

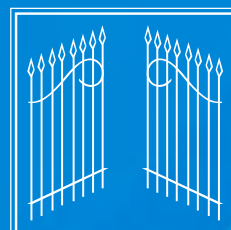
# FIBO 400

➤ ELECTRO-MECHANICAL  
OPERATOR FOR HEAVY SLIDING  
GATES AND DOORS  
2.2 KW (3.0 HP)



INSTALLATION MANUAL

GB



**FADINI**  
the gate opener

# FIBO 400 INSTRUCTIONS FOR THE INSTALLATION OF THE SLIDING GATE OPERATOR

FOR CORRECT FIBO 400 INSTALLATION AND GOOD PERFORMANCE, PLEASE READ THE INSTRUCTIONS OUTLINED IN THIS MANUAL CAREFULLY AND KEEP TO THE DIAGRAMS.

**IMPORTANT:** THE ENTIRE INSTALLATION MUST BE CARRIED OUT BY QUALIFIED TECHNICAL PERSONNEL IN COMPLIANCE WITH EN 12453 – EN 12445 SAFETY STANDARDS AND IN ACCORDANCE WITH MACHINERY DIRECTIVE 98/37/EC.

## GENERAL INFORMATION

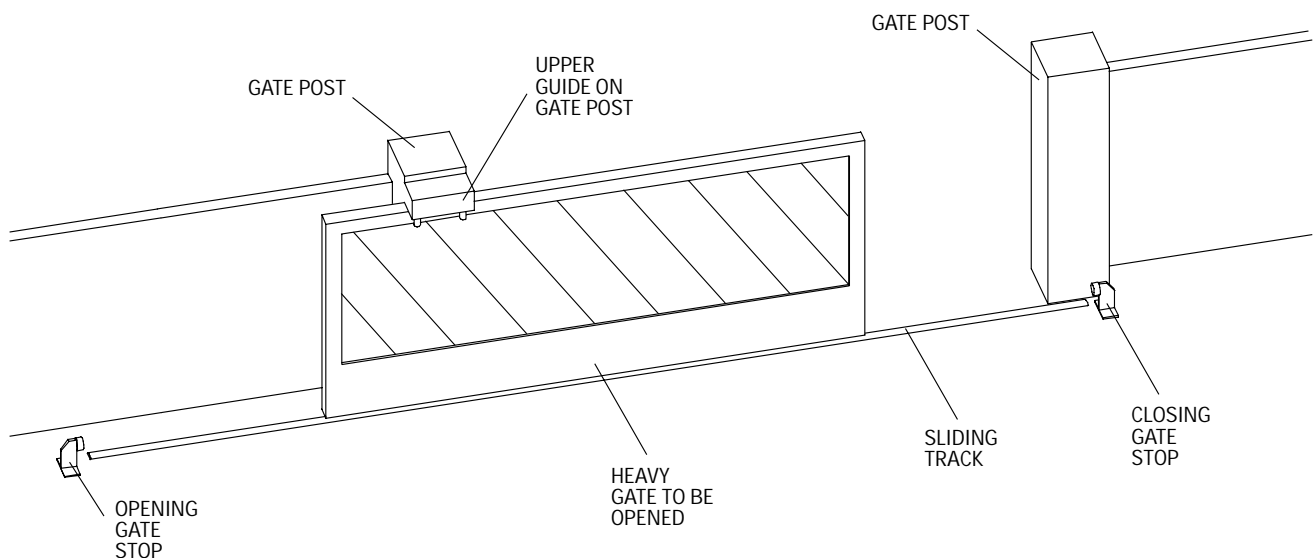
The three-phase 2,2 KW (3.0 HP) FIBO 400 is an automation for heavy sliding gates and industrial doors (the field of use varies from a gate weight of 2,500 to approx. 4,000 Kg); the gear motor unit is installed inside a sheet steel protection cover, which is fixed to a thick metal base plate. The protection cover houses the power panel and the electronic command programmer, while the limit switches are already attached to the body of the gear motor without electrical connections.

The protection cover can only be accessed by opening the door with a customized key. Personal safety is guaranteed by a voltage cut-off device.

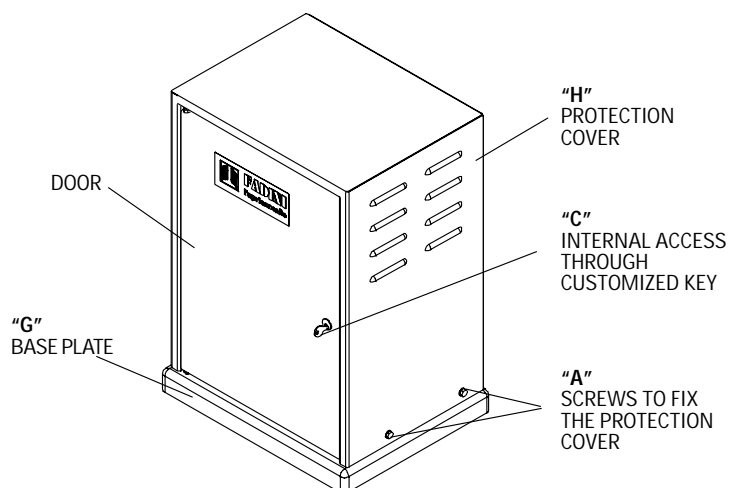
This is a strong and reliable automation for intense opening/closing cycles. The drive shaft is in direct contact with a mechanical torque control device; worm and gear are made of bronze and steel and are supported by bearings, in an oil bath. The irreversible worm-gear coupling makes it possible to block the gate in any stop position. A manual overriding system allows manual gate operation in emergency events such as power failure.

## POINTS TO CHECK WITH THE GATE

- **IMPORTANT:** Make sure that the gate track is well fixed to a solid foundation in order to prevent deformation which would result in unbalanced gate motion (Pic. 1).
- **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 exit the upper guide (Pic. 1).
- **IMPORTANT:** Make sure that, once the gate has reached the end of the permitted travel area, it does not hit the **gate posts** or special gate stops so as to avoid damaging the gate structure (Pic. 1).



