

**INDEX**

**0 .. DECLARATION OF CONFORMITY AND WARNINGS FOR THE INSTALLER ..... 2**

**1 .. DESCRIPTION AND TECHNICAL SPECIFICATIONS ..... 3**

**1.1 DIMENSIONS..... 3**

**1.2 MECHANICAL PREPARATIONS ..... 3**

**2 .. ELECTRIC PREPARATIONS (standard system) ..... 4**

**3 .. INSTALLING THE AUTOMATED SYSTEM ..... 4**

**3.1 PRELIMINARY CHECKS ..... 4**

**3.2 INSTALLATION DIMENSIONS ..... 4**

**3.3 INSTALLING THE OPERATOR ..... 4**

**4 .. TRAVEL LIMIT UNIT ..... 6**

**5 .. ELECTRICAL CONNECTIONS..... 6**

**5.1 BUTTON-BOARD OR SELECTOR 230 Vac ..... 6**

**5.2 COMMANDS WITH 200BT CONTROL BOARD ..... 6**

**5.3 COMMANDS WITH 200MPS CONTROL BOARD ..... 6**

**6 .. START-UP OF THE SYSTEM ..... 7**

**6.1 MANUAL ADJUSTMENT OF THE TRAVEL-LIMIT DEVICES..... 7**

**7 .. INSTALLING THE ELECTRO-BRAKE (optional) ..... 7**

**8 .. CONNECTION OF TWO R180/280 UNITS..... 8**

**ENGLISH**

## CE DECLARATION OF CONFORMITY FOR MACHINES

(DIRECTIVE 98/37/EC)

**Manufacturer:** FAAC S.p.A.

**Address:** Via Benini, 1 - 40069 Zola Predosa BOLOGNA - ITALY

**Declares that:** Operator model R180, R280,

- is built to be integrated into a machine or to be assembled with other machinery to create a machine under the provisions of Directive 98/37/EC;

- conforms to the essential safety requirements of the following EEC directives:

73/23/EEC and subsequent amendment 93/68/EEC.  
89/336/EEC and subsequent amendment 92/31/EEC and 93/68/EEC

and also declares that it is prohibited to put into service the machinery until the machine in which it will be integrated or of which it will become a component has been identified and declared as conforming to the conditions of Directive 98/37/EC.

Bologna, 28 February 2007

The Managing Director  
**A. Bassi**

## WARNINGS FOR THE INSTALLER

### GENERAL SAFETY OBLIGATIONS

- ATTENTION! To ensure the safety of people, it is important that you read all the following instructions. Incorrect installation or incorrect use of the product could cause serious harm to people.**
- Carefully read the instructions before beginning to install the product.
- Do not leave packing materials (plastic, polystyrene, etc.) within reach of children as such materials are potential sources of danger.
- Store these instructions for future reference.
- This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the good condition/operation of the product and/or be a source of danger.
- FAAC declines all liability caused by improper use or use other than that for which the automated system was intended.
- Do not install the equipment in an explosive atmosphere: the presence of inflammable gas or fumes is a serious danger to safety.
- The mechanical parts must conform to the provisions of Standards EN 12604 and EN 12605.  
For non-EU countries, to obtain an adequate level of safety, the Standards mentioned above must be observed, in addition to national legal regulations.
- FAAC is not responsible for failure to observe Good Technique in the construction of the closing elements to be motorised, or for any deformation that may occur during use.
- The installation must conform to Standards EN 12453 and EN 12445.  
For non-EU countries, to obtain an adequate level of safety, the Standards mentioned above must be observed, in addition to national legal regulations.
- Before attempting any job on the system, cut out electrical power.
- The mains power supply of the automated system must be fitted with an all-pole switch with contact opening distance of 3mm or greater. Use of a 6A thermal breaker with all-pole circuit break is recommended.
- Make sure that a differential switch with threshold of 0.03 A is fitted upstream of the system.
- Make sure that the earthing system is perfectly constructed, and connect metal parts of the means of the closure to it.
- The automated system is supplied with an intrinsic anti-crushing safety device consisting of a torque control. Nevertheless, its tripping threshold must be checked as specified in the Standards indicated at point 10.
- The safety devices (EN 12978 standard) protect any danger areas against **mechanical movement Risks**, such as crushing, dragging, and shearing.
- Use of at least one indicator-light (e.g. FAACLIGHT) is recommended for every system, as well as a warning sign adequately secured to the frame structure, in addition to the devices mentioned at point "16".
- FAAC declines all liability as concerns safety and efficient operation of the automated system, if system components not produced by FAAC are used.
- For maintenance, strictly use original parts by FAAC.
- Do not in any way modify the components of the automated system.
- The installer shall supply all information concerning manual operation of the system in case of an emergency, and shall hand over to the user the warnings handbook supplied with the product.
- Do not allow children or adults to stay near the product while it is operating.
- Keep radiocontrols or other pulse generators away from children, to prevent the automated system from being activated involuntarily.
- Transit is permitted only when the automated system is idle.
- The user must not attempt any kind of repair or direct action whatever and contact qualified personnel only.
- Maintenance: check at least every 6 months the efficiency of the system, particularly the efficiency of the safety devices (including, where foreseen, the operator thrust force) and of the release devices.
- Anything not expressly specified in these instructions is not permitted.**

