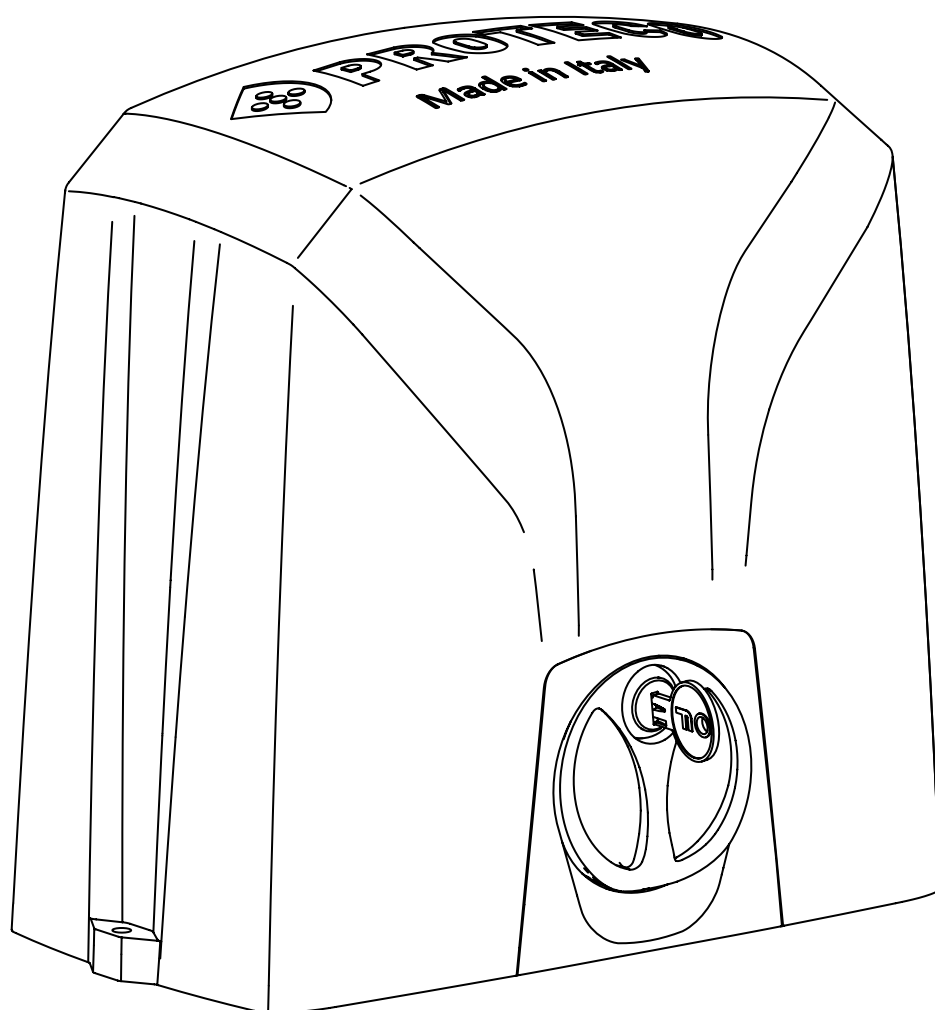


# MIKE

## SLIDING MOTOR SYSTEM

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Installation and User manual




English

# SUMMARY

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## 1. SAFETY WARNINGS

This manual is part of the product “MIKE - automation for rack-driven sliding gates” and contains important information for personal safety: incorrect installation or improper use can cause serious damage to people and objects.  
Read these instructions completely, especially the parts marked with the symbol .



The construction and installation of automatic doors, gates and barriers must be carried out in compliance with the Machinery Directive 2006/42/EC and the EN 12453 standard, and must be performed by qualified personnel.



Check that the earth system is properly built and connect the automation to it; ensure that the electrical system is equipped with a cut-off switch and adequate overcurrent protection.

Do not install the product within flammable gas areas or within areas affected by electromagnetic interferences: it can be risky and cause serious safety hazard.

Before carrying out any work on the system, disconnect the power supply and any batteries.



Once installation is complete, packaging and waste materials (cardboard, plastic, metal parts, etc.) must not be left within the reach of children as they are potential sources of danger.

For maintenance, use only original spare parts.

Do not alter the automation system components.

Proteco S.r.l. declines all responsibility in case of using additional components or fake spare parts.

Before commissioning the system, give the user the last pages of this manual (**Section 8. USER SECTION page 12**).



MIKE system must not be installed on gates including pedestrian door.

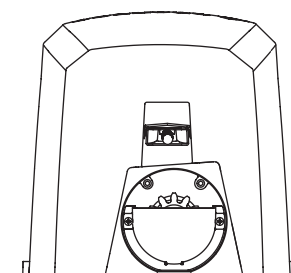


Proteco S.r.l. reserves the right to make changes to the product without notice.

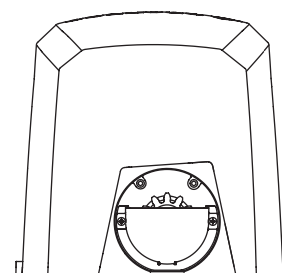
## 2. PRODUCT DESCRIPTION AND INTENDED USE

The MIKE gearmotor was designed to automate rack-driven sliding gates for residential and apartment block settings. Any other use than that described is to be considered improper and prohibited. The system grants through an irreversible gear box the gate mechanical locking; it is therefore not necessary to install any type of lock.

In case of power cut, the gearmotor can be unlocked for manual operation and can also be equipped with back up batteries to ensure at least an automatic opening.

