

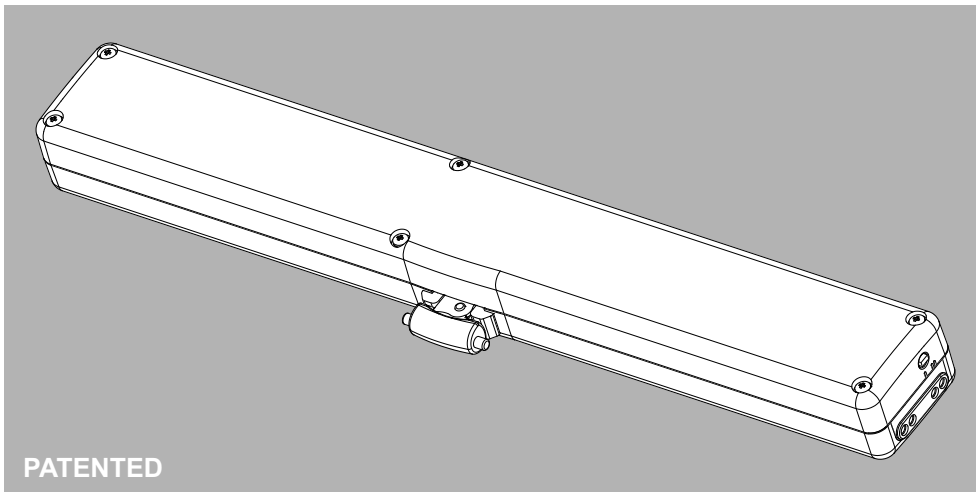


EN

## INSTALLATION AND USE INSTRUCTIONS

CHAIN ACTUATOR FOR  
WINDOW AUTOMATION

**C20**



PATENTED



COD. 0P5152

VER.4.0

REV.11.05

**BEFORE INSTALLING AND USING THE ACTUATOR, IT IS  
COMPULSORY FOR THE INSTALLER AND THE USER TO READ  
AND UNDERSTAND THIS MANUAL IN ALL ITS PARTS.**

**THIS MANUAL IS INTEGRAL PART OF THE ACTUATOR  
AND MUST BE PRESERVED FOR FUTURE REFERENCE  
UNTIL DEMOLITION OF THE SAME.**



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TOPP SPA - Via Galvani, 59  
36066 SANDRIGO (VI) - ITALIA  
Tel. +39 0444 656700  
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Declares that the electric device

Called: **CHAIN ACTUATOR FOR WINDOW AUTOMATION**

Type: **C20**                      Models: **C20/230V - C20/24V**

Serial No. and year of manufacture:  
see data plate and CE marking applied on the equipment

**complies with the requirements of the following directives:**

**73/23/EEC**

*(Low Voltage Directive: electrical equipment destined to be used within given voltage limits)*

**89/336/EEC**

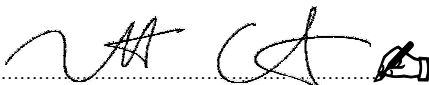
*(Electromagnetic Compatibility Directive - on the approximation of the laws of the Member States relating to electromagnetic compatibility)*

**and, besides, it declares that the following harmonized standards have been applied:**

**EN60335-1:1994; EN60335-1/Ed:1995; EN60335-1/A11:1995; EN60335-1/A1:1996;  
EN60335-1/A13:1998; EN60335-1/A14:1998; EN60335-1/A15:2000; EN60335-1/A2:2000;  
EN60335-1/A16:2001; EN55014-1(2000) +EN55014-1/A1(2001) +EN55014-1/A2(2002);  
EN61000-3-2 (2000); EN61000-3-3 (1995); EN61000-3-3/A1 (2001);  
EN55014-2 (1997) +EN55014-2/A1 (2001).**

Date: **07/01/2005**

Surname and Name: **Matteo Cavalcante**

Signatures: 

## 2.1- GENERAL INSTRUCTIONS



BEFORE INSTALLING AND USING THE ACTUATOR, IT IS COMPULSORY THAT THE INSTALLER AND THE USER CAREFULLY READ AND UNDERSTAND THIS MANUAL IN ALL ITS PARTS.



THIS MANUAL IS INTEGRAL PART OF THE ACTUATOR AND MUST COMPULSORILY BE PRESERVED FOR FUTURE REFERENCE.



THE MANUFACTURER HAS NO LIABILITY FOR ANY EVENTUAL DAMAGE TO PERSONS, ANIMALS AND THINGS DUE TO THE INOBSERVANCE OF THE PRESCRIPTIONS DESCRIBED IN THIS MANUAL.

## 2.2- INSTALLER AND USER



THE ACTUATOR INSTALLATION CAN BE PERFORMED EXCLUSIVELY BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL SATISFYING THE PROFESSIONAL AND TECHNICAL REQUIREMENTS FORESEEN BY THE LAWS IN FORCE IN THE COUNTRY OF INSTALLATION.



THE ACTUATOR CAN BE USED EXCLUSIVELY BY A USER ACTING IN COMPLIANCE WITH THE INSTRUCTIONS CONTAINED IN THIS MANUAL AND/OR IN THE MANUAL OF THE ACTUATOR CONTROL DEVICE (e.g.: CONTROL UNIT).

## 2.3- WARRANTY



THE ACTUATOR WARRANTY EXPIRES, IF ITS USE DOES NOT COMPLY WITH THE INSTRUCTIONS AND PRESCRIPTIONS DESCRIBED IN THIS MANUAL, AS WELL AS IF NON-ORIGINAL COMPONENTS, ACCESSORIES, SPARE PARTS, AND CONTROL SYSTEMS ARE USED.

## 2.4- TECHNICAL ASSISTANCE

For the technical assistance apply to your Dealer or to the Manufacturer.

## 2.5- RESERVED RIGHTS

The reserved rights on this manual "Installation and use instructions" remain property of the Manufacturer.

Each information herein contained (text, drawings, diagrams, etc.) is reserved.

None part of this manual can be reproduced and disclosed (totally or partially) by any reproduction means (photocopies, microfilms or other) without written authorization of the Manufacturer.

## 3.1- RATING PLATE AND "CE" MARKING

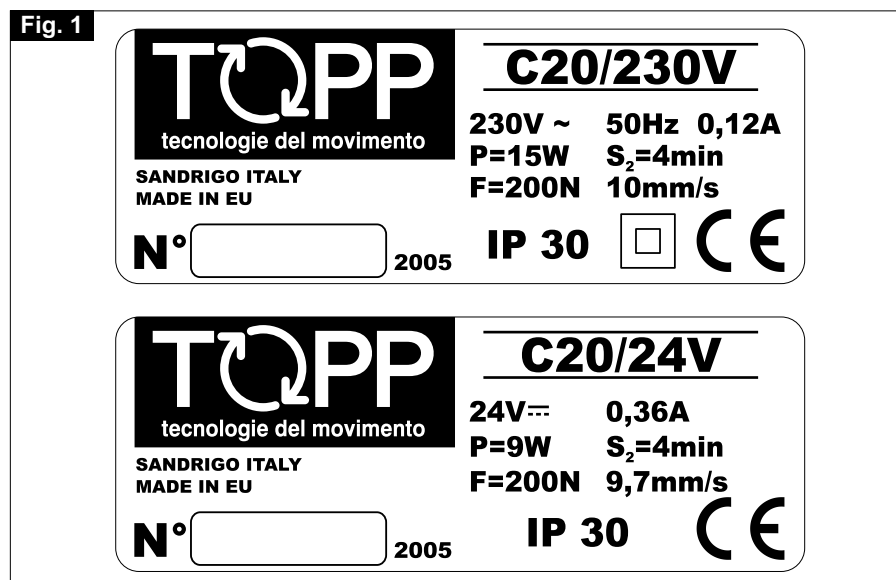
The "CE" marking certifies the compliance of the machine with the essential safety and health requirements foreseen by the product European Directives.

The rating plate is an adhesive plate in polyester, silk-screen printed in black, having the following size: L=36 mm - H=50 mm.

It is applied externally on the actuator. The plate (**Fig. 1**) bears in readable and indelible way the following data:

- logo and address of the manufacturer
- type and model
- voltage and intensity of power supply (V - A)
- type of service  $S_2$  (min)
- absorbed electric power P (W)
- thrust and tractive force F (N)
- idle translation speed (mm/s)
- protection degree (IP)
- symbol of double insulation (only for mod. C20/230V)
- "CE" marking
- serial number
- year of construction

