



V2 S.p.A.

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IL n. 290
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AXIL

- I** ATTUATORE Elettromeccanico Irreversibile
PER CANCELLI A BATTENTE
- GB** IRREVERSIBLE ELECTROMECHANICAL ACTUATOR FOR
SWING GATES
- F** OPERATEUR ELECTROMECHANIQUE IRREVERSIBLE
POUR PORTAILS BATTANTS
- E** OPERADOR ELECTROMECAÁNICO IRREVERSIBLE PARA
CANCELAS BATIENTES
- P** ACTUADOR ELECTROMECAÁNICO IRREVERSÍVEL PARA
PORTÕES DE BATENTE
- D** NICHT UMKEHRBARER ELEKTROMECHANISCHER
ANTRIEB FÜR FLÜGELTORE
- NL** ELEKTROMECHANISCHE, ONOMKEERBARE
LINEAIRE MOTOR VOOR HEKKEN MET VLEUGELS
- PL** ELEKTROMECHANICZNY NIEODWRACALNY
SIŁOWNIK DO BRAM SKRZYDŁOWYCH
- HU** VISSZAFORDÍTHATATLAN ELEKTRO-MECHANIKUS
MŰKÖDTETŐ LENGŐ KAPUKHOZ

IMPORTANT REMARKS



Prior to proceeding with installation, it is essential the instructions be read in full, since they contain important information regarding safety, installation, use and maintenance.

AUTOMATION MUST BE IMPLEMENTED IN COMPLIANCE WITH THE EUROPEAN REGULATIONS IN FORCE:
EN 60204-1, EN 12445, EN 12453, EN 13241-1, EN 12635

- The installer must provide for a device (es. magnetothermal switch) ensuring the omnipolar sectioning of the equipment from the power supply. The standards require a separation of the contacts of at least 3 mm in each pole (EN 60335-1).
- The plastic case has an IP44 insulation; to connect flexible or rigid pipes, use pipefittings having the same insulation level.
- Installation requires mechanical and electrical skills, therefore it shall be carried out by qualified personnel only, who can issue the Compliance Certificate concerning the whole installation (Machine Directive 2006/42/CEE, Annex IIA).
- Also the automation upstream electric system shall comply with the laws and rules in force and be carried out workmanlike.
- We recommend to make use of an emergency button, to be installed by the automation (connected to the control unit STOP input) so that the gate may be immediately stopped in case of danger.
- For correct installation of the system, we recommend following the instructions issued by UNAC very carefully, which can be consulted at the following web site: www.v2home.com
- This instruction manual is only for qualified technicians, who specialize in installations and automations.
- The contents of this instruction manual do not concern the end user.
- Every programming and/or every maintenance service should be done only by qualified technicians.
- Anything not expressly described in these instructions is prohibited; unforeseen uses may be a source of danger to people and property.
- Do not install the product in explosive environments and atmospheres: the presence of inflammable gases or fumes is a serious safety hazard.
- Do not make any modifications to any part of the automation device, or the accessories connected to it, unless described in this manual.
- Any other modifications will void the warranty on the product.
- The installation steps should be conducted so as to avoid rainy weather, which can expose electronic circuits to dangerous water seepage.
- All operations requiring the casing of the device to be opened should be performed with the control unit disconnected from the electricity supply and with a warning notice displayed, for example: "CAUTION, MAINTENANCE IN PROGRESS".
- Avoid exposing the device close to sources of heat and flame.

- In the event of interventions on automatic or differential breakers or fuses, it is essential that faults be identified and resolved prior to resetting. In the case of faults that cannot be resolved using the information to be found in this manual, consult the V2 customer assistance service.
- V2 declines all responsibility for failure to comply with good construction practice standards in addition to structural deformation of the gate that might occur during use.
- V2 reserves the right to make modifications to the product without prior warning.
- Installation/maintenance personnel should wear individual protection devices (IPDs), such as overalls, safety helmets, boots and gloves.
- The ambient operating temperature should be that indicated in the technical characteristics table.
- The automation device should be shut down immediately in the event of any anomalous or hazardous situation; the fault or malfunction should be immediately reported to the person responsible.
- All safety and hazard warnings on the machinery and equipment should be complied with.
- Electromechanical actuators for gates are not intended to be used by people (including children) with diminished physical, sensory or mental capacity, or lacking in experience or knowledge, unless they are under supervision or have been instructed in use of the actuator by a person responsible for safety.

V2 has the right to modify the product without previous notice; it also declines any responsibility to damage or injury to people or things caused by improper use or wrong installation.



DISPOSAL OF THE PRODUCT

As for the installation operations, even at the end of this product's life span, the dismantling operations must be carried out by qualified experts.

This product is made up of various types of materials: some can be recycled while others need to be disposed of. Find out about the recycling or disposal systems envisaged by your local regulations for this product category.

Important! – Parts of the product could contain pollutants or hazardous substances which, if released into the environment, could cause harmful effects to the environment itself as well as to human health.

As indicated by the symbol opposite, throwing away this product as domestic waste is strictly forbidden. So dispose of it as differentiated waste, in accordance with your local regulations, or return the product to the retailer when you purchase a new equivalent product.

Important! – the local applicable regulations may envisage heavy sanctions in the event of illegal disposal of this product.