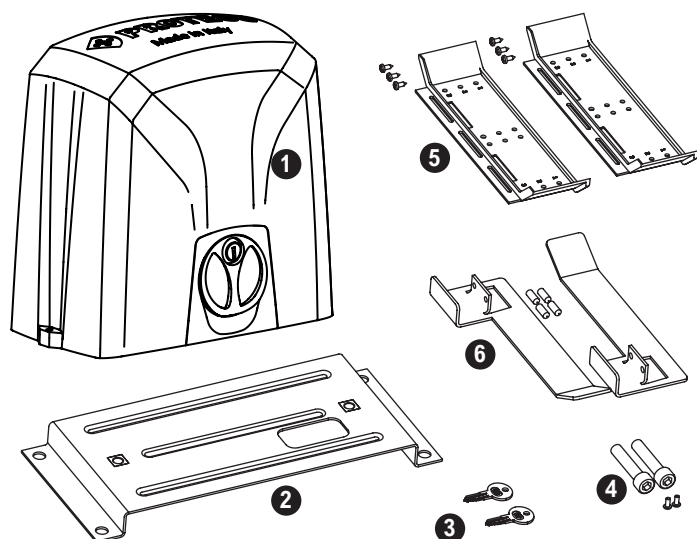


MIKE mechanical LS

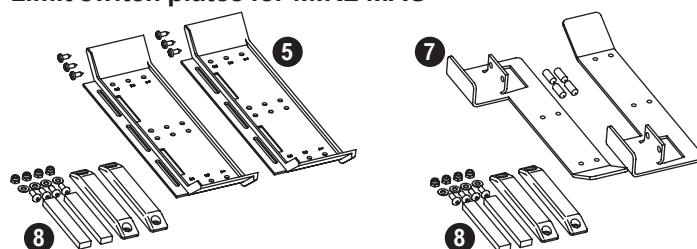


MIKE magnetic LS

### 2.1 Package content



#### Limit switch plates for MIKE MAG



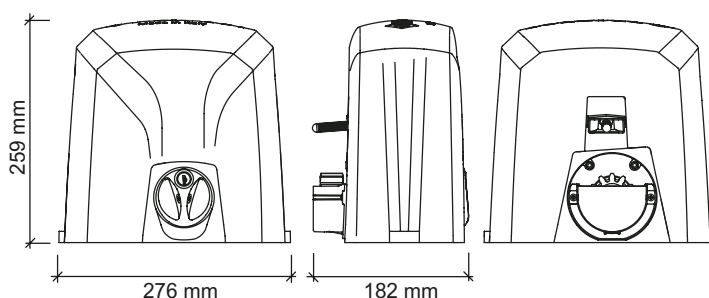
DESCRIPTION	ITEM CODE	N°
① MIKE 4 - SLIDING MOTOR 24V	PMI042M0	1
② GALVANIZED ANCHOR PLATE	MPIS09	1
③ RELEASE KEY		2
④ FITTING BAG	SSAS19	
Screw TBEI 4x10 galv. UNI 7380	MVI0410KZ	2
Screw TCEI 10x35 galv. UNI 5931	MVI1035CZ	2

PVC rack B120	LIMIT SWITCH	ITEM CODE	N°
⑤ PVC LIMIT SWITCH CAM SET	MECHANICAL / MAGNETIC	SSAS14	1
⑧ MAGNET SET	MAGNETIC	SSAS15	1
METAL rack B102			
⑥ METAL LIMIT SWITCH CAM SET	MECHANICAL	SSAS18	1
⑦ METAL LIMIT SWITCH CAM SET	MAGNETIC	SSAS20	1
⑧ MAGNET SET	MAGNETIC	SSAS15	1

### 2.2 Technical features

	MIKE / MIKE MAG
Power supply	24 V DC
Absorption	1,5 ÷ 7 A
Rated power	70 W
Maximum thrust	420 N
IP protection	44
Max revolutions	2800 rpm
Opening speed	8 ÷ 10,5 m/min
Gate max. weight	400 kg
Working frequency	50%

### 2.3 Dimensions



### 2.4 Estimated life

The durability of the system is deeply affected by a multitude of factors that may waste it over time. In order to obtain the durability of the motor, follow the below table.

Put together the values corresponding to every single accessory installed on the gate and the installation site conditions:

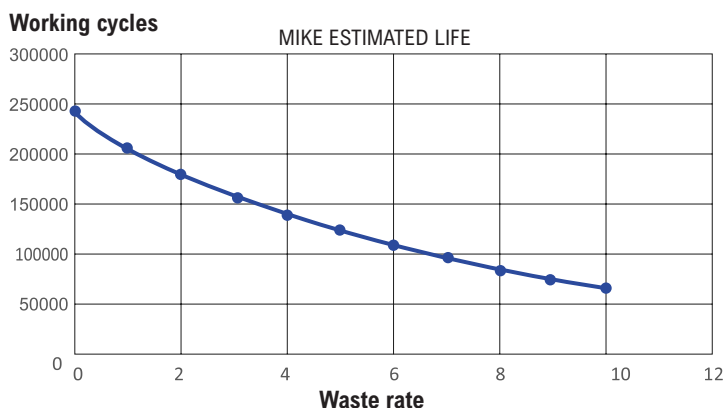
	WASTE rate
Photocell and obstacle detection are frequently cut	1
Seaside areas	1
Dusty and/or sandy areas	1
Outside temperature frequently over 40° or below 0°	1
GATE LENGTH	
3 ÷ 4 m	1
4 ÷ 5 m	2
5 ÷ 7 m	3
GATE WEIGHT	
Up to 200 Kg	0
200 ÷ 300 Kg	1
300 ÷ 400 Kg	2

Use the waste rate value on the below graph to obtain the maximum number of working cycle.

The working cycles shown in the graph can be achieved only if the maintenance plan is carefully carried out.

However the working cycles obtained are just a mere estimation since they are determined on the base of project calculations and internal tests.

Use the waste rate achieved between 0 and 10 to cross the graph and get the MIKE estimated life.



