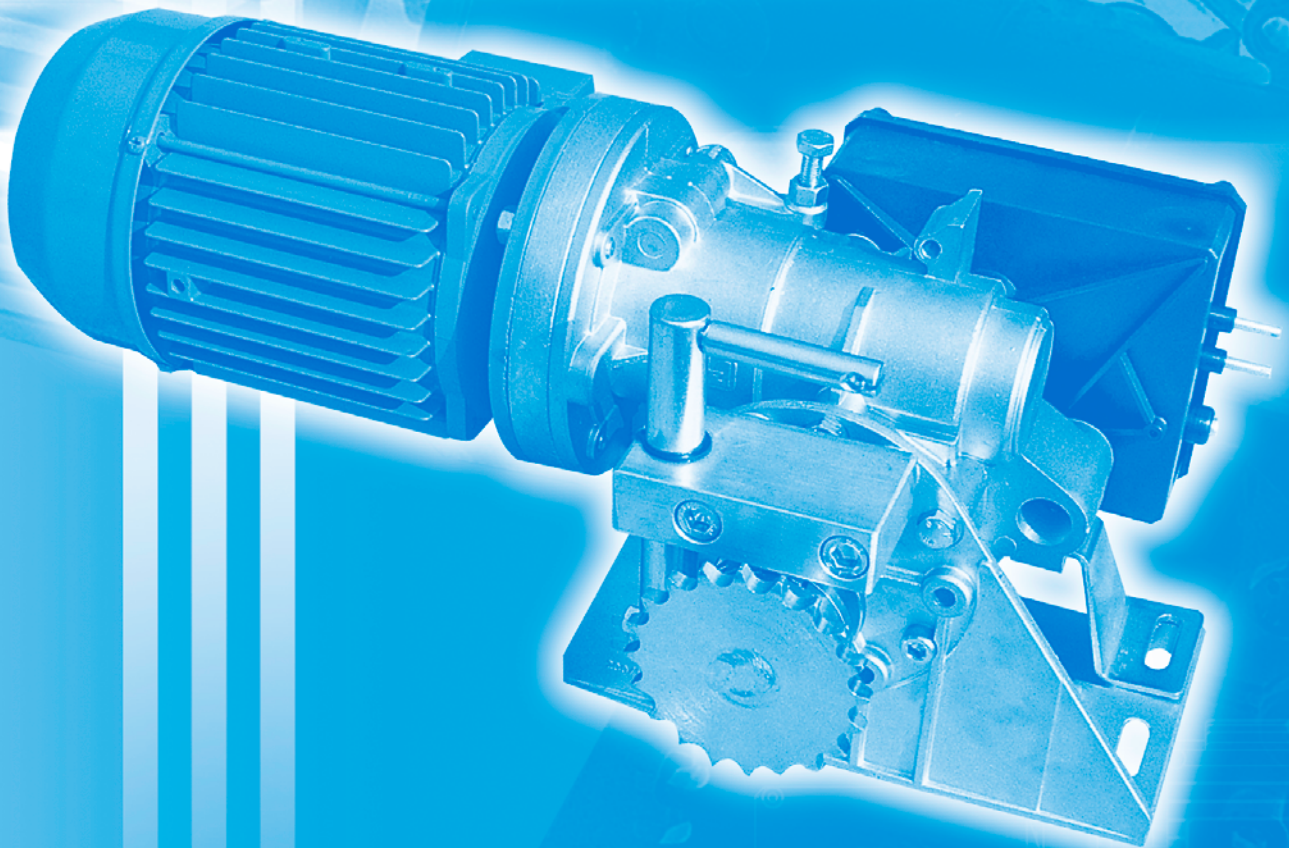


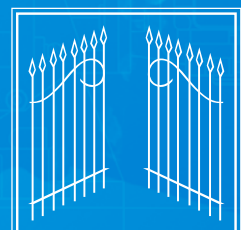
MEC

200 LB

- SLIDING CHAIN-DRIVEN ELECTROMECHANICAL AUTOMATION FOR INDUSTRIAL FOLDING DOORS, SECTIONAL DOORS AND SLIDING DOORS
- BEARING SUPPORTED TRANSMISSION AND WORM-GEAR COUPLING IN AN OIL BATH



INSTALLATION MANUAL



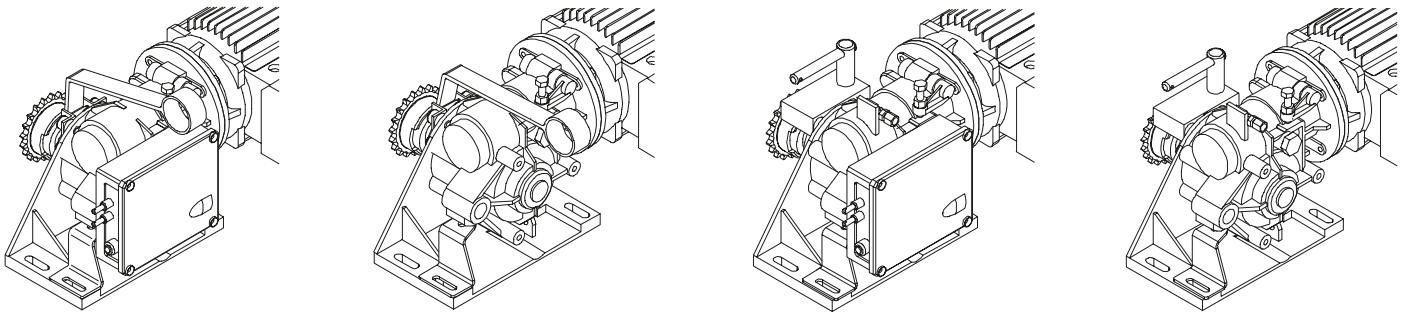
FADINI[®]
the gate opener

INSTALLATION INSTRUCTIONS FOR THE MEC 200 LB SLIDING AUTOMATION

IN ORDER FOR MEC 200 LB TO BE INSTALLED AND OPERATE CORRECTLY, WE RECOMMEND FOLLOWING THE INSTRUCTIONS AND RELATIVE ILLUSTRATIONS BELOW.

MEC 200 LB is a versatile automation for all installation requirements in the field of sliding entrances with chain-driven transmission for folding doors and gates (leaves hinged together and folded at the side of the opening) or industrial sliding entrances on guides. It is available in a range of versions from 0.37 KW (0.5 HP Single-Phase and Three-Phase), for doors with a surface area of up to 25 square metres, to 0.73 KW (1 HP Single-Phase and Three-Phase) for doors with a surface area of up to 50 square metres. It is a strong reliable automation, with manually adjustable clutch and bronze-steel worm-gear coupling supported by bearings and surrounded by an oil bath.

There are two separate ways to manually release the automation for each individual motorization (Pic. 1): a **lever release system (A and B)** or a **cable release system with custom-made key (C and D)**; both versions are available with **incorporated limit switches (version A and C)** for doors of a maximum 8 metre length or an **external limit switch (version B and D)**.



(A) MANUAL LEVER RELEASE WITH INCORPORATED LIMIT SWITCHES FOR DOORS OF A MAXIMUM 8 METRE LENGTH

(B) MANUAL LEVER RELEASE WITH EXTERNAL LIMIT SWITCHES

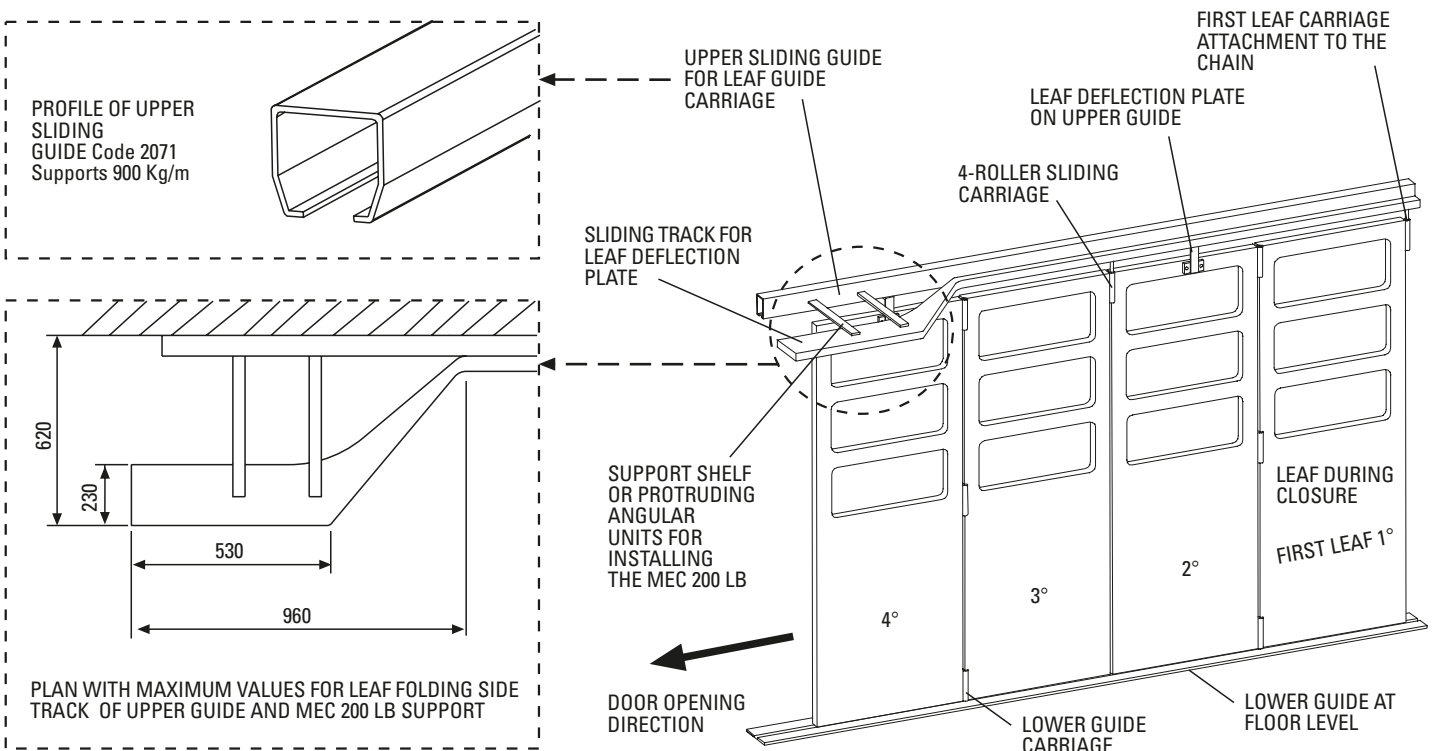
(C) MANUAL CABLE RELEASE WITH INCORPORATED LIMIT SWITCHES FOR DOORS OF A MAXIMUM 8 METRE LENGTH

