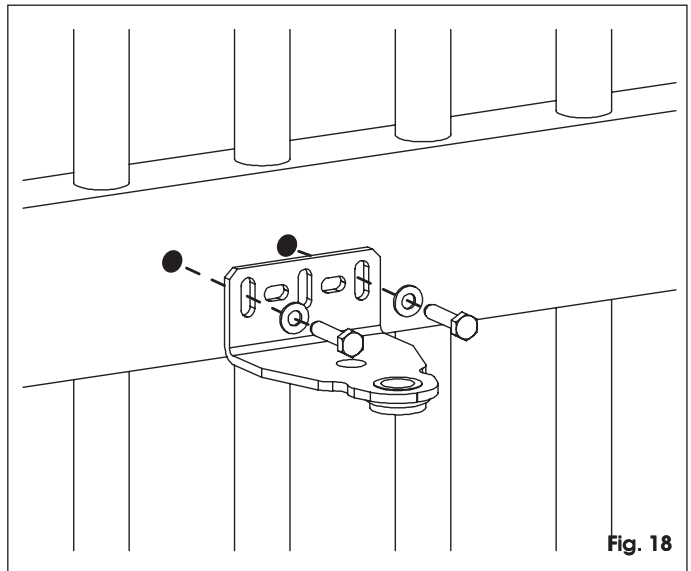


Fig. 18

**3.5. WIRING THE OPERATOR**

The operator is supplied with the cable already wired. If the cable has to be replaced, a cable for outside mobile laying must be used ( e.g. **H07RN-F**).

**3.6. MECHANICAL STOPS**

The **S418** operator is supplied with mechanical stops on opening and closing as standard. These may be used in place of the mechanical stop-points for the leaf. For adjustment of the stops, proceed as follows:

**3.6.1. MECHANICAL STOP AT OPENING**

1. Prepare the operator for manual operation, see paragraph 5.
2. Manually bring the leaf into the opening position.
3. Loosen the securing screw, figure 19 ref. ①. The screw does not need to be completely removed.
4. Move the mechanical stop until it is close to the front fitting, as indicated in figure 20.
5. Tighten the securing screw once again.

The mechanical stop is coupled to a toothed sector, figure 19 ref. ②. In the case of obstructions during movement, check that the coupling is free. DO NOT USE FORCE.

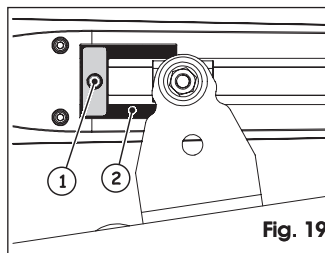


Fig. 19

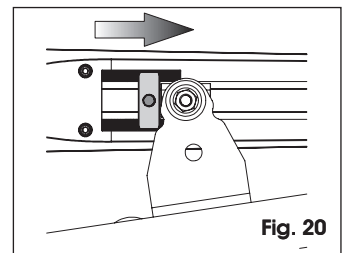


Fig. 20

**3.6.2. MECHANICAL STOP AT CLOSING**

1. Prepare the operator for manual operation, see paragraph 5.
2. Manually bring the leaf into the closing position.
3. Loosen the securing screw, figure 21 ref. ①. The screw does not need to be completely removed.
4. Move the mechanical stop until it is close to the front fitting, as indicated in figure 22.
5. Tighten the securing screw once again.

The mechanical stop is coupled to a toothed sector, figure 21 ref. ②. In the case of obstructions during movement, check that the coupling is free. DO NOT USE FORCE.

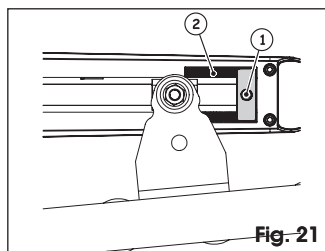


Fig. 21

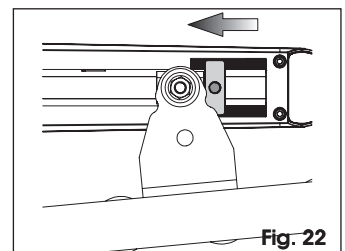


Fig. 22

#### 4. AUTOMATED SYSTEM TEST

- Once all the necessary electrical connections have been made, power up the system and programme the control unit on the basis of individual needs (see relevant instructions).
- Perform the test of the automated system and of all connected accessories, paying special attention to safety devices.
- Give the booklet "User guide" to the final user and instruct him/her on the correct operation and use of the automated system.

#### 5. MANUAL OPERATION

If the automated system should need to be moved manually, owing to a power cut or operator malfunction, act as follows on the release device:

1. Switch off the power supply to the system using the differential switch located upstream the system.
2. Slide off the protective cap, figure 23 ref. ①.
3. Insert the release key supplied, figure 23 ref. ②, and turn it anticlockwise until it stops, figure 23 ref. ③. The release position is indicated by an open padlock.
4. Move the leaf manually.