## AUTOMATED SYSTEM R180 / R280

The following instructions apply to automated systems:

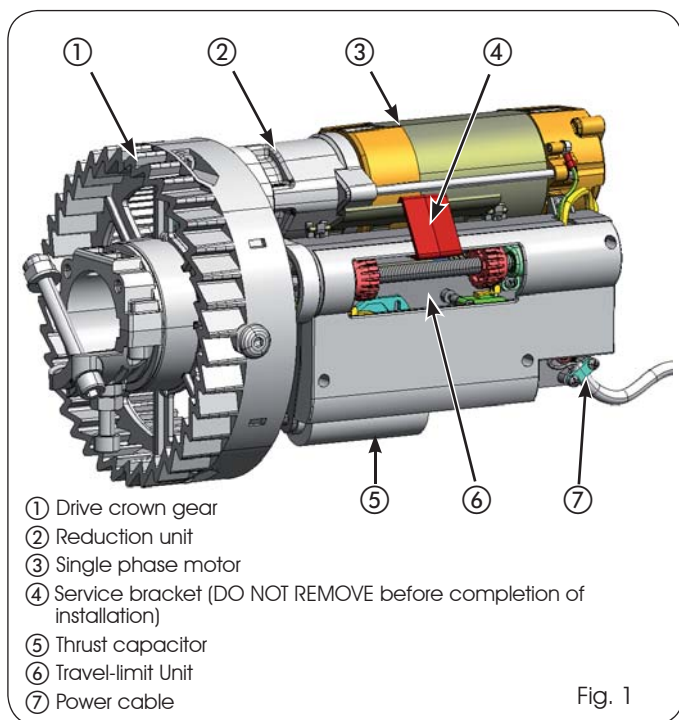
### R 180 - R 280

The FAAC automated system for moving rolling shutters consists of a drive crown gear and a central body including the drive unit, the reduction components and the travel-limit unit.

The models supplied with an electro-brake guarantee that the lifting position is maintained if the drive is not perfectly balanced.

**Automated systems R180 and R280 are designed for moving rolling shutters falling within the technical specifications declared by FAAC manufacturing company. Do not use them for any other purpose.**

### 1 DESCRIPTION AND TECHNICAL SPECIFICATIONS



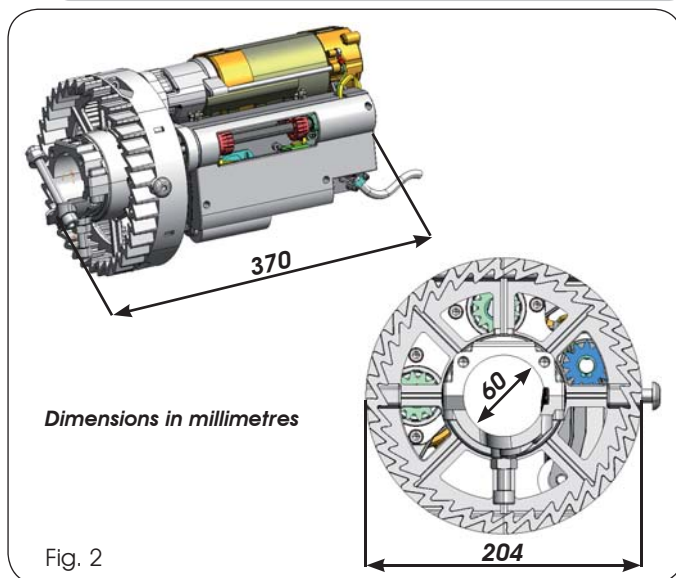
**Tab. 1 - Technical Characteristics of Operator R180 and R280**

Model	R 180	R 280
Power supply voltage	230 V~ (+6% -10%) 50 (60) Hz	
Absorbed Current	2,4 A	4,4 A
Max Drive Torque	180 Nm	280 Nm
Lifting Capacity	180 Kg	280 Kg
Winding Speed	10 rpm	10 rpm
Operating ambient temperature	-40 °C ÷ +55 °C	
Shutter Shaft Diameter	60 /48*/42* mm	60 /48*/42* mm
Winding Flange Diameter	200 / 220** mm	200 / 220** mm
Maximum Shutter Height	8 m	8 m
Maximum Shutter Width	4,5 m	4,5 m
Operator Weight	8,7 Kg	12,5 Kg
R.O.T. (at 25°C)	100 sec	120 sec

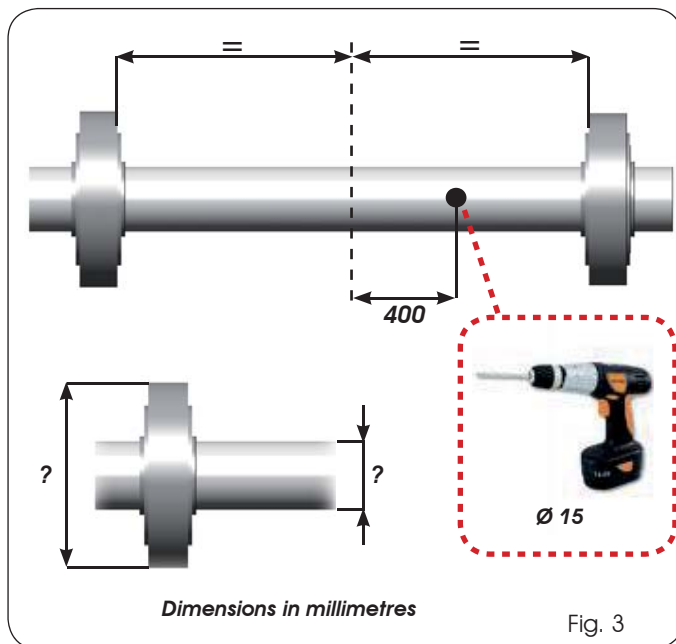
\* use the appropriate reductions included in the standard supply.