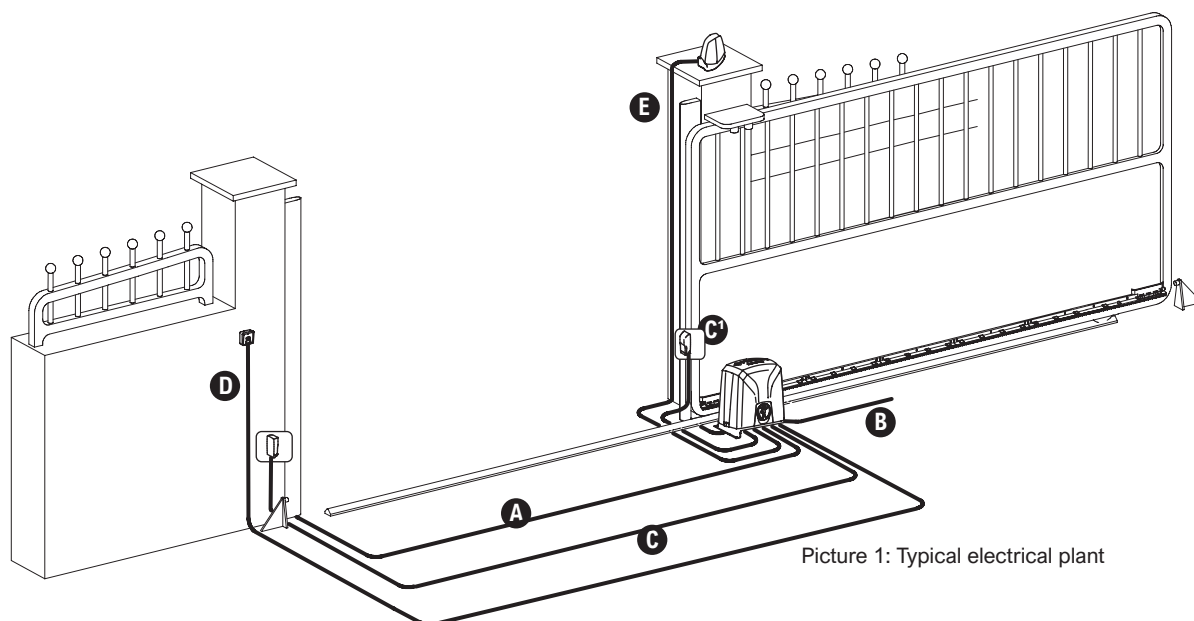
### 3. INSTALLATTION

#### 3.1 Preliminary checks

For safety reasons double check the following conditions before proceeding with the installation:

- The gate frame is suitable for automation.
- The weight, dimensions and frame of the gate are appropriate for the chosen automation system.
- The gate must be equipped with mechanical stops for opening and closing to prevent derailing.
- The ground and surfaces chosen for installation can grant a stable and safe fixing.
- The gate opens and closes smoothly and effortless.
- The fixing area complies with the size of the anchor plate and there is sufficient space to carry out the release operation easily and safely.
- The area where the automation is positioned is not subject to flooding; if necessary, install the automation raised from the ground.
- If the gearmotor is located in traffiqued areas, it is advisable to provide adequate protection against accidental impacts.
- The installation site is properly equipped with earth system.
- The fixing surfaces of photocells are flat and allow correct alignment between transmitter and receiver.

#### 3.2 Electrical wiring



Picture 1: Typical electrical plant

#### 3.3 Electrical cable features

The cables required to build the plant (not included in the package) may vary based on the quantity and type of components fitted.

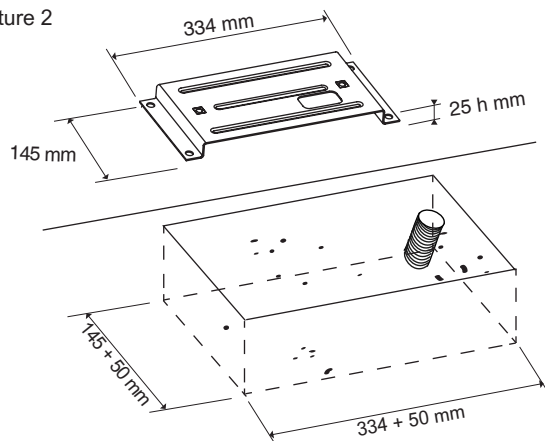
	24V
<b>A</b> Safety edge	2x0,5
<b>B</b> Mains power supply	2x1,5+T
<b>C</b> Photocell RX	Rx 4x0,5
<b>C'</b> Photocell TX	Tx 2x0,5
<b>D</b> Key switch	2x0,5
<b>E</b> Flasing light	2x0,5

### 3.4 Preparation work and positioning of the anchor plate

Determine the approximate position of every component and proceed as follows:

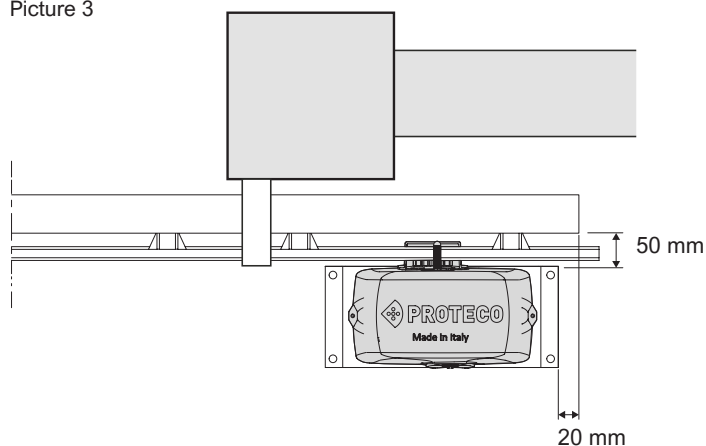
- a) Build the concrete base on which the anchor plate will be fixed: consider extra 5 cm on every side.  
Be carefull to the dimensions outlined in picture 2.

Picture 2



- b) Expect one or more cable glands to help wires go through the anchor plate hole easily.  
Double check the anchor plate position: the cable gland hole must be opposite the gate (see pic. 2).

Picture 3

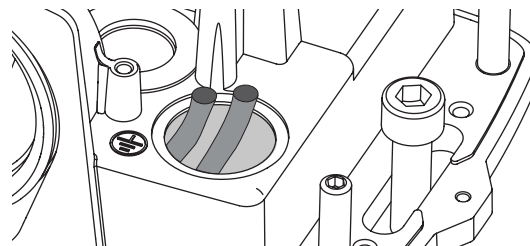


- c) Build the concrete basement, level and smooth the surface, then wait some days to hard.
- d) Drive the cable glands through the anchor plate hole and fix the plate to the concrete basement using proper plugs.
- e) Cut the cable sheaths approximately 3 cm above the level of the plate and prepare the electrical cables to wire the accessories and the power supply.  
Keep at least 30-50 cm extra cable length to facilitate connections to the control unit.  
Following these steps, you will ensure safe and correct installation of the gearmotor and electrical system.