(D) MANUAL CABLE RELEASE WITH EXTERNAL LIMIT SWITCHES

PIC. 1

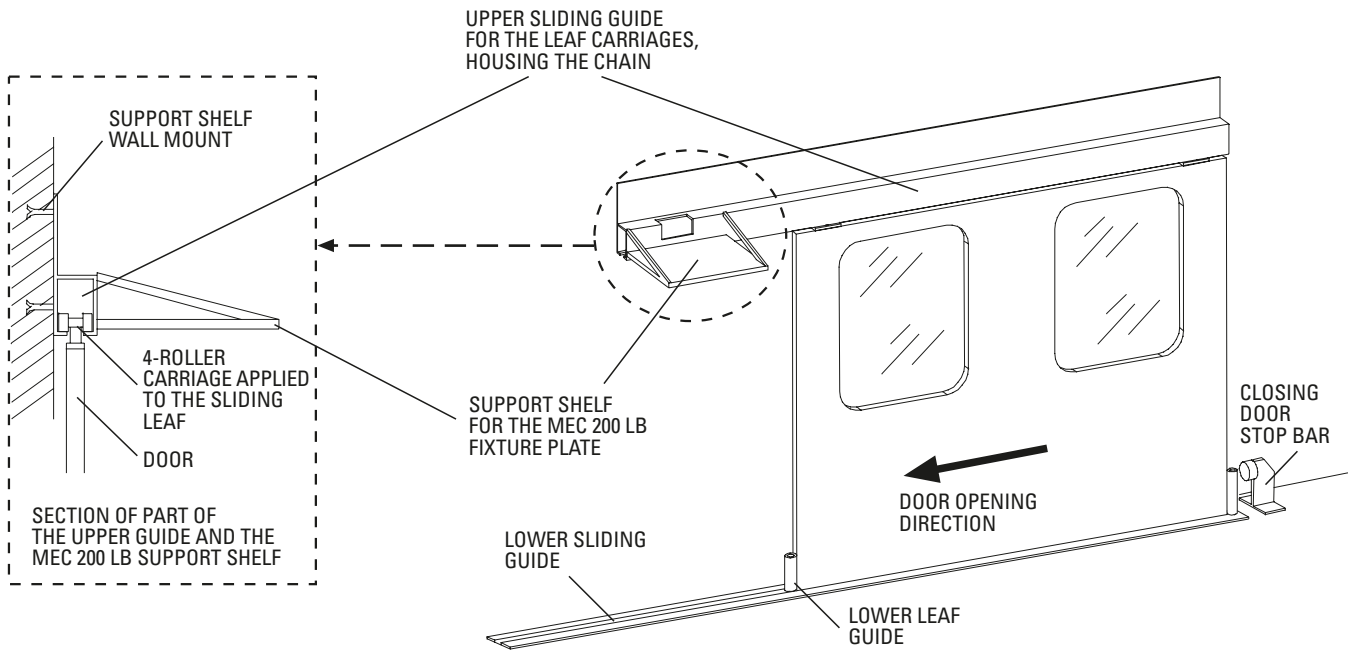
CHECKING DOORS ON SLIDING GUIDES

The MEC 200 LB application is designed for chain-driven industrial type sliding entrances on guides, such as double folding doors, side folding doors, sliding doors and sectional industrial doors and shutters, etc. The following figures illustrate the most common installation types, indicating the maximum values so as to ensure that the sliding roller upper guide is suitable for the mechanical stress to be supported (Pic. 2 and Pic. 3).



SIDE FOLDING DOOR – INTERNAL VIEW OF DOOR

PIC. 2

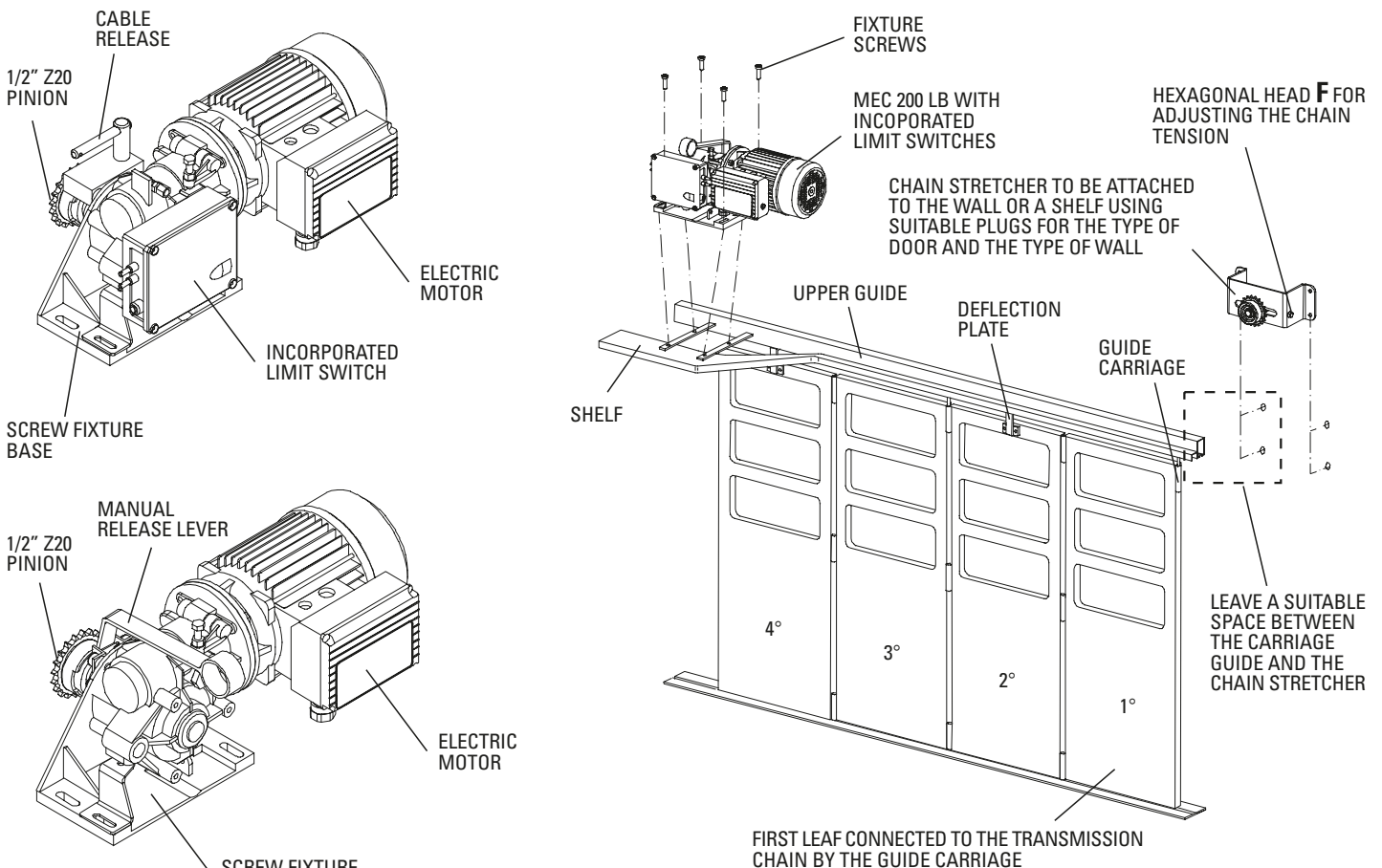


PIC. 3 SLIDING DOOR ON TRACKS – INTERNAL VIEW OF DOOR TO BE OPENED

INSTALLATION OF THE MEC 200 LB AND THE CHAIN STRETCHER

- The MEC 200 LB gearmotor is installed on the **fixture base** on the wall-mounted installation shelf (Pic. 4 and Pic. 5).
- It is then necessary to attach the **chain stretcher** to the opposite end of the MEC 200 LB, making sure that the pinions are well aligned. **Ensure that the chain stretcher adjustment screw is located on the opposite side from MEC 200 LB (Pic. 5)**; during this operation use **suitable wall fixture plugs** for the type of wall on which the device is to be fixed and on the basis of the weight of the door to be driven (Pic. 5).

N.W. The chain stretcher position should depend on the length of the door to be opened and consequently on the length of the entire transmission chain, plus a suitable space to house the door-to-chain attachments (see CHAIN INSTALLATION page 4).



PIC. 4 INSTALLATION OF THE MEC 200 LB BY SCREWING IT TO THE SHELF
PIC. 5 INTERNAL VIEW OF THE DOOR TO BE OPENED

CHAIN STRETCHER

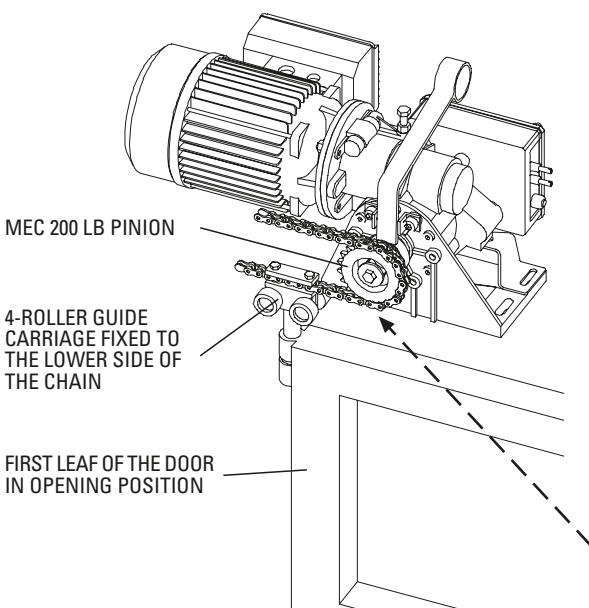
The chain stretcher should be attached to the wall or shelf with suitable plugs for the type of wall. It should be placed in the position in which the chain can be best installed, adjusted and stretched tight (Pic. 6).

