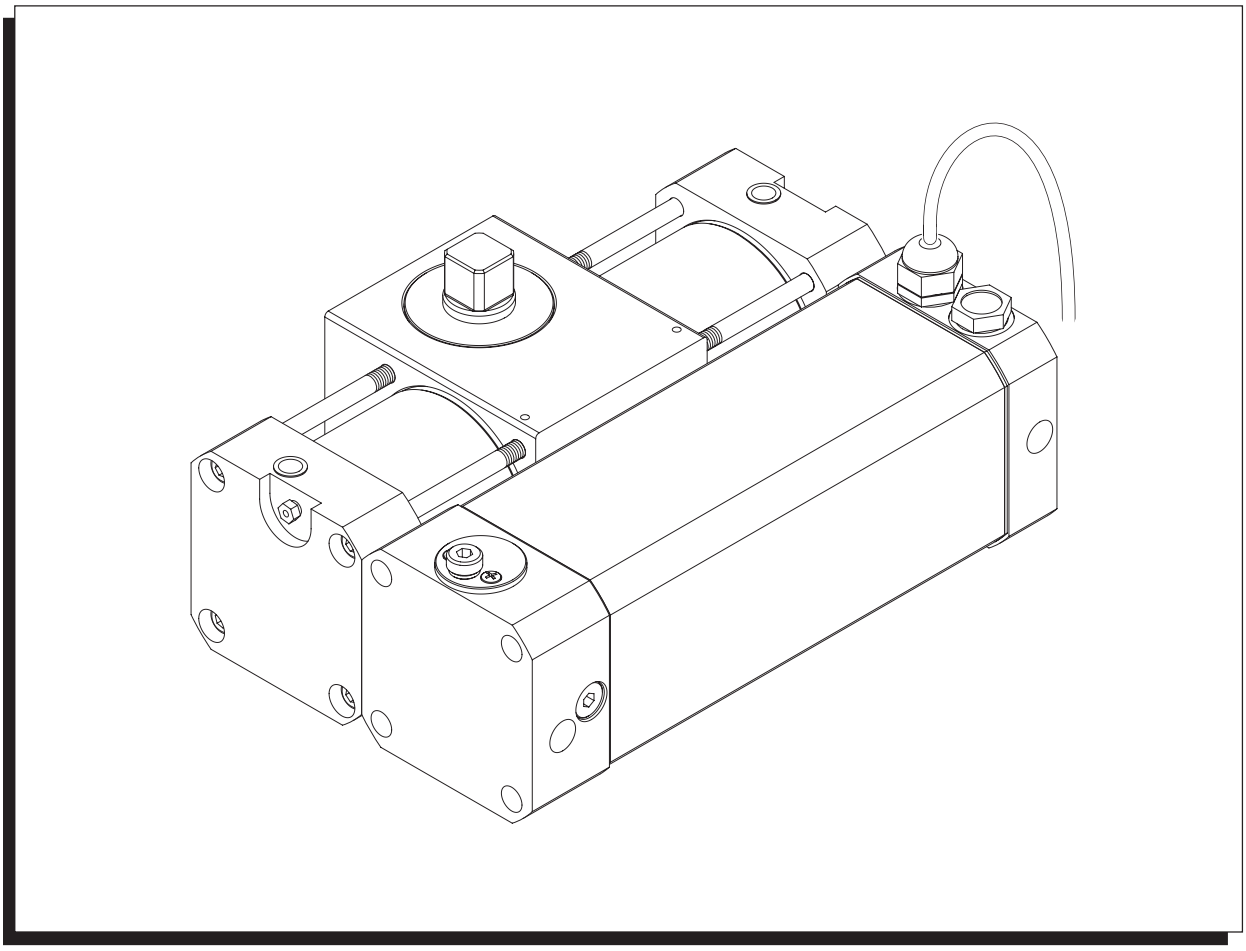
APRICANCELLO OLEODINAMICO INTERRATO
UNDERGROUD OIL-HYDRAULIC AUTOMATION
HYDRAULISCHER UNTERFLUR TORANTRIEB
OUVRE PORTAIL OLEO-DYNAMIQUE ENTERRE'
ABRECANCELAS OLEODINÁMICO ENTERRADO
ELEKTROHYDRAULICZNY PODZIEMNY NAPĘD DO BRAM

CAB®
AUTOMATISMI PER SERRANDE E CANCELLI

SUBWAY



Manuale istruzioni e catalogo ricambi
Operating instructions and spare parts catalogue
Betriebsanleitung und Ersatzteilliste
Livret d'instructions et catalogue des pièces de rechange
Manual de instrucciones y catálogo de recambios
Książeczka z instrukcjami i katalog części wymiennych