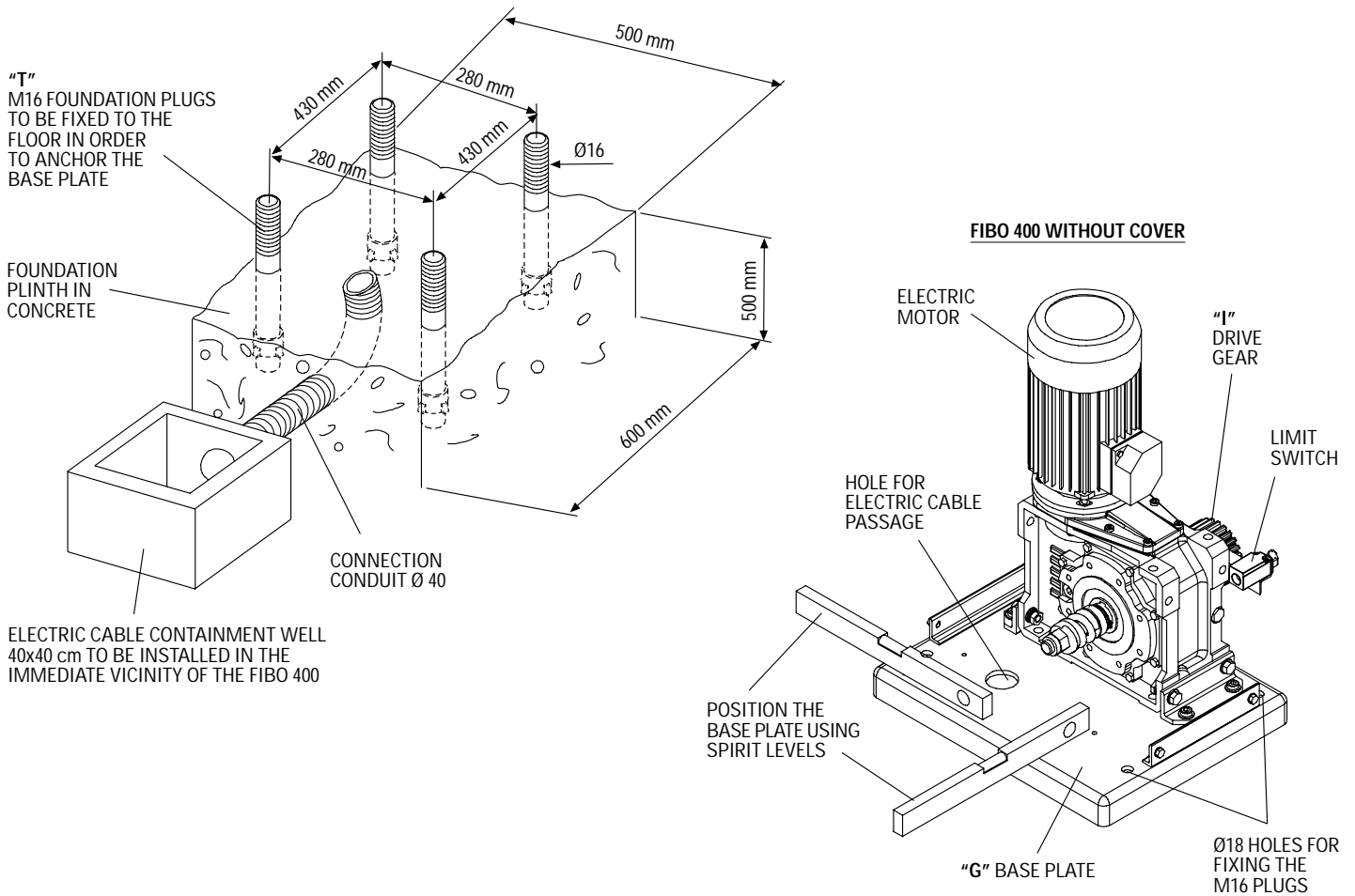
➤ **PIC. 1**



➤ **PIC. 2**

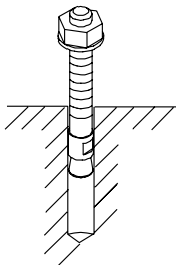
## FITTING THE BASE PLATE

- The first operation involves preparing a **cable containment well** near the installation, connected to the FIBO 400 base plate by an appropriate conduit for electrical connections (Pic. 3).
- In order to fit the **base plate "G"** it is necessary to firstly remove the **protection cover "H"** by unscrewing the four fixing screws "A" from the bottom of the automation sides (Pic. 2).
- The **base plate "G"** should be fixed into place with **M16 plugs "T"**, which must be firmly anchored in the flooring, respecting the base plate hole centre distances and making sure that the automation **base plate "G"** is perfectly levelled by using spirit levels (Pic. 3).



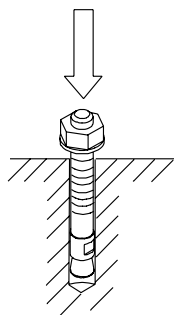
### PROCEDURE FOR INSERTING AND FIXING THE FOUNDATION PLUGS "T"

1



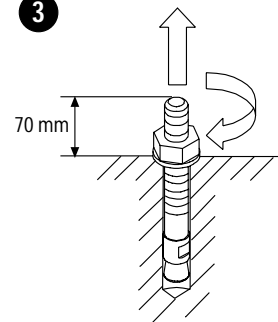
BORE 4 HOLES IN KEEPING  
WITH THE DIAMETER OF THE  
PLUGS AND THE PASSAGE

2



INSERT THE PLUGS IN THE  
HOLES LEAVING A PART  
PROTRUDING FROM THE FLOOR  
EQUIVALENT TO THE  
THICKNESS OF THE BASE  
PLATE AND FIXTURE NUT,  
CONSIDERING THE  
PROTRUSION OF THE PLUG  
DURING TIGHTENING

3

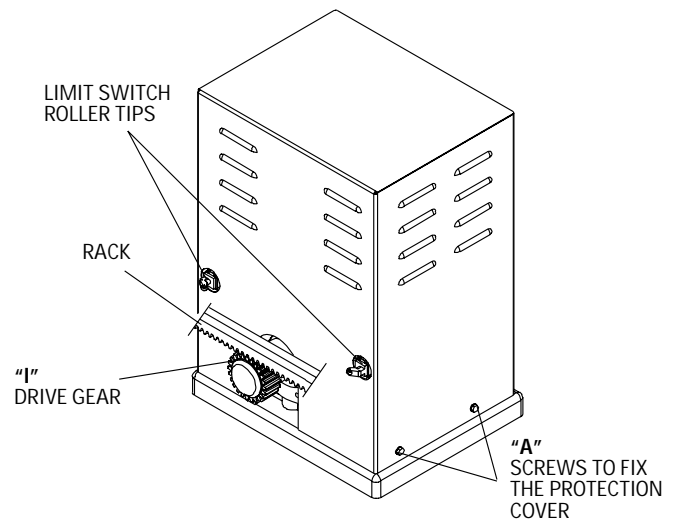
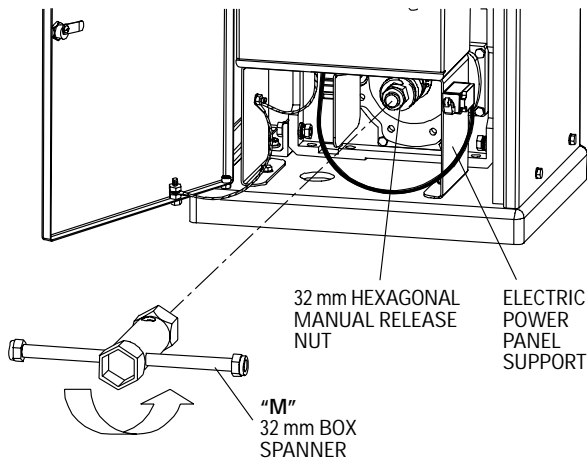


TIGHTENING THE PLUGS:  
ONCE THE PLUG PROTRUSION  
HAS BEEN ESTABLISHED,  
TIGHTEN THE NUT TO THE  
FLOOR IN ORDER TO FIRMLY  
FIX THE PLUG IN THE HOLE,  
THEN UNSCREW AND REMOVE  
THE NUT

## MANUAL GATE AUTOMATION RELEASE

The release operation frees the gate's movement from the installed operator in events such as power cuts and during Fibro 400 installation operations.

