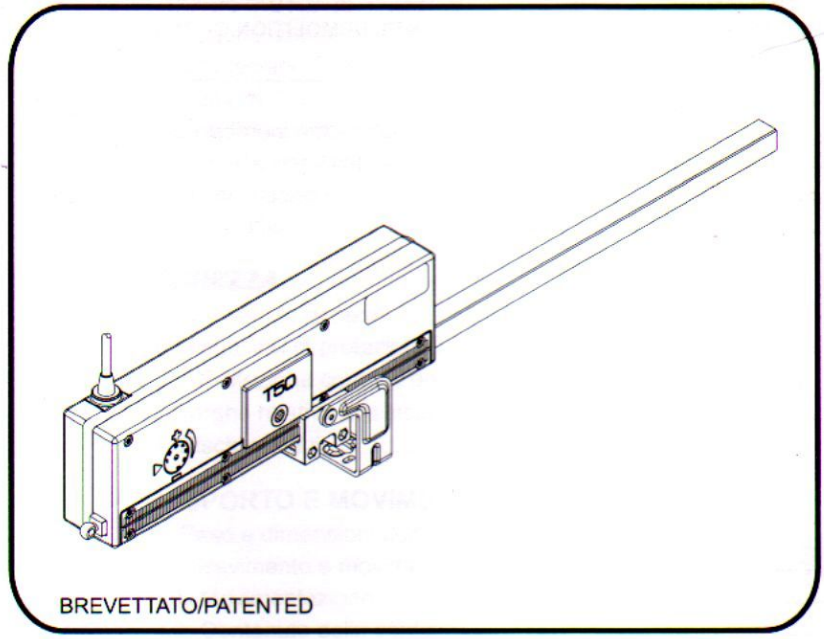
TOPP
tecnologie del movimento

ISTRUZIONI PER L'INSTALLAZIONE E L'USO

INSTALLATION AND USE INSTRUCTIONS

ATTUATORE A CREMAGLIERA PER AUTOMAZIONE FINESTRE
RACK ACTUATOR FOR WINDOW AUTOMATION

T50



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PAGE 25

CE

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CE

Declares that the electrical device

called: RACK ACTUATOR FOR WINDOW AUTOMATION
type: T50
models: T50/230V - T50/24V
Serial n° and year of manufacture: see data plate and CE marking applied to the device

complies with the requirements of the following directives:

2006/95/CE
Low Voltage Directive: electrical material for use within certain voltage limits.

2004/108/CE
Electromagnetic Compatibility Directive - Concerning the approximation of the laws of Member States relating to electromagnetic compatibility.

and also declares that the following harmonised standards have been applied:

EN55014-1
EN55014-2
EN61000-6-3
EN61000-6-2
EN50366
EN60335-1

Date: Sandrigo, 10/01/2008

Matteo Cavalcante .....

2.1- GENERAL PRECAUTIONS

THE INSTALLER AND USER MUST READ AND UNDERSTAND ALL PARTS OF THIS MANUAL BEFORE INSTALLING AND USING THE ACTUATOR.

THIS MANUAL IS AN INTEGRAL PART OF THE ACTUATOR AND MUST BE KEPT FOR FUTURE REFERENCE.

THE MANUFACTURER DECLINES ALL LIABILITY FOR HARM TO PERSONS AND ANIMALS OR DAMAGE TO PROPERTY CAUSED BY THE INOBSERVANCE OF THE INSTRUCTIONS CONTAINED IN THIS MANUAL.

2.2- INSTALLER

THE ACTUATOR MAY ONLY BE INSTALLED BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL WHO SATISFY THE PROFESSIONAL AND TECHNICAL REQUIREMENTS ESTABLISHED BY THE LAWS IN FORCE IN THE COUNTRY OF INSTALLATION.

2.3- WARRANTY

THE WARRANTY EXPIRES IF THE ACTUATOR IS NOT USED ACCORDING TO THE INSTRUCTIONS AND REGULATIONS DESCRIBED IN THIS MANUAL, OR IF UNORIGINAL COMPONENTS, ACCESSORIES, SPARE PARTS, AND CONTROL SYSTEMS ARE USED (SEE LAST PAGE).

The certificate of warranty is shown on page 42 of this manual.

2.4- TECHNICAL ASSISTANCE

For technical assistance, please apply your local dealer or the manufacturer.

2.5- USING AND STORING THE MANUAL

This manual provides all the information required to use the actuator correctly and as independently and safely as possible.

This manual has been written for the owner of the actuator, users and maintenance people.

The manual is divided into chapters, paragraphs and subparagraphs: the index page is an easy way of finding all subjects of interest.

The material contained in this document is provided exclusively for information purposes and may be modified without notice.
Keep this manual and all attached documents in good condition, legible and complete; store it in an accessible place the whereabouts of which is known to all operators.

2.5.1- Symbols used in this manual

This symbol marks information and warnings which, if not observed, may damage the actuator or compromise operator and/or user safety.

This signal marks information and warnings concerning areas with a potentially explosive atmosphere.

2.6- RESERVED RIGHTS

The Manufacturer reserves all rights to this "Installation and use instructions" manual.
All the information contained herein (text, drawings, diagrams, etc.) is reserved.
No part of this manual may be reproduced and disclosed (totally or partially) in any way (photocopies, microfilms and the like) without the written authorisation of the Manufacturer.

2.7- DESCRIPTION OF PERSONNEL

Users must never perform operations reserved for maintenance people or specialised technicians.
The manufacturer declines all liability for damage deriving from failure to observe the above requirements.

Specialised electrician:
A specialised electrician must be able to install the actuator, start it and operate it both in normal conditions and in the maintenance mode; he/she is qualified to perform all electrical and mechanical adjustment and maintenance operations. He/she is allowed to work on live electrical cabinets and junction boxes.

User:
specialised person capable of operating the actuator under normal conditions by using the relative controls. He/she must also be able to operate with the actuator under "maintenance" in order to perform simple routine maintenance operations (cleaning), and start or reset the actuator following an unscheduled stop.

3.1- DATA PLATE AND "CE" MARKING

The "CE" marking certifies the compliance of the machine with the essential health and safety requirements established by product European Directives.
The data plate is an adhesive polyester plate, silk-screen printed in black, with the following dimensions: L = 65 mm - H = 24 mm.
It is applied to the outside of the actuator. The plate **(Fig. 1 page 47)** contains the following legible and indelible information:

- manufacturer's logo and address
- type and model
- voltage and intensity of power supply (V-A)
- type of service S2 (min)
- electrical power input P(W)
- thrust F (N)
- no-load translation speed (mm/s)
- protection degree (IP)
- double insulation symbol (only for mod. 230 V)
- symbol of "WEEE" Directive 2002/96/CE
- CE marking
- serial number
- month/year of construction

3.2- NAMES OF COMPONENTS AND DIMENSIONS

Fig. 2 on page 48 illustrates and names the main components of the actuator.

3.3- TECHNICAL DATA

In the following tables shows the technical data of the actuator.

Actuator travel320 mm	Minimum height of window frame
150	120 mm
200	150 mm
250	200 mm
320	250 mm

Actuator travel 500 mm	Minimum height of window frame
150	120 mm
200	150 mm
250	200 mm
320	250 mm
400	320 mm
450	370 mm
500	420 mm

Actuator travel 750 mm	Minimum height of window frame
180	130 mm
280	220 mm
370	290 mm
470	390 mm
560	480 mm
650	570 mm
750	670 mm