AZIENDA CERTIFICATA UNI EN ISO 9002 SGS

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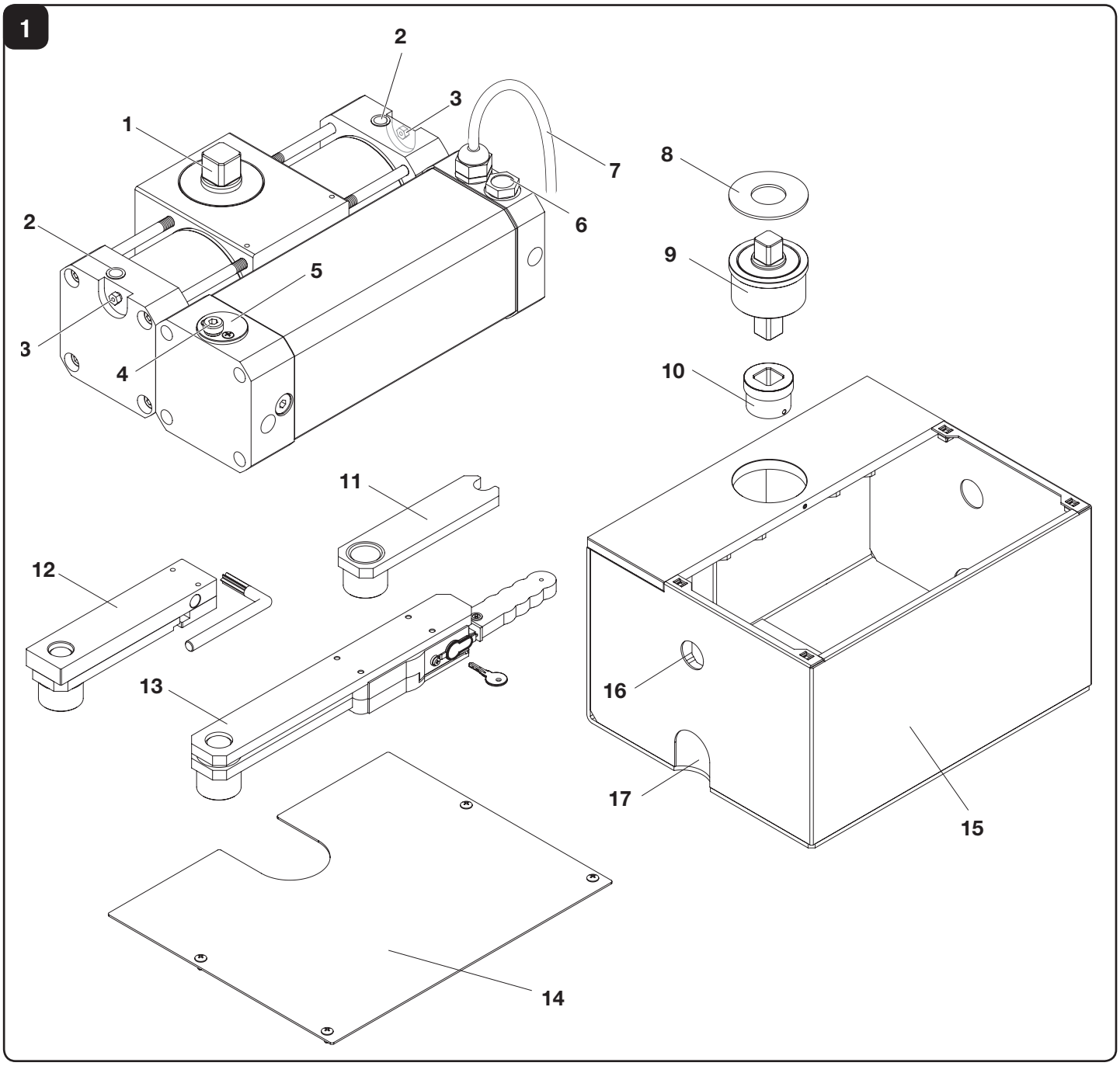
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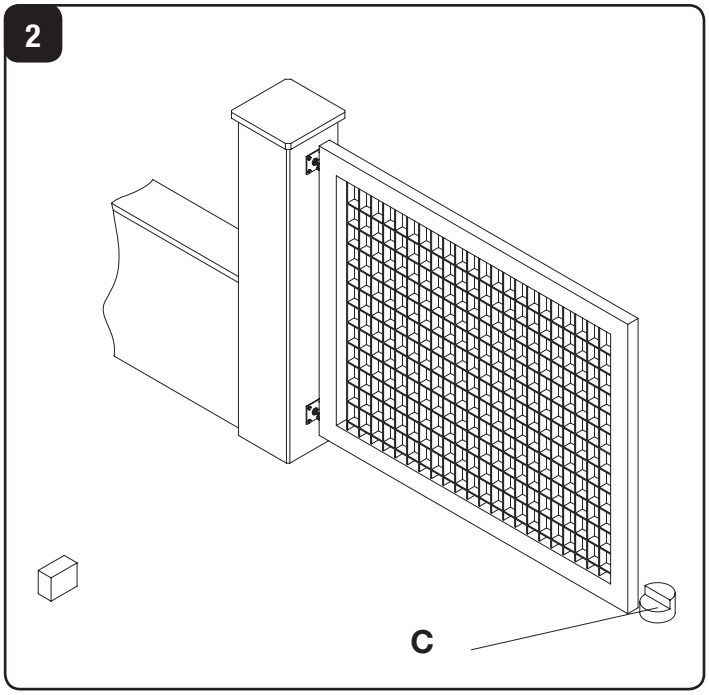
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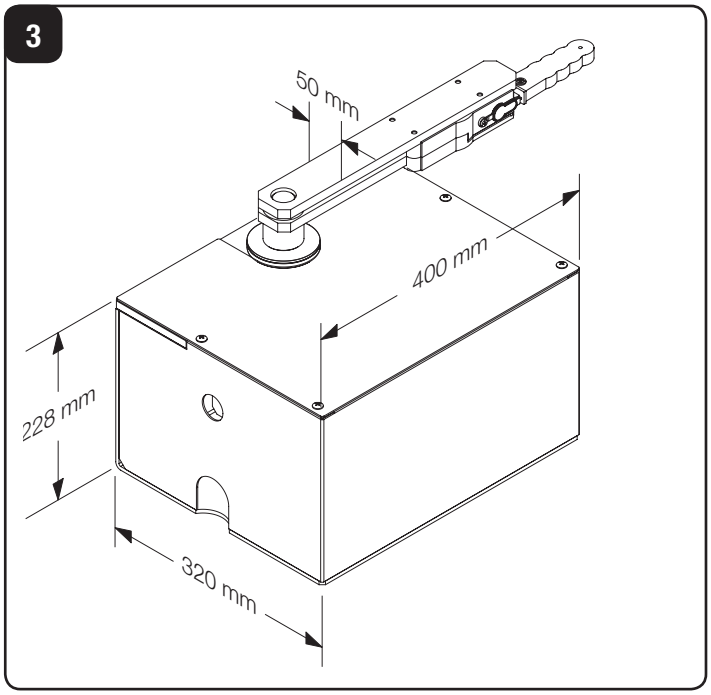
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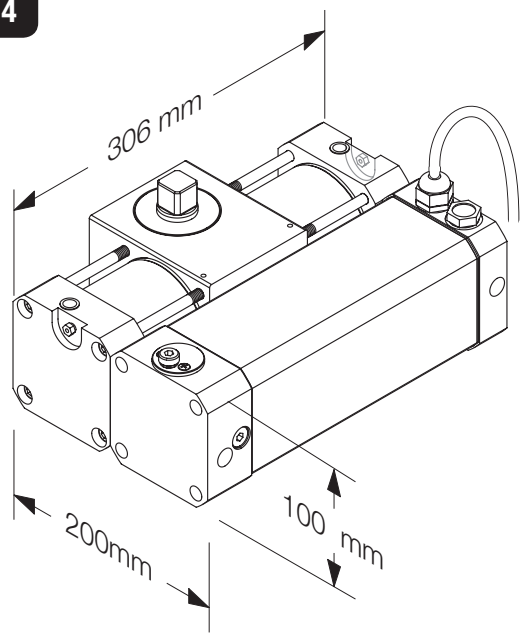

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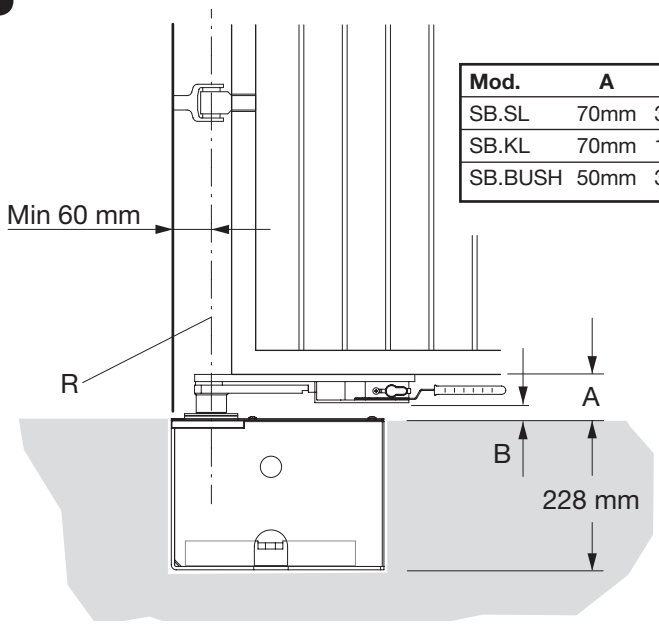

Mod.	A	B
SB.SL	70mm	35mm
SB.KL	70mm	19mm
SB.BUSH	50mm	38mm

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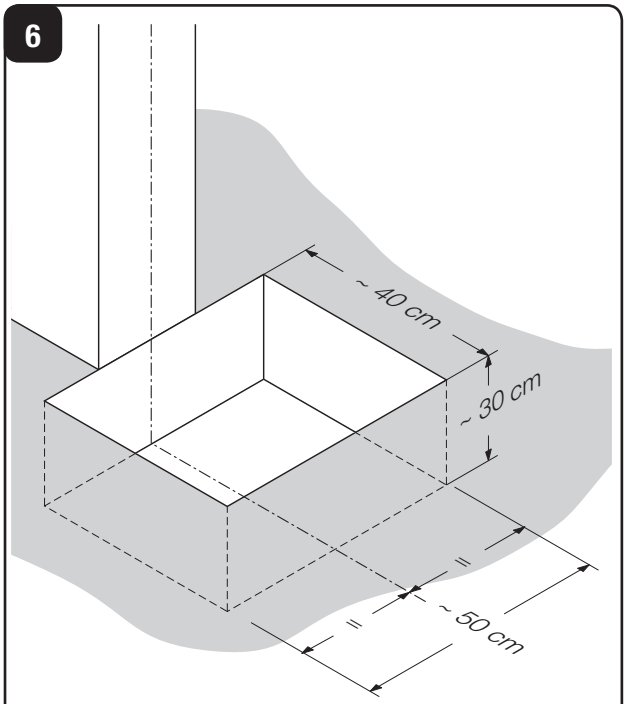

