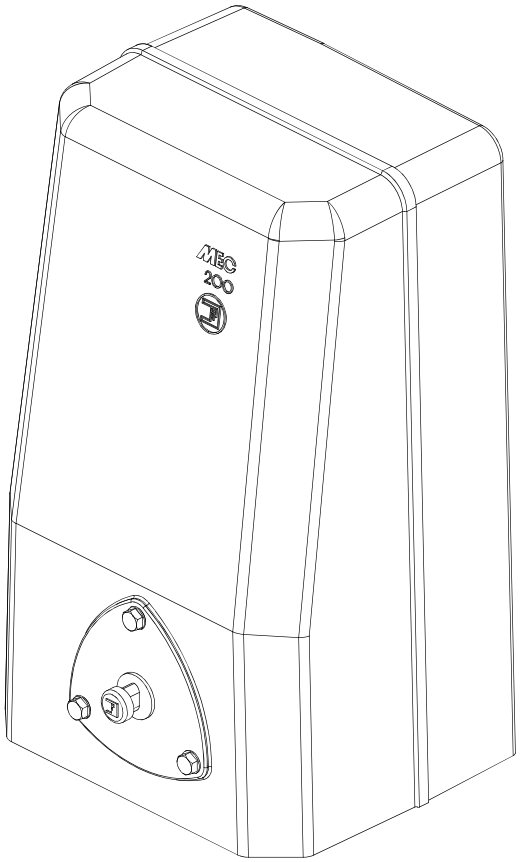
MEC 200



Electro-mechanical sliding gate operator

- Vertical and horizontal installation
- Gear movements and worm-gear coupling in oil bath fully mounted on ball bearings

CE

EN 13241
EN 12453
EN 12445

Made in Italy

FADINI
the gate opener

English

GENERAL WARNINGS FOR PEOPLE SAFETY

THANK YOU

Thank you for purchasing a Fadini product.
Please read these instructions carefully before using this appliance. The instructions contain important information which will help you get the best out of the appliance and ensure safe and proper installation, use and maintenance. Keep this manual in a convenient place so that you can always refer to it for the safe and proper use of the appliance.

INTRODUCTION

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

BEFORE INSTALLATION

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

INSTALLATION

All installation operations must be performed by a qualified technician, in observance of the Machinery Directive 2006/42/CE and safety regulations EN 12453 - EN 12445. □ Verify the presence of a thermal-magnetic circuit breaker 0,03 A - 230 V - 50 Hz upstream the installation. □ Use appropriate objects to test the correct functionality of the safety accessories, such as photocells, sensitive edges, etc. □Carry out a risk analysis by means of appropriate instruments measuring the crushing and impact force of the main opening and closing edge in compliance with EN 12445. □ Identify the appropriate solution necessary to eliminate and reduce such isks.

□ In case where the gate to automate is equipped with a pedestrian entrance, it is appropriate to prepare the system in such a way to prohibit the operation of the engine when the pedestrian entrance is used. □ Apply safety nameplates with CE marking on the gate warning about the presence of an automated installation. □ The installer must inform and instruct the end user about the proper use of the system by releasing him a technical dossier, including: layout and components of the installation, risk analysis, verification of safety accessories, verification of impact forces and reporting of residual risks.

INFORMATION FOR END-USERS

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

WARNINGS FOR THE CORRECT OPERATION OF THE INSTALLATION

For optimum performance of system over time according to safety regulations, it is necessary to perform proper maintenance and monitoring of the entire installation: the automation, the electronic equipment and the cables connected to these. □ The entire installation must be carried out by qualified technical personnel, filling in the Maintenance Manual indicated in the Safety Regulation Book (to be requested or downloaded from the site www.fadini.net/supporto/downloads). □ Operator: maintenance inspection at least every 6 months, while for the electronic equipment and safety systems an inspection at least once every month is required. □ The manufacturer, Meccanica Fadini snc, is not responsible for non-observance of good installation practice and incorrect maintenance of the installation.

DISPOSAL OF MATERIALS

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



CE DECLARATION OF CONFORMITY of the manufacturer:
Meccanica Fadini snc (Via Mantova, 177/A - 37053 Cerea - VR - Italy) declares under own responsibility that: **Mec 200** complies with the 2006/42/CE Machinery Directive, and also that it is sold to be installed in an "automatic system", along with original accessories and components as indicated by the manufacturing company.An automatic gate operator is, by law, a "machinery" and therefore the installer must fit the equipment with all of the applicable safety norms. The installer is also required to issue the installer's Declaration of Conformity.The manufacturer is not liable for possible incorrect use of the product. The product complies with the following specific norms: analysis of the risks and subsequent action to cure them as per EN 12445 and EN 12453, Low Voltage Directive 2014/35/UE, Electromagnetic Compatibility 2014/30/UE.
In order to certify the product, the manufacturer declares under own responsibility the compliance with the EN 13241-1 PRODUCT NORMS.
Tested and certified: CE marking and type testing according to ITT PDC No. 2388-2008.

Meccanica Fadini s.n.c.
Director in charge

English

INSTRUCTIONS TO FIT THE VERTICAL AND HORIZONTAL MEC 200 OPERATORS TO A SLIDING GATE

FOR A PROPER AND PERFECT PERFORMANCE OF MEC 200 READ THE INSTRUCTIONS THAT ARE OUTLINED IN THIS MANUAL AND KEEP TO THE DIAGRAMS.