### 3.5 Installing the GEAR MOTOR

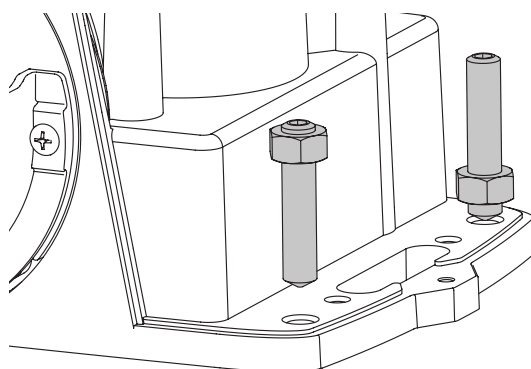
After driving the cables through the anchor plate hole, put the gearmotor on the basement and remove the plastic cover. Let the cables pass through the motor using the two holes covered by the cable glands. Make sure you have room for the connection to the control panel. (pic. 4)  
Cut/drill the cable glands to the most suitable size based on the type of cable chosen.

Pic. 4



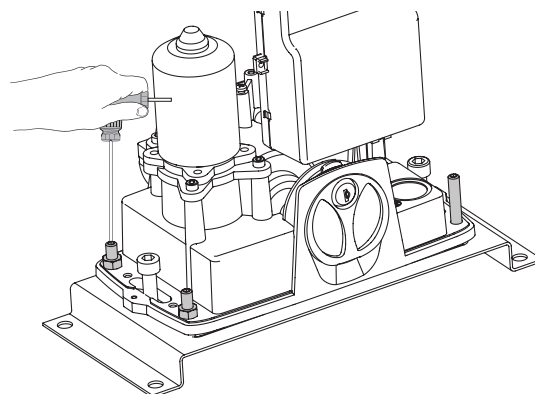
Using the 4 pins adjust the height of the motor. (Pic. 5)

Pic. 5



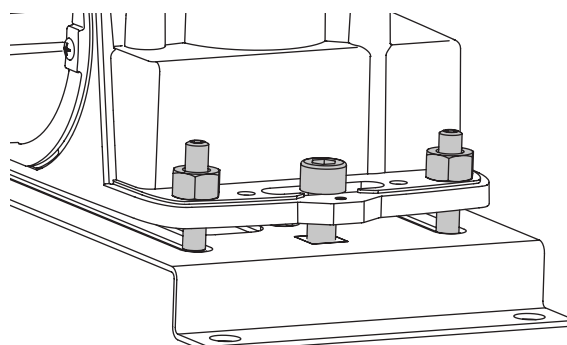
Close bolts (pic. 6) and put the Allen screws M10 supplied into the slots.

Pic. 6



Check the height, close the Allen screws and bolts to the anchor plate. (Pic. 7)  
Unlock the motor (p. 10) to start positioning the rack onto the gate.

Pic. 7



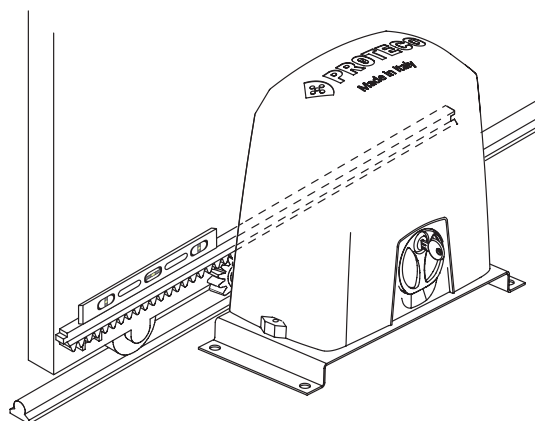
### 3.6 Positioning the RACK

#### 3.6.1 B120 screw-on pvc rack

M4 20x26mm in nylon-glass with steel core (0,5m piece)

- Manually move the gate to the open position.
- Align the first rack to the gate, lay it on the cogwheel and level.
- Fix the first rack piece to the gate, use the self-tapping screws supplied. Put the screw in the slot centre, as shown in pic. 8.
- Manually close the gate about 0,5m and fit the second rack piece onto the first one, rest it on the cogwheel.
- Make sure the rack is perfectly level, then secure it.
- Repeat this procedure to install all rack modules all the gate long.
- If the last rack piece exceeds the gate length, put a rack support (pic. 9).
- Decrease the height of the motor adjusting the M12 screws and bolts, the gate weight must not lay on it. Keep a 1÷2 mm gap between the cogwheel and rack. After adjusting close the Allen screws.

Pic. 8



Pic. 9



#### 3.6.2 B102 weld-on steel rack

M4 12x30mm (1m piece)

- Manually move the gate to the open position.
- Fit the 3 threaded pins onto the first rack piece, plug them in the slot centre (pic. 10).
- Align the first rack to the gate, lay it on the cogwheel and level.
- Weld the first pin to the gate (pic. 11).
- Manually move the gate and check the rack is correctly seated on the cogwheel, then weld the second and third one.
- Put another rack piece close to the previous one. Align using a rack piece upside down oriented (pic. 12).
- Manually move the gate again and weld the 3 pins of the new rack piece.
- Repeat this procedure to install all rack modules all the gate long.
- If the last rack piece exceeds the gate length, put a rack support (pic. 9).
- Decrease the height of the motor adjusting the M12 screws and bolts, the gate weight must not lay on it. Keep a 1÷2 mm gap between the cogwheel and rack. After adjusting close the Allen screws M10.

Check the gate correctly reaches the mechanical stops, keeping match between cogwheel and rack. The gate has to move freely and smoothly.

