FEATURES AND SPECIFICATIONS

The **MINI TANK** is a high quality hydraulic operator for residential and condominium use with leaf length up to 3 m.
Available in the following versions:
AC *(with lock in opening and closing)*
SC *(with lock only in closing)*
SA *(with lock only in opening)*
SB *(without lock)*

The lock is guarantied on leaves with lengths under 1,80 m. For leaves which are longer than 1,80 m use, for all versions, an electric lock.
The Mini Tank is supplied with by-pass valves for the power regulation in both opening and closing. Electronic adjustable slow down in opening and closing with control board. For the European laws and directives actually in force it is strongly recommended to use the Safety Gate (device for the reading of the gate position), for reverse in case of obstacle.

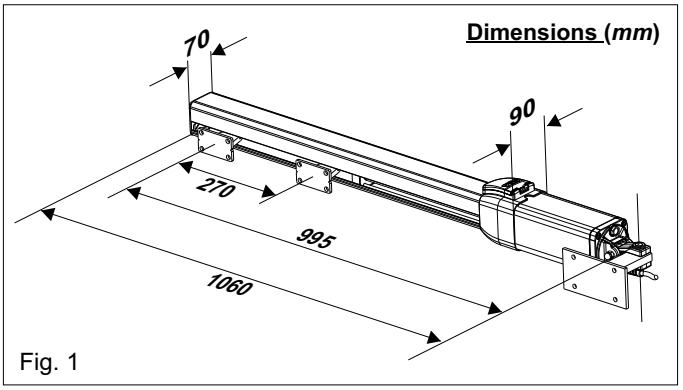
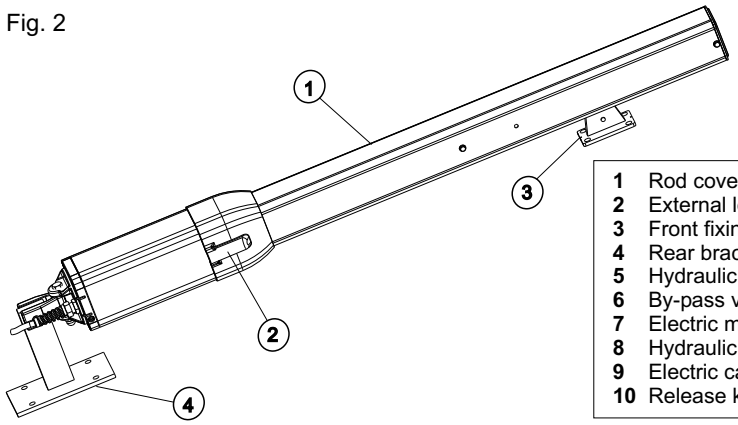
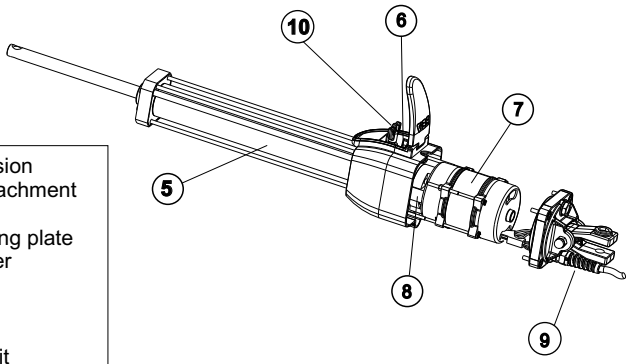


Fig. 1

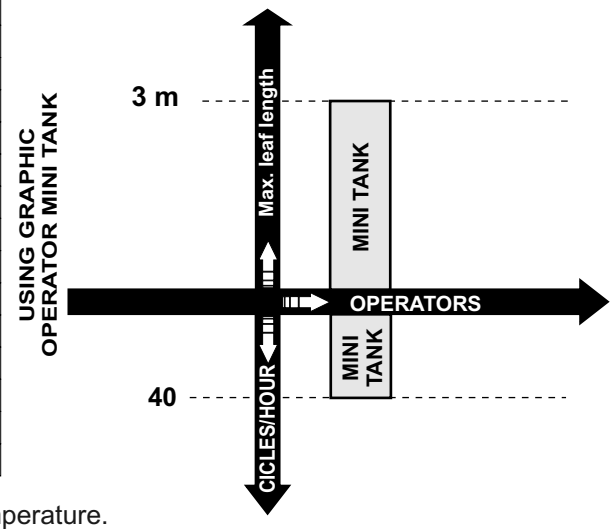
Fig. 2





1	Rod cover extrusion
2	External lock attachment
3	Front fixing
4	Rear bracket fixing plate
5	Hydraulic cylinder
6	By-pass valves
7	Electric motor
8	Hydraulic pump
9	Electric cable exit
10	Release key

TECHNICAL FEATURES	***MINI TANK***
Power supply	230 V (±5%) 50/60 Hz
Power	180 W
Absorbed current	1 A
Stroke	270 mm
Cycles hour (at a temp. of 20°C)	40
Max working pressure	30 bar
Operating temperatures	-40°C +60°C
Thermal protection	130°C
Max Thrust	250 daN
Capacitor	6,3 µF
Weight	10 kg
Protection class	Ip55
Max leaf lenght	3 m
Opening degree of the leaf	90° - 110°



Note: The frequency of use is valid only for the first hour at 20°C room temperature.
Note: in non-automatic logic, use operators without lock.