Mec 200 is an extremely versatile system and can suit any sliding gate as it can be mounted either vertically or horizontally, and the motor is available in different power specifications such as 0,37 kW (0,5 HP single- and three-phase); 0,73 kW (1,0 HP single- and three-phase); 1,1 kW (1,5 HP three-phase only). It is a strong and reliable automation. It has a torque control device that can be manually adjusted; worm and gear are made of bronze and steel and are supported by bearings, in an oil bath. A manual overriding system allows manual operations of the gate in emergency events like power failure.

POINTS TO CHECK WITH THE GATE

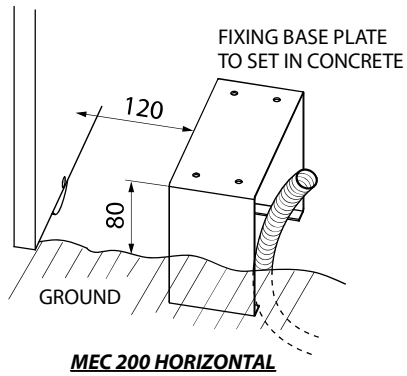
Check that the gate track is well fixed to a solid foundation to prevent deformation which would result into an unbalanced travelling of the gate.

IMPORTANT:

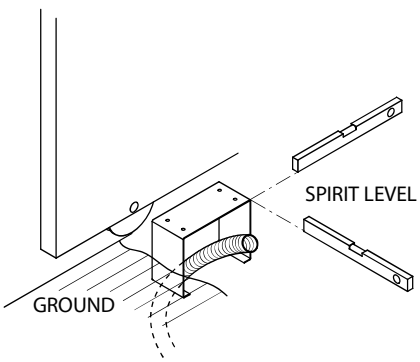
- **make sure that gate stops are fixed in the open and closed gate positions so that the gate does not over travel the permitted limit and go out of the upper guide;**
- **make sure that a system be mounted to the gate to prevent it from falling over;**
- **make sure that, once at the end of the permitted travel, the gate does not hit the gate posts or special gate stops to avoid damages to its structure.**

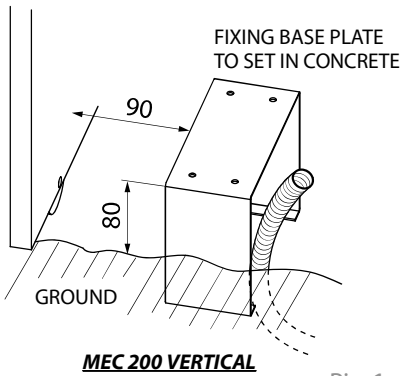
FITTING MEC 200 ON TO THE FIXING BASE PLATE

The first operation is to fix the fixing base plate to the ground and make sure that it is perfectly levelled. Fixing distances are as indicated in pic. 1 here below. Fixing is by setting the plate into a concrete foundation.



MEC 200 HORIZONTAL

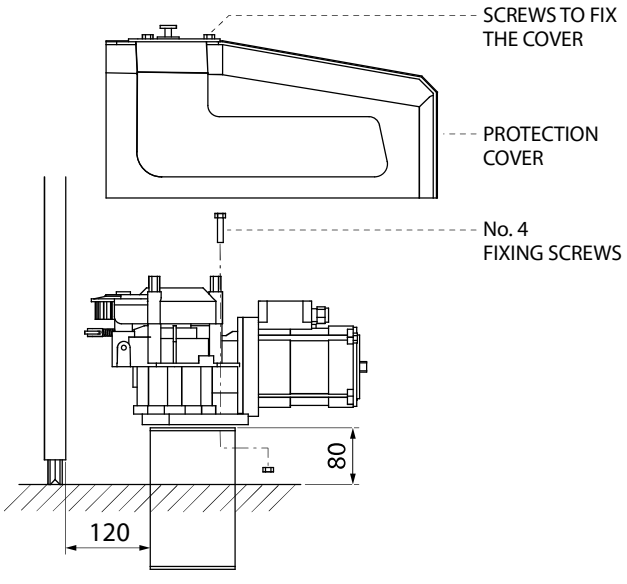




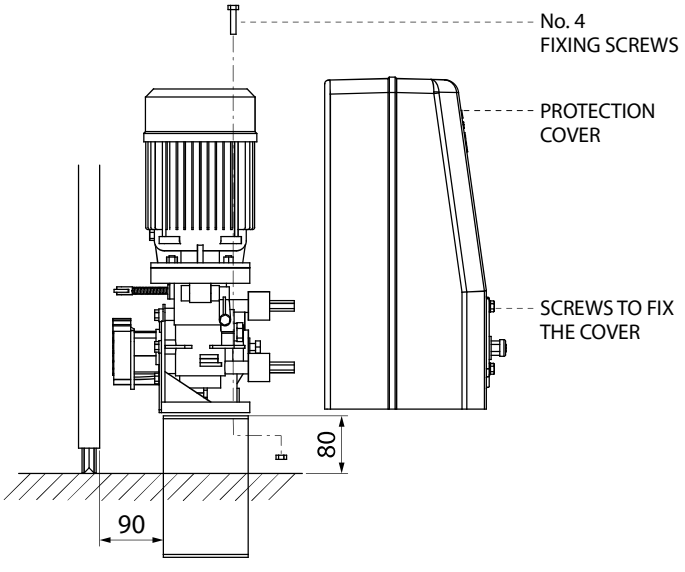
MEC 200 VERTICAL

Pic. 1

Remove the Mec 200 cover by loosening the three screws and pulling it upwards; temporary fix the Mec 200 operator to the fixing base plate by means of the four screws (pic. 2).



