



AUTOMATISMI PER SERRANDE E CANCELLI

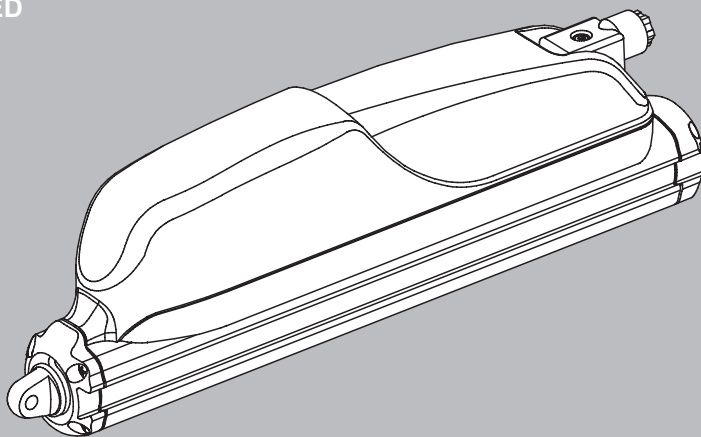
EN

INSTALLATION AND USE INSTRUCTIONS

ROD ACTUATOR FOR WINDOW AUTOMATION

**ANGEL
LIN**

PATENTED



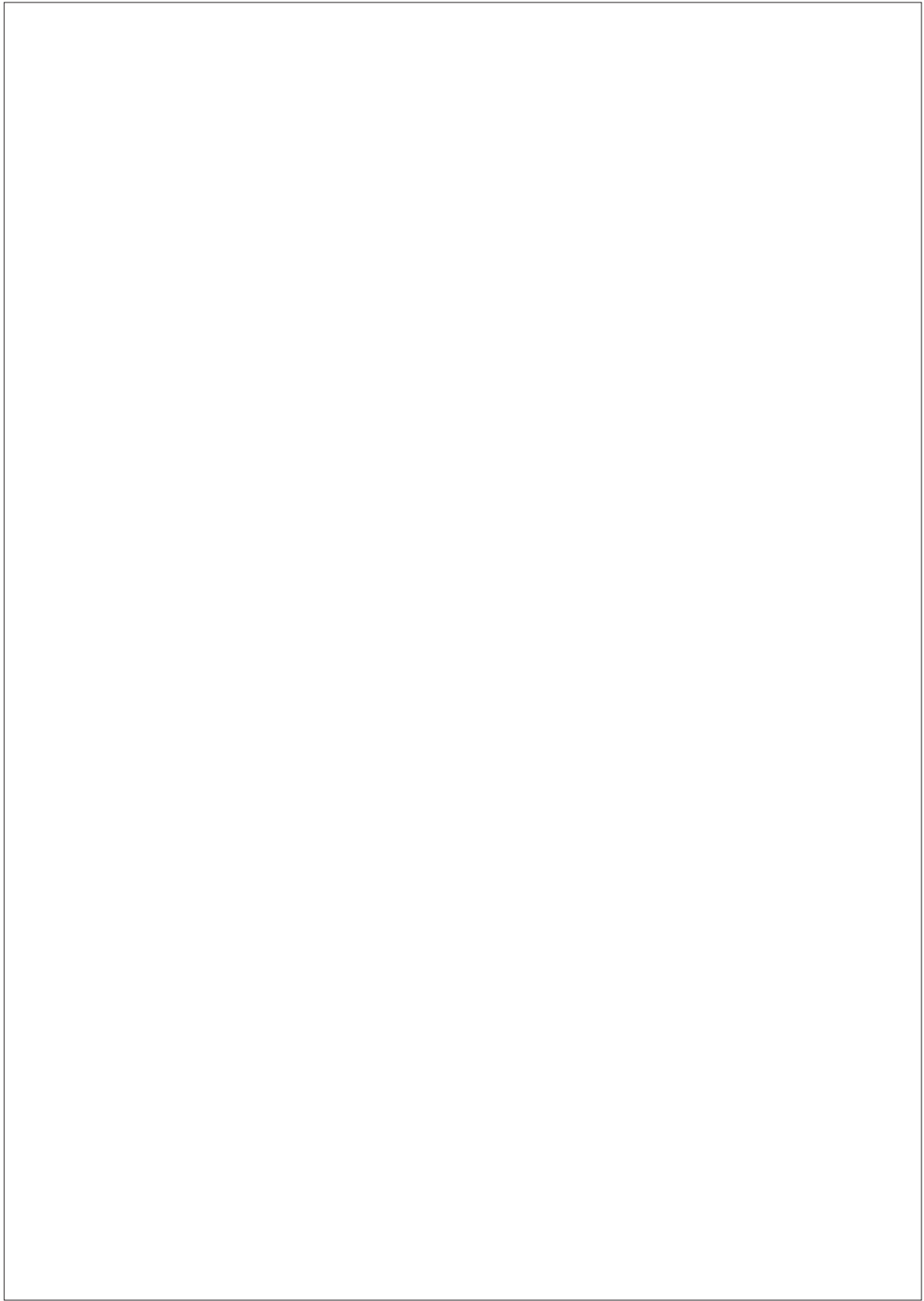
P/N 0P5126

VER.1.0

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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Declares that the electric device**Called: ROD ACTUATOR FOR WINDOW AUTOMATION****Type: ANGEL LIN****Models: ANGEL LIN 230 - ANGEL LIN 24****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: **07/01/2004**Surname and name: **Luigi Benincà**