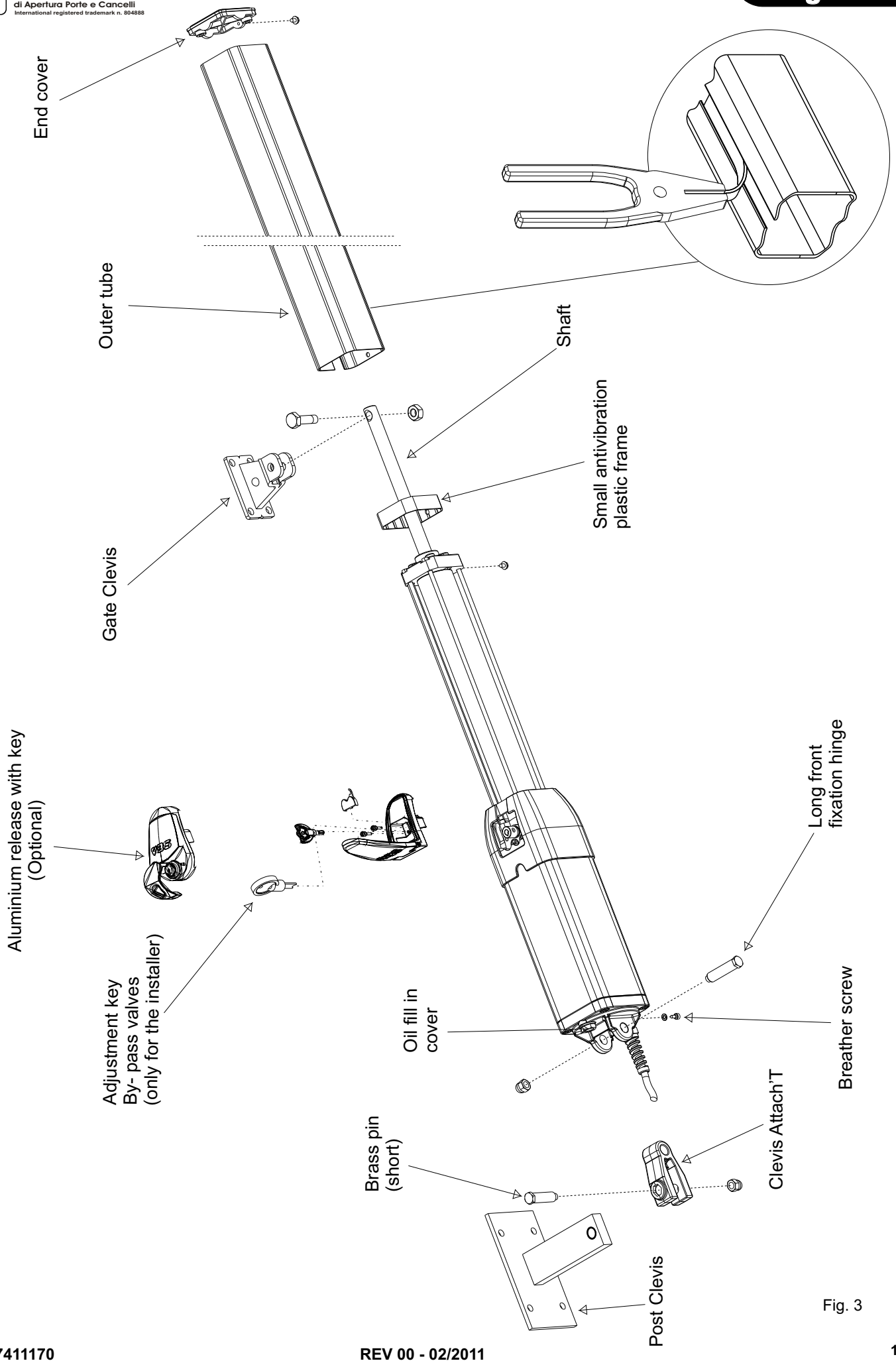
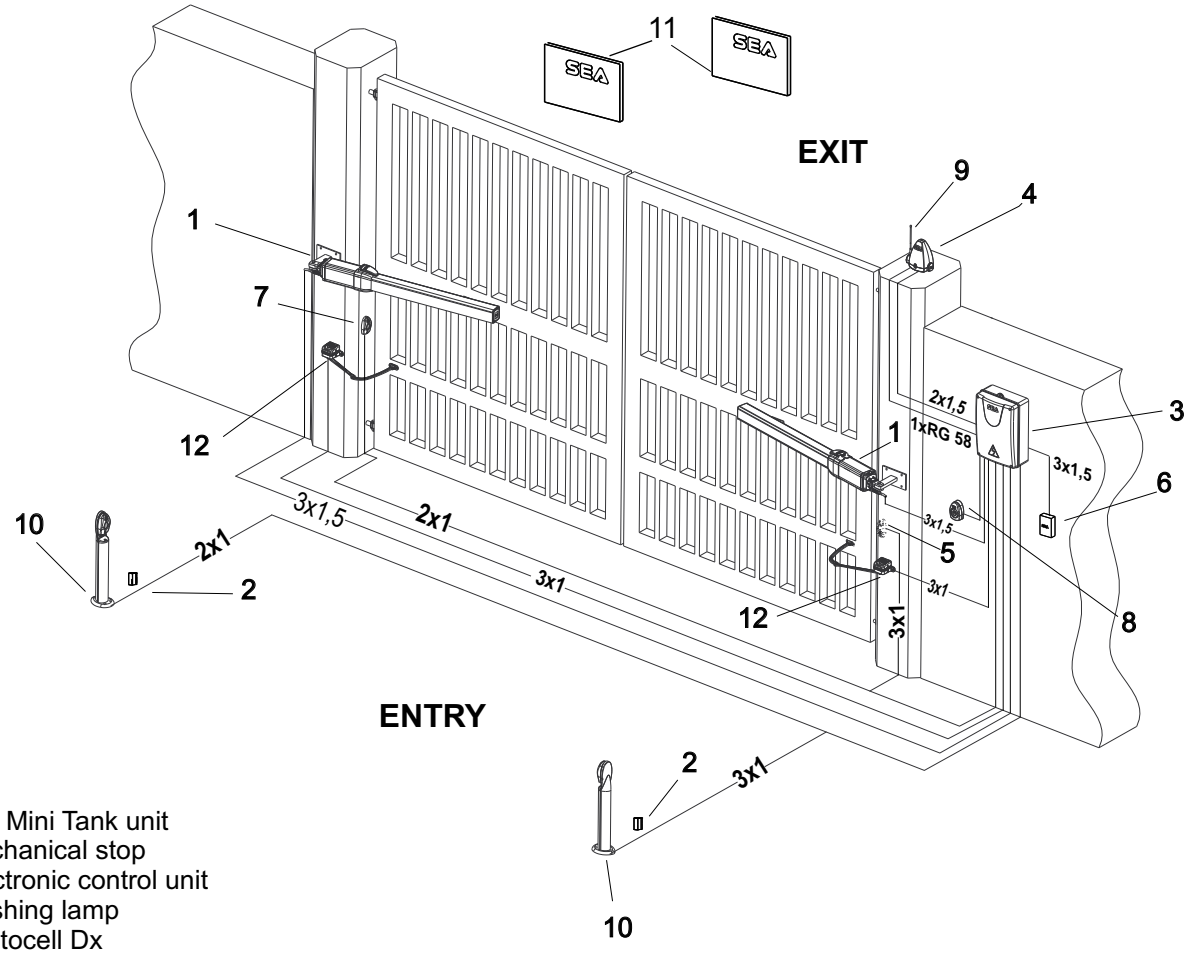

End cover
Outer tube
Shaft
Small antivibration plastic frame
Gate Clevis
Aluminium release with key (Optional)
Adjustment key By- pass valves (only for the installer)
Oil fill in cover
Long front fixation hinge
Breather screw
Brass pin (short)
Clevis Attach'T
Post Clevis

Fig. 3

STANDARD INSTALLATION



1) The Mini Tank unit
2) Mechanical stop
3) Electronic control unit
4) Flashing lamp
5) Photocell Dx
6) Differential switch 16A - 0,03A
7) Photocell Sx
8) Start - stop push button with key
9) Antenna
10) Support for photocells with photocells
11) Warning notice
12) Safety Gate

INSTALLATION TYPE

It is possible to install the Mini Tank with the opening towards the inside (Fig. 4) or towards the outside (Fig. 5).

