

BLADE

mod. **BLADE3**

mod. **BLADE3REV**

mod. **BLADE324**

mod. **BLADE5**

mod. **BLADE5REV**

mod. **BLADE524**

mod. **BLADE524REV**



I	ATTUATORE ELETTROMECCANICO PER ANTE Istruzioni d'installazione ed uso	pag. 7
F	OPÉRATEUR ÉLECTROMÉCANIQUE POUR VANTAUX BATTANTS Instructions d'installation et d'utilisation	pag. 11
E	ACTUADOR ELECTROMECÁNICO PARA PUERTAS BATIENTES Instrucciones de instalación y uso	pag. 15
GB	ELECTROMECHANICAL ACTUATOR FOR SWING GATES Installation and operating instructions	pag. 19
D	ELEKTROMECHANISCHER ANTRIEB FÜR DREHFLÜGEL Installations- und Gebrauchsanweisungen	pag. 23
NL	ELEKTROMECHANISCHE AANDRIJVING VOOR DRAAIVLEUGELS Installatie- en gebruiksaanwijzingen	pag. 27

Fig. A

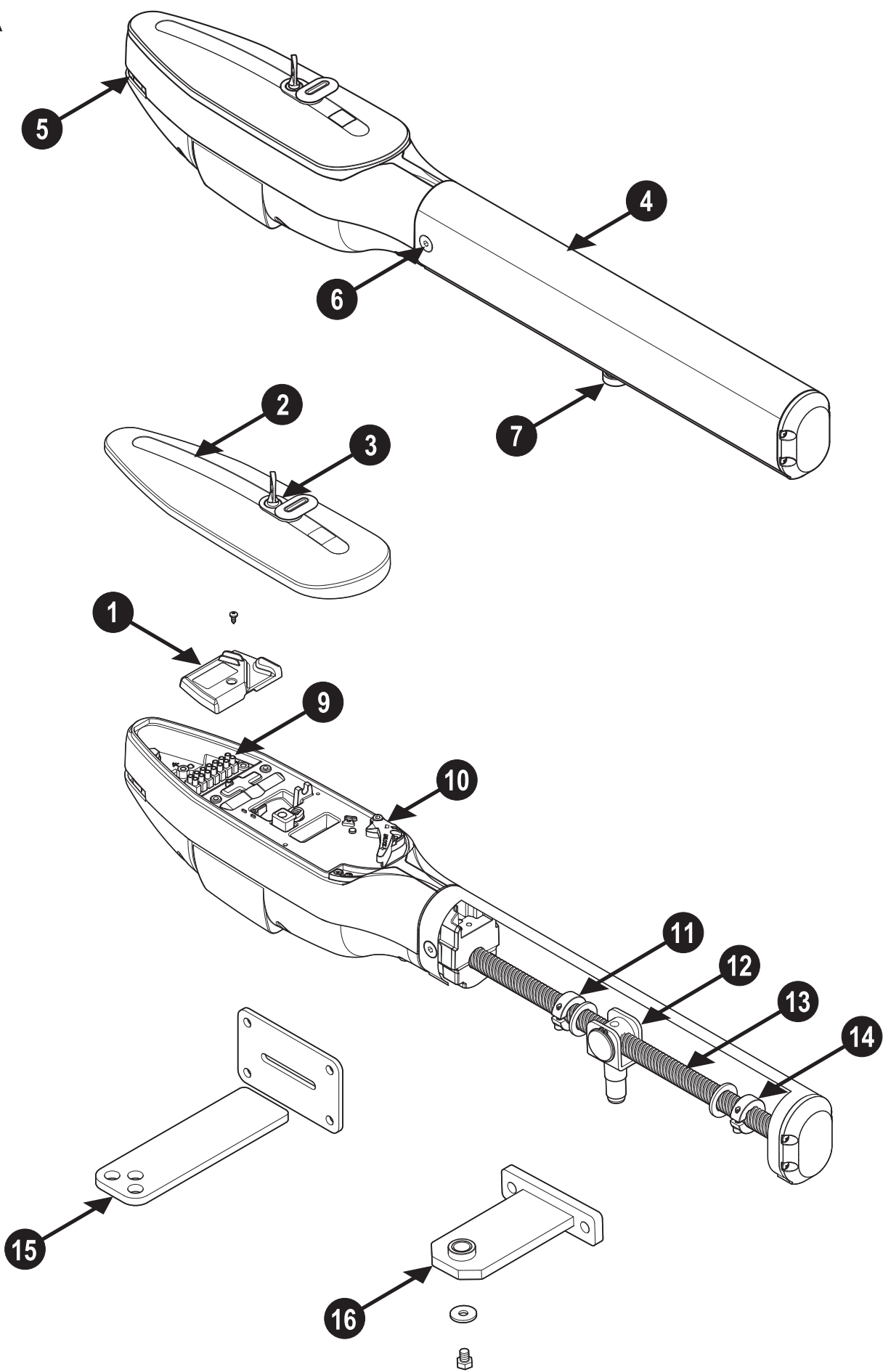


Fig. B
(mm)