- Open the cover door using the customized key "C" (Pic. 2)
- Use a 32 mm box spanner "M" on the **M22 self-locking nut** on the drive shaft located immediately beneath the **electric panel support**: turn the nut a few times in an anti-clockwise direction so that the **drive gear "I"** located behind the automation becomes idle (Pic. 4).



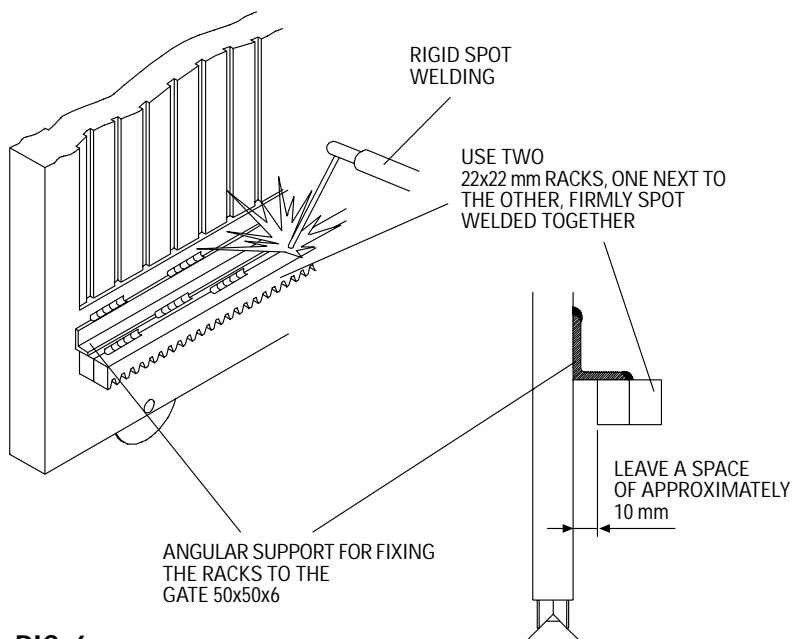
➤ PIC. 4

PIC. 5 ◀

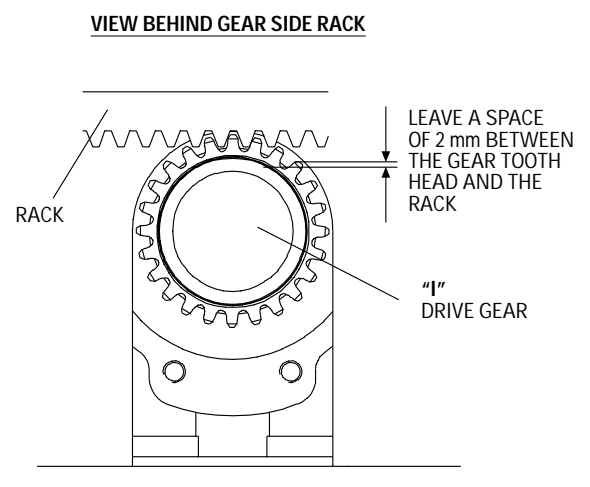
## RACK FITTING OPERATIONS

**IMPORTANT:** in order to achieve effective installation, there should be a gap of approximately 2 mm between the teeth of the rack and drive gear coupling (Pic. 7).

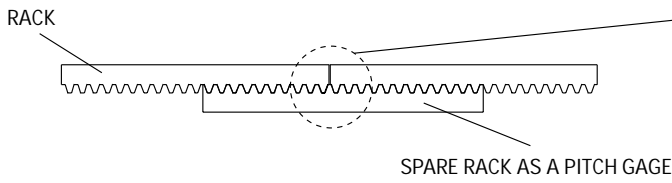
- Use a double rack of 22 x 22 mm thickness (we recommend using an angular support in order to connect the racks to the gate) (Pic. 6).
- Temporarily clamp the **rack** to the gate, levelling it using a spirit level for the entire length of the gate: the **rack** must mesh the idle Fibro 400 **driving gear "I"** smoothly and without friction. This should be manually tested by running the system backwards and forwards along the whole length of the gate for its effective course.
- Firmly weld the two racks together and then to the gate with an angular support 50x50x6, respecting the pitch between the teeth in the rack junctions, using a spare rack as a gage for that purpose (Pic. 8).



➤ PIC. 6



PIC. 7 ◀



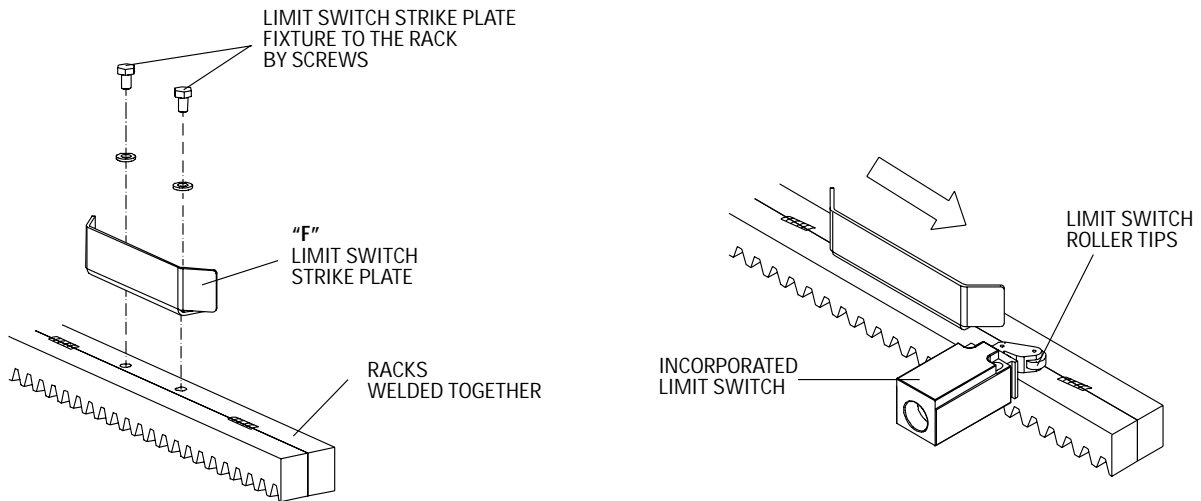
**IMPORTANT:** IN THE JOINT BETWEEN THE RACK RODS MAKE SURE YOU RESPECT THE PITCH BETWEEN THE TEETH, USING A SPARE RACK DURING THE ASSEMBLY PHASE IN ORDER TO OBTAIN THE CORRECT SHAPE

➤ **PIC. 8**

**INSTALLATION OF LIMIT SWITCH STRIKE PLATES "F"**

In order to stop the gate's movement, the Fibo 400 has two hermetic roller tip limit switches positioned behind the automation, one of which operates during closing and one during opening (Pic. 5).