Tab.1

Legend: M = master, S = slave

Type of application and arrangement	230 V ~ 50Hz	24 V	Max. space betw. actuators	Min. space betw. actuators
Max. thrust/traction load applicable on single actuator (M)	500N/400N	500N/400N		
Max. thrust/traction load applicable on tandem – 1 master and 1 slave (M-S)	500N/350N	500N/350N	2,4 mt	1 mt
Max. thrust/traction load applicable on triple system – 1 master and 2 **slaves** (S-M-S)	450N/300N	450N/300N	2,4 mt	1 mt
Max. thrust/traction load applicable on 1 master and 3 slaves (S-M-S-S)	450N/250N	450N/250N	2,4 mt	1 mt
Max. thrust/traction load applicable on 2 masters (M-M)	700N/350N	700N/700N	2,4 mt	1,5 mt
Max. thrust/traction load applicable on 2 masters and 2 slaves (M-S-M-S)	700N/300N	700N/700N	2,4 mt	1 mt
Max. thrust/traction load applicable on 2 masters and 3 slaves (S-M-S-M-S)	650N/300N	650N/650N	2,4 mt	1 mt
Max. thrust/traction load applicable on 3 masters (M-M-M)	1000N/500N	1000N/1000N	2,4 mt	1,5 mt
Max. thrust/traction load applicable on 3 masters and 3 slaves (M-S-M-S-M-S)	1000N/500N	1000N/1000N	2,4 mt	1 mt
For tandem applications with more than three thrust points, contact the manufacturer.				
Strokes available	320 stroke version	150mm- 200mm- 250mm- 320mm		
	500 stroke version	150mm- 200mm- 250mm- 320mm- 400mm- 450mm- 500mm		
	750 stroke version	180mm- 280mm- 370mm- 470mm- 560mm- 650mm- 750mm		
Tolerance on stroke adjustment	± 20 mm	± 20 mm		
Absorption at full load (500 N)	0,30 A	1,40 A		
Absorption at full load (700 N) with 2 masters	0,45 A	2,1 A		
Absorption at full load (1000 N) with 3 masters	0,65 A	3 A		
Idle translation speed	18,0 mm/s	10 mm/s		
Duration of idle stroke empty	(Length/ Idle translation speed)	(Length/ Idle translation speed)		
Double electrical insulation	yes			
Type of service	S^2 di 4 min.	S^2 di 4 min.		
Working temperature	- 5 + 55 °C	- 5 + 55 °C		
Degree of protection of electric devices	IP 55	IP 55		
Parallel connection of two or more actuators	yes	yes		
Limit switch system	with encoder	with encoder		

Tab.2

3.4- NOISE

The actuator has been designed and manufactured in order to reduce noise to a minimum. The noise level of the actuator does not exceed 85 dB(A).

3.5- ENVIRONMENTAL CONDITIONS

The actuator must be installed in areas with service temperatures ranging from - 5°C to + 55°C.

IT IS STRICTLY FORBIDDEN TO USE THE ACTUATOR IN POTENTIALLY EXPLOSIVE ATMOSPHERES.

3.6- FORMULAS FOR CALCULATING THRUST AND TRACTION

Horizontal domes or skylights (Fig. 3 page 49)

F= Opening or closing force
P= Weight of skylight or dome
(Moving part only)

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

Top-hung windows (A) or bottom-hung windows (B) (Fig. 4 page 49)

F = Opening or closing force
P = Weight of window (moving part only)
C = Opening stroke of window
H = Height of window

$$F = (0{,}54 \times P) \times \left(\frac{C}{H}\right)$$

3.7- USE

THIS ACTUATOR HAS BEEN EXCLUSIVELY DESIGNED AND MANUFACTURED TO ELECTRONICALLY OPEN AND CLOSE TOP-HUNG WINDOWS, BOTTOM-HUNG WINDOWS, PIVOT WINDOWS, AND SKYLIGHTS BY MEANS OF A CONTROL DEVICE.

3.8- LIMITS TO USE

This actuator has been exclusively designed and manufactured for the use described in **paragraph 3.7.** Any other kind of use is strictly forbidden as this may compromise the safety of the installer and the user, as well as the efficiency of the actuator.

IT IS STRICTLY FORBIDDEN TO USE THE ACTUATOR FOR IMPROPER PURPOSES, OTHER THAN THE ONE INDICATED BY THE MANUFACTURER (SEE PARAGRAPH 3.7).

IT IS STRICTLY FORBIDDEN TO USE THE ACTUATOR IN POTENTIALLY EXPLOSIVE ATMOSPHERES.

KEEP THE PACKAGING AND ACTUATOR OUT OF THE REACH OF CHILDREN.

4.1- GENERAL PRECAUTION

OPERATORS MUST BE INFORMED OF ACCIDENT RISKS, SAFETY DEVICES AND THE GENERAL ACCIDENT PREVENTION REGULATIONS ESTABLISHED BY INTERNATIONAL DIRECTIVES AND BY THE LAW IN FORCE IN THE COUNTRY OF USE. ALL OPERATORS MUST STRICTLY COMPLY WITH THE ACCIDENT PREVENTION REGULATIONS IN FORCE IN THE COUNTRY OF USE.

EXTRAORDINARY AND ROUTINE MAINTENANCE OPERATIONS INVOLVING THE TOTAL OR PARTIAL DISMOUNTING OF THE ACTUATOR MAY ONLY BE PERFORMED AFTER DISCONNECTING IT FROM THE POWER SUPPLY.

DO NOT REMOVE OR ALTER THE PLATES PLACED ON THE ACTUATOR BY THE MANUFACTURER.

DO NOT REMOVE OR BY-PASS THE SAFETY SYSTEMS ON THE ACTUATOR.

IT IS STRICTLY FORBIDDEN TO USE THE ACTUATOR FOR IMPROPER PURPOSES, OTHER THAN THE ONE INDICATED BY THE MANUFACTURER (SEE PARAGRAPH 3.7).

IT IS STRICTLY FORBIDDEN TO INSTALL THE ACTUATOR ON THE EXTERNAL PART OF WINDOW FRAMES EXPOSED TO THE WEATHER (RAIN, SNOW, ETC.).

IT IS STRICTLY FORBIDDEN TO USE THE ACTUATOR IN POTENTIALLY EXPLOSIVE ATMOSPHERES

KEEP THE PACKAGING AND ACTUATOR OUT OF THE REACH OF CHILDREN.

ANY TAMPERING WITH OR UNAUTHORISED REPLACEMENT OF ONE OR MORE PARTS OR COMPONENTS OF THE ACTUATOR, OR THE USE OF UNORIGINAL ACCESSORIES AND CONSUMABLES, MAY INCREASE THE RISK OF ACCIDENT AND THUS RELIEVES THE MANUFACTURER OF ALL CIVIL AND PENAL LIABILITY

IF THE WINDOW FRAME IS ACCESSIBLE FROM OR INSTALLED AT A HEIGHT OF LESS THAN 2.5 m FROM THE GROUND, AND IF IT CAN BE COMMANDED BY AN UNTRAINED USER OR WITH A REMOTE CONTROL DEVICE, FIT AN EMERGENCY STOP SYSTEM WHICH AUTOMATICALLY CUTS IN TO PREVENT THE RISK OF CRUSHING OR DRAGGING PARTS OF THE BODY INSERTED BETWEEN THE MOVING AND FIXED PARTS OF THE WINDOW FRAME.

THIS APPLIANCE MAY NOT BE USED BY PERSONS (CHILDREN INCLUDED) WITH REDUCED PHYSICAL, SENSORIAL OR MENTAL CAPACITIES, OR INEXPERT PEOPLE, UNLESS THEY ARE SUPERVISED AND TAUGHT HOW TO USE IT BY A PERSON RESPONSIBLE FOR THEIR SAFETY. CHILDREN MUST BE CONTROLLED TO MAKE SURE THEY DO NOT PLAY WITH THE APPLIANCE.

In case of doubt as to the functioning of the actuator, do not use it but contact the manufacturer.

4.2- SAFETY DEVICES

4.2.1- Protection against electrical hazards

The actuator is protected against electrical hazards deriving from direct and indirect contact.
The protection measures against direct contact set out to protect people from hazards deriving from contact with active parts that are normally live, while those against indirect contact set out to protect people from hazards deriving from contact with conductive parts that are normally insulated but may become live as a result of failures (yielding of insulation).
The following protection methods have been adopted:

1) Insulation of active parts with a plastic body;
2) Enclosure with an adequate degree of protection;
3) **Only for mod. 230 V with double insulation:** Passive protection consisting in the use of dual-insulated components, also known as class II or equivalent insulation components (it is forbidden to connect actuators protected with double insulation to the earth circuit).

