

RÉVO+

Gear motor for hinged gates



Management
System
ISO 9001

www.tuv.com
ID 9105043769

IMAGES

Fig. 1
EN - Space dimensions

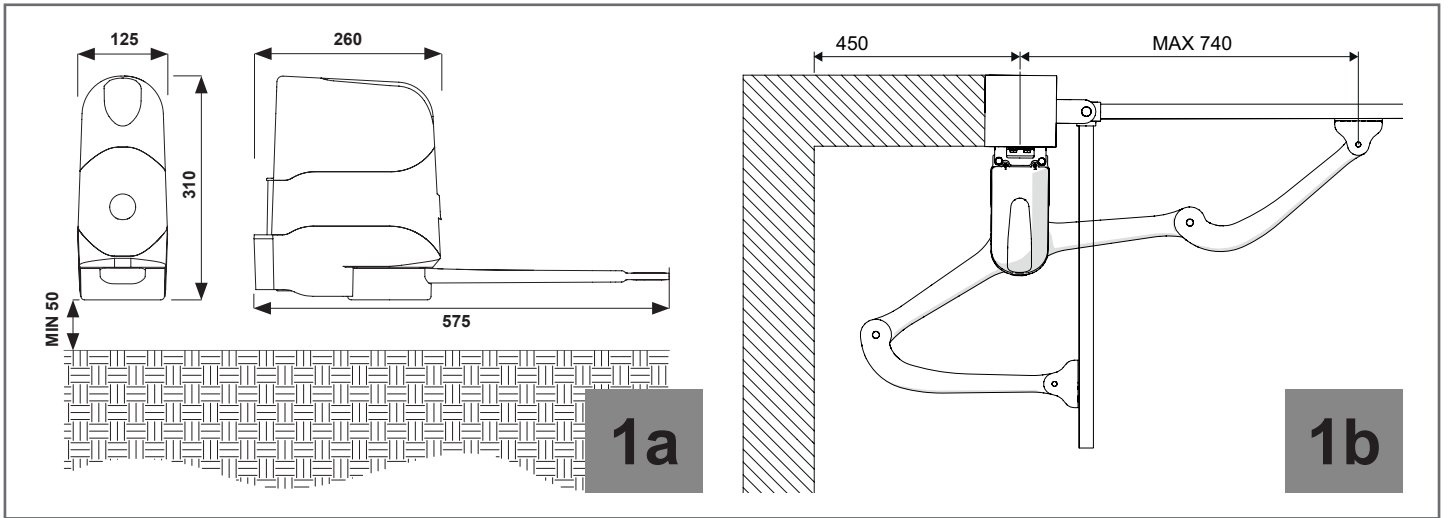


Fig. 2
EN - Use limitations

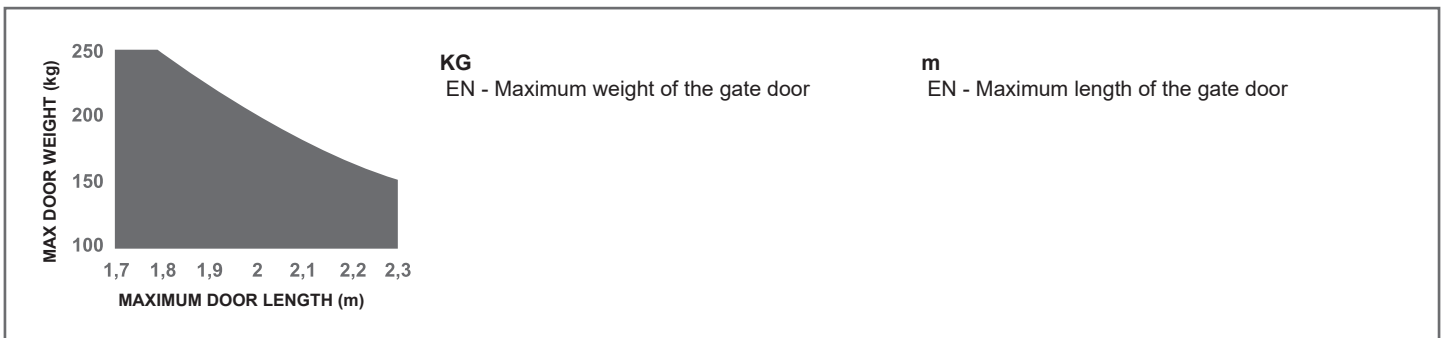


Fig. 3
EN - Components

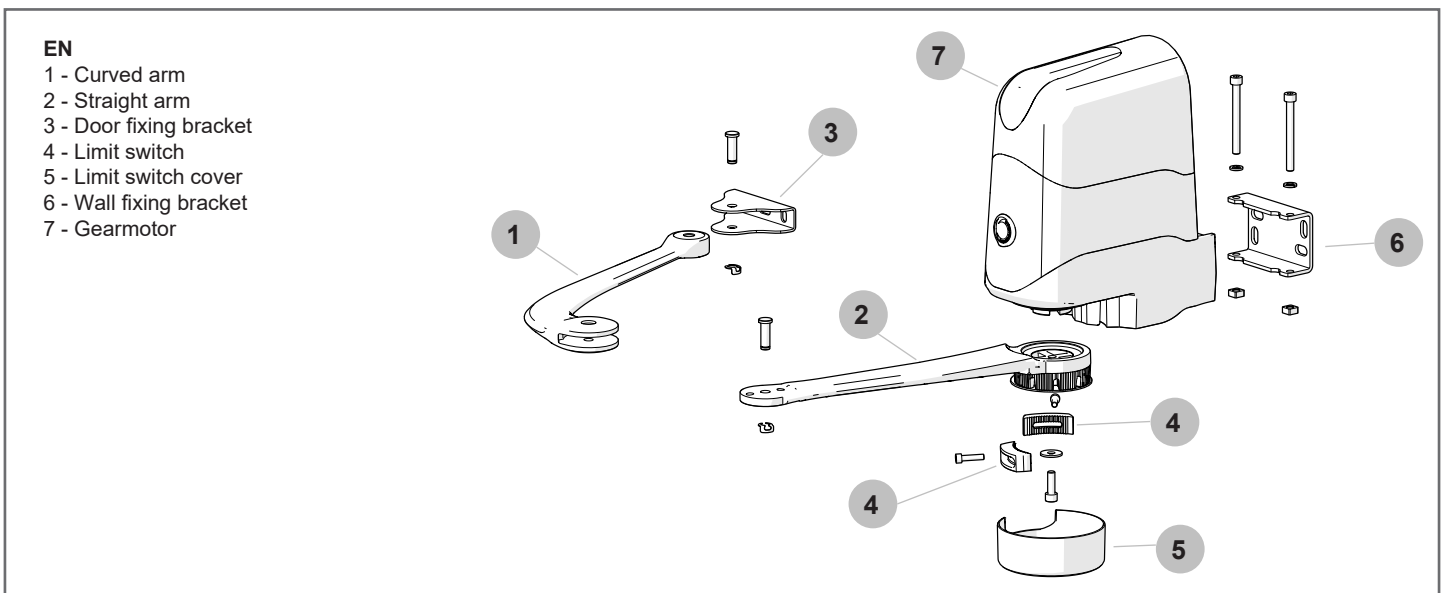


Fig. 4
EN - Quotes representation

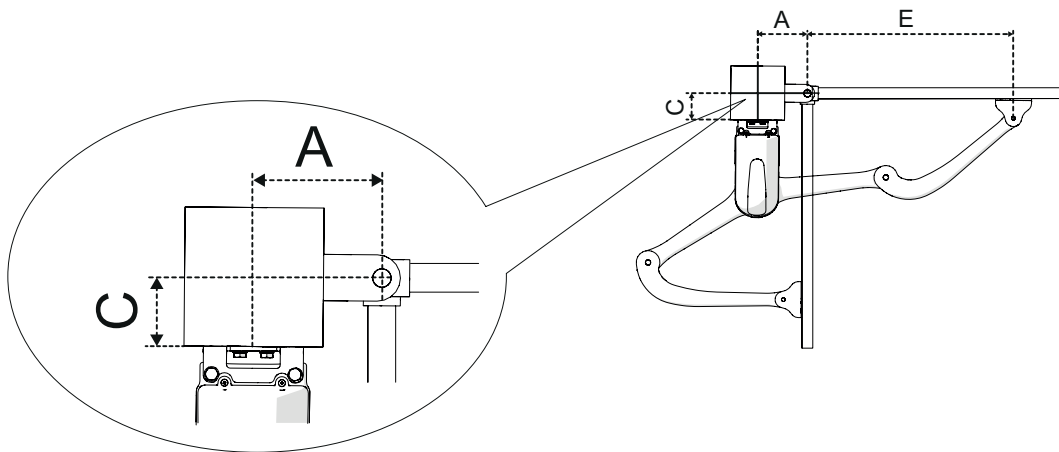


Fig. 5