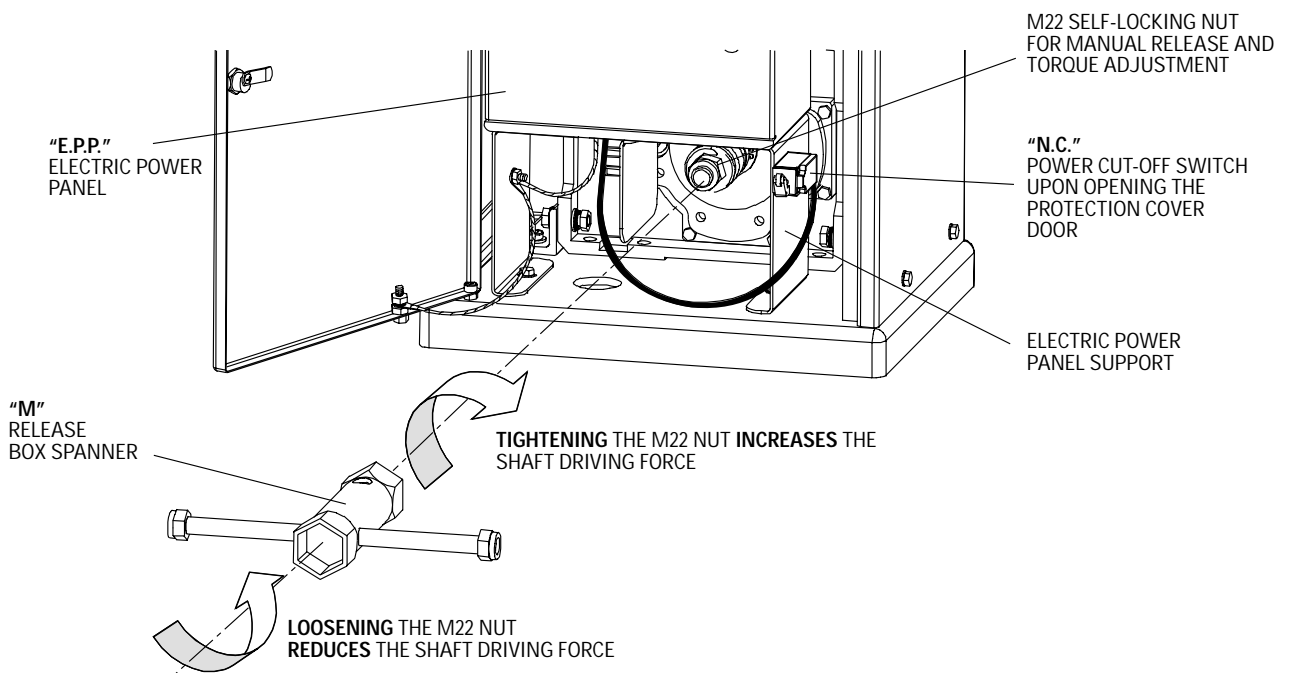
The two **strike plates "F"** for stopping gate movement during opening and closing must be fixed to the gate by screws (Pic. 9), in such a position that the **limit switch roller tips** come into action as soon as they meet the strike plates "F".



➤ **PIC. 9**

**TORQUE CONTROL AND ADJUSTMENT**

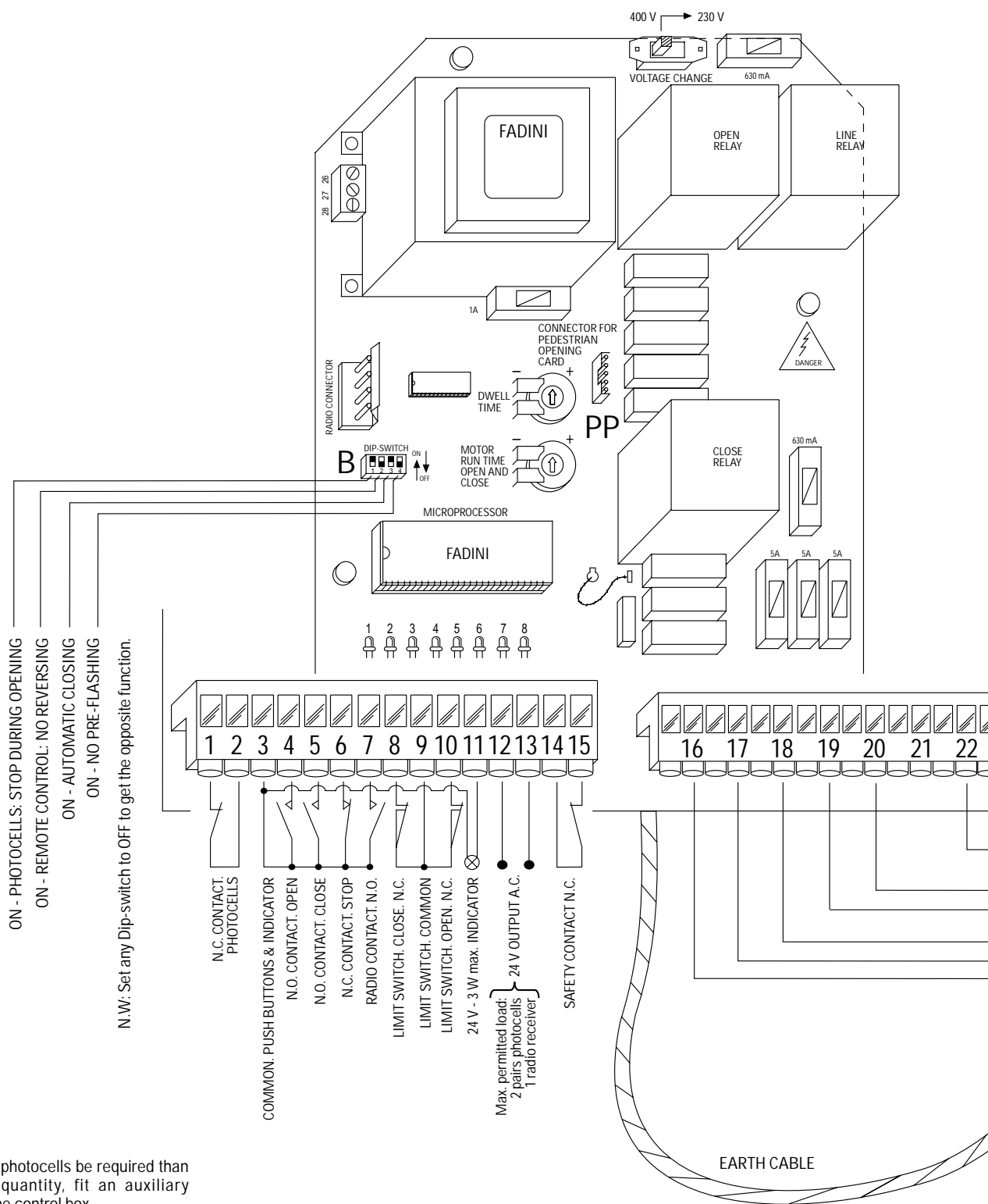
In order to adjust the operator torque, open the door with the customized key, then use a 32 mm box spanner "M" on the **M22 self-locking nut** located on the front beneath the electric power panel "E.P.P.": tighten in order to increase the torque and loosen in order to reduce the torque (Pic. 10).