Pic. 10

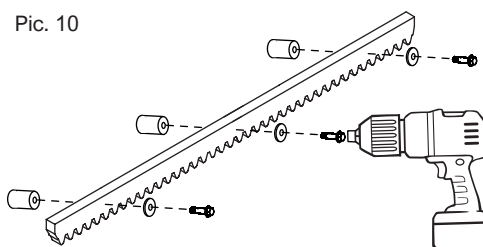
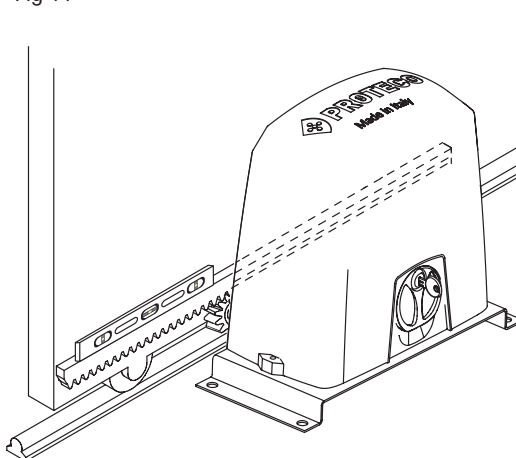
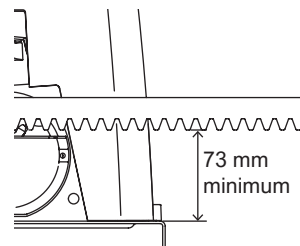
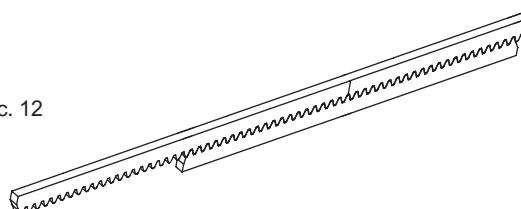


Fig 11



Pic. 12



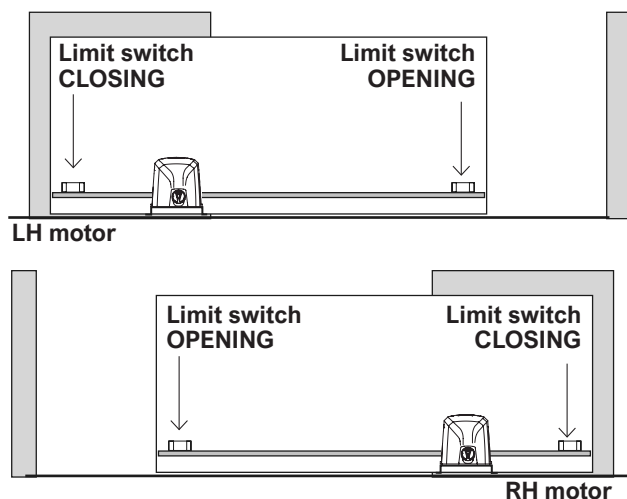


## 3.7 Positioning the LIMIT SWITCHES

### 3.7.1 Nylon-glass cam for MECHANICAL limit switches for B120 rack

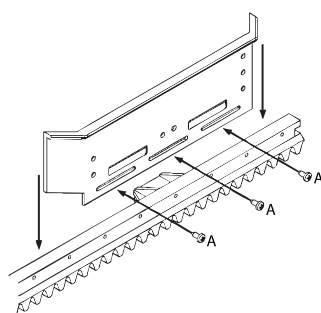
- Determine the closing and opening limit switch cam, according to the motor position (pic. 13).
- c.
- Lay the closing limit switch cam on the rack and slide until the limit switch is activated (pic. 16).
- Mark the cam position on the rack, move the gate shortly to opening and fix the cam to the rack. (pic.14).
- Manually move the gate to opening position (gate edge in line with pillar).
- Lay the opening limit switch cam on the rack and slide until the limit switch is activated (pic. 15).
- Mark the cam position on the rack, move the gate shortly to closing and fix the cam to the rack. (fig.14).

Pic. 13

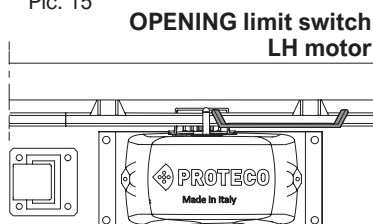


Fit the cams on the RIGHT and on the LEFT, screw to the rack edge using the screws provided. Be sure you keep the correct position.

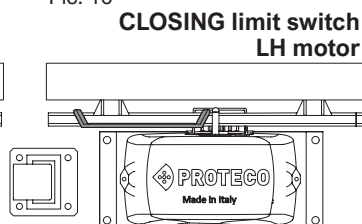
Pic. 14



Pic. 15



Pic. 16



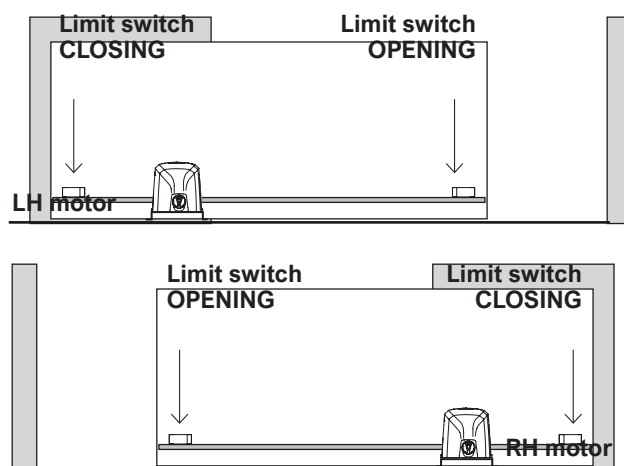
Once the installation of the limit switch cams is complete, manually move the gate in opening and closing and make sure the cams always activate the limit switch before reaching the ground stop.

This check ensures the correct functioning of the automation and preserves the good mechanical condition of the gate.  
N.B.: Cut off any excess rack.

