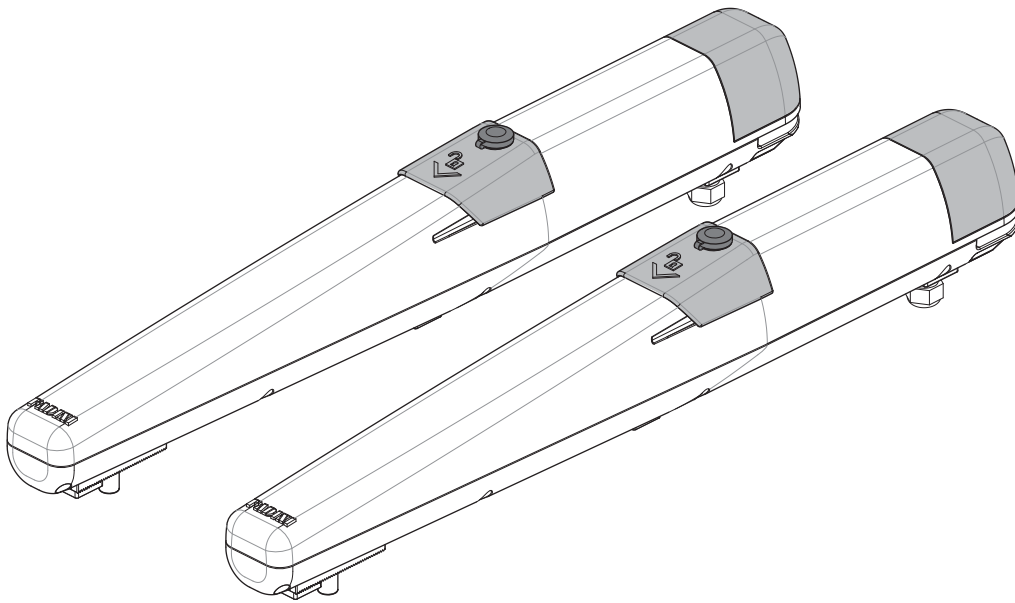
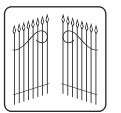


# DARDO 424 - 24 Vdc



EN 13241  
EN 12453  
EN 12445

Made in Italy



**FADINI**  
the gate opener

## GENERAL WARNINGS FOR PEOPLE SAFETY

### INTRODUCTION

This operator is designed for a specific scope of applications as indicated in this manual, including safety, control and signaling accessories as minimum required with **FADINI** equipment. □ Any applications not explicitly included in this manual may cause operation problems or damages to properties and people. □ Meccanica Fadini snc is not liable for damages caused by the incorrect use of the equipment, or for applications not included in this manual or for malfunctioning resulting from the use of materials or accessories not recommended by the manufacturer. □ The manufacturer reserves the right to make changes to its products without prior notice. □ All that is not explicitly indicated in this manual is to be considered not allowed.

### BEFORE INSTALLATION

Before commencing operator installation assess the suitability of the access, its general condition and the structure. □ Make sure that there is no risk of impact, crushing, shearing, conveying, cutting, entangling and lifting situations, which may prejudice people safety. □ Do not install near any source of heat and avoid contacts with flammable substances. □ Keep all the accessories able to turn on the operator (transmitters, proximity readers, key-switches, etc) out of the reach of the children. □ Transit through the access only with stationary operator. □ Do not allow children and/or people to stand in the proximity of a working operator. □ To ensure safety in the whole movement area of a gate it is advisable to install photocells, sensitive edges, magnetic loops and detectors. □ Use yellow-black strips or proper signals to identify dangerous spots. □ Before cleaning and maintenance operations, disconnect the appliance from the mains by switching off the master switch. □ If removing the actuator, do not cut the electric wires, but disconnect them from the terminal box by loosening the screws inside the junction box.

### INSTALLATION

All installation operations must be performed by a qualified technician, in observance of the Machinery Directive 2006/42/CE and safety regulations EN 12453 - EN 12445. □ Verify the presence of a thermal-magnetic circuit breaker 0,03 A - 230 V - 50 Hz upstream the installation. □ Use appropriate objects to test the correct functionality of the safety accessories, such as photocells, sensitive edges, etc. □ Carry out a risk analysis by means of appropriate instruments measuring the crushing and impact force of the main opening and closing edge in compliance with EN 12445. □ Identify the appropriate solution necessary to eliminate and reduce such risks. □ In case where the gate to automate is equipped with a pedestrian entrance, it is appropriate to prepare the system in such a way to prohibit the operation of the engine when the pedestrian entrance is used. □ Apply safety nameplates with CE marking on the gate warning about the presence of an automated installation. □ The installer must inform and instruct the end user about the proper use of the system by releasing him a technical dossier, including: layout and components of the installation, risk analysis, verification of safety accessories, verification of impact forces and reporting of residual risks.

### INFORMATION FOR END-USERS

The end-user is required to read carefully and to receive information concerning only the operation of the installation so that he becomes himself responsible for the correct use of it. □ The end-user shall establish a written maintenance contract with the installer/maintenance technician (on -call). □ Any maintenance operation must be done by qualified technicians. □ Keep these instructions carefully.

### WARNINGS FOR THE CORRECT OPERATION OF THE INSTALLATION

For optimum performance of system over time according to safety regulations, it is necessary to perform proper maintenance and monitoring of the entire installation: the automation, the electronic equipment and the cables connected to these. □ The entire installation must be carried out by qualified technical personnel, filling in the Maintenance Manual indicated in the Safety Regulation Book (to be requested or downloaded from the site [www.fadini.net/supporto/downloads](http://www.fadini.net/supporto/downloads)).

□ Operator: maintenance inspection at least every 6 months, while for the electronic equipment and safety systems an inspection at least once every month is required. □ The manufacturer, Meccanica Fadini snc, is not responsible for non-observance of good installation practice and incorrect maintenance of the installation.

### DISPOSAL OF MATERIALS

Dispose properly of the packaging materials such as cardboard, nylon, polystyrene etc. through specializing companies (after verification of the regulations in force at the place of installation in the field of waste disposal). Disposal of electrical and electronic materials: to remove and dispose through specializing companies, as per Directive 2012/19/UE. Disposal of substances hazardous for the environment is prohibited.



### CE DECLARATION OF CONFORMITY of the manufacturer:

Meccanica Fadini snc (Via Mantova, 177/A - 37053 Cerea - VR - Italy) declares under own responsibility that: **Dardo 424** complies with the 2006/42/CE Machinery Directive, and also that it is sold to be installed in an "automatic system", along with original accessories and components as indicated by the manufacturing company. An automatic gate operator is, by law, a "machinery" and therefore the installer must fit the equipment with all of the applicable safety norms. The installer is also required to issue the installer's Declaration of Conformity. The manufacturer is not liable for possible incorrect use of the product. The product complies with the following specific norms: analysis of the risks and subsequent action to cure them as per EN 12445 and EN 12453, Low Voltage Directive 2014/35/UE, Electromagnetic Compatibility 2014/30/UE. In order to certify the product, the manufacturer declares under own responsibility the compliance with the EN 13241-1 PRODUCT NORMS.

This product complies with the following norms:

CPD 89/106/CE DM 2006/42/CE BT 2006/45/CE EMC 2004/108/CE R&TTE 99/5/CE.