Inside Opening Installation

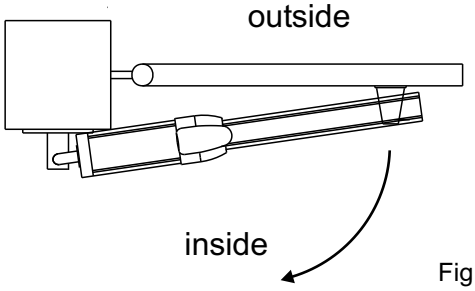


Fig. 4

Outside Opening Installation

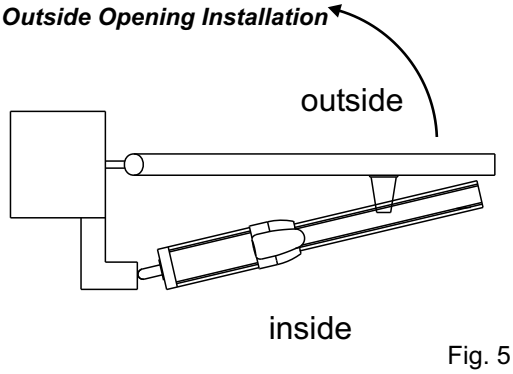


Fig. 5

Install the operator always on the inside of the property

INSIDE OPENING INSTALLATION

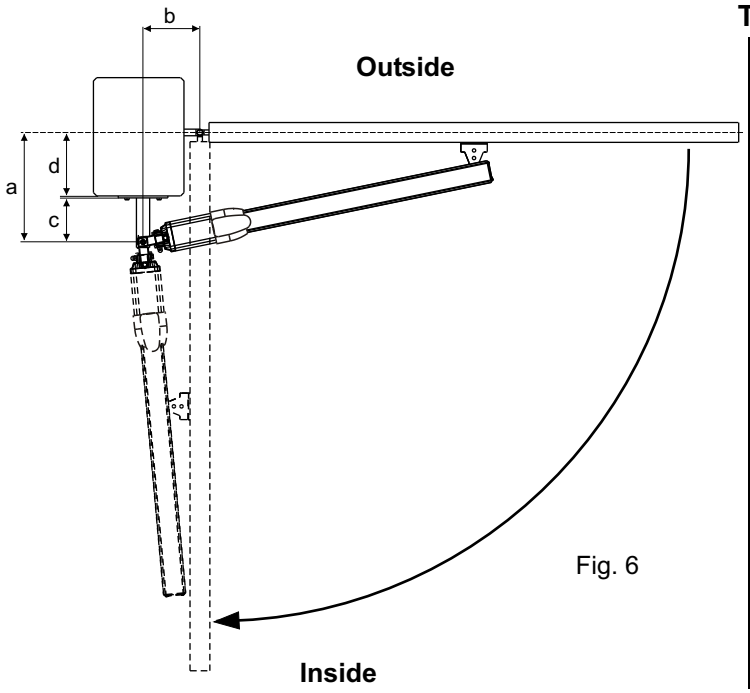


Fig. 6

Total stroke 270 mm - max suggested stroke 250 mm

a (mm)	b (mm)	d_{max} (mm)	Max Opening Angle	Max stroke **(mm)**	Stroke for 90°**(mm)**
100	115	50	**110°**	**250**	**215**
100	150	50	**90°**	**250**	
105	110	55	**110°**	**246**	**215**
105	145	55	**90°**	**250**	
120	105	70	**105°**	**249**	**225**
120	130	70	**90°**	**250**	
125	125	75	**90°**	**250**	
140	95	90	**100°**	**250**	**235**
140	110	90	**90°**	**250**	
145	95	95	**100°**	**255**	**240**
145	105	95	**90°**	**250**	
150	100	100	**90°**	**250**	
155	85	105	**95°**	**249**	**240**
160	90	110	**90°**	**250**	
170	75	120	**90°**	**248**	
180	65	130	**90°**	**247**	

To obtain 110° with d > 55 mm it is necessary to make a niche in the gate.

INSIDE OPENING INSTALLATION

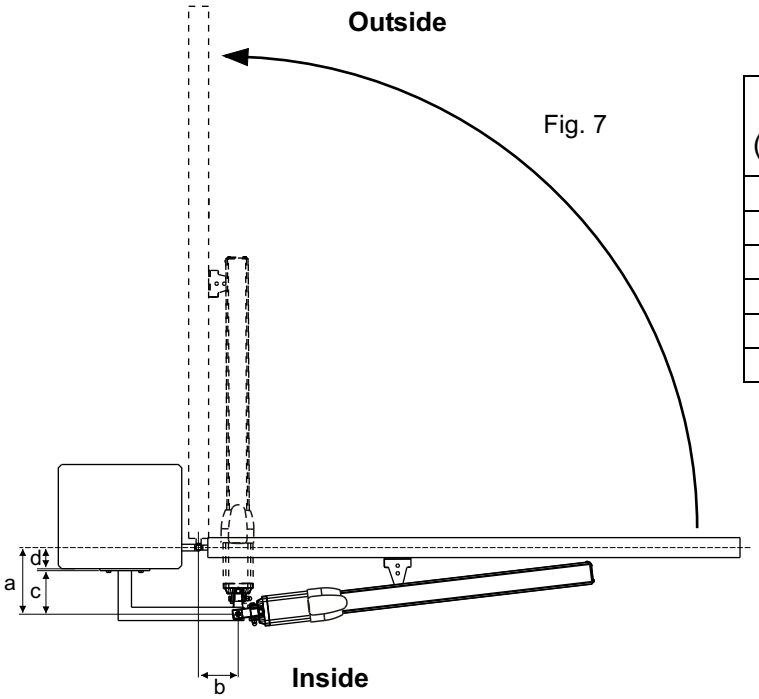


Fig. 7

a (mm)	b (mm)	Max Opening Angle	Max stroke **(mm)**	Stroke for 90°**(mm)**
150	90	**95°**	**250**	**240**
160	90	**90°**	**250**	
165	80	**95°**	**249**	**243**
175	80	**90°**	**250**	
180	70	**90°**	**250**	
180	65	**90°**	**241**	

OSCILLATING FORK INSTALLATION

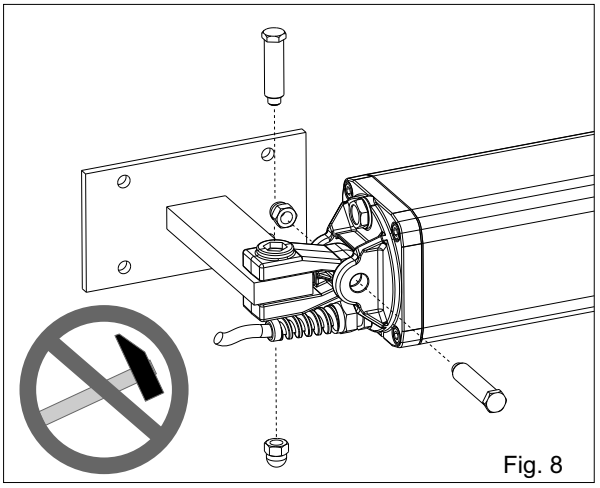


Fig. 8

PRELIMINARY
-Open the package carefully, paying attention to not lose the parts reported in fig.3
-Fix the oscillating fork as in fig.8

Attention: **do not use the hammer** to insert the short brass pivot; the insertion of the pivot into the fork and bracket must be made simply by hand pressure.

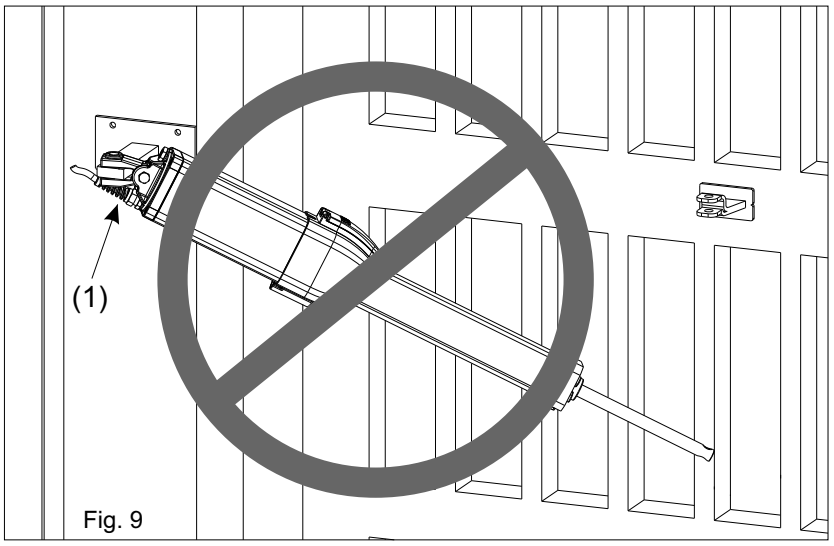


Fig. 9

Attention
Do not incline the hydraulic operator further then the allowed angle from the oscillating fork (1), could cause the braking of it (1).

BACK FIXATION MOUNTING

According to the chosen opening type (inside or outside) and according to the chosen max. rotation of the leaf (see page 17) the bracket must be first cut respecting the mesurment “a” on pag. 17 and than welded as in fig.10.

The support must be positioned so that the operator is in perfect horizontal position (Fig. 10, Fig.12).