PRELIMINARY CHECKS AND IDENTIFICATION OF THE TYPE TO BE USED

The automation device should not be used until installation, as specified in "Testing and start-up", has been performed. It should be remembered that the device does not compensate for defects caused by improper installation, or poor maintenance, thus, prior to proceeding with installation, ensure that the structure is suitable and meets current standards and, if necessary, perform any structural modifications aimed at the implementation of safety gaps and the protection or segregation of all crushing, shearing and transit zones, and verify that:

- The gate has no friction points, either during closing or opening.
- The gate is well balanced, i.e. there is no tendency to move spontaneously when stopped in any position.
- The position identified for fixing the motor reducer allows easy and safe manual manoeuvring, compatible with the size of the motor reducer itself.
- The support on which the automation device will be fixed is solid and durable.
- The mains power supply to which the automation device is connected has a dedicated safety earthing system and differential breaker with tripping current less than or equal to 30 mA (the breaker gap distance should be greater than or equal to 3 mm).

Warning: The minimum safety level depends on the type of use; please refer to the following outline:

Type of activation commands	Closure use type		
	Group 1 Informed people (use in private area)	Group 2 Informed people (use in public area)	Group 3 Informed people (unlimited use)
Man-present command	A	B	Not possible
Remote control and closure in view (e.g. infrared)	C or E	C or E	C and D or E
Remote control and closure not in view (e.g. radio)	C or E	C and D or E	C and D or E
Automatic control (e.g. timed closure control)	C and D or E	C and D or E	C and D or E

Group 1 – Only a limited number of people are authorised for use, and closure is not in a public area. Examples of this type are gates inside business premises, where the sole users are employees, or a part of them who have been suitably informed.

Group 2 – Only a limited number of people are authorised for use, but in this case, closure is in a public area. An example of this may be a company gate that accesses onto a public street, and which is only used by employees.

Group 3 – Anyone can use the automated closure, which is thus located on public land. For example the access gate to a supermarket or an office, or a hospital.

Protection A – Closure is activated by means of a control button with the person present, i.e. with maintained action.

Protection B – With the person present, closure is activated by a command controlled by means of a key-switch or the like, in order to prevent use by unauthorised persons.

Protection C – Restricts the force of the leaf of the door or gate. I.e., in the case of the gate striking an obstacle, the impact force must fall within a curve established by the regulations.

Protection D – Devices, such as photocells, capable of detecting the presence of people or obstacles. They may be active on just one side or on both sides of the door or gate.

Protection E – Sensitive devices, such as footboards or immaterial barriers, capable of detecting the presence of a person, and installed in such a way that the latter cannot be struck in any way by a moving leaf or panel. These devices should be active within the entire "danger zone" of the gate. The Machinery Directive defines "Danger Zone" as any zone surrounding and/or near machinery where the presence of an exposed person constitutes a risk to the health and safety of that person.

The risk analysis should take into consideration all danger zones for the automation device, which should be appropriately protected and marked.

In a clearly visible area, apply a sign with information identifying the motorised door or gate.

The installer should provide the user with all the information relating to automatic operation, emergency opening and maintenance of the motorised door or gate.

TECHNICAL ASSISTANCE SERVICE

For any installation problem please contact our Customer Service at the number +39-0172.812411 operating Monday to Friday from 8:30 to 12:30 and from 14:00 to 18:00.

EC DECLARATION OF INCORPORATION FOR PARTLY COMPLETED MACHINERY (Directive 2006/42/EC, Annex II-B)

The manufacturer (*) **V2 S.p.A.**, headquarters in **Corso Principi di Piemonte 65, 12035, Racconigi (CN), Italy**

Under its sole responsibility hereby declares that:
the partly completed machinery model(s):
AXIL (*), AXIL-FC, AXIL-ECD, AXIL-120V, AXIL-24V

Identification number and year of manufacturing: **typed on nameplate**
Description: **electromechanical actuator for gates**

- is intended to be installed on **gates**, to create a machine according to the provisions of the Directive 2006/42/EC. The machinery must not be put into service until the final machinery into which it has to be incorporated has been declared in conformity with the provisions of the Directive 2006/42/EC and 89/106/CE.
- is compliant with the applicable essential safety requirements of the following Directives:
Machinery Directive 2006/42/EC (annex I, chapter 1)
Low Voltage Directive 2006/95/EC.
Electromagnetic Compatibility Directive 2004/108/EC.

The relevant technical documentation is available at the national authorities' request after justifiable request to:
V2 S.p.A., Corso Principi di Piemonte 65, 12035, Racconigi (CN), Italy

The person empowered to draw up the declaration and to provide the technical documentation:
Cosimo De Falco
Legal representative of V2 S.p.A.
Racconigi, 11th January 2010



(*) made in extra EU Countries on behalf of V2 S.p.A.