Meccanica Fadini s.n.c.  
Director in charge



**GENERAL DESCRIPTION OF THE PRODUCT**

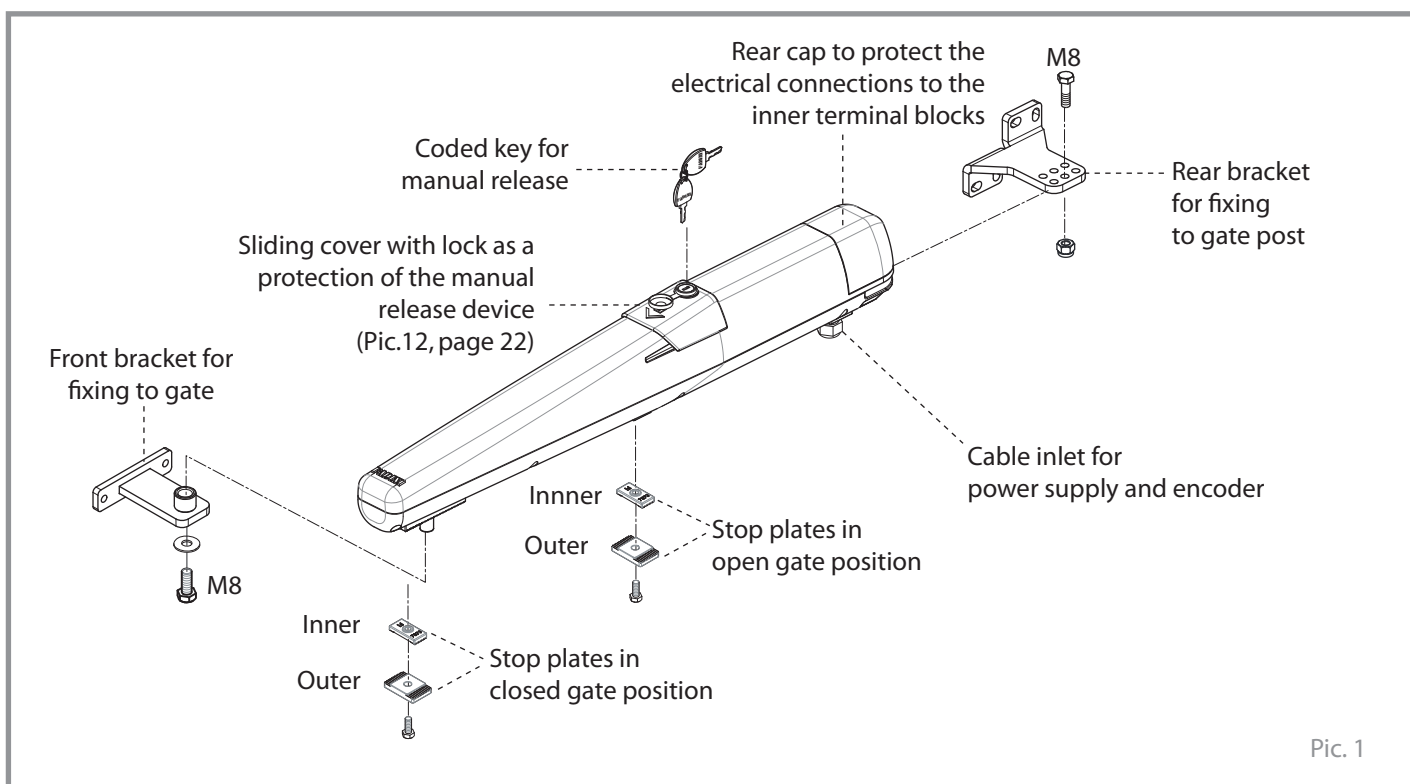
**Dardo 424** is a 24 Vdc electromechanical operator for external mount on swinging gates in residential and block of flats applications. It comes in a kit format to operate two gate leaves. Command and safety accessories for a proper performance are included. It is a non reversible, 24 Vdc power supplied motor-operator, complete with an incorporated encoder. Stop plates are fitted to the pressure cast aluminium body. The linear movements are by a brass shaft nut (threaded bush) and a screw shaft (rolled thread), all supported by a radial bearing and a lubricated bushing.

In case of an electric power failure, Dardo 424 can be "released" by a custom-made, coded key and the gates moved by hand. Terminals are factory fitted to each operator and provide connections for the power supply and the encoder to the electronic controller **Elpro 42**, to be installed stand alone, in a sheltered place.

NOTE: The Dardo operators are not handed units and therefore they come all alike both for the right and the left gates: following their respective connections to the Elpro 42 controller, they are identified as Dardo M1 (first gate to open and pedestrian mode) and Dardo M2 (gate delayed on opening) (Pic.3).

Dardo does not come fitted with electronic limit switches as they are not necessary, limit stop positions are learned by the system in phase of programming as determined by the incorporated stop plates.

Pic. 1 displays all of the components that are delivered for the installation of each Dardo operator.



Pic. 1

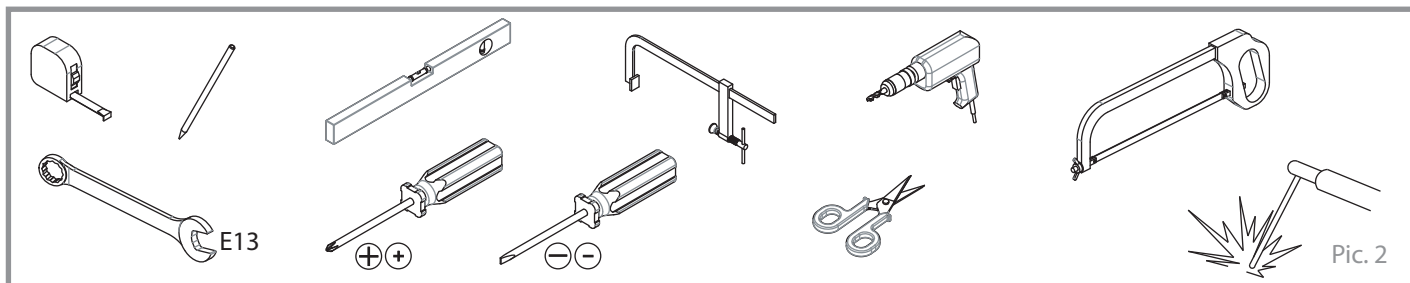
**PRODUCT APPLICATIONS**

The table below shows the maximum dimensions of a gate leaf in relation to its maximum weight.

	cod. 424L - DARDO 424 - 24 Vdc		
Max. width per leaf <b>L (m)</b>	1,5	2,0	2,5
Max. weight per leaf <b>P (kg)</b>	400	350	250

*NOTE: the gate structure should not be fully panelled without openings, avoid that in-filling is more than 50% of the gate surface.*