- Unscrew the **locknut – E** from the pinion.
- Adjust the pinion position by screwing or unscrewing the **hexagonal head – F** located on the side.
- Once the correct pinion position has been achieved, screw in the **locknut – E**.

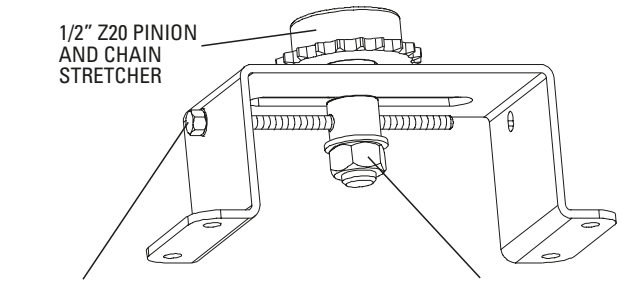
CHAIN INSTALLATION

The **1/2"** chain is supplied in packs of 5 m each, therefore it is necessary to "build" a chain of a sufficient **length for the door to be opened**, the **distance between the gearmotor and the chain stretcher** and also leave a **space necessary for attaching the transmission chain to the door**. You should also consider that the chain will be wound around the MEC 200 LB pinion and the chain stretcher and should be of the right length so as to be tight.

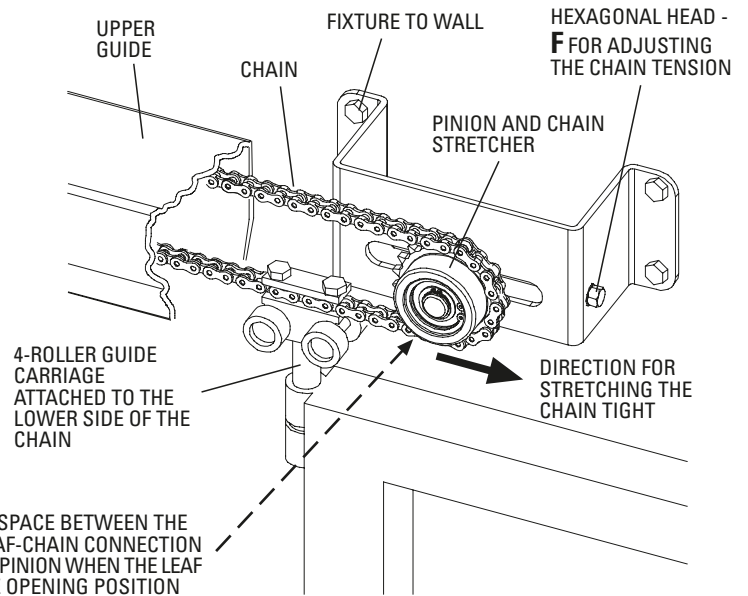
- Install the **MEC 200 LB** and the **chain stretcher** in their definitive positions, placing the chain stretcher pinion in such a way so as to be able to insert the chain and then stretch it tight (Pic.7) and (Pic. 9).
- Determine the effective length of the **chain**, bearing in mind that **adequate space should be left for the door-to-chain attachments in the stop position of the opening doors** (Pic.7) and (Pic.11).
- Open the chain completely, sliding off the prong and the connection link. Add or remove the excess links so as to reach the correct length, close the chain and replace the connection link and the prong (Pic. 8).



EXTERNAL VIEW OF DOOR

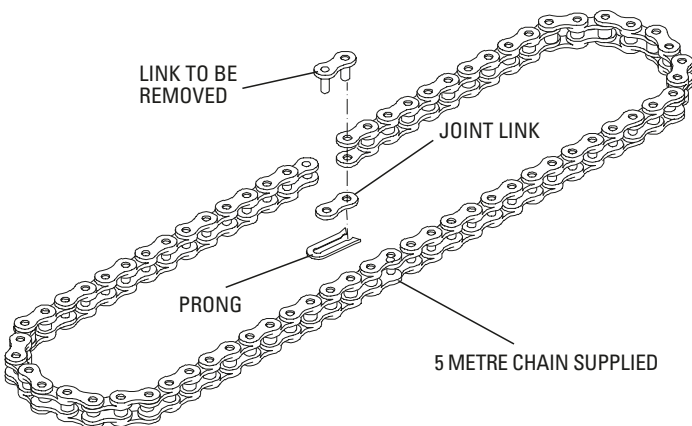


PIC. 6



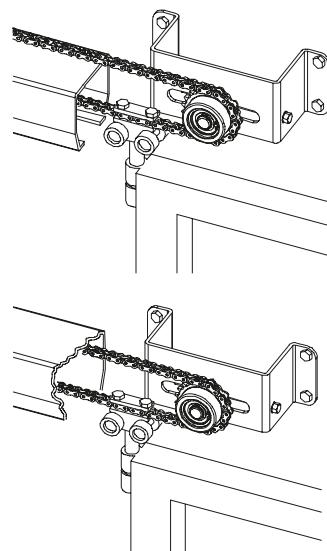
CHAIN STRETCHER SEEN FROM INSIDE OF THE DOOR

PIC. 7



OPENING THE CHAIN IN ORDER TO CONSTRUCT THE CORRECT LENGTH

PIC. 8



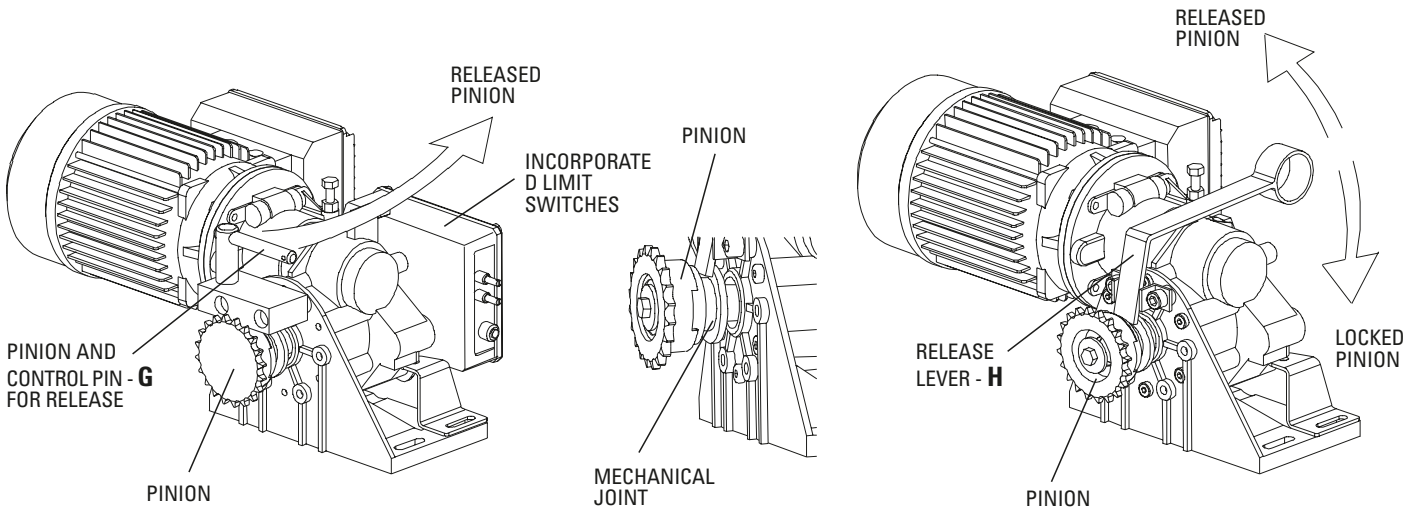
PIC. 9

MANUAL RELEASE AND ATTACHING THE DOOR TO THE CHAIN

In order to install the chain it is necessary to manually release the automation from the door so as to be able to move the latter manually. This operation involves separating the MEC 200 LB gearmotor from the chain, distancing the mechanical joint from the pinion (operation to be carried out in the case of a power failure and during assembly manoeuvres):

- For the **MEC 200 LB with cable release** (versions C and D Pic. 1, page 2) it is necessary to rotate the **control pin – G** so that the **mechanical joint** is disconnected from the **pinion** (Pic. 10) – this is made possible by connecting the manual release command through its metal cable (see “Cable release installation”, Pic. 18, page 7).
- For the **MEC 200 LB with lever release** (versions A and B, Pic.1, page 2) it is necessary to raise **lever – H** so that the **mechanical joint** is disconnected from the **pinion** (Pic. 10)

IMPORTANT: In order to manually release the **MEC 200 LB with incorporated limit switches**, read the chapter on limit switch adjustment very carefully.



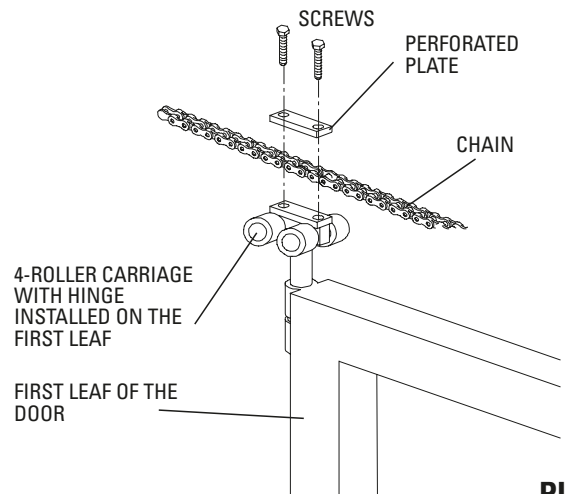
PIC. 10

- At this point place the door in the **closure position**. If you have two doors, place them both in the closure position.