MEC 200 HORIZONTAL



MEC 200 VERTICAL

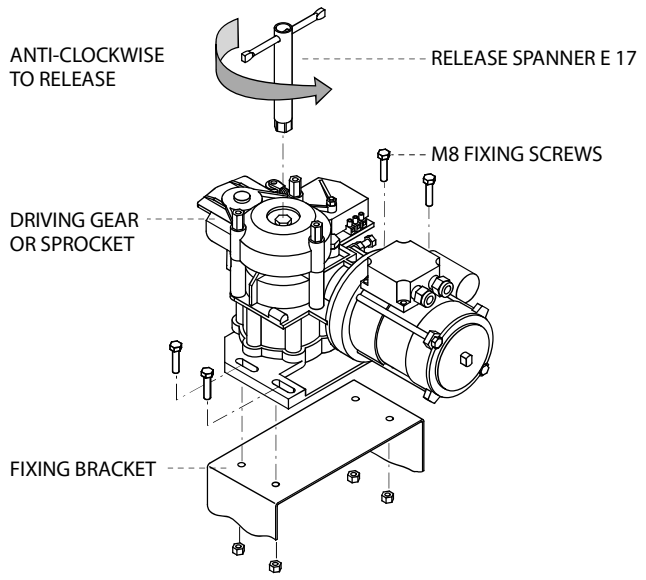
Pic. 2

English

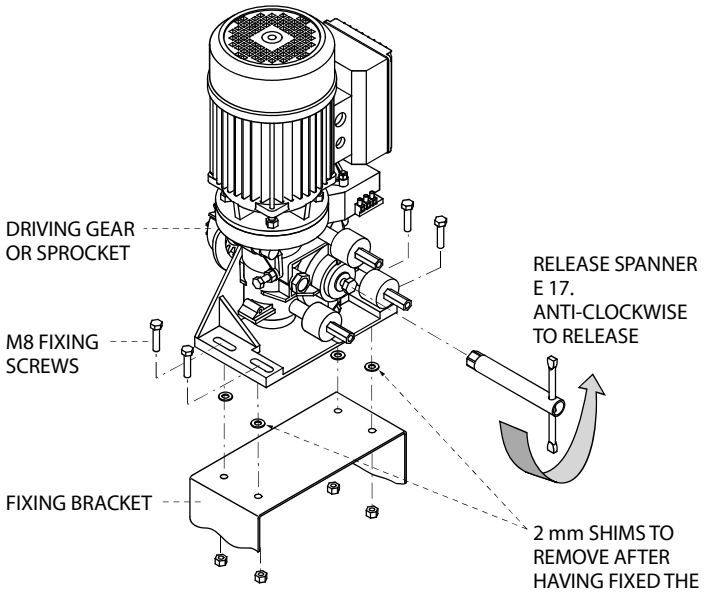
RACK FITTING OPERATIONS

IMPORTANT: if installing Mec 200 vertical it is recommended to insert 2 mm shims between the fixing bracket and the operator base plate before welding the rack to the gate, so that rack and gear mesh each other with an adequate clearance after that the shims have been removed.

Temporary fix Mec 200 on to the fixing bracket, perfectly levelled, by means of the 4 fixing screws. Mec 200 outer gear must run idle: loosen (by 1 or 2 turns max.) the hexagonal head screw by means of the release spanner E 17 supplied with the equipment (pic. 3).



MEC 200 HORIZONTAL



MEC 200 VERTICAL

Pic. 3

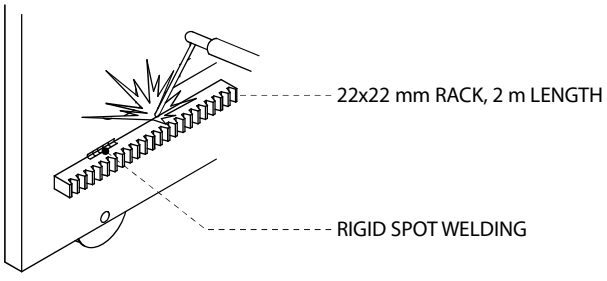
While fixing the rack it is required that the Mec 200 driving gear is not connected with the gate and it can be made run idle by means of the release spanner E17 supplied with the equipment; the gate can be freely moved by hand.

Temporary clamp the rack to the gate so that it can adequately mesh the driving gear: the rack must mesh the driving gear, idle, of Mec 200 in a very smooth way, without friction (pic. 4).

IMPORTANT: before definitely fixing any component, make sure that the rack can mesh the driving gear of Mec 200 so that the whole system, gate included, can be smoothly run by hand the full travel open and close without any friction.

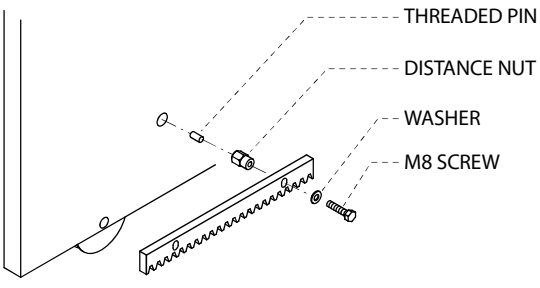
Remove the 2 mm shims only after having fixed the rack. An adequete clearance between rack and gear has thus been achieved (pic. 4).