Signature:

2.1- GENERAL INSTRUCTIONS



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 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 AN 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 (SEE LAST PAGE).

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

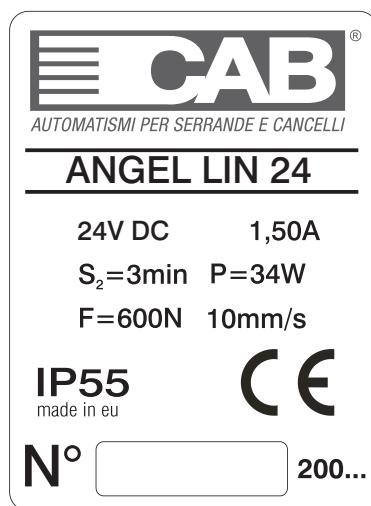
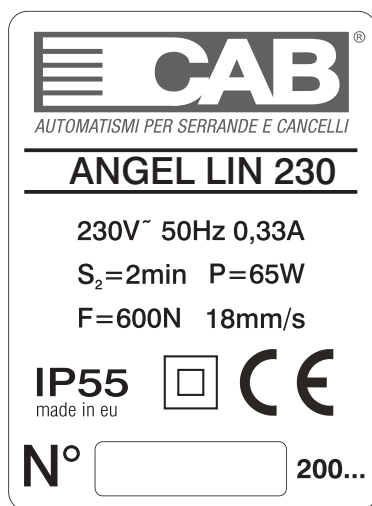
The "CE" marking certifies the compliance of the machine with the essential safety and health requirements foreseen by the product European Directives.

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:

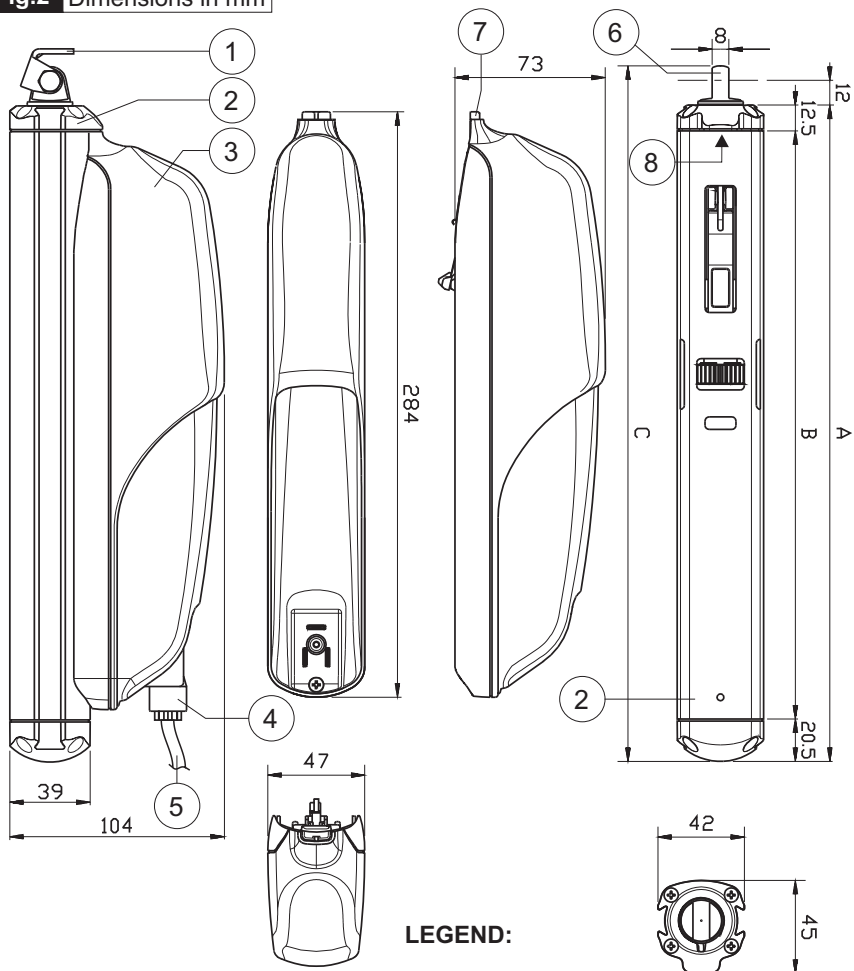
- logo and address of the manufacturer
- type and model
- voltage and intensity of power supply (V - A)
- type of service S_2 (min)
- absorbed electric power P (W)
- thrust and tractive force F (N)
- idle translation speed (mm/s)
- protection degree (IP)
- symbol of double insulation (only for mod. ANGEL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

Fig.1



3.2- DENOMINATION OF THE COMPONENTS AND DIMENSIONS

Fig.2 Dimensions in mm



LEGEND:

- 1) Butterfly bracket
- 2) Actuator
- 3) Motor
- 4) Connector
- 5) Power supply cable
- 6) Rod head
- 7) Motor coupling
- 8) Motor coupling seat

Stroke	A	B	C
180	318	285	337
230	368	335	387
350	488	455	507
550	688	655	707
750	888	855	907

3.3- TECHNICAL DATA

Tab. 1 contains the technical data characterising the actuators.

	ANGEL LIN 230	ANGEL LIN 24
Power supply voltage	230 V - 50 Hz	24 V DC
Absorbed current	0,33 A	1,50 A
Absorbed power with load	65 W	34 W
Thrust force	600 N	
Tractive force	600 N	
Idle translation speed	18 mm/s	10 mm/s
Duration of the idle stroke	as a function of the stroke	
Minimum window frame height ⁽¹⁾	H = 800 mm	
Stroke	180 - 230 - 350 - 550 - 750 cm	
Double electric insulation <input type="checkbox"/>	Yes	/
Type of service S ₂ ⁽²⁾	2 min	3 min
Operating temperature	- 5 °C + 50 °C	
Protection degree of electric devices	IP 55	
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	1,7 kg	
Gross weight	1,9 kg	

⁽¹⁾ Actuator distance from the window frame opening hinge

⁽²⁾ Service of limited duration according to EN 60034

Tab.1

3.4- FORMULAS FOR THE CALCULATION OF THRUST FORCE OR 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)

$$F = 0,54 \times P$$

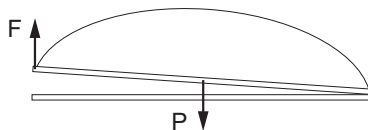


Fig.4

Top hung windows (A) Or bottom hung windows (B)

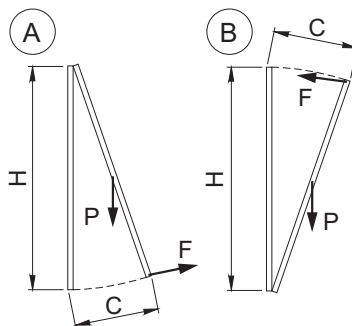
F = Force necessary for opening or closing

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 CONTROL DEVICE, THE OPENING AND CLOSING OF TOP HUNG WINDOWS, PIVOT WINDOWS, JALOUSIE WINDOW, 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 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 standard package of the product (cardboard box) contains **(Fig.5)**:

- No. 1 Actuator equipped with power supply cable;
- No. 1 Butterfly bracket kit **(Ref.A)** equipped with screw and nut;
- No. 1 Actuator support bracket kit **(Ref.B)** equipped with screw and nut;
- Package of fastening screws for window frames in aluminium;
- No. 1 Installation and use instructions **(Ref.C)**.