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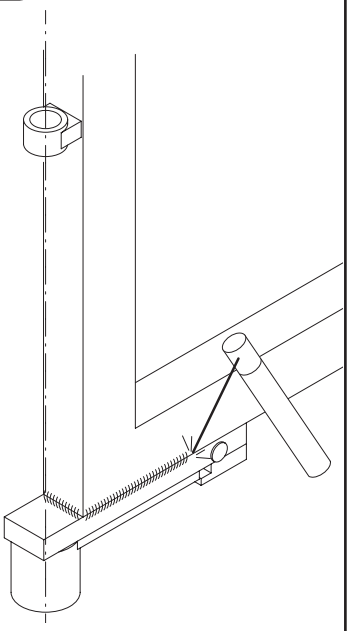

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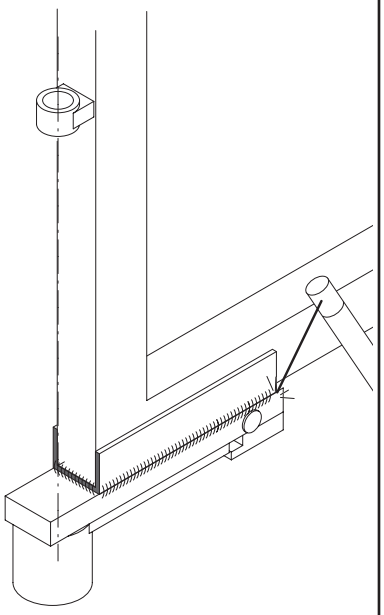

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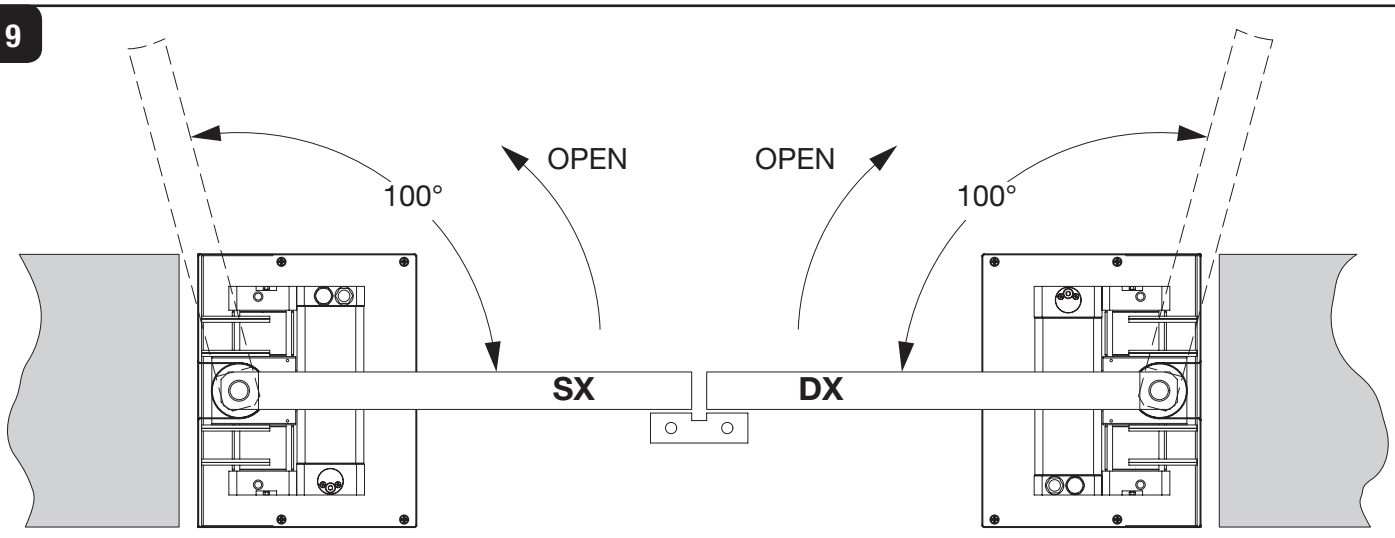

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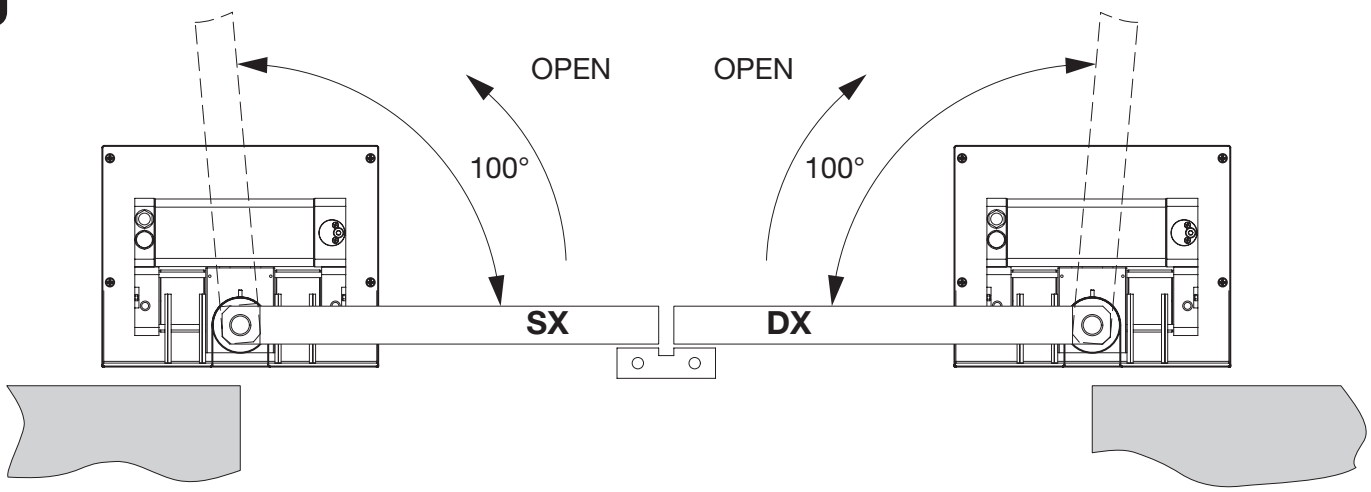

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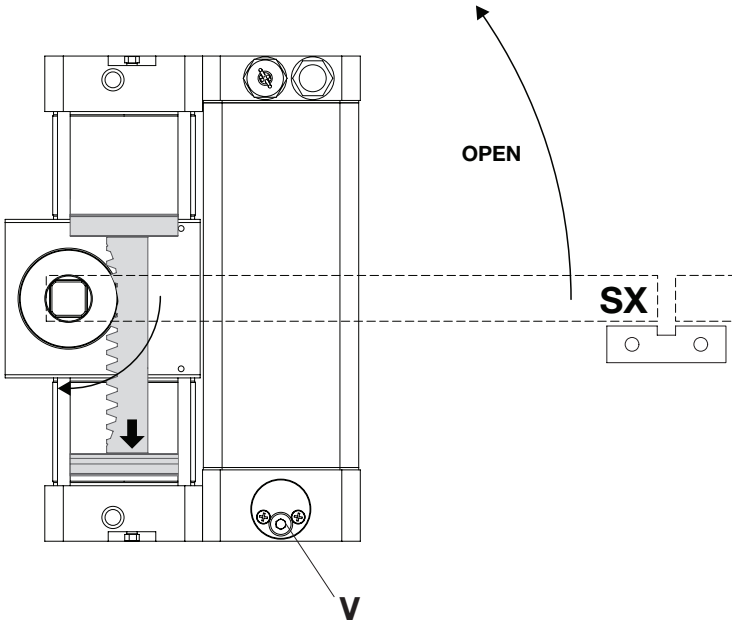