\*\* use the appropriate adapters.

### 1.1 DIMENSIONS



### 1.2 MECHANICAL PREPARATIONS

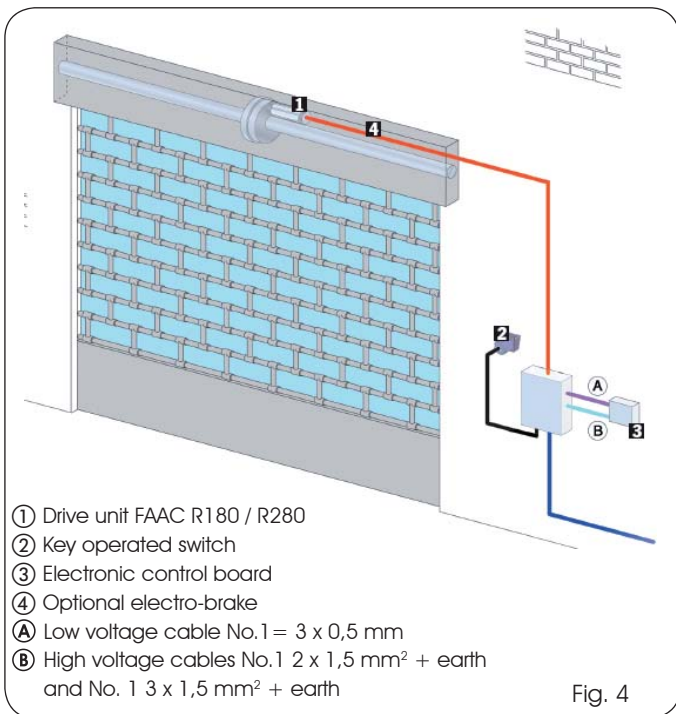


Fully unwind the shutter and find the mid-point of the winding shaft. As shown in Fig. 3, move to the right of the mid-point by 400 mm and drill a hole with a diameter of 15 mm. This hole will be used for routing the power cable and the release cable for the optional electro-brake device..

Measure the diameters of the pulley and the winding shaft in order to determine the use of reductions for the securing flange or shims for the drive transmission crown gear, as explained in chapter 3.3 "INSTALLING THE OPERATOR".

**ENGLISH**

## 2 ELECTRIC PREPARATIONS (standard system)



## 3 INSTALLING THE AUTOMATED SYSTEM

### 3.1 PRELIMINARY CHECKS

To ensure a correctly operating automated system, the structure of the existing shutter or shutter to be built must satisfy the following requirements:

- Dimensions and maximum weight as per specifications in Tab. 1.
- Strong, well constructed shutter structure.
- Smooth rise and descent movement, free of any irregular friction along its entire travel.
- The rotation pins and moving parts must be in good condition.
- Shutter well balanced during its entire travel.

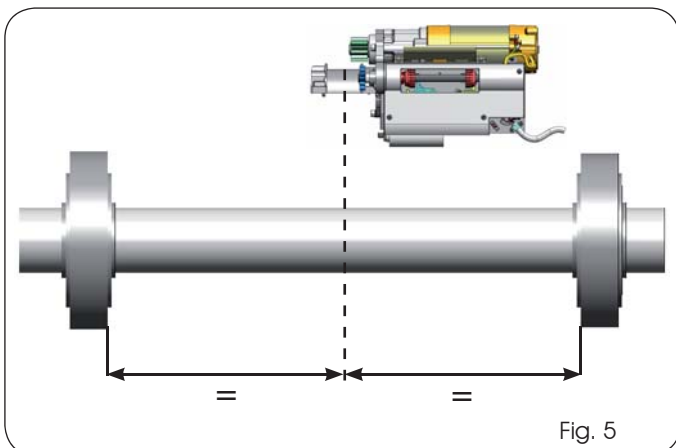
We advise you to carry out the metalwork jobs if any, before installing the application.

The condition of the structure directly influences the reliability and safety of the automated system.

### 3.2 INSTALLATION DIMENSIONS

Before taking the necessary measurements, accurately clean the shutter shaft removing deposits of dust, grease and chips, ...