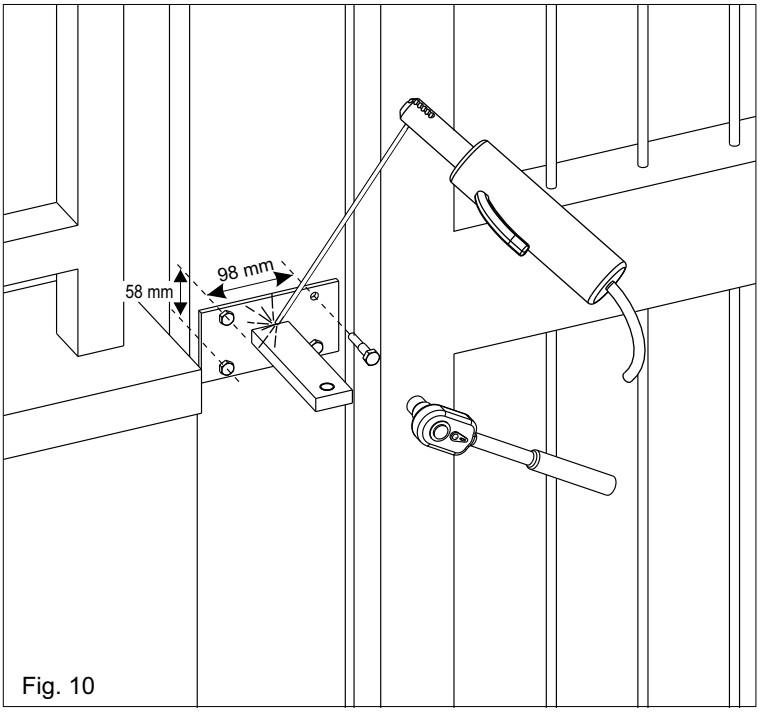


Fig. 10

Adjustable back fixation (with screw)
(Accessories on request)

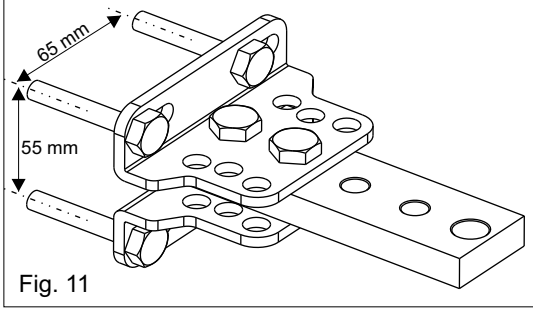


Fig. 11

POSITIONING OF THE FRONT FIXATION

Once the operator has been mounted on the back fixation close the leaf and do as follows:

1) Release the operator (as in Fig. 30)
2) Pull out completely the chromium plated rod, **afterwards bring it back about 1 cm**
3) Fix the rod on the front fixation (Fig. 13)
4) Position the operator perfectly horizontal and mark the position of the front fixation (Fig. 12)

Attention: Avoid the welding of the front fixation to the rod of the hydraulic operator already fixed as the welding residual (squirt) could ruin the chromium -plating of the rod.

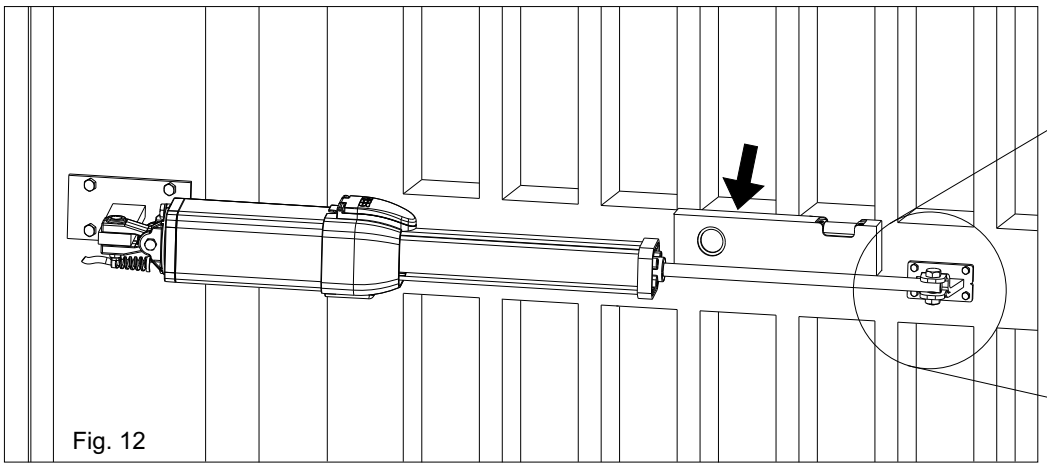


Fig. 12

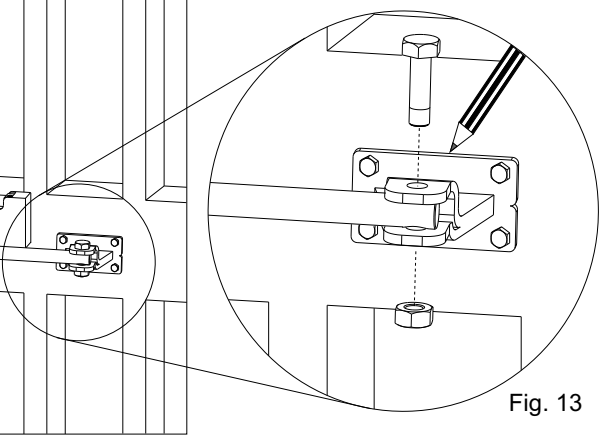


Fig. 13

WELDING OF THE FRONT FIXATION TO THE GATE

Mount the front fixation so that it guarantees the perfectly horizontal position of the operator. .

Depending on the type of the gate (wood, iron, aluminium) the front fixation can be welded or screwed

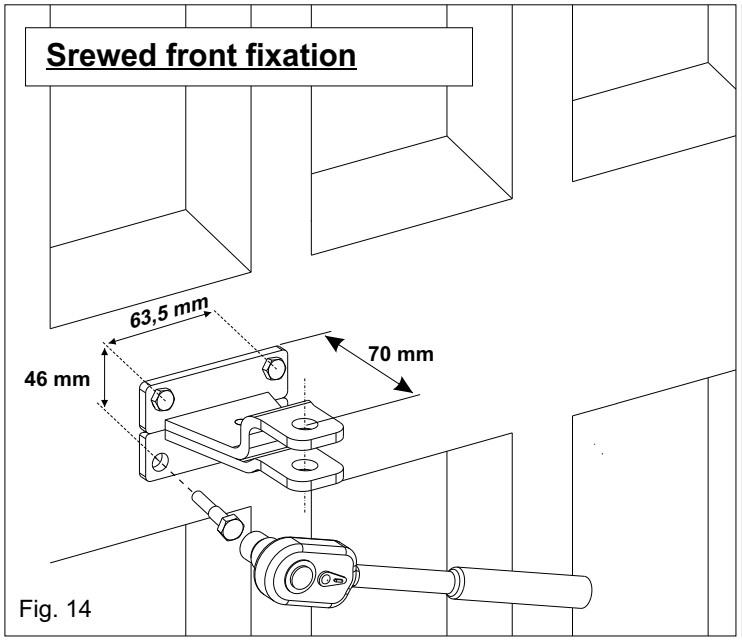


Fig. 14

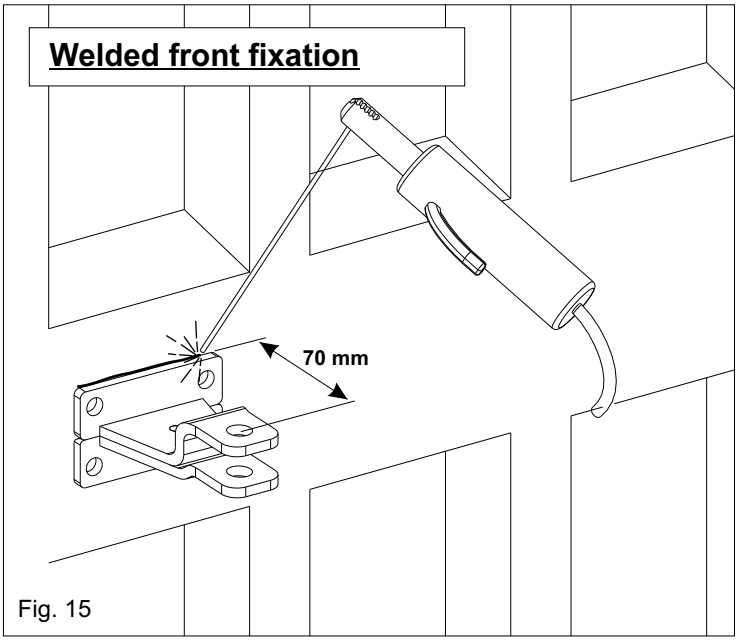


Fig. 15

INSTALLATION OF THE MECHANICAL LIMIT SWITCH STOPS (Accessories on request)

- Release the unit (as in Fig. 30)
- Let the rod come out about 3/4 of its run
- Put the limit switch stops on the front flange of the unit with the two rods (of the three which are present on the stop) which are in parallel to the gate (Fig. 16)
- Fix the stop with the two included screws.
- Put the provided bush **(A)** into the shaft.
- At this point hook the rod on the front fixation
- To adjust the stop in opening act on disc, and in closing on disc 2.