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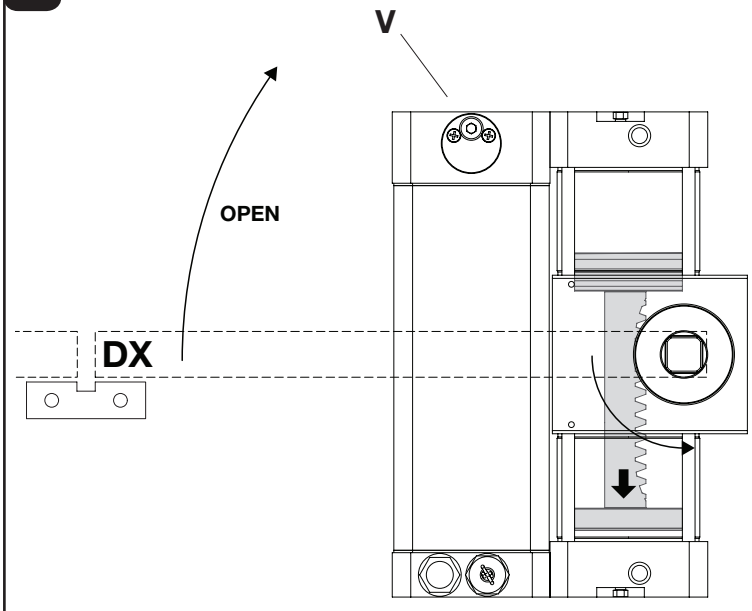

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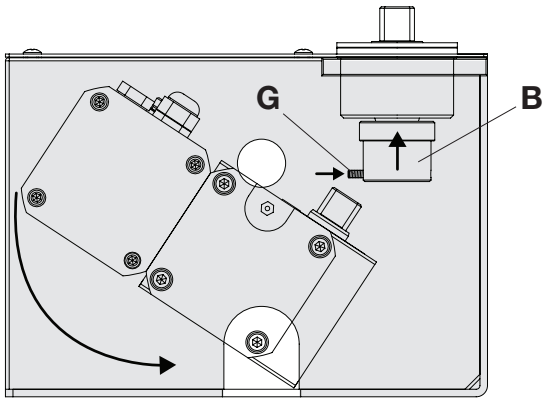

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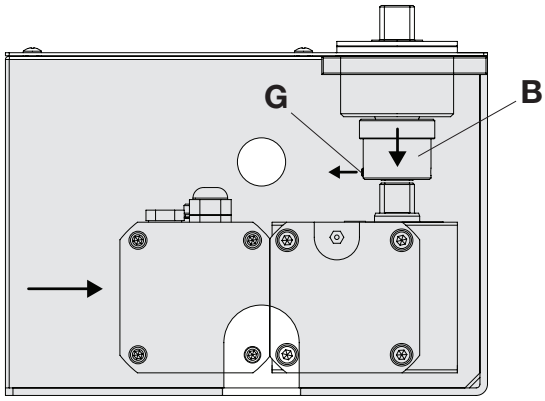

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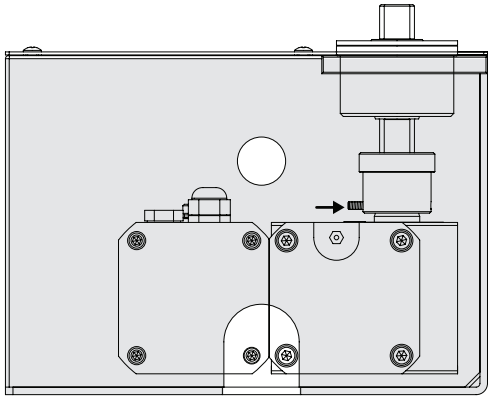