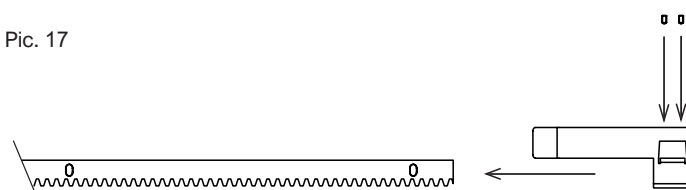
### 3.7.2 Universal steel cams for MECHANICAL limit switches

- Determine the closing and opening limit switch cam, according to the motor position (pic. 18).
- Manually close the gate about 3 cm before reaching the ground stopper.
- Put the 2 pins on the closing limit switch cam.
- Lay the closing limit switch cam on the rack and slide until the limit switch is activated (pic. 19).
- Close the pins to the rack.
- Manually move the gate to opening position (gate edge in line with pillar).
- Put the 2 pins on the opening limit switch cam.
- Lay the opening limit switch cam on the rack and slide until the limit switch is activated (pic. 20).
- Close the pins to the rack.

Pic. 18

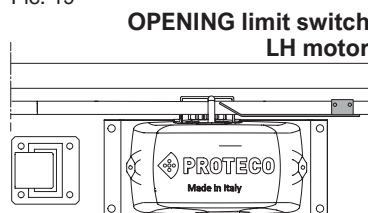


Pic. 17

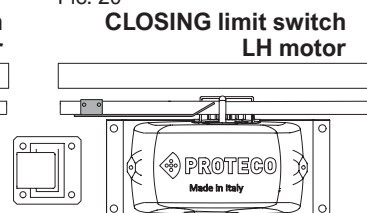


Fit the right and left cams with the supplied screws

Pic. 19



Pic. 20



Once the installation of the limit switch cams is complete, manually move the gate in opening and closing and make sure the cams always activate the limit switch before reaching the ground stop.

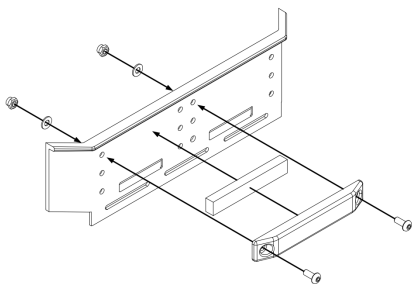
This check ensures the correct functioning of the automation and preserves the good mechanical condition of the gate.  
N.B.: Cut off any excess rack.



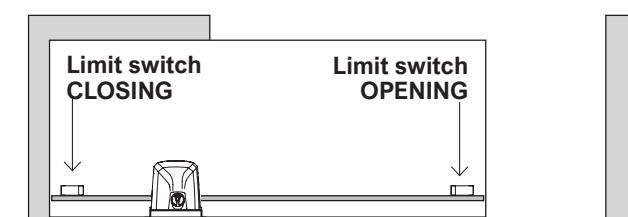
### 3.7.3 Nylon-glass cams for MAGNETIC limit switches for B120 rack

#### Nylon-glass cam assembly steps:

- Insert the magnet into the appropriate seat.
- Determine the correct orientation complying with the LH or RH cam position (pic. 23).
- Fit the magnet holder to the cam using the supplied screws, nuts and washers.



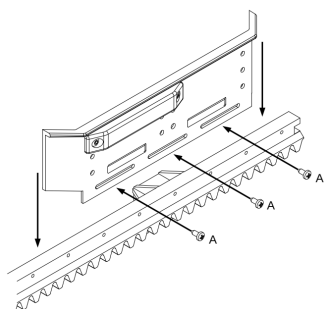
Pic. 21



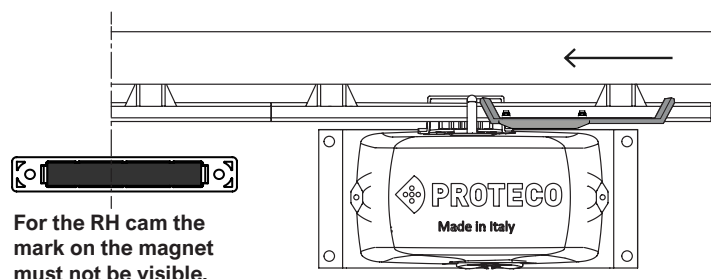
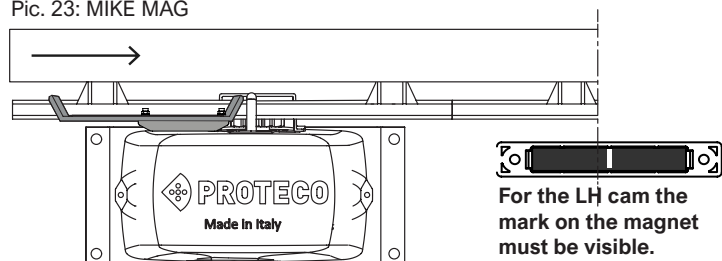
Identify the closing and opening limit switch cam based on the positioning of the motor in relation to the gate. (Pic. 21)

- Manually close the gate about 3 cm before reaching the ground stopper.
- Have the cam and screws supplied ready for rack fixing.
- Lay the limit switch cam on the rack and slide until the limit switch is activated.
- Close the screws to secure the cam to the rack.
- Manually move the gate to opening position (gate edge in line with pillar).
- Repeat the operations listed above.
- Fix the limit switch cams with the supplied screws.

Pic. 22



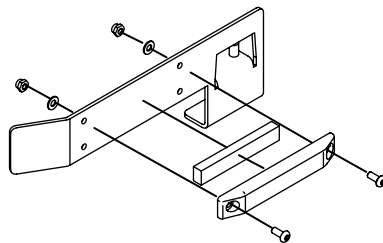
Pic. 23: MIKE MAG



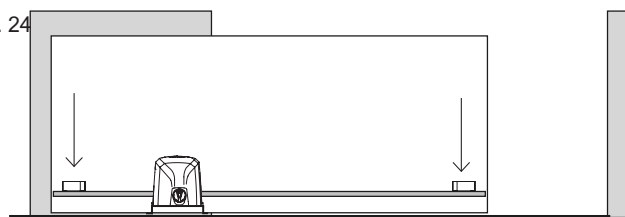
### 3.7.4 Universal metal cams for MAGNETIC limit switches

#### Metal cam assembly steps:

- Insert the magnet into the appropriate seat.
- Determine the correct orientation complying with the LH or RH cam position (pic. 26).
- Fit the magnet holder to the cam using the supplied screws, nuts and washers.
- Use the upper holes as shown in the picture.
- Mount the cam on the rack using the 6 x 16 grub screws supplied.