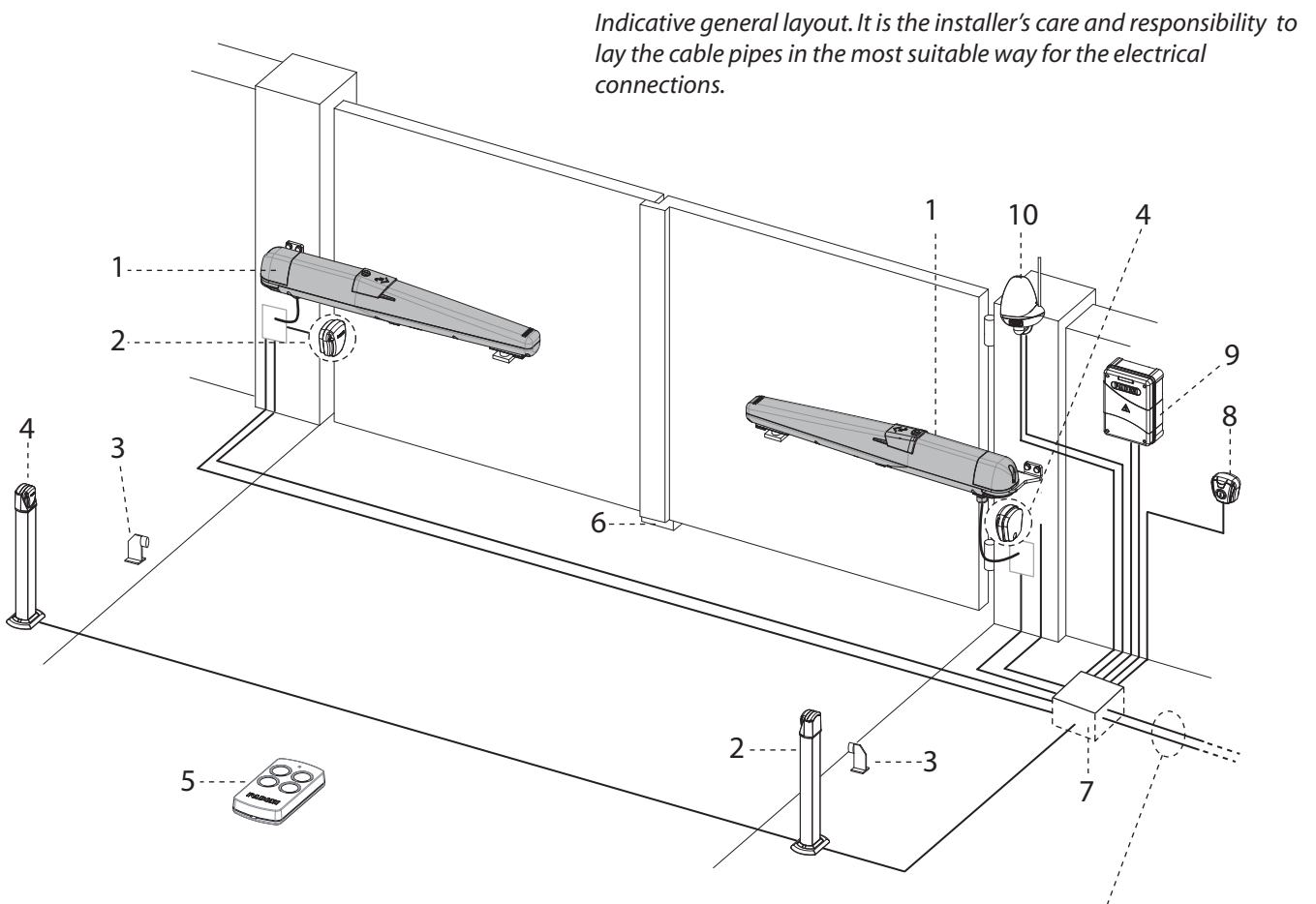
**EQUIPMENT REQUIRED FOR THE INSTALLATION**



Pic. 2

## MAIN COMPONENTS AND ELECTRICAL WIRING DIAGRAM OF THE SYSTEM

Lay the cable pipes into the ground and make sure they are suitable to the soil nature and comply with the diagram below.



Pic. 3



The system is to be 230 V - 50 Hz power supplied through a 0,03 A magneto-thermal differential circuit breaker (beyond 100 m a 2,5 mm<sup>2</sup> section is recommended).  
The all installation is to be grounded.

## LEGEND

- 1 - Dardo 424 motor operator: 4G x 1,5 mm<sup>2</sup> cable
- 2 - Photocell transmitter (2 x 0,5 mm<sup>2</sup>)
- 3 - Ground stop in open gate position (not supplied with the equipment)
- 4 - Photocell receiver (4 x 0,5 mm<sup>2</sup>)
- 5 - VIX 53 radio transmitter
- 6 - Ground stop in closed gate position (not supplied with the equipment)
- 7 - Inspectable junction pit
- 8 - Keyswitch or push buttons panel (4 x 0,5 mm<sup>2</sup>)
- 9 - ELPRO 42 controller with VIX 53/1R plug-in radio receiver card
- 10 - Flasher with aerial (2 x 0,5 mm<sup>2</sup> + RG58)

**Type of cables to be used** (not included with the equipment):

Motor power supply, safety and command accessories: FROR CEI 20-20 CEI EN 50267-2-1

Aerial: RG58.

NOTE: with distances longer than 50 m increase cable section according to the actual absorption requirements of the various devices in compliance with the CEI EN 60204-1 norms.

INSTALLATION DISTANCES FOR OPENING INWARDS

55 mm

90

90

$\geq 60$

Installation distances considering the incorporated stop plates

	A	B	C	D [A]
opening 0 - 90°	120	D + 90	610	max 90
opening 90° - 100°	120	D + 90	610	max 80
opening 100°-115° [B]	160	D + 90	580	max 40
	140	D + 90	590	max 50

[A] in case D distance is required to be bigger, contact our technical department to get A and C changed accordingly  
 [B] make sure ground gate stops be fitted, mainly in open gate position (do not use the open incorporated stop plate)

Pic. 4

INSTALLATION DISTANCES FOR OPENING OUTWARDS

90 mm

70-75 mm

55 mm

90

OPENING OUTWARDS

Installation distances considering the incorporated stop plates

	A	B	C
opening 90°	130	130	600

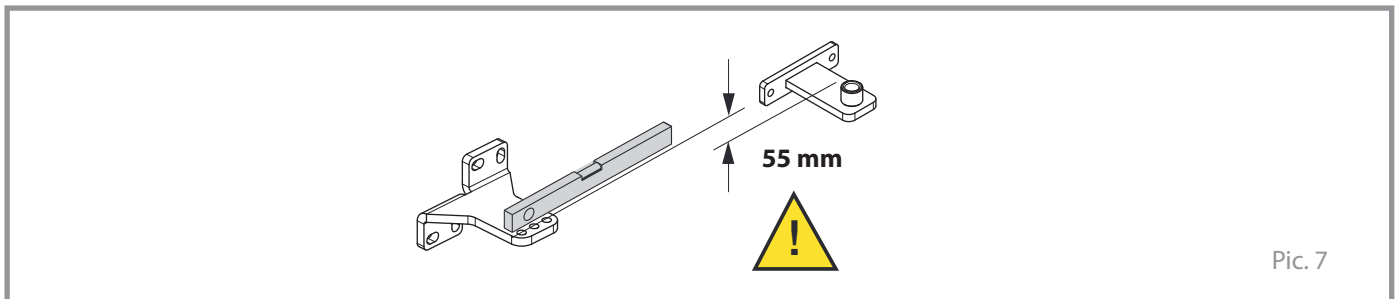
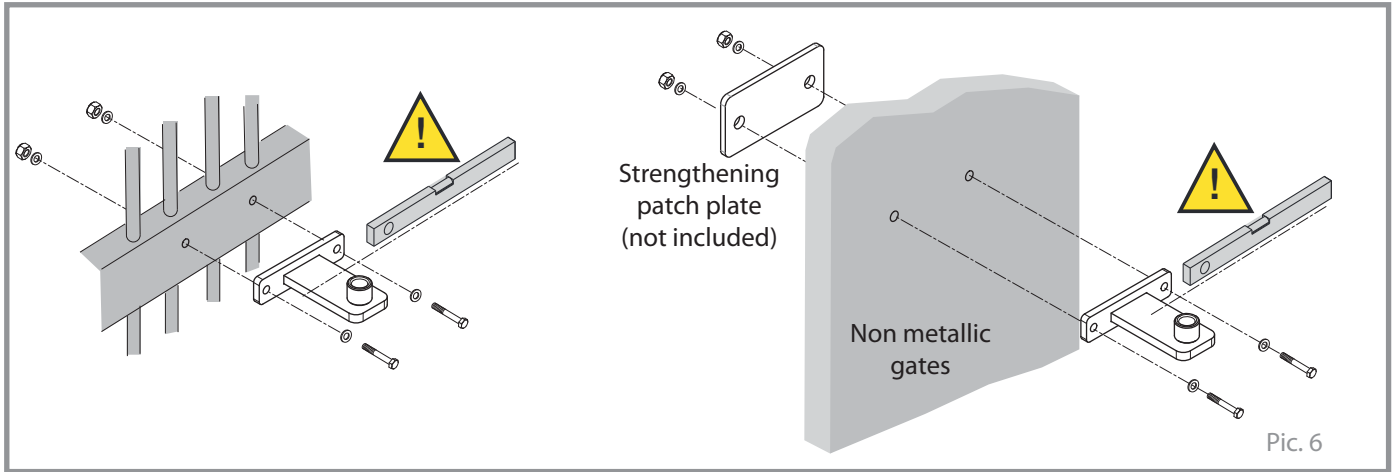
Pic. 5