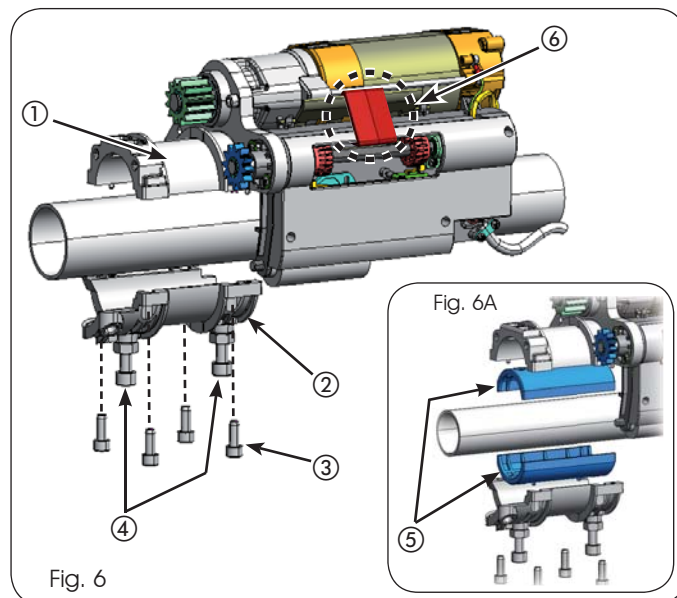
To install two R180 or R280 operators on a shutter having a width of over 4.5 meters, please refer to chapter 8 on page 8.



Procedure for defining the correct position of the operator:

1. Fully unwind the shutter to obtain access to the winding shaft;
2. As shown in Fig. 5, find the mid-point of the winding shaft and mark it for subsequent use;
3. Install the operator, following the instructions in chapter 3.3, positioning the electric motor on the right of the shaft as shown in Fig. 5.

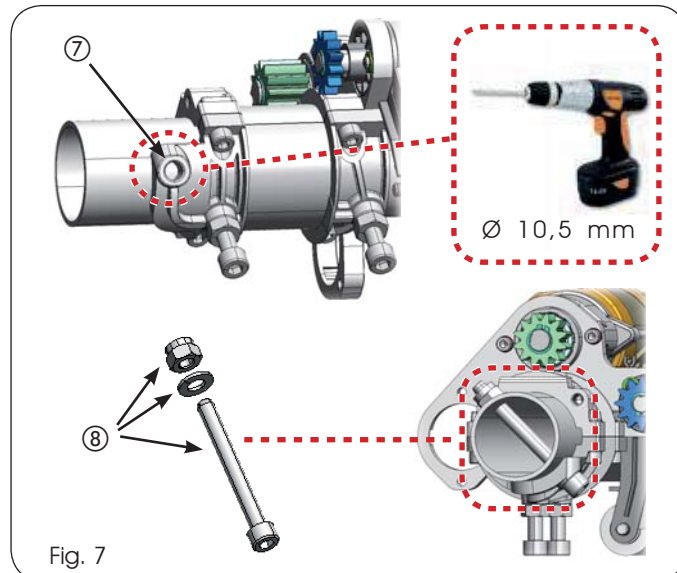
### 3.3 INSTALLING THE OPERATOR



During the installation operations, take great care NOT TO REMOVE the service bracket, ref. ⑥ Fig.6, in order not to compromise the initial position of the travel-limit devices.

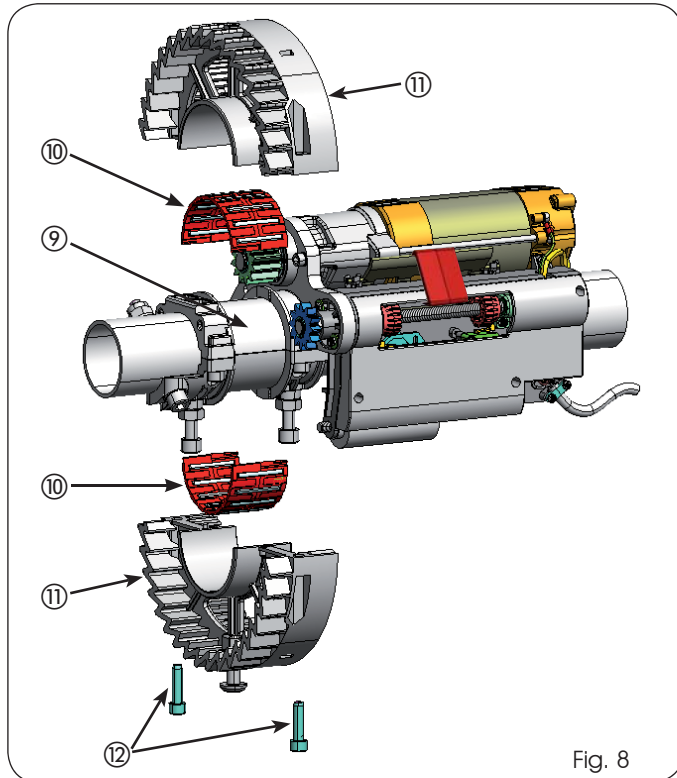
Install the operator as follows:

1. Position the operator body on the shaft, with the central part of the securing flange (ref. ① of Fig.6) on the mid-point previously measured in chapter 3.2;
2. If winding shafts with a diameter of 48 or 42 mm (previously measured in chapter 1.2) are being used, fit the supplied reductions as shown in Fig. 6A ref. ⑤;
3. Close the securing flange with its counterpart in ref.b, using the four screws in ref. ③;
4. Tighten CAREFULLY the operator on the winding shaft, using the two pressure screws and relevant lock-nuts in ref. ④, reducing the coupling spaces;