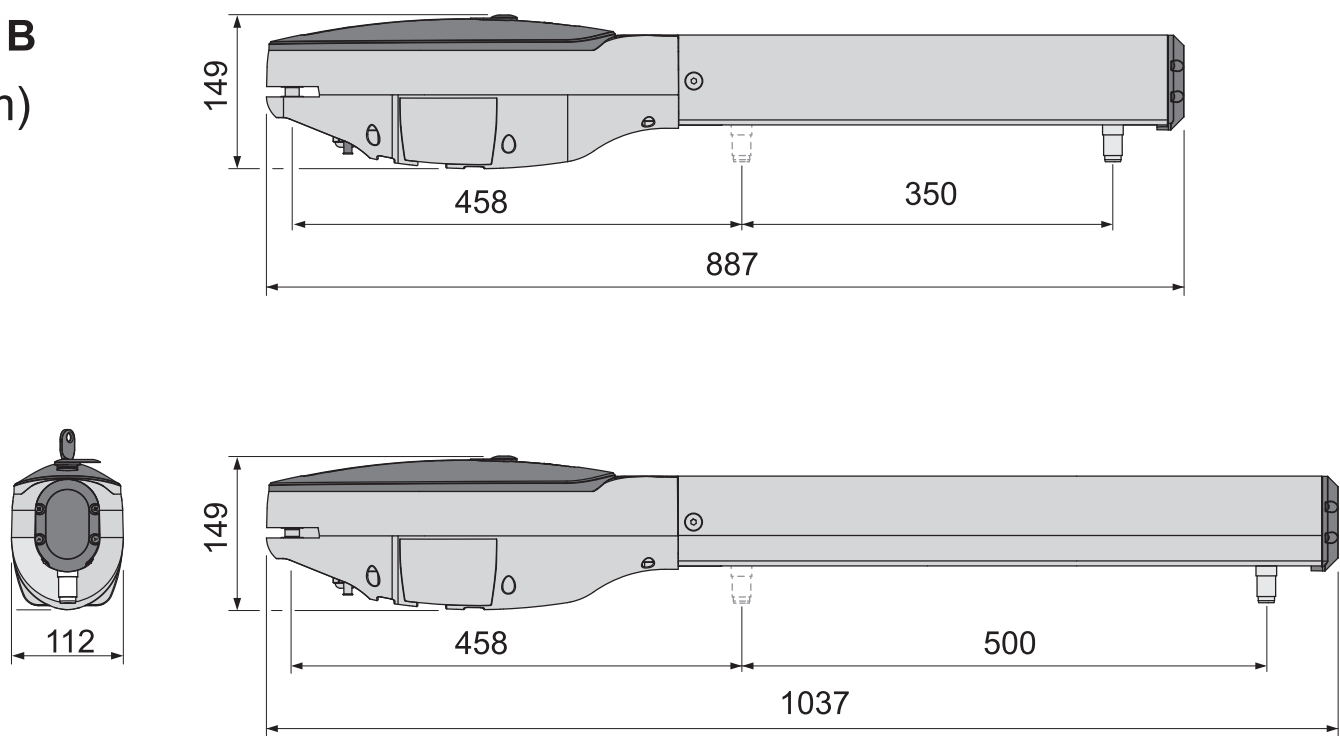


Fig. C

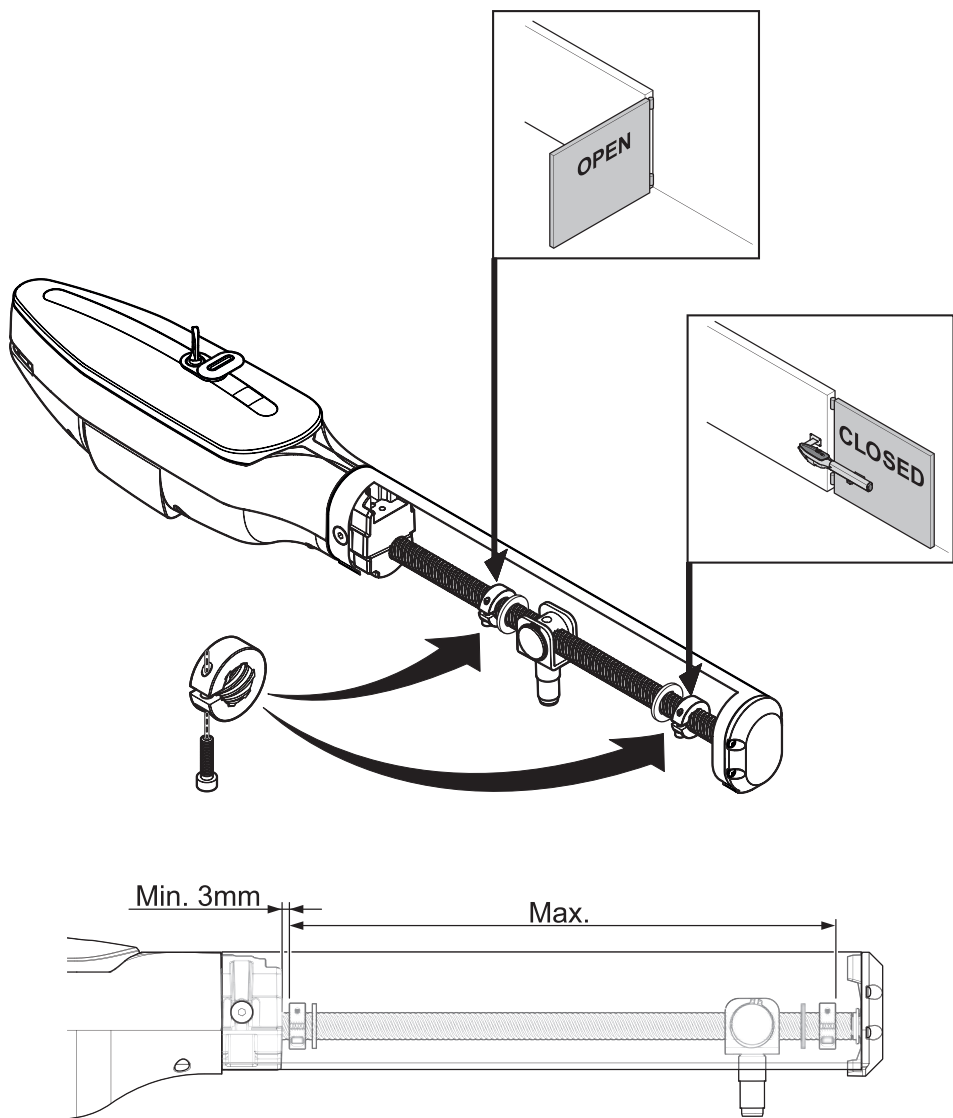
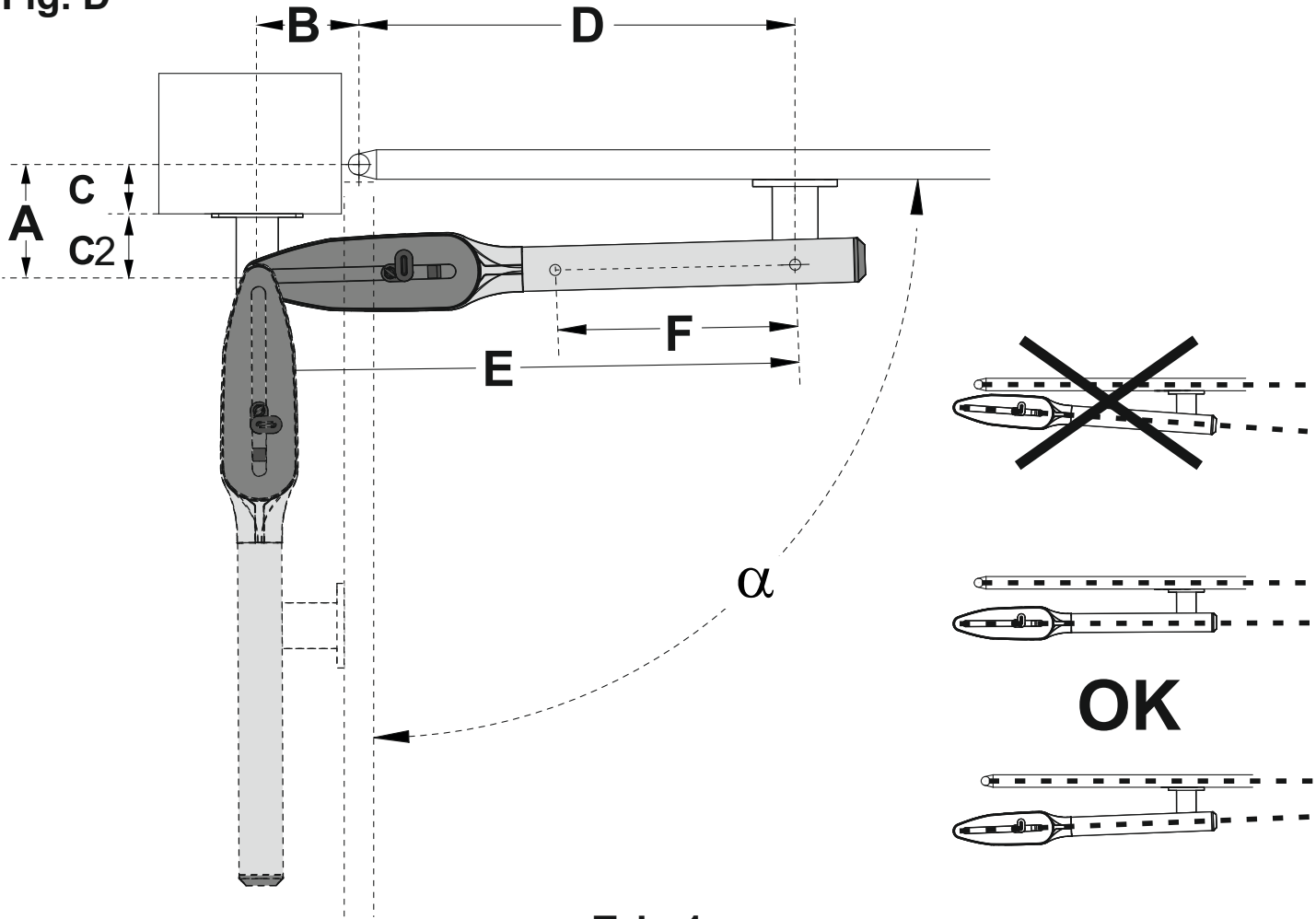