English

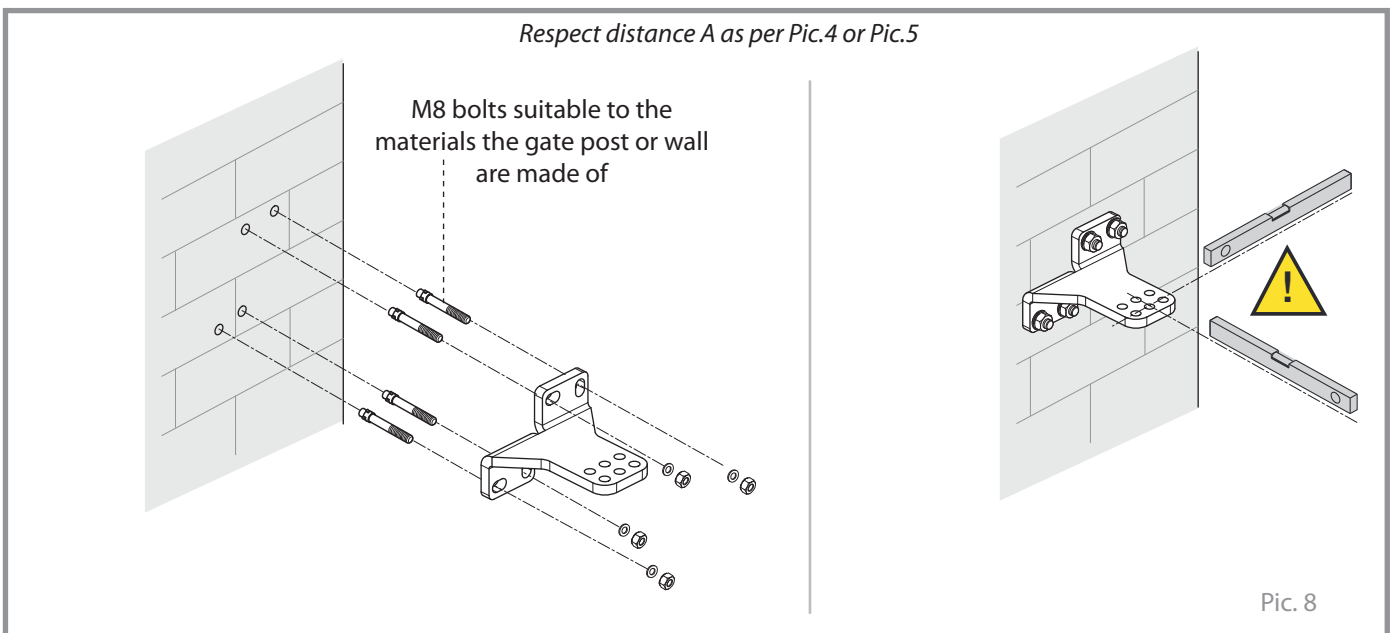
## FIXING BRACKETS PREPARATION AND FASTENING

**IMPORTANT:** before fastening the mount brackets, consider that they are 55 mm vertically offset: the front fixing is 55 mm lower than the rear fixing to the gate post (Pic. 7).

First fixing is the front one to the gate by using a strengthening plate (according to C distance of Pic. 4 or Pic. 5, in the way as indicated in Pic. 6).

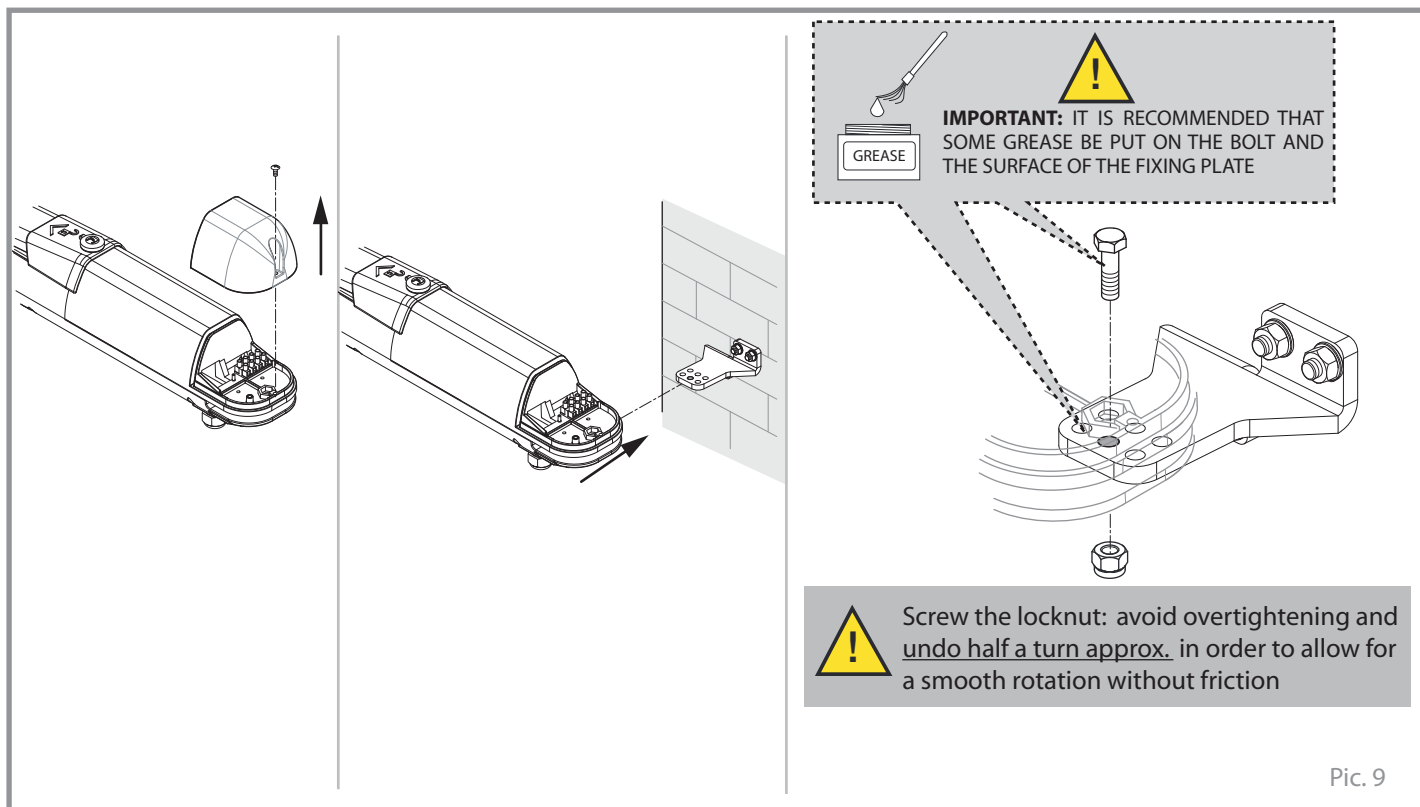


Get ready the rear fixing and fasten it to the gate post, in respect of the installation geometry (Pic. 4 or Pic. 5), and as indicated in Pic. 8.