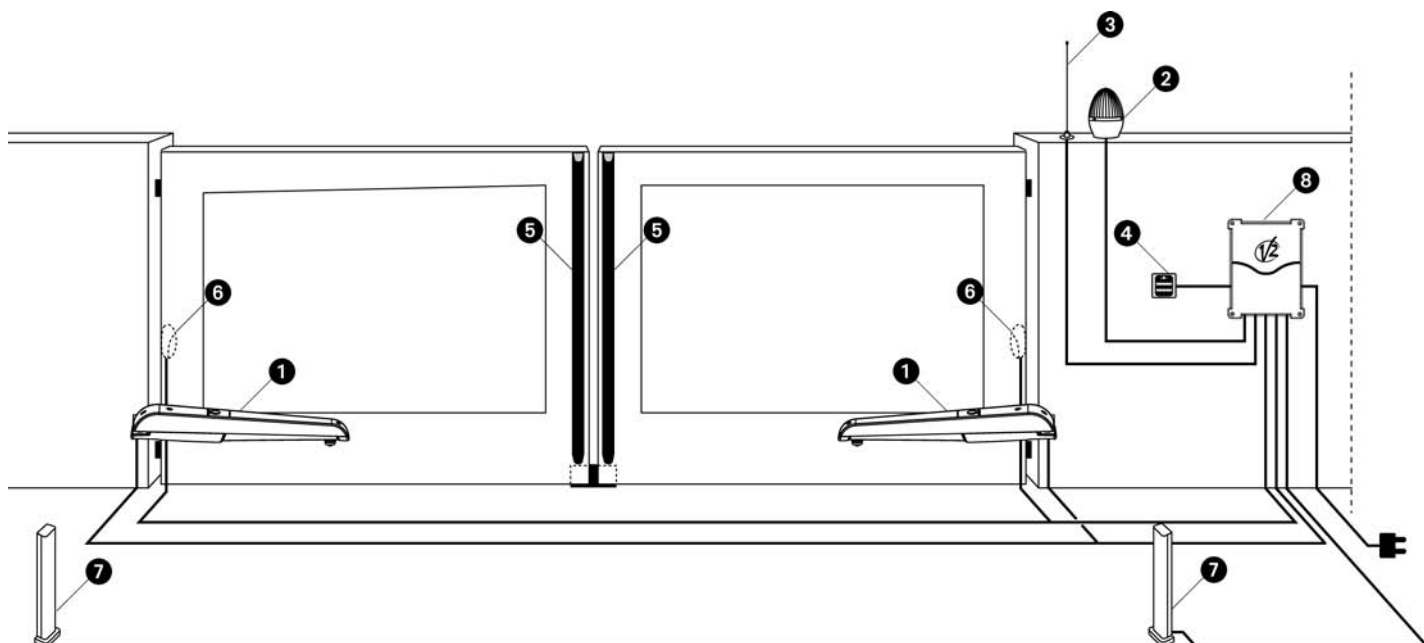
TECHNICAL DATA

AXIL-230V AXIL-120V	Opening mechanical stop Built-in trigger capacitor
AXIL-FC	Opening mechanical stop Built-in trigger capacitor Opening electrical limit switch

AXIL-ECD	Opening mechanical stop Built-in trigger capacitor Encoder
AXIL-24V	Opening mechanical stop Encoder

		230V models	120V models	24V models
Max. leaf length	m	2,8	2,8	2,8
Max. leaf weight	Kg	300	300	300
Power supply	Vac - Hz	230 - 50	120 - 60	24 Vdc
Idling current	A	0,8	1,7	1,0
Full load current	A	1,1	2,2	8
Maximum Power	W	230	240	200
Capacitor	μF	6,3	14	-
Max travel	mm	350	350	350
Operating speed	m/s	0,016	0,018	0,02 ÷ 0,012
Maximum thrust	N	1700	1700	1700
Working temperature	°C	-30 ÷ +55	-30 ÷ +55	-30 ÷ +55
Protection	IP	44	44	44
Working cycle	%	35	30	60
Motor weight	Kg	7,5	7,5	7,5

INSTALLATION LAYOUT



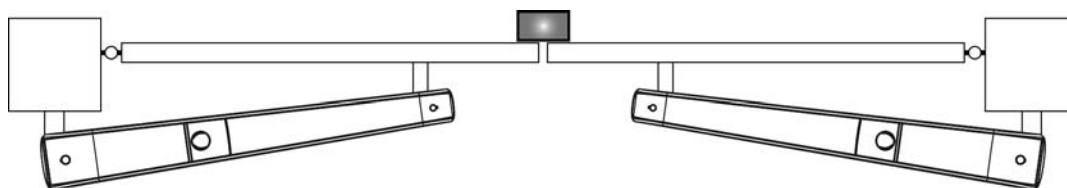
❶ AXIL actuator	- cable 4 x 0,75 mm ² (120V/230V) - cable 3 x 1,5 mm ² (24V)
❷ Blinker	cable 2 x 1,5 mm ²
❸ Aerial	cable RG-58
❹ Key or digital selector	cable 3 x 0,5 mm ²
❺ Safety edge (EN 12978)	- optical type - resistive type

❻ Internal photocells	cable 4 x 0,5 mm ² (RX) cable 2 x 0,5 mm ² (TX)
❼ External photocells	cable 4 x 0,5 mm ² (RX) cable 2 x 0,5 mm ² (TX)
❽ Control unit	cable 3 x 1,5 mm ²

PREPARATORY STEPS

The new series of actuators AXIL, has been devised to serve gates up to 300 Kg with leaf up to 2,8 meters wide. Before proceeding with the installation, please make sure that your gate opens and closes freely, and that:

- Hinges and pins are in optimum condition and properly greased.
- No obstacles are within the moving area.
- There is no friction with the ground or between the leaves.
- Your gate is equipped with a central latch.