Fig. 1



## 3.2- DENOMINATION OF THE COMPONENTS AND DIMENSIONS

Fig. 2a Dimensions in mm

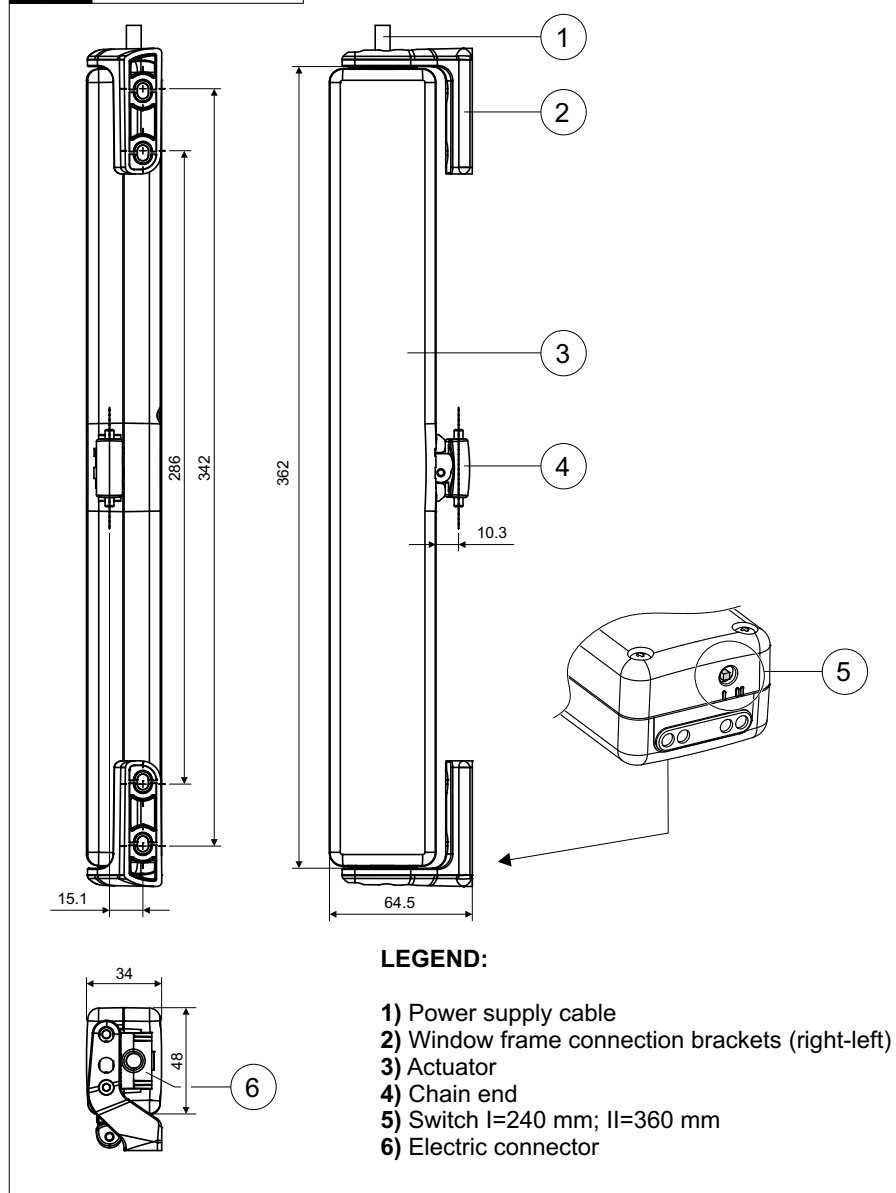
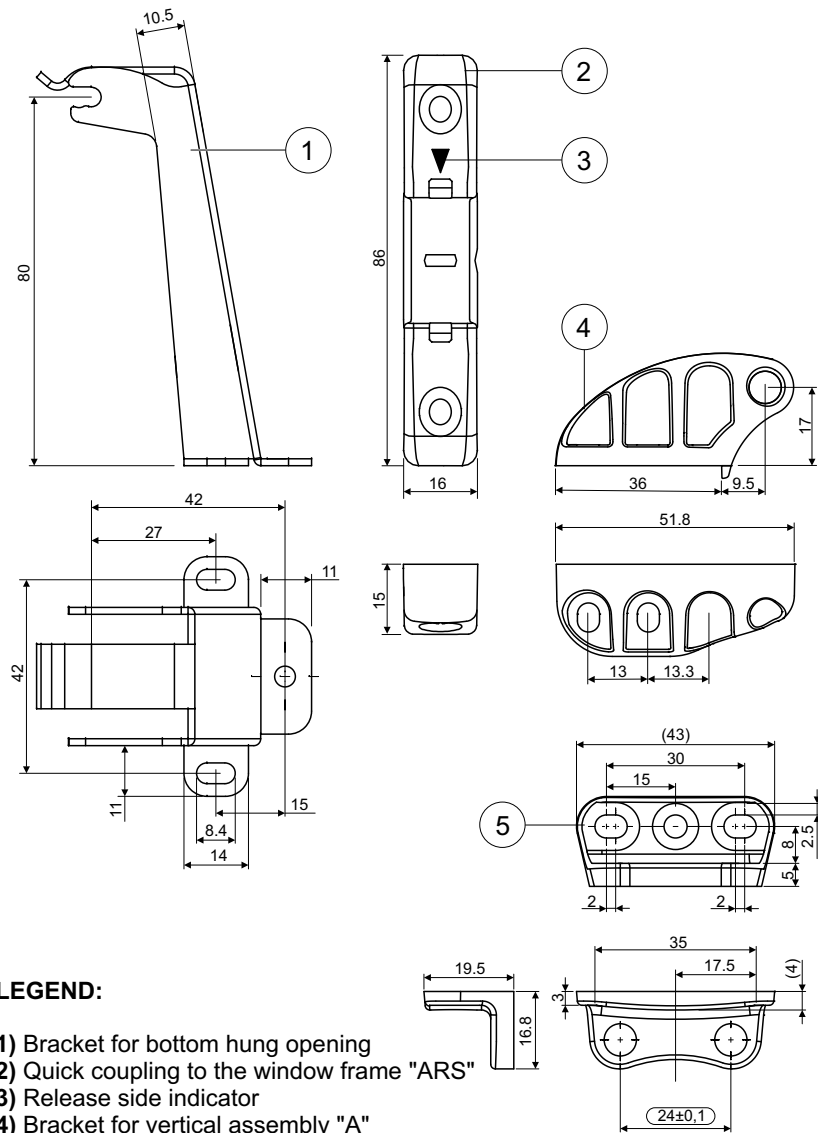


Fig. 2b Dimensions in mm



LEGEND:

- 1) Bracket for bottom hung opening
- 2) Quick coupling to the window frame "ARS"
- 3) Release side indicator
- 4) Bracket for vertical assembly "A"
- 5) Bracket for vertical assembly "B"



### 3.3- TECHNICAL DATA

Tab. 1 contains the technical data characterising the actuators.

	C20/230V	C20/24V	
Power supply voltage	230 V - 50 Hz	24 V DC (min.21V max.28V)	
Absorbed current	0,12 A	0,36 A	
Absorbed power with load	15 W	9 W	
Thrust force	200 N		
Tractive force	200 N		
Idle translation speed	10 mm/s	9,7 mm/s	
Duration of the idle stroke (360 mm)	36 s	37 s	
Operation stroke length (mm) <sup>(1)</sup>		240	360
Minimum window frame height (mm) <sup>(2)</sup>	Top hung	250	360
	Bottom hung	500	900
	Dome	300	400
Limit switch: Electronic for opening - by amperometric absorption for closing.			
Double electric insulation <input type="checkbox"/>	Yes	/	
Type of service S <sub>2</sub> <sup>(3)</sup>	4 min	4 min	
Operating temperature	- 5 °C + 50 °C		
Protection degree of electric devices	IP 30		
Adjustment of the window frame connection	NO		
Parallel electric connection of more actuators on the same window	NO		
Parallel electric connection of more actuators on different windows	Yes (see wiring diagram)		
Actuator weight with brackets	0,97 kg		
Gross weight	1,15 kg		
<sup>(1)</sup> Tolerance on the precision of limit switch tripping at output: +/- 2 cm. <sup>(2)</sup> Actuator distance from the window frame opening hinge <sup>(3)</sup> Service of limited duration according to EN 60034			

Tab. 1

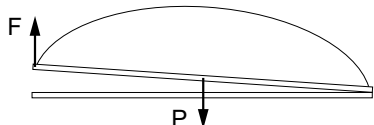
3.4- FORMULAS FOR THE CALCULATION OF THRUST AND TRACTIVE FORCE

**Fig. 3**

**Horizontal domes or skylights**

F= Force necessary for opening or closing  
 P= Weight of the skylight or dome (Only movable part)

$$F = 0.54 \times P$$

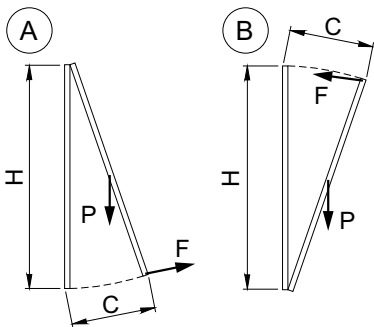


**Fig. 4**

**Top hung windows (A) or bottom hung windows (B)**

F = Force necessary for opening or closing  
 P = Weight of the window (Only movable part)  
 C = Window opening stroke  
 H = Window height

$$F = (0.54 \times P) \times \left( \frac{C}{H} \right)$$



3.5- DESTINATION OF USE



THE ACTUATOR HAS BEEN DESIGNED AND MANUFACTURED TO PERFORM AUTOMATICALLY, BY MEANS OF A COMMAND DEVICE, THE OPENING AND CLOSING OF TOP HUNG WINDOWS, BOTTOM HUNG WINDOWS, PIVOT WINDOWS, AND SKYLIGHTS.

### 3.6- USE LIMITS

The actuator has been designed and manufactured exclusively for the destination of use given in **par. 3.5**, therefore, any other type of use is strictly forbidden in order to assure in any moment the safety of the installer and of the user, as well as the efficiency of the actuator itself.



IT IS STRICTLY FORBIDDEN TO USE THE ACTUATOR FOR IMPROPER USES, I.E. OTHER THAN THE ONE FORESEEN BY THE MANUFACTURER (SEE PAR. 3.5).



IT IS STRICTLY FORBIDDEN TO INSTALL THE ACTUATOR ON THE EXTERNAL SIDE OF THE WINDOW FRAME SUBJECT TO ATMOSPHERIC AGENTS (RAIN, SNOW, ETC.).



THE USE OF THE ACTUATOR IN ENVIRONMENTS WITH POTENTIALLY EXPLOSIVE ATMOSPHERE IS STRICTLY FORBIDDEN.



IT IS COMPULSORY TO KEEP THE PACKAGE AND THE ACTUATOR OUT OF REACH OF CHILDREN.

### 3.7- PACKAGE

Each package of the product (cardboard box) contains (**Fig. 5**):

- No. 1 Actuator equipped with power supply cable (with electric connector);
- No. 2 Window frame connection brackets (right-left) (**Ref. A**);
- No. 1 Bracket for bottom hung opening (**Ref. B**);
- No. 4 Brackets for vertical assembly (No.2 "A" + No.2 "B") (**Ref. C**);
- No. 1 Small parts package (ARS coupling, No. 2 screws for lateral fastening of connection brackets to the window, No. 9 screws AF Ø 4.2 x 19 mm for the fastening of the brackets to the window frame and for ARS coupling fastening) (**Ref. D**);
- No. 1 ARS coupling release tool (**Ref. D-1**);
- No. 1 Adhesive drilling template (**Ref. E**);
- No. 1 Installation and use instructions (**Ref. F**).



MAKE SURE THAT THE ABOVE DESCRIBED COMPONENTS ARE CONTAINED IN THE PACKAGE, AS WELL AS THAT THE ACTUATOR HAS NOT BEEN DAMAGED DURING TRANSPORT.