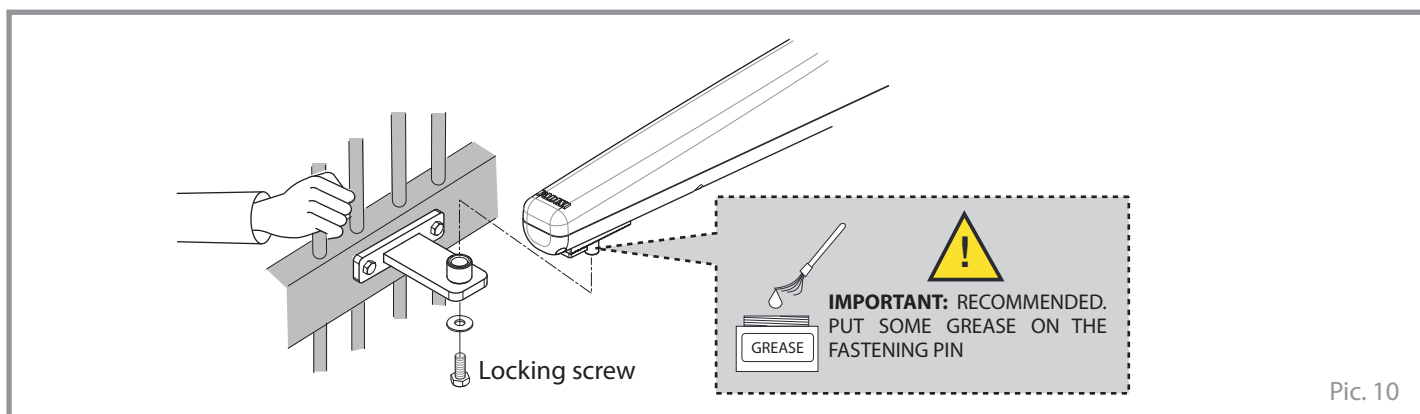


**FIXING TO GATE POST**

Remove the rear cap protecting the electrical connections, located at the back of the operator.  
Make the operator rear fork-like bracket to fit the gate post fixing plate on to the central hole (lateral holes are provided to adjust the rear fixing in case A and B distances might be wrong).

**FIXING TO GATE**

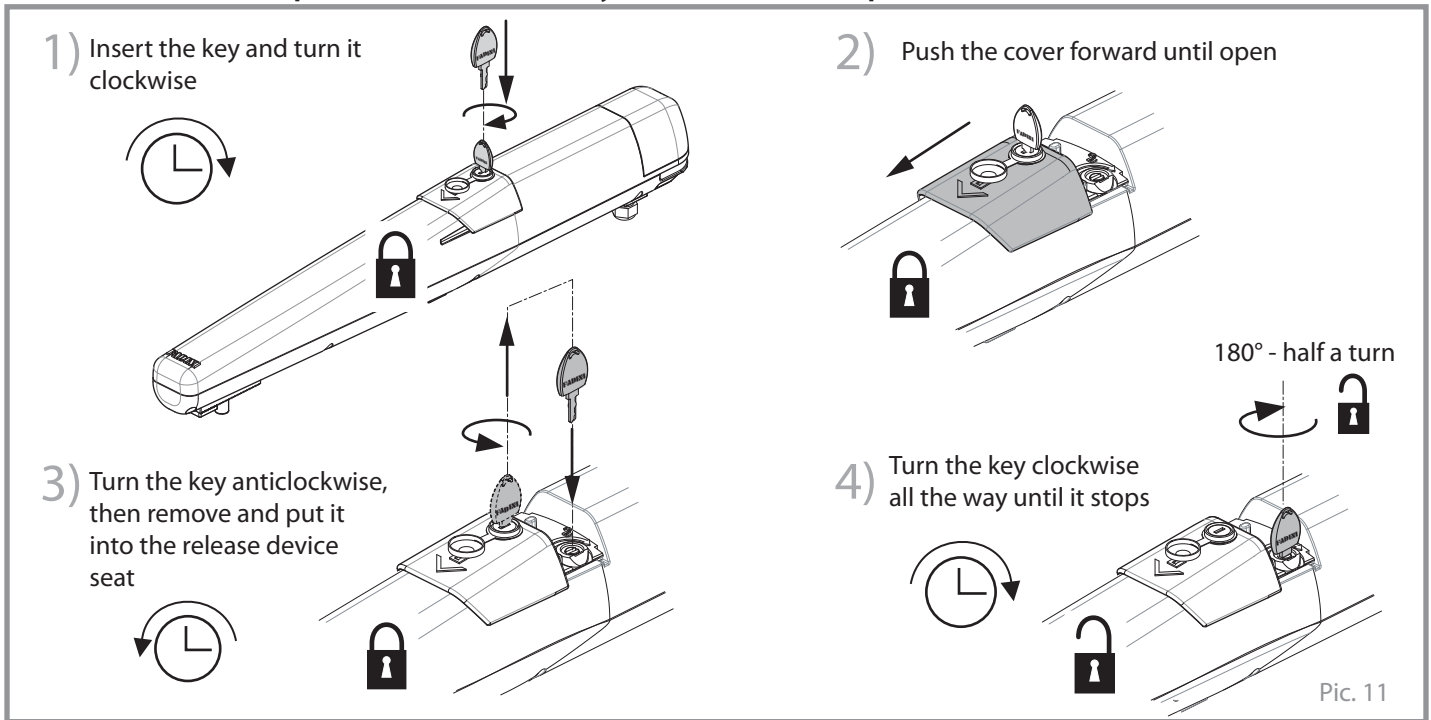
Open the gate by hand and bring it close to the operator. Swing this one on to the front bracket so that the fastening pin fits into the bush of the front fixing plate, then tighten the locking screw, avoid overtightening.



**RELEASE FOR MANUAL OPERATIONS**

In the release mode, the operator does not perform any operation on the gate, in spite of voltage continuing to be supplied. In this situation the gate can be opened and closed manually even if the operator is still mounted on to it. The same coded key allows for the opening of the sliding protection cover and the manual overriding (Pic. 11).