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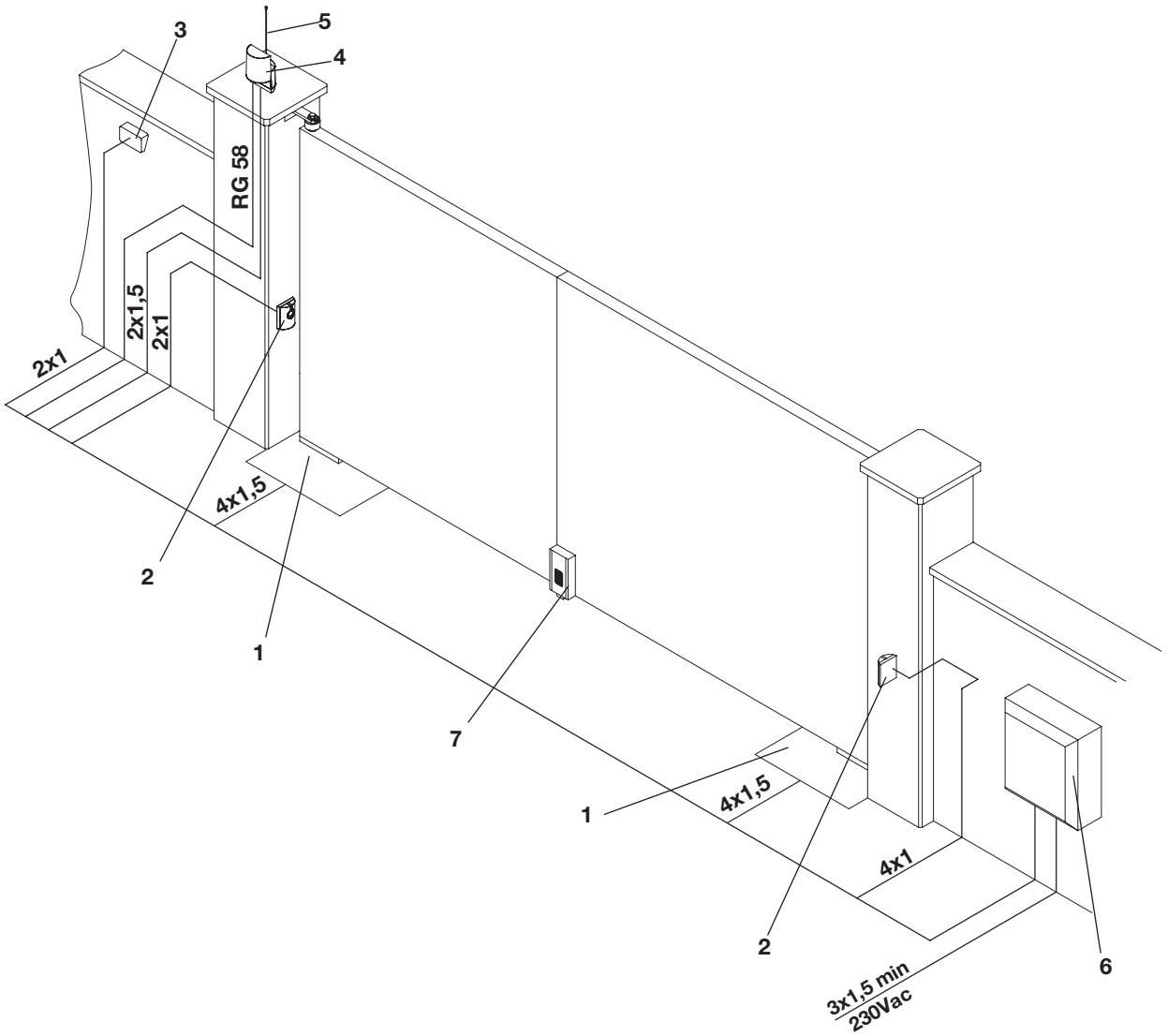
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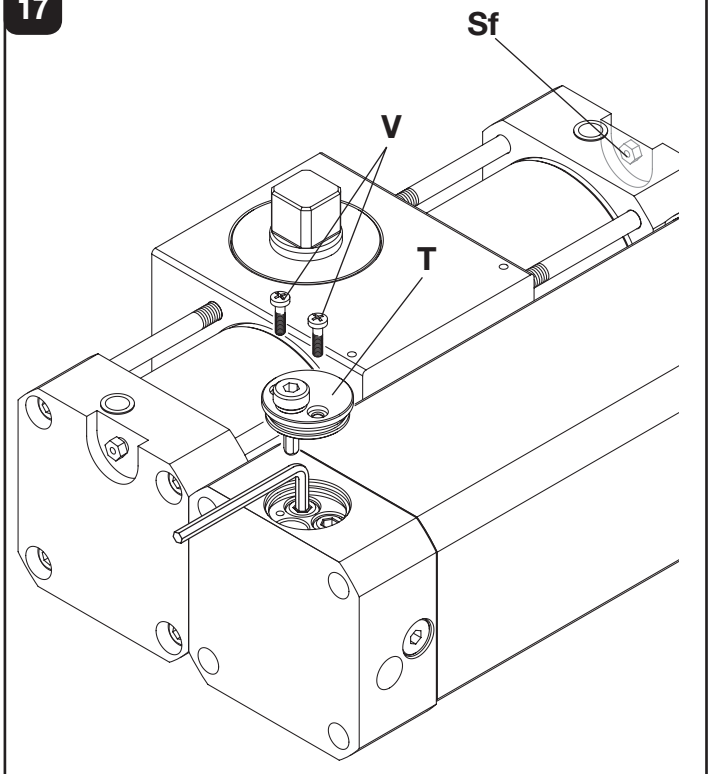
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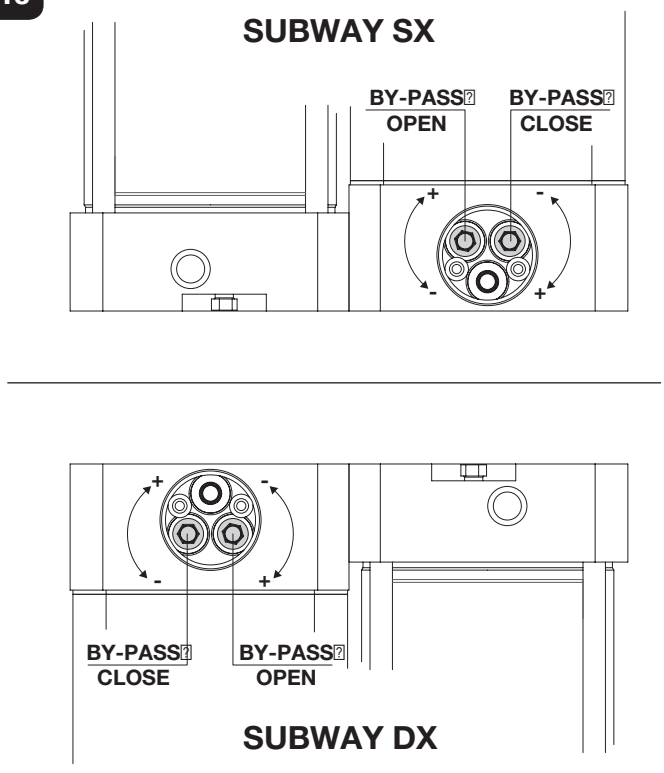
SUBWAY SX
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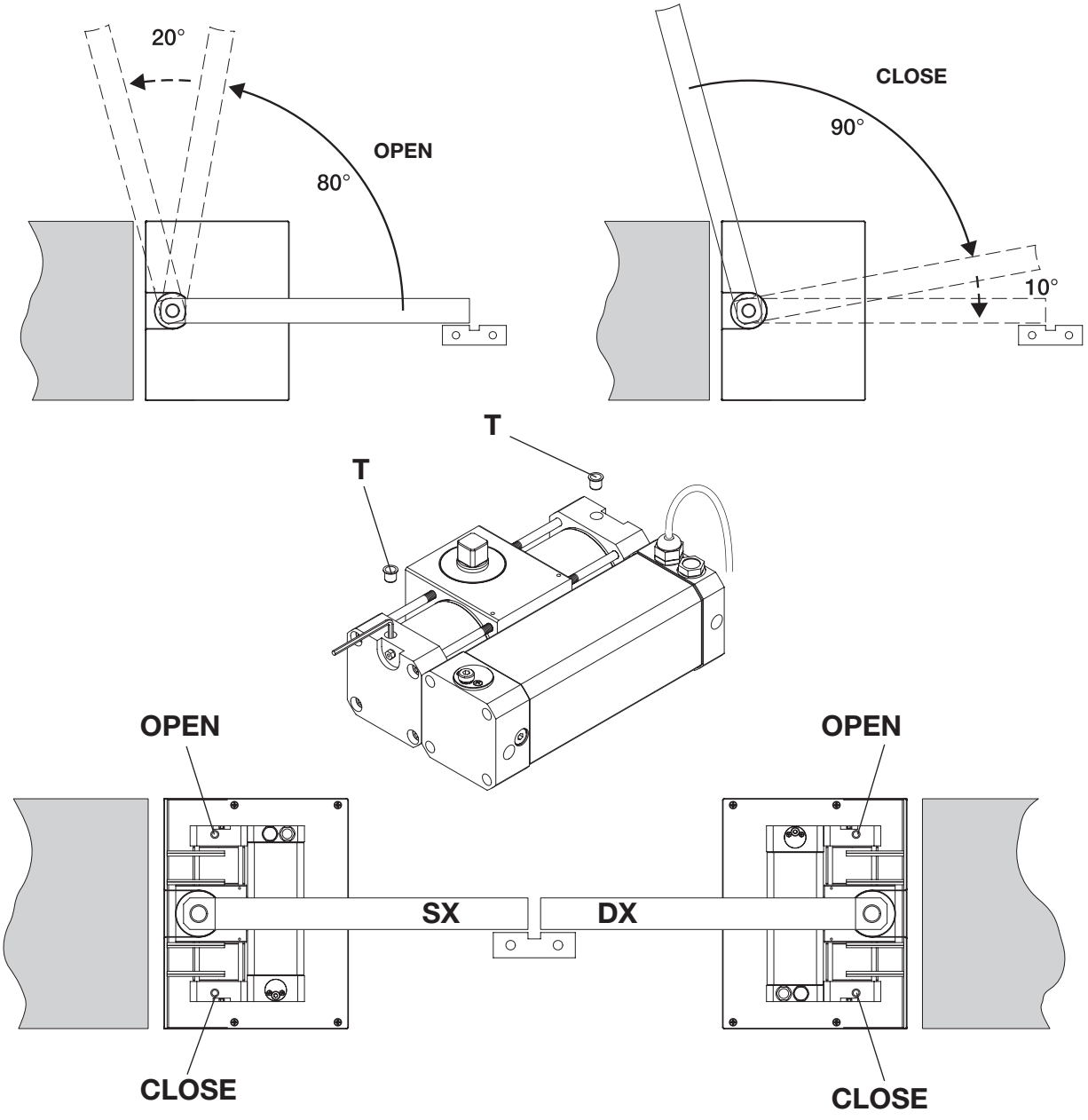

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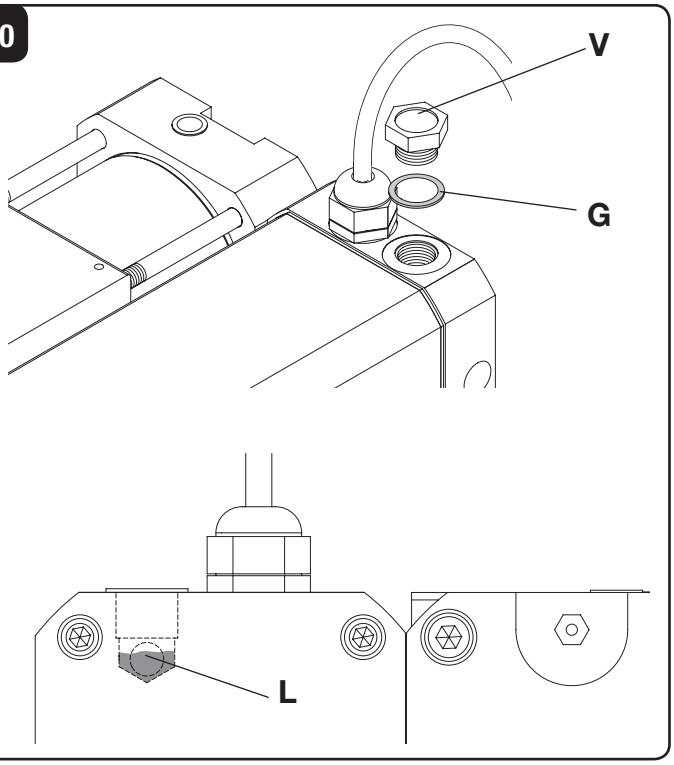