EN - Opening angle graph

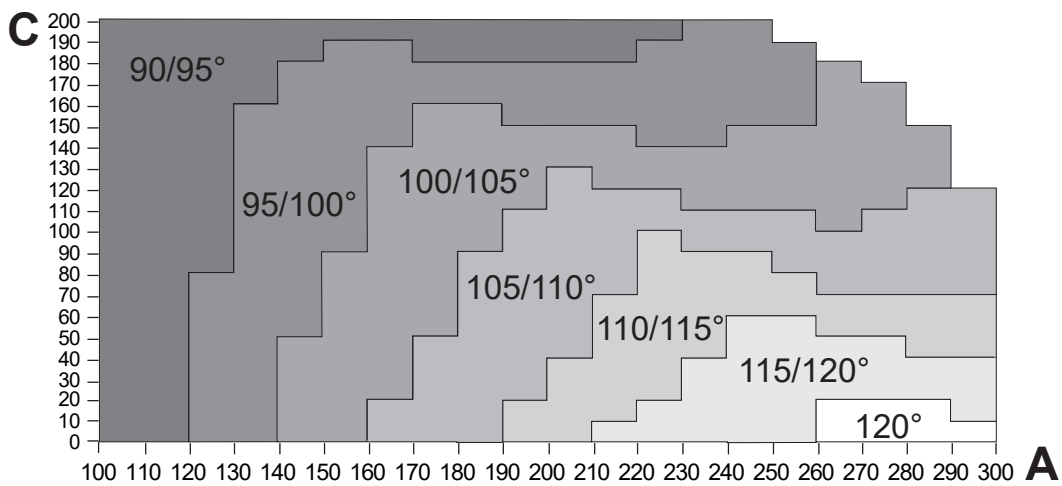


Fig. 6 IT - Installazione tipica
EN - Typical Installation



Fig. 7
EN - Positioning the motor

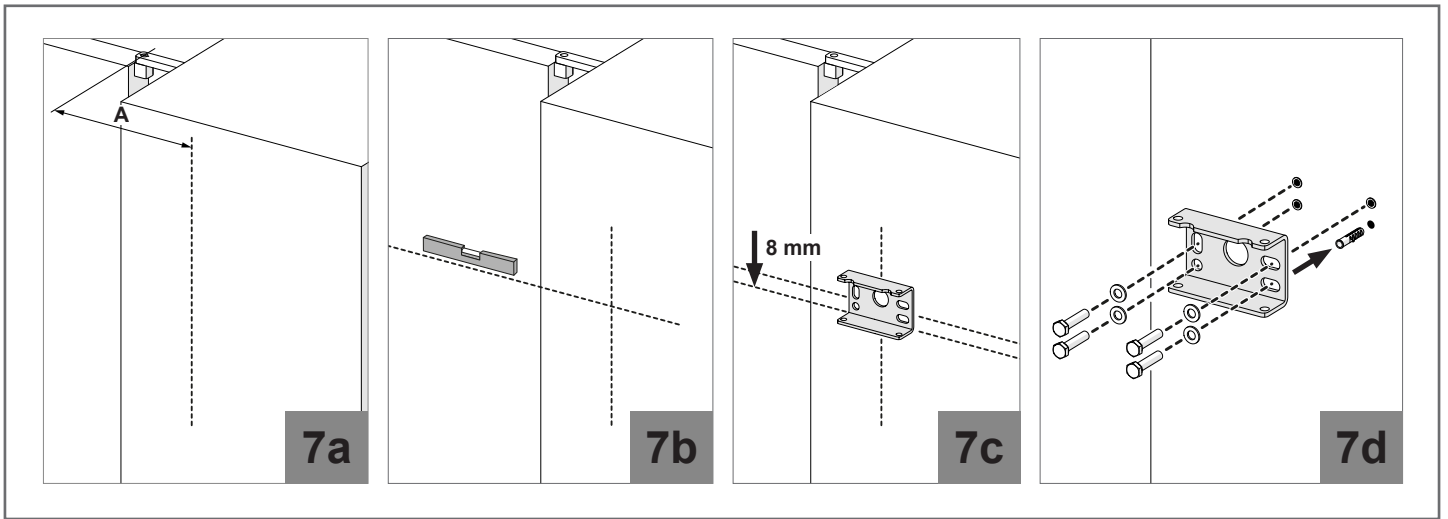


Fig. 8
EN - Fixing the motor

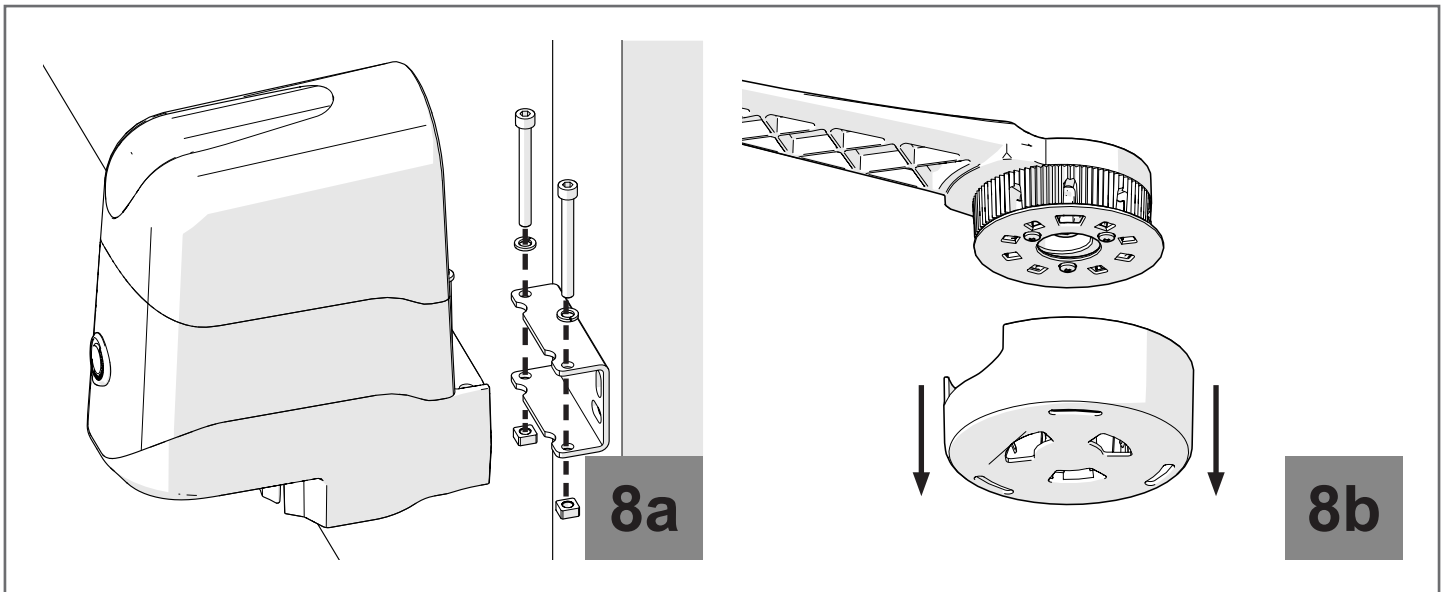


Fig. 9
EN - Fixing the leaf bracket

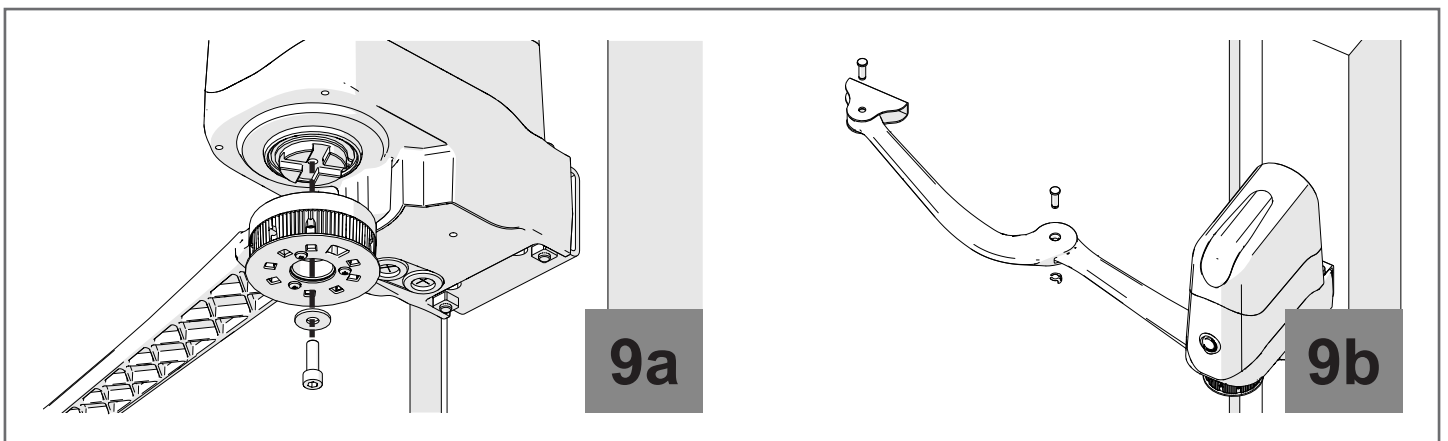


Fig. 10
EN - Gearmotor release

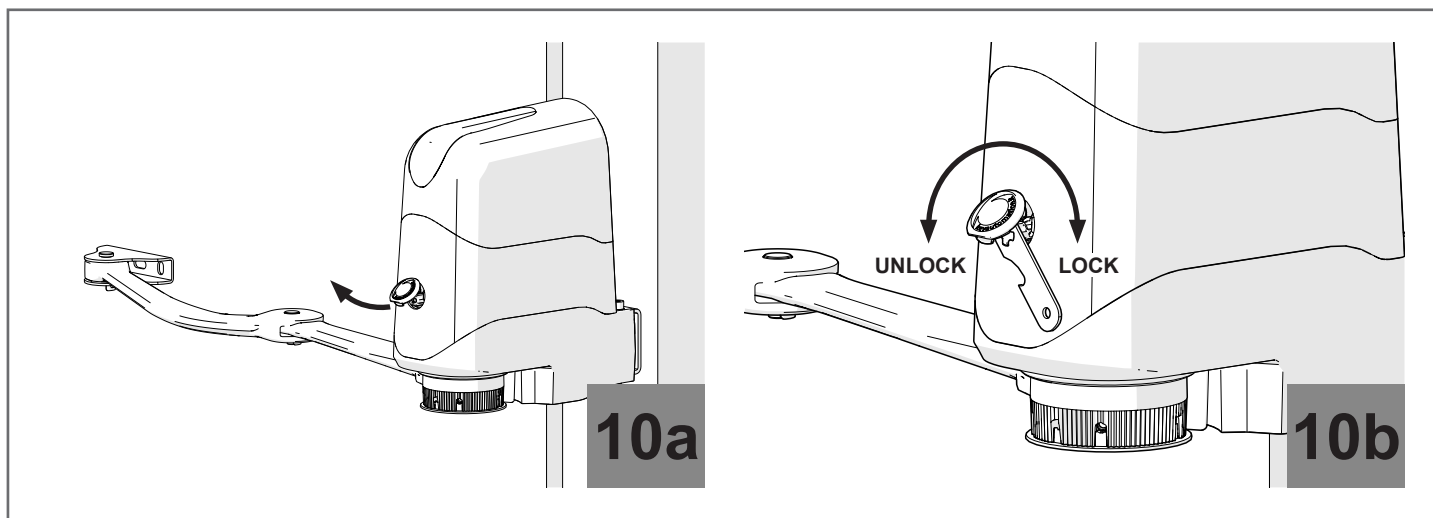