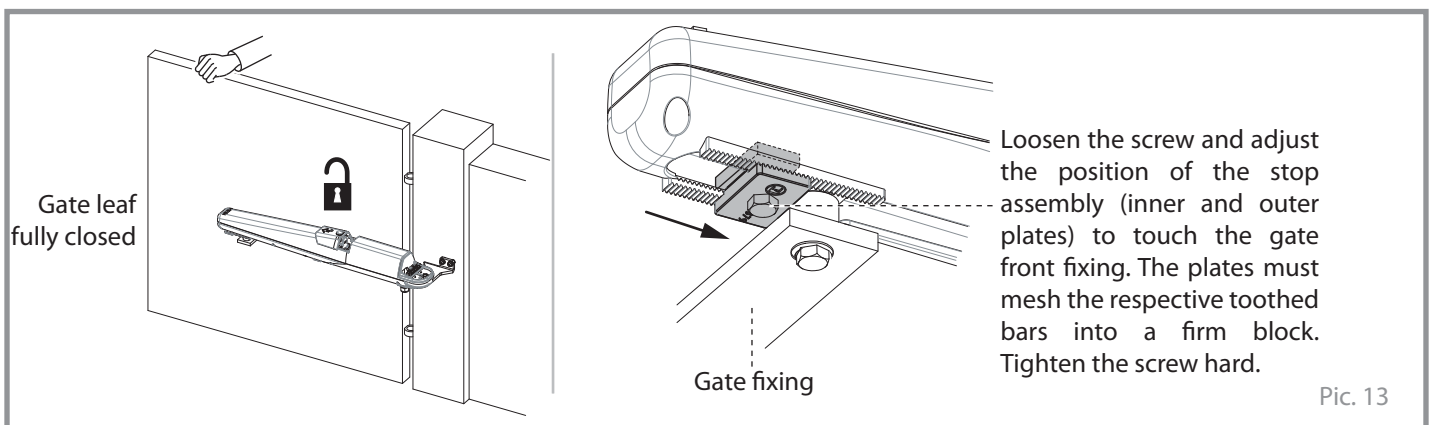
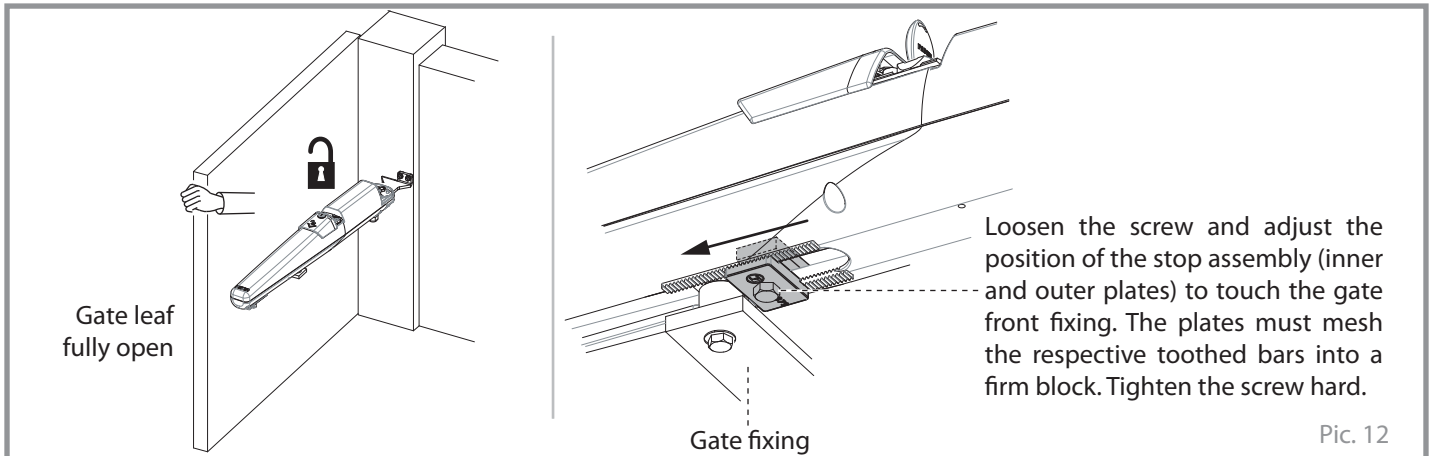
**IMPORTANT: to set the operator back to work, carry out the described steps in the reverse order.**



**ADJUSTMENT OF THE MECHANICAL STOP PLATES (installations without ground gate stops)**

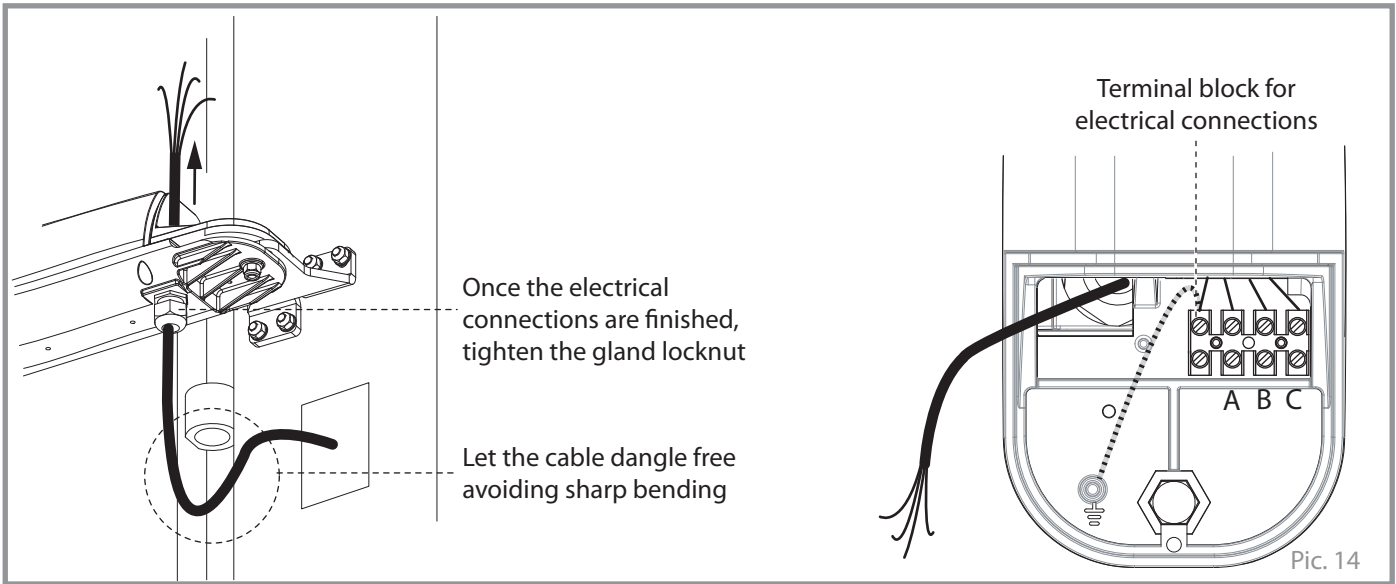
Override the operator (see Pic. 11) so that it is disengaged from the gate, then open the gate by hand to the required position: loosen the screw that fastens the stop assembly and position the plates so that the front fixing touches the assembly in the required open (stop) gate position, then tighten the screw again (Pic. 12): the outer stop plate and its counterpart i.e. the inner plate must adhere firmly to the toothed bars. Carry out the same steps with the gate in closed position (Pic. 13).