RACK FIXING BY WELDING IT TO THE GATE

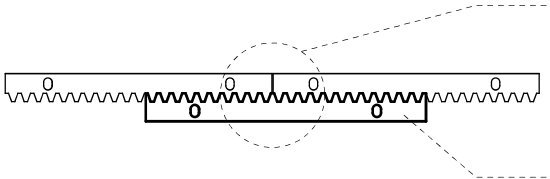


MEC 200 HORIZONTAL

RACK FIXING BY MEANS OF SCREWS AND FITTING PARTS



MEC 200 VERTICAL



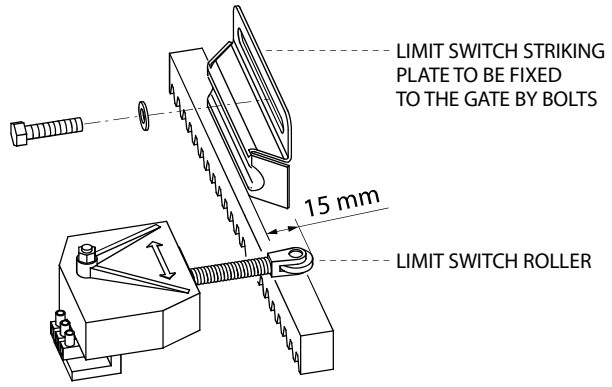
Pic. 4

English

LIMIT SWITCH FITTING INSTRUCTIONS

Fix the limit switch striking plates as shown in the diagram: the distance between the roller tip of the limit switch spring and the striking plate front surface line must be 15 mm.
This distance will allow the correct operation of the limit switch spring in both travelling directions (pic. 5). Should the limit switch roller go beyond the 15 mm distance, unscrew and remove the roller, then cut the spring to measure.

IMPORTANT: the gate must stop before hitting the gate post or special gate stops to prevent any damage to its structure.

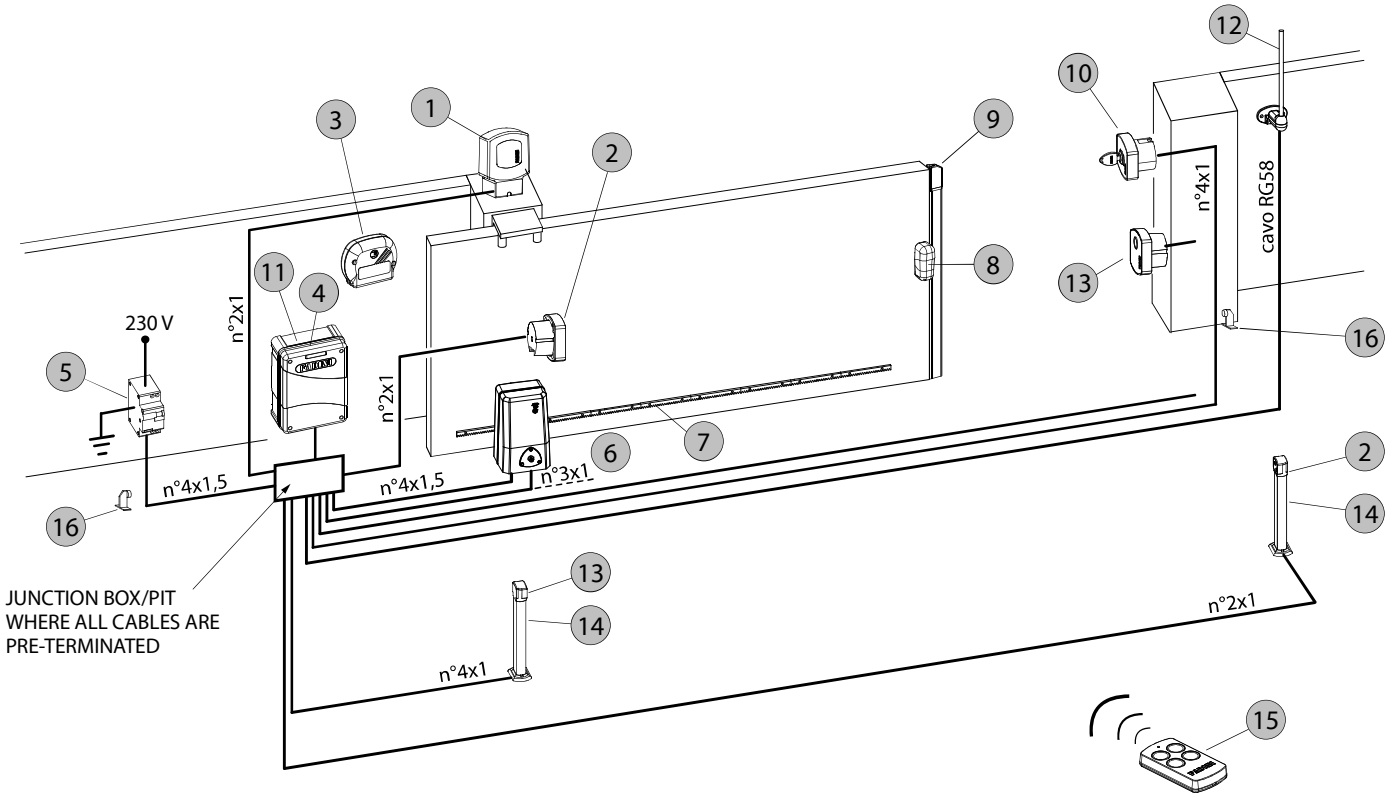


Pic. 5

WIRING DIAGRAM AND ACCESSORIES

Before fitting Mec 200 make sure the installation is pre-set for all the safety and control accessories as required (Pic. 6).
The safety edges, mechanically wire-operated and resistive 8,2 kΩ, fixed on the gate's leaf may be connected by cable, by mean of the safety radio device Arpo 58 or with the photocells Orbita 57.