Attention: the mounting of the mechanical stop does not cause the reduction of the stroke

KIT MECHANICAL STOPS (optional)

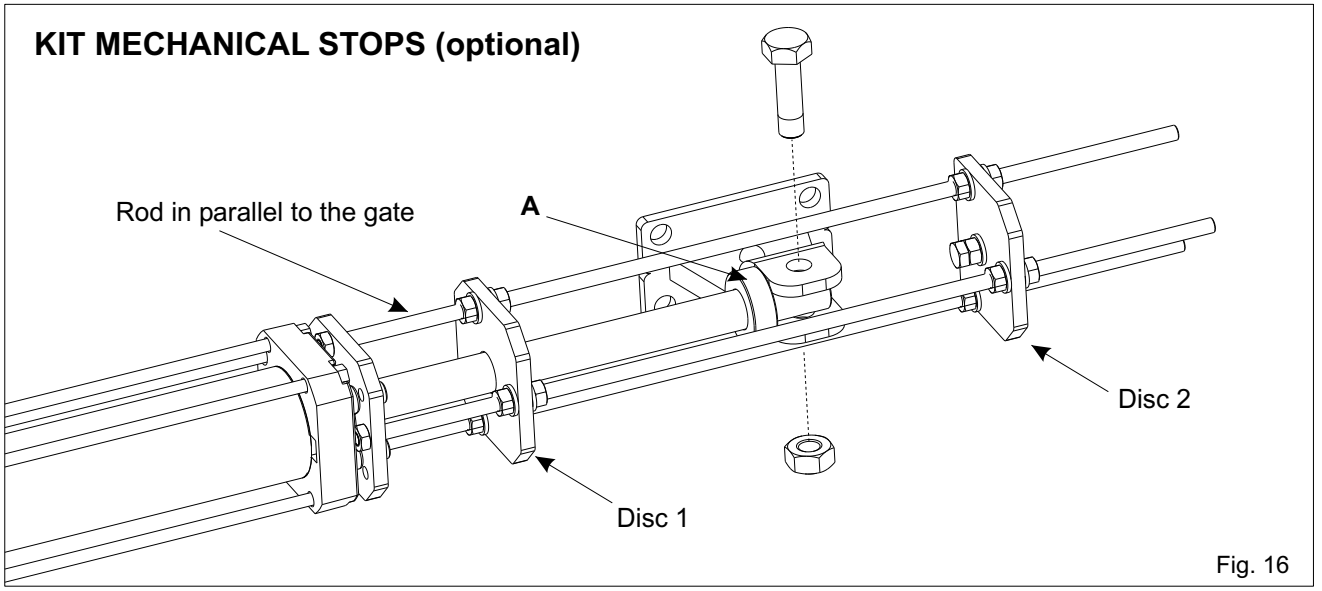


Fig. 16

KIT MECH./ELECTR. STOPS (optional)

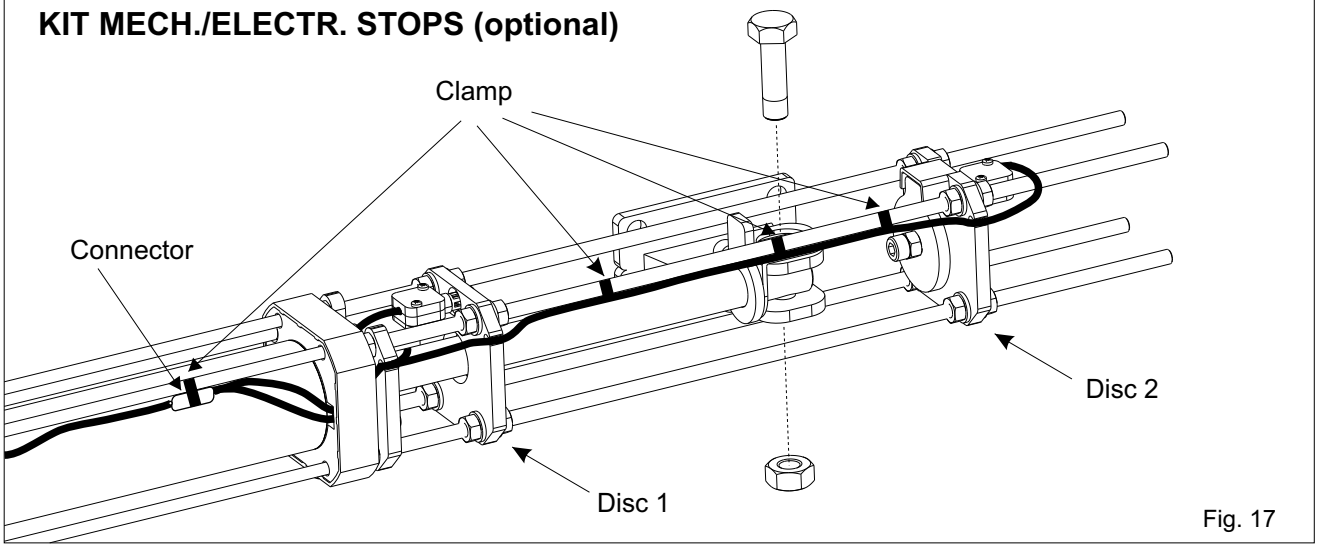


Fig. 17

BREATHER SCREW

VERY IMPORTANT
Take off the breather screw (lower part of the operator) after installation

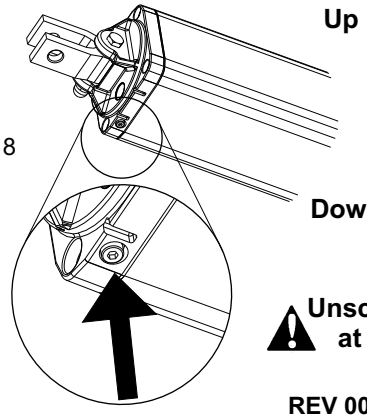


Fig. 18

Unscrew and take off at the end of the installation

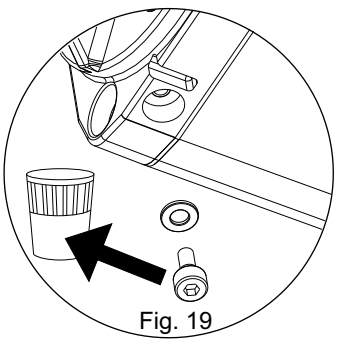


Fig. 19

INSTALLATION OF THE CHROMIUM-PLATED ROD PROTECTION

Make sure to have inserted the antivibration plastic frame (**A**) before inserting the rod cover extrusion (Fig. 20)