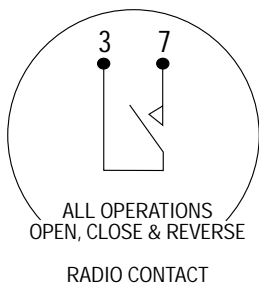
➤ **PIC. 10**

# FIBO 400 ELECTRIC POWER PANEL

DRWG. No. **3911**



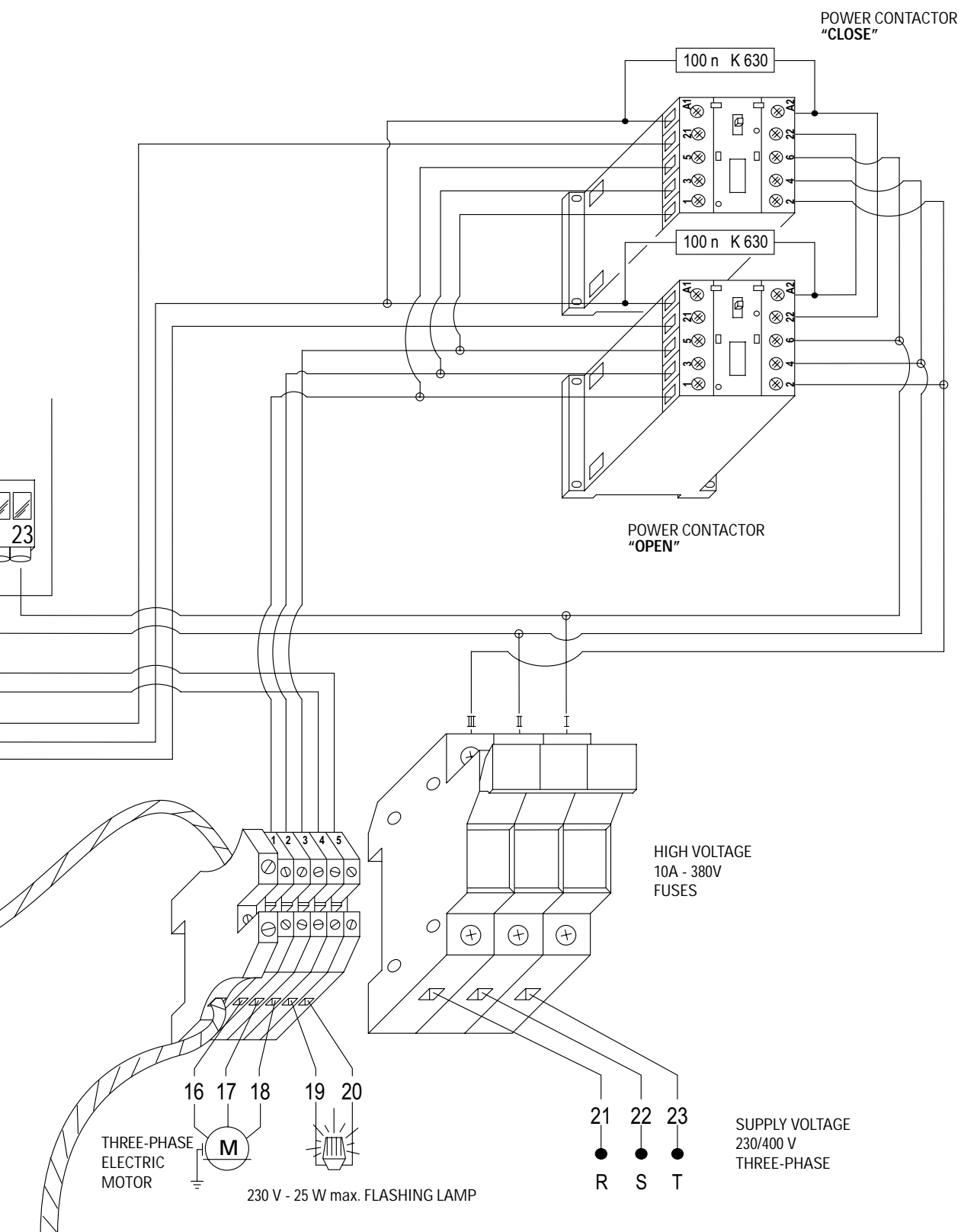
Should more pairs of photocells be required than the recommended quantity, fit an auxiliary transformer outside the control box.



NOTE WELL: For special applications, ie. to switch on lights - CCTV etc., SOLID STATE RELAYS are recommended to be used only. Standard relays would affect the micro-processor.

NOTE WELL: THIS PANEL IS TESTED TO OPERATE GATES ONLY THROUGH FADINI ACCESSORIES. NO WARRANTY IS ACKNOWLEDGED BY THE MANUFACTURER IN CASE THAT OTHER ACCESSORIES ARE USED OR NON CONFORMING APPLICATIONS ARE MADE WITHOUT THE MANUFACTURER'S APPROVAL.

**Elpro·10<sup>exp</sup>**  
**SLIDING GATES - THREE-PHASE**



## FIBO 400 ELECTRIC POWER PANEL. ELPRO 10 exp LOGIC DESCRIPTION

All the electrical connections are to be made as per the following instructions and diagrams. Supply the terminals 21-22-23 with 230-400 V, 50 Hz, three-phase voltage. The "red led" No. 1 switches on and stays on as long as the board is properly supplied. Set the timer "MOTOR RUN. OPEN & CLOSE" so that the running time of the motor is longer than the actual travel of the gate. Set the timer "DWEELL" - i.e. the interval between open and re-close - so that you can meet the required interval of time.

LOGIC OF THE ELECTRONIC PROGRAMMER: When a pulse is given, the flashing light switches on. After three seconds the motor starts. During the interval before re-closing, the light stays on. When the gate has fully re-closed, the light keeps on flashing for three more seconds and then switches off automatically.

The 3 second interval (pre-flashing) which precedes the actual start of the motor can be eliminated by means of the DIP-SWITCH "B" No. 4.

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.

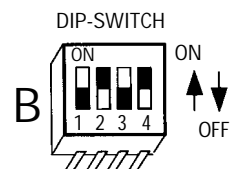
LED No. 4: "CLOSE". It switches on when the respective switch is activated.

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.



### FUNCTIONS OF DIP-SWITCH "B"

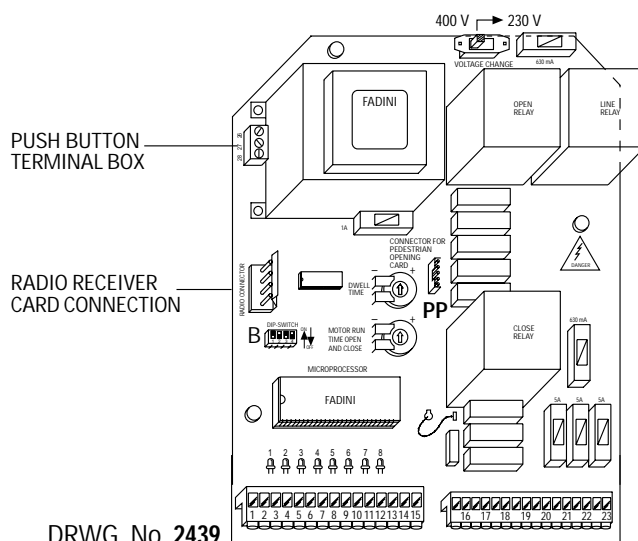
- 1) It is advisable not to expose the control box directly to weather conditions. If mounted outside, a suitable enclosure is recommended to protect it from sunshine and rain.
- 2) Earth the equipment by using the terminal fitted to the box, bottom right-hand side.
- 3) Bridge terminals 1 - 2 if you do not require any photocells.
- 4) Should two sets of photocells be required, these are to be series connected to terminals 1 - 2, contact normally closed.
- 5) Bridge terminals 3 - 6 if you do not require any keyswitch or push buttons.
- 6) Fit the mains to the control box with a high sensitivity, differential, magnetic-thermal switch, 0.03 Amps.
- 7) NOTE WELL

- 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

#### FAULT FINDING:

- Check supply voltage with a tester: it must be 230-400 V, three-phase.
  - Check the high voltage fuses.
  - Check if the photocell contacts are normally closed.
  - Check voltage from the control box to the electric motor: power might have dropped.
  - Check the fuse LOGIC.
  - The section of the electric cables to the motor must not be less than 1.5 mm<sup>2</sup>.
- \* 24 V - output. Terminals 12-13. It can supply power for 2 pairs of photocells plus 1 radio receiver. Terminal 11 provides a power output for a lamp. 24 V - 3 W max.  
Flashing lamp output. Terminals 22-23. Maximum available power 25 W max.