General layout: it is the installer's responsibility to lay the connection pipes and tubes as properly and correctly required.



IMPORTANT: all the electrical equipment to be properly earthed.

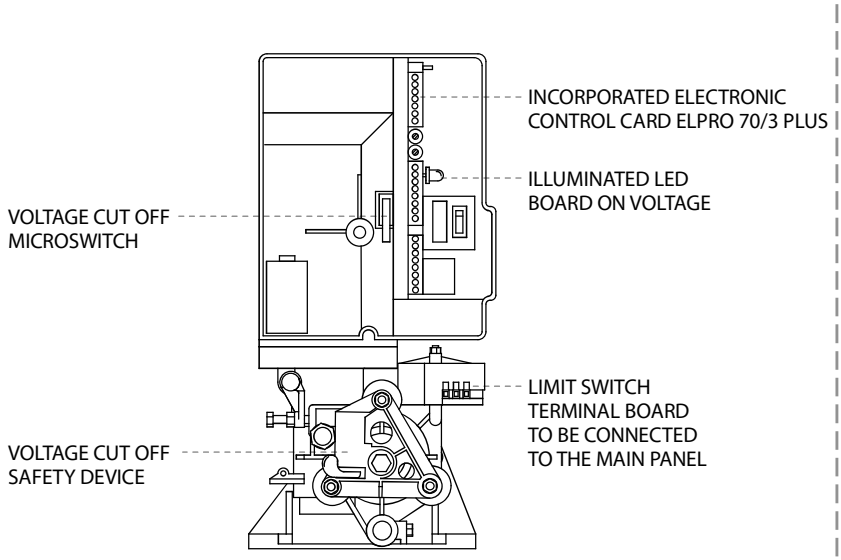
1 - Flashing lamp - code 152L
2 - Recess photocell transmitter
3 - Receiver
4 - Controller
5 - 230 V - 50 Hz - 0,03 A magneto-thermal differential circuit breaker (not supplied with the equipment) (2,5 mm² cable section beyond 100 m)
6 - Mec 200 gate operator
7 - Gear rack
8 - Transmitter
9 - Mechanical cable-operated edge
10 - Recess key-switch
11 - Plug-in radio receiver
12 - Aerial
13 - Recess photocell receiver
14 - 0,5 m post
15 - Transmitter
16 - Gate stop (compulsory, not supplied with the equipment)

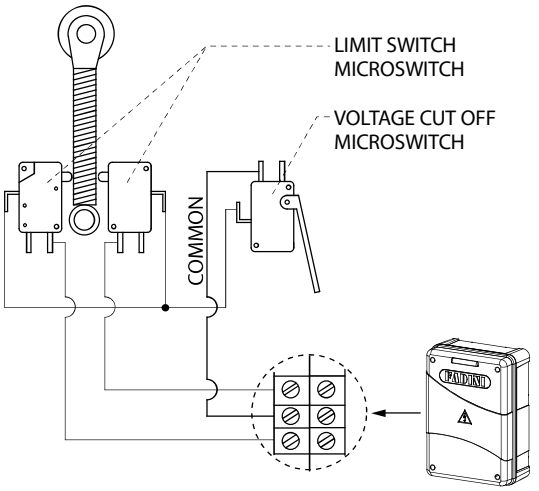
Pic. 6

English

LIMIT SWITCH AND VOLTAGE CUT OFF CONNECTIONS

It is recommended to fit three-phase operators with a safety device consisting of a switch to cut off power to the low voltage circuit. Connections are in series with the limit switch common terminal (pic. 7).
The switch is activated whenever the override spanner is inserted for manual operations or the operator cover is removed.
Should the limit switches be wrongly connected so that their action opposes the normal travelling of the gate, reverse their connections in the main board. Change over the live connections, keep the common fixed in the same terminal.



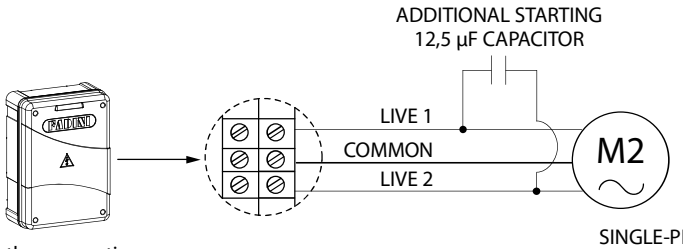


For the connections of the Elpro controller, see the respective instructions manual

Pic. 7

ELECTRIC MOTOR CONNECTIONS

Should it be needed to reverse the rotation direction of the motor, change live 1 with live 2, but the neutral is to remain fixed in its terminal (pic. 8).
NOTE: should the motor fail to operate the gate in case of power shortage, add an extra 12,5 µF capacitor and parallel connect it to the electric motor live 1 and 2 (pic. 8).