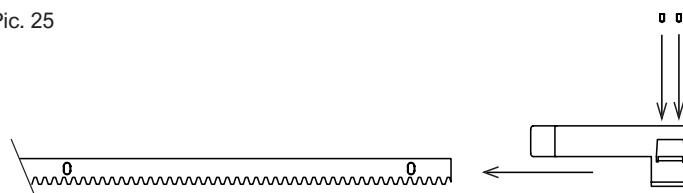
Pic. 24



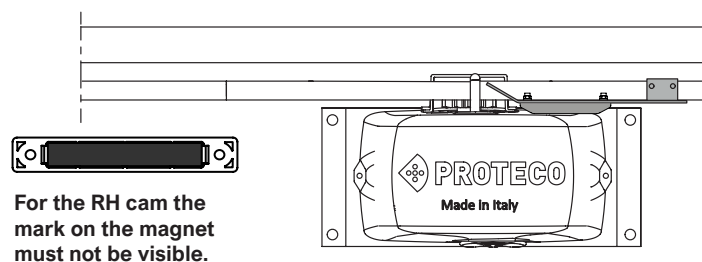
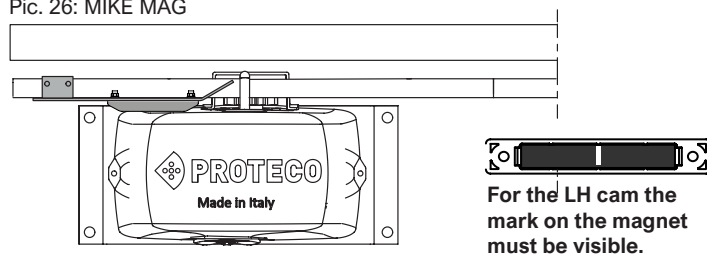
Identify the closing and opening limit switch cam based on the positioning of the motor in relation to the gate. (Pic. 24)

- Manually close the gate about 3 cm before reaching the ground stopper.
- Fit the 2 pins to the closing limit switch cam.
- Lay the limit switch cam on the rack and slide until the limit switch is activated.
- Close the grub screws to secure the cam to the rack.
- Manually move the gate to opening position (gate edge in line with pillar).
- Repeat the operations listed above.
- Fix the limit switch cams with the supplied screws.

Pic. 25



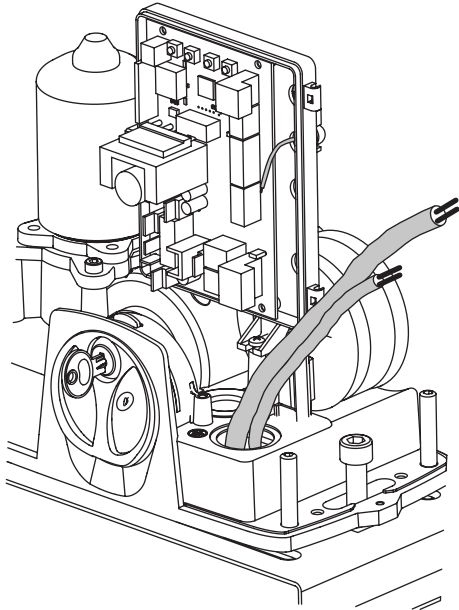
Pic. 26: MIKE MAG



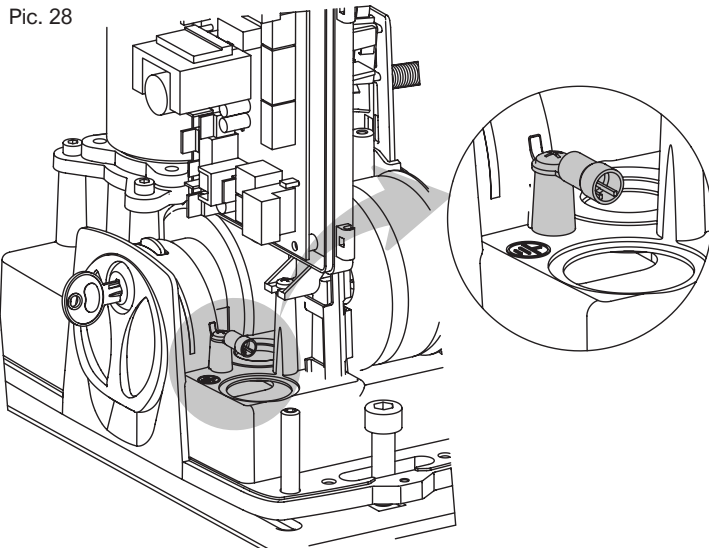
## 4. ELECTRICAL CONNECTIONS

Insert the cables into the card holder and connect them to the control unit (Refer to control unit tips). (Pic. 27) Connect the earth cable to the appropriate cable plug and fix it on the base of the gearmotor at the marked point. (pic. 28)

Pic. 27



Pic. 28



## 5. TESTING THE GEARMOTOR

After completing the installation, power up the automation and proceed with a careful functional check of the gearmotor and all the accessories and safety devices connected. In particular, make sure the limit switches in opening and closing activate before reaching the mechanical stoppers. Put the plastic cover and close the two side screws. Deliver this instruction manual to the end user, illustrating the correct operation and use of the automation.