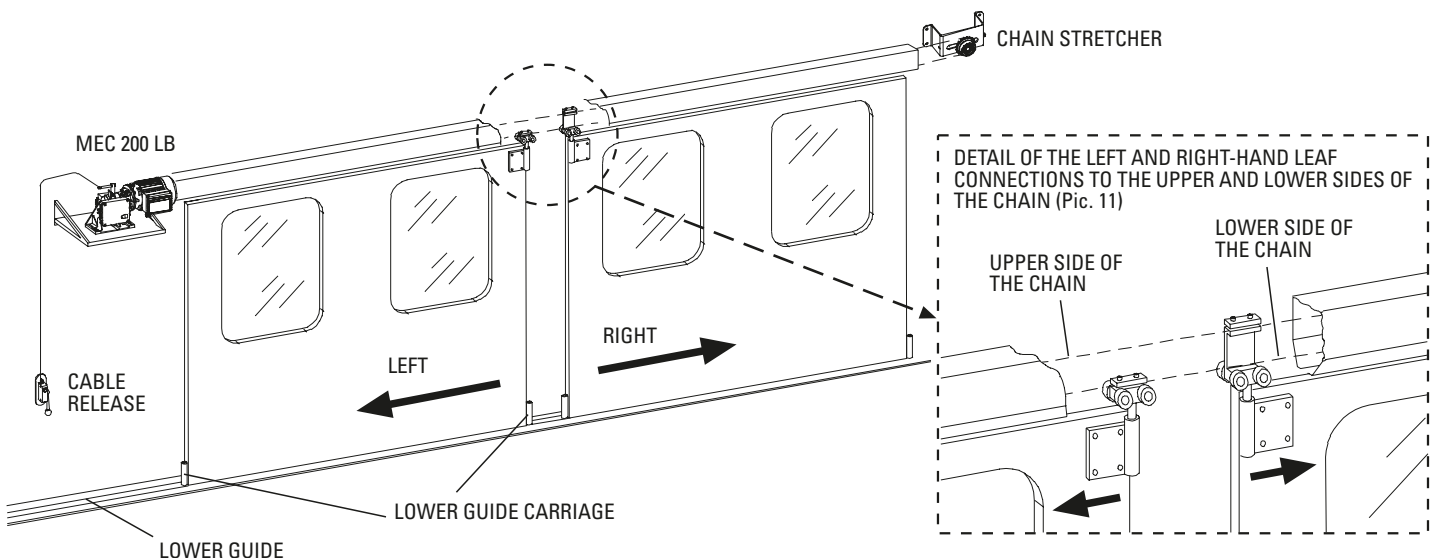
- In order to connect the doors to the chain, we recommend using a **perforated plate** and **two screws** to be placed between the chain pins and screwed into the prepared **guide carriage** connected to the first of the folding doors to move (Pic. 11):

IMPORTANT: When installing two doors with a single MEC 200 LB automation, connect the first leaf of each door to the one side of the chain, following the correct chain movement with the movement of the individual leaves (Pic. 12).

- Once the doors have been connected to the chain, perform some manual opening manoeuvres with the MEC 200 LB released and check that all the attachments are correct (Pic. 12).



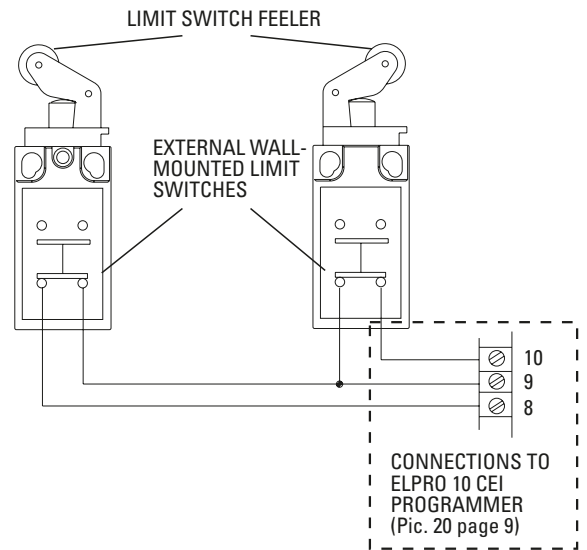
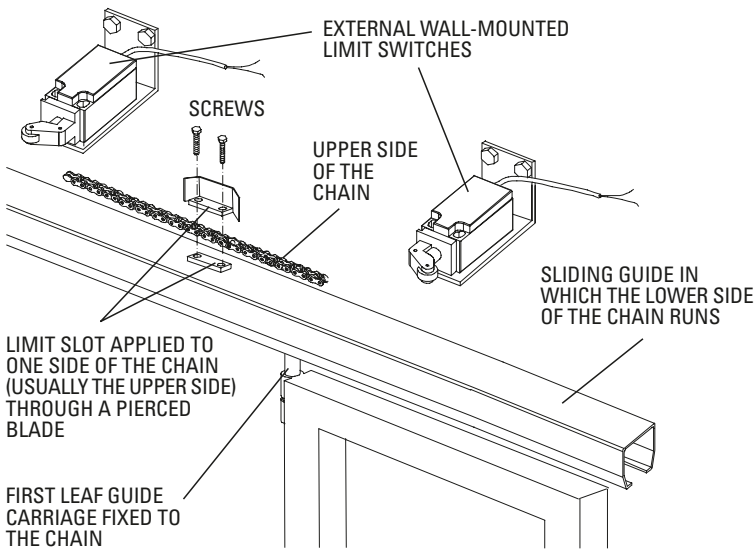
PIC. 11



PIC. 12

LIMIT SWITCH ADJUSTMENT

Depending on the type of automation installed it will be necessary to adjust the stop strokes and the limit switches, which may be incorporated or external to the MEC 200 LB. For automations with **external limit switches**, a limit slot is usually installed on the upper side of the chain (in the same way in which the leaf is connected to the chain), which, through its movement, goes to engage the **limit switch cog feeler** positioned in opening and closing on wall-mounted attachments (Pic. 13). The connections are made in keeping with that described in the outline enclosed with the ELPRO 10 programmer (Pic. 14).



PIC. 13

PIC. 14

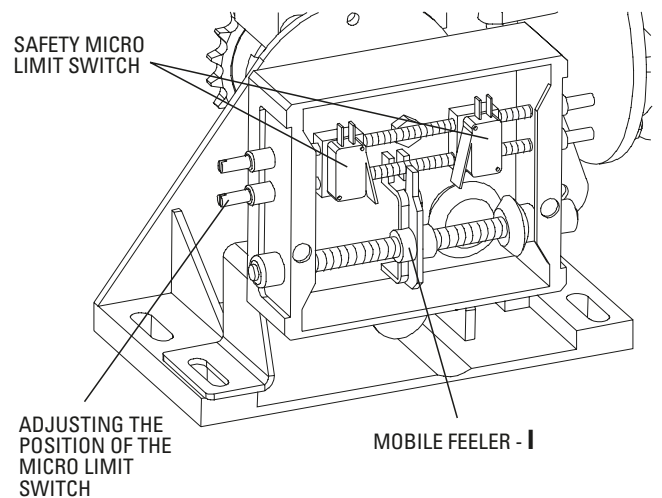
For MEC 200 LB automations with **incorporated limit switches** it is necessary to follow the adjustment operations described below, bearing in mind that this automation should only be installed for doors that do not exceed 8 metres in length (Pic. 15):

- Once the released MEC 200 LB, chain stretcher and chain have been installed, stretch the chain using the chain stretcher adjustment screw.
- With the MEC 200 LB released, manually position the door **halfway in the open position**.
- Remove the cover from the incorporated limit switch box.
- Check that the electrical connections between the **micro limit switches** and the programmer are correct, with the respective opening and closing strokes (the micro N.C. contacts have already been made, however it is always better to check the connections)
- Position the two **micro limit switches** at the ends
- Check that the **mobile feeler – I** is equidistant (halfway) between the two micro limit switches.
- Then adjust the position of the two micro limit switches depending on the door's opening and closing stroke, using a screwdriver on the lateral adjustment guides.

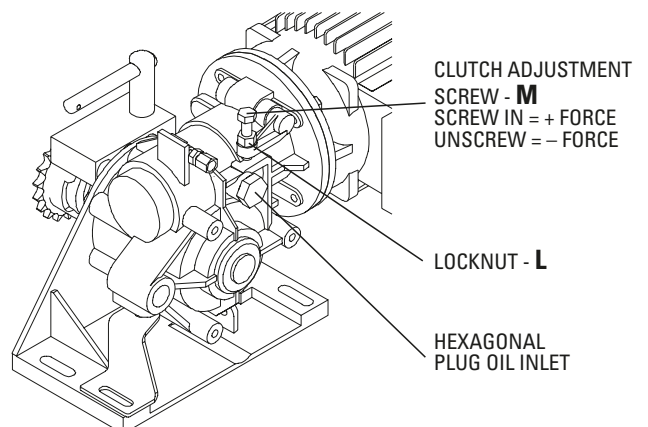
IMPORTANT: In the case of MEC 200 LB with incorporated limit switches, once the door has been released manually, it is necessary to position the door leaves in the same position they were in before release before locking it back into position (hooking the mechanical joint to the pinion, Pic. 10, page 5); by doing so the **mobile feeler – I** is placed in the correct position.

ADJUSTING THE CLUTCH

The MEC 200 LB's mechanical clutch, contained within an oil bath, should be adjusted depending on the weight of the door to be driven, using a spanner to loosen the **locknut – L** and then working on the **hexagonal screw – M**: **screwing in increases the drive force, unscrewing obtains a lower drive force** (Pic. 16). Once the adjustment has been completed, tighten the **locknut – L**.