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

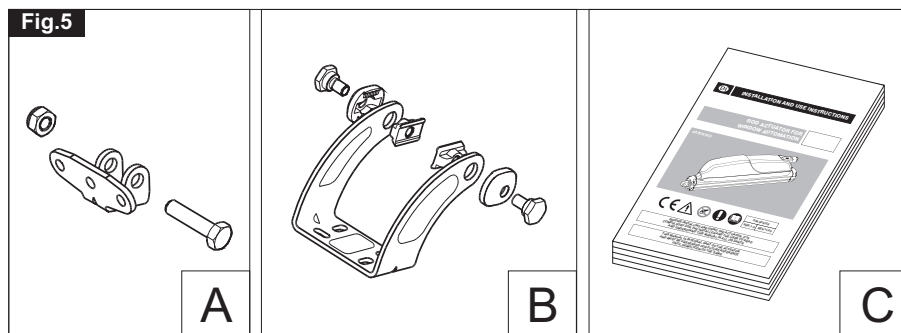


SHOULD ANY ANOMALY BE DETECTED, IT IS FORBIDDEN TO INSTALL THE ACTUATOR, AND IT IS COMPULSORY TO REQUIRE TECHNICAL ASSISTANCE FROM YOUR DEALER OR THE MANUFACTURER.



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

Fig.5



4.1- PROTECTIONS 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. ANGEL LIN 230V 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 perform the connection to the earthing system of the actuators equipped with double insulation).

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 GIVEN IN TAB.1 CONCERNING THE TECHNICAL DATA (PAR. 3.3).



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



FOR CORRECT OPERATION OF THE ACTUATOR, THE WINDOW MUST HAVE A MINIMUM HEIGHT OF 800 mm (DISTANCE OF THE ACTUATOR FROM THE WINDOW OPENING HINGE). OTHERWISE, ASK YOUR DEALER OR THE MANUFACTURER FOR THE NECESSARY ACCESSORIES FOR A CORRECT INSTALLATION.



IN CASE OF ASSEMBLY ON SKYLIGHTS VERIFY THAT THE ACTUATOR CAN ROTATE FREELY AND PERFORM THE OPENING OF THE WINDOW FRAME WITHOUT STRIKING AGAINST THE WALL OR AGAINST ANY OTHER EVENTUAL OBSTACLE.



VERIFY THAT THE WINDOW FRAME ON WHICH THE ACTUATOR IS GOING TO BE INSTALLED IS EQUIPPED WITH SUITABLE MECHANICAL BLOCKING DEVICES OR WITH AN ALTERNATIVE SAFETY SYSTEM IN ORDER TO AVOID THE ACCIDENTAL FALL OF THE WINDOW.

5.2- ASSEMBLING OF THE MOTOR ON THE ACTUATOR (Fig. 7÷10)

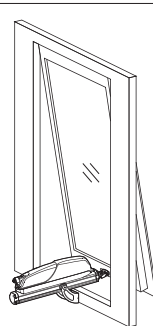
- 1) Open the package (**par.3.7**) and extract the various components;
- 2) Replace the covering protection of the micro-switches located under the motor;
- 3) Verify that the mechanical blocking device "B" is perpendicular to the motor base (position 1); otherwise (position 2), take it to position 1 (**Fig.7**);
- 4) Insert the motor coupling into the proper seat located at the actuator end. Lower the actuator until it reaches the position of complete leaning (**Fig.8**): when the coupling has been performed, a coupling "**click**" should be heard;
- 5) Apply a light divergent force between the motor and the actuator (**Fig.9**) to verify the correct installation: the two components shall result to be tightly coupled;
- 6) Mount the safety screw "V5" and the connector "C" using the supplied screw "V4" (**Fig.10**).

5.3- DISASSEMBLING OF THE MOTOR FROM THE ACTUATOR

- 1) **Fig.10** - Loosen the screw "V4" and remove the connector "C";
- 2) Loosen and remove the screw "V5";
- 3) Rotate clockwise the mechanical blocking device "B" taking it into position 2, i.e. parallel to the motor base (**Fig.7**);
- 4) Lift the motor by acting in the opposite direction to the one shown by the arrow (**Fig.8**), therefore disassembling it from the actuator.