Fig. D



Tab. 1

BLADE3 - BLADE3REV
- BLADE324
(E min. 455 / E max 805 / F =350)

α	A	B	C	C2	D
90°	170	170	0	170	640
90°	120-170	170	0-50	120	640
90°	150-170	170	51-70	100	640
90°	150-170	170	71-90	80	640
90°	165-185	150	91-110	75	660
90°	185-205	135	111-130	75	675
100°	170	170	0	170	640
110°	90-140	150	0-50	90	660
110°	130-150	150	51-70	80	660
110°	135-155	150	71-90	65	660

BLADE5 - BLADE5REV
- BLADE524 - BLADE524REV
(E min. 455 / E max 955 / F =500)

α	A	B	C	C2	D
90°	170	180	0	170	780
90°	170-220	200	0-50	170	760
90°	210-240	200	51-80	160	760
90°	210-240	200	81-120	120	760
90°	220-250	190	121-150	100	770
90°	240-270	170	151-180	90	780
110°	170	180	0	170	780
110°	170-220	200	0-50	170	760
110°	210-240	190	51-80	160	765
110°	210-240	190	81-120	120	765
110°	210-240	190	121-150	90	765
100°	240-270	180	151-180	90	775

Fig. E

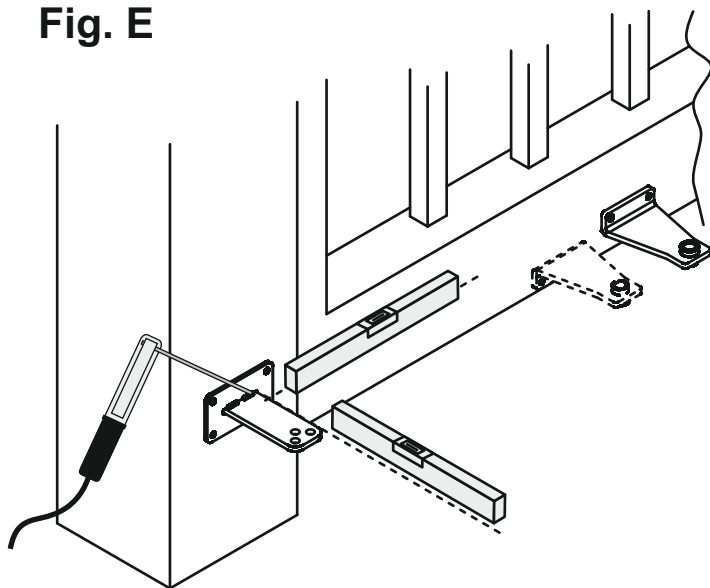


Fig. E1

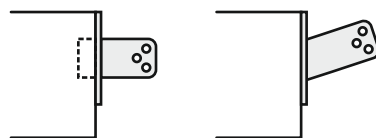


Fig. E2

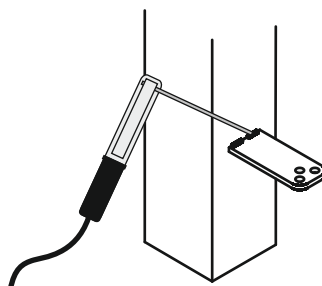


Fig. E3

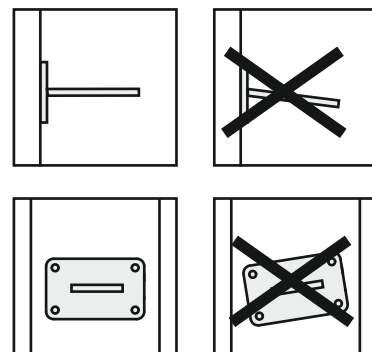


Fig. F

(mm)