PIC. 15

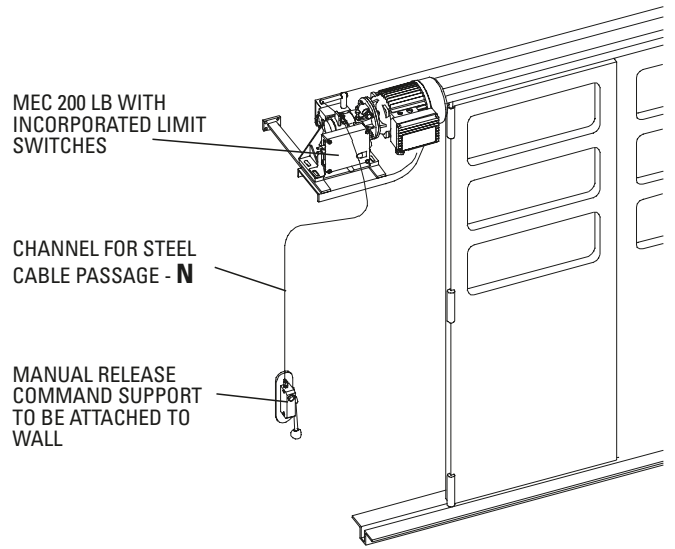


PIC. 16

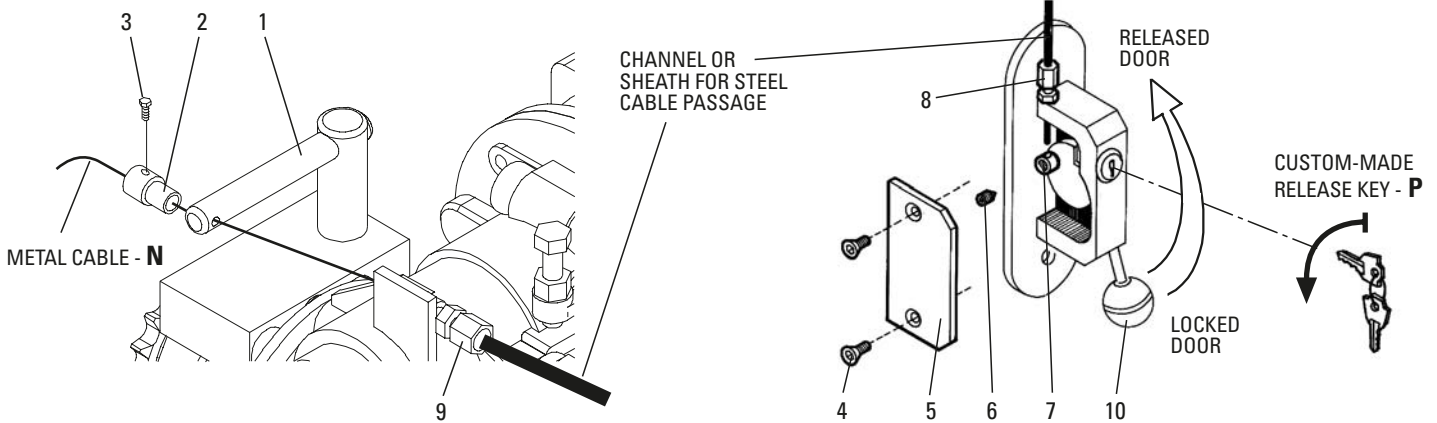
INSTALLING THE CABLE RELEASE

The cable release consists of a wall-mounted manual lever command located near the door and a steel cable that runs inside a sheath and is connected to the release command pin on the MEC 200 LB (Pic. 17) **IMPORTANT:** Before all cable release installation operations it is necessary to **lubricate the steel cable before placing it in the sheath (Pic. 17):**

- Insert the **steel cable – N** in the **control pin hole (1)** and in the **terminal (2)** (Pic. 18)
- Tighten the screw firmly (3)
- Unscrew the two screws (4) in the release **command support** in order to remove the **cover (5)**
- Unscrew the **cable locknut (6)**
- Insert the **steel wire** into the **terminal (7)** with the **lever** in lock position (completely lowered)
- Tighten the **locknut (6)** firmly
- Adjust the **regulator** and the hexagonal **nut (8)** and (9).



PIC. 17



PIC. 18

MANUAL RELEASE

In order to open the door manually using the cable release it is firstly necessary to free the **knob lever (10)** by inserting the **custom-made key – P** and turning it in an anticlockwise direction. After doing so, raise the **knob lever (10)** and the pinion will be released from the MEC 200 LB (Pic. 18).

TECHNICAL DATA

ELECTRIC MOTOR				
	SINGLE-PHASE	THREE-PHASE	SINGLE-PHASE	THREE-PHASE
Power yielded	0.37 KW (0.5 HP)	0.37 KW (0.5 HP)	0.73 KW (1 HP)	0.73 KW (1 HP)
Supply voltage	230 V	230/400 V	230 V	230/400 V
Frequency	50 Hz	50 Hz	50 Hz	50 Hz
Absorbed power	510 W	575 W	1'130 W	1'030 W
Absorbed current	2.4 A	2.1-1.2 A	5.7 A	3.7-2.2 A
Motor speed	1'380 revs/1'	1'380 revs/1'	1'380 revs/1'	1'380 revs/1'
Capacitor	20 µF		30 µF	
Intermittent service	S3	S3	S3	S3
GEARMOTOR				
Max nominal torque	2.5 Nm	2.5 Nm	5 Nm	5 Nm
Ratio	1:32	1:32	1:32	1:32
Sliding speed	9.6 m/1'	9.6 m/1'	9.6 m/1'	9.6 m/1'
Oil temperature	-20°C +80°C	-20°C +80°C	-20°C +80°C	-20°C +80°C
Oil type	AGIP ROTRA THT	AGIP ROTRA THT	AGIP ROTRA THT	AGIP ROTRA THT
Level of protection	IP 557	IP 557	IP 557	IP 557
MEC 200 LB weight	19 Kg	18 Kg	23 Kg	21 Kg
Service cycle	25 s Opening - 30 s Pause - 25 s Closing Complete Opening – Pause – Closing cycles: 45 cycles/hour Complete annual cycles (with 8 hours of use per day): 131'000 cycles			

ELECTRICAL CONNECTIONS

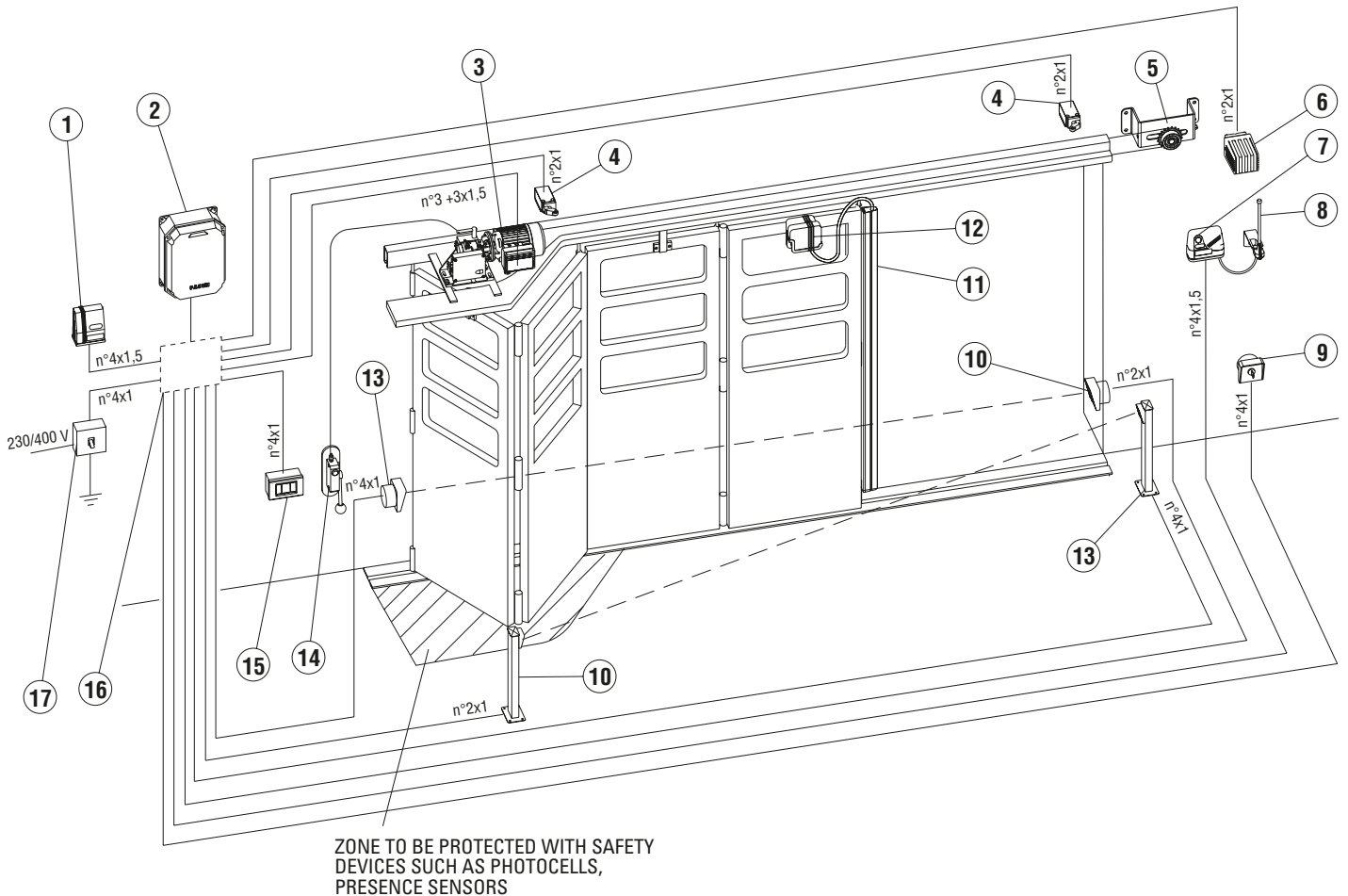
Before making any connections, study the enclosed electrical diagrams carefully (Pic. 20, page 11).