4.3- SAFETY PLATES

⚠ **IT IS FORBIDDEN TO REMOVE, MOVE, SPOIL OR IN ANYWAY REDUCE THE VISIBILITY OF THE SAFETY PLATES. FAILURE TO OBSERVE THE ABOVE MAY CAUSE SERIOUS HARM TO PEOPLE AND DAMAGE TO PROPERTY.**
THE MANUFACTURER DECLINES ALL LIABILITY FOR ANY DAMAGE CAUSED BY THE FAILURE TO OBSERVE THE ABOVE REQUIREMENT.

Fig. 5 on page 49 illustrates the safety plate: this must applied directly to the outside of the actuator or near it and always in a position where it can be seen by the installer and/or operator.

4.4- RESIDUAL RISKS

The actuator has no residual risks. The installer and the user are informed that, after the actuator has been installed on the window frame, the actuator drive may accidentally generate the following residual risk:

Residual risk:
Danger of crushing or dragging parts of the body inserted between the moving and fixed parts of the window frame.

Frequency of risk:
Accidental and when the installer or user decides to perform an incorrect voluntary action.

Severity of damage:
Light injuries (usually reversible).

Measures taken:
Before enabling the device, make sure there are no people, animals or objects near the window frame whose safety may be accidentally compromised. When the actuator is working, the operator must be in a safe control position with a view of the moving window.
Also see section 6.1

5.1- WEIGHT AND DIMENSIONS OF PACKAGING

The appliance is delivered in 6 different packs, depending on the pitch:

- **T50 (travel 320)**
  Size of pack (mm): 82x150x655
  Approx. weight: 2.8 kg
- **T50 (travel 500)**
  Size of pack (mm): 82x150x830
  Approx. weight: 3.1 kg
- **T50 (travel 750)**
  Size of pack (mm): 82x157x1008
  Approx. weight: 4.1 kg

- **T50 non-motorised (travel 320)**
  Size of pack (mm): 82x150x655
  Approx. weight: 2.2 kg
- **T50 non-motorised (travel 500)**
  Size of pack (mm): 82x150x830
  Approx. weight: 2.5 kg
- **T50 non-motorised (travel 750)**
  Size of pack (mm): 82x157x1008
  Approx. weight: 4.1 kg

5.2- RECEIPT AND HANDLING

Depending on the type, weight and dimensions of the product, Topp SpA will use suitable packaging to fully protect and preserve it during transport to the purchaser.

On receipt of the actuator, check that the packaging is undamaged.
After unpacking the actuator, dispose of and/or reuse the packaging according to the regulations in force in the country of installation of the actuator.

5.2.1- Handling

The packed actuator may be lifted by one person. Make sure to handle the pack with care. Move the pack without shaking or bumping it.

Handle the unpacked actuator with care without shaking or bumping it.

⚠ **THE ACTUATOR MUST BE DISCONNECTED FROM ALL POWER SOURCES IN ORDER TO PREVENT THE RISK OF INJURY TO PEOPLE OR DAMAGE TO PROPERTY.**

5.2.2- Contents of pack

Single actuator

Each standard product pack (cardboard box) contains **(Fig. 6 page 50)**:

- 1 Actuator complete with power cable;
- 1 window connector kit (butterfly bracket) **(Ref. A)** complete with nut and bolt;
- 1 Actuator support claw and bracket kit **(Ref. B)** complete with nuts and bolts;
- Bag of fixing screws for aluminium window frames;
- 1 Installation and use instructions **(Ref. C)**;
- 1 Adhesive warning plate **(Fig. 5 page 49)**.

Non-motorised actuator for application in pairs

Each standard tandem product pack (cardboard box) contains **(Fig. 6 page 50)**:

- Non-motorised actuator;
- window connector kit (butterfly bracket) **(Ref. A)** complete with nut and bolt;
- Actuator support claw and bracket kit **(Ref. B)** complete with nuts and bolts;
- transmission bar kit **(Ref. D)**, V5 screws and "FE" stops;
- Bag of fixing screws for aluminium window frames;

MAKE SURE THE ABOVE COMPONENTS ARE INSIDE THE PACK AND THAT THE ACTUATOR HAS NOT SUFFERED DAMAGE DURING TRANSPORT.

IF ANY FAULTS ARE FOUND, DO NOT INSTALL THE ACTUATOR BUT CONTACT THE TECHNICAL ASSISTANCE SERVICE OF YOUR LOCAL DEALER OR MANUFACTURER.

DISPOSE OF THE PACKAGING (PAPER, PLASTIC, ETC.) IN COMPLIANCE WITH CURRENT LEGISLATION.

5.2.3- Accessories (available separately)

- Connection bar **(Ref. B of figure 6D);**
- Length 2500 mm or 1500 mm
- Material: Aluminium alloy 2011
- Bar profile: Hexagonal "key 10"

6.1- GENERAL PRECAUTIONS

THE ACTUATOR MAY ONLY BE INSTALLED BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL WHO SATISFY THE PROFESSIONAL AND TECHNICAL REQUIREMENTS ESTABLISHED BY THE LAWS IN FORCE IN THE COUNTRY OF INSTALLATION.

THE ACTUATOR MUST PERFORM WELL ENOUGH TO ENSURE THE WINDOW MOVES CORRECTLY; THRUST OR TRACTION MUST BE VERIFIED ACCORDING TO THE TYPE AND WEIGHT OF THE WINDOW FRAME (PARA 3.6).
DO NOT EXCEED THE TECHNICAL LIMITS INDICATED IN TAB. 1 (PARA 3.3).

ONLY INSTALL THE ACTUATOR WITH THE WINDOW OR SKYLIGHT CLOSED.

TO ALLOW THE ACTUATOR TO WORK CORRECTLY, THE MINIMUM HEIGHT OF THE WINDOW FRAME MUST VARY AS INDICATED IN TABLE 2 ON PAGE 31.

TO ALLOW THE ACTUATOR TO WORK CORRECTLY, THE HEIGHT OF THE WINDOW FRAME MUST VARY ACCORDING TO THE STROKE (570.6 mm, 620.6 mm, 740.6 mm, 940.6 mm, 1140.6 mm, 1390.6 mm; DISTANCES FROM THE ACTUATOR TO THE HINGE OF THE WINDOW FRAME); IF THIS IS NOT THE CASE, ASK YOUR LOCAL DEALER OR THE MANUFACTURER FOR THE ACCESSORIES REQUIRED FOR CORRECT INSTALLATION.

FOR APPLICATIONS ON SKYLIGHTS, MAKE SURE THE ACTUATOR CAN ROTATE FREELY AND OPEN THE WINDOW WITHOUT HITTING THE WALL OR OTHER OBSTACLES.

MAKE SURE THAT THE WINDOW FRAME ON WHICH THE ACTUATOR IS INSTALLED IS FITTED WITH SUITABLE MECHANICAL LOCKS, IN COMPLIANCE WITH CURRENT REGULATIONS, TO PREVENT THE WINDOW FALLING BY ACCIDENT.

WHEN MOUNTING PAIRS OF ACTUATORS, MAKE SURE THAT THE MAXIMUM WORKING LENGTH OF THE CONNECTING BAR IS 2500 mm.

WHEN MOUNTING PAIRS OF ACTUATORS, MAKE SURE THAT THE ROTATION OF THE ACTUATOR IS NOT LIMITED BY THE TRANSMISSION BAR (SEE PAGE 53 FIGURE 20).

6.2- MOUNTING A SINGLE ACTUATOR ON TOP-HUNG WINDOWS (Figs. 7÷17)

ASSEMBLY OPERATIONS INCLUDE DRILLING HOLES IN THE WINDOW; BEFORE PROCEEDING WITH FINAL DRILLING CHECK THE ALIGNMENT OF THE ACTUATOR BRACKETS. FIGURES 7 AND 8 INDICATE THE DISTANCES TO RESPECT FOR THE CORRECT POSITIONING OF THE BRACKETS FOR LATERAL (FIG. 7) OR FRONT (FIG. 8) ASSEMBLY.

SINGLE ACTUATORS MUST BE INSTALLED ON THE MIDDLE LINE OF THE WINDOW FRAME (see fig. 9).