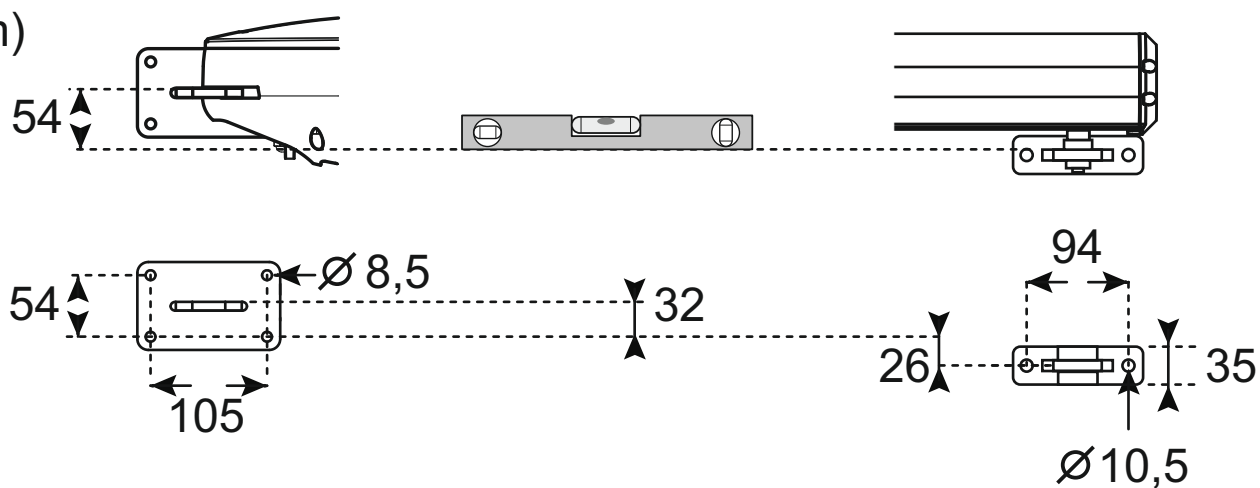


Fig. G

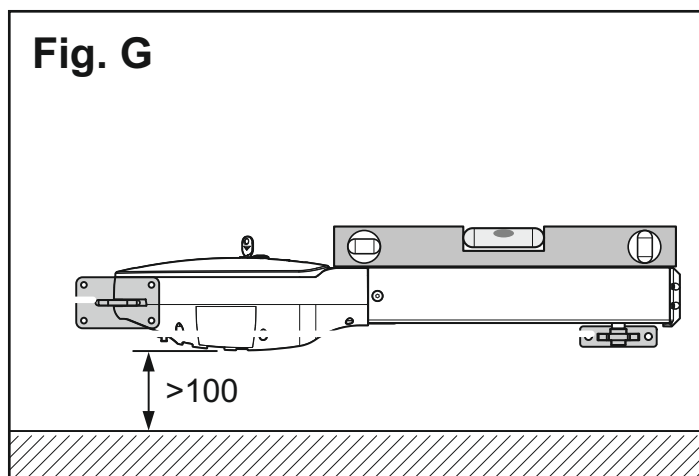


Fig. H

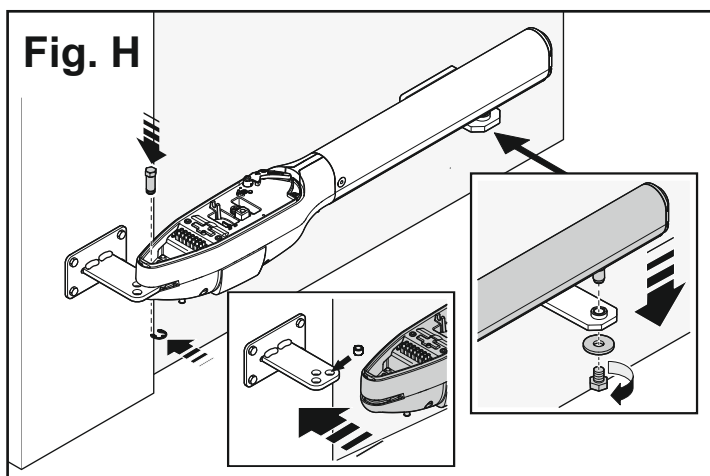


Fig. I

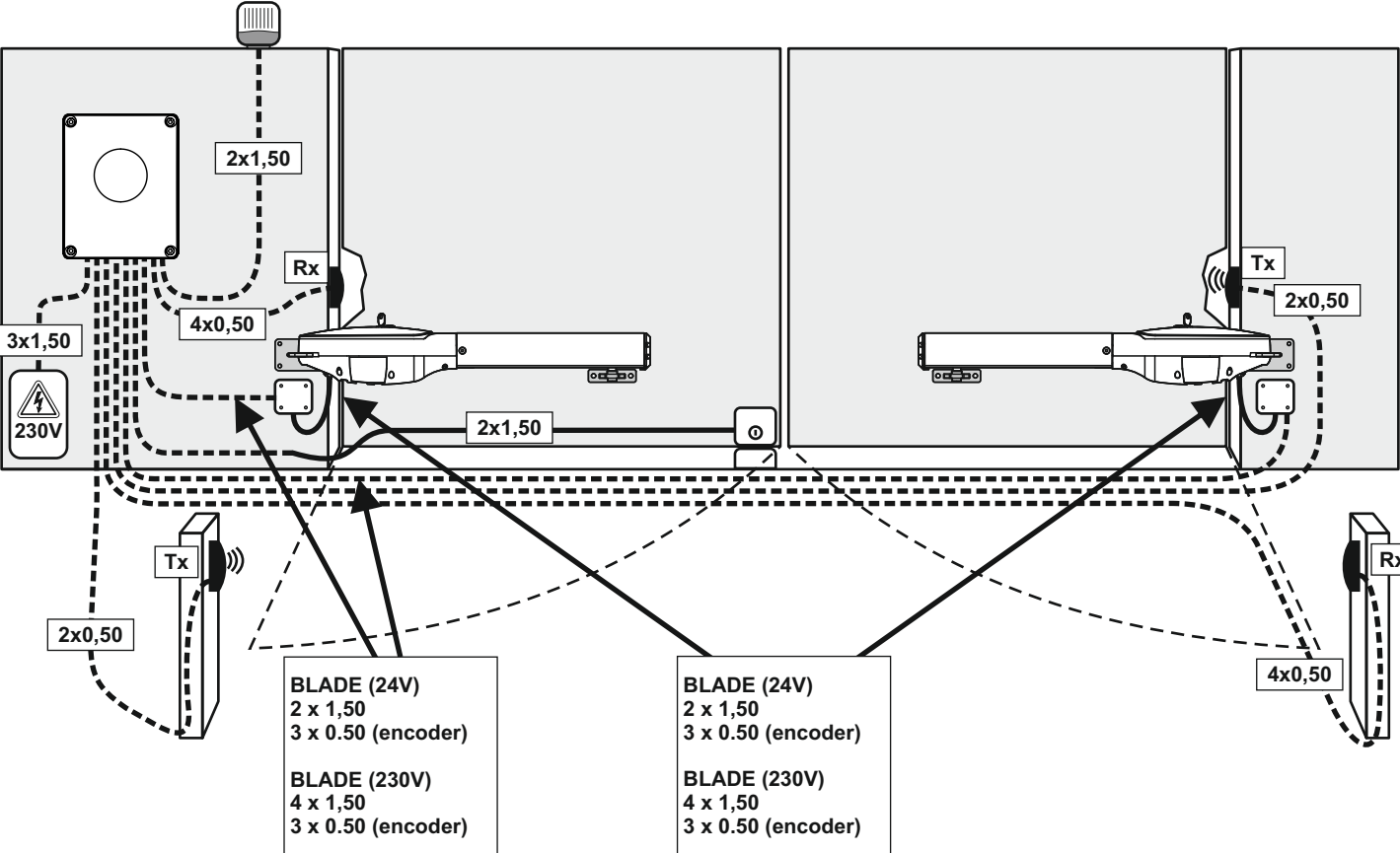