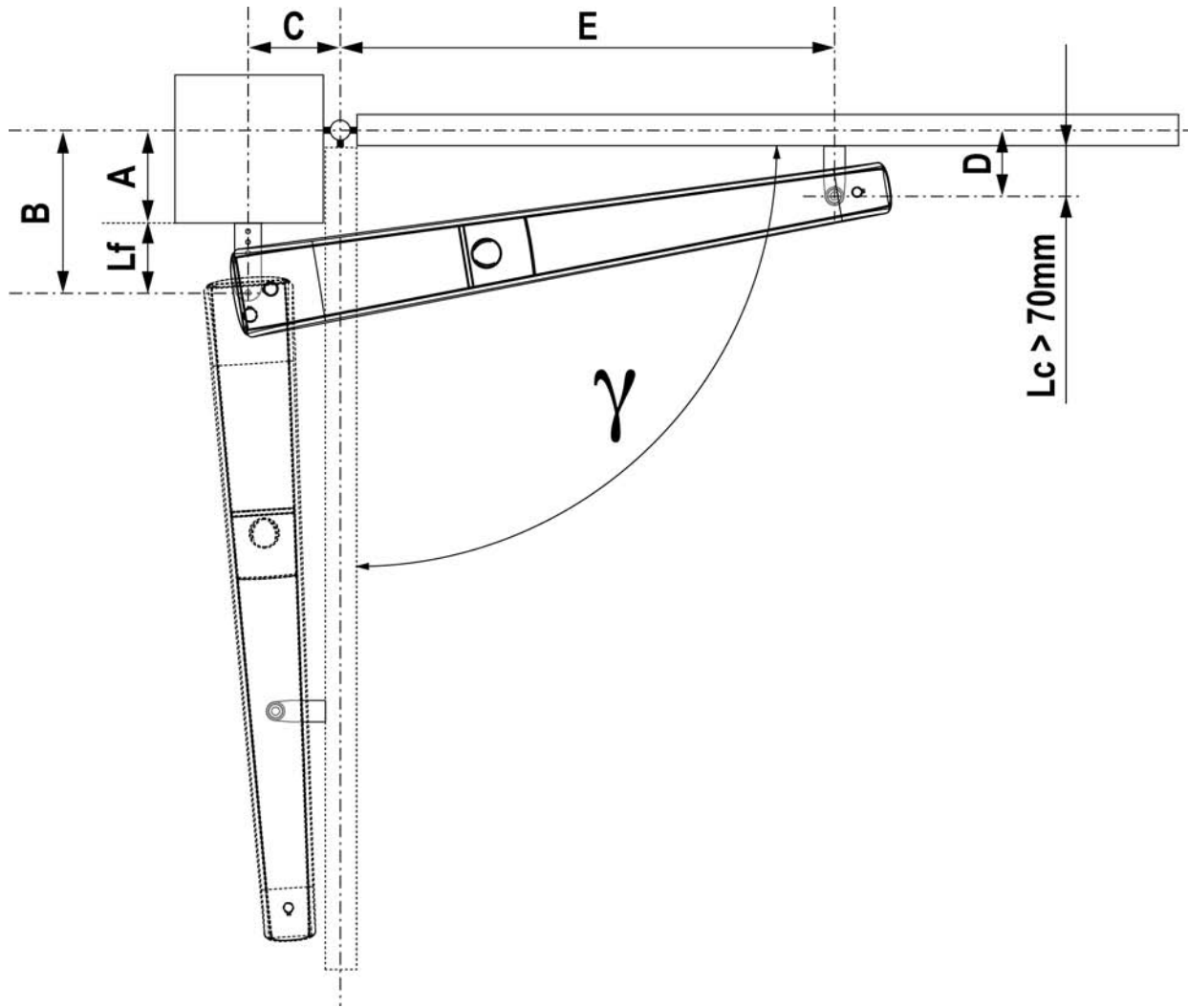
INSTALLATION MEASURES

To carry out a proper installation of the operator parts as well as to ensure the best automation performance, the measurement levels shown in the following table shall be complied with. Change the gate structure to adapt it to one of the cases in the table, if necessary.

⚠ WARNING: In the case of leaf longer than 2,5 metres, an electric lock must be fitted to ensure an efficient closing.

⚠ WARNING: In order to avoid contacts of the operator against the shutter, it is necessary to keep as much exactly as possible the height D taking into consideration a margin between 0 and +5mm.