1) **Fig. 9** - Mark the middle line "X" of the window frame with a pencil.
2) **Fig. 12** - Place the supplied template over the marked middle line and mark the holes for the "SF" butterfly bracket and the "SA" actuator bracket with a pencil.
3) **Fig. 13** - Use a suitable drill to make holes in the window frame and then fix the "SF" butterfly bracket using the "VI" screws.
4) **Fig. 14** - Assemble the claw by mounting the "MI1" clamps and securing them with the "DI" nuts and bolts; mount the "SA" bracket on the "MI1" clamps and slightly tighten the "V3" bolts and "D2" nuts with the supplied Allen key without forcing.
5) **Fig. 14** - Fix the previously assembled claw to the holes drilled in the fixed part of the window frame using the "VI" screws.
6) **Fig. 16** - Attach the actuator to the claw; fix the actuator to the "SF" butterfly racket using the "V4" bolt and the "D3" nut.
7) **Fig. 17** - Adjust the closing position of the window by pulling back the actuator. The "MI1" brackets slide along the "CD" toothed runner of the actuator and each click corresponds to a movement of 2 mm; make sure to stop the actuator after the click. Adjust the actuator so that it adheres to the window frame gaskets and closes perfectly. Secure the actuator by tightening the "V2" screws with the supplied Allen key with a torque of 240 N cm.
8) **Fig. 15**- Open and close the window, checking that the actuator behaves correctly. If the actuator requires further adjustment, loosen the "V2" screws and move it.

6.3- MOUNTING A PAIR OF ACTUATORS ON TOP-HUNG WINDOWS (Figs. 7÷22)

ASSEMBLY OPERATIONS INCLUDE DRILLING HOLES IN THE WINDOW; BEFORE PROCEEDING WITH FINAL DRILLING CHECK THE ALIGNMENT OF THE ACTUATOR BRACKETS. FIGURES 10 AND 11 INDICATE THE DISTANCES TO RESPECT FOR THE CORRECT POSITIONING OF THE BRACKETS WHEN ASSEMBLING PAIRS OF ACTUATORS.

IF TWO ACTUATORS MUST BE INSTALLED ON THE SAME WINDOW FRAME, DIVIDE THE TOTAL LENGTH OF THE WINDOW FRAME BY 4 AND POSITION THE ACTUATORS AT 1/4 AND 3/4 OF THE LENGTH OF THE WINDOW FRAME (see fig. 10).

PAIRS OF ACTUATORS CAN ALSO BE INSTALLED ON MORE THAN ONE WINDOW FRAME, UP TO A MAXIMUM OF THREE; THE ACTUATORS MUST BE POSITIONED ALONG THE MIDDLE LINE OF THE CORRESPONDING WINDOW FRAME (see fig. 11)

MAKE SURE THE COMBINATIONS OF ACTUATORS ARE ARRANGED AS INDICATED IN THE TABLE OF TECHNICAL DATA

IF THE APPLICATION PERMITS IT, USE A SINGLE TRANSMISSION BAR.

BARS CAN BE CONNECTED EITHER HALFWAY UP THE TRANSMISSION SHAFT OR WITH THE OPTION OF THE 1C3804 JOINT SO AS TO ACHIEVE A STAGGERING BETWEEN MACHINES OF 2.5 DEGREES MAX, OR ABOUT 5 CM EVERY 100 CM OF INTERAXIS (Fig.22-23 ref. Z).

1) **Fig.11-** Mark the actuator installation points with a pencil, bearing in mind that the maximum distance between one hook "G" and the other is 2400 mm, and minimum distance is 1000 or 1500 mm (as shown in the table of technical)
2) **Fig. 12-** Place the supplied template over the marked installation points and mark the holes for the butterfly bracket "SF" and the actuator brackets "SA" with a pencil. Make sure the axes are perfectly perpendicular and centred.
3) **Fig. 13-** Use a suitable drill to make holes in the window frame and then fix the "SF" butterfly racket using the "V1" screws.
4) **Fig. 14-**Fix the previously assembled bracket with claw to the holes drilled in the fixed part of the window frame using the "V1" screws.
5) **Fig. 15-** For the non-motorised actuator, position the rack "C" in the same position as the motorised actuator.
6) **Fig. 16-** Attach the actuator to the claw; fix the actuator to the butterfly bracket using the "V4" bolt and the "D3" nut.
7) **Fig.17-** Adjust the closing position of the window by pulling back the actuator. The "MI1" brackets slide along the "CD" toothed runner of the actuator and each click corresponds to a movement of 2 mm; **make sure to stop the actuator after the**

click has finished. Adjust the actuator so that it adheres to the window frame gaskets and closes perfectly. Secure the actuator by tightening the "V2" screws with the supplied Allen key with a torque of 240 N cm.

8) Repeat points **3)** to **7)** for each actuator to install.

6.3.1- Connecting pairs of actuators according to "Configuration A" (see fig. 21)

In "Configuration "A" two T50 actuators can be installed in two ways:

- one motor-driven and one not motor-driven door (in this case the order of assembly of the actuators is unimportant: the motor-driven actuator can be installed either on the right or left with respect to the non-motor-driven actuator).
- 2 motor-driven doors (For correct operation of the application and to prevent damage to the fittings, it is essential for both actuators to be set with the same stroke, as described in paragraph 6.4).

1) Cut Bar "B" to the same length as the distance between the ends of the actuators (ref. "X1") plus 25 mm.
2) Connect the two actuators together using the Bar "B": insert bar "B" into the hole "F1" of the first actuator until it comes out of the opposite hole "F2" in order to simplify insertion into the hole "F3" of the other actuator. Before inserting it into hole "F3" fit a "FE" stop.
3) Position bar "B" so that it projects by 25 mm from the hole F1 of the motorised actuator
4) Install a second "FE" stop on bar "B" from the side of hole "F1"; position both stops as shown in figure 21 and secure them with "V5" screws.
5) **Fig. 18 -** Open and close the window and check the alignment of the racks. If the actuators require further adjustment, loosen the screws "V2" and move the relative actuator.

6.3.2- Connecting pairs of actuators according to "Configuration B" (see fig. 22- fig 23)

Three actuators can be mounted in "Configuration B", one motorised and two non-motorised, connected together with two bars. The motorised actuator must be positioned between the two non-motorised ones.

1) Pass the bar B1 through holes F5 and F4 of the first non-motorized actuator and insert, on the bar itself, the stop FE without fastening it.
2) Scroll the bar B1 further as to let it come out of at least 50mm from the passing hole F3 of the motorized actuator.
3) Pass the transmission bar B through the passing holes F2 and F1 of the second non-motorized actuator and insert, on the bar itself, the stop FE without fastening it
4) Couple the two symmetrical transmission bars B1 and B by the G1 hexagonal joint and fasten the two V6 screws with tightening torque of 8 Nm; then tighten the corresponding D1 nuts adequately.
5) Secure both stops FE previously inserted with the V5 screws.

6) If necessary, cut the transmission bars on the outer side of the two non-motorized actuators with a minimum distance of 25mm from the passing holes F5 and F2.Insert two stops on the outer side of the FE non-motorized actuators (side of the passing holes F5 and F2) and secure them with screws V5).
7) **Fig. 18-** Open and close the window and check the alignment of the racks. If the actuators require further adjustment, loosen the "V2" screws and move the relative actuator.Always bear in mind that the actuators must be perfectly aligned

6.4- Window opening adjustment

Window opening can be adjusted by setting the most suitable travel.

There are two types of actuator, one with travel from 1 to 4, the other from 1 to 7.

To choose the required travel, adjust the roller "R4" (fig. 15) using the supplied wrench. The roller is numbered and each number corresponds to the required travel

DO NOT SET THE TRAVEL TO MORE THAN THE EFFECTIVE OPENING DISTANCE OF THE WINDOW

IN CASE OF TANDEM APPLICATION CONSISTING OF TWO MOTOR-DRIVEN DOORS, MAKE SURE BOTH ACTUATORS ARE SET WITH THE SAME STROKE.

6.5- ELECTRICAL CONNECTIONS (Wiring diagram)

THE ACTUATOR MAY ONLY BE CONNECTED TO THE POWER SUPPLY BY COMPETENT AND QUALIFIED TECHNICAL PERSONNEL (ELECTRICIANS) WHO SATISFY THE PROFESSIONAL AND TECHNICAL REQUIREMENTS ESTABLISHED BY THE LAWS IN FORCE IN THE COUNTRY OF INSTALLATION AND WHO CAN ISSUE THE CUSTOMER WITH A DECLARATION OF CONFORMITY COVERING THE RELATIVE CONNECTION AND/OR SYSTEM.