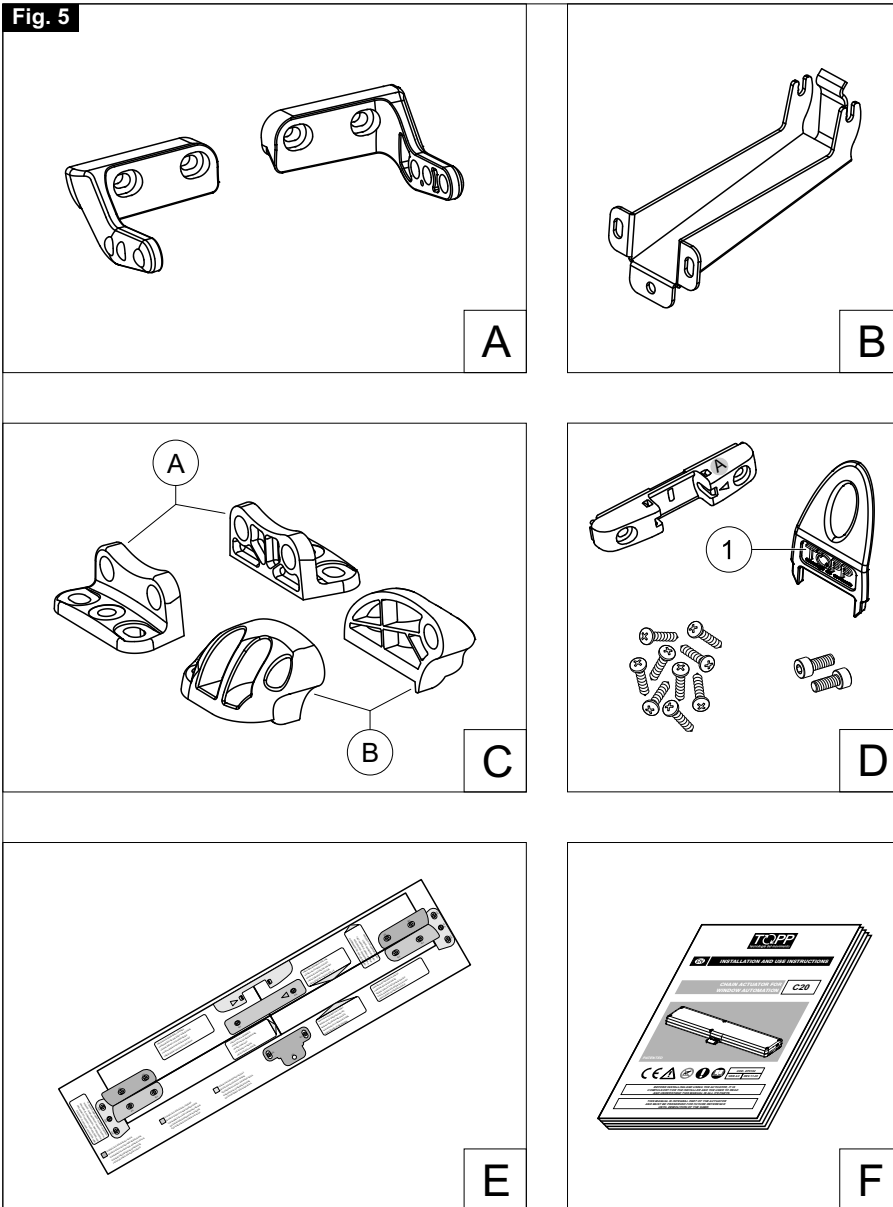


SHOULD ANY ANOMALY BE DETECTED, IT IS FORBIDDEN TO INSTALL THE ACTUATOR, AND IT IS COMPULSORY TO REQUIRE TECHNICAL ASSISTANCE FROM YOUR DEALER OR THE MANUFACTURER.



THE PACKAGING (PAPER, PLASTIC, ETC.) HAS TO BE DISPOSED ACCORDING TO THE LAWS IN FORCE.

Fig. 5



#### 4.1- PROTECTION AGAINST ELECTRIC HAZARD

The actuator is protected against electric hazard due to direct and indirect contacts. The protection measures against direct contacts aim at protecting people against hazards due to contact with active parts, usually live parts; while the protection measures against indirect contacts aim at protecting people against hazards due to conducting part, which are usually insulated, but could become live in case of failure (insulation failure).

The adopted protection measures are the following:

- 1) Insulation of live parts by means of a plastic material body;
- 2) Enclosure with suitable protection degree;
- 3) **Only for Mod. C20/230 V equipped with double insulation:** Protection of passive type given by the use of components with double insulation, also called components of class II or with equivalent insulation. (It is forbidden to connect the actuators equipped with double insulation to the earth plant.

#### 4.2- RESIDUAL RISKS

The actuator does not have residual risks. The installer and the user are herewith informed that after the actuator has been installed on the window, the actuator drive can accidentally generate the following residual risk:

**Residual risk:**

Hazard of squashing or dragging of body parts inserted between the movable and the fix part of the window frame.

**Exposure frequency:**

Accidental and when the installer or the user decides to perform a wrong voluntary action.

**Severity of the damage:**

Light lesions (usually reversible).

**Adopted measures:**

Before enabling the device, it is compulsory to verify that near the window there are not persons, animals or things whose safety may be accidentally jeopardized. During actuator operation, it is compulsory to be in a safe control position assuring visual control on the window movement.

## 5.1- GENERAL INSTRUCTIONS



THE ACTUATOR INSTALLATION CAN BE PERFORMED EXCLUSIVELY BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL SATISFYING THE PROFESSIONAL AND TECHNICAL REQUIREMENTS FORESEEN BY THE LAWS IN FORCE IN THE COUNTRY OF INSTALLATION.



THE ACTUATOR PERFORMANCE MUST BE SUFFICIENT TO ASSURE THE CORRECT MOVEMENT OF THE WINDOW. IT IS COMPULSORY TO VERIFY THE THRUST OR TRACTIVE FORCE ACCORDING TO THE TYPE AND WEIGHT OF THE WINDOW (PAR. 3.4). IT IS FORBIDDEN TO EXCEED THE LIMITS SET IN Tab. 1 CONCERNING TECHNICAL DATA (PAR. 3.3).



THE ACTUATOR INSTALLATION MUST BE PERFORMED EXCLUSIVELY WITH CLOSED WINDOW OR SKYLIGHT.



BEFORE PERFORMING THE INSTALLATION OF THE ACTUATOR ON BOTTOM HUNG WINDOWS, VERIFY THAT ON BOTH SIDES OF THE WINDOW TWO COMPASS STROKE LIMIT DEVICES ARE INSTALLED IN ORDER TO AVOID THE ACCIDENTAL FALL OF THE WINDOW.



FOR CORRECT OPERATION OF THE ACTUATOR, THE WINDOW FRAME MUST HAVE A MINIMUM HEIGHT VALUE INCLUDED IN THE RANGE STATED IN TABLE FIG. 6a FOR TOP HUNG ASSEMBLY, IN TABLE FIG. 6b FOR BOTTOM HUNG ASSEMBLY, AND IN TABLE FIG. 6c FOR THE DOME ASSEMBLY.



THE STROKE SELECTION HAS TO BE CARRIED OUT WITH SWITCHED OFF ACTUATOR ONLY BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL.



VERIFY THAT THE POSITIONS OF THE LABELS LOCATED ON THE QUICK COUPLING CORRESPOND TO THE LABELS ON THE ACTUATOR: RED LABEL WITH LETTER "A" FOR THE TOP HUNG ASSEMBLY, GREEN LABEL WITH LETTER "B" FOR VERTICAL ASSEMBLY.



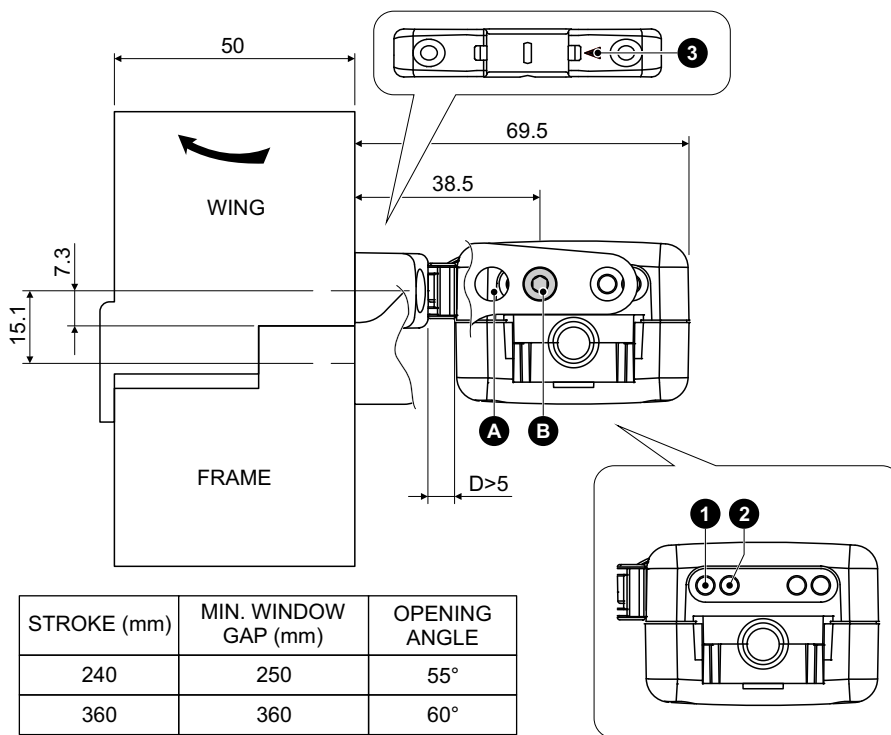
VERIFY THAT DISTANCE "D" BETWEEN THE ACTUATOR SHELL AND THE CHAIN END (Fig. 6a/6b/6c) IS GREATER THAN 5 mm; OTHERWISE, ASK YOUR DEALER OR THE MANUFACTURER FOR THE NECESSARY ACCESSORIES FOR A CORRECT INSTALLATION (SEE CHAP.8).



IF THE WING AND THE FRAME ARE COPLANAR PROCEED WITH THE ASSEMBLY ACCORDING TO Fig. 6.

Fig. 6a Dimensions in mm

TOP HUNG OPENING		
POS.	ROTATION AXIS	POS. FROM THE WINDOW FRAME
A	1	STANDARD POS.
A	2	-10 mm
B	2	-5 mm



STROKE (mm)	MIN. WINDOW GAP (mm)	OPENING ANGLE
240	250	55°
360	360	60°



THE RELEASE SIDE INDICATOR (Ref. 3) IN THIS ASSEMBLY TYPE HAS TO BE ON THE RIGHT.

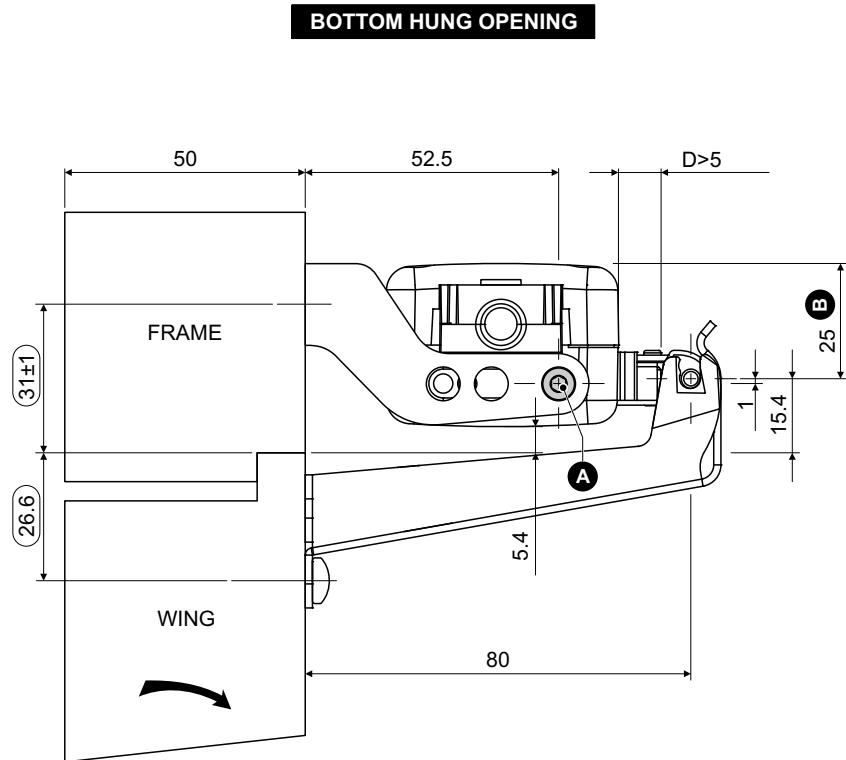


USE ONLY A SCREW IN POSITION "A".