- Power supply, electric motor and flashing light connections are made with electric cables with a section of 1.5 mm² for a maximum distance of 50 m. For distances of over 50 metres, we recommend using electric cables with a section of 2 mm² (Pic. 19)
- For limit switches, photocells, pushbuttons and accessories use cables with 1 mm² wires (Pic. 19)
- The pneumatic safety rib attached to the gate is connected via cable, through a coil, or by radio bridge, **in series with the limit switches or with the receiving photocell.** (Pic.19)

IMPORTANT: Before connecting the electricity supply with which you are working (230 V or 400 V), press the **voltage change switch – Q** placed in the upper part of the ELPRO 10 programmer board (Pic. 20).

IMPORTANT: install a **junction box - 16** that groups together all the programmer's electric wires (Pic. 19).

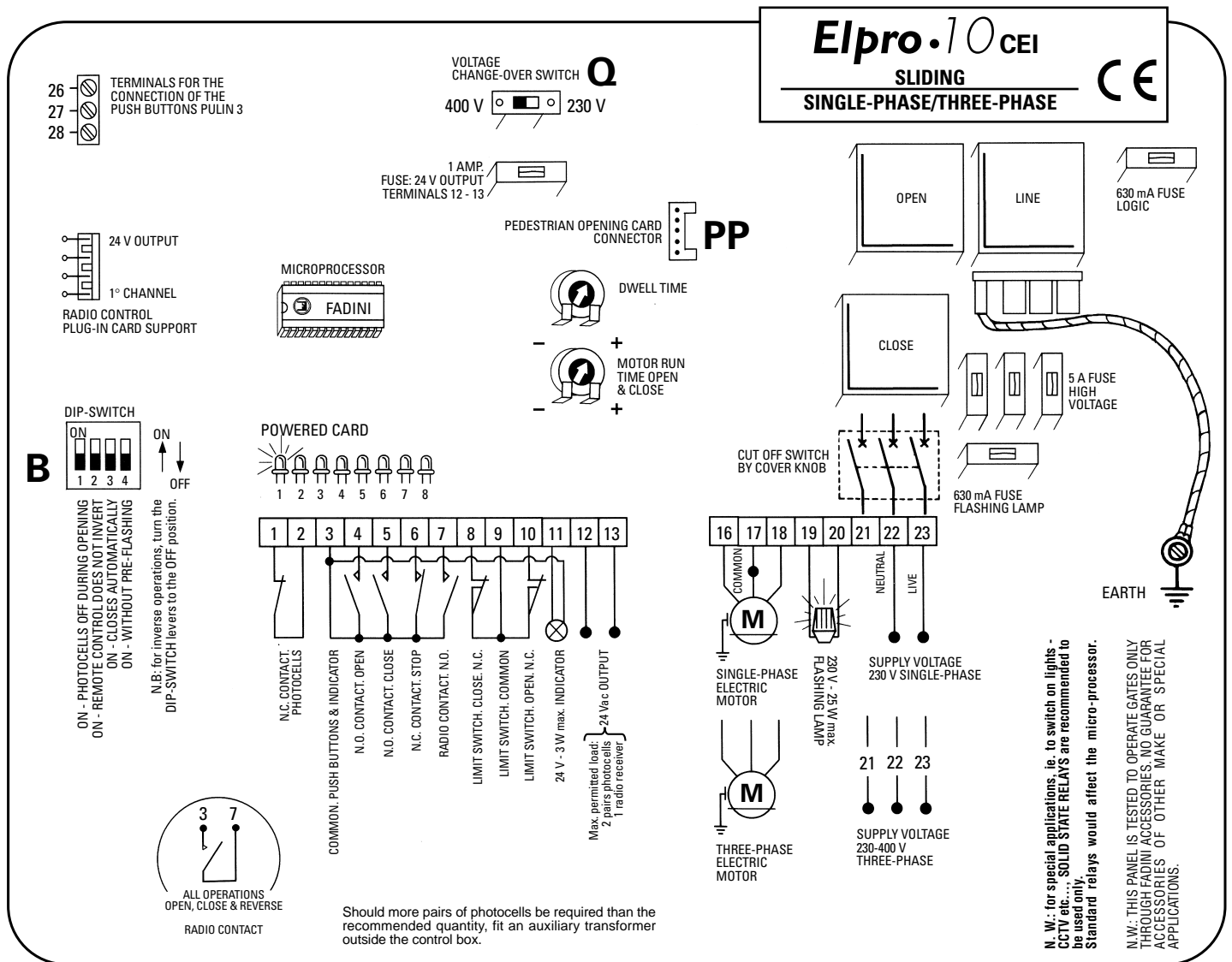
N.B: PERFORM A RISK ANALYSIS IN COMPLIANCE WITH EN 12445 AND EN 12453 STANDARDS AND INSTALL THE NECESSARY SAFETY DEVICES.



- 1) "CRUASTRO" RADIO RECEIVER BRIDGE
- 2) "ELPRO 10 CEI" PROGRAMMER
- 3) "MEC 200 LB" GEARMOTOR
- 4) EXTERNAL "CROUZET" LIMIT SWITCH
- 5) CHAIN STRETCHER
- 6) "LAPI 2" FLASHING LAMP
- 7) "ASTRO 43" EXTERNAL RADIO RECEIVER
- 8) "ASTRO 43" ANTENNA
- 9) "SECH 15" EXTERNAL KEYSWITCH

- 10) "DIFO 33" PHOTOCELL PROJECTOR
- 11) RUBBER PNEUMATIC RIB
- 12) "CRUASTRO" RADIO TRANSMITTER BRIDGE
- 13) "DIFO 33" PHOTOCELL RECEIVER
- 14) MANUAL CABLE RELEASE
- 15) "PULIN 3" WALL-MOUNTED BUTTON SWITCH
- 16) JUNCTION BOX
- 17) DIFFERENTIAL MAGNETOTHERMAL MAINS SWITCH TYPE 0.03A

➤ **PIC. 19**



PIC. 20

DESCRIPTION OF INDIVIDUAL GATE ELECTRONIC PROGRAMMER OPERATION FOR SLIDING GATES

Make sure that all the electrical connections comply with the diagram enclosed. Once terminals 21, 22 and 23 are supplied with single-phase 230 V – 50 Hz power, the "red LED" No. 1 should light up, indicating that the card is powered. The OPEN and CLOSE motor run time should be set longer than the gate travel.

The DWELL timer should be adjusted to fit requirements.

PROGRAMMER OPERATION LOGIC: following a pulse, the warning light comes on and the automation comes into operation after three seconds. The warning light continues to flash during the pause; the flashing light functions for a further three seconds when the gate is closed. In order to deactivate the flashing light before opening (pre-flashing), use DIPSWITCH "B" position 4.

SIGNAL LEADS:

- LED No. 1: It switches on when voltage is supplied.
- LED No. 2: "PHOTOCELLS". Normally on. It switches off when the photocells are obstructed.
- LED No. 3: "OPEN". It switches on when the respective switch is activated.
- LED No. 4: "CLOSE". It switches on when the respective switch is activated.
- LED No. 5: "STOP". Normally on. It switches off when the respective switch is activated.
- LED No. 6: "LIMIT SWITCH. CLOSE". It switches off when the gate is fully closed.
- LED No. 7: "LIMIT SWITCH. OPEN". It switches off when the gate is fully open.
- LED No. 8: "RADIO". It switches on whenever a pulse is given, either through remote control, keyswitch or push buttons.

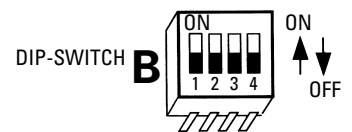
CONNECTION WARNINGS:

- 1) The programmer should be installed in a dry, sheltered place. If it is installed outside, it will require a protective box to protect it from the elements.
- 2) The whole system should be earthed.
- 3) If the photocells are not used, create a bridge between terminals 1 and 2.
- 4) In order to install two pairs of photocells the connections should be made in series with 1 – 2, contact normally closed; if installed one next to the other they should be crossed in pairs i.e. transmitter next to the receiver of the next pair.
- 5) If no pushbuttons are used, create a bridge between terminals 3 and 6.
- 6) Before the programmer, apply a high-sensitivity 0.03 Amp differential magneto-thermal switch.
- 7) For single-phase motors use cables of at least 1.5 mm².
- 8) The 24 V~ output to terminals 12 – 13 is only provided in order to power 2 pairs of photocells plus 1 radio receiver. An auxiliary transformer placed outside the programmer should be used in the case of more than two pairs of photocells or more radio receivers.
- 9) Terminal No. 11 warning light output can cater for max. 24 V – 3 W bulb; terminals No. 19-20 flashing light output maximum absolute power 25 W.

PEDESTRIAN TRAFFIC CARD

In order to obtain partial opening of the sliding gate, press the N.O. button connected to the terminals on the pedestrian traffic card and place the potentiometer "P" so as to obtain the required partial opening. With Dip-Switch B lever No. 3 in the automatic "ON" position, the gate will close again after the pause time regulated by the basic potentiometer (+ Dwell). In order to close manually, press the close button or use the remote control.