BEFORE CONNECTING THE ACTUATOR TO THE POWER SUPPLY, CHECK IT IS CORRECTLY FITTED TO THE WINDOW FRAME.

THE MAINS POWER SUPPLY TO WHICH THE ACTUATOR IS CONNECTED MUST SATISFY THE REQUIREMENTS ESTABLISHED BY THE LAWS IN FORCE IN THE COUNTRY OF INSTALLATION, AS WELL AS THE TECHNICAL SPECIFICATIONS INDICATED IN TAB. 1, THE RATING PLATE AND THE "CE" MARKING (PARA 3.1). IT MUST ALSO BE CONNECTED TO A SUITABLE EARTH CIRCUIT.

THE CROSS-SECTION OF THE MAINS LINE MUST BE PROPERLY SIZED ACCORDING TO THE POWER INPUT (SEE RATING PLATE AND "CE" MARKING).

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

A SECTIONING DEVICE WITH A 30 mA DIFFERENTIAL PROTECTION AND ASSOCIATED WITH THE EARTH CIRCUIT MUST BE INSTALLED UPLINE FROM THE POWER LINE.

IT IS FORBIDDEN TO CONNECT ACTUATORS FITTED WITH DOUBLE INSULATION (MOD. 230V) TO THE EARTH CIRCUIT.

TO ASSURE EFFICIENT SEPARATION FROM THE MAINS, INSTALL AN APPROVED TEMPORARY BIPOLAR SWITCH (PUSH-BUTTON) UPLINE OF THE DEVICE. FIT A BIPOLAR MAIN SWITCH WITH CONTACT APERTURE OF AT LEAST 3.5 mm UP LONE OF THE CONTROL LINE.

6.6- CONTROL DEVICES

THE CONTROL DEVICES USED TO DRIVE THE ACTUATOR MUST SATISFY THE SAFETY CONDITIONS ESTABLISHED BY THE LAWS IN FORCE IN THE COUNTRY OF INSTALLATION.

Depending on the various types of installation, the actuators can be driven by the following control devices:

1) MANUAL PUSH-BUTTON:
Two-pole push-button switch with central OFF position and "dead man" control.

2) CONTROL AND POWER UNIT:
Microprocessor control units (e.g.: Mod. TF, etc.) controlling a single actuator or several actuators simultaneously by means of one or more manual push-buttons, an infrared remote control or a 433 MHz radio control.
Rain sensors **(RPR - 12V)**, the wind sensor **(RW)** and the brightness sensor .

THE EVENTUALLY USED UNITS MUST SUPPLY A VOLTAGE TO C40 FOR MAX. 120 SECONDS.

6.7- EMERGENCY PROCEDURES

Should it be necessary to open the window manually due to a blackout or mechanism failure, follow these instructions:

BEFORE WORKING ON THE ACTUATOR AND WINDOW, DISCONNECT THE ACTUATOR FROM THE POWER SUPPLY AND SET ANY CONTROL DEVICE SWITCHES TO "0" .

PADLOCK THE MAIN SWITCH OF THE SECTIONING DEVICE INSTALLED ON THE MAINS LINE TO PREVENT ACCIDENTAL START-UPS. IF THE MAIN SWITCH CANNOT BE PADLOCKED, PLACE A SIGN FORBIDDING OTHER PEOPLE FROM STARTING THE DEVICE.

6.7.1- Single actuator

1) Fig. 15 page 52 - Unscrew the "D1" nut and remove the "V2" screw from the "SF" butterfly bracket;
2) Open the window by hand.

6.7.2- Pair of actuators

IN APPLICATIONS CONSISTING OF TWO MOTOR-DRIVEN DOORS, IN CASE OF BLOCK OF ONE OR BOTH ACTUATORS, SIMPLY DISCONNECT POWER AND CONTACT THE TECHNICAL SERVICE DEPARTMENT. IN THIS SITUATION DO NOT OPERATE THE ACTUATORS AS YOU WOULD RISK DAMAGING THE SYSTEM.

IN CASE OF BREAKDOWN OF THE MOTOR-DRIVEN ACTUATOR, BEFORE DISMANTLING IT PLACE THE DOOR SYSTEM IN SAFE CONDITIONS.

1) For each motorised and non-motorised actuator, **fig. 15 page 52** - Unscrew the "D3" nut and remove the "V4" screw from the "SF" butterfly bracket;
2) Open the window by hand.

7.1- USING 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 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. 4.4).

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.

8.1- GENERAL PRECAUTIONS

IF THE ACTUATOR WORKS INCORRECTLY, CONTACT THE MANUFACTURER.

ANY WORK ON THE ACTUATOR (E.G.: POWER CABLE, ETC.) OR ITS COMPONENTS MAY ONLY BE CARRIED OUT BY PERSONNEL QUALIFIED BY THE MANUFACTURER.
TOPP S.p.A. DECLINES ALL LIABILITY FOR WORK PERFORMED BY UNAUTHORISED PEOPLE

The actuator incorporates components that do not require significant routine or extraordinary maintenance operations.
In heavy-duty conditions (e.g.: very dirty work areas, frequent use, elevated temperature changes, load variations caused by wind or snow, etc.) make sure, at least once every 6 months, that the actuator assembly components are clean, the fixing systems (brackets and screws) are tight, the window frame is not deformed and the seals are tight, and check the cables and connectors.
If any malfunctions arise after cleaning or inspection, contact the Topp S.p.A. technical assistance service.

9.1- GENERAL PRECAUTIONS

DEMOLISH THE ACTUATOR ACCORDING TO CURRENT ENVIRONMENTAL PROTECTION LAWS.

SORT THE ACTUATOR COMPONENTS BY MATERIAL (PLASTIC, ALUMINIUM, ETC.).

10.1- GENERAL PRECAUTIONS

IT IS FORBIDDEN TO USE "UNORIGINAL" SPARE PARTS AND ACCESSORIES AS THEY MAY ENDANGER THE SAFETY AND THE EFFICIENCY OF THE ACTUATOR AND WILL TERMINATE THE WARRANTY.

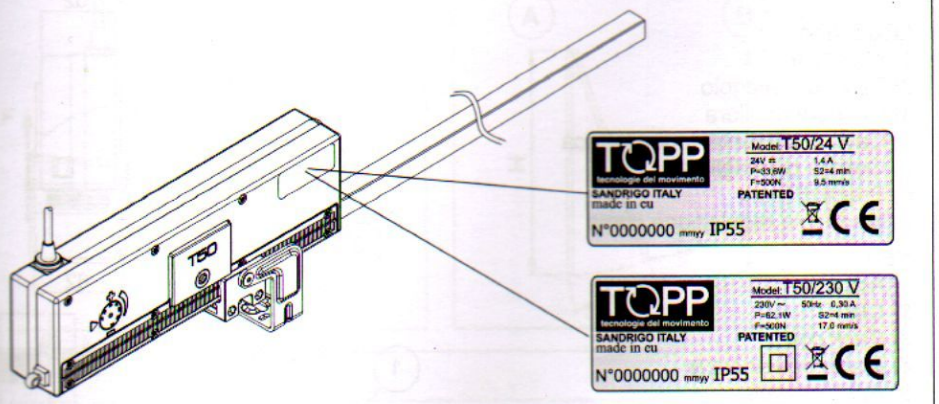
ONLY ORDER ORIGINAL SPARE PARTS AND ACCESSORIES FROM YOUR DEALER OR THE MANUFACTURER, QUOTING THE TYPE, MODEL, SERIAL NUMBER AND YEAR OF CONSTRUCTION OF THE ACTUATOR.

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 with the exception for places not easily reachable where verifications and maintenance may be onerous. 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.