IF THE WINDOW FRAME IS COPLANAR, REMOVE THE ACTUATOR FROM THE WINDOW FRAME USING THE APPLICATIONS OF THE ABOVE GIVEN TABLE.

Fig. 6b Dimensions in mm



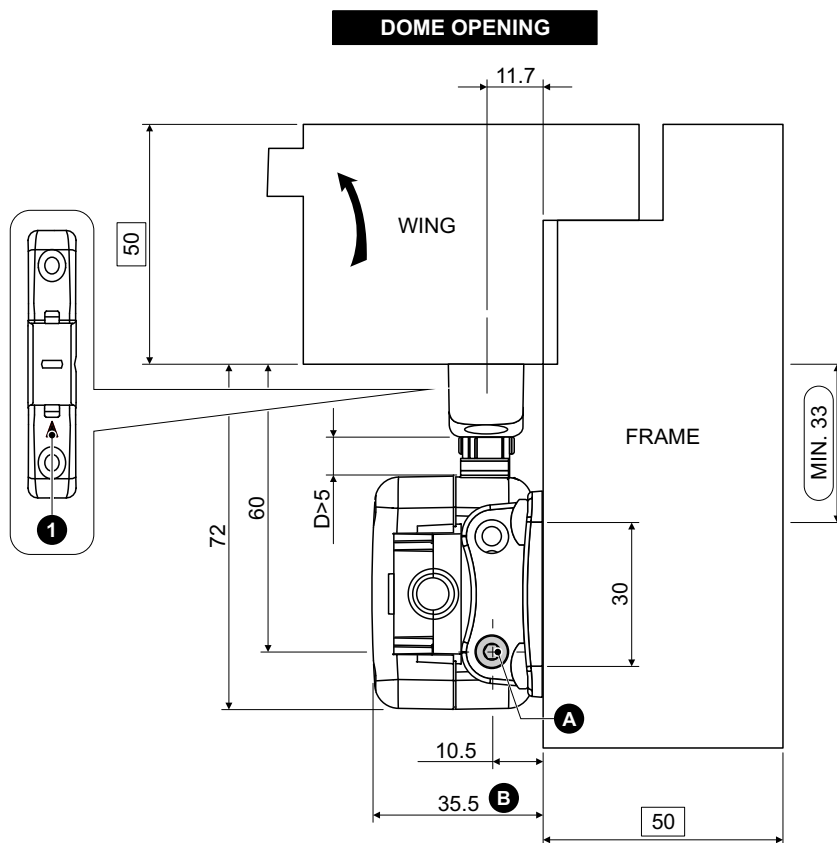
STROKE (mm)	MIN. WINDOW GAP (mm)	OPENING ANGLE	"B" MOTOR OVERALL DIMENSIONS (mm)
240	500	26°	33.6
360	900	22°	31.6



USE ONLY A SCREW IN POSITION "A".



Fig. 6c Dimensions in mm



STROKE (mm)	MIN. WINDOW GAP (mm)	OPENING ANGLE	"B" MOTOR OVERALL DIMENSIONS (mm)
240	300	48°	40
360	400	55°	43



THE RELEASE SIDE INDICATOR (Ref. 1) IN THIS ASSEMBLY TYPE HAS TO BE ON THE LEFT.

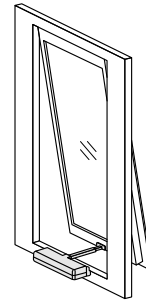


USE ONLY A SCREW IN POSITION "A".

### 5.2- TOP HUNG WINDOWS (Fig. 7 and Fig. 20 ÷ 28)

- 1) Open the package (par. 3.7) and extract the various components;
- 2) **Fig. 20-** With a pencil draw the centre line "X" of the window frame;
- 3) **Fig. 21-** Apply the adhesive template (**Ref. 1**) on the window frame aligning it with the previously drawn centre line "X";

Fig. 7



**CAUTION: FOR NON-COPLANAR WINDOW FRAMES, IT IS NECESSARY TO CUT THE ADHESIVE TEMPLATE CONCERNED PART AND TO APPLY IT ON THE WINDOW FRAME PAYING ATTENTION TO KEEP IT IN THE SAME REFERENCE POSITION.**

- 4) **Fig. 22-** With a suitable drill, create on the window frame holes having the related diameter, given on the adhesive template;
- 5) **Fig. 23÷25-** With the suitable screws tighten the brackets for window frame connection (right - left) and the quick coupling;
- 6) **Fig. 26/27-** After having connected the electric connector in the actuator, perform the electric connections according to the provisions of **par. 5.5**, as well as with reference to the wiring diagram. Let the chain come out for at least 5 cm of stroke, then disconnect the connector;
- 7) **Fig. 27-** Connect the chain end to the quick coupling;
- 8) **Fig. 28-** Fasten the actuator to the brackets for connection to the window frame using the suitable screws;



**VERIFY IN Fig. 6a THE CORRECT FASTENING POSITIONING OF THE ACTUATOR.**



**MAKE SURE THAT THE RED LABEL WITH LETTER "A" LOCATED ON THE QUICK COUPLING CORRESPONDS TO THE SAME LABEL ON THE ACTUATOR.**



**VERIFY THAT AFTER THE TIGHTENING THE CONNECTION BRACKETS TO THE WINDOW FRAME ADHERE TO THE ACTUATOR IN ORDER TO ASSURE A CORRECT APPLICATION.**

- 9) **Fig. 28-** Select the wished stroke (I= 240 mm - II= 360 mm) using the switch (**Ref. 1**) located on one side of the actuator. The actuator is supplied with the stroke set on 240 mm.
- 10) **Fig. 26-** Insert the electric connector;



**THE STROKE SELECTION HAS TO BE CARRIED OUT WITH SWITCHED OFF ACTUATOR ONLY BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL.**



**FOR A CORRECT ADJUSTMENT OF THE WINDOW FRAME CLOSING SEE THE INDICATIONS GIVEN IN PAR. 5.7.**

### 5.3- BOTTOM HUNG WINDOWS (Fig. 8 and Fig. 29 ÷ 42)

- 1) Open the package (**par. 3.7**) and extract the various components;
- 2) **Fig. 29-** With a pencil draw the centre line "Y" of the window frame;
- 3) **Fig. 30-** Apply the adhesive template (**Ref. 1**) on the window frame aligning it with the previously drawn centre line "Y";

Fig. 8



**CAUTION: FOR NON-COPLANAR WINDOW FRAMES, IT IS NECESSARY TO CUT THE ADHESIVE TEMPLATE CONCERNED PART AND TO APPLY IT ON THE WINDOW FRAME PAYING ATTENTION TO KEEP IT IN THE SAME REFERENCE POSITION.**

- 4) **Fig. 31-** With a suitable drill, create on the window frame holes having the related diameter, given on the adhesive template;
- 5) **Fig. 32÷34-** With the suitable screws tighten the brackets for window frame connection (right - left) and the bottom hung opening bracket;
- 6) **Fig. 35/36-** After having connected the electric connector in the actuator, perform the electric connections according to the provisions of **par. 5.5**, as well as with reference to the wiring diagram. Let the chain come out for at least 5 cm of stroke, then disconnect the connector;
- 7) **Fig. 37-** Connect the chain end to the bottom hung bracket;
- 8) **Fig. 38-** Fasten the actuator to the brackets for connection to the window frame using the suitable screws;



**VERIFY IN Fig. 6b THE CORRECT FASTENING POSITIONING OF THE ACTUATOR.**



**VERIFY THAT AFTER THE TIGHTENING THE CONNECTION BRACKETS TO THE WINDOW FRAME ADHERE TO THE ACTUATOR IN ORDER TO ASSURE A CORRECT APPLICATION.**

- 9) **Fig. 38-** Select the wished stroke (I= 240 mm - II= 360 mm) using the switch (**Ref. 2**) located on one side of the actuator. The actuator is supplied with a stroke set on 240 mm.
- 10) **Fig. 35-** Insert the electric connector;



**THE STROKE SELECTION HAS TO BE CARRIED OUT WITH SWITCHED OFF ACTUATOR ONLY BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL.**

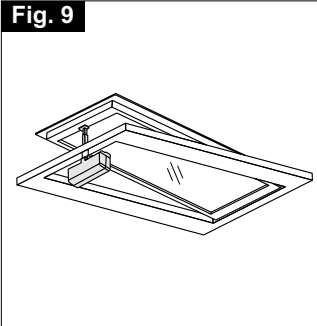


**FOR A CORRECT ADJUSTMENT OF THE WINDOW FRAME CLOSING SEE THE INDICATIONS GIVEN IN PAR. 5.7.**

#### 5.4- DOME WINDOWS (Fig. 9 and Fig. 39 ÷ 50)

- 1) Open the package (**par. 3.7**) and extract the various components;
- 2) **Fig. 39-** With a pencil draw the centre line "Z" of the window frame;
- 3) **Fig. 40-** Apply the adhesive template (**Ref. 1**) on the window frame aligning it with the previously drawn centre line "Z";

Fig. 9



**CAUTION: FOR NON-COPLANAR WINDOW FRAMES, IT IS NECESSARY TO CUT THE ADHESIVE TEMPLATE CONCERNED PART AND TO APPLY IT ON THE WINDOW FRAME PAYING ATTENTION TO KEEP IT IN THE SAME REFERENCE POSITION.**

- 4) **Fig. 41-** With a suitable drill, create on the window frame holes having the related diameter, given on the adhesive template;
- 5) **Fig. 32 ÷ 47-** With the suitable screws, fasten the brackets for vertical assembly (**Ref. A or Ref. B**), the quick coupling and eventually the hole covering plate (**Fig. 45 -Ref. 1**);
- 6) **Fig. 48/49-** After having connected the electric connector in the actuator, perform the electric connections according to the provisions of **par. 5.5**, as well as with reference to the wiring diagram. Let the chain come out for at least 5 cm of stroke, then disconnect the connector;
- 7) **Fig. 49-** Connect the chain end to the quick coupling;
- 8) **Fig. 50-** Fasten the actuator to the brackets for vertical assembly (**Ref. A or Ref. B**) using the suitable screws;



**VERIFY IN Fig. 6c THE CORRECT FASTENING POSITIONING OF THE ACTUATOR.**



**MAKE SURE THAT THE GREEN LABEL WITH LETTER "B" LOCATED ON THE QUICK COUPLING CORRESPONDS TO THE SAME LABEL ON THE ACTUATOR.**



**VERIFY THAT AFTER THE TIGHTENING THE CONNECTION BRACKETS TO THE WINDOW FRAME ADHERE TO THE ACTUATOR IN ORDER TO ASSURE A CORRECT APPLICATION.**

- 9) **Fig. 50-** Select the wished stroke (I=240 mm II=360 mm) using the switch (**Ref. 1**) located on one side of the actuator. The actuator is supplied with a stroke set on 240 mm.
- 10) **Fig. 49-** Insert the electric connector;



**THE STROKE SELECTION HAS TO BE CARRIED OUT WITH SWITCHED OFF ACTUATOR ONLY BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL.**



**FOR A CORRECT ADJUSTMENT OF THE WINDOW FRAME CLOSING SEE THE INDICATIONS GIVEN IN PAR. 5.7.**

### 5.5- ELECTRIC CONNECTIONS (Wiring diagram)



THE CONNECTION OF MODEL C20/24V HAS TO BE CARRIED OUT WITH VERY LOW VOLTAGE SAFETY FEEDER PROTECTED AGAINST SHORT CIRCUIT.