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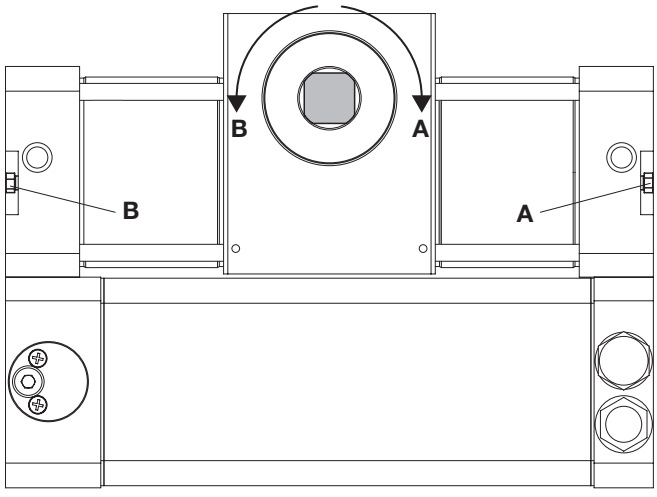


EC Declaration of Conformity regarding machines
(Directive 89/392 CE, Annex II B) - No servicing

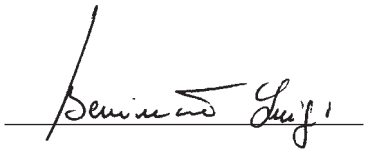
Manufacturer: **AUTOMATISMI CAB Srl**.
Address: Via della Tecnica,10 (z.i.) - 36010 Velo d'Astico (VI) (Italia)

We herewith declare that: the automatic system for swing gates, models **SB.25AC - SB.35AC - SB.50**..

- is intended to be incorporated into a machine or assembled together with other devices to form a machine in compliance with the EC Directive 98/37, as amended;
- therefore, is not in every respect complying with this Directive;
- is complying with provisions set forth by the following other EC Directive:
  EC Low voltage Directive (73/23/EEC, 93/68/EEC).
  EC Directive of Electromagnetic Compatibility (89/336/EEC, 93/68/EEC)

Moreover, we herewith declare that the system shall not be put into service until the machine in which the same will be incorporated or of which it will become a component, is acknowledged compliant with the EC Directive 98/73 and applicable national legislation and a related declaration of conformity is drawn up. In other words, no servicing shall be carried out until the system under this declaration does not form one single final machine with other components.

Benincà Luigi, Legal responsible.
Velo d'Astico, 10/09/2008.



WARNING

The product shall not be used for purposes or in ways other than those for which the product is intended for and as described in this manual. Incorrect uses can damage the product and cause injuries and damages.

The company shall not be deemed responsible for the non-compliance with a good manufacture technique of gates as well as for any deformation, which might occur during use.

Keep this manual for further use.

Qualified personnel, in compliance with regulations in force, shall install the system.

Packaging must be kept out of reach of children, as it can be hazardous. For disposal, packaging must be divided the various types of waste (e.g. carton board, polystyrene) in compliance with regulations in force.

The installer must supply all information on the automatic, manual and emergency operation of the automatic system and supply the end user with instructions for use.

An omnipolar switch/section switch with remote contact opening equal to, or higher than 3mm must be provided on the power supply mains.. Make sure that before wiring an adequate differential switch and an overcurrent protection is provided.

Pursuant to safety regulations in force, some types of installation require that the gate connection be earthed.

During installation, maintenance and repair, cut off power supply before accessing to live parts.

Descriptions and figures in this manual are not binding. While leaving the essential characteristics of the product unchanged, the manufacturer reserves the right to modify the same under the technical, design or commercial point of view without necessarily update this manual.

GENERAL INFORMATION

The oil-hydraulic automatic system, single phase 230Vac power supply, for swing gates, available in the following versions:

SB.25 AC:
for leaves up to 2.5 m width, with lock in the opening and closing phases

SB.35 AC:
For leaves up to 3.5 m width, with lock in the opening and closing phases. For gate leaves wider than 2.5 m, the installation of an electric lock is required

SB.50:
For leaves up to 5m width, reversible model. An electric lock is required.

SUBWAY is an oil-hydraulic system to be installed underground, inside the special load-bearing box, Art. SB.FB. All the models can be installed indifferently on right and left-hand leaves. The motor performs a mechanical slowdown in both opening and closing phases. Braking can be adjusted and, if necessary, excluded.

The max stroke available is equal to 100°.
All CAB items are covered by an insurance policy for damages to objects or persons caused by manufacture defects. This policy, however, requires that the machine is marked CE and the components used for CAB are the original ones.

PRELIMINARY CHECKS

For a good operation of these automatic systems, the gate shall fulfil the following characteristics:
- good strength and stiffness.
- hinges shall have a minimum backlash and allow that the manual operations be smooth and regular.
- when closed, the gate leaves must match along the entire height.

DESCRIPTION OF COMPONENTS AND ACCESSORIES FIG.1

FIG.1

1 Output shaft
2 Protection cap for braking adjustment screw
3 Air bleed screw
4 Hydraulic release knob
5 Protection cap of by-pass valves
6 Oil cap
7 Power supply cable
8 Protection washer
9 Connection shaft
10 Connection bush
11 SB.BUSH plate without release for reversible versions
12 SB.SL release with standard lever
13 SB.KL release with customized key
14 Lid for SB.FB box
15 SB.FB self-bearing box
16 Duct for connecting cables
17 Water drain

MECHANIC STOPS - FIG.2

If they have not provided yet, closing and opening mechanic stops must be provided, regardless from the type of operator installed.

SPECIFICATIONS	SB.25AC	SB.35 AC	SB.50	
Power supply	230V 50Hz			
Power	250 W			
Absorbed current	1.2 A			
Motor speed adjustment	1400 rpm			
Cycles/hour (at 20°C)	55	45	35	
Pump capacity	1 l/min	0.75 l/min	0.5 l/min	
Max pressure	30 bar			
Operation temperature	-20°C / +55°C			
Protection level	IP 55			
Max torque	400 Nm			
Thermal protection	150°C			
Noise	< 70 db (a)			
Capacitor	10 mF			
Max gate leaf width	2.5 m	3.5 m	4 m	5 m
Max gate leaf weight	500 Kg	800 Kg	800 Kg	500 Kg
Angular speed	9°/s	6°/s	4.5°/s	
90° opening speed (braking excluded)	10 s	15 s	20 s	
Oil	BIO OIL			
Braking adjustment	Hydraulic braking in opening/closing phase			
Rotation angle of braking in closing phase	10° fixed			
Rotation angle of braking in opening phase	Between 80° and 100°			
Max usable rotation angle	100°			
Type of bloc	Hydraulic AC	Hydraulic AC*	Reversible	
Electric lock	No	NO (leaf, 2.5m max)	Yes	
Weight	15 kg			

The mechanic stop, in the closing phase (ref. C), is of key importance due to the specific features of the oil-hydraulic systems. See "lock maintenance" function in instructions of the control unit.

DIMENSIONS

Fig.3: Box overall dimensions (mm)
Fig.4: Motor overall dimensions (mm)
Fig.5: Overall dimensions of the installation. The minimum clearance between a rotation pin and the pier is 60 mm.
In the table of Fig.5, the minimum dimensions required for the box and the lower profile of the door leaf are shown in the various release versions. Dimension B is the clearance between the release and the cover.