FUNCTIONS OF DIP-SWITCH "B"



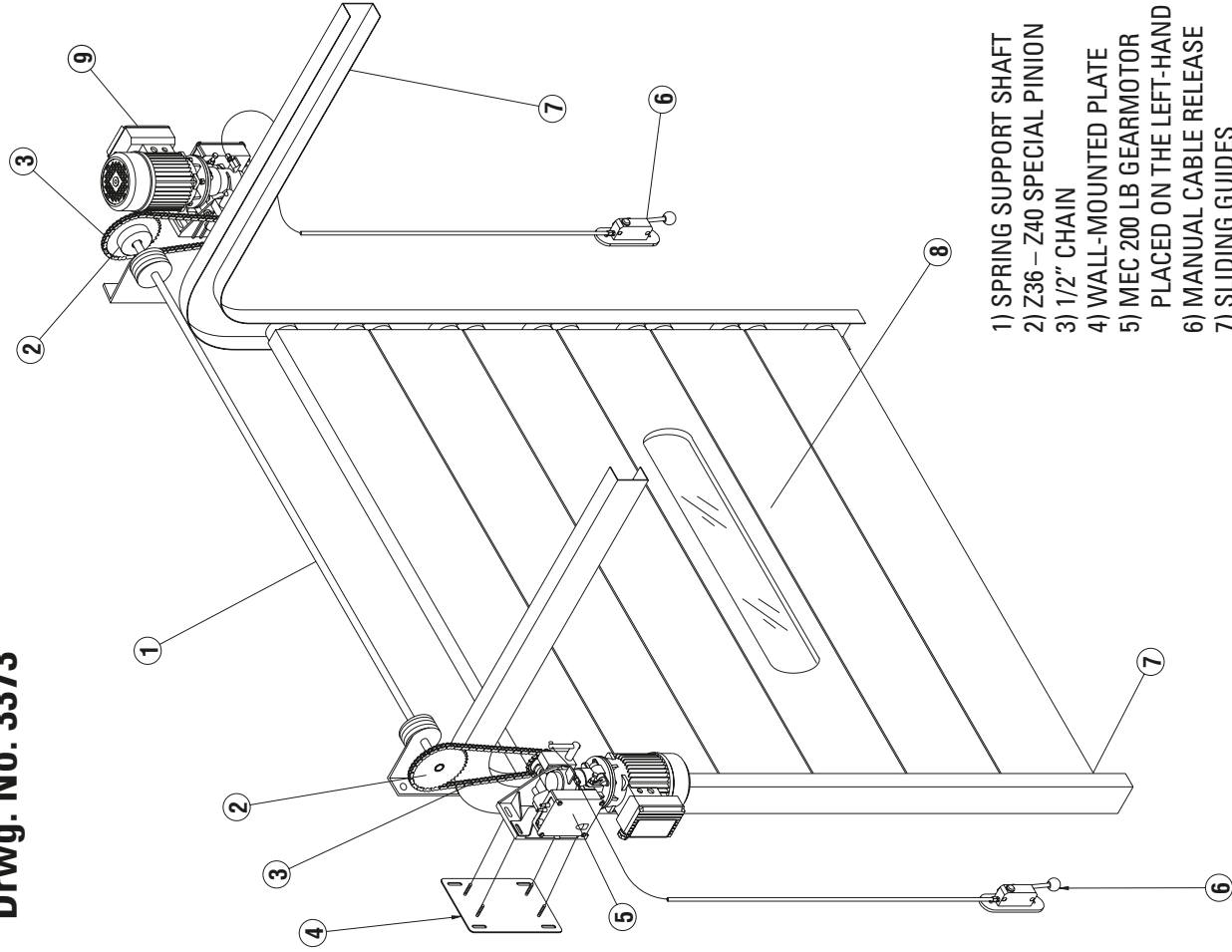
- 1 - ON: PHOTOCELLS. STOP DURING "OPEN" CYCLE
OFF: PHOTOCELLS. NO STOP DURING "OPEN" CYCLE
- 2 - ON: REMOTE CONTROL. NO REVERSE TRAVEL
OFF: REMOTE CONTROL. REVERSE TRAVEL
- 3 - ON: AUTOMATIC RE-CLOSING
OFF: NO AUTOMATIC RE-CLOSING
- 4 - ON: NO PRE-FLASHING
OFF: PRE-FLASHING

OPTIONAL PEDESTRIAN OPENING P.P. CARD TO FIT THE P.P. CONNECTOR



MEC 200 LB APPLICATION ON SECTIONAL DOORS

Drwg. No. 3373

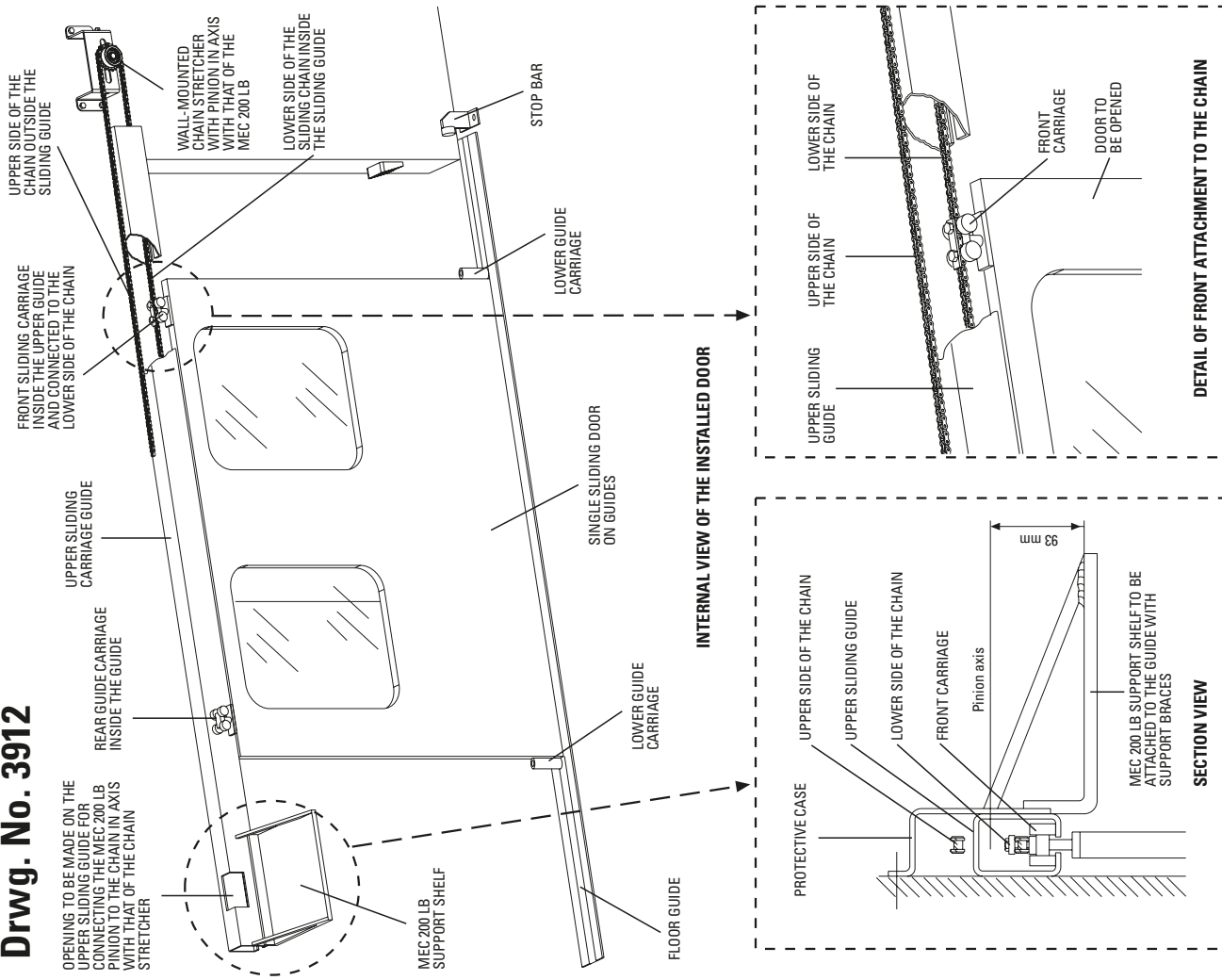


- 1) SPRING SUPPORT SHAFT
- 2) Z36 - Z40 SPECIAL PINION
- 3) 1/2" CHAIN
- 4) WALL-MOUNTED PLATE
- 5) MEC 200 LB GEARMOTOR
PLACED ON THE LEFT-HAND SIDE
- 6) MANUAL CABLE RELEASE
- 7) SLIDING GUIDES
- 8) SECTIONAL DOOR
PLACED ON THE RIGHT-HAND SIDE
- 9) MEC 200 LB GEARMOTOR
PLACED ON THE LEFT-HAND SIDE