THE ELECTRIC CONNECTION OF THE ACTUATOR CAN BE PERFORMED ONLY BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL FORESEEN BY THE LAW IN FORCE IN THE COUNTRY OF INSTALLATION WHO CAN ISSUE TO THE CUSTOMER A DECLARATION OF CONFORMITY FOR THE CONNECTION AND/OR PLANT CARRIED OUT.



BEFORE PERFORMING THE ELECTRIC CONNECTION OF THE ACTUATOR, VERIFY THE CORRECT INSTALLATION ON THE WINDOW.



THE MAINS TO WHICH THE ACTUATOR IS CONNECTED MUST COMPLY WITH THE REQUIREMENTS OF THE LAWS IN FORCE IN THE COUNTRY OF INSTALLATION, AS WELL AS SATISFY THE TECHNICAL FEATURES GIVEN IN TAB. 1 AND ON THE RATING PLATE AND THE "CE" MARKING (PAR. 3.1), AS WELL AS BE EQUIPPED WITH A SUITABLE "EARTHING PLANT".



THE SECTION OF THE MAINS CABLES MUST BE PROPERLY SIZED ACCORDING TO THE ABSORBED ELECTRIC POWER (SEE RATING PLATE AND "CE" MARKING).



ANY TYPE OF ELECTRIC MATERIAL (PLUG, CABLE, TERMINALS, ETC.) USED FOR THE CONNECTION MUST BE SUITABLE FOR THE USE, WITH "CE" MARKING, AND COMPLYING WITH THE REQUIREMENTS FORESEEN BY THE LAWS IN FORCE IN THE COUNTRY OF INSTALLATION.



IT IS COMPULSORY TO INSTALL UPSTREAM OF THE MAINS A SECTIONING DEVICE WITH A 30 mA DIFFERENTIAL PROTECTION, ASSOCIATED TO THE EARTHING PLANT.



IT IS FORBIDDEN TO PERFORM THE CONNECTION TO THE EARTHING SYSTEM OF THE ACTUATORS EQUIPPED WITH DOUBLE INSULATION (MOD. C20/230V).



TO ASSURE AN EFFICIENT SEPARATION FROM THE MAINS, IT IS COMPULSORY TO INSTALL UPSTREAM OF THE DEVICE A TEMPORARY BIPOLAR SWITCH (PUSH-BUTTON) OF APPROVED TYPE. UPSTREAM OF THE COMMAND LINE, IT IS COMPULSORY TO INSTALL AN UNIPOLAR MAIN SWITCH WITH OPENING OF CONTACTS OF AT LEAST 3 mm.

### 5.6- COMMAND DEVICES



THE CONTROL DEVICES USED TO DRIVE THE ACTUATOR MUST ASSURE THE SAFETY CONDITIONS FORESEEN BY THE LAWS IN FORCE IN THE COUNTRY OF USE.



TO ASSURE A CORRECT OPERATION OF THE ACTUATOR, THE COMMAND AND FEEDING UNITS EVENTUALLY USED HAVE TO PROVIDE POWER SUPPLY TO THE ACTUATOR FOR MAX. 120 sec.

According to the different type of installations, the actuators can be driven by the following control devices:

**1) MANUAL PUSH-BUTTON:**

Bipolar switch button with central OFF position, with biased-off switch;

**2) CONTROL AND FEEDING UNIT:**

Microprocessor control units (e.g.: Mod. TF, EVP, etc.) controlling the single actuator or more than one actuator simultaneously by means of one or more manual push-buttons, an infrared remote control or a 433 Mhz radio control.

To these control units, it is possible to connect rain sensors (**RPR-12V**), wind sensor (**RW**) and brightness sensor (**RL**);

**5.7- CORRECT ASSEMBLY OF THE ACTUATOR ON THE WINDOW FRAME**

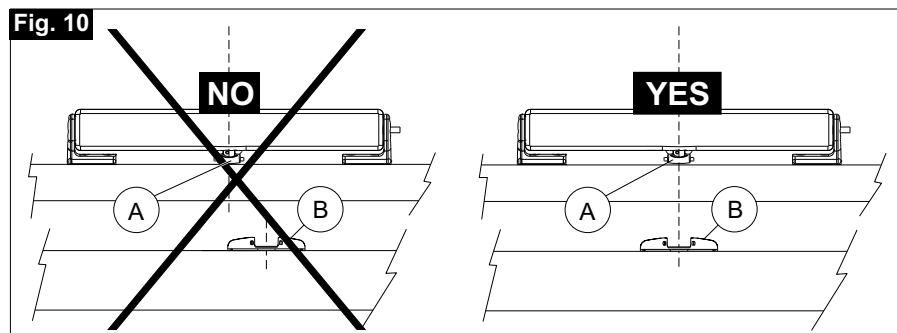
**THE CORRECT ADJUSTMENT OF THE WINDOW FRAME CLOSING ASSURES THE LIFE AND THE TIGHTNESS OF THE SEALS, AS WELL AS THE GOOD OPERATION OF THE ACTUATOR.**

- 1) With open window frame, verify that the selected stroke is some centimetre lower than the stroke limited by window frame mechanical limit devices;



**VERIFY THAT THE CHAIN END IS ON THE SAME AXIS OF THE QUICK COUPLING. OTHERWISE, LOOSEN THE TIGHTENING SCREWS AND POSITION CORRECTLY. WHEN THE DEVICES ARE NOT COAXIAL, DAMAGES TO THE ACTUATOR AND THE WINDOW FRAME MAY ARISE (Fig. 10).**

- 2) Verify that the two support brackets of the actuator are aligned to each other and the four tightening screws are well tightened. Between the two brackets and the actuator there must not be any clearance.



### 5.8- EMERGENCY PROCEDURES

Should it be necessary to close the window manually, due to power supply failure or mechanism block, follow these instructions:



**BEFORE PERFORMING ANY TYPE OF TRIPPING ON THE ACTUATOR AND ON THE WINDOW, IT IS COMPULSORY TO DISCONNECT THE POWER SUPPLY OF THE ACTUATOR AND TO PUT ON "0" THE EVENTUAL SWITCHES OF THE CONTROL DEVICES.**



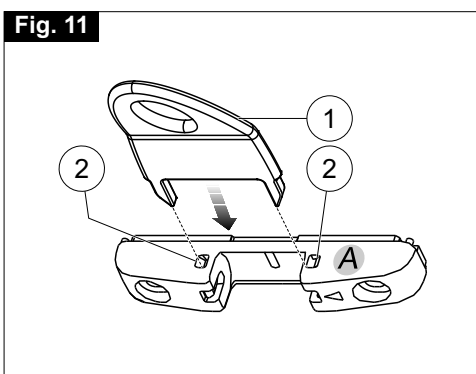
**IT IS COMPULSORY TO PADLOCK THE MAIN SWITCH OF THE DISCONNECTION DEVICE INSTALLED ON THE MAINS IN ORDER TO AVOID ANY UNEXPECTED START. IF THE MAIN SWITCH CANNOT BE PADLOCKED, IT IS COMPULSORY TO PLACE A SIGN FORBIDDING THE ENABLING.**

- **Top hung: Fig. 11-** Insert the release tool (Ref. 1) in the openings (Ref. 2) as shown in figure, disconnect the chain end from the ARS coupling and extract the actuator;
- **Bottom hung opening: Fig. 12-** Insert a screwdriver between the bottom hung opening bracket and the chain end, then lever until the chain end is released from the above mentioned bracket.

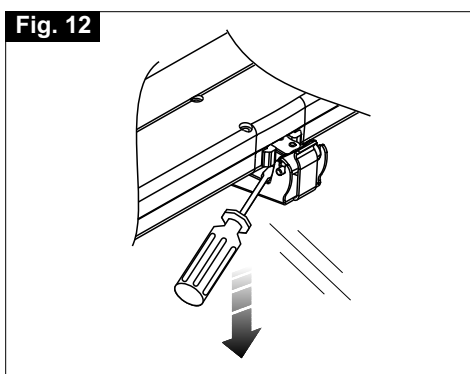


**SHOULD IT BE IMPOSSIBLE TO CARRY OUT THE ABOVE MENTIONED MANOEUVRES, EXTRACT THE ACTUATOR FROM THE BRACKETS PROVIDING CONNECTION TO THE FRAME BY UNSCREWING THE PROPER SCREWS.**

**Fig. 11**



**Fig. 12**



## 6.1- USE OF THE ACTUATOR



THE ACTUATOR CAN BE USED EXCLUSIVELY BY AN USER ACTING IN COMPLIANCE WITH THE INSTRUCTIONS CONTAINED IN THIS MANUAL AND/OR IN THE MANUAL OF THE ACTUATOR CONTROL DEVICE (e.g.: WIND AND RAIN CONTROL UNIT).



BEFORE USING THE ACTUATOR, IT IS COMPULSORY FOR THE USER TO READ AND UNDERSTAND IN ALL ITS PARTS THIS MANUAL, AS WELL AS THE EVENTUAL MANUAL OF THE INSTALLED CONTROL DEVICE TYPE.



BEFORE OPERATING THE ACTUATOR, THE USER MUST COMPULSORILY VERIFY THAT NEAR AND/OR UNDER THE WINDOW THERE ARE NOT ANY PERSON, ANIMAL AND THING WHOSE SAFETY MAY BE ACCIDENTALLY JEOPARDISED (SEE PAR. 4.2).