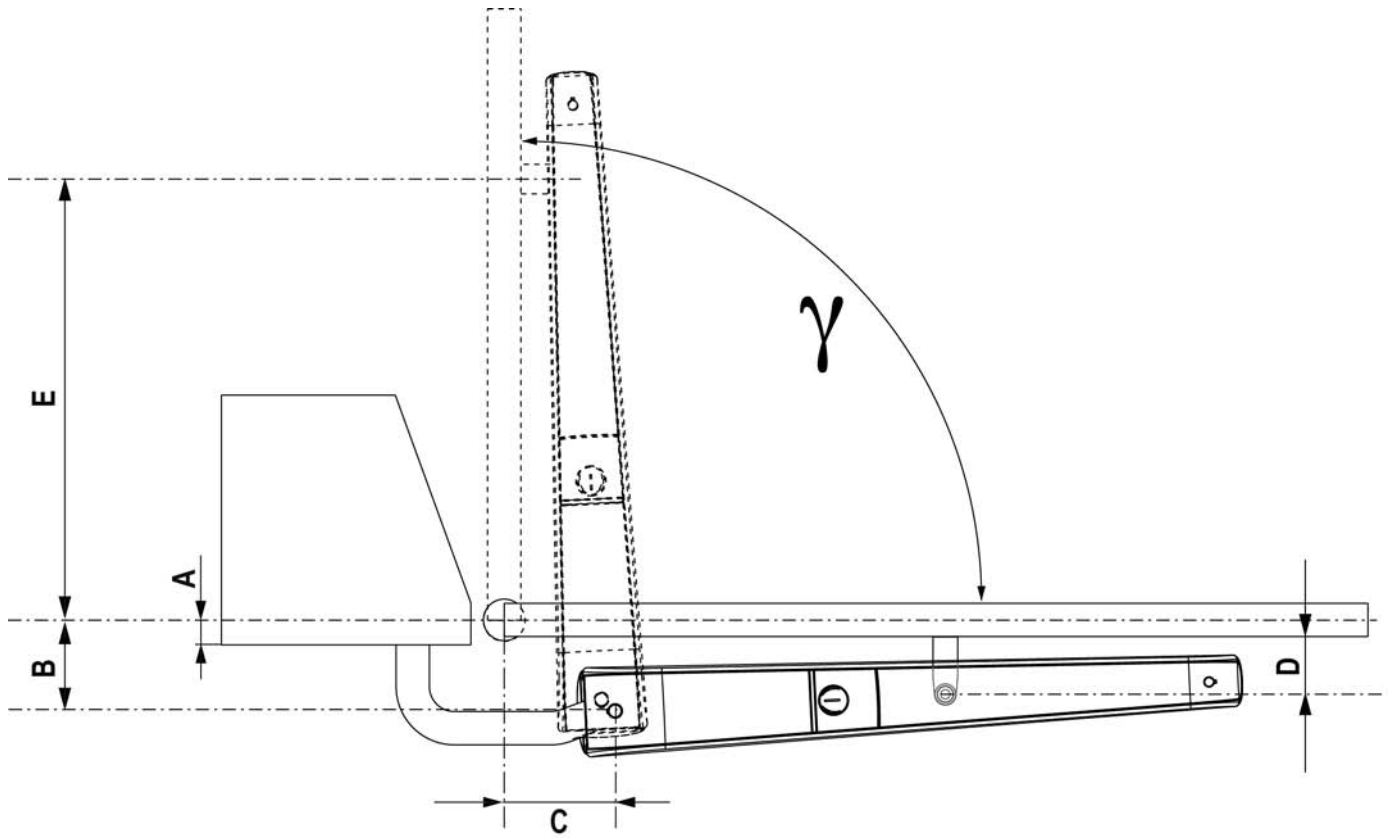
INWARD OPENING



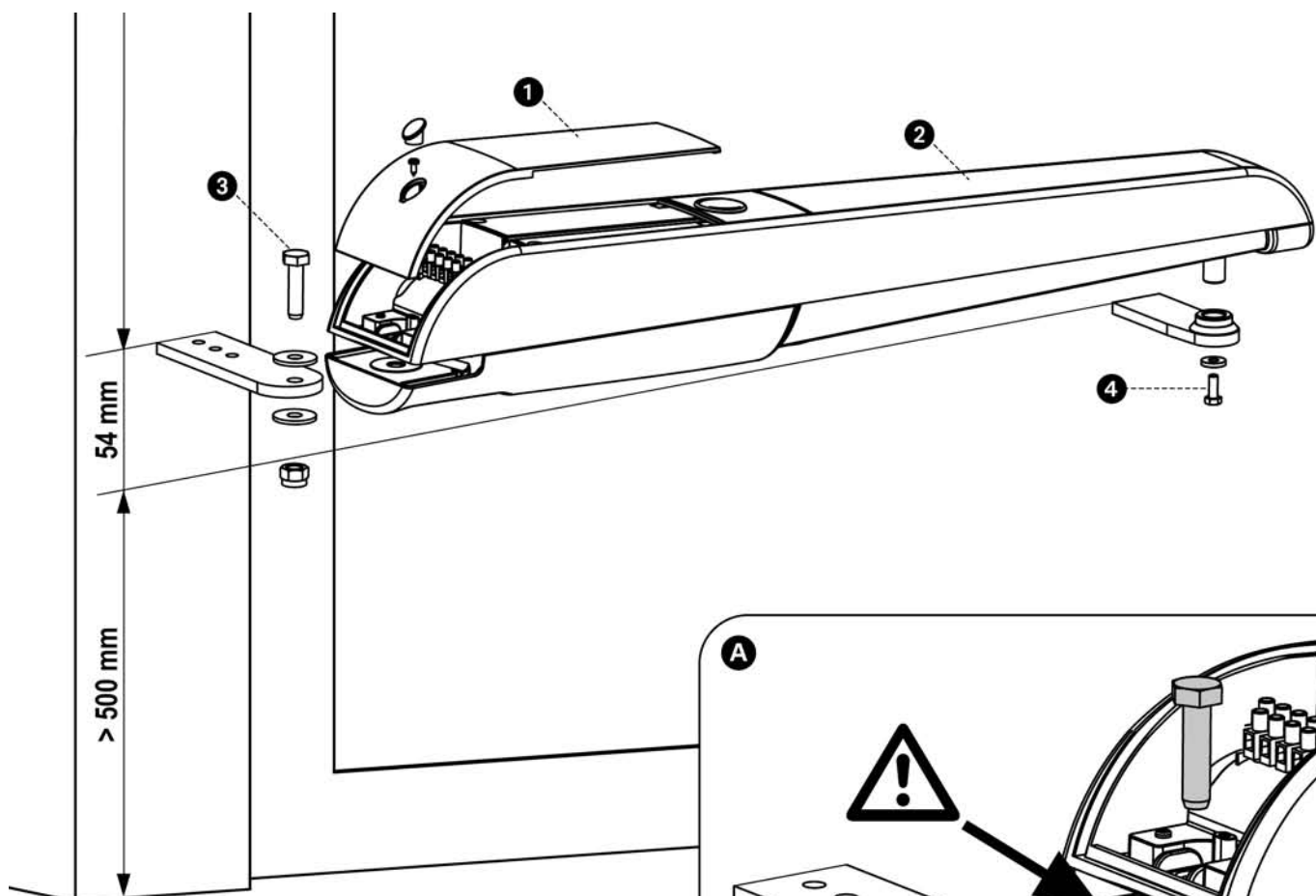
γ	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Lf [mm]
90°	20	120	120	100	570	100
	30	130	120	100	570	100
	40	140	120	110	570	100
	50	150	120	110	570	100
	60	160	120	110	570	100
	70	170	120	110	570	100
	80	170	120	120	570	90
	90	180	120	120	570	90
	100	190	120	120	570	90
	110	190	120	120	570	80
	120	200	110	120	570	80
	130	210	110	130	565	80