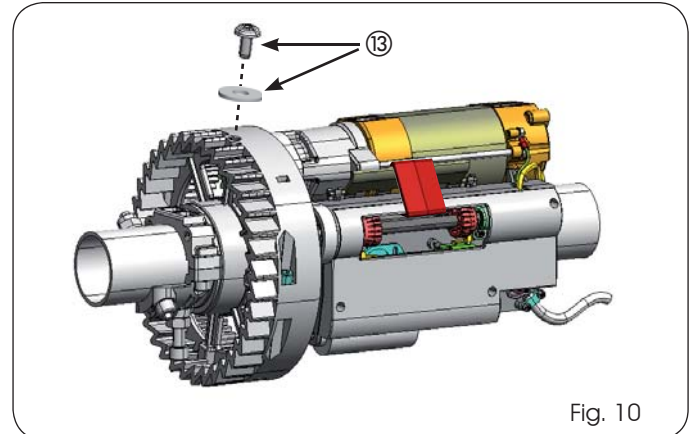


5. Using the hole on the flange in Fig.7 ref.⑦ as a reference, drill a through hole (diam 10.5 mm) on the winding shaft;
6. Insert, in the hole you have just drilled, the securing screw in Fig.7 ref.⑧, tightening it to rest on the washer and self-locking nut;

10. If, in chapter 1.2, you have measured a winding pulley diameter of 220 mm, you must fit the crown adapters, as shown in Fig. 9. Couple the adapters in the housings on the crown. Fasten the countersunk screw to firmly secure one of the two adapters on the crown. Fasten the second adapter with the rounded head screw in order to anchor the shutter.



**⚠** *Anchoring the crown on the shutter could be the cause of the loss of the initial positions of the mechanical travel-limit devices. For this reason, we advise you NOT TO REMOVE the service bracket, ref. ④ Fig.1 on page 3.*



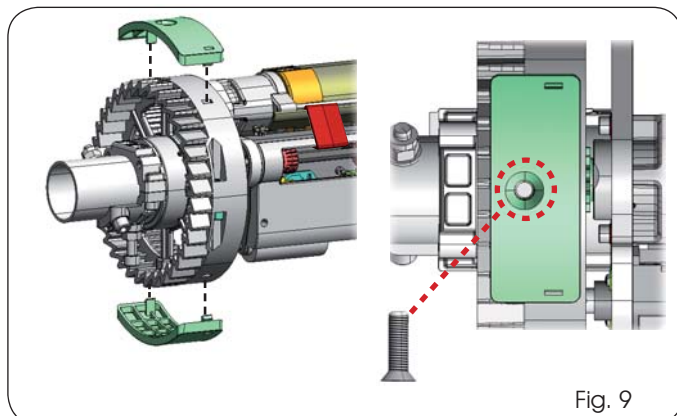
11. Drill a hole with a diameter of 10.5 mm on the shutter in correspondence with the securing hole on the transmission crown gear. To definitively secure the shutter to the crown use the relevant rounded head screw and its washer, Fig. 10 ref. ⑬.

7. Accurately clean the surface of the flange (ref. ⑨ Fig. 8) making sure to remove all metallic residue produced by the previous hole drilling operation;
8. Fit the two parts of the roller bearing (ref. ⑩ Fig.8) on the flange, and correctly join them by pressure, to form a single body;

**⚠** **The closure of the roller bearing on the flange is definitive. Any subsequent attempt to open it could damage the couplings, thus compromising their operation.**

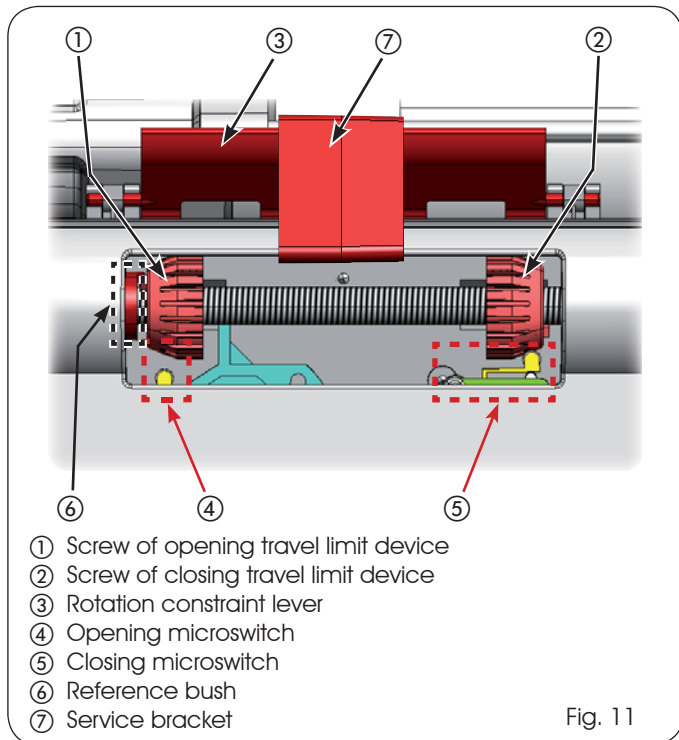
**⚠** **Do not lubricate the flange and bearing with grease or equivalent substances to avoid subsequent accumulation of dust and dirt.**

9. Assemble the transmission crown gear (Fig.8 ref.⑪) using the two screws in ref. ⑫;



#### 4 TRAVEL LIMIT UNIT

During installation, the positions of the mechanical travel limit devices may alter, thus compromising the subsequent automatic procedure for determining the stop positions of the shutter. For this reason, the position of the travel limit devices must be checked and, if necessary, adjusted before starting the application.