Fig. 11
EN - Fixing the leaf bracket

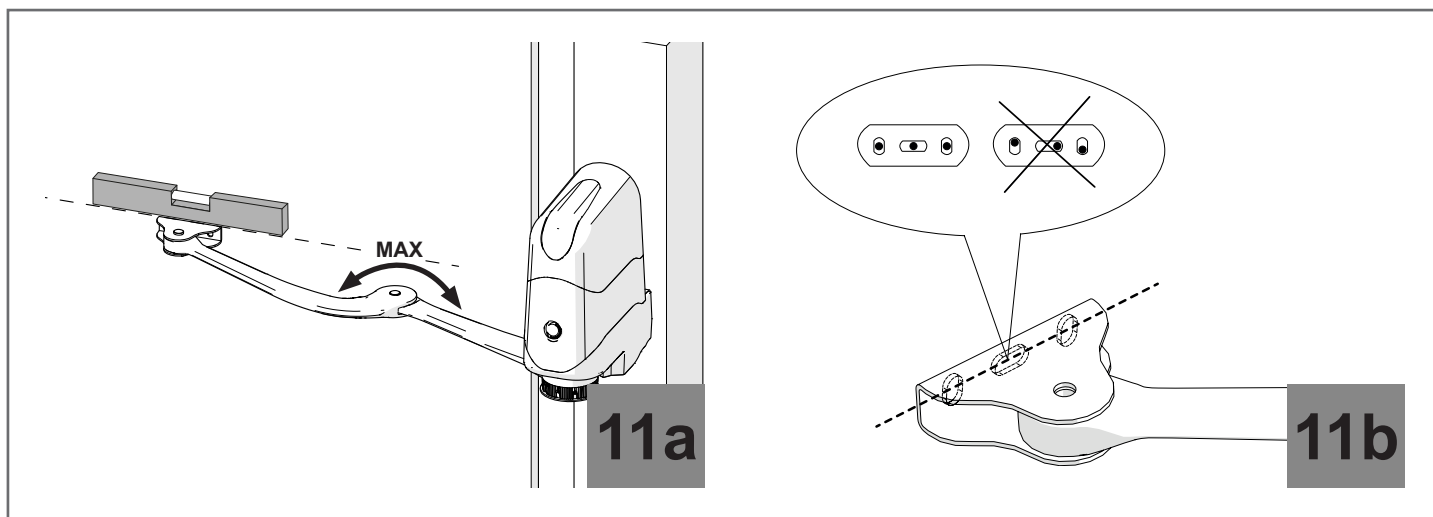


Fig. 12
EN - Mechanical stop adjustment

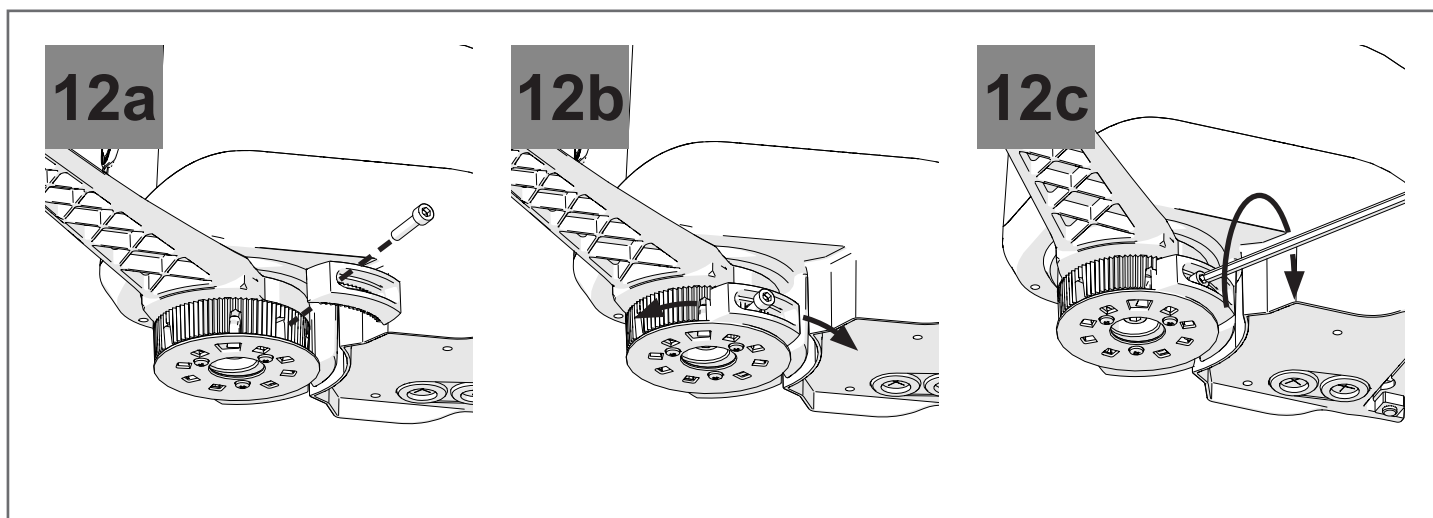


Fig. 13
EN - Limit switch cap assembly

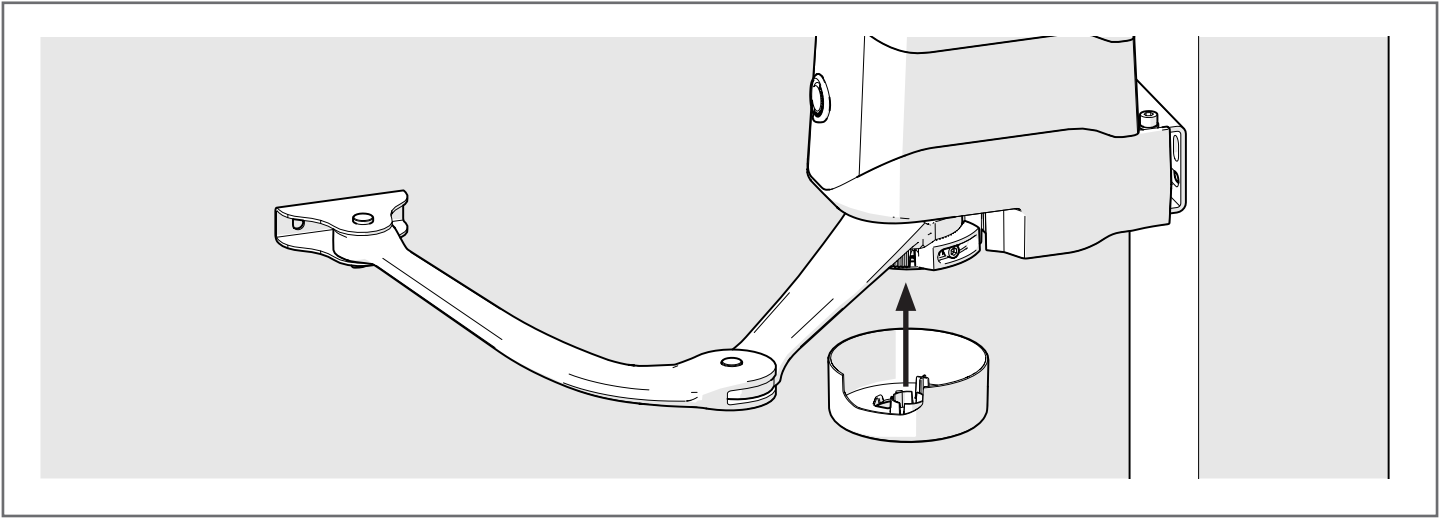


Fig. 14
EN - Electrical connections

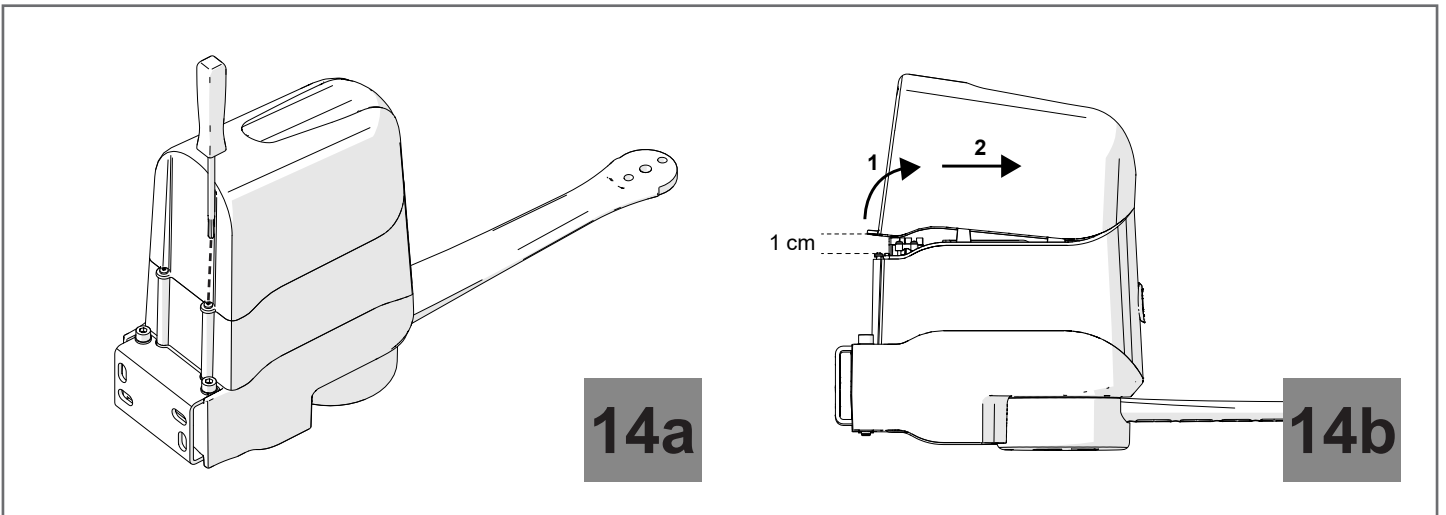


Fig. 15
EN - Positioning the cover

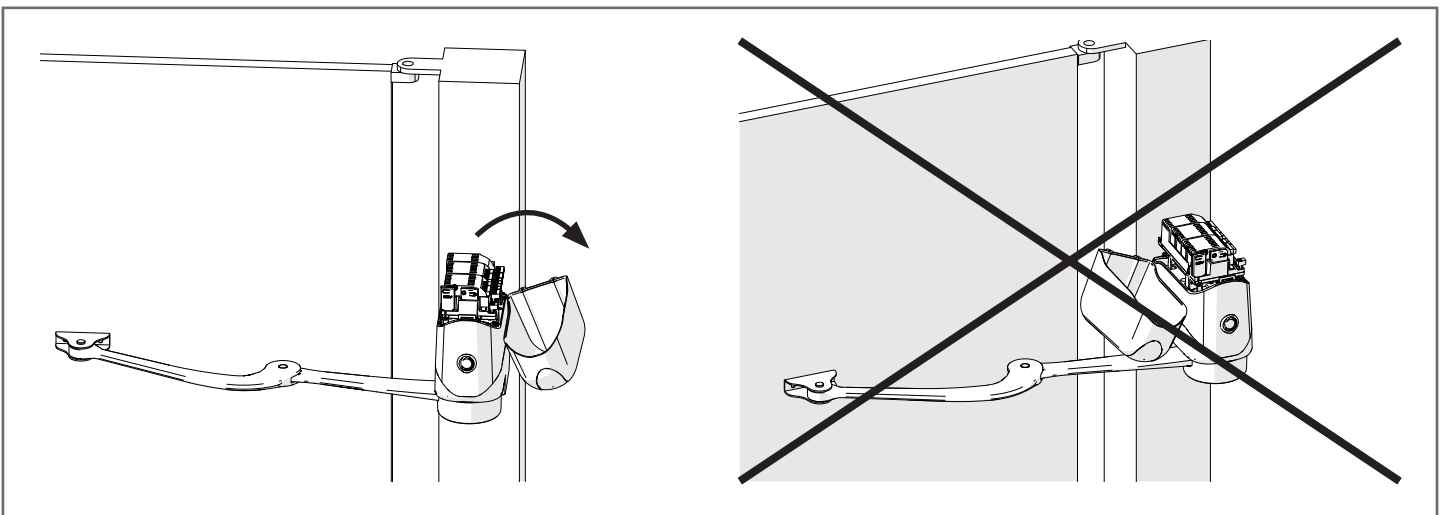