γ	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Lf [mm]
110°	20	110	150	100	550	90
	30	120	150	100	550	90
	40	130	150	100	550	90
	50	130	150	110	550	80
	60	130	150	110	550	70
	70	140	150	120	550	70
	80	150	150	120	550	70
	90	160	150	120	550	70
120°	20	100	160	110	535	80
	30	110	160	110	535	80
	40	110	165	110	535	70
	50	120	165	120	535	70

OUTWARD OPENING



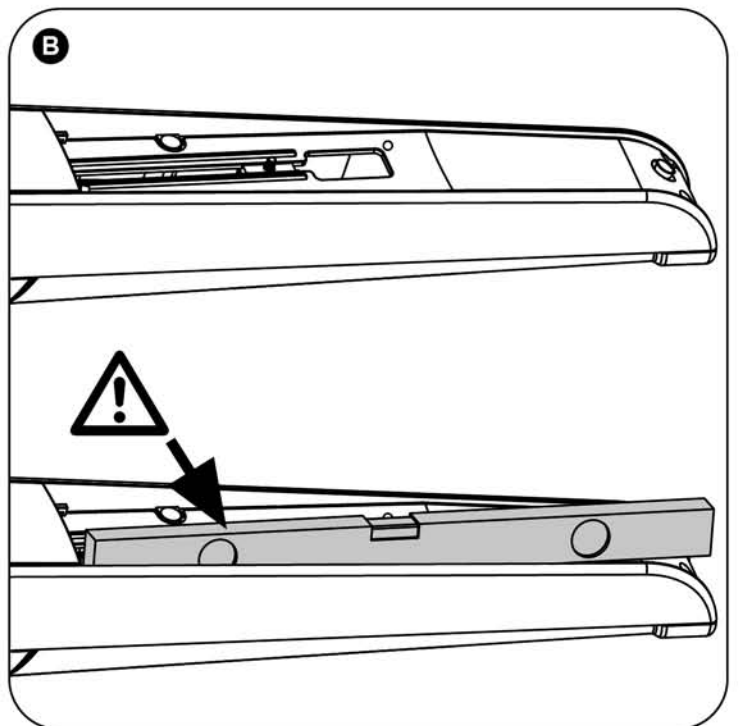
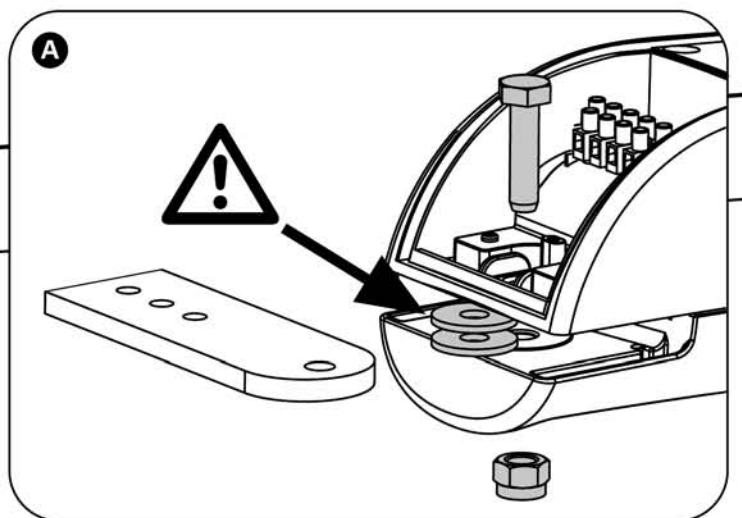
γ	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
80°	30	110	95	70	614
85°	30	110	110	70	623
90°	30	110	120	70	633
95°	30	110	135	70	644
100°	30	110	150	70	658
110°	30	110	170	70	684



MOUNTING OF THE ACTUATORS

After having set on the pillars the measures chosen from the table of the previous page, go ahead and proceed with the following operations:

1. Set and fasten the brackets on the pillars and the gate.
 - ⚠ **ATTENTION:** the front bracket must be positioned 54 mm lower than the rear bracket.
2. Close the shutter.
3. Unblock the actuators.
4. Take apart the two plastic covers (1 and 2)
5. Position AXIL on the brackets and fasten bolt 3 with the corresponding self-locking nut and two washers
 - ⚠ **ATTENTION:** Insert the two washers as indicated in panel A.
6. Fasten bolt 4 after having inserted the washer.
 - ⚠ **ATTENTION:** verify that it is in draw-bar bubble as indicated in panel B
7. Try to open and close the shutters manually several times making sure that there are not frictions between the actuator and the structure of the gate.