DURING THE OPERATION OF THE ACTUATOR CONTROL DEVICE, THE USER HAS TO COMPULSORY OCCUPY A SAFE CONTROL POSITION ASSURING VISUAL CONTROL ON THE WINDOW MOVEMENT.



IT IS COMPULSORY TO VERIFY CONSTANTLY IN TIME THE FUNCTIONAL EFFICIENCY AND THE RATED PERFORMANCE OF THE ACTUATOR, OF THE WINDOW FRAME WHERE IT IS INSTALLED AND OF THE ELECTRIC PLANT, PERFORMING WHEN NECESSARY INTERVENTIONS OF ROUTINE OR SUPPLEMENTARY MAINTENANCE ASSURING OPERATION CONDITIONS COMPLYING WITH SAFETY REGULATIONS.



ALL ABOVE MENTIONED MAINTENANCE INTERVENTIONS CAN BE PERFORMED ONLY BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL MEETING THE PROFESSIONAL AND TECHNICAL REQUIREMENTS FORESEEN BY THE LAW IN FORCE IN THE COUNTRY OF INSTALLATION.

The use of the actuator allows to control automatically the opening and closing of the window according to the type of control device installed (see par. 5.6).



### 7.1- GENERAL INSTRUCTIONS



THE DEMOLITION OF THE ACTUATOR MUST OCCUR IN COMPLIANCE WITH THE LAWS IN FORCE ON ENVIRONMENT PROTECTION.



DIFFERENTIATE THE PARTS MAKING UP THE ACTUATOR ACCORDING TO THEIR DIFFERENT MATERIAL TYPE (PLASTIC, ALUMINIUM, ETC.).

### 8.1- GENERAL INSTRUCTIONS



THE USE OF "NON-ORIGINAL" SPARE PARTS AND ACCESSORIES WHICH MAY ENDANGER THE SAFETY AND THE EFFICIENCY OF THE ACTUATOR IS FORBIDDEN. THIS ACTION SHALL INVOLVE THE WARRANTY EXPIRATION.



ORIGINAL SPARE PARTS AND ACCESSORIES HAVE TO BE REQUESTED EXCLUSIVELY TO YOUR DEALER OR TO THE MANUFACTURER STATING TYPE, MODEL, SERIAL NUMBER, AND YEAR OF CONSTRUCTION OF THE ACTUATOR.



IN CASE OF REPLACEMENT OF THE POWER SUPPLY CABLE, IT IS NECESSARY TO USE A CABLE TYPE HOS-VVF 3x0.75.



THE REPLACEMENT CAN BE PERFORMED EXCLUSIVELY BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL MEETING THE PROFESSIONAL AND TECHNICAL REQUIREMENTS FORESEEN BY THE LAWS IN FORCE IN THE COUNTRY OF INSTALLATION.

### 8.2 - QUICK COUPLING WITH INTEGRATED RELEASE PUSH-BUTTON "ARP"

This connection allows the application in case of top hung and dome assemblies.

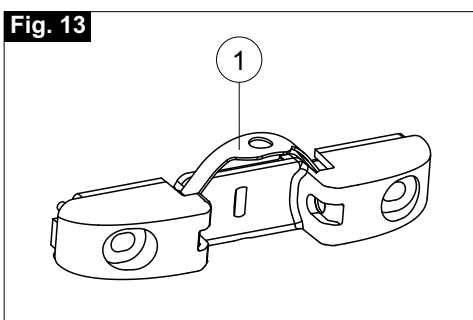
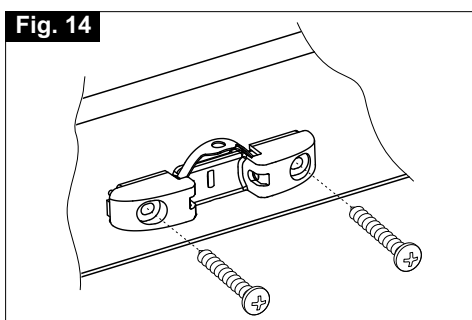
Unlike the quick coupling to the frame (**ARS**) inserted in the standard supply, the ARP is equipped with a push-button (**Fig. 13 - Ref. 1**) for the quick release in case of emergency manoeuvres.

#### CODES TO ORDER THE ARP

CODE	COLOUR	TYPE OF APPLICATION
1UA010	Black	TOP HUNG (Standard application)
1UA011	White	
1UA012	Grey	
1UA015	Black	DOME/SKYLIGHT (Vertical assembly application)
1UA016	White	
1UA017	Grey	

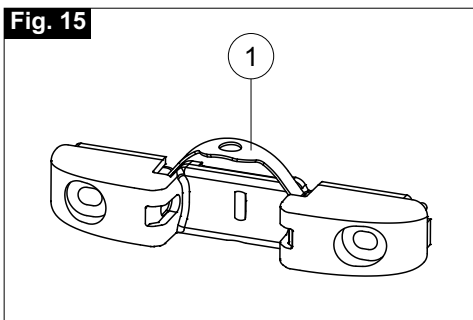
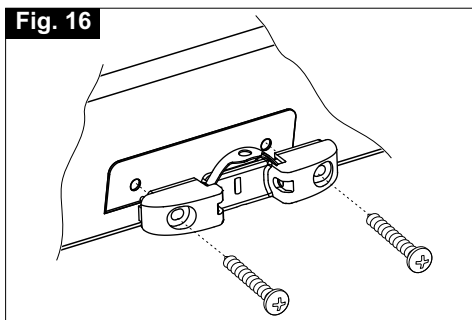
### 8.2.1- TOP HUNG WINDOWS (Fig. 13/14)

Follow the procedure described in **par. 5.2** up to **Fig. 23**, and then correctly position the ARP coupling on the frame as shown in **Fig. 14**.

**Fig. 13****Fig. 14**

### 8.2.2- DOME WINDOWS (Fig. 16 ÷ 18, Fig. 9 and Fig. 39 ÷ 50)

Follow the procedure described in **par. 5.4** up to **Fig. 43**, and then correctly position the ARP coupling on the frame as shown in **Fig. 15**.

**Fig. 15****Fig. 16**

### 8.2.3- EMERGENCY MANOEUVRES (Fig. 17)

Should it be necessary to close the window manually, due to power supply failure or mechanism block, follow these instructions:



**BEFORE PERFORMING ANY TYPE OF INTERVENTION ON THE ACTUATOR AND ON THE WINDOW, IT IS COMPULSORY TO DISCONNECT THE POWER SUPPLY OF THE ACTUATOR AND TO SET ON "0" THE EVENTUAL SWITCHES OF THE CONTROL DEVICES.**



**IT IS COMPULSORY TO PADLOCK THE MAIN SWITCH OF THE DISCONNECTION DEVICE INSTALLED ON THE MAINS IN ORDER TO AVOID ANY UNEXPECTED START. IF THE MAIN SWITCH CANNOT BE PADLOCKED, IT IS COMPULSORY TO PLACE A SIGN FORBIDDING THE ENABLING.**

- Fig. 17- Press the push-button (Ref. 1) to release the chain end, and therefore to allow the release of the actuator.



**SHOULD IT BE IMPOSSIBLE TO REACH THE PUSH-BUTTON AND PERFORM THE ABOVE MENTIONED PROCEDURE, EXTRACT THE ACTUATOR FROM THE BRACKETS PROVIDING CONNECTION TO THE ACTUATOR UNSCREWING THE PROPER SCREWS.**