Fig. 16
EN - Connections and cables

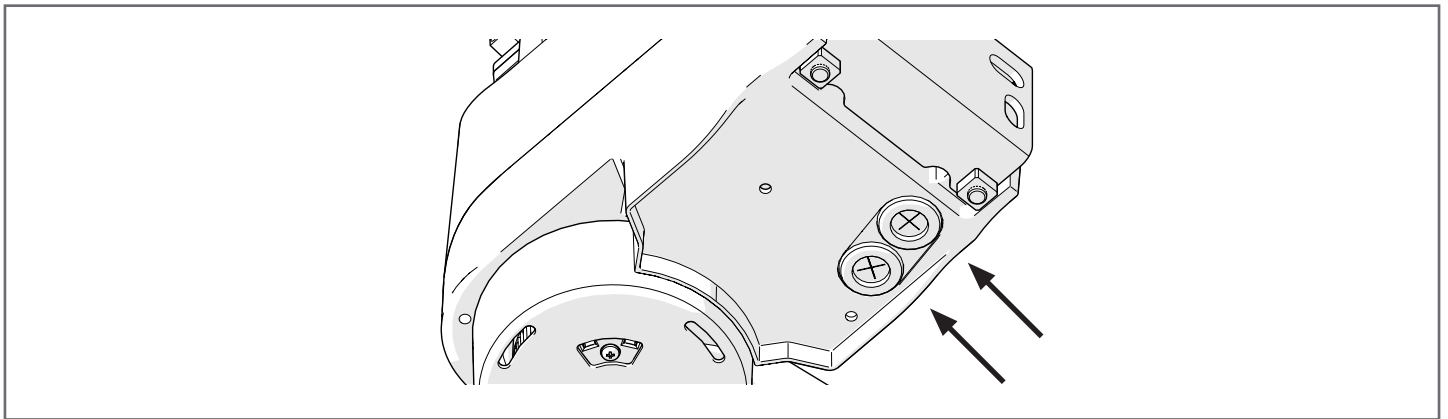


Fig. 17
EN - Connections and cables

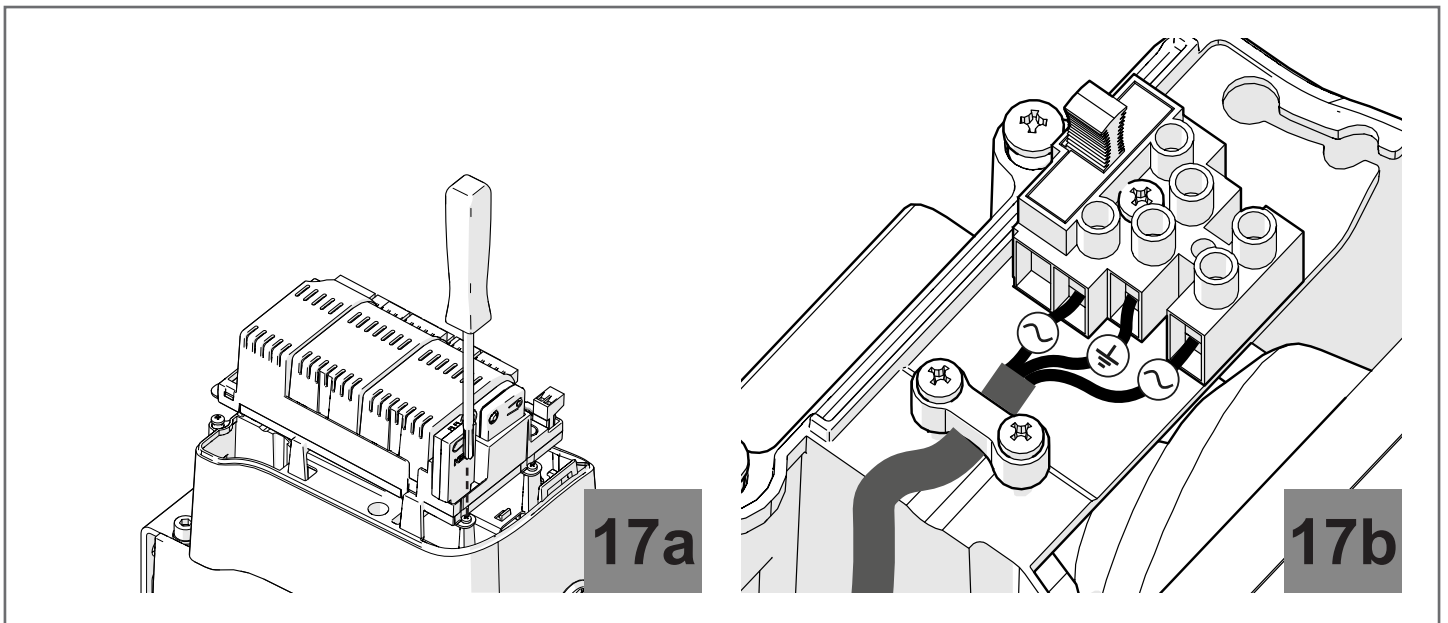


Fig. 18
EN - Removing the light cover

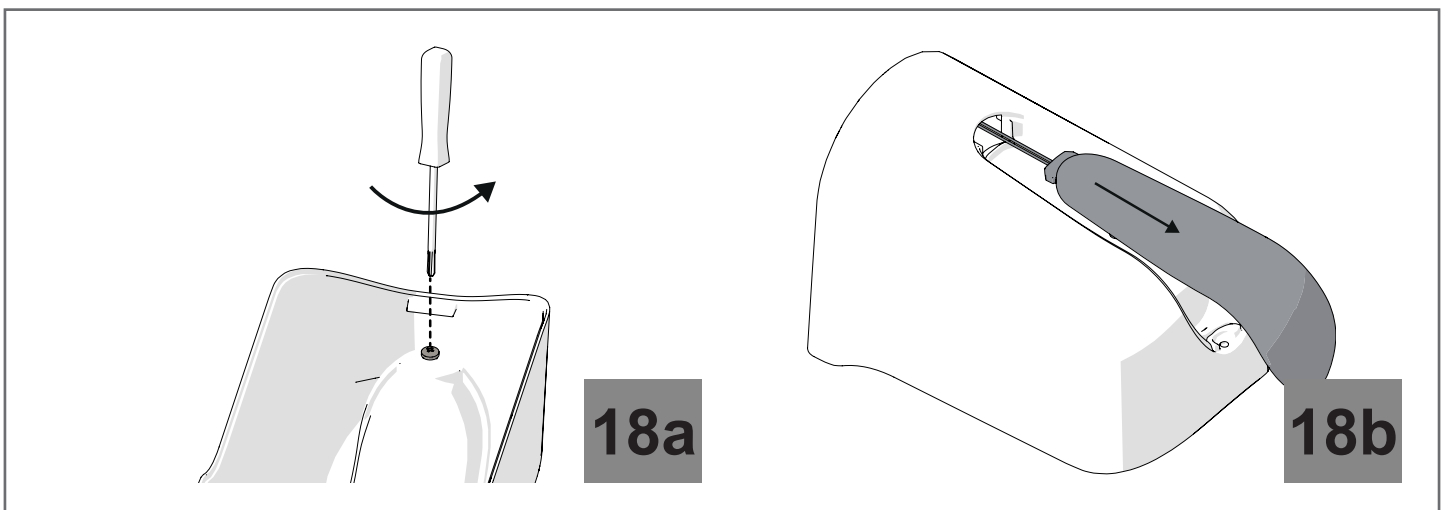


Fig. 19

EN - Replacement of the leds

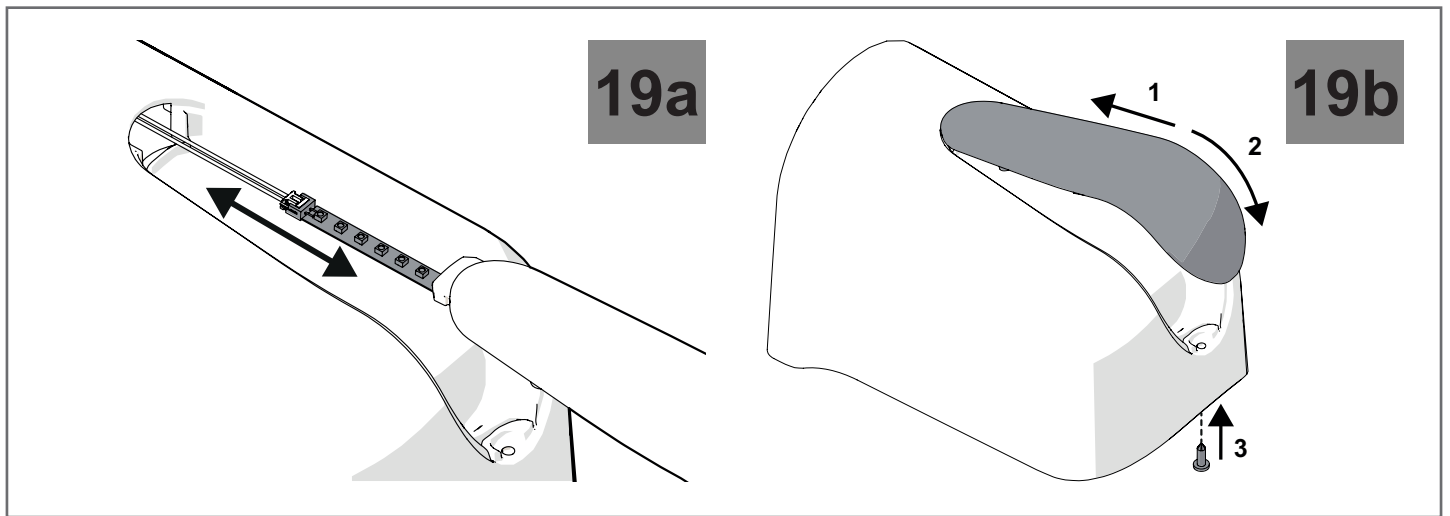


Fig. 20

EN - Second motor connections

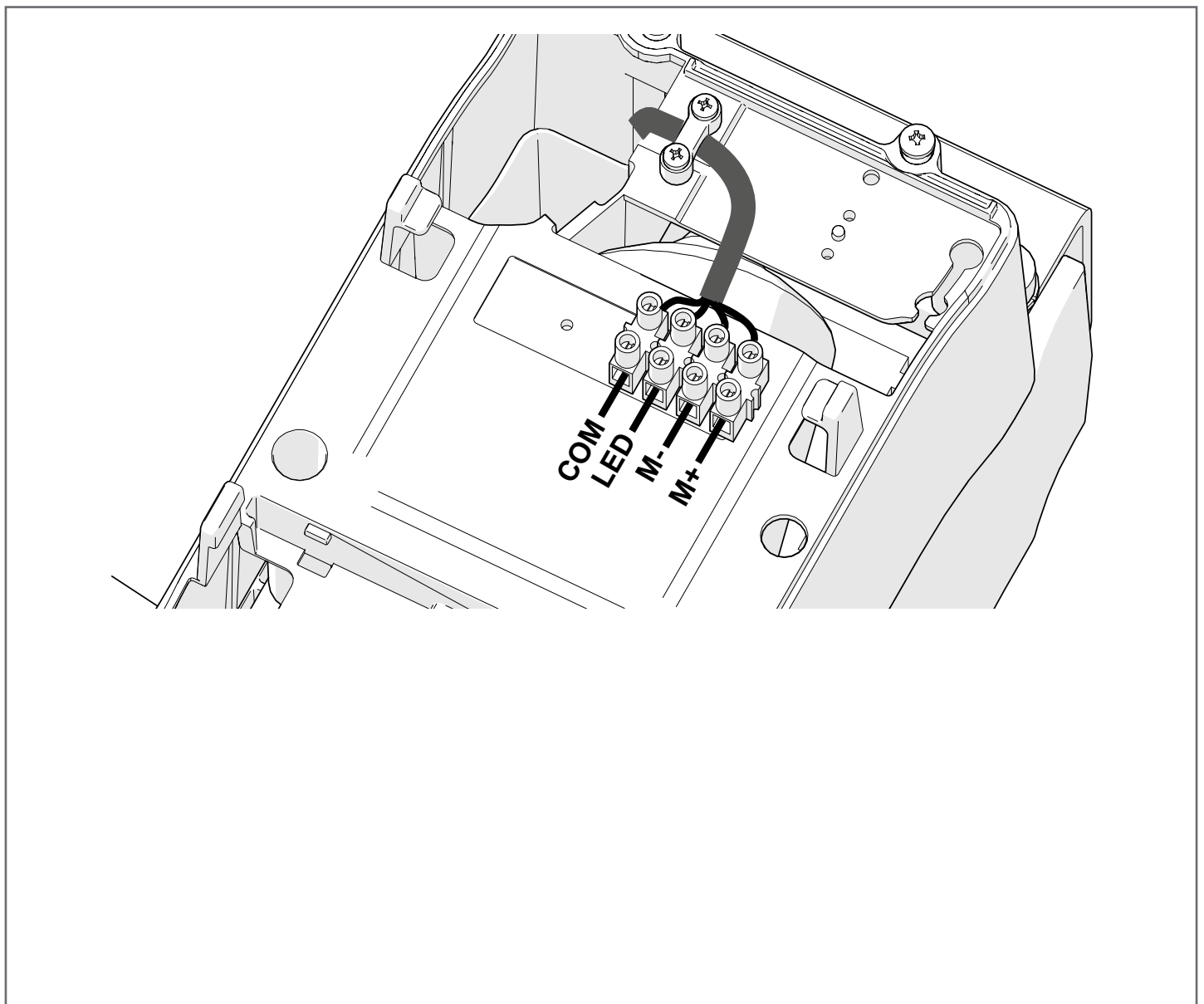


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1 - SAFETY WARNINGS

ATTENTION !

ORIGINAL INSTRUCTIONS - important safety instructions. Follow the instructions since incorrect installation can lead to severe injury! Save these instructions.

Read the instructions carefully before proceeding with installation.

The design and manufacture of the devices making up the product and the information in this manual are compliant with current safety standards. However, incorrect installation or programming may cause serious injury to those working on or using the system. Compliance with the instructions provided here when installing the product is therefore extremely important.

If in any doubt regarding installation, do not proceed and contact the Key Automation Technical Service for clarifications.