**The service bracket (rif. ⑦) allows to freely rotate the screws of the travel-limit device in order to set the configuration as per figure 11.**

Proceed as indicated below:

1. When the shutter is fully down, the position of the screws of the travel limit device, ref. ① and ② must be as shown in Fig. 11;
2. Check if the screw of the closing travel limit device (ref. ②), presses on the closing microswitch (ref. ⑤) to engage it (the microswitch emits a light "CLICK" when it is engaged).
3. Make sure that the screw of the opening travel limit device (ref. ①) is in contact with the bush (ref. ⑥) on the left side. The opening microswitch (ref. ④) must not be in contact with the screw as shown in Fig. 11.

**Do not remove the service bracket before completion of the electric installation of the motor and before being ready for the first automatic movement of the shutter.**

#### 5 ELECTRICAL CONNECTIONS

The gearmotors for shutters R180 and R280 can be commanded by direct power, supplied by a 230 VAC selector, or by control boards 200 BT and 200 MPS.

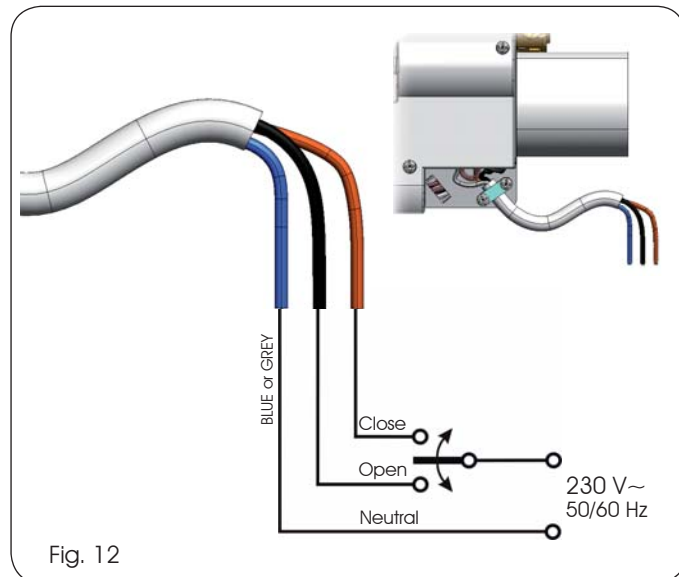
**To install two R180/280 units on the same winding shaft, please refer to chapter 8 on page 8 BEFORE performing the following electrical connections.**

The gearmotor is supplied with a pre-wired power cable with a length of 4 meters. Fit this cable in the hole drilled on the winding shaft (as shown in chapter 1.2 "MECHANICAL PREPARATIONS"), making it come out from the side of the winding shaft in which you intend to install the movement commands or the electrical pull-boxes.

Make the connections shown below according to the type of command used.

##### 5.1 BUTTON-BOARD OR SELECTOR 230 Vac

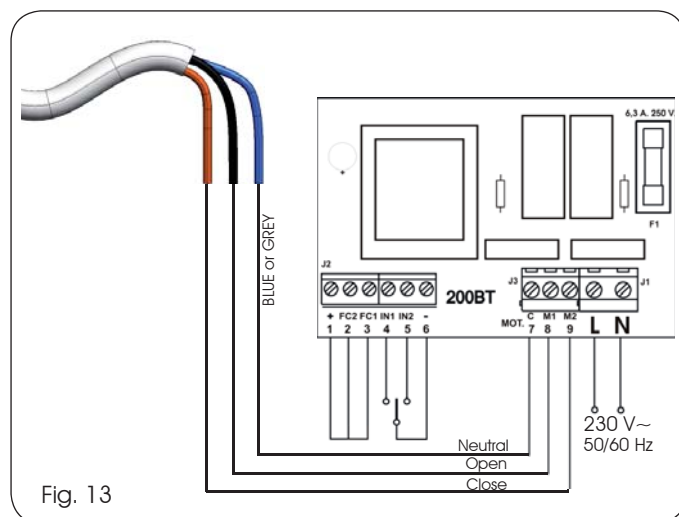
**The electronic command received from a button-board/selector at 230 Vac, can only be used indoors.**



##### 5.2 COMMANDS WITH 200BT CONTROL BOARD

The 200BT control board makes it possible to connect two push-buttons commanded on low voltage (24 Vdc) with dead man logic.

An electronic interlock system prevents simultaneous powering of the electric motor in the two operating directions.



In the R180 and R280 applications the travel limit devices are integrated and, therefore, the dedicated connections on the 200BT board must be short circuited.

In Figure 13 jumper connect terminals 2 and 3 to terminal 1.

For further information on the connection and operation of the 200BT control board, consult the instructions supplied with the board.

##### 5.3 COMMANDS WITH 200MPS CONTROL BOARD

The 200MPS control board makes it possible to manage more control functions and logics.

To make the connections, consult the instructions supplied with the board.

## 6 START-UP OF THE SYSTEM

The procedure for the first start-up of the automated system for shutter winders R180 and R280 is of key importance for correct, automatic adjustment of the travel limit devices.