**Fig. 17**

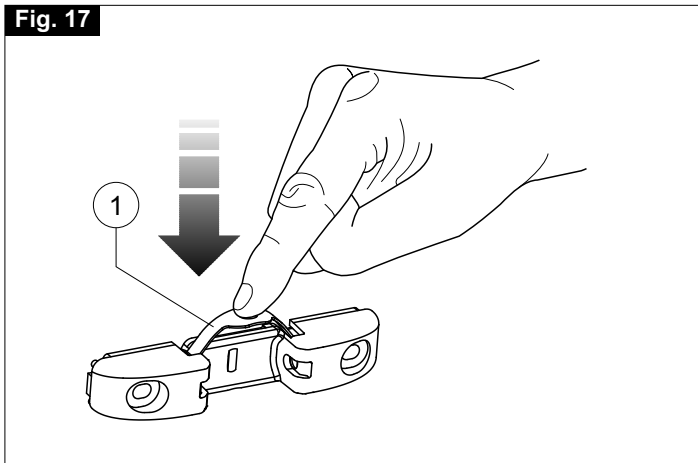


Fig. 20

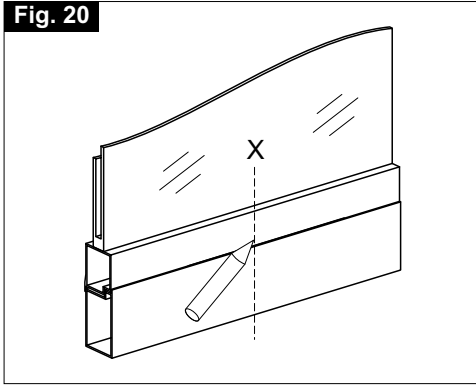


Fig. 21

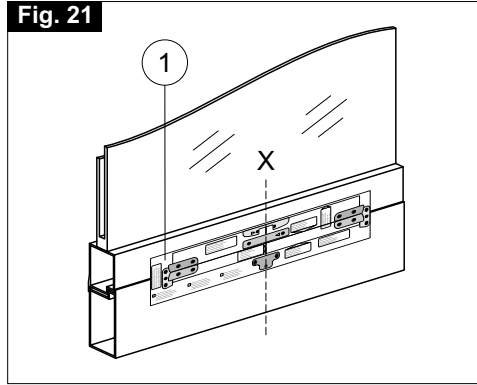


Fig. 22

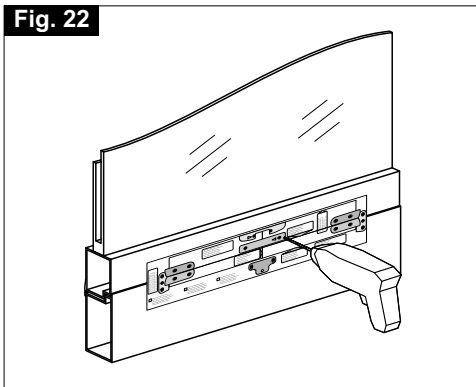


Fig. 23

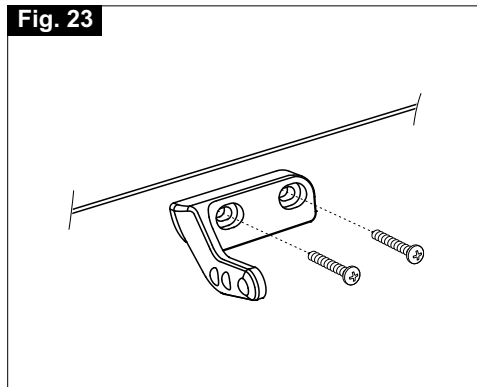


Fig. 24

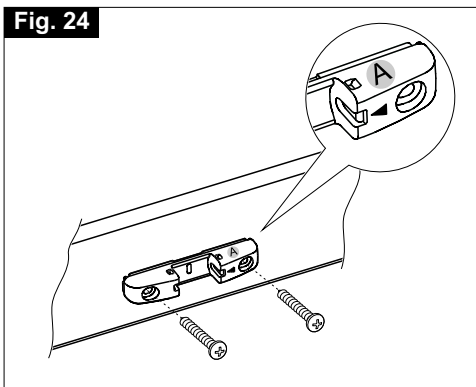


Fig. 25

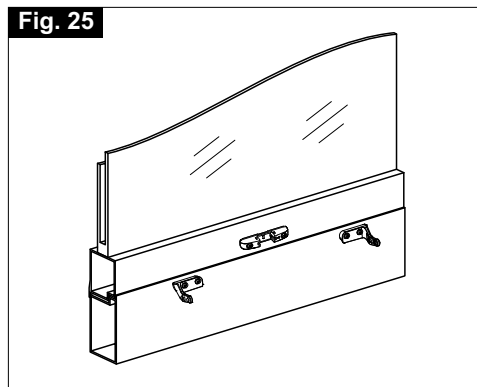


Fig. 26

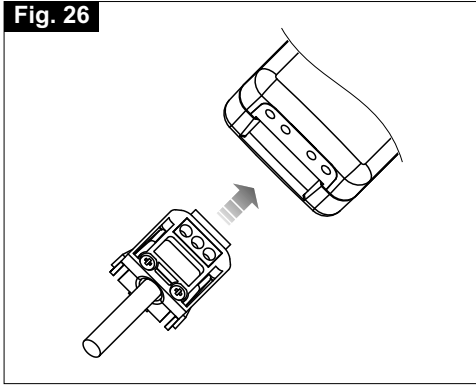


Fig. 27

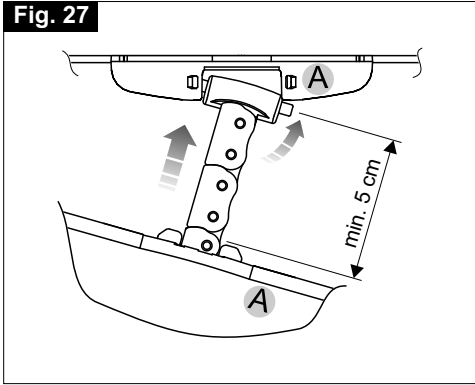


Fig. 28

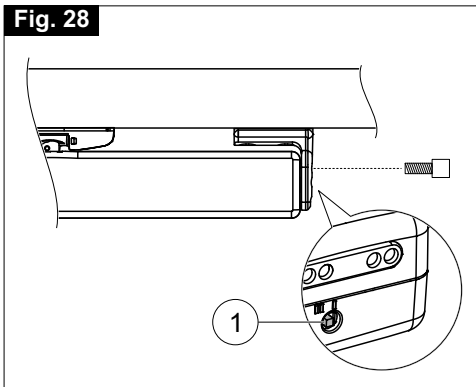


Fig. 29

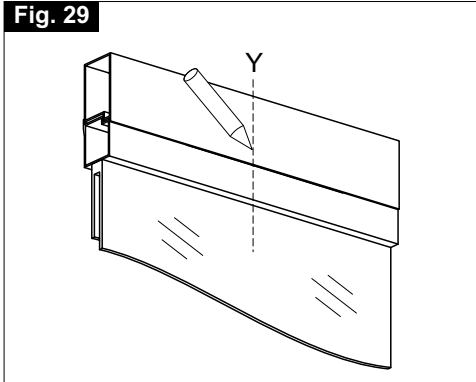


Fig. 30

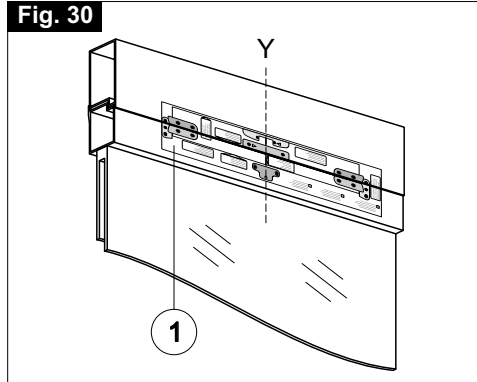


Fig. 31

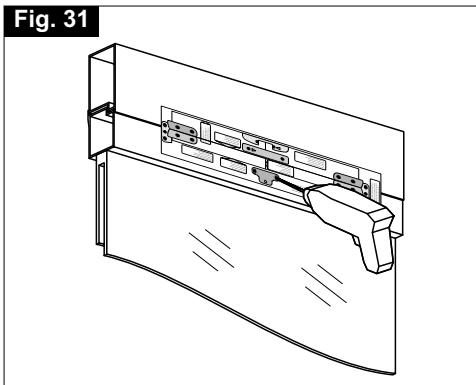


Fig. 32

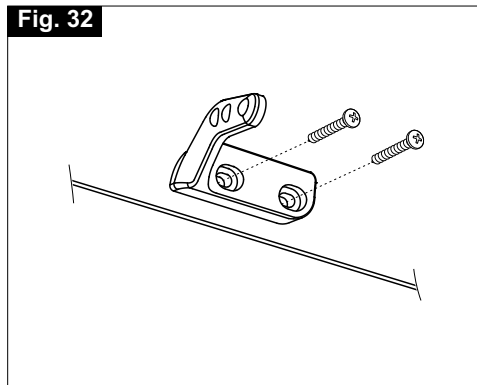


Fig. 33

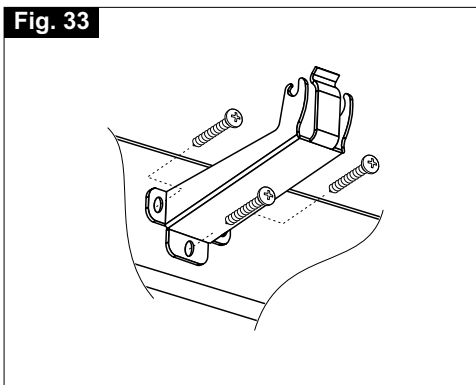


Fig. 34

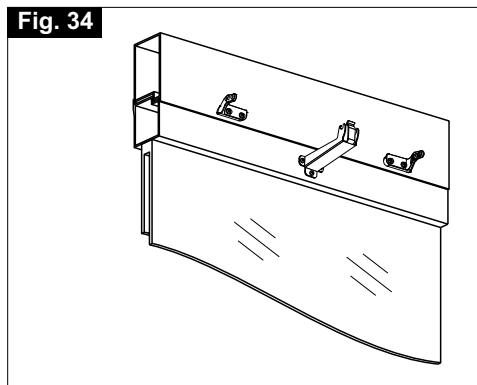


Fig. 35

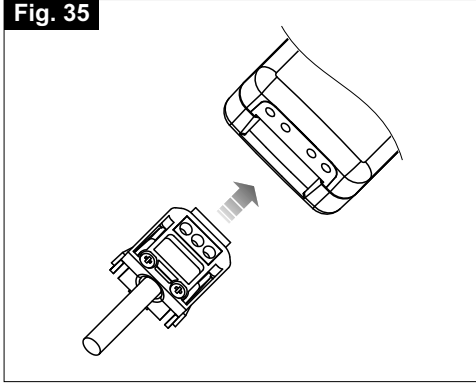


Fig. 36

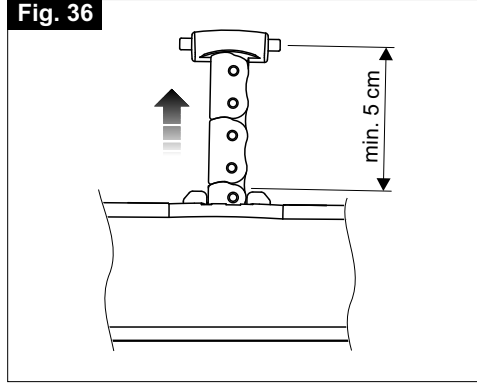


Fig. 37

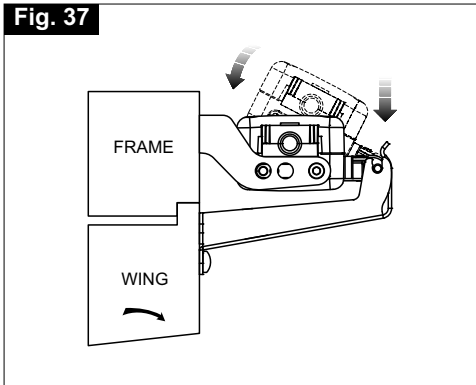
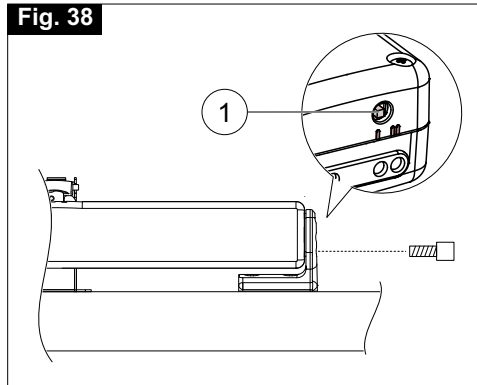
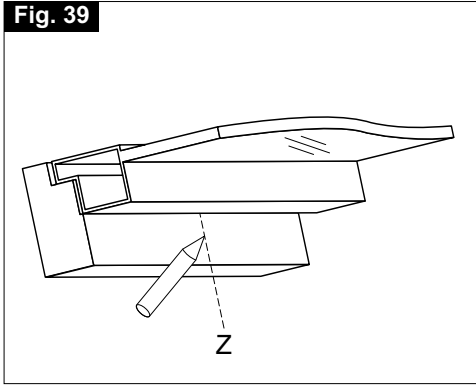