Fig. L

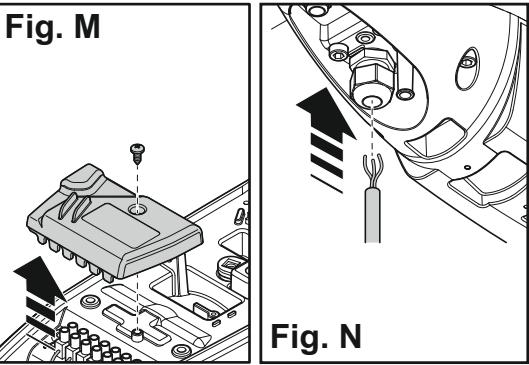
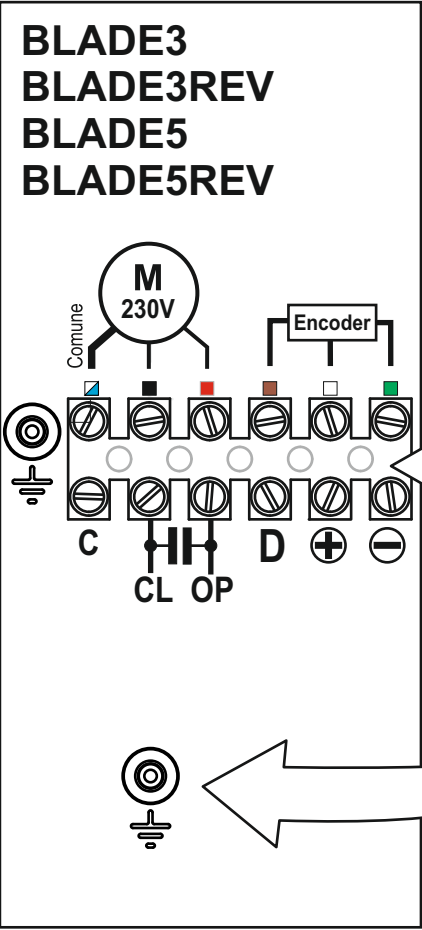
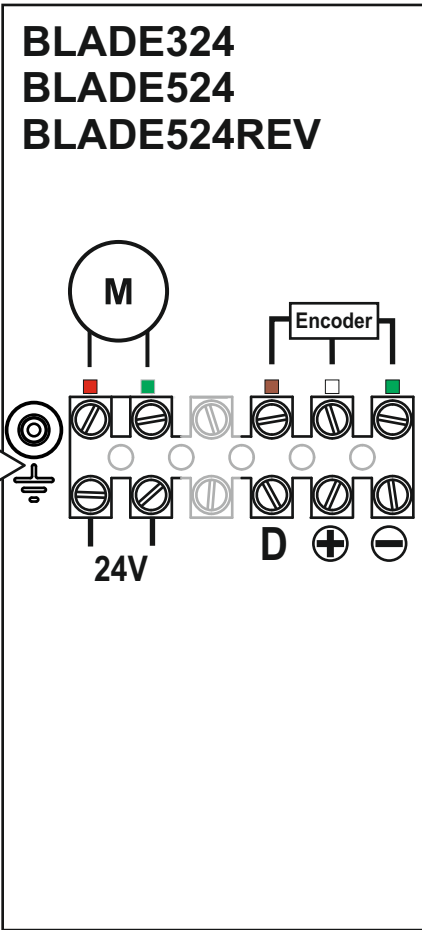
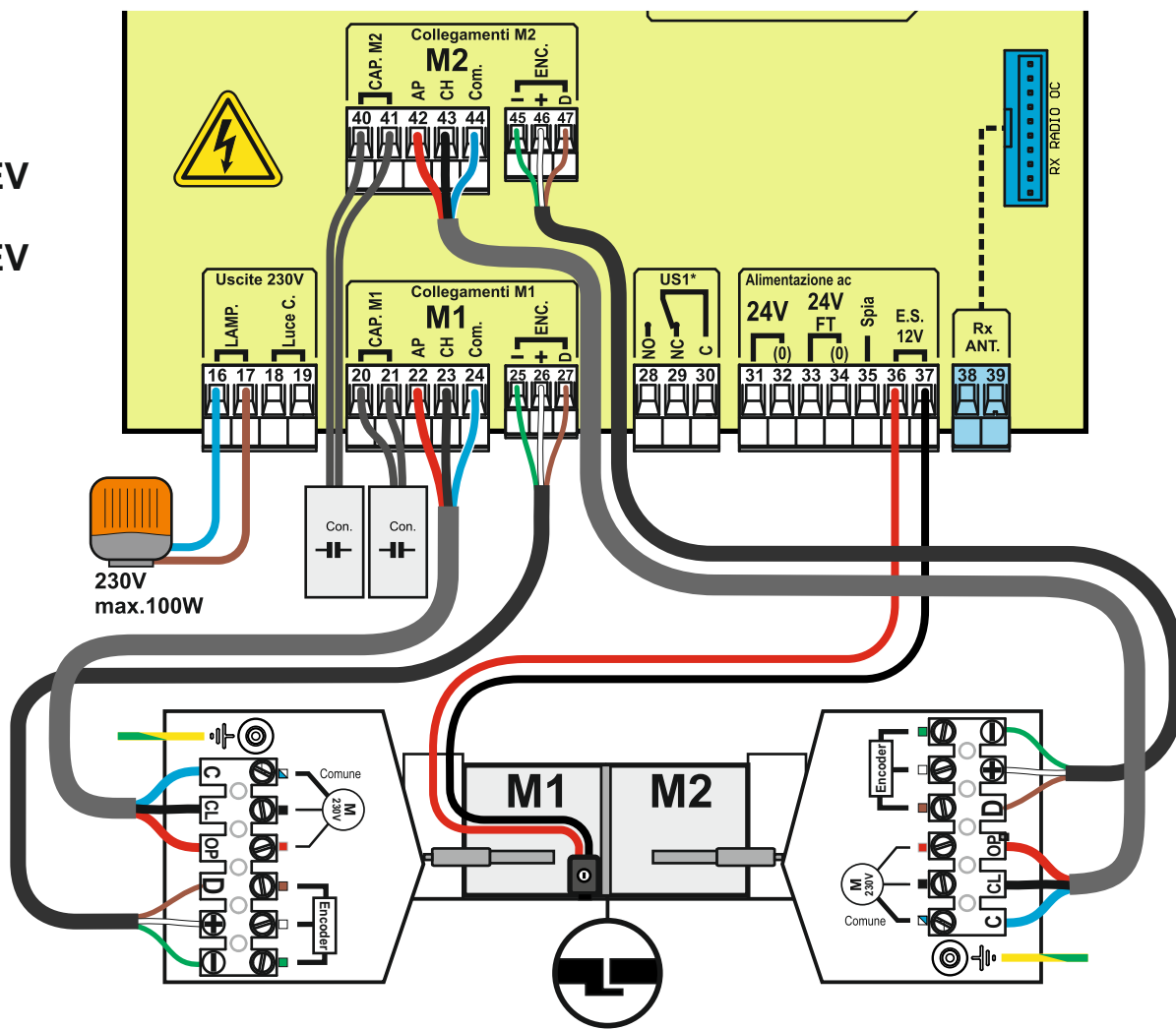