The travel limit unit of automated system R180 and R280, was designed and assembled to allow the travel limit devices to be automatically positioned with a single opening movement.

Carry out the following procedure:

1. With the shutter completely closed, remove the service bracket (ref. ⑦ fig. 11) from the travel-limit unit;
2. Command complete opening until the mechanical stop point or the desired height is reached;



**According to the type of electric command used, make sure that the opening movement is constant along the entire travel. Do not interrupt the rise motion until the opening height is reached.**

3. Command a complete closure after having reached the opening position (determined by travel limit stop or by customer's choice).

The automatic setting procedure for the travel limit devices has ended; carry out some movements to check if the opening and closing stop positions are as required.

To further fine tune these positions, consult paragraph 6.1 "MANUAL ADJUSTMENT OF THE TRAVEL LIMIT DEVICES".

### 6.1 MANUAL ADJUSTMENT OF THE TRAVEL-LIMIT DEVICES

If you wish to modify/fine tune the automatically set opening and closing positions, proceed as follows:

1. Take the shutter into its fully closed position, to obtain full access to the travel limit unit;

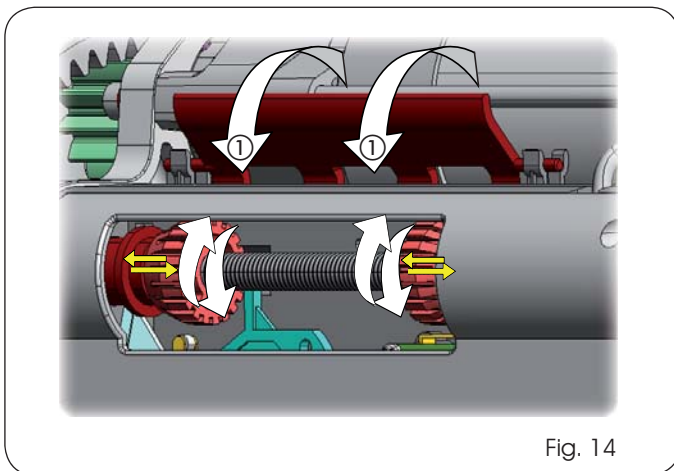


Fig. 14

2. As shown in Figure 14, incline downward and keep inclined the rotation constraint lever (ref. ①) to enable release of the travel-limit devices screws;
3. Turn the travel-limit devices screws clockwise or anti-clockwise to anticipate or delay the activation of the opening or closing microswitches;
4. Release the rotation constraint lever and perform a few movements to check the effect of the modifications;
5. Repeat the procedure till obtaining the motor stop in the required positions.

## 7 INSTALLING THE ELECTRO-BRAKE (optional)

The electro-brake is an accessory that guarantees maintaining the position of the shutter at whatever height it is left.

In fact, the electro-brake acts on the motor shaft, locking it at the end of each electric movement, thus ensuring that the shutter cannot be manually moved or lose its position due to imbalance of the compensation springs.

Electro-brake assembly procedure:

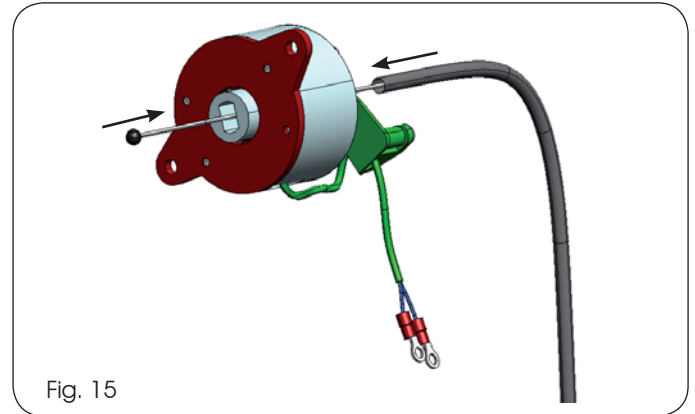


Fig. 15

1. Fit the supplied cable inside the body of the electro-brake until it comes into contact with the end ball (Fig.15);
2. Fit the sheath of the cable until it comes into contact with the electro-brake body (Fig.15);

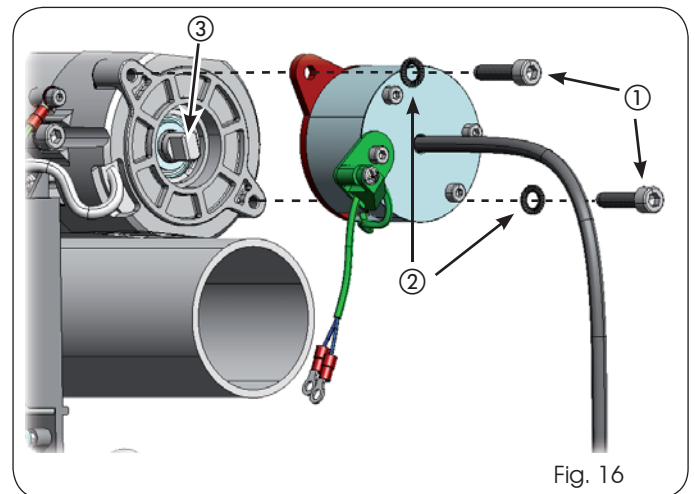


Fig. 16

3. Assemble the electro-brake in Figure 16 on the cover of the electric motor with screws ref. ① and washers ref. ②, mating the motor shaft ref. ③ with the electro-brake block;