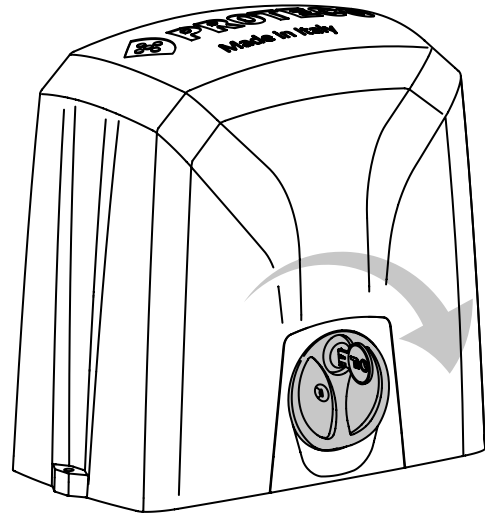
## 6. UNLOCK THE MOTOR FOR MANUAL OPERATION

During both the manual and automatic operation always cut off the power supply to prevent any accidental START commands.

### 6.1 How to unlock the system for manual operation

- Plug the key into the barrell and turn.
- Rotate the release lever 180° clockwise (Pic. 29).
- Open and close manually the gate as many times as needed.

Pic. 29



### 6.2 How to lock the system for automatic operation

- Turn the release lever counterclockwise.
- Turn the key and remove it.
- Move the gate manually until locking back.
- Power the system for the automatic operation.

## 7. MAINTENANCE

**Warning!** – Maintenance must be carried out by qualified technical personnel, in full compliance with the safety regulations required by current laws.

Perform periodic maintenance every six months.

To maintain a constant level of safety and to ensure maximum durability of the entire automation, regular maintenance is required.

For maintenance, proceed to the following checks:







- Disconnect any electrical power source.
- Make sure the screw connections are tightened properly.
- Check the wear of the moving parts: cogwheel, rack and all parts of the door, replace the wasted ones.
- Restart the power source and carry out all the tests and checks outlined in the paragraph.
- Lock and perform the test procedure.



## 8. USER SECTION

Dear user, we recommend you to read the following pages since they contain key information for your safety and current laws compliance.  
We also recommend that you keep these pages for future reference.

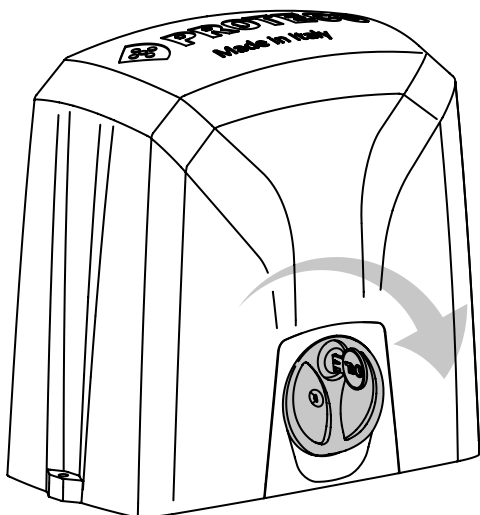
### 8.1 Safety tips

-  Keep children under 8 away from the automations.
-  Children aged 8 and over, people with reduced physical or mental capabilities, experienceless, may use the automation only under supervision or if they have been instructed on how to use the system safely and have understood the related dangers.
-  This product has been designed and manufactured exclusively for the intended use indicated. Any other use could compromise the integrity and safety of the product and should be avoided.
-  Do not access, for any reason, the internal parts of the automation: they are dangerous and there are no components that can be repaired or replaced by unqualified personnel.
-  Operate remote controls or other start devices only when the automation is visible and danger free.
-  Do not allow children to play within the automation area.

### 8.2 How to unlock the system for manual operation

- a) Plug the key into the barrell and turn.
- b) Rotate the release lever 180° clockwise (Pic. 29).
- c) Open and close manually the gate as many times as needed.

Pic. 29



### 8.3 How to lock the system for automatic operation

- a) Turn the release lever counterclockwise.
- b) Turn the key and remove it.
- c) Move the gate manually until locking back.
- d) Power the system for the automatic operation.

### 8.4 Service

In order to maintain the performance and safety of the automation over time, it is recommendable to agree a periodic maintenance plan with the installer, or at least report him any unusual behavior that requires inspection.

**In case of malfunctions it is advisable to contact the original installer rather than others.**

Periodic maintenance and any repairs must be noted by the installer and the owner must keep them same for future reference.  
The only works the user can do is to clean regularly photocells and the motor housing.

### 8.5 Disposal

#### 8.5.1 Disposing the automation

Parts that make up the automation, including devices such as remote controls, must be disposed in compliance with current legislation, as they contain components that must not be dispersed in the environment.

Most of the materials used are similar to solid urban waste. They can be recycled through collection and separate disposal in authorized centers.  
Other components (electronic cards, batteries, etc.) may instead contain polluting substances.

They must then be removed and delivered to authorized companies.  
Before proceeding, it is always advisable to check the local specific regulations in force.

#### 8.5.2 Disposing the packaging

The packaging components (cardboard, plastics, etc.) are similar to solid urban waste and can be easily disposed, simply by carrying out separate waste collection for recycling.

Before proceeding, it is always advisable to check the local specific regulations in force.



**DO NOT DISPOSE IN THE ENVIRONMENT!**  
**Some components of the product may contain polluting or dangerous substances, if dispersed they could cause harmful effects on the environment and human health.**

## DECLARATION OF CONFORMITY

The Manufacturer: **PROTECO S.r.l.**  
Address: Via Neive, 77 - 12050 CASTAGNITO (CN) - ITALY

declares that

The product: **MIKE** rack-driven gearmotor for sliding gates and according accessories  
model: **MIKE, MIKE MAG**

It is designed to be incorporated into a machine or to be assembled with other machinery to build a machine complying with the Machinery Directive 2006/42/EC.

It also complies with the essential requirements of the EC Directives:  
**2014/53/UE (RED)**      **2011/65/CE (RoHS2)**

The product complies with the following standards where applicable:  
**EN12453,**  
**EN55014-1, EN55014-2, EN61000-6-1, EN61000-6-3**  
**EN 60335-1, EN 60335-2-103**

The manufacturer also declares that the machinery may not be put into service until the machine in which it will be incorporated or of which it will become a component has been identified and declared compliant with Directive 2006/42/EC.

Note: These products were tested in a typical homogeneous configuration

Castagnito, 26th November 2024

Marco Gallo  
CEO



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