Fig. O



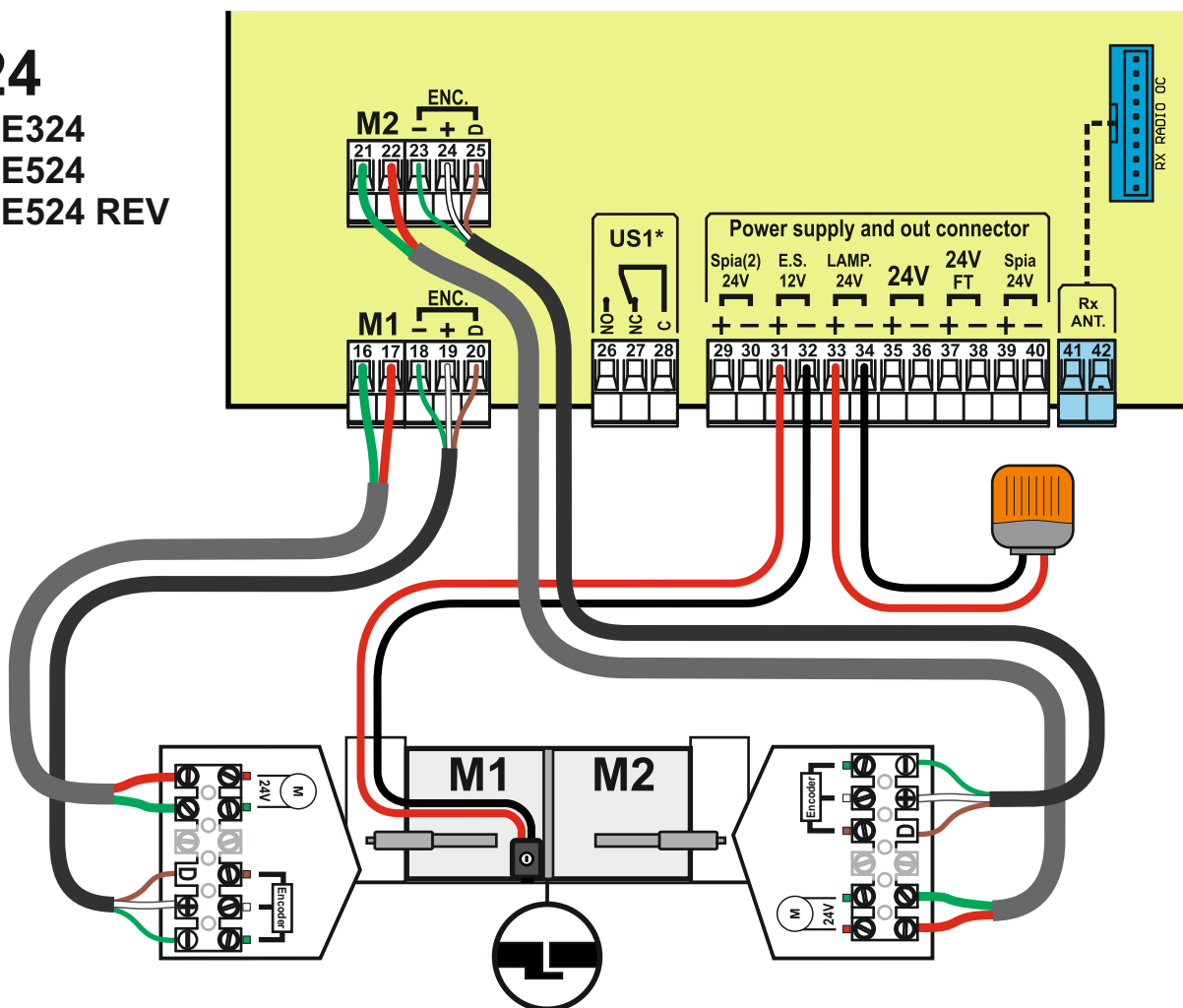
T600

BLADE3
BLADE3 REV
BLADE5
BLADE5 REV



T624

BLADE324
BLADE524
BLADE524 REV



CHARACTERISTICS AND PARTS DESCRIPTION

The electromechanical actuators in the new BLADE series assure high versatility for the automation of swing gates and doors. This manual refers to multiple models with different power ratings, electrical supplies and dimensions but all sharing the same installation procedures. The actuators are all equipped with an encoder: a sensor that detects all speed changes and allows the control unit* to manage slowing down stages precisely and detect obstacles and stroke end stops. The rugged structure of BLADE also allows the use of internal adjustable stops.

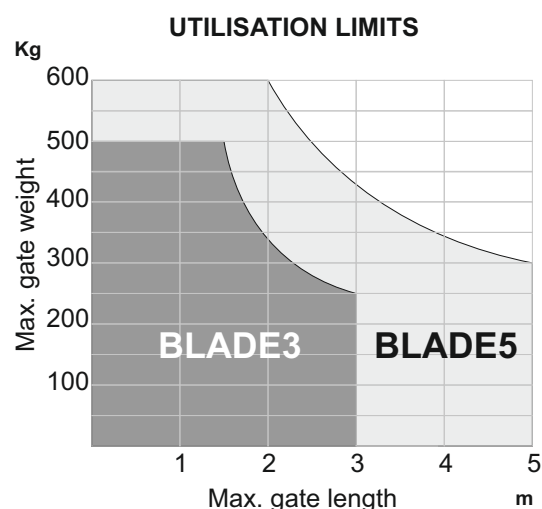
Description of components (fig.A)

- | | |
|---------------------------------|---|
| 1. electrical connections cover | 9. electrical connection terminals |
| 2. release lever cover | 10. actuator release lever (irreversible versions only) |
| 3. release lever lock | 11. mechanical opening stop |
| 4. lead screw cover | 12. nut |
| 5. rear clevis | 13. lead screw |
| 6. cover fixing screw | 14. mechanical closing stop |
| 7. front pivot | 15. rear fixing brackets (post) |
| | 16. front fixing brackets (leaf) |

(*) referred to the current range of Cardin control units

Model

BLADE 3	IRREVERSIBLE for max. 3 m leaf (230V)
BLADE 3 REV	REVERSIBLE for max. 3 m leaf (230V)
BLADE 5	IRREVERSIBLE for max. 5 m leaf (230V)
BLADE 5 REV	REVERSIBLE for max. 5 m leaf (230V)
BLADE 3 24	IRREVERSIBLE for max. 3 m leaf (24V)
BLADE 5 24	IRREVERSIBLE for max. 5 m leaf (24V)
BLADE 5 24 REV	REVERSIBLE for max. 5 m leaf (24V)