INSTALLATION

HOLE AND FITTING OF THE BOX

Dig a foundation hole with indicative dimensions shown in Fig.6.
Make sure that the centre of the hole is aligned with the rotation axis of the gate leaf (sectioned line).
Provide for an adequate water drain (Fig.1 ref.17), and prepare the entrance of the cable duct (Fig.1 ref.16).
Water accumulating inside the box is however to be avoided. Possibly provide for a draining pipe connected to the nearest drain.
Make sure that the rotating axis of the gate leaf (fig.5 ref. R) is perfectly vertical and that the box is perfectly flat.
Fix the box with cement.

WELDING OF THE GATE LEAF

Carry out a careful welding of the rotation bracket onto the entire profile of the gate leaf (Fig.7).
It is possible to avoid welding directly onto the gate leaf by providing an adequate C bracket to be inserted between the gate leaf and the rotation bracket (Fig.8).

In addition to the standard installation shown in Fig. 9, the system can be also positioned as shown in Fig. 10, if the gate leaves are installed internally.

MOTOR INSTALLATION

Before installing the motor, keep in mind that:

The motor can be assembled onto either right or left gate leaf.

With reference to Fig. 9, a SX leaf is the leaf on the left, while a DX leaf is the leaf on the right.

The gate leaf features a 10° hydraulic braking during closure and 20° hydraulic braking during opening.

Preparation of right and left motors.

With reference to Fig.11, for left motors:
1 Hydraulically release the motor by loosening the V release screw.
2 Completely turn the output shaft clockwise, until it reaches the closed position.

With reference to Fig.12, for right motors:
1 Hydraulically release the motor by loosening the V release screw.
2 Completely turn the output shaft anti-clockwise, until it reaches the closed position.

The motors can be also electrically moved to the closed position by temporarily connecting them to the control unit.

Placing the motors in the box

The operations are similar for either gate leaves:
1 Open the gate leaf so as to facilitate the access to the box.
2 By referring to Fig.13, lock the bush B on the drive shaft by means of the grain G.
3 Place the motor inside the box.
On the bottom of the box, a track matching the grove on the motor is provided.
The motor is correctly positioned inside the box by sliding the motor onto this track until it clicks.
4 Close the gate leaf until it reaches the gate stop.
5 By loosening the grain G, the bush slides on the motor shaft, thus connecting the motor shaft to the drive shaft, Fig.13b.
To perfectly align the drive shaft, the motor shaft might be slightly rotated.
6 Fix the grain G to lock the bush in the working position, Fig.13c.
7 Tighten the hydraulic release screw, if previously backed off.

WIRE CONNECTIONS

For the electric connections of the automatic system and to adjust the operating modes, see the Operating Instructions of the control unit.
The motor is supplied with a special pre-cabled, four pole cable marked as follows:
BLACK: RUN
GREY: COMMON
BROWN: RUN
YELLOW/GREEN: EARTH
Fig.16 shows cabling to be provided for a standard installation. Before laying the cables, check the type of cabling required for accessories actually used.
Key of components:
1 SUBWAY geared motor
2 Photocells
3 Key selector or digital keypad
4 Flashing warning beacon
5 Antenna
6 Control unit
7 Electric lock *

**The installation of the electric lock is mandatory in models with hydraulic lock or in any case for gate leaves wider than 2.5 m*

IMPORTANT: Keep the power cable detached from the auxiliary ones.

ADJUSTMENT OF THE THRUST FORCE

The operator is equipped with an anti-crash device (by-pass valves) for the regulation of the thrust on the gate leaf when it hits an obstacle. Once the obstacle has been removed, the gate carries on its movement for the operating time preset by the control unit.
With reference to Fig.17:
- Remove the two screws V.
- Remove the protection cap of valves.
- By using a 6mm Allen key, proceed to the thrust regulation.
- There are two adjustable valves, one regulates thrust in the opening phase (Open), the other regulates thrust in the closing phase (Close).
- According to the motor positioning (SX-Left/DX-Right) the opening and closing valves are reversed. Fig. 18 shows the differences between the two positions.
- By turning the valve towards +, the thrust force of the

gate leaf is increased. By turning it the opposite direction (-) thrust decreases.

WARNING! This adjustment influences the safety level of the automatic system.

Make sure that the thrust applied to the gate leaf is compliant with provisions set out by regulations in force.

A**DJUSTMENT OF BRAKING**

All the models are provided with braking adjustment in both opening and closing phases for a slower movement of the gate leaf in the final phase of operation.

Fig. 19 shows the gate leaf performance, assuming, for simplicity purposes, that the total thrust available (100°) is used:

- During the opening phase, the gate leaf starts the operation at full speed and, after reaching 80° opening, it starts braking and continues for other 20°.
- During closure, the gate leaf starts operation at full speed and, with 10° advance with respect to the mechanic stop, it starts braking.

Adjustments are carried out by means of two special regulation screws protected by two caps T (Fig.20).

By using a 3mm Allen key:

- Loosen the screw to increase braking.
- Fix the screw to reduce braking.
- According to the motor position (SX-Left/DX-Right) the opening and closing adjustment screws are inverted. Fig.19 shows the differences between two positions.

By loosening the valve to the maximum, braking is deactivated.

Never exercise force on the adjustment valve.

T**OPPING UP/REPLACEMENT OF OIL**

All oil-hydraulic operators require a periodic review of the oil level.

To top up oil, after cutting off the mains power supply, unscrew the cap shown in Fig.20.

At the bottom of the housing of screw V (Fig.20), the oil level should be seen, as shown in section L. If the oil level cannot be seen, a topping up is required.

Use original BIO OIL only.

Check the good conditions of the gasket G. If it is worn or damaged, replace it.

AIR B**LEED SCREWS**

Two air bleed screws (Fig.1 rif-3) allow for air bleeding from the operator pistons.

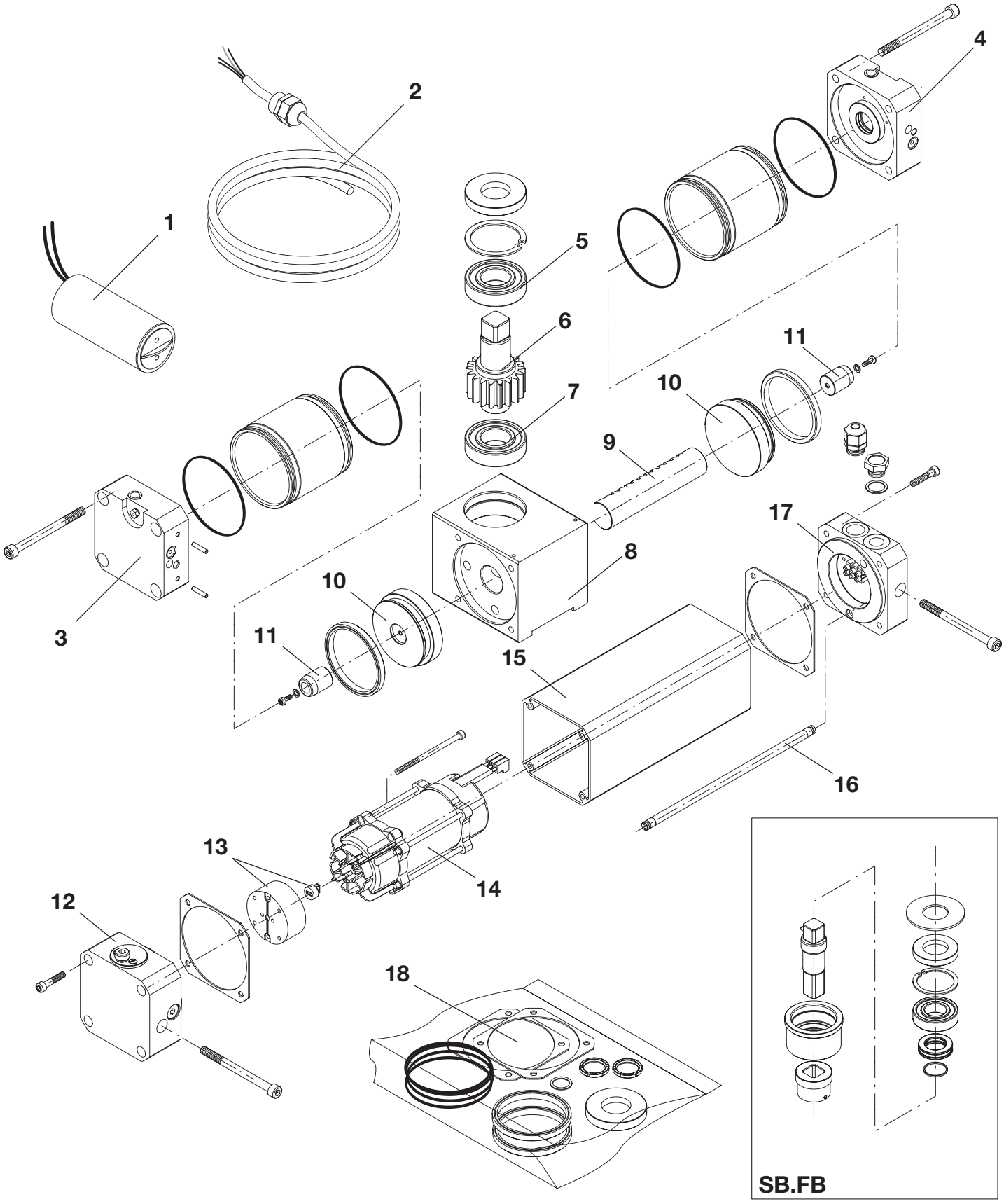
The operator is supplied without air in the hydraulic circuit, therefore, no intervention is usually required.