Under European legislation, an automatic door or gate system must comply with the standards envisaged in the Directive 2006/42/EC (Machinery Directive) and in particular standards; EN 12453; EN 12635 and EN 13241-1, which enable declaration of presumed conformity of the automation system.

Therefore, final connection of the automation system to the electrical mains, system testing, commissioning and routine maintenance must be performed by skilled, qualified personnel, in observance of the instructions in the "Testing and commissioning the automation system" section.

The aforesaid personnel are also responsible for the tests required to verify the solutions adopted according to the risks present, and for ensuring observance of all legal provisions, standards and regulations, with particular reference to all requirements of the EN 12453 standard which establishes the test methods for testing door and gate automation systems.

ATTENTION !

Before starting installation, perform the following checks and assessments:

ensure that every device used to set up the automation system is suited to the intended system overall. For this purpose, pay special attention to the data provided in the "Technical specifications" section. Do not proceed with installation if any one of these devices is not suitable for its intended purpose;

check that the devices purchased are sufficient to guarantee system safety and functionality;

perform a risk assessment, including a list of the essential safety requirements as envisaged in Annex I of the Machinery Directive, specifying the solutions adopted. The risk assessment is one of the documents included in the automation system's technical file. This must be compiled by a professional installer.

Considering the risk situations that may arise during installation phases and use of the product, the automation system must be installed in compliance with the following safety precautions:

never make modifications to any part of the automation system other than those specified in this manual. Operations of this type can only lead to malfunctions. The manufacturer declines all liability for damage caused by unauthorised modifications to products;

if the power cable is damaged, it must be replaced by the manufacturer or its after-sales service, or in all cases by a person with similar qualifications, to prevent all risks;

do not allow parts of the automation system to be immersed in water or other liquids. During installation ensure that no liquids are able to enter the various devices; should this occur, disconnect the power supply immediately and contact a Key Automation Service Centre. Use of the automation system in these conditions may cause hazards;

never place automation system components near to sources of heat or expose them to naked lights. This may damage system components and cause malfunctions, fire or hazards;

ATTENTION !

The drive shall be disconnected from its power source during cleaning, maintenance and when replacing parts. If the disconnect device is not in a visible location, affix a notice stating: "MAINTENANCE IN PROGRESS":

connect all devices to an electric power line equipped with an earthing system;

the product cannot be considered to provide effective protection against intrusion. If effective protection is required, the automation system must be combined with other devices;

the product may not be used until the automation system "commissioning" procedure has been performed as specified in the "Automation system testing and commissioning" section;

the system power supply line must include a circuit breaker device with a contact gap allowing complete

disconnection in the conditions specified by class III overvoltage;

use unions with IP55 or higher protection when connecting hoses, pipes or cable glands;

the electrical system upstream of the automation system must comply with the relevant regulations and be constructed to good workmanship standards;

this appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved;

before starting the automation system, ensure that there is no-one in the immediate vicinity;

before proceeding with any cleaning or maintenance work on the automation system, disconnect it from the electrical mains;

special care must be taken to avoid crushing between the part operated by the automation system and any fixed parts around it;

children must be supervised to ensure that they do not play with the equipment;

that the drive cannot be used with a driven part incorporating a wicket door unless the drive can only be operated with the wicket door in the safe position;

install any fixed control at a height of at least 1,5m and within sight of the door but away from moving parts;

after installation, ensure that parts of the door do not extend over public footpaths or roads;

when the appliance is provided with a separate stop button, that stop button shall be unambiguously identifiable;

install the automation exclusively on gates operating on flat surfaces, that is, they are not installed on an up or down tilt;

install exclusively on gates that are sturdy enough and suitable to withstand the loads generated by the automation itself;

do not subject the automation to direct jets of water, such as sprinklers or pressure washers;

if the automation system exceeds 20 kg in weight, it must be handled using safety lifting devices (IEC 60335-2-103: 2015);

provide appropriate safety protections in order to avoid crushing and becoming trapped between the moving guided part and any surrounding fixed elements;

make sure that any protection or safety devices, in ad-

dition to the manual release, work correctly;

place the automation identification plate at a clearly visible point;

keep the manuals and technical files of all the devices used to create the automation;

at the end of the automation installation it is advisable to hand over the manuals relating to the warnings intended for the end user;

ATTENTION !

Frequently examine the installation for imbalance where applicable and signs of wear or damage to cables, springs and mounting. Do not use if repair or adjustment is necessary.

ATTENTION !

The automation system component packaging material must be disposed of in full observance of current local waste disposal legislation.

Key Automation reserves the right to amend these instructions if necessary; they and/or any more recent versions are available at www.keyautomation.it.

2 - PRODUCT OVERVIEW

2.1 - Description of the product

The RÉVO+ gear motors are destined to be installed in systems for the automation of gates with hinged doors. The RÉVO+ gear motors have been designed and constructed to be fitted onto hinged doors within the weight limits indicated in the

technical specifications table. The use of gear motors for applications which differ from those indicated above is prohibited.

2.2 - Model and technical characteristics

CODE	DESCRIPTION
REP2024	24 Vdc gear motor for single hinged door with max length 2,3 m or weight 250 Kg, 230 Vac (1 x 900PO24 included)
REP2024M	24 Vdc gear motor Master for double hinged doors with max length 2,3 m or weight 250 Kg, 230 Vac (2 x 900PO24 included)
REP2024S	24 Vdc gear motor for hinged doors with max length 2,3 m or weight 250 Kg, 230 Vac, without control unit
REP2224	24 Vdc gear motor for hinged doors with max length 2,3 m or weight 250 Kg, 230 Vac
REP2224S	24 Vdc gear motor for hinged doors with max length 2,3 m or weight 250 Kg, 230 Vac, without control unit

TECHNICAL DATA

MODELS		REP2024	REP2024M	REP2024S	REP2224	REP2224S
TECHNICAL SPECIFICATIONS						
Torque	Nm	120	120	120	120	120
Working cycle	cycles/hour	60	60	60	60	60
Opening time at 90°	sec	14-20	14-20	14-20	14-20	14-20
Control board		14A	14A	-	CT20224	-
Power supply	Vac	230	230	-	230	-
Power supply	Vdc	-	-	24	-	24
Absorption	A	0,6	0,6	2	0,6	2
Engine power	W	115	115	50	115	50
Integrated lights		si	si	si	-	-
Degree of protection	IP	44	44	44	44	44
Dimensions (L - P - H)	mm	125 - 260 - 310				
Weight	Kg	10,5	10,5	8	10,5	8
Operating temperature	°C	-20°+55°	-20°+55°	-20°+55°	-20°+55°	-20°+55°
Leaves maximum weight	Kg	250	250	250	250	250

3 - PRELIMINARY CHECKS

Before installing this product, verify and check the following steps:

- Check that the gate or door are suitable for automation
- The weight and size of the gate or door must be within the maximum permissible operating limits specified in Fig. 2
- Check the presence and strength of the security mechanical stops of the gate or door
- Check that the mounting area of the product is not subject to flooding
- Conditions of high acidity or salinity or proximity to heat sources could cause malfunction of the product
- Extreme weather conditions (for example the presence of snow, ice, high temperature range, high temperatures) may increase the

friction and therefore the force required for the handling and initial starting point may be higher than under normal conditions.

- Check that the manual operation of gate or door is smooth and friction-free and there is no risk of derailment of the same
- Check that the gate or door are in equilibrium and stationary if left in any position
- Check that the power line to supply the product is equipped with proper grounding safety and protected by a magnetothermal and differential security device
- Provide the power system with a disconnecting device with a gap of contacts enabling full disconnection under the conditions dictated by the overvoltage category III.
- Ensure that all materials used for the installation comply with current regulations

4 - PRODUCT INSTALLATION

4.1 - Installation

Before starting the installation, make sure that the product is intact and that the packaging contains all the components shown in Fig.3.

Make sure that the mounting area is compatible with the overall dimensions (Fig.1).