TECHNICAL DATA

MOTOR	BLADE/	u.m.	/3	/5	/3REV	/5REV	/324	/524	/524REV
Motor power supply		V	230 ac				24 dc		
Max. motor current		A	1,6				5		
Motor power		W	370				120		
Thrust		N	2200		1800		1900		1800
Max opening		°	110						
Rod stroke		mm	350	500	350	500	350	500	
Actuator speed		mm/s	17		21		20		25
Work cycles		%	30				70		
Capacitor		µF	10		8		-		
Encoder			Yes						
Electrical limit switches (optional)		code	FCAS	FCAL	FCAS	FCAL	FCAS	FCAL	
Mechanical limit switches			Opening and closing						
Grease lubricant			TS10						
Working temperature		°C	-20 +55						
Protection level		IP	44						
Weight		Kg	10	11	10	11	10	11	

PRELIMINARY CHECKS AND IMPORTANT SAFETY NOTES FOR INSTALLATION

Before proceeding with installation, checks should be made on:

1. the solidity of the existing structure (posts, hinges and leafs) in relation to the force generated by the motor.
2. the provision of mechanical stops of suitable strength at the ends of the gate opening and closing strokes.
3. the bottom wheel/rail system and upper roller/guide system to ensure there is no rubbing or excessive clearance.
4. the disabling of any manual locks.
5. the condition of any wiring already installed in the system.



Important safety notes:

1. The automation system must be installed to good workmanship standards by qualified staff meeting the legal prerequisites and in accordance with machinery directive 2006/42/EC and the EN13241-1, EN12453 and EN12445 standards.
2. Analyse the risks of the automation system and adopt any appropriate safety and warning measures.
3. Install controls, such as the key-operated selector switch, in such a way that the user is not in a hazard zone.
4. Affix the CE nameplate or label containing the hazard information and ID data of the automation.
5. Consign the instructions for use, safety information and EC declaration of conformity to the final user.
6. Ensure that the user has understood how to operate the automation correctly in automatic, manual and emergency modes.
7. After installation, try out the automation safety, signalling and release devices several times.
8. Inform the user in writing (for example, in the operating instructions):
 - a. of any residual risks for which no protection is provided, and foreseeable misuse.
 - b. That the power supply must be disconnected before the gate is released, when performing routine maintenance or during cleaning of the automation area.
 - c. That the automation must be inspected frequently for visible damage, notifying the installer at once if any is found
 - d. That children must not be allowed to play in the immediate vicinity of the automation
 - e. That the radio remote controls and other control devices must be kept out of the reach of children.
9. A maintenance plan must be provided for the system (at least every 6 months) and the work done recorded in a log.

BRACKETS FIXING

Before reading the installation instructions, take note of the following basic concepts:

- the joint brackets (front and rear) must be mounted correctly at two different heights.
- the brackets supplied can be welded directly to the structure or secured with screws and screw anchors, provided the system is able to withstand the forces imparted: by the actuator, by manual movement of the gate and (in certain conditions) by the wind.
- the position of the brackets establishes the maximum opening angle and the length of the actuator's linear stroke; consider that the longer the stroke of the lead screw, the greater the torque and the smoother the movements of the gate leaf; on the contrary, with a short stroke, movements may be more abrupt and there will be less torque available.

Table TAB1 shows several examples of bracket positions; the measurements are guideline and should be used solely to prepare for installation. Check which of the possible solutions is applicable to your automation project and perform a few manual trials before fixing the brackets.

Assess these tolerances because the more dimensions "A" and "B" are similar, the smoother the movements of the gate leaves.

The rear brackets are supplied in two parts (with non-welded plate) offering the freedom to: shorten or tilt the bracket or fix the drilled bracket directly to the gate post (figs. E1, E2). For fixing with screw anchors and/or screws the bracket must be welded to the plate as shown in fig. E (standard installation).

Even if the structure of BLADE is designed to adapt to imperfections or structural deterioration of the fixing, the importance of using maximum precision when levelling the brackets (fig. E3) cannot be underestimated.

The height of the brackets is established easily using a spirit level; the front bracket must be 54 mm lower (fig. F); in addition, calculate the final height of the actuator such as to allow correct outlet of the electrical cables or choose a higher position to reduce the accumulation of dirt, grit and moisture (fig. G).

After having secured the rear bracket and marked the height of the front bracket, you can calculate distance "E" with the aid of the table (TAB1) or proceed as follows:

- secure the actuator as shown in fig. H
- fix the front bracket to the actuator
- bring the gate leaf to its fully closed position
- bring the actuator to its closed position (a few millimetres before the maximum extension)
- place the front bracket on the gate leaf and mark the holes

Before final fixing (screws or welding) perform a manual opening and closing movement and check the actuator is level (fig. G).

MECHANICAL STOPS ADJUSTMENT (fig. C)

Models BLADE feature an internal system for mechanical stroke limitation composed of adjustable and independent stops (parts 11 and 14 in fig. A), one for the opening stroke and one for the closing stroke.

Using these internal stops can be convenient when there are no stroke end stops or when there is no other way to limit the stroke of the gate leaf. Where permitted by the installation it is anyway advisable to use or install gate leaf limit stops.

The adjustment is extremely simple:

- remove the screws (part 6 in fig. A) and remove the cover (part 4 in fig. A).
- move the leaf towards the actuator maximum stroke limit and fully tighten the screws of the mechanical stops
- perform opening and closing cycles to check the stops are correctly positioned and then refit the actuator cover.

RELEASE AND LOCK PROCEDURE (irreversible models only)

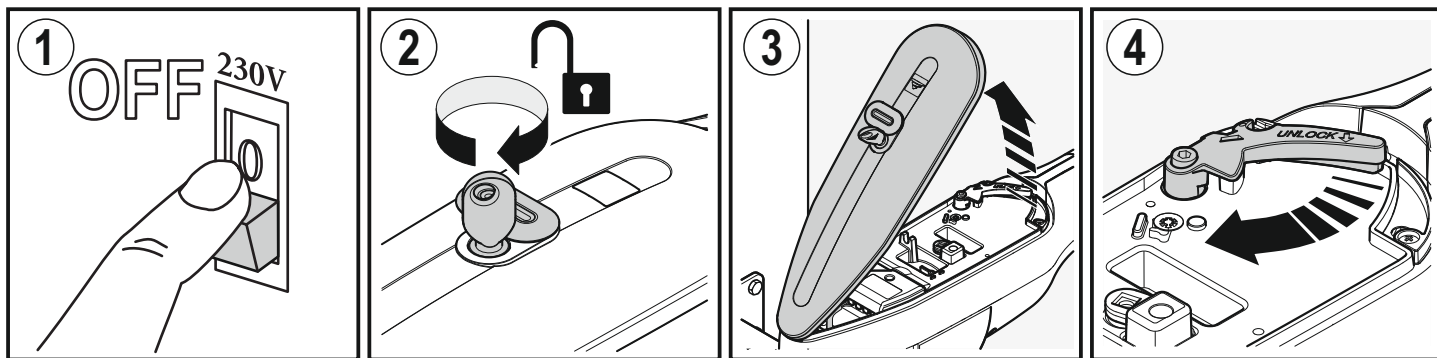
These two operations are only required in the event of a fault or electrical power failure; the user or person responsible must be instructed by the installer, who will provide them with a copy of these instructions, which must be kept in a safe place together with the release key.