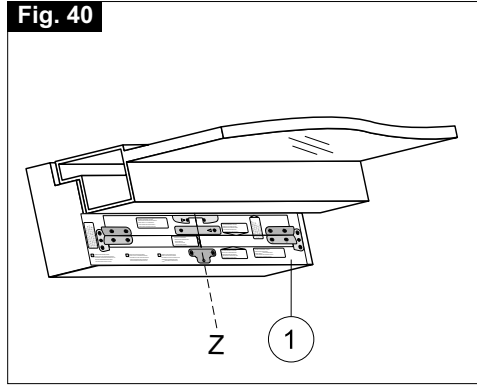
Fig. 38



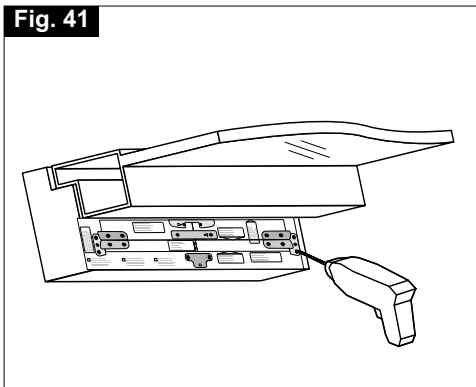
**Fig. 39**



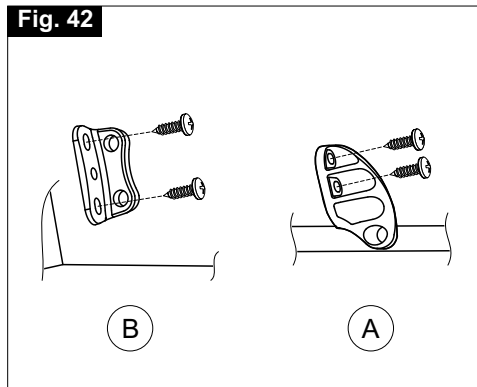
**Fig. 40**



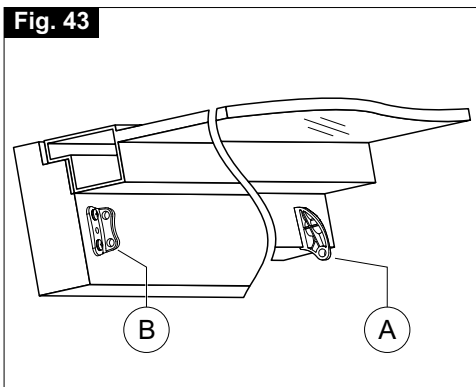
**Fig. 41**



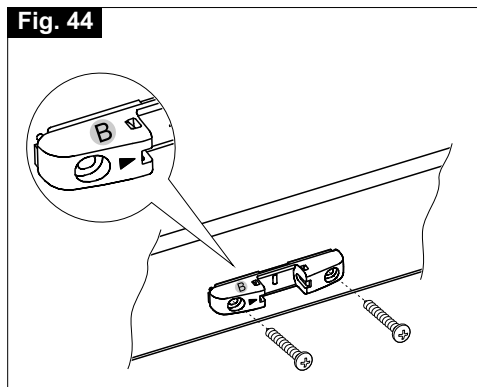
**Fig. 42**



**Fig. 43**

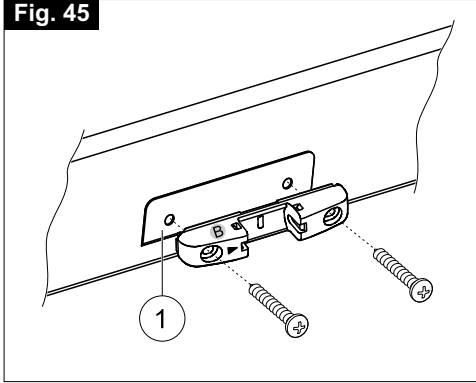


**Fig. 44**

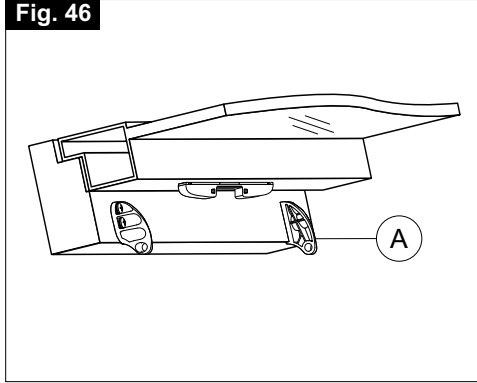




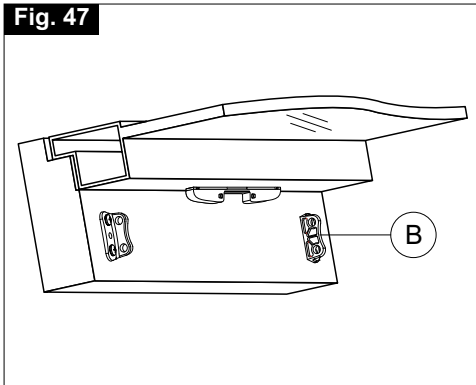
**Fig. 45**



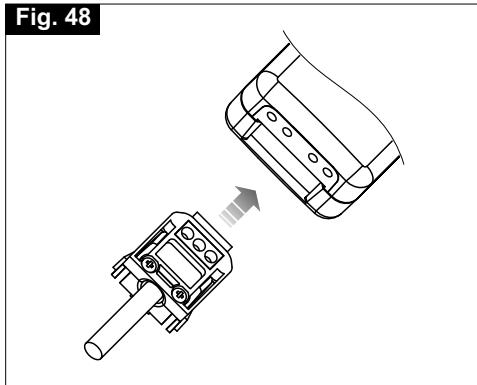
**Fig. 46**



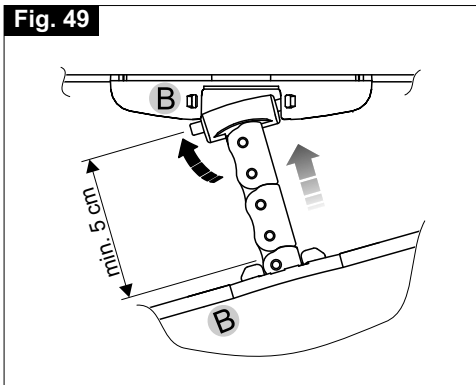
**Fig. 47**



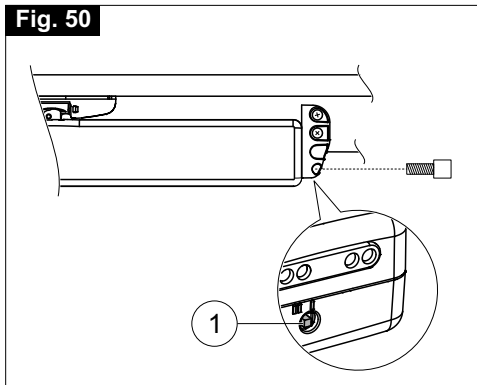
**Fig. 48**



**Fig. 49**

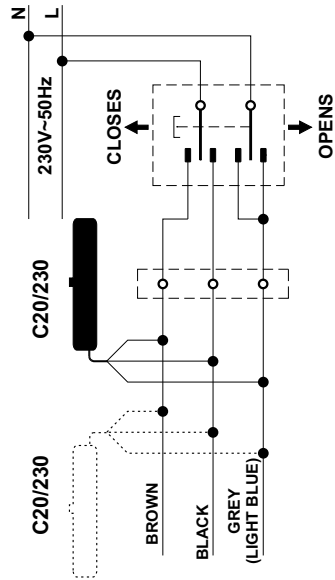


**Fig. 50**

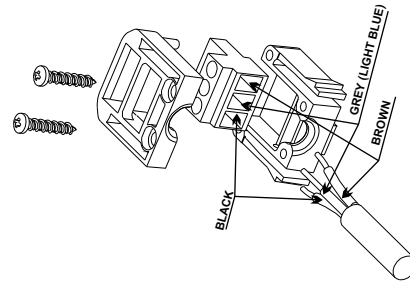


Wiring diagram

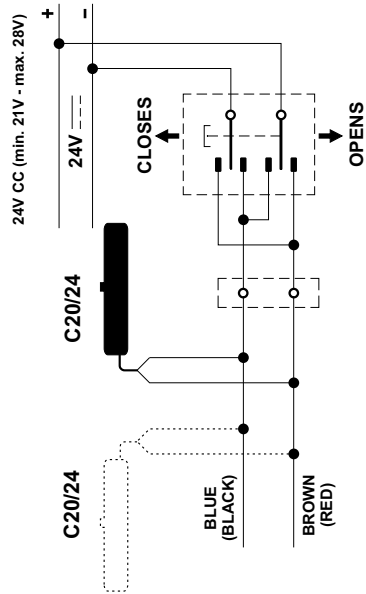
230 V



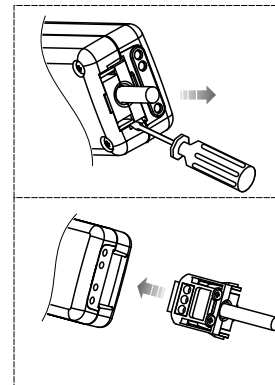
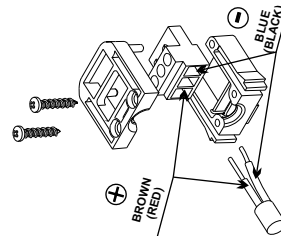
IT IS FORBIDDEN TO PERFORM THE CONNECTION TO THE EARTHING SYSTEM OF THE ACTUATORS EQUIPPED WITH DOUBLE INSULATION (MOD. C20/230V).



24 V



IT IS COMPULSORY TO INSTALL UPSTREAM OF THE MAINS A SECTIONING DEVICE WITH 30 mA DIFFERENTIAL PROTECTION, ASSOCIATED TO THE EARTHING SYSTEM.




The warranty for the products, and their single parts, defective for poor materials or manufacturing defects is extended for a period of 24 months from the date of dispatch by the manufacturer.

The manufacturer provides that the products are reliable, which means that he undertakes to repair or replace free of charge any of the parts proved to be defective in materials or manufacturing during the warranty period, in the shortest possible time. The purchaser shall not expect any refund for any damage due to improper installation or any other expenses. Such warranty will not however apply to any particularly fragile parts, or to parts exposed to natural wear as well as to corrosive operations and to current overloads (even if only temporary), etc. The manufacturer shall not be considered liable against any damages due to improper installation, manoeuvring or insertion, as well as to excessive solicitations or misuse.

The manufacturer shall not be liable if the product has been modified, dismantled, if the label is missing or if it shows clear signs of collision or other. Repairs under guarantee are considered "ex manufacturer's factory", which means that all the arising transport expenses (in- and outward) are always to the purchaser charge. For any inspections by a skilled staff, cost of labour shall be to the manufacturer charge. Displacement costs (in- and outward journey), journey hours, board and lodging must, on the other hand, be refunded from the purchaser. **Such warranty has validity only if the present form, being part of the instructions manual, is duly filled in and the damage cause is clearly described in the assistance report.**

The products must be installed and used in compliance with the technical features and the instructions given by TOPP, as well as according to the safety regulations and the standards that rule the installation and employment of the electrical devices in the country where the products are installed and used. For such reason, the purchaser expressly relieves TOPP from any responsibility arising from improper use, from the inobservance of the safety regulations, of the technical specifications as well as of the operating instructions.

MODEL		TECHNICAL REPORT										
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CUSTOMER												
ADDRESS												
RETAILER'S NAME (STAMP AND SIGNATURE)												
												



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