**IMPORTANT: eventually set back the operator to re-engage the gate (steps in Pic. 11 in reverse order).**





FITTING THE POWER SUPPLY CABLE



GATE OPENING INWARDS

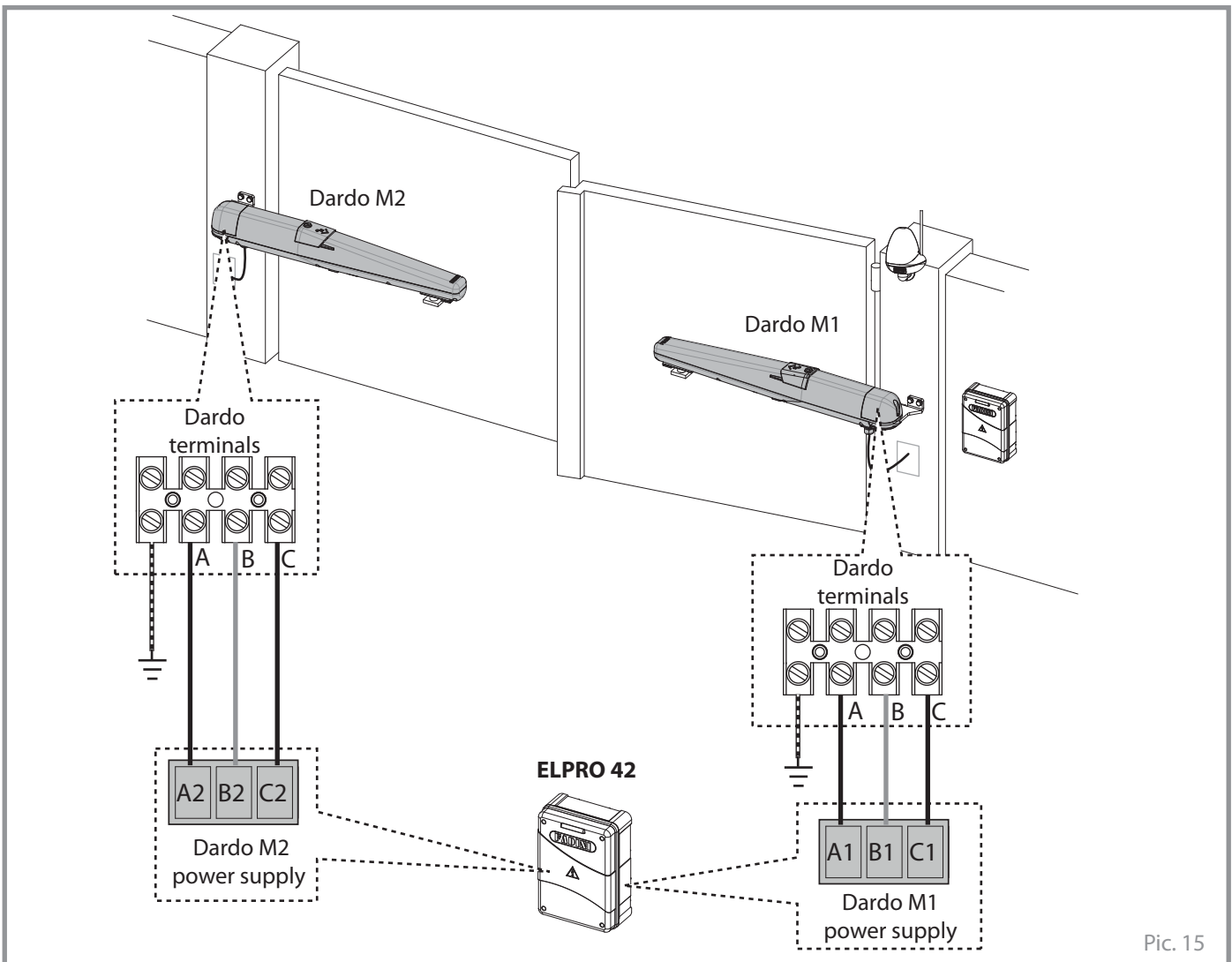


**IMPORTANT:** the terminals of M1 (A1, B1, C1) and M2 (A2, B2, C2) motors in the controller correspond to:

- M1 = Dardo on 1st gate leaf to open and in pedestrian mode if selected.
- M2 = Dardo on the gate leaf delayed in opening.



**IMPORTANT:** on single gate installations where only one operator is mounted, it is sufficient to connect the motor to M1 and bridge B1 with B2, while A2 and C2 terminals are not connected.