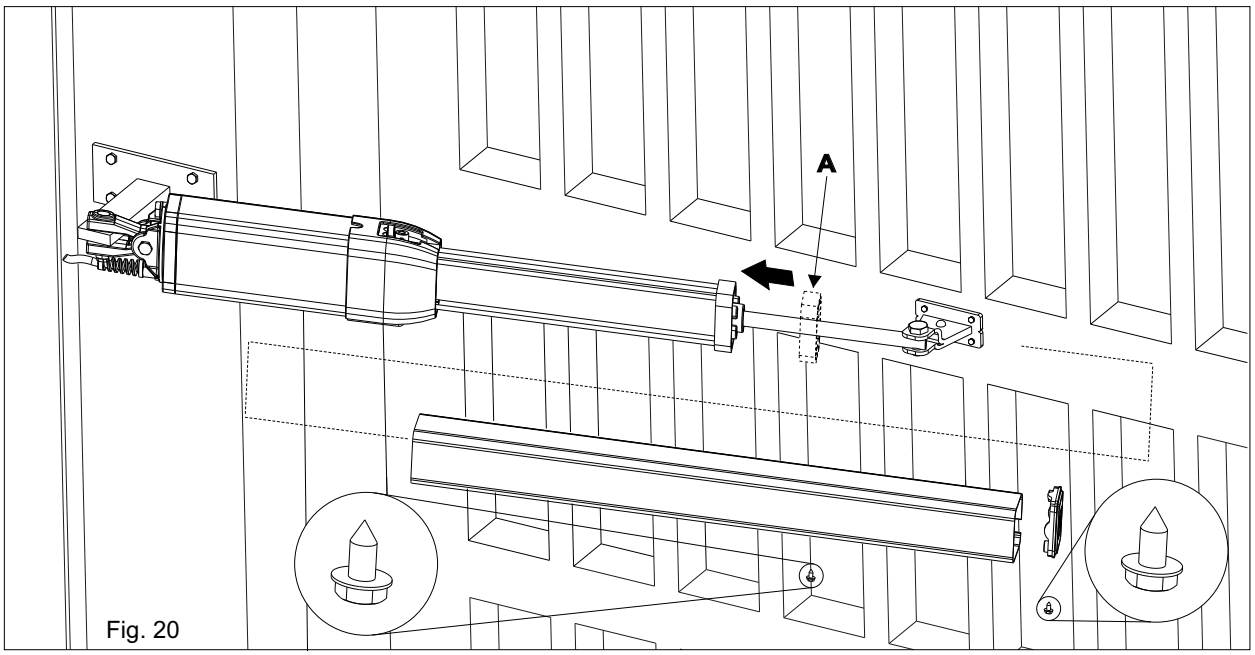


Fig. 20

TORQUE ADJUSTMENT (By-Pass Valves)

In case of first installation both, the cover of the release and the cover of the by pass valves must not yet be inserted. In this case refer to fig. 21 and fig.23. Should the by-pass valves adjustment be made in a second moment, because of periodical maintenance or other, take off the screw which locks the by-pass cover (fig. 22), take off the by-pass cover and adjust the pressure of the by-pass valves with the special key given to the installer free of charge (Fig. 23).

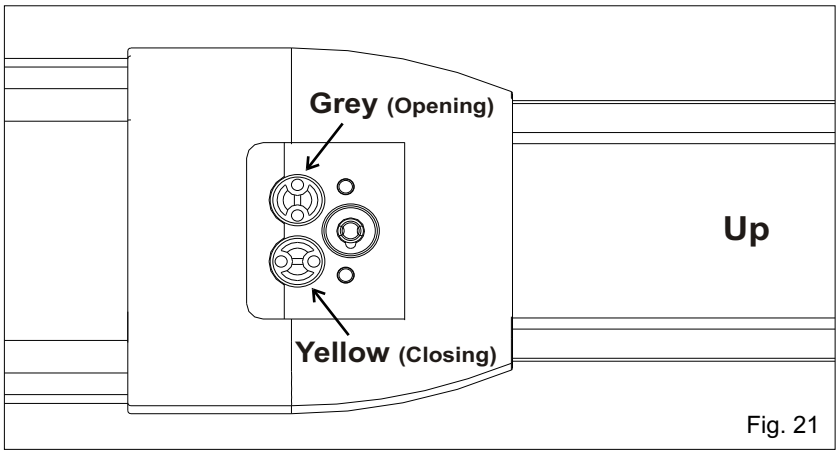


Fig. 21

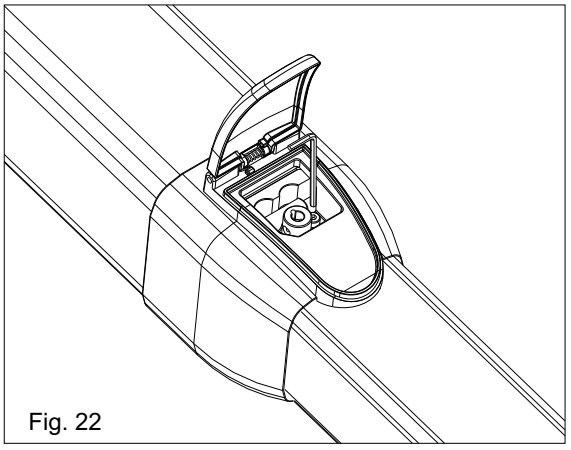
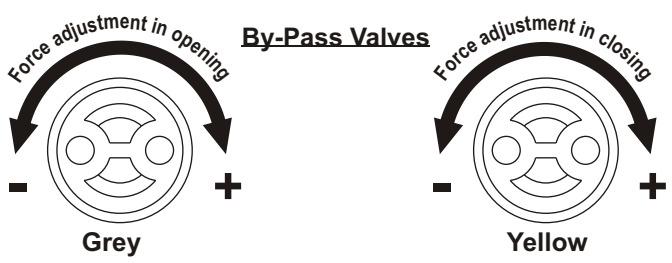


Fig. 22



Regulate the opening and closing forces of the gate respecting the force diagram (included in the En12453 normative); the thrust force however must not be superior then 15kgF.

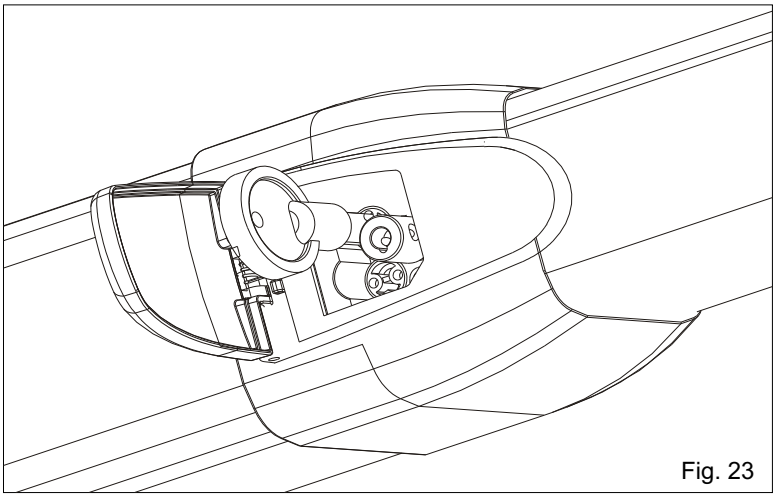


Fig. 23

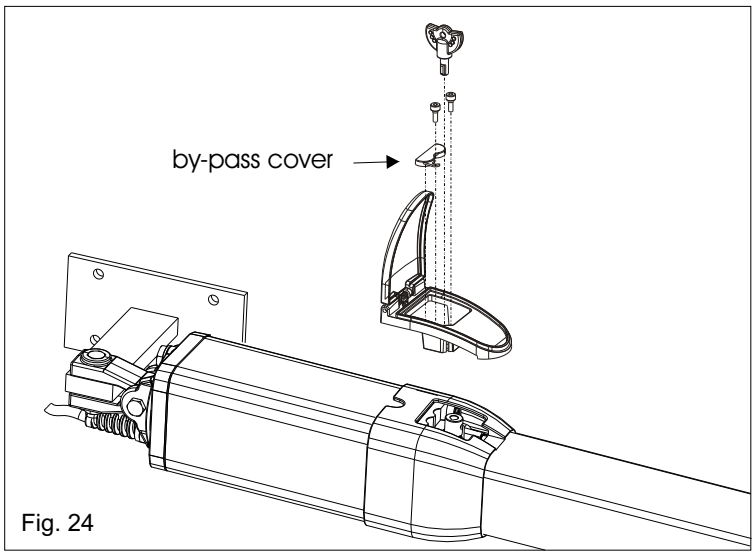


Fig. 24

PLASTIC RELEASE MOUNTING

ATTENTION: the mounting of the plastic release must be effectuated as shown in fig. 24 **only and exsclusively after havingfinished all the instalaltion operations, mounting of the rod cover and calibration of the by-pass valves.**

ALUMINIUM RELEASE WITH KEY MOUNTING (accessory on request)

ATTENTION: The mounting of the aluminium release must be executed as shown in figure 25 only and exclusively after having finished all installation operations, the rod cover mounting and the calibration of the by pass valves.
The release key is kept in the inside of the aluminium release cover (see fig. 26)