However, in the event of extraordinary maintenance operations (total de-assembly and assembly of the operator), bleeding should be carried out.

For practical reasons, we advise to bleed air before reinstalling the operator, by temporarily connecting to the control unit:

- Send an opening control, until the jack is against the limit switches and, with motor on, open the air bleed screw *.
- Bleed air until not emulsioned oil appears.
- Fix the air bleed screw.
- Carry out the same procedure for the closing phase.
- Perform this operation more than once, for both air bleed screws.
- Check oil level, if required top up with oil.

** To find the opening and closing air bleed screws for the right and left versions, refer to Fig.21:*
if the rotation direction is the one indicated by arrow A, the air bleed screw which must be used is screw A, and viceversa, if the rotation direction is indicated by arrow B, the air bleed screw which must be used is screw B.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SB.FB

SUBWAY

USER'S HANDBOOK

SAFETY RULES

- Do not stand in the movement area of the gate.
- Do not let children play with controls and near the gate.
- Should operating faults occur, do not attempt to repair the fault but call a qualified technician.

EMERGENCY MANUAL OPERATION

In case of power failure or malfunction, the gate leaves can be moved by hand as follows:

Models with standard lever release, SB.SL (Fig.1)

- remove the plastic cap T by pressing on its edge.
- insert the key C supplied and turn it.
- keeping the key turned, push the gate leaf until it rotates by some degrees.
- remove the key and place the caps again. The gate will lock again automatically as soon as it is moved to the initial position or when the motor is restarted.

Models with customized key release, SB.SK (Fig.2)

- remove the protection pressure cap "T" of the lock.
- insert key "C" and turn it until it becomes hard to rotate.
- turn lever "L" in either direction until a limit switch is reached.

The gate leaf can be now opened and closed by hand.
To reset the automatic movement, move level "L" to the original position, turn and extract the customized key "C" and close cap "T" again. The first operation will reset the normal operation.

Models without mechanic release (SB.BUSH)

As they are reversible, these models simply require the electric lock to be released. The gate leaf can be then moved by hand.
Push the leaf by acting with moderation at one end, accompanying the gate along its entire stroke.

WARNING: in the manual phase, the gate leaf is completely free and can be subject to sudden movements.

MAINTENANCE

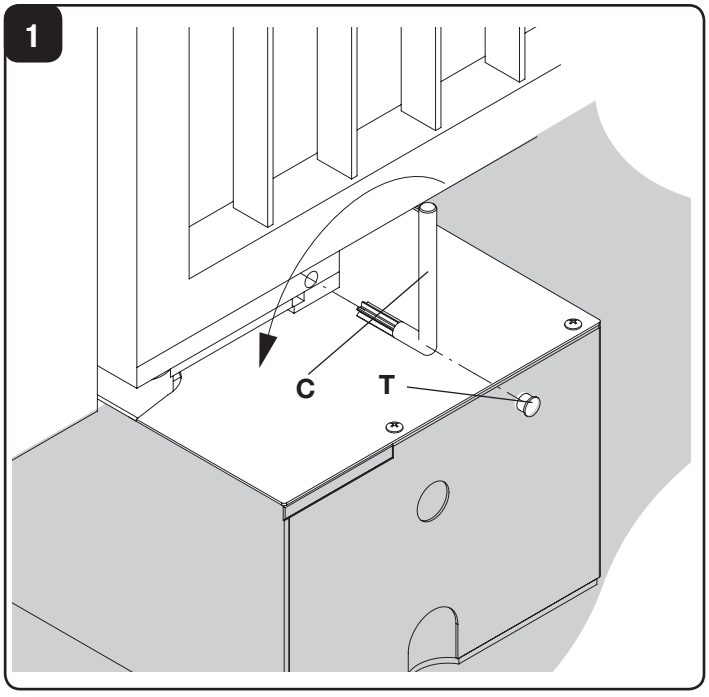
- Every month check the good operation of the emergency manual release.
- It is mandatory not to carry out extraordinary maintenance or repairs as accidents may be caused. These operations must be carried out by qualified personnel only.
- Periodically check safety components and any other parts of the system that may become hazardous if worn.

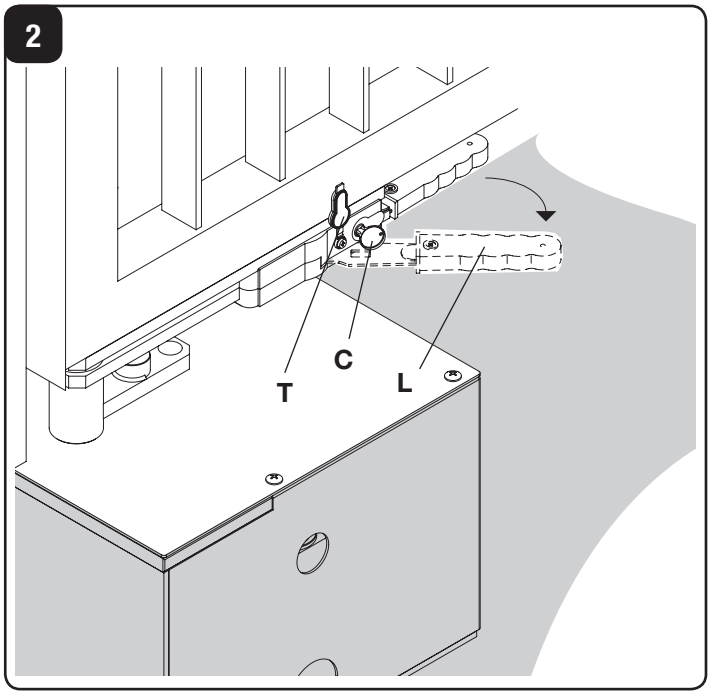
WASTE DISPOSAL

If the product must be dismantled, it must be disposed according to regulations in force regarding the differentiated waste disposal and the recycling of components (metals, plastics, electric cables, etc..). For this operation it is advisable to call your installer or a specialised company.

WARNING

All CAB products are covered by insurance policy for any possible damages to objects and persons caused by construction faults under condition that the entire system be marked CE and only CAB parts be used.





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AUTOMATISMI PER SERRANDE E CANCELLI

AUTOMATISMI CAB Srl - Via della Tecnica,10 (z.i.) - 36010 Velo d'Astico (VI) (Italia) - Tel. 0445 741215 - Fax 0445 742094