		TECHNICAL REPORT
MODEL		
SERIAL No.		
CUSTOMER		
ADDRESS		
RETAILER'S NAME *(STAMP AND SIGNATURE)*		

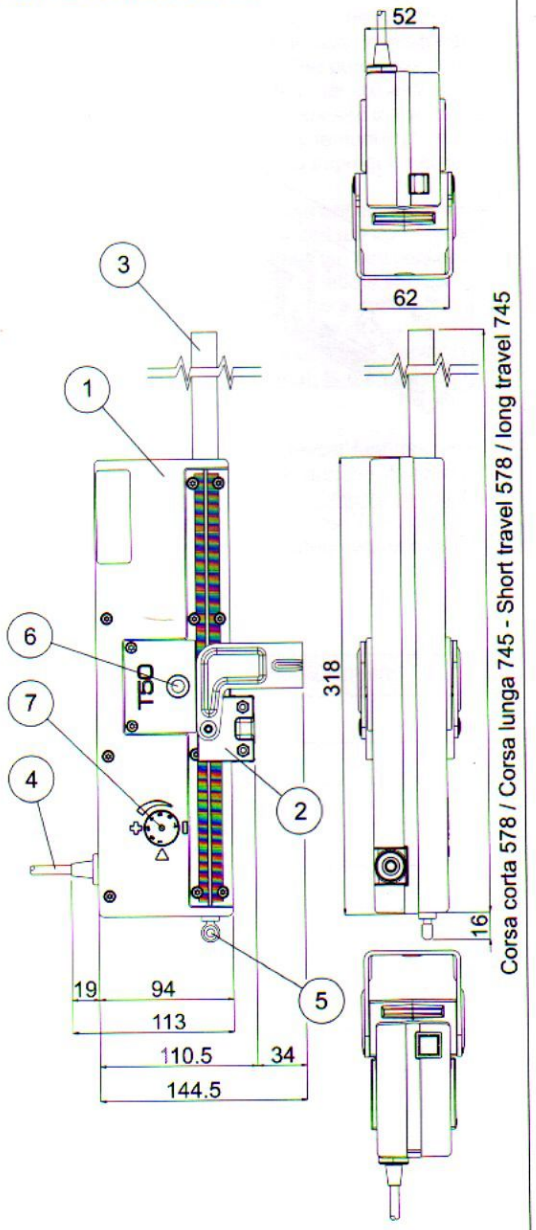
1



2 Dimensioni in mm / *Dimensions in mm*

LEGENDA:
1) Attuatore
2) Pinza di fissaggio
3) Copricremagliera
4) Cavo di alimentazione elettrica
5) Golfare cremagliera
6) Presa di forza
7) Manopola regolazione corsa

KEY:
1) *Actuator*
2) *Claw*
3) *Rack cover*
4) *Mains power cable*
5) *Rack eyebolt*
6) *Power take-off*
7) *Travel adjustment knob*



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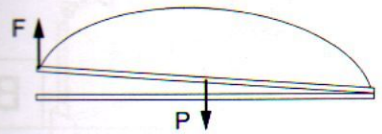

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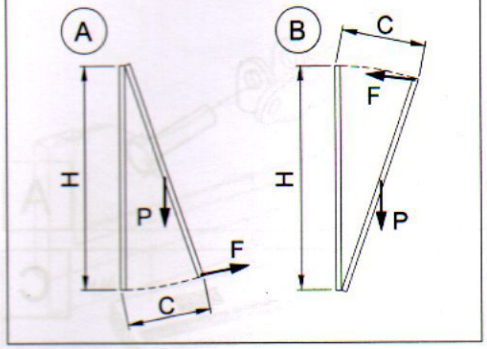

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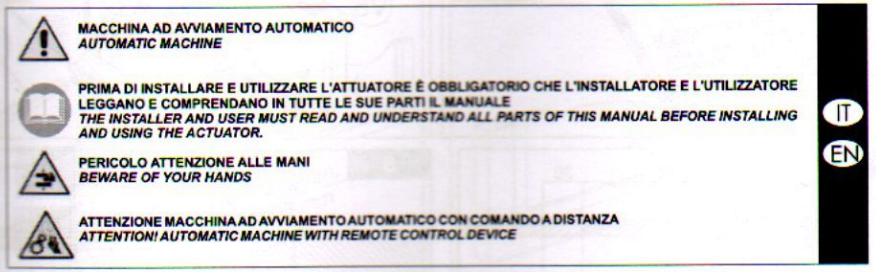

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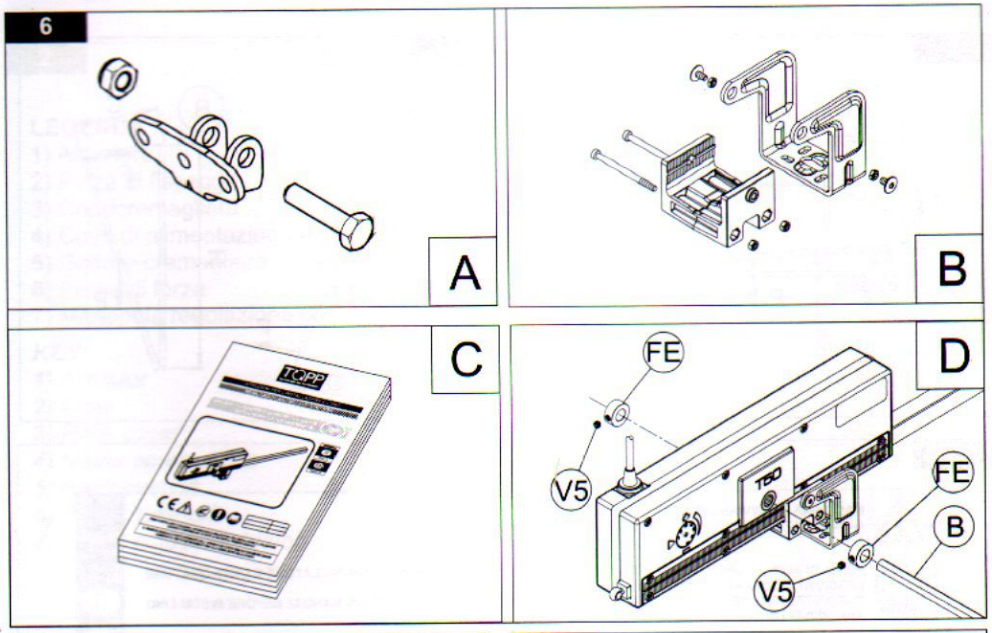

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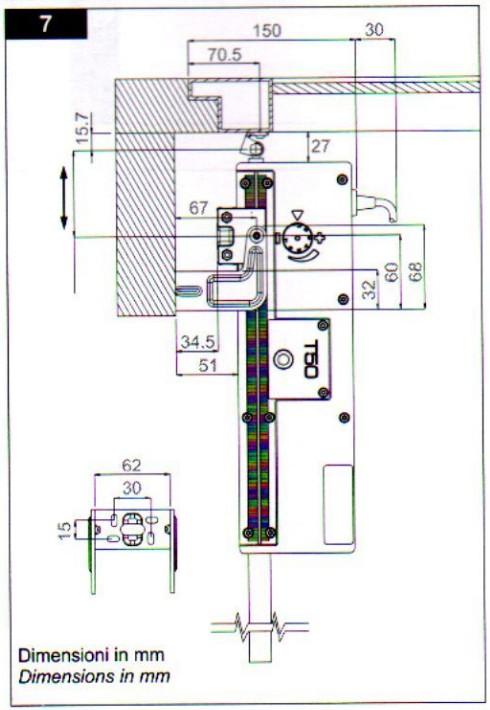

Dimensioni in mm
Dimensions in mm

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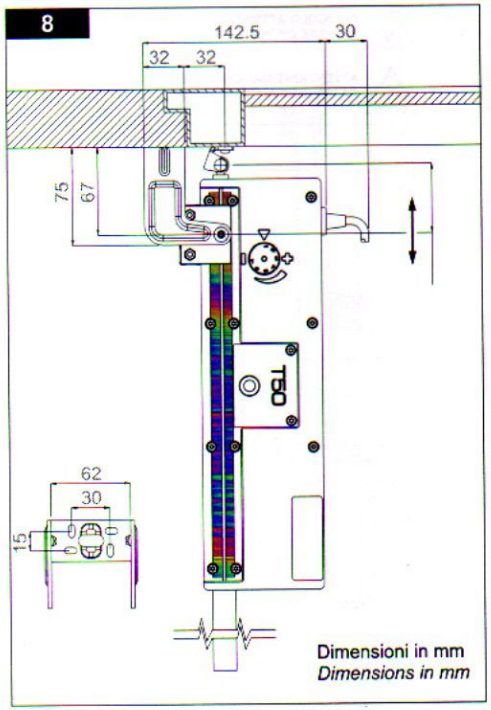