## Elpro 10 exp SLIDING GATES - THREE-PHASE





# ELECTRICAL CONNECTIONS TO ELPRO 10 exp PROGRAMMER

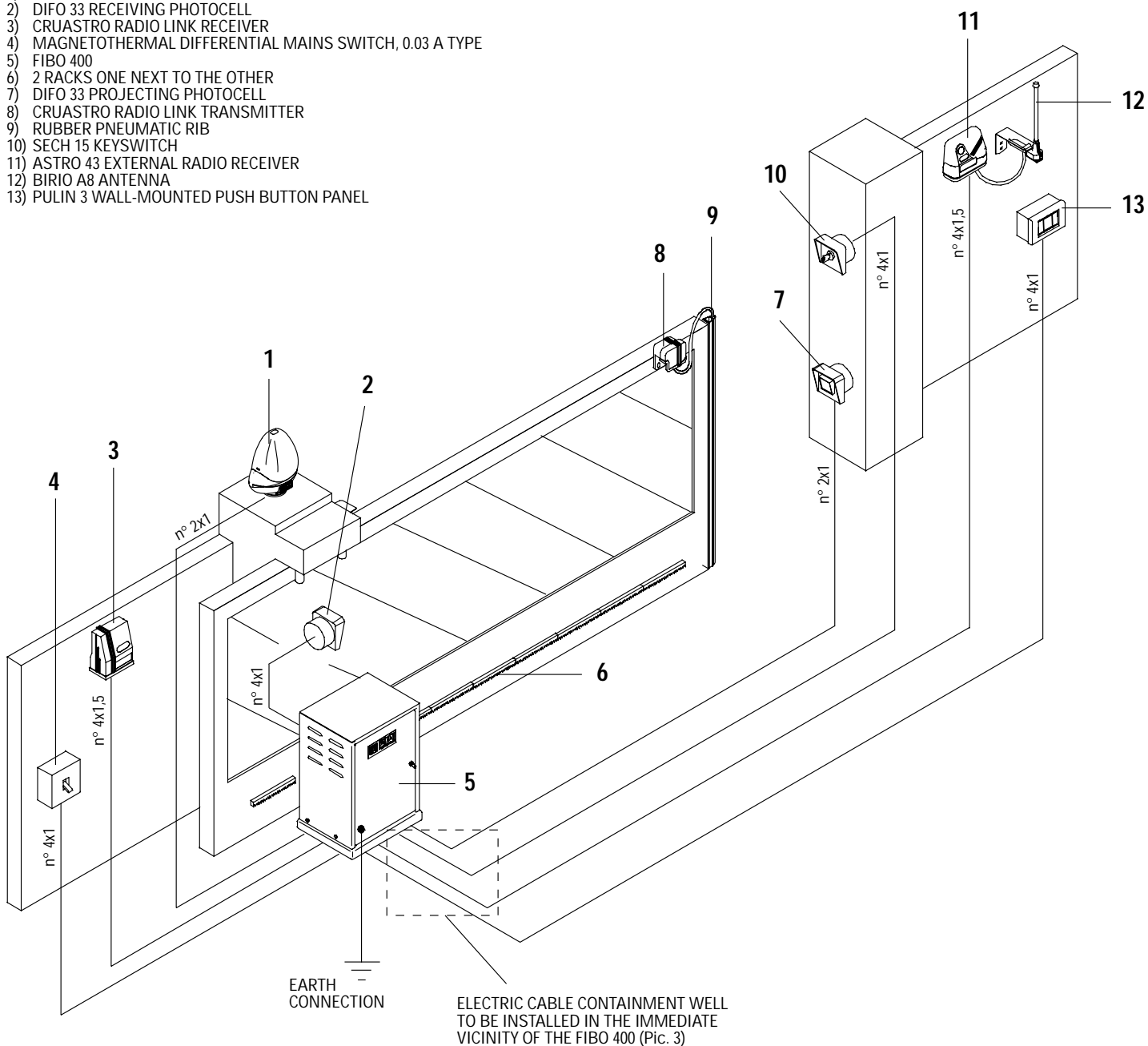
Before making any connections, study the enclosed electrical diagrams carefully (Pic. 11, Pic. 12, Pic. 13).

**IMPORTANT:** The whole electrical system must be earthed (Pic. 13).

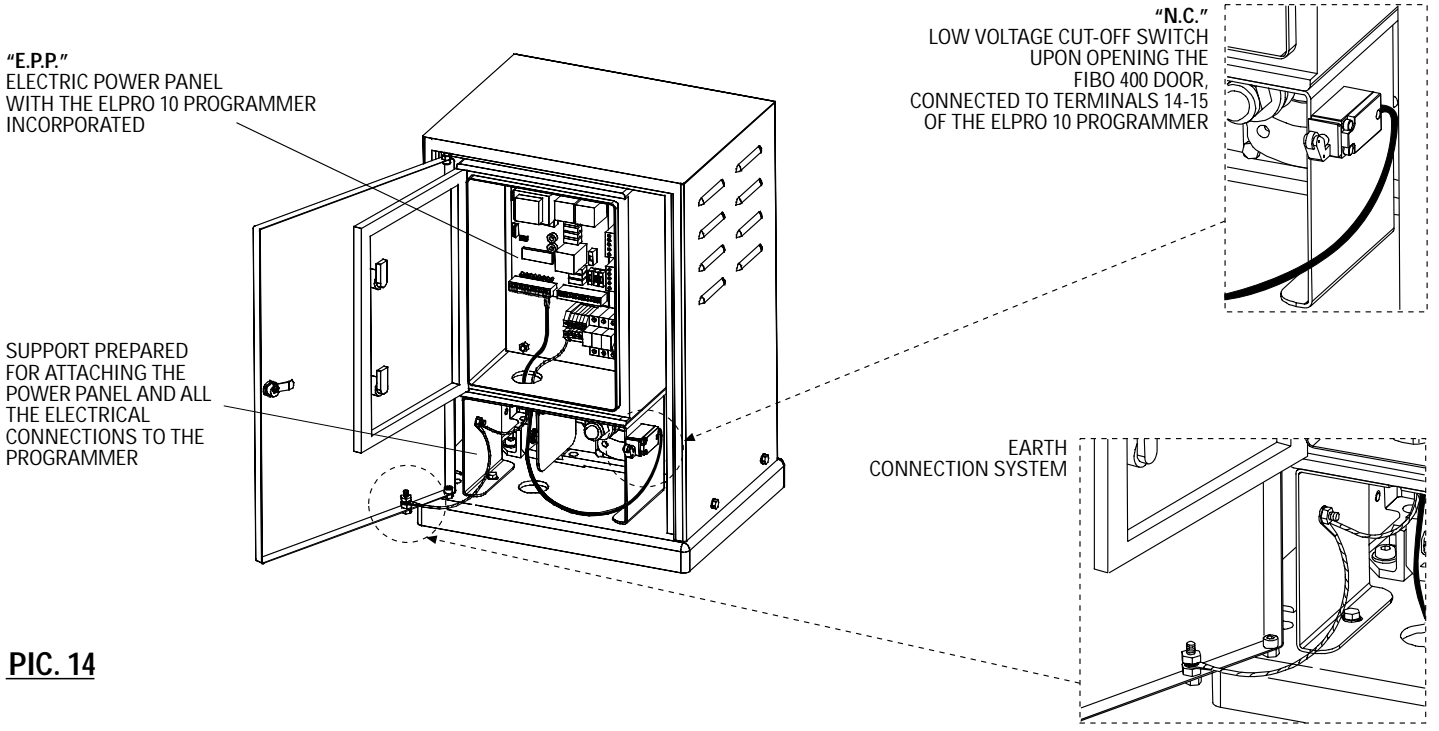
- **Power supply, electric motor and flashing light** connections are made with electric cables with a section of 1.5 mm<sup>2</sup> for a maximum distance of 50 m. For distances of over 50 metres, we recommend using electric cables with a section of 2 mm<sup>2</sup>.
- For **limit switches, photocells, pushbuttons and accessories** use cables with a 1 mm<sup>2</sup> section (Pic. 11 - Drwg. 3911).
- The **pneumatic safety rib** attached to the gate is connected via cable, a cable winder is to be provided to take up the slack, or by **radio link**, in series with the **limit switches** or with the **receiving photocell**, connection diagram Drwg. 3911.
- The ELPRO 10 exp three-phase electronic programmer is installed in its own panel, inside the Fibo 400 protection cover; it is prepared for all programmed automatic and semiautomatic logic services, line relays and incorporated indication lights (Pic. 11 - Drwg. 3911).