5.4- ASSEMBLING OF THE ACTUATOR ON TOP HUNG WINDOWS (Fig. 6 and 11÷16)

- 1) **Fig.11** - With a pencil draw the centre line "X" of the window frame;
- 2) **Fig.12** - With a suitable drill, create holes on the movable part and then fix the butterfly bracket "SF" using the screws "V1";
- 3) **Fig.12/13** - Drill the fix part of the window frame and then fix the actuator support bracket "SA" using the screws "V1";
- 4) **Fig.14** - Mount on the bracket "SA" (already fixed to the window frame) the external clamps "ME" and the internal clamps "MI" by using the screws "V3";

Fig.6

- 5) Make sure that the rod "A1" of the actuator is completely returned into the actuator;
- 6) **Fig.15** - Insert the clamps "M1" into the guides "G" on the sides of the actuator;
- 7) **Fig.16** - After having verified that the window frame is in closing position and that the actuator is positioned at stroke end, fix the thrust rod head "A1" to the butterfly bracket "SF" by means of the screw "V2" and of the nut "D1";
- 8) Let the actuator slide along its axis until such a pressure is performed on the seals as to obtain a good closing of the window frame. Then, fix the screws "V3".

5.5- ELECTRICAL CONNECTIONS (Wiring diagram)



THE ELECTRIC CONNECTION OF THE ACTUATOR CAN BE PERFORMED ONLY BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL SATISFYING THE TECHNICAL AND PROFESSIONAL REQUIREMENTS FORESEEN BY THE LAW IN FORCE IN THE COUNTRY OF INSTALLATION ISSUING TO THE CUSTOMER A DECLARATION OF CONFORMITY FOR THE CONNECTION AND/OR THE PLANT PERFORMED.



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 WITH THE EARTHING PLANT.



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

5.6- CONTROL 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.

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 the rain sensors (**RPR - 12V**), the wind sensor (**RW**) and the brightness sensor (**RL**);

3) SYNCHRONIZATION UNIT:

Microprocessor control unit (e.g.: Mod. USA2) controlling by means of a manual push-button the simultaneous operation of 2 or 3 actuators installed on a single window assuring the regular opening and closing movement. (Currently it is not possible to connect the actuator to this synchronization unit).

5.7- EMERGENCY PROCEDURES

Should it be necessary to open 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 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.

- 1) **Fig.14-** Act on the screw "V2" by unscrewing the nut "D1" and by extracting it from the butterfly bracket "SF";
- 2) Open the window manually.

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 CONTROL POSITION ASSURING VISUAL CONTROL ON THE WINDOW MOVEMENT.



THE FUNCTION EFFICIENCY AND THE RATED PERFORMANCE OF THE ACTUATOR, OF THE WINDOW FRAME ON WHICH IT IS INSTALLED AND OF THE ELECTRIC EQUIPMENT MUST BE VERIFIED STEADILY IN TIME BY PERFORMING, WHEN NECESSARY, INTERVENTIONS OF ROUTINE AND SUPPLEMENTARY MAINTENANCE ASSURING THE OPERATION CONDITIONS IN COMPLIANCE WITH THE SAFETY REGULATIONS.



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

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.