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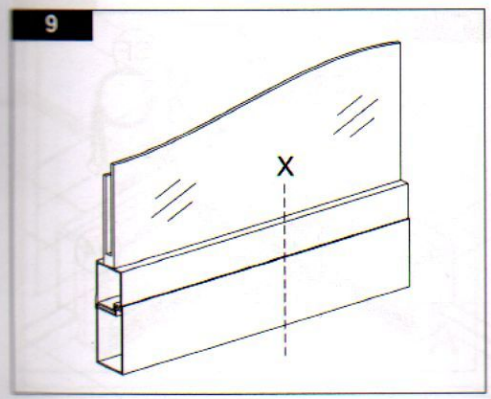

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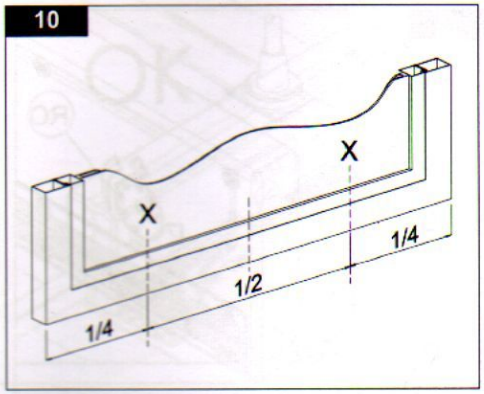

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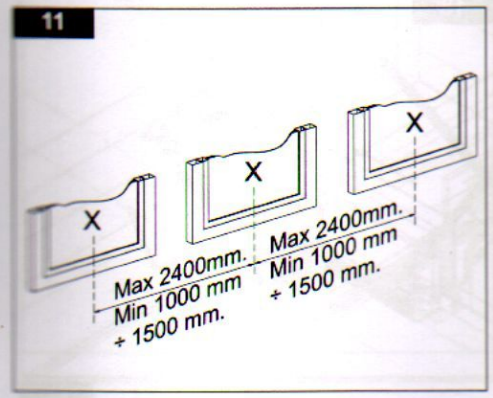

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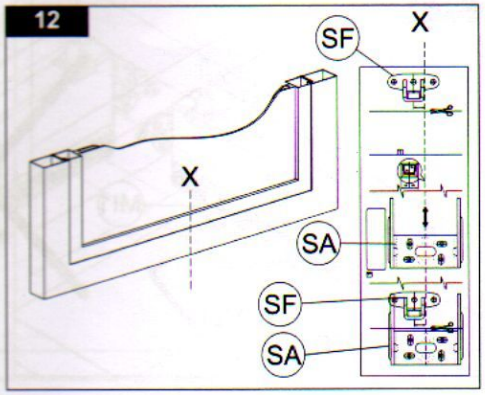

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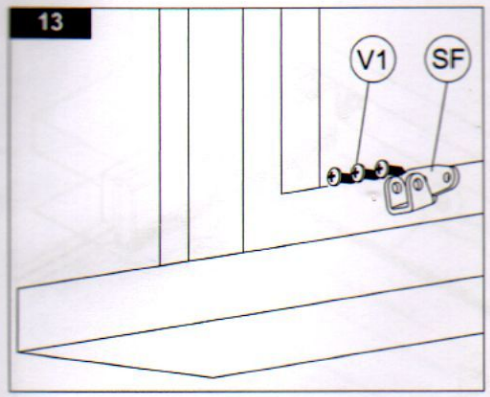

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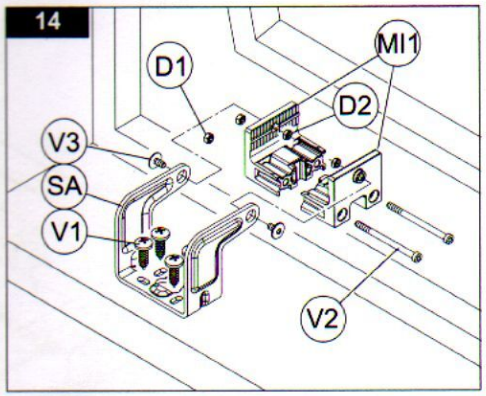

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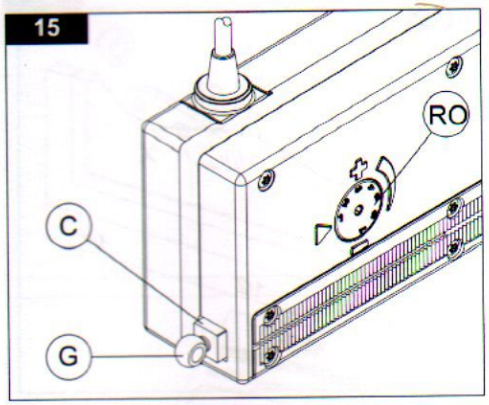

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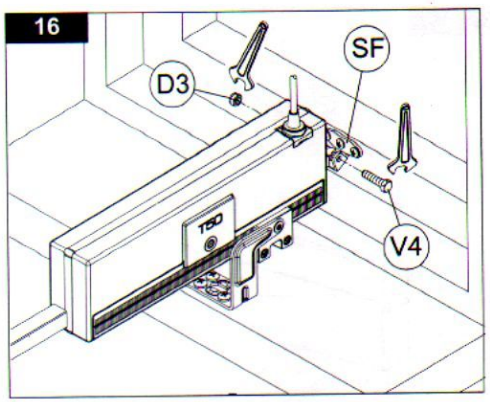

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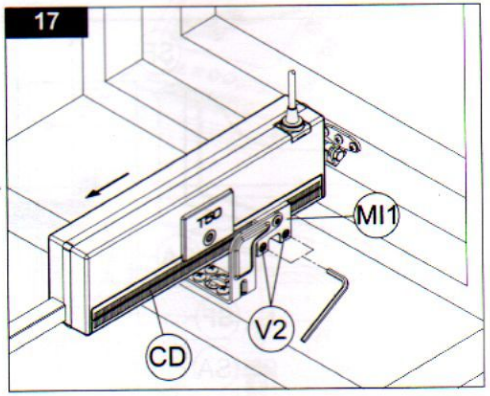

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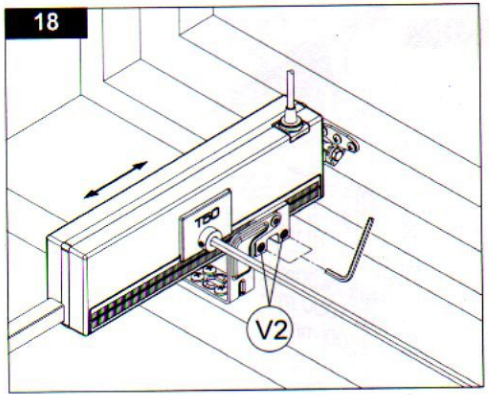

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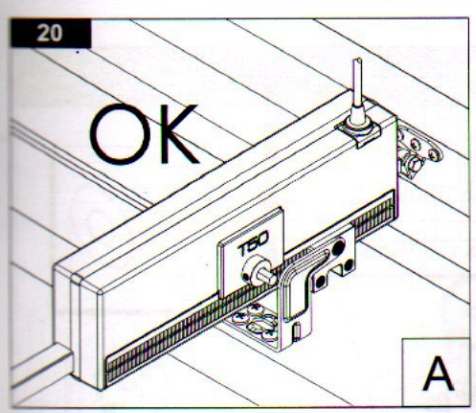