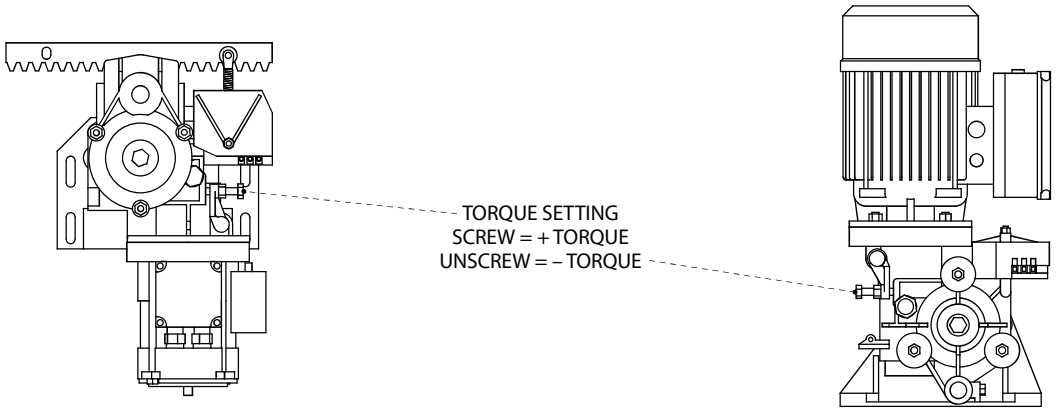
For the connections of the Elpro controller, see the respective instructions manual

SINGLE-PHASE 230 Vac - 50 Hz ELECTRIC MOTOR

Pic. 8

TORQUE CONTROL AND ADJUSTMENT

Mec 200 incorporates an adjustable clutch system for torque control. The system is in an oil bath and can be adjusted to the gate weight. Adjusting is by a screw which is located on one side of the operator. A special spanner E17 is provided with the equipment for this purpose: unscrew the locknut; the more you tighten the screw clockwise, the more you increase the operator torque; by unscrewing it torque is decreased. Once set it to meet the site requirements, tighten the locknut hard (pic. 9).

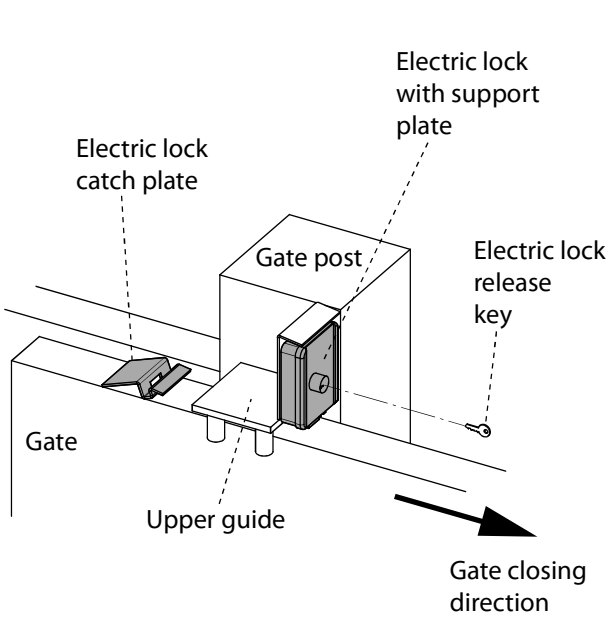


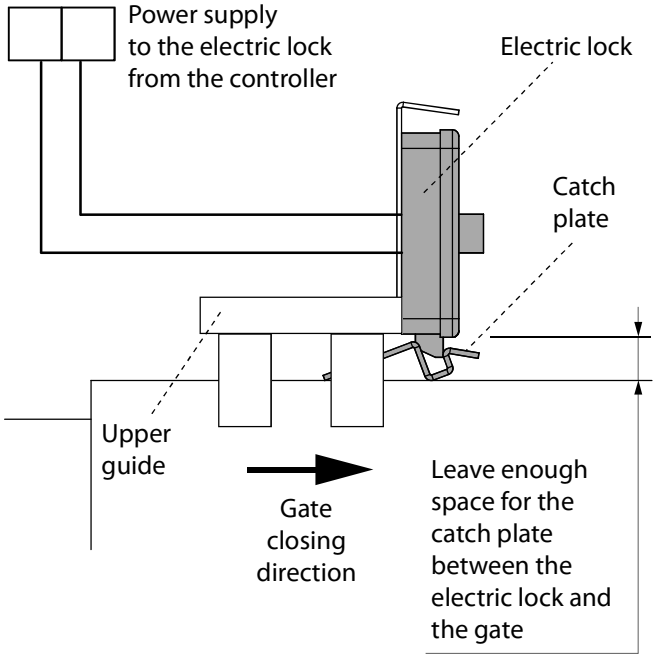
MEC 200 HORIZONTAL ***MEC 200 VERTICAL***

Pic. 9

MEC 200 REVERSIBILE

With MEC 200 REVERSIBILE it is possible to open or close the gate by hand in case of power failure and the E17 tubular release spanner is not needed. In this kind of installations, it is recommended that an electric lock be mounted on to the gate to hold it closed: in case of power failure, release the electric lock first and manually operate the gate to open.
It is available in 0,37 kW / 0,5 HP single- and three-phase options.
IMPORTANT: with MEC 200 REVERSIBILE use the Elpro 37 FN controller.