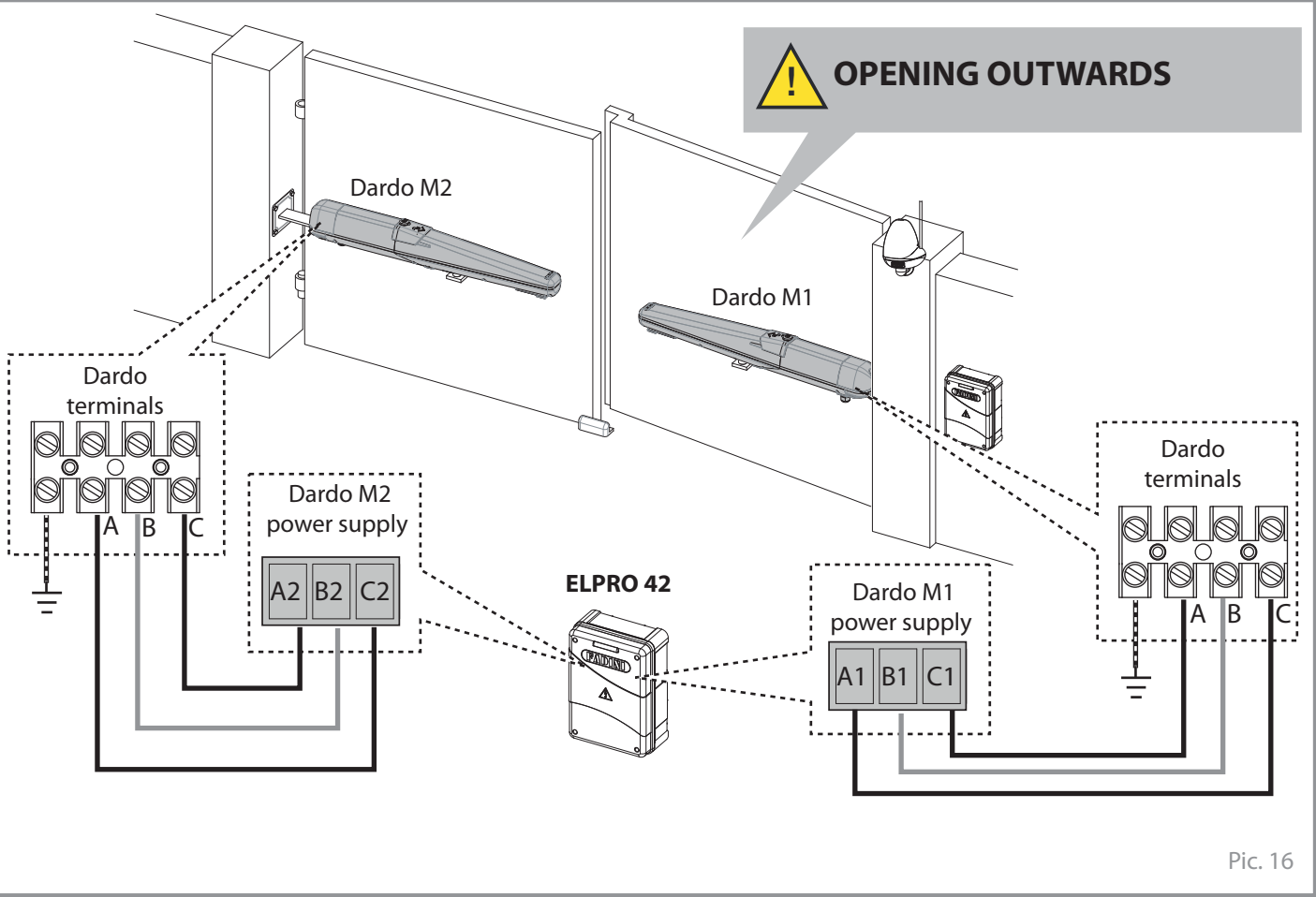


English

GATE OPENING OUTWARDS

English

**OPENING OUTWARDS**

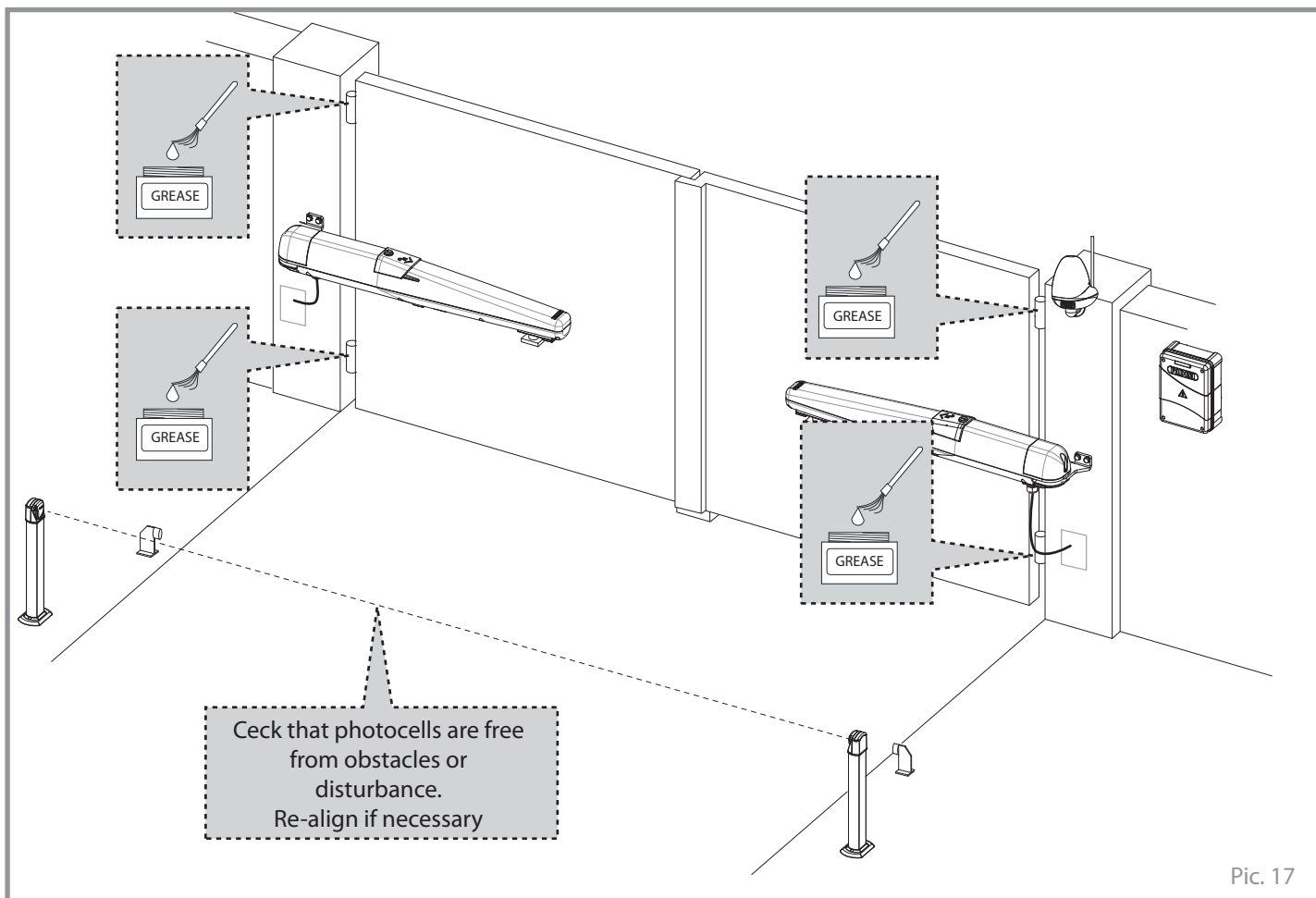


Pic. 16

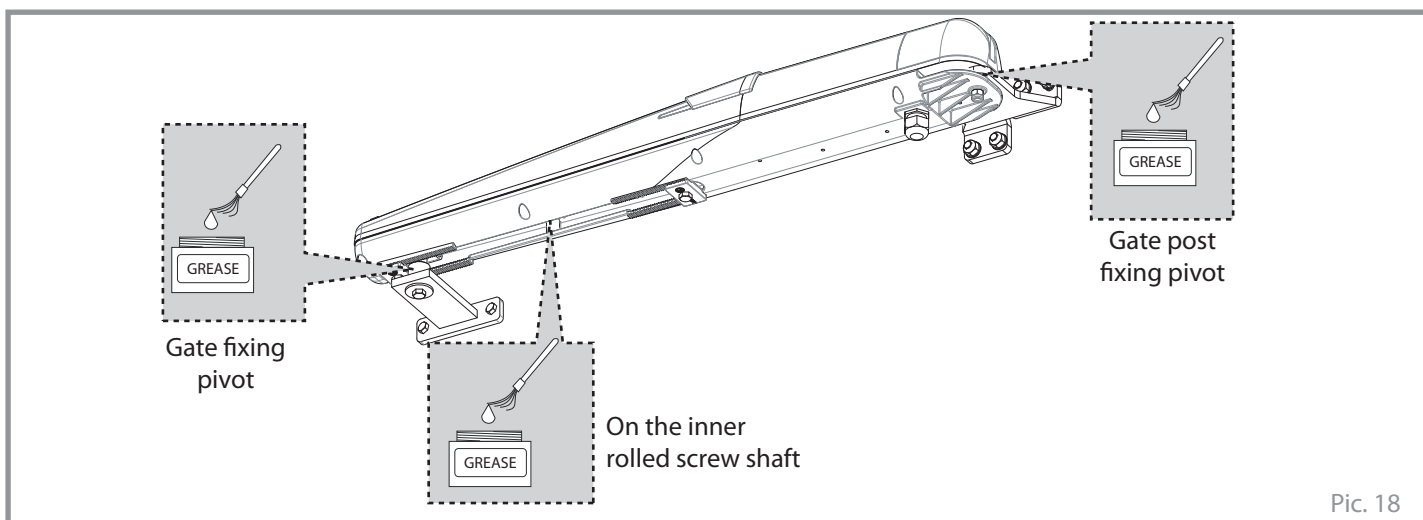
**ORDINARY MAINTENANCE**

It is recommended that the operators and all the moving parts be inspected periodically (every 2-3 months or whenever necessary) and the inner rolled screw shaft lubricated with some grease from underneath the operator. it is also advised that the gate hinges and pivots be periodically lubricated as well. Remove any possible obstacles and hindrances, the gates must be able to move freely in open and close directions.

English



Pic. 17



Pic. 18

**MAINTENANCE RECORD**

hand over to the end user of the installation



Installation address:		Maintainer:	Date:
Installation type: Sliding gate <input type="checkbox"/> Folding door <input type="checkbox"/> Swinging gate <input checked="" type="checkbox"/> Road barrier <input type="checkbox"/> Over-head door <input type="checkbox"/> Bollard <input type="checkbox"/> Lateral folding door <input type="checkbox"/> ..... <input type="checkbox"/>		Operator model:	Quantity of models installed:
		Dimensions per gate leaf:	
		Weight per gate leaf:	Installation date:

**NOTE WELL:** this document must record any ordinary and extraordinary services including installation, maintenance, repairs and replacements to be made only by using Fadini original spare parts. This document, for the data included in it, must be made available to authorized inspectors/officers, and a copy of it must be handed over the end user/s.

The installer/maintainer are liable for the functionalities and safety features of the installation only if maintenance is carried on by qualified technical people appointed by themselves and agreed upon with the end user/s.

N°	Service date	Service description	Technical maintainer	End user/s
1				
2				
3				
4				
5				
6				

\_\_\_\_\_  
Stamp and signature  
installation technician/maintainer

\_\_\_\_\_  
Signed for acceptance  
end user  
buyer

hand over to the end user of the installation





## TECHNICAL DATA

Dardo 424	
Motor power supply	24 Vdc
Rated absorption	1,5 A
Max. absorption	3,5 A
Max. power	80 W
Rated thrust power	130 N
Max. thrust power	1000 N
Opening time	16 s ÷ 20 s [C]
Speed	16 ÷ 20 mm/s [C]
Travel available from stop to stop	320 mm
Weight	6,5 kg
Intermittent service S3	intensive
Protection standards	IP 44
Working temperature	-20 °C +50 °C

[C] opening/closing times depend on the installation distances, speed adjustment and gate inertia