## COMPONENTS AND ACCESSORIES

- 1) MIRI 4 FLASHING LIGHT
- 2) DIFO 33 RECEIVING PHOTOCELL
- 3) CRUASTRO RADIO LINK RECEIVER
- 4) MAGNETOTHERMAL DIFFERENTIAL MAINS SWITCH, 0.03 A TYPE
- 5) FIBO 400
- 6) 2 RACKS ONE NEXT TO THE OTHER
- 7) DIFO 33 PROJECTING PHOTOCELL
- 8) CRUASTRO RADIO LINK TRANSMITTER
- 9) RUBBER PNEUMATIC RIB
- 10) SECH 15 KEYSWITCH
- 11) ASTRO 43 EXTERNAL RADIO RECEIVER
- 12) BIRIO A8 ANTENNA
- 13) PULIN 3 WALL-MOUNTED PUSH BUTTON PANEL



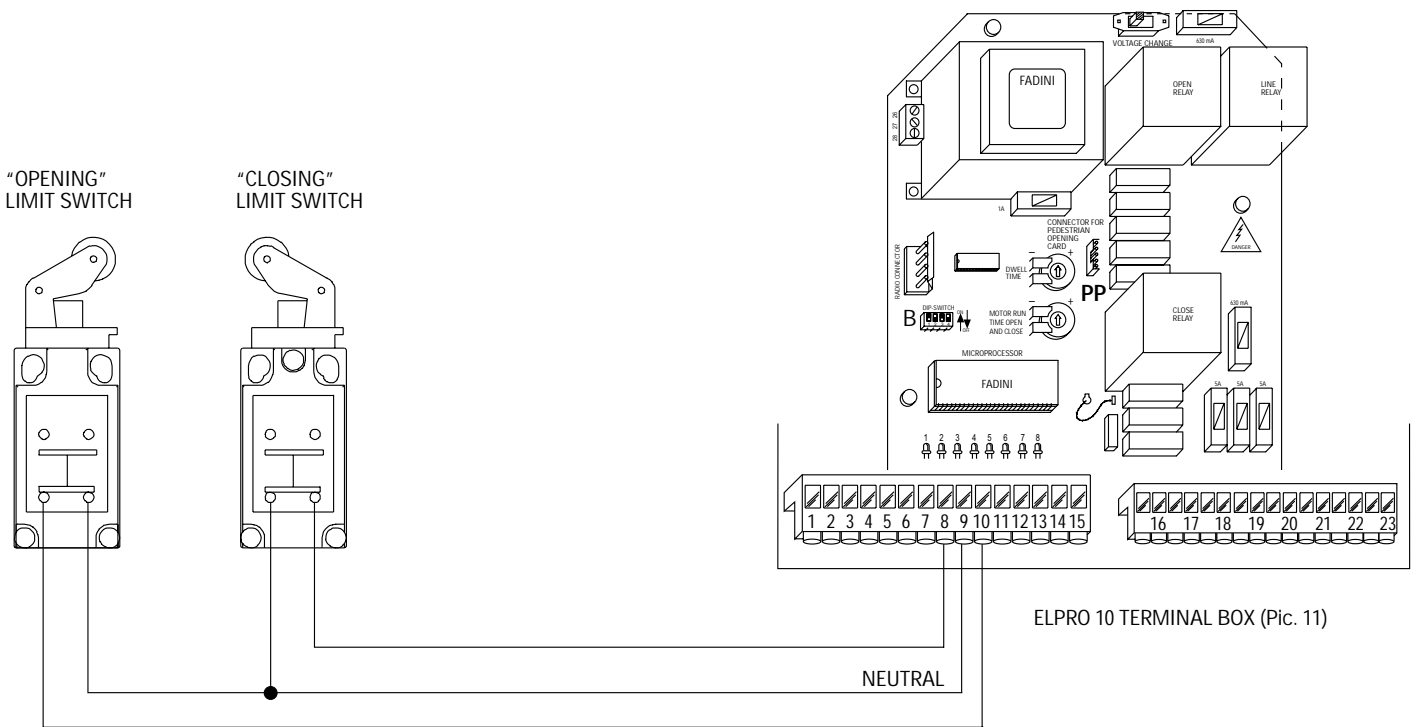
Fibo 400 is fitted with a safety system that is activated upon opening the front cover door, through an “NC” power cut-off switch which, for automations without an installed electric panel, must be connected to the Elpro 10 programmer, terminals 14-15 (Pic. 10 and Pic. 11); it is also necessary to earth the entire system (Pic. 14).



➤ **PIC. 14**

**SEPARATE LIMIT SWITCH ELECTRICAL CONNECTIONS**

Fibo 400 has two independent limit switches, protected and isolated from outside (Pic. 15) and not connected to the electric panel “E.P.P.”, therefore once the protection cover has been removed (Pic. 2, p. 2), it is necessary to implement the wiring in keeping with the diagrams provided (Pic. 11 and Pic. 15) following the Elpro 10 function logic description, Drwg. 3911 p. 6.