It is advisable that the electric lock be fixed on to the gate post in vertical position over the gate top in such a position that releasing by the customized key be allowed either from inside or outside the gate. It is also recommended to make sure that the guide be sufficiently robust, if not fit a strengthening plate to it.

Pic. 10

English

English

GUIDANCE FOR PROPER USE *(for the end user)*

WARNINGS

• Transit across the gate is allowed only if motor is stopped; stand at safe distance during opening and/or closing cycles of the gate.
• Do not touch any components of the system while the operator is working.
• Do not allow children and/or people to stand in the proximity of a working operator.
• Keep all the accessories able to turn on the operator (transmitters, proximity readers, key-switches, etc.) out of the reach of the children.
• Do not run the system in case of anomalies.
DISPOSAL OF MATERIAL: dispose properly of the packaging materials such as cardboard, nylon, polystyrene etc. through specializing companies (after verification of the regulations in force at the place of installation in the field of waste disposal). Disposal of electrical and electronic materials: to remove and dispose through specializing companies, as per Directive 2012/19/UE. Disposal of substances hazardous for the environment is prohibited.

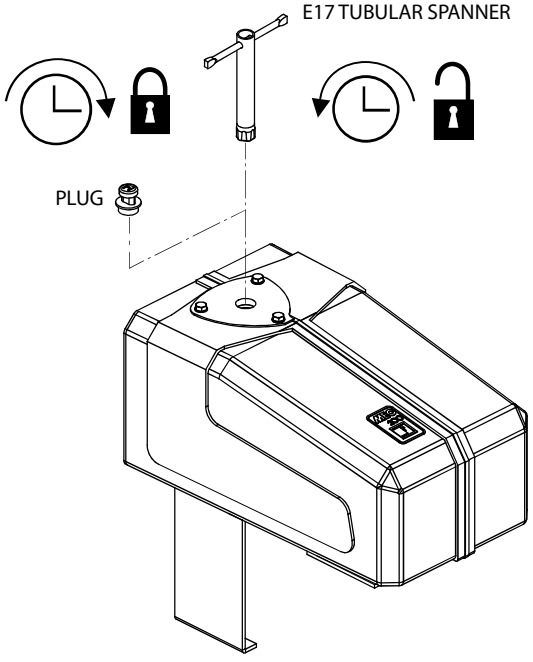
MAINTENANCE

For optimum performance of system over time according to safety regulations, it is necessary to perform proper maintenance and monitoring of the entire installation: the automation, the electronic equipment and the cables connected to these. The entire installation must be carried out by qualified technical personnel. Operator: maintenance inspection at least every 6 months, while for the electronic equipment and safety systems an inspection at least once every month is required. The manufacturer, Meccanica Fadini snc, is not responsible for non-observance of good installation practice and incorrect maintenance of the installation.
Advice for the end user:
• clear the site of materials that may have deposited in the equipment and hinder its correct functioning (such as rests of insects, foliage, stones, etc.); before carrying out this operation, switch off voltage supply;
• clean regularly the equipment by using a damp cloth. Do not use flammable substances such as alcohol, solvents or benzene: these substances may cause explosions and/or damage the system.

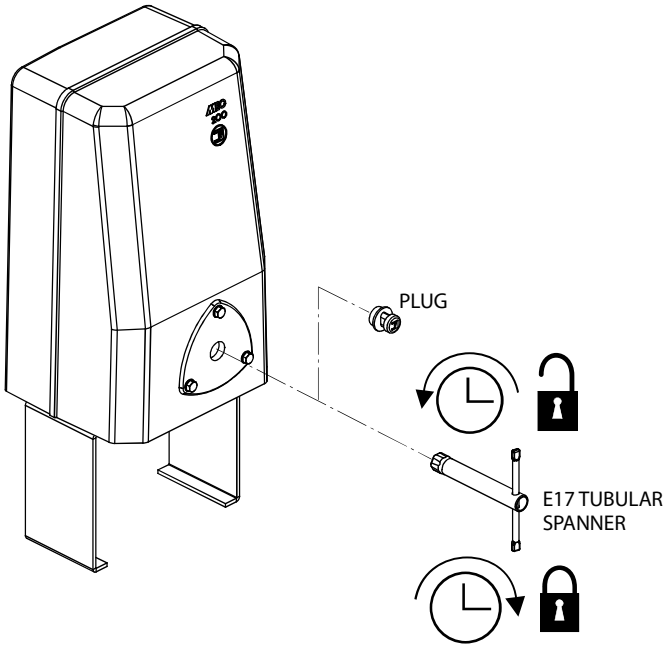
LOCKING AND UNLOCKING THE GEARED MOTOR

This manual operation is to be carried out in case of power failure or faults detected with the systems.
Remove the plug from the cover and insert the E17 spanner: turn the hexagonal screw anticlockwise by 1 or 2 turns maximum to unlock.
To lock back the geared motor, turn the hexagonal screw clockwise by 1 or 2 turns maximum.