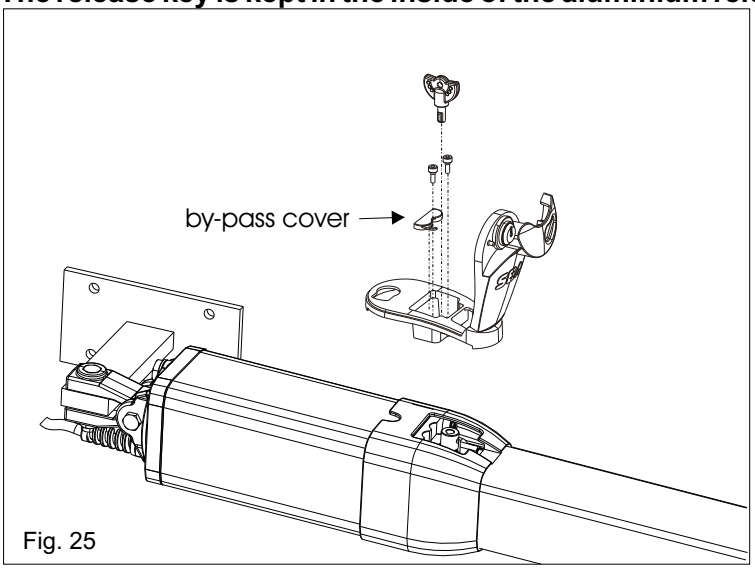


Fig. 25

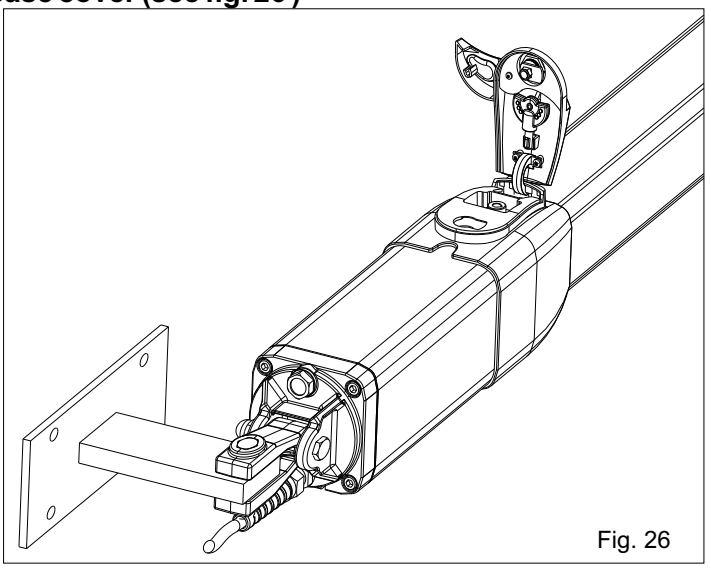


Fig. 26

EXTERNAL RELEASE MOUNTING (accessory on request)

ATTENTION: The mounting of the external release must be executed as shown in the figures 27 and 28. For more details refer to the mounting instructions in the external release mounting Kit for Mini Tank.