Before performing either of these procedures, make sure you disconnect the entire automation from the electrical supply, even if it is currently unpowered due to an outage.

Any electric locks must be specified and released for manual operations.

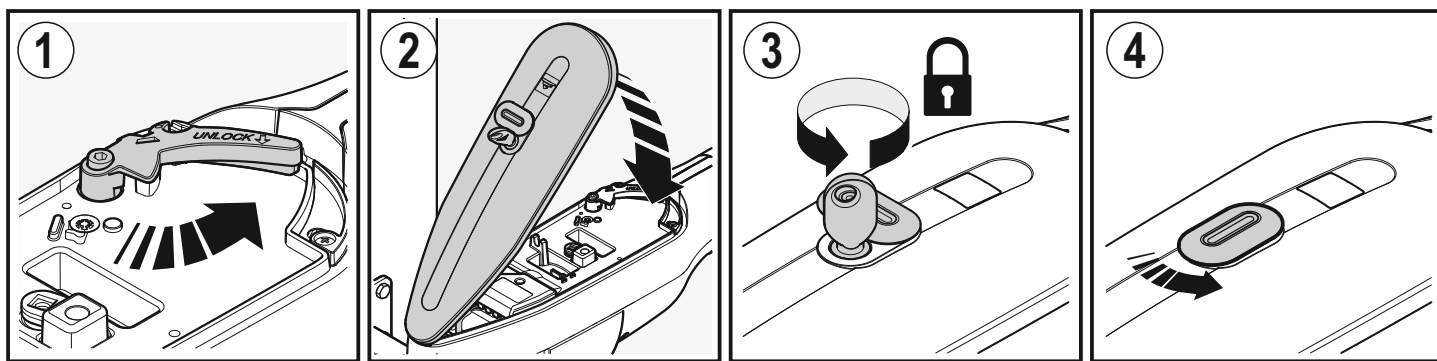
RELEASE: 1) disconnect the electrical supply; 2) rotate the lock protection cover, insert the key and turn it clockwise; 3) raise cover; 4) rotate the orange lever clockwise; the gate leaf can now be moved manually.

5) The leaf can remain unlocked and the cover can be refitted by simply removing the lever.



LOCK: 6) grasp the lever and rotate towards the rear of the actuator; at this point the leaf is locked and can only be moved electrically.

7) After this operation always close the cover; 8) and turn the key to lock it in place; 9) take care to reclose the rubber cap protecting the lock.



For REVERSIBLE models the gate can be operated manually after having released exclusively any electric locks fitted.

ELECTRICAL CONNECTIONS

To gain access to the connections area first open the release lever cover then undo the screw shown in fig. M and remove the casing. The connection cables enter the casing from under the motor unit (fig. N) through two cable glands.

Use extremely flexible cables that are suitable for the ambient conditions in the place of installation; a rigid cable and/or one that is not approved for the specific application can impair the operation and safety of the automation.

The gear motor external cable must follow a loop path such that it does not create an obstruction and is not subject to chafing during movement of the gate.

ENCODER

The actuators are all equipped with an encoder: a sensor that detects all speed changes and allows the Cardin control unit to manage slowing down stages precisely and detect obstacles and stroke end stops.

Wherever possible, we recommend making this additional connection.

Note that all warranties concerning correct operation of the encoder are only applicable to Cardin products.

For the connections sequence refer to figs. L and O in the two versions (model BLADE 230V and BLADE 24V). The recommended minimum wire cross section is 0.5 mm and the maximum length is 10 m.

With 230V BLADE models it is preferable to use a separate cable to connect the encoder to the control unit.

CONNECTION OF ACTUATOR BLADE3, BLADE3REV, BLADE5 and BLADE5REV.

To connect models equipped with a 230V motor refer to fig. L; the minimum wire cross section is 1.5 mm.

Connect the capacitor between the two motor phases.

CONNECTION OF MOTOR BLADE324, BLADE524 and BLADE524REV.

To connect models equipped with a 24V motor refer to fig. O; the recommended minimum wire cross section is 1.5 mm.

For connection distances greater than 10 m the minimum wire cross section is 2.5 mm.

STANDARDS AND SAFETY

Industry standard EN 12445 requires that all automations pass an impact test conducted using a specific test instrument.

It is therefore necessary to carry out impact tests and adjust the control unit parameters until the reading is acceptable; if this proves insufficient to bring the reading to within the limits shown in the chart specified by the standard, install a soft rubber profile on the upper edge of the gate leaf to cushion the impact. If these measures are insufficient, install alternative devices such as a sensitive safety edge along the gate leaf.

- The CE conformity declaration for Cardin products is available in original language from the site www.cardin.it under the section "Standards and Certification" via the link:

<http://www.cardin.it/Attachment/dce156.pdf>



DISPOSAL

This product is made up of various components that could contain pollutants. Dispose of properly! Make enquiries concerning the recycling or disposal of the product, complying with the local laws in force.





CARDIN HOTLINE ITALY

04 38 40 41 50

CARDIN ELETTRONICA S.p.A
Via del lavoro, 73 – Z.I. Cimavilla - 31013
Codognè (TV) Italy
GPS 45.864, 12.375
Tél: (+39) 04 38 40 40 11
fax: (+39) 04 38 40 18 31
e-mail (Italy): sales.office.it@cardin.it
e-mail (Europe): sales.office@cardin.it
[http:// www.cardin.it](http://www.cardin.it)

CARDIN ELETTRONICA FRANCE

333, Avenue Marguerite Perey
77127 LIEUSAIN CEDEX
Tél: 01 60 60 39 34
Fax: 01 60 60 39 62
[http:// www.cardin.fr](http://www.cardin.fr)

CARDIN HOTLINE FRANCE
0892 68 67 07

CARDIN ELETTRONICA DEUTSCHLAND

Neufahrner Str. 12b
D-85375 Neufahrn/Grüneck
TEL: +49 81 65 94 58 77
Fax: +49 81 65 94 58 78
[http:// www.Cardin-DE.DE](http://www.Cardin-DE.DE)

CARDIN HOTLINE DEUTSCHLAND
0172 6742256

CARDIN ELETTRONICA BELGIUM

Acaciastraat 18B
B-2440 Geel
Tél: +32(0)14/368.368
Fax: +32(0)14/368.370
[http:// www.cardin.be](http://www.cardin.be)

CARDIN HOTLINE BELGIUM
014 368 368

GPS AUTOMATION

De Chamotte 2
4191GT Geldermalsen
Tel: +31 (0)345 630 503
[http:// www.cardin.nu](http://www.cardin.nu) /
www.gps-automation.nl

CARDIN HOTLINE NETHERLANDS
0345 630 503