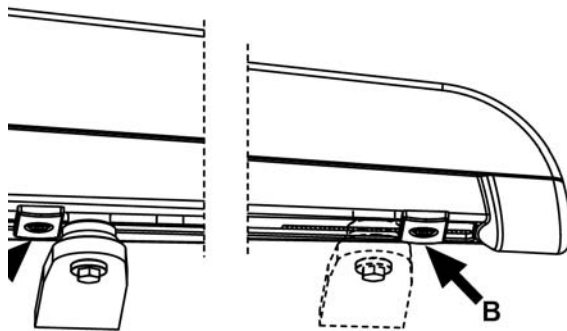


OPERATION END-STOP

Versions WITHOUT electrical end-stop

For the end-stop operation, proceed as follows:

- Bring the shutter in position of maximum opening, then position the mechanical stop **A**, and shot effect, against the crosshead nut.
- Block the mechanical stop by fastening the bolt with a 13mm key.
- Bring the shutter in position of maximum closing, then position the mechanical stop **B** (accessory code 162223), and shot effect, against the crosshead nut.
- Block the mechanical stop by fastening the bolt with a 13mm key.

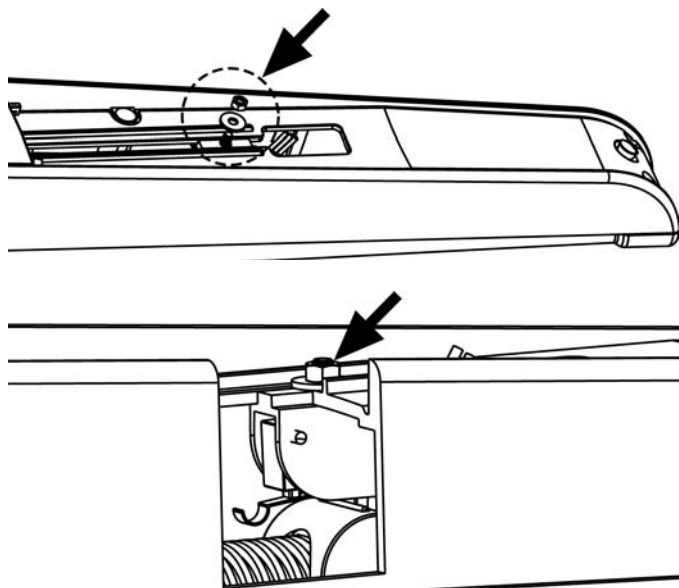


Versions WITH electrical end-stop

The electrical end-stop (already wired inside the motor) interrupts the feeding on the motor preventing unnecessary stress and overheating.

For the end-stop operation proceed as follows:

- Remove the front crankcase of the motor and loosen the assembly nut that holds the electrical end-stop
- Bring the shutter in position of maximum opening and position the electrical end-stop so that the switch engages.
- Close the assembly nut that holds the electrical end-stop
- Insert the front Carter (casing), close the feed screw and insert plugs
- Position the mechanical stop so that the run is immediately blocked after the engaging of the switch.
- Block the mechanical stop by fixing the bolt with a 13mm key.



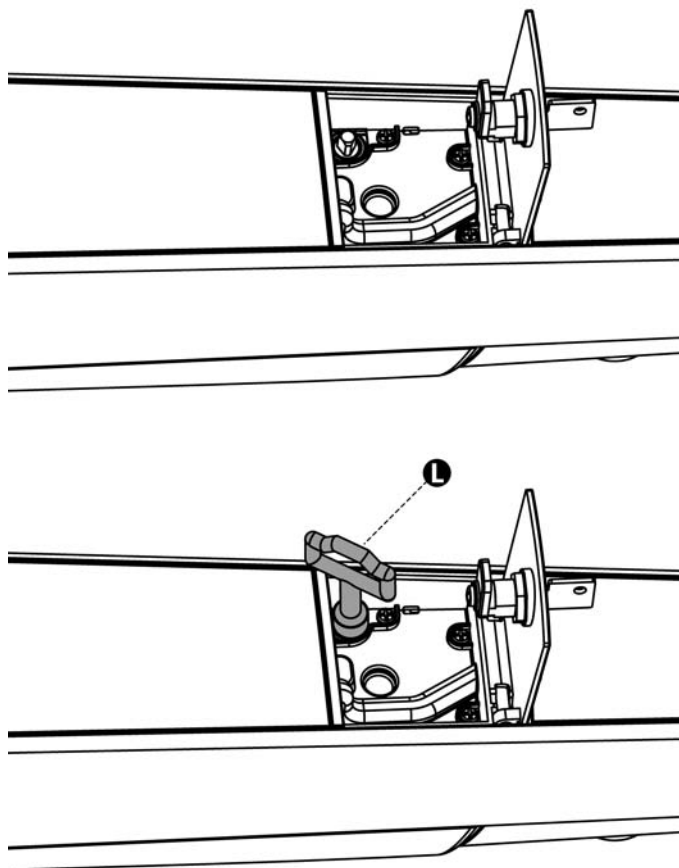
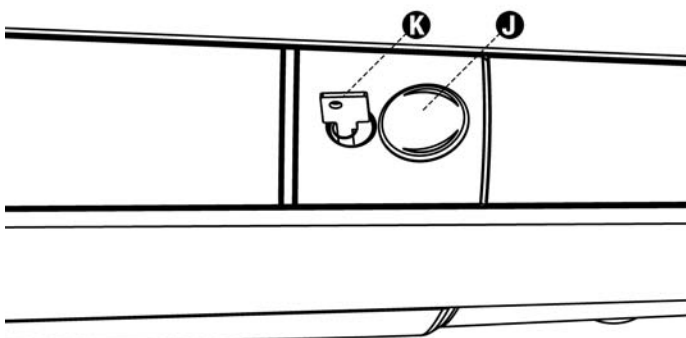
EMERGENCY RELEASE