PIC. 21

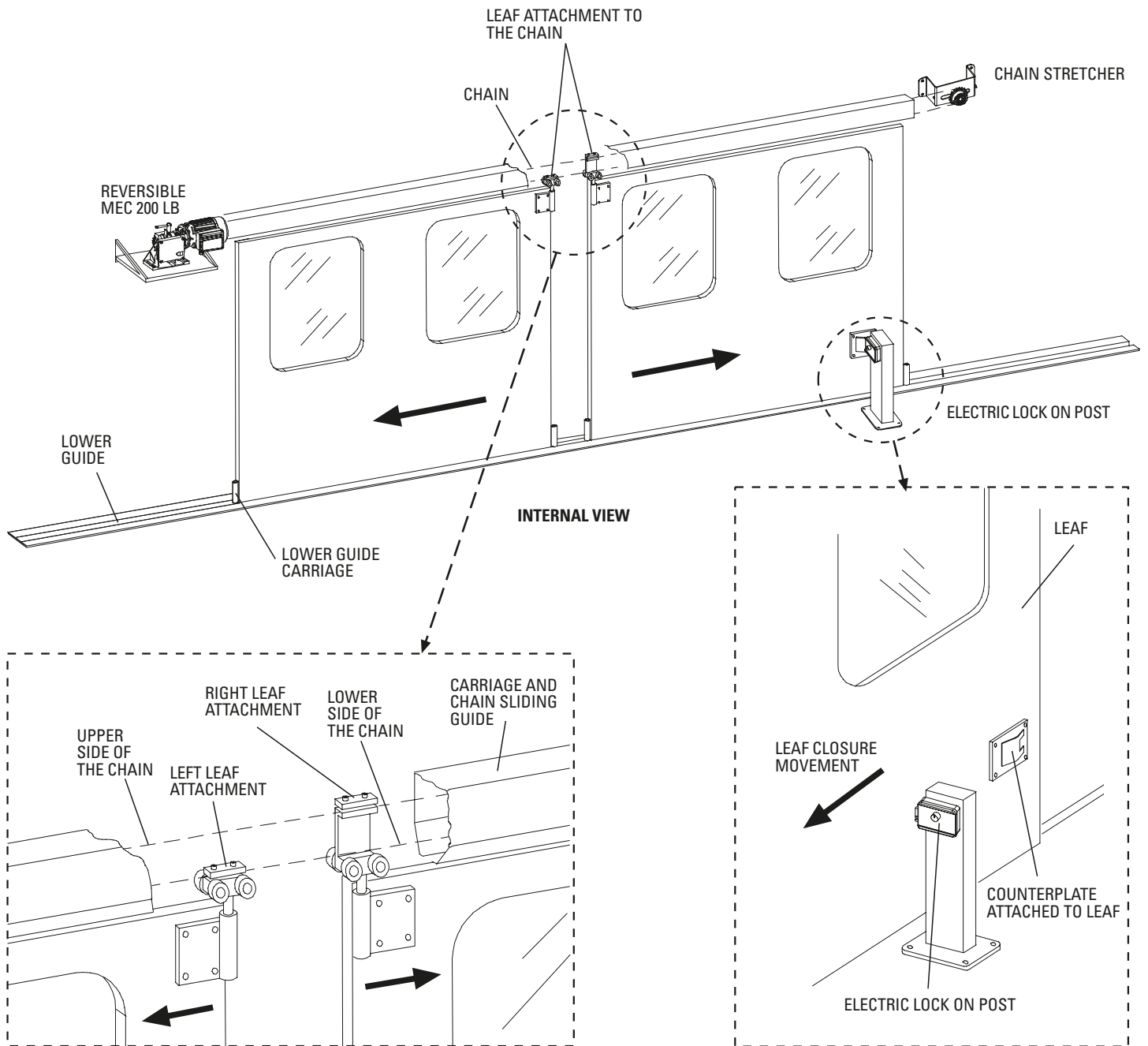
ATTACHMENT APPLICATION ON INDIVIDUAL SLIDING LEAF

Drwg. No. 3912

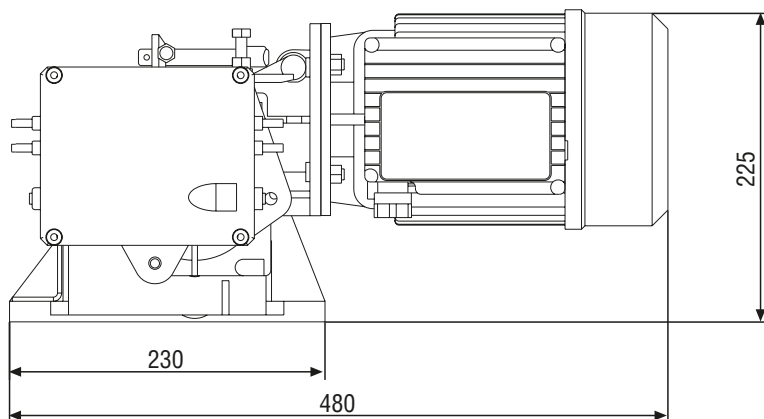


PIC. 22

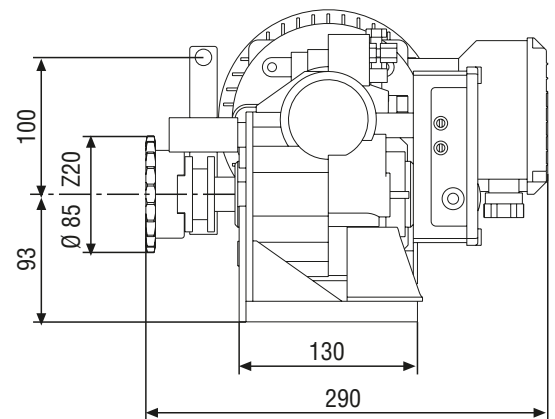
SPECIAL REVERSIBLE MEC 200 LB



PIC. 23

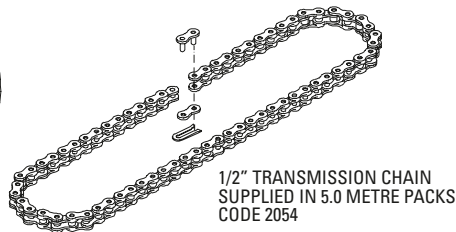
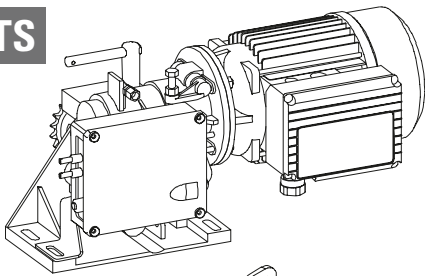


PIC. 24

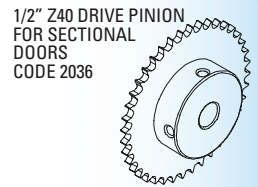


COMPONENTS

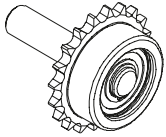
MEC 200 LB WITH CABLE RELEASE AND INCORPORATED LIMIT SWITCHES
CODE 2052 + 2059 L.S.



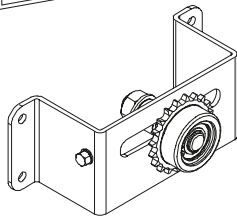
1/2" TRANSMISSION CHAIN
SUPPLIED IN 5.0 METRE PACKS
CODE 2054



1/2" Z40 DRIVE PINION
FOR SECTIONAL
DOORS
CODE 2036

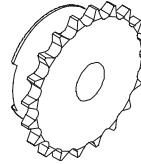


1/2" Z20 PINION WITH
RETURN SHAFT AND
BEARING
CODE 2056

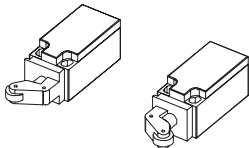
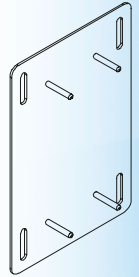


ADJUSTABLE CHAIN
STRETCHER
CODE 2053

NORMAL SPARE 1/2"
Z20 DRIVE PINION
CODE 2055

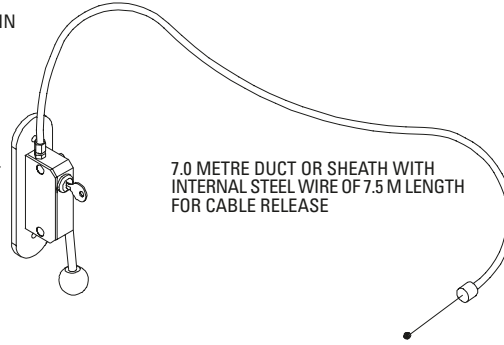


WALL-MOUNTED BASE
PLATE FOR SECTIONAL
DOORS
CODE 2046

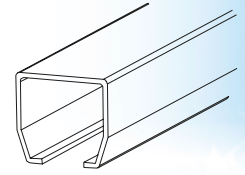


CROUZET RIGHT AND LEFT-HAND
EXTERNAL LIMIT SWITCHES
CODE 2057

COMMAND
SUPPORT FOR WALL-
MOUNTED CABLE
RELEASE WITH
ENCODED KEY
CODE 2044



7.0 METRE DUCT OR SHEATH WITH
INTERNAL STEEL WIRE OF 7.5 M LENGTH
FOR CABLE RELEASE



SLIDING CARRIAGE
UPPER GUIDE
CODE 2071

INSPECTIONS AND MAINTENANCE

In order to ensure optimal system performance over time and so as to comply with current safety standards, it is necessary to follow the correct maintenance and monitoring procedures for the entire automation, electronic devices and wiring:

- Oil-hydraulic automation: maintenance inspection around every 6 months
- Electronic devices and safety systems: maintenance inspection monthly.

WARNINGS

- Perform a **Risk Analysis** before every installation and resolve risks through the use of safety devices in compliance with EN 12445 and EN 12453 safety standards
- Follow the instructions provided
- Check that the information on the electric motor plate conforms to the distribution network
- Dispose of all cardboard, nylon, polystyrene and other packaging with specialized waste disposal firms
- If removing the actuator, **do not cut** the electric wires, but disconnect them from the terminal box by loosening the screws inside the shunt box
- Disconnect the mains switch before opening the electrical wire shunt box cover
- The whole automation should be earthed with the yellow/green wire

We recommend reading the "warning" regulations, suggestions and observations in this booklet very carefully.

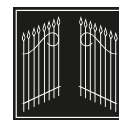
The "CE" mark certifies that the operator conforms to the essential requirements of the European Directive art. 10 EEC 73/23, in relation to the manufacturer's declaration for the supplied items, in compliance with the body of the regulations ISO 9000= UNI EN 29000. Automation in conformity to EN 12453, EN 12445 safety standards.

The growth of MECCANICA FADINI has always been based on the development of guaranteed products thanks to our "TOTAL QUALITY CONTROL" system which ensures constant quality standards, updated knowledge of the European Standards and compliance with their requirements, in view of an ever increasing process of improvement.



**EUROPEAN MARK CERTIFYING CONFORMITY
TO THE ESSENTIAL REQUIREMENTS OF THE
STANDARDS 98/37/EC**

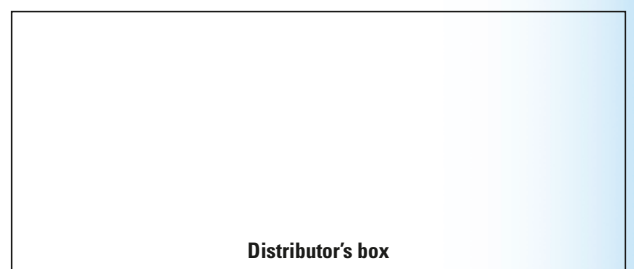
- DECLARATION OF CONFORMITY
- GENERAL WARNINGS
- EN 12453, EN 12445 STANDARDS
- CEI EN 60204-1 STANDARDS
- WARRANTY CERTIFICATE ON THE CUSTOMER'S REQUEST



FADINI
the gate opener
Made in Italy



AUTOMATIC GATE MANUFACTURERS



Distributor's box

The manufacturers reserve the right to change the products without any previous notice