Fig.7

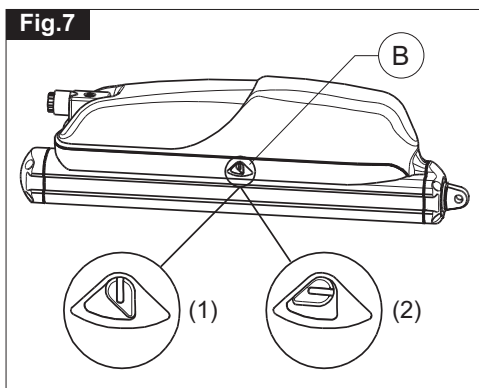


Fig.8

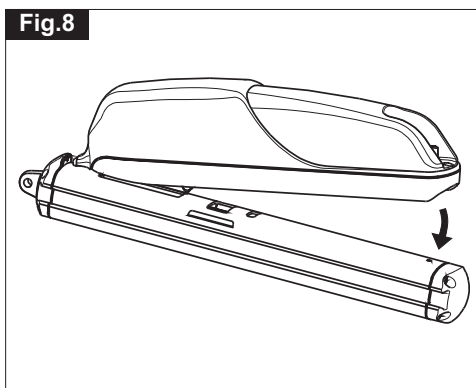


Fig.9

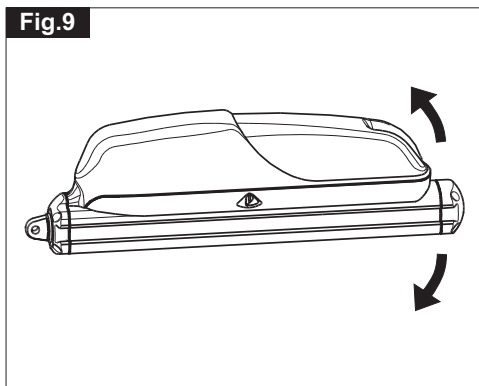


Fig.10

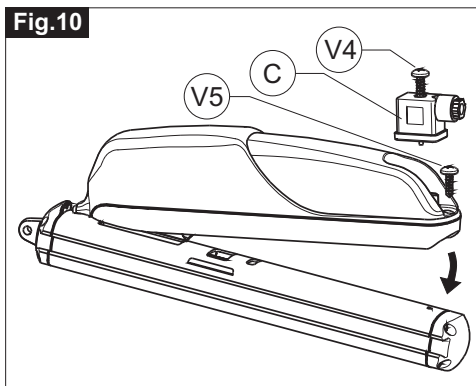


Fig.11

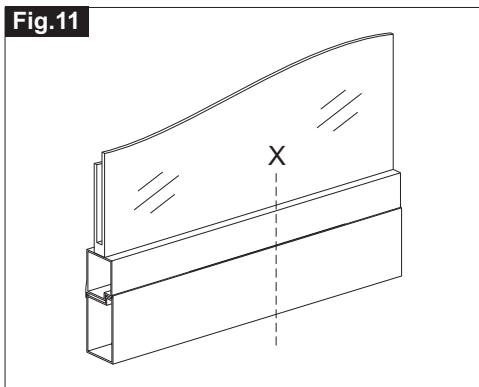


Fig.12

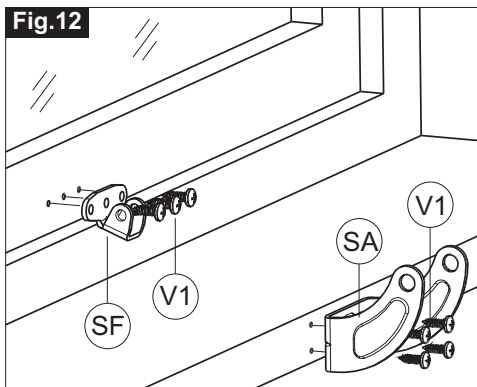


Fig.13

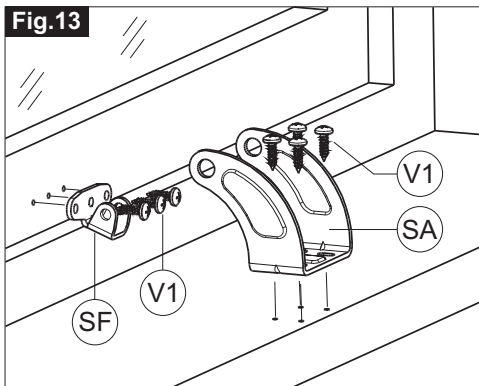


Fig.14

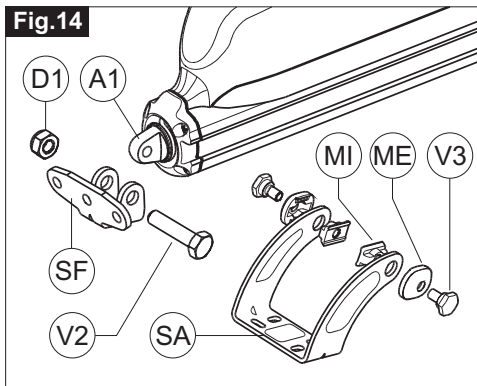


Fig.15

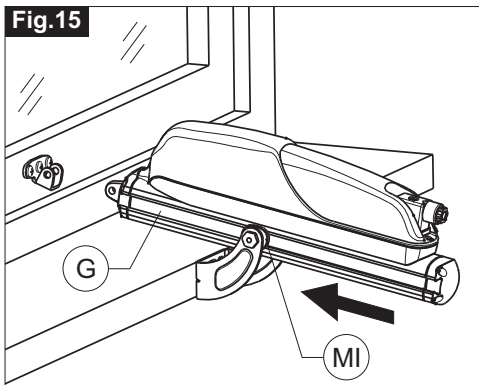
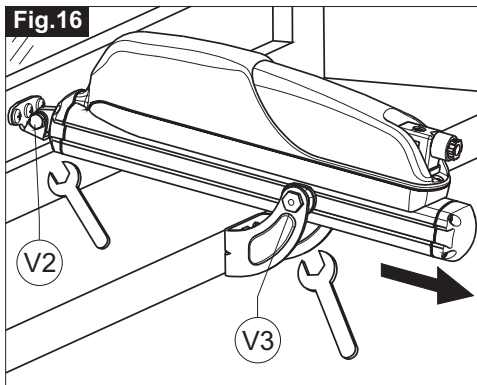
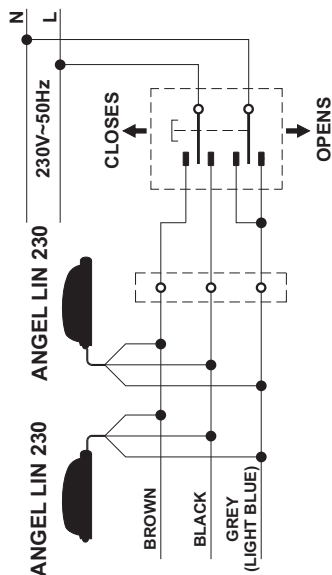


Fig.16

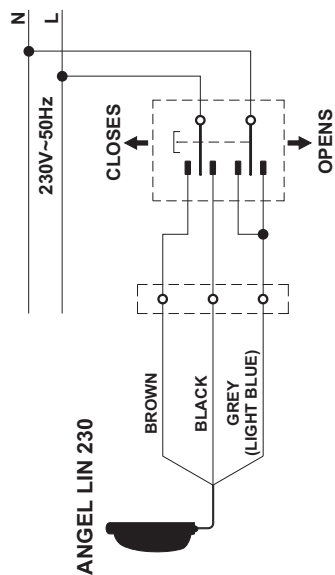


Wiring diagram

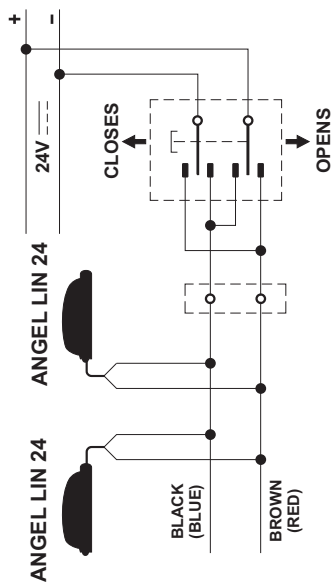
230 V



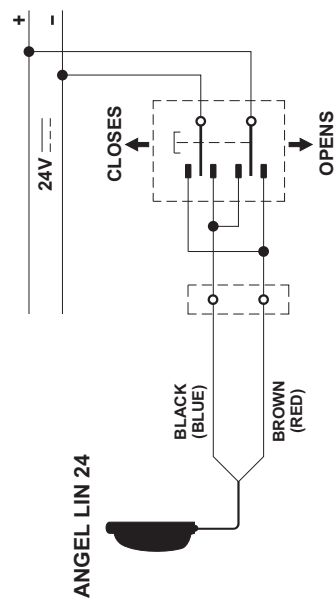
IT IS FORBIDDEN TO PERFORM THE CONNECTION TO THE EARTHING SYSTEM OF THE ACTUATORS EQUIPPED WITH DOUBLE INSULATION.



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 CAB, 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 CAB 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								
SERIAL No.	<table border="1"> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </table>									_____
CUSTOMER	_____	_____								
ADDRESS	_____	_____								
RETAILER'S NAME (STAMP AND SIGNATURE)		_____								
_____ 		_____								



AUTOMATISMI CAB S.r.l.

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