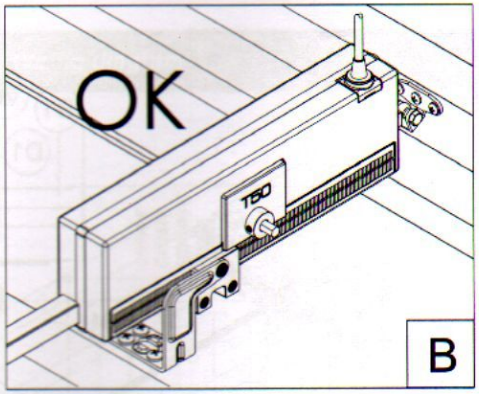

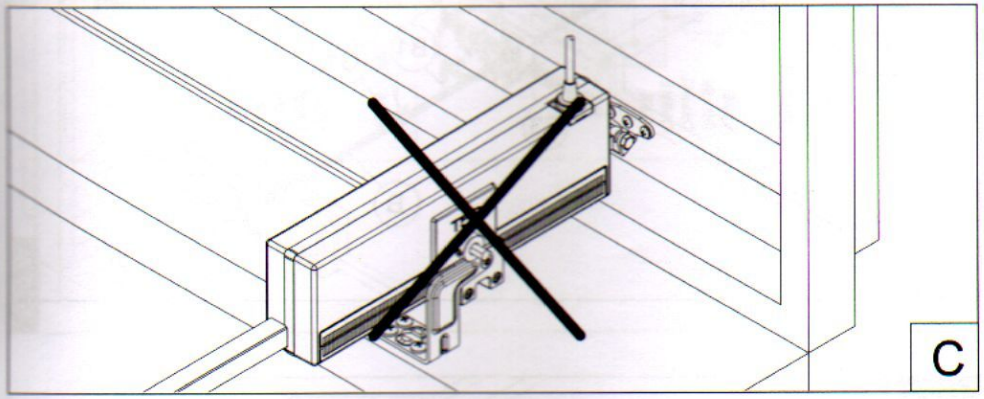

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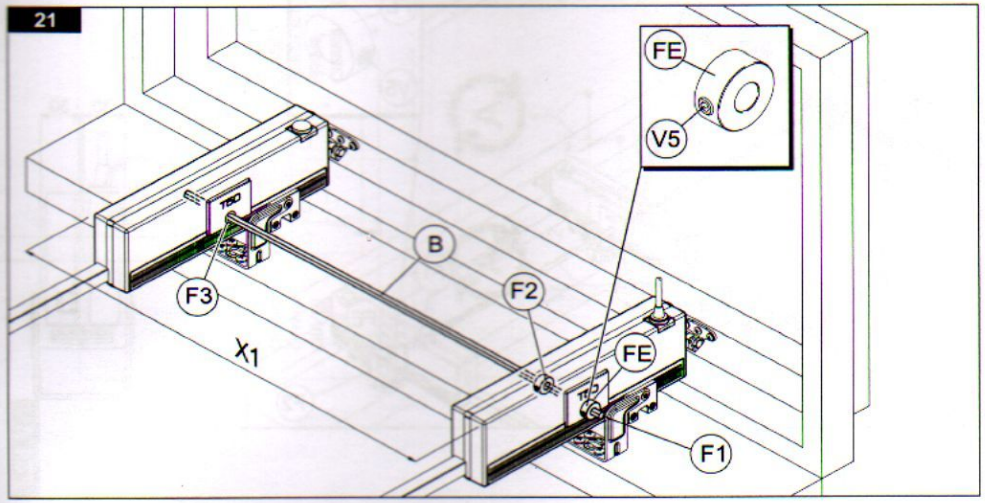

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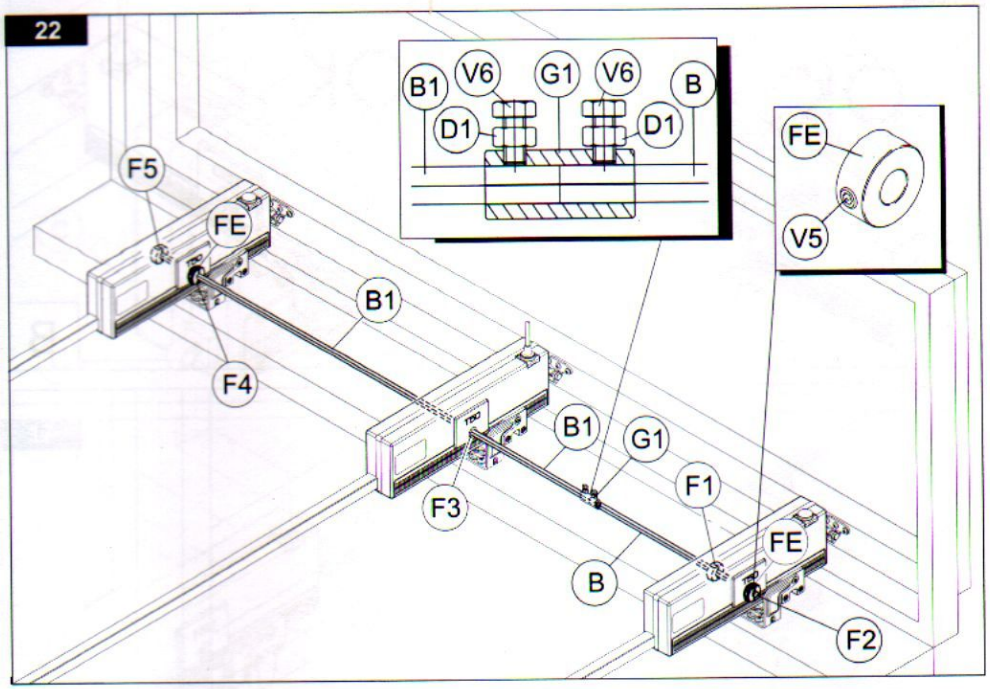

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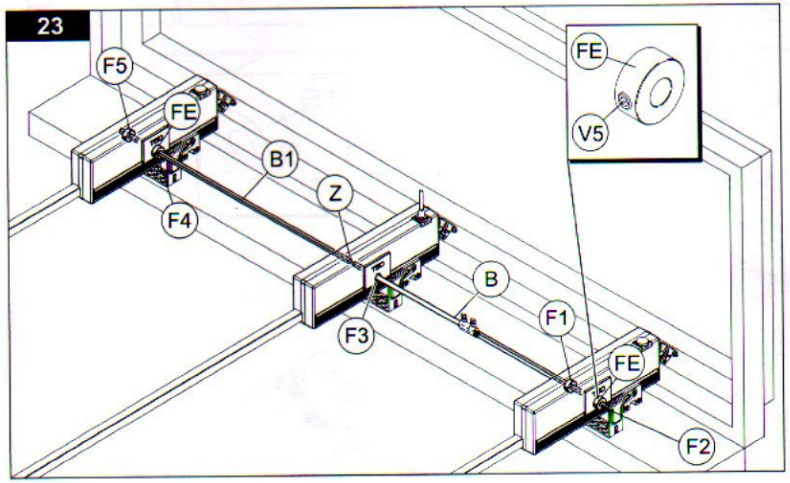
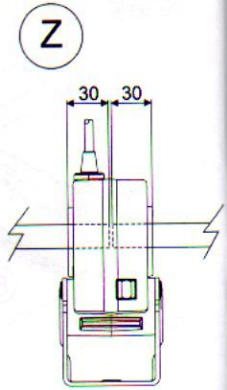
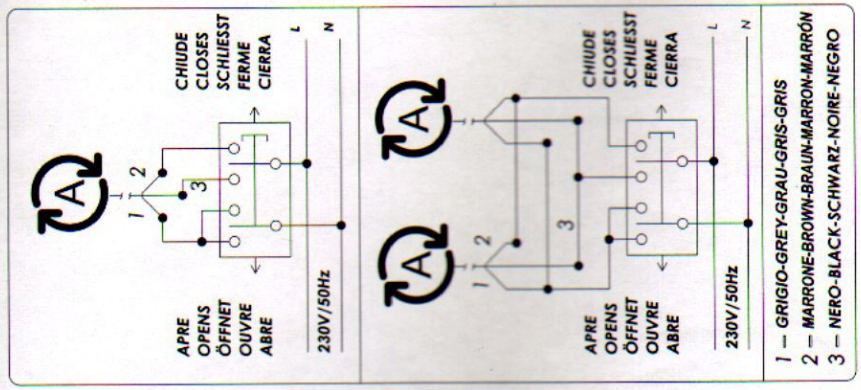




Schema elettrico / *Wiring diagram*

230 V



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