**⚠ To keep the operator in manual operation mode, the release device must categorically be left in its current position and the system not be powered.**

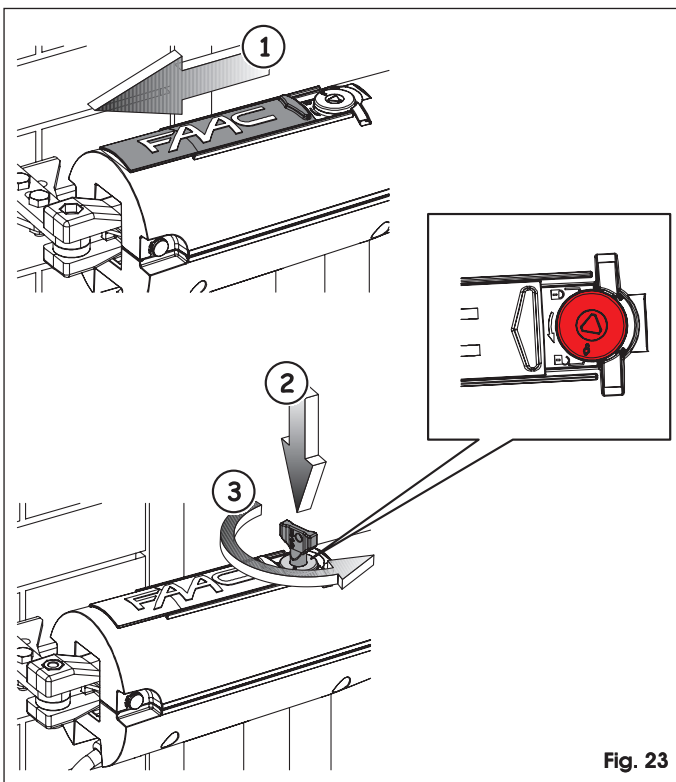


Fig. 23

##### 5.1. RESTORING NORMAL OPERATION

To restore normal operation mode, proceed as follows:

1. Ensure that the system is not powered.
2. Turn the release key clockwise until it stops, figure 24 ref. ①, and remove the key, figure 24 ref. ②. The locking position is indicated by a closed padlock.
3. Close the protective cap, figure 24 ref. ③.
4. Manually move the leaf until you note the engaging of the device; the leaf locks.
5. Power the system and perform a few operations to check that all functions of the automated system have been restored.

**👉** During the first cycle, the operator might not slow down correctly. However, wait for the end of the cycle and then give the opening command once again.

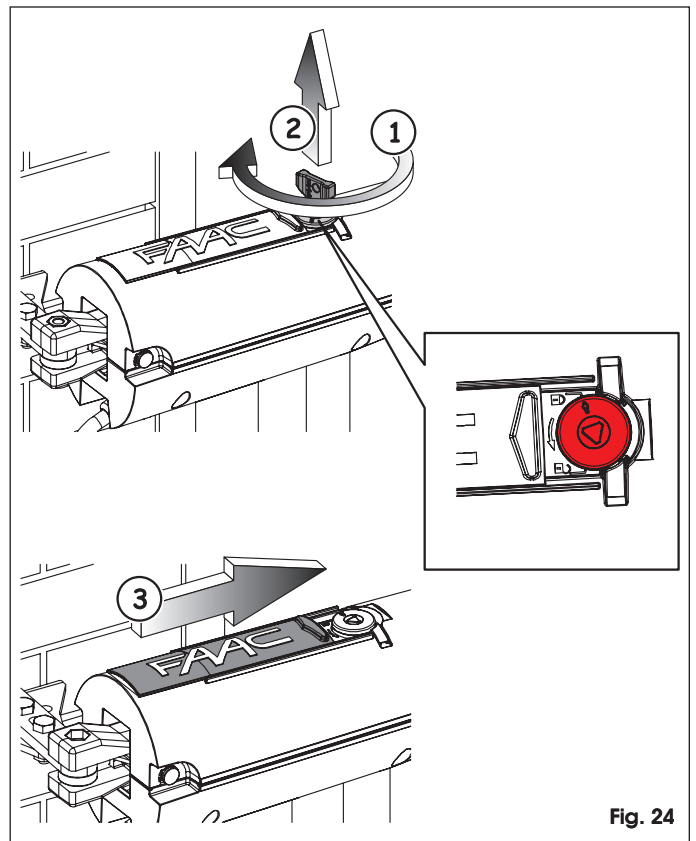


Fig. 24

#### 6. SPECIAL APPLICATIONS

Applications other than those described in the present manual are EXPRESSLY FORBIDDEN.

#### 7. MAINTENANCE

In order to ensure correct operation and constant safety over time, make a general check of the system every six months, paying special attention to the safety devices. In the booklet "User guide", a form has been prepared for the recording of maintenance operations.

#### 8. REPAIRS

The user must not carry out any repairs or maintenance operations; these must be effected only and exclusively by qualified FAAC personnel or FAAC service centres.

#### 9. ACCESSORIES

For the available accessories see the FAAC catalogue.

Le descrizioni e le illustrazioni del presente manuale non sono impegnative. La FAAC si riserva il diritto, lasciando inalterate le caratteristiche essenziali dell'apparecchiatura, di apportare in qualunque momento e senza impegnarsi ad aggiornare la presente pubblicazione, le modifiche che essa ritiene convenienti per miglioramenti tecnici o per qualsiasi altra esigenza di carattere costruttivo o commerciale.

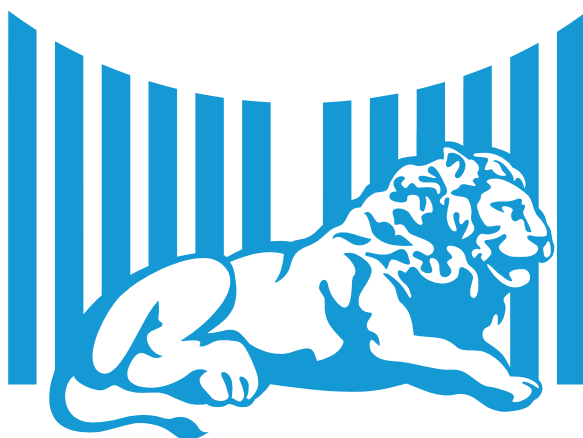
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