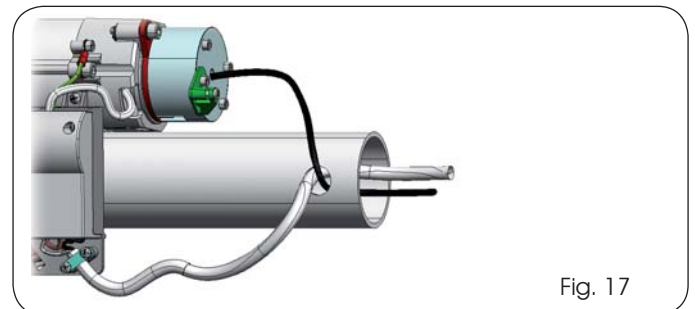
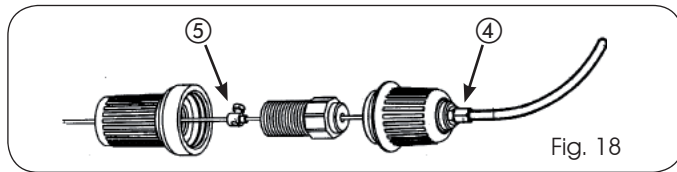
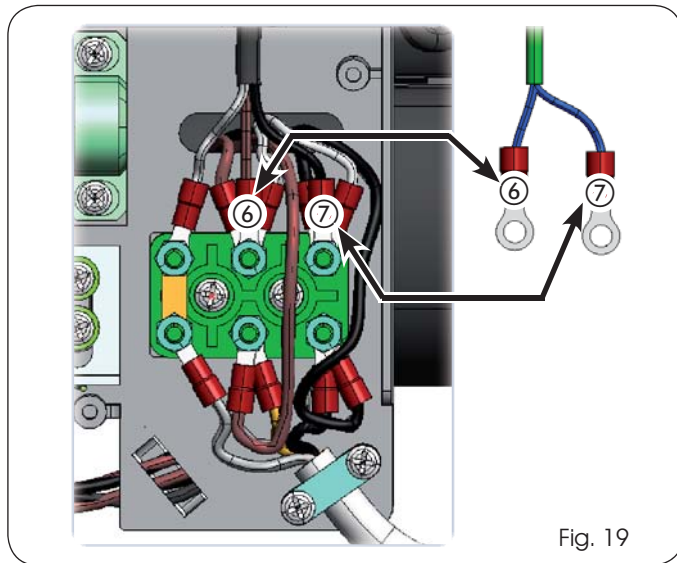


Fig. 17

4. Use the hole (Ø 15 mm), previously drilled for routing the power cable, to insert the sheath-cable unit into the shutter shaft (Figure 17). Take care not to bend the sheath too much in order to allow the cable to freely move inside.



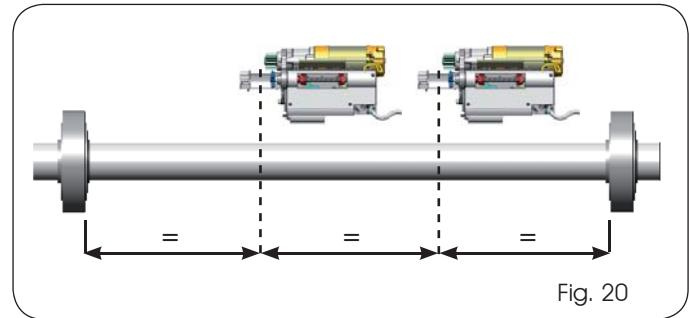
5. Assemble the release knob in Figure 18, taking care to fully fasten the regulator in ref. ④;
6. Pull the cable and firmly tighten terminal ref. ⑤:
  - To release the gearmotor, restrain the top of the knob and rotate the bottom part clockwise;
  - To relock the gearmotor, restrain the top of the knob and rotate the bottom part anti-clockwise;



7. Remove the cover of the travel limit unit, unfastening the three visible screws;
8. Connect the two eyelets coming from the electro-brake to the terminal-board of the travel limit unit, as shown in Fig.19 ref.⑥ and ⑦;
9. Close the cover of the travel limit unit.

## 8 CONNECTION OF TWO R180/280 UNITS

For shutters with a width of over 4.5 meters, we advise installing two R180 or R280 operators at the sides of the shutter as shown in Fig. 20.



Perform the installation procedures of both drive units as explained in chapter 3. At the end of the mechanical installation, refer to the following procedure:

1. Remove the service bracket, ref. ⑦ fig. 11, from both drive units, and keep it;

**⚠ When the service bracket has been removed, take great care NOT TO MOVE the transmission crowns of the operators in order not to compromise the positioning of the screws of the travel-limit devices.**

2. Open the cover of both travel-limit units;
3. Remove the power cable of the SLAVE drive unit and make the connections as indicated in figure 21;
4. Close the cover of both travel-limit units and reposition the service brackets.

Continue the installation performing, only for the MASTER operator, the instructions given from chapter 5 on page 6.

Therefore the travel-limit devices will be adjusted only on the MASTER unit as described in chapters 6 and 6.1.

The electro-brake can be installed independently on the MASTER or SLAVE unit.