MEC 200 HORIZONTAL



MEC 200 VERTICAL



Pic. 11

English

MAINTENANCE RECORD

hand over to the end user of the installation

FADINI the gate opener Made in Italy

Installation address:	Maintainer:	Date:

Installation type:				Operator model:	Quantity of models installed:
Sliding gate	☒	**Folding door**	☐		
Swinging gate	☐	**Road barrier**	☐	Dimensions per gate leaf:	
Over-head door	☐	**Bollard**	☐		
Lateral folding door	☐	.....	☐	Weight per gate leaf:	Installation date:

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

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

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

Stamp and signature
installation technician/maintainer

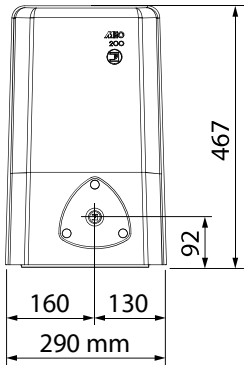
Signed for acceptance
end user
buyer

hand over to the end user of the installation

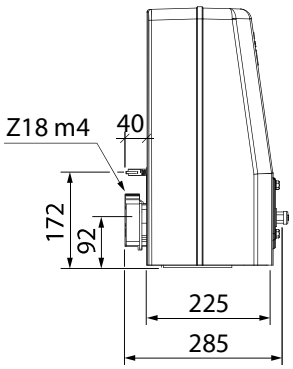
English

OVERALL DIMENSIONS

Mec 200 **vertical**

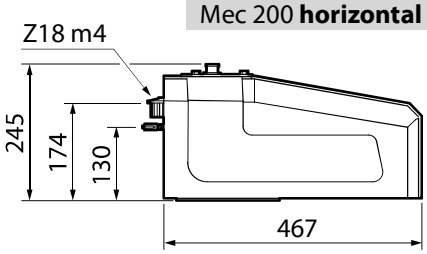


Front view

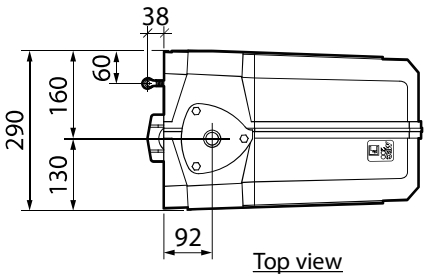


Side view

Mec 200 **horizontal**

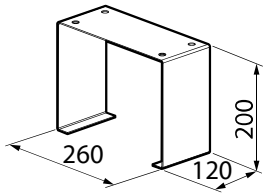


Side view

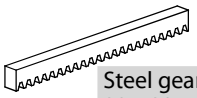


Top view

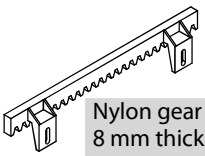
Zinc-coated steel base plate



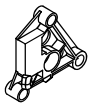
FITTING ACCESSORIES FOR INSTALLING



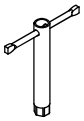
Steel gear rack
22 x 22 mm thickness
2 m modules



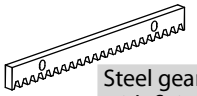
Nylon gear rack
8 mm thickness
steel core
1 m modules



Power cut off device



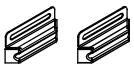
E 17 release spanner



Steel gear rack
with fixing slots
1 m modules



Steel
gear rack fixing set



Limit switch striking plates for screw fixing to the gate

English

TECHNICAL SPECIFICATIONS

ELECTRIC MOTORS	Single-phase	Three-phase	Single-phase	Three-phase	Three-phase
Power output	0,37 kW (0,5 HP)	0,37 kW (0,5 HP)	0,73 kW (1,0 HP)	0,73 kW (1,0 HP)	1,1 kW (1,5 HP)
Supply voltage	230 Vac	230/400 Vac	230 Vac	230/400 Vac	230/400 Vac
Frequency	50 Hz				
Absorbed power	510 W	575 W	1.130 W	1.030 W	1.500 W
Absorbed current	2,4 A	2,1/1,2 A	5,7 A	3,7/2,2 A	5,1/3 A
Motor rotation speed	1.380 rpm				
Capacitor	20 µF		40 µF		
Intermittent service	S3				

OPERATOR	Single-phase	Three-phase	Single-phase	Three-phase	Three-phase
Rated torque	40 Nm	40 Nm	80 Nm	80 Nm	110 Nm
Gear rating	1/32				
Travel speed	10 m/1'				
Working temperature	-25 °C +80 °C				
Oil type	Oil Fadini - Item 706L				
Maximum gate weight *[A]*	1.200 kg	1.250 kg	1.800 kg	1.850 kg	2.000 kg
Horizontal Mec 200 weight	19,5 kg	18,5 kg	23,5 kg	21,5 kg	25,5 kg
Vertical Mec 200 weight	19 kg	18 kg	23 kg	21 kg	25 kg
Protection standard	IP 55 (inside the cover)				
Limit switch	mechanical				

PERFORMANCE	
Frequency of use	very intensive
Service cycle	25 s opening - 30 s dwell - 25 s closing - 30 s dwell
Complete cycle time	110 s
Complete opening - dwell - closing - dwell cycles	No. 33/hour
Annual cycles (with 8 hours of use per day)	No. 96.000

[A] The gate structure, shape and wheels may affect the a.m. values . Always make sure the gate is adequate to be automatically operated and remove any possible friction points.

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CE
GB **2012/19/UE** Directive Re. disposal of electric and electronic waste
DISPOSE PROPERLY OF MATERIALS ARMFUL TO THE ENVIRONMENT