In case of lack of electrical power, or loss of power, bypassing the motor can unblock the gate:

1. Open the closing cover **J** located on the front side of the motor
2. Insert key **K** in the lock, turn it clockwise and completely open the plastic access flap
3. Insert key **L** in the hole and rotate clockwise until end-stop

In order to restore the automation proceed as follows:

1. Turn the key **L** in counter-clockwise sense until end-stop and remove it
2. Close the access flap and turn the key **K** in counter-clockwise sense
3. Cover the lock with the access flap **J**



ELECTRICAL CONNECTIONS

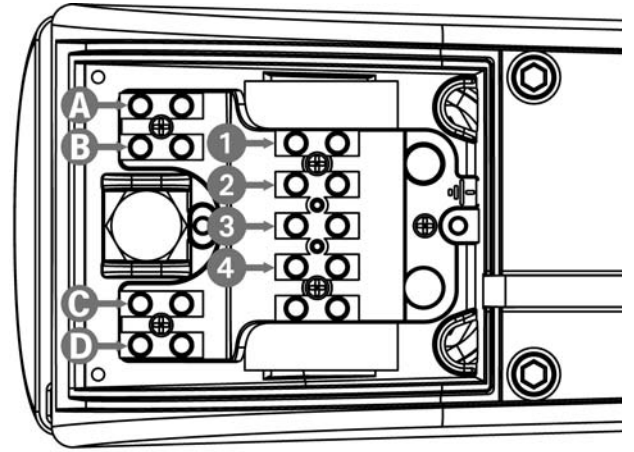
Models 230V and 120V

- ① Earth-fault protection
- ② Opening
- ③ Common
- ④ Closing

⚠ ATTENTION:

- Always connect the ground cable as stipulated by enforced norms (EN 60335-1, EN 60204-1).
- For the connection only use cables H05RN-F model 4G0, 75 or 4G1 with \varnothing external 10 mm maximum

Finish the electrical connections closing the rear space of the motor with the plastic cover and locking the cable press.



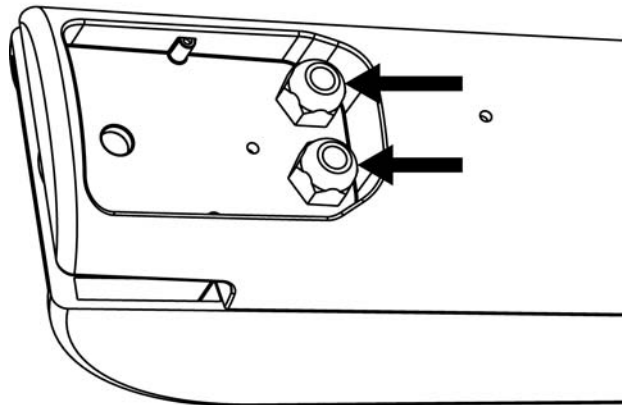
Models 24V

- ① Earth-fault protection
- ② +
- ③ -
- ④ not used

⚠ ATTENTION:

- Always connect the ground cable as stipulated by enforced norms (EN 60335-1, EN 60204-1).
- For the connection only use cables H05RN-F model 3G1,5 with \varnothing external 10 mm maximum

Finish the electrical connections closing the rear space of the motor with the plastic cover and locking the cable press.



ENCODER CONNECTION

⚠ ATTENTION: For encoder operation, when in the closed position, both gate panels must rest against a mechanical stop.

Hereafter the directions to follow to connect the cables of the encoder to the control unit:

	ENCODER cable		CONTROL UNIT
M O T O R 1	Ⓐ	RED	+ 24 Vdc
	Ⓑ	BLACK	COM (-)
	Ⓒ	BLUE	FCA2
	Ⓓ	WHITE	FCC2
M O T O R 2	Ⓐ	RED	+ 24 Vdc
	Ⓑ	BLACK	COM (-)
	Ⓒ	BLUE	FCA1
	Ⓓ	WHITE	FCC1

⚠ ATTENTION: extensions of the cables must be made only with a 4x0,22 shielded cable with polyethylene sheath

⚠ ATTENTION: connect the shielding braith sheath to the common accessories. Check that the ground of the power supply of the accessories is connected to the common accessories.

Finish the electrical connections closing the rear space of the motor with the plastic cover and locking the cable press.