➤ **PIC. 15**

# TECHNICAL DATA

## ELECTRIC MOTOR

|                                  |                 |
|----------------------------------|-----------------|
| Power output .....               | 2.2 KW (3.0 HP) |
| Three-phase supply voltage ..... | 230/400 V       |
| Frequency .....                  | 50 Hz           |
| Absorbed current .....           | 9.4/5.4 A       |
| Absorbed power .....             | 2 800 W         |
| Motor rotation speed .....       | 1 400 rpm       |
| Intermittent service .....       | S3              |
| Cooling .....                    | by fan          |

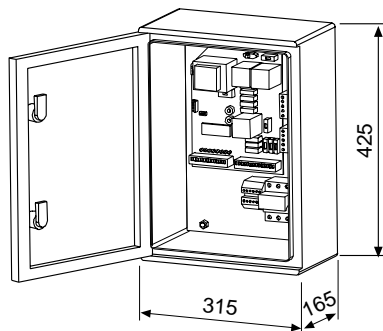
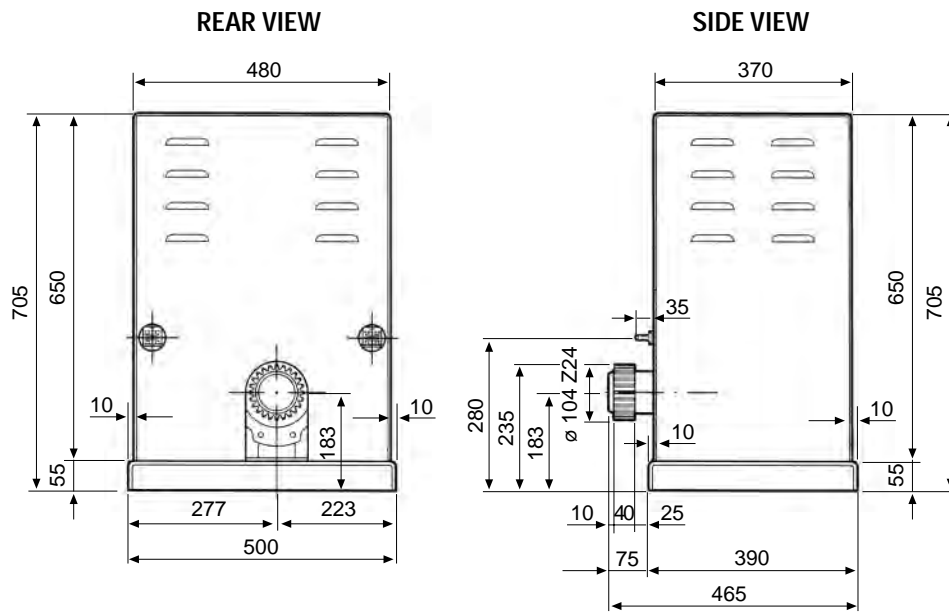
## PERFORMANCE

|   |  |
|---|--|
| Duty cycle .....                                  | 25 s. Open – 30 s. Dwell – 25 s. Close |
| Time for one complete cycle .....                 | 80 s.                                  |
| No. of complete cycles Open – Dwell – Close ..... | 45/hour                                |
| No. of cycles a year, 8 hours a day .....         | 131 000                                |

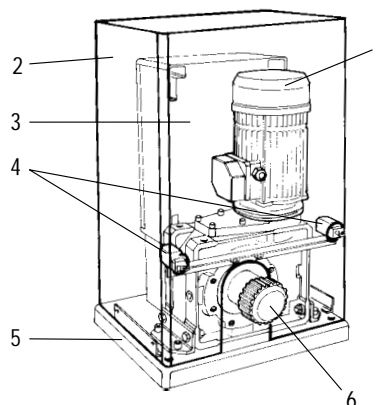
## FIBO 400 GEAR MOTOR

|                              |                 |
|------------------------------|-----------------|
| Output revolutions .....     | 33.8 rpm        |
| Drive gear .....             | Z 24            |
| Module .....                 | 4.0             |
| Ratio .....                  | 1 / 42          |
| Maximum nominal torque ..... | 311.4 Nm        |
| Transfer speed .....         | 10.2 m/min.     |
| Hydraulic oil type .....     | AGIP ROTRA THT  |
| Working temperature .....    | - 20 °C + 80 °C |
| Weight .....                 | 105 Kg          |
| Protection standard .....    | IP 557          |

# OVERALL DIMENSIONS

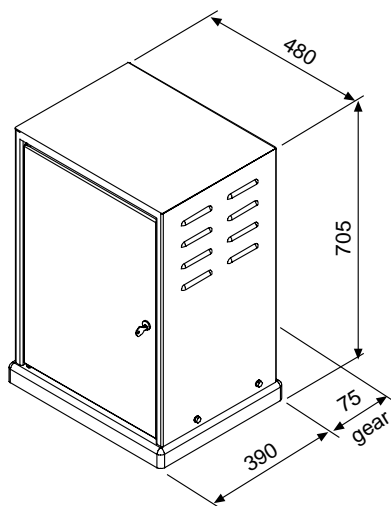


"E.P.P." ELECTRIC PANEL IN WATERTIGHT CABINET WITH ELPRO 10 exp PROGRAMMER AND POWER CONTACTORS

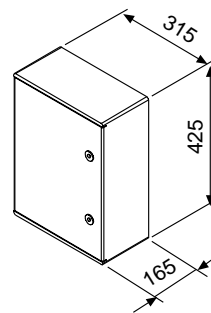


**FIBO 400:**  
1 - ELECTRIC MOTOR  
2 - PROTECTION COVER  
3 - PANEL WITH INCORPORATED ELECTRONIC PROGRAMMER  
4 - LIMIT SWITCH  
5 - BASE PLATE  
6 - Z 24 DRIVE GEAR

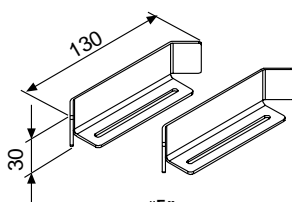
# FIBO 400 COMPONENTS



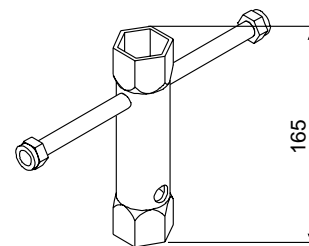
FIBO 400 INSIDE PROTECTION CABINET WITH CUSTOMIZED KEY



"E.P.P."  
UPON REQUEST: ELECTRIC POWER PANEL WITH ELPRO 10 exp PROGRAMMER AND ACCESS KEYS



"F"  
LIMIT SWITCH STRIKE PLATES



"M"  
32 mm RELEASE BOX SPANNER

## 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
- 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 junction box
- Disconnect the mains switch before opening the electrical wire junction 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.



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**

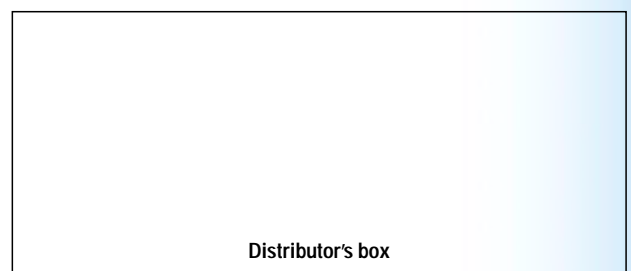
the gate opener

Made in Italy



**meccanica**  
**FADINI**<sup>®</sup>  
s.n.c.

AUTOMATIC GATE MANUFACTURERS



Distributor's box

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