Check the allowed opening angle according to the fixing points of the brackets in Fig.4 and in the diagram in Fig.5.

Fig.6 is an example of a typical system:

- Photocells (1)
- Operators (2)
- Posts for photocells (3)
- Key or digital switch (4)
- Flashing light with integrated aerial (5)

Mounting

Measure the value C (Fig. 4) = distance between the rotation fulcrum of the leaf and the pillar surface where the rear bracket will be fixed.

Move manually the leaf up to the opening required (maximum 120°): establish the value of the maximum opening angle of each leaf.

Mark on the diagram in Fig.5 the value C and trace an horizontal line up to intersect the area that includes the angle value measured before.

Trace some vertical lines on the intersection points between the horizontal line and the area in order to find the useful values for the dimension A (fig. 4). Chose the value A in this range. Mark on the pillar the value A and trace a vertical line in correspondence (Fig.7a).

Mounting the motor bracket to the pillar

Draw a horizontal line on the column at the same height as the gate door fixing bracket will be (Fig. 7b). Position the wall fixing bracket so that the inside of the lower edge is 8mm lower than the horizontal line in Fig. 7b and secure it using suitable screws

and washers (not supplied). Fasten the gearmotor to the column bracket with the supplied screws, washers and nuts (Fig. 8a).

ATTENTION !

An off-axis mounting can cause malfunctioning and damage the automation system.

Motor arm fixing (straight arm)

Release the limit switch cover from the straight arm by pulling it (Fig. 8b). Connect the arm to the gearmotor, aligning the corresponding cross profiles. Join the two elements with the M8x25TCE screw and washer supplied, tightening firmly (Fig. 9a). Secure the curved arm to the straight arm using the pin and the stop ring (Fig. 9b). Secure the door fixing bracket to the curved arm using the pin but without the stop ring (Fig. 9b)

Gate bracket fixing

Bring the gate door to the maximum closing position. Release the gearmotor (Fig. 10a and Fig. 10b)

Fully extend the arms, bring the curved arm closer to the door and place the door fixing bracket on the latter. Holding the bracket in contact with the door with one hand, try to open and close completely (Fig. 11a).

Secure the gate bracket to the door with suitable screws (not supplied) (Fig. 11b) and fix the pin with the stop ring.

ATTENTION !

An off-axis mounting can cause malfunctioning and damage the automation system.

4.2 - Adjusting the mechanical limit switch

With the gearmotor released, open the leaf of the gate to the desired opening point. Take the limit switch block, place it on the arm in the crown gear making sure that the limit switch teeth are perfectly engaged with the crown gear and that the locking is stable, then fix it with the M6x25TCE screw in one of the locking holes (Fig. 12a). It is possible to adjust with precision the opening position of the leaf by loosening the limit switch screw and moving the block to the positions permitted by the teeth of the crown gear (Fig. 12b). If an intermediate position between two teeth is

required, simply rotate the limit switch block by 180° with respect to the fixing screw. Once the adjustment is complete, tighten the screw (Fig. 12c). Close the leaf of the gate to the desired closing point and use the same procedure to adjust the closing limit switch using the second block. Once the adjustment of both limit switches has been completed, reposition the cover on the arm, applying light pressure until it clicks and the protective cover remains fixed to the arm in a stable position (Fig. 13).

4.3 - Electrical connections

Unscrew the cover screws (Fig.14a). Raise the back by about 1 cm then slide it out forwards (Fig.14b).

ATTENTION !

The lights on the cover are connected by two wires, disconnect the terminal or lay carefully the cover upside-down on the external part (Fig.15).

Insert the power cable (Fig. 16). Loosen the screws of the control unit support (Fig. 17a). Connect the wires of the power supply cable to the terminal block according to the wiring diagram (Fig. 17b). Proceed with the other connections following the instructions of the control unit on the motor and at the end fasten the control unit to the support again. Replace the upper cover and tighten the 2 screws that secure the cover.

4.4 - Mechanical and electronic connections of the second motor

In case of installation of the second motor, follow the above mentioned instructions for the mechanical mounting, for the electrical connections refer to the Fig. 20.

4.5 - Replacing led

Switch-off the power supply. Open the cover as shown on paragraph 4.3.

By using a screwdriver, release the bottom screw of the cover (Fig. 18a). Remove the mask and pull out the led band (Fig.18b).

Disconnect the plug connector (Fig.19a).

Connect the new led stripe and insert them into the mask.

Insert the mask by placing first the seal side and then fastening it with the screw (Fig.19b).

5 - TESTING AND COMMISSION THE AUTOMATION

The system must be tested by a qualified technician, who must perform the tests required by the relevant standards in relation to the risks present and must check that the installation complies with

the relevant regulatory requirements, especially with the EN12453 standard which specifies the test methods for gate and door automation systems.

5.1 - Testing

All the system components must be tested following the procedures described in their respective operator manuals;

ensure that the recommendations in Chapter 1 – Safety Warnings - have been complied with;

check that the door can move freely once the automation is released and that it is in balance and therefore remains stationary if left in any position;

check that all the connected devices (photocells, sensitive edges, emergency buttons, etc.) are operating correctly by performing door opening, closing and stop tests using the connected control devices (transmitters, buttons or switches);

perform the impact measurements as required by the EN12453 standard, adjusting the control unit's speed, motor force and deceleration functions if the measurements do not give the required results, until the correct setting is obtained.

5.2 - Commissioning

Once all (and not just some) of the system devices have passed the testing procedure, the system can be commissioned;

the system's technical dossier must be produced and kept for 10 years. It must contain the electrical wiring diagram, a drawing or photograph of the system, the analysis of the risks and the solutions adopted to deal with them, the manufacturer's declaration of conformity for all connected devices, the operator's manual for every device and the system maintenance plan;

fix a plate on the door indicating the automation data, the name of the person responsible for commissioning, the serial number, the year of construction and the CE mark;

also fit a plate specifying the procedure for releasing the system by hand;

draw up the declaration of conformity, the instructions and precautions for use for the end user and the system maintenance plan and consign them to the end user;

ensure that the user has fully understood how to operate the system in automatic, manual and emergency modes;

the end user must also be informed in writing about any risks and hazards still present;

ATTENTION !

After detection of an obstacle, the door stops on opening and automatic closing is excluded; to resume movement, press the control button or use the transmitter.

DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINERY

The undersigned Nicola Michelin, General Manager of the company

Key Automation srl, Via Meucci 23 - 30027 San Dona' di Piave (VE) – ITALIA

declares that the product type:

REVO+
24Vdc articulated arm gearmotor drive for swing gates up to 2.3m

Model:

REP2024, REP2024M, REP2024S, REP2224, REP2224M, REP2224S
KREP2024EK, KREP2024KK, KREP2224ES, KREP2224KS

Is in conformity with the following community (EC) regulations:

Direttiva macchine / *Machinery Directive 2006/42/EC*
Direttiva compatibilità elettromagnetica / *EMC Directive 2014/30/EU*
Direttiva bassa tensione / *LVD Directive 2014/35/EU*
Direttiva radiofrequenza / *RED Directive 2014/53/EU*
Direttiva RoHS / *RoHS Directive 2011/65/EU*

In accordance with the following harmonized standards regulations:

IEC 61000-3-2:2018, IEC 61000-3-3:2013 + AMD1:2017
EN 61000-6-2:2016
EN 61000-6-3:2007+A1:2011
ETSI EN 301489-1 V2.1.1, ETSI EN 301 489-3 V2.1.1
ETSI EN 301489-17:2017 V3.2.0
EN 60335-1:2012
EN 60335-2-103:2015

Declares that the technical documentation is compiled in accordance with the directive 2006/42/EC Annex VII part B and will be transmitted in response to a reasoned request by the national authorities.

He also declares that is not allowed to use the above-mentioned product until the machine, in which this product is incorporated, has been identified and declared in conformity with the regulation 2006/42/EC.

San Donà di Piave (VE) 26/11/20

Amministratore Delegato
General Manager
Nicola Michelin



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Instruction version

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