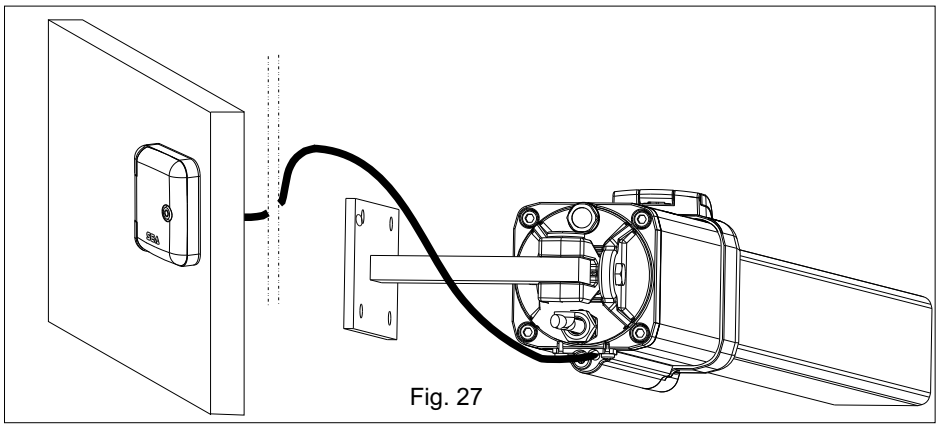


Fig. 27

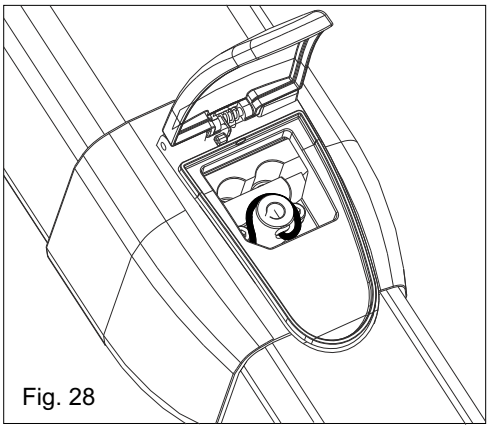


Fig. 28

OIL LEVEL MEASUREMENT

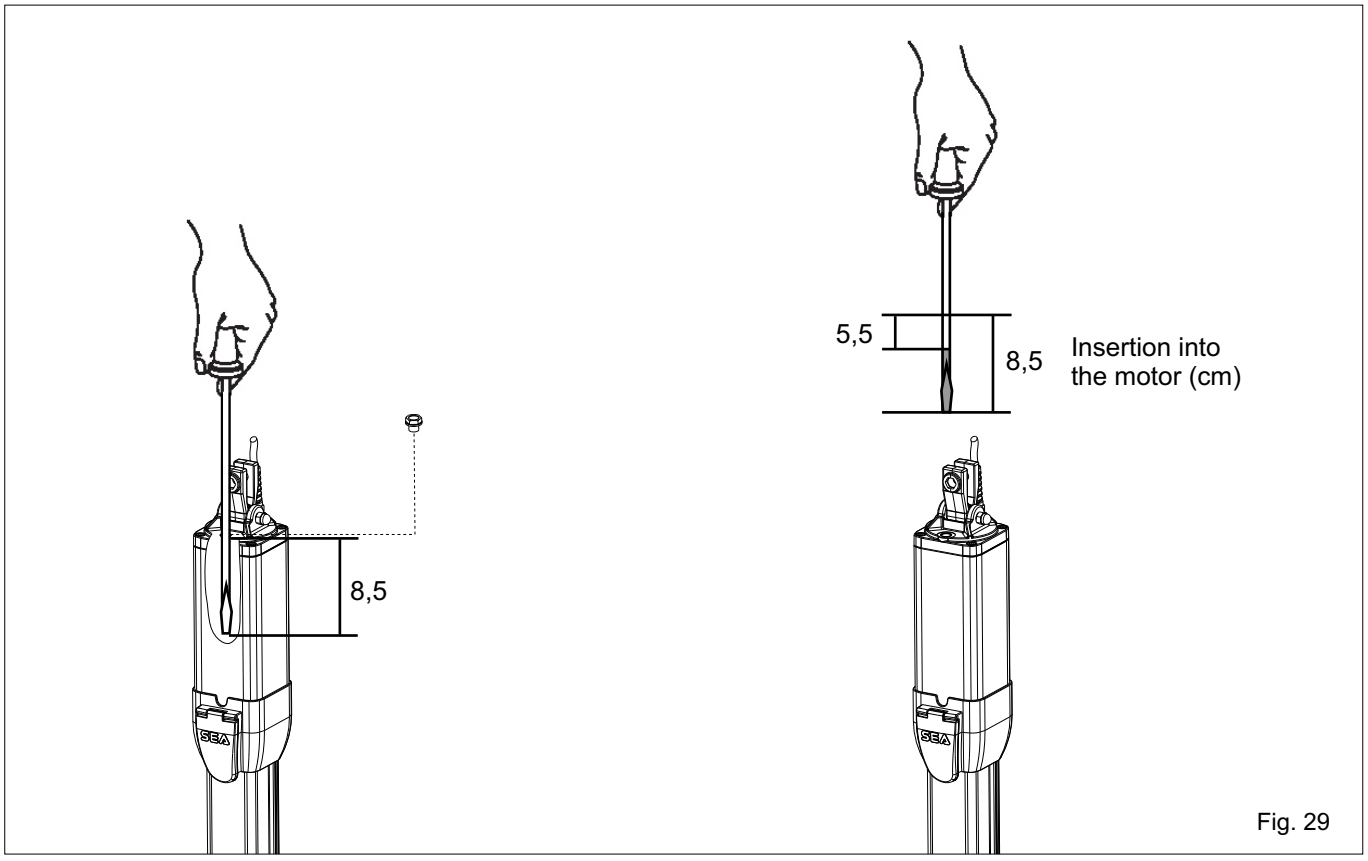


Fig. 29

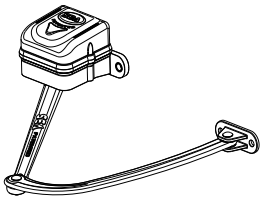
MINI TANK ACCESSORIES

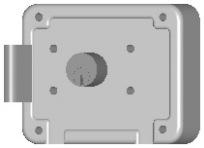

KEY SWITCH

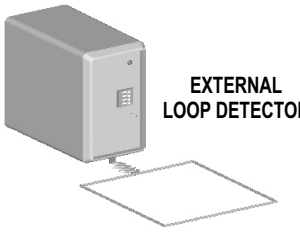

PHOTOCELLS

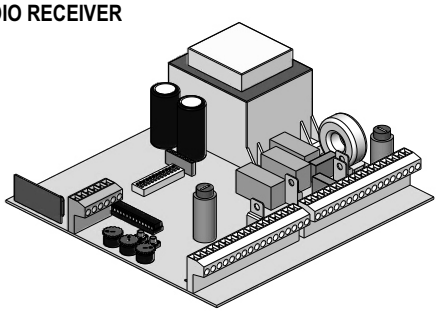

RADIO RECEIVER


TRANSMITTER


SAFETY GATE


ELECTRIC LOCK

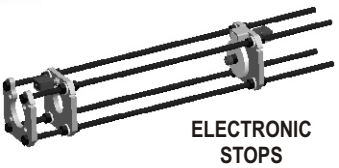

EXTERNAL
LOOP DETECTOR


CONTROL UNIT


FLASHING LAMP


SUPPORTS
FOR PHOTOCELLS


MECHANICAL
STOPS


ELECTRONIC
STOPS


KIT EXTERNAL LOCK

To the attention of users and technicians

RELEASE SYSTEM

To release operate as follows:
-Insert the key and turn it about 180° anti-clockwise (Fig.30).

To relock the operator do as follows:
-Insert the key and turn it clockwise until it stops (Fig.30).

Attention: To release cut current supply

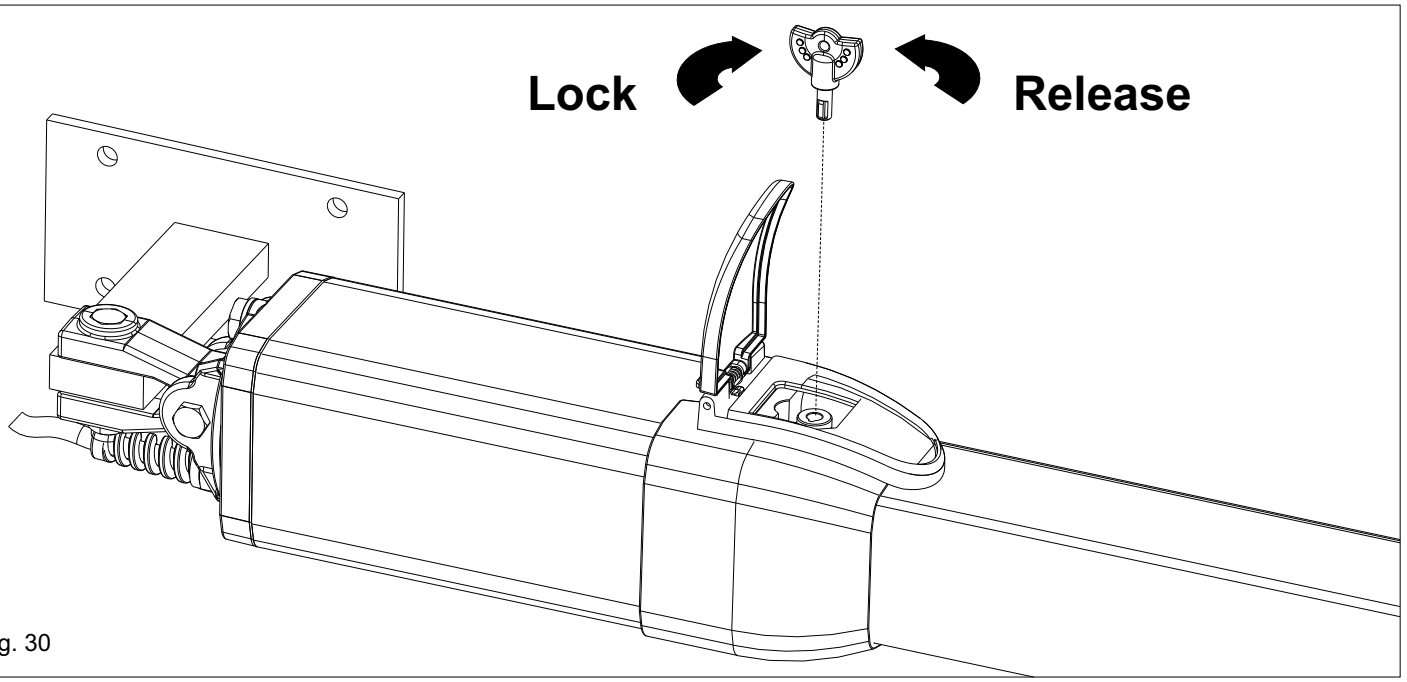


Fig. 30

PERIODICAL MAINTENANCE

1) Check the robustness and the stability of the gate; particularly the leaning and/or rotation points of the gate (hinges).	Annual
2) Check the oil level in the hydraulic/in oil bath operators (cap on the back cover of the Mini Tank operator)	Annual
3) Replace the hydraulic oil with the oil recommended by the producer	4 Years
4) Check the function of the release	Annual
5) Check the function of the by-pass valves	Annual
6) Check and grease the fixation pivots	Annual
7) Check the integrity of the connecting cables	Annual
8) Check the function and the conditions of the limit switch stops in opening and closing (where the mechanical stop accessory is present)	Annual
9) Check the good status of all the apparatus which are subject to efforts (back fixation, oscillating fork,and front fixation)	Annual
10) Check the functionality of all the accessories especially the function of all security devices and of the Safety Gate.	Annual
11) Lubricate the shaft (see page 15) with SEA grease (GREASE GL 00 Cod.65000009)	Annual
12) **After having executed the periodical maintenance it is neccessary to repeat the test and to reactivate the automation.**	Annual

All the above mentioned operations must be executed by an authorised installer only.

To the attention of users and technicians

RISK EXAMINATION

The points indicated by arrows in Fig. 31 are potentially dangerous. The installer must take a thorough risk examination to prevent crushing, conveying, cutting, grasping, trapping so as to guarantee a safe installation for people, animals and things. As for misunderstandings that may arise refer to area distributor or call our help desk. These instructions are part of the device and must be kept in a well known place. The installer shall follow the provided instructions thoroughly. SEA S.r.l products must only be used for the automation of doors, gates and wings. Any initiative taken without SEA S.r.l. explicit authorization will preserve the manufacture from whatsoever responsibility. The installer shall provide warning notices on not assessable further risks. SEA S.r.l. in its relentless aim to improve the production, is allowed to make whatsoever adjustment without giving notice. This does not oblige SEA S.r.l. to up-grade the past productions. SEA S.r.l. can not be deemed responsible for any damage or accident caused by product breaking, being damages or accident due to a failure to comply with the instructions herein. The guarantee will be void and the manufacturer responsibility will be nullified if SEA S.r.l original spare parts are not being used. The electric installation shall be carried out by a professional technician who will release documentation as requested by the laws in force. Packaging materials such as plastic bags, foam polystyrene, nails etc. must be kept out of children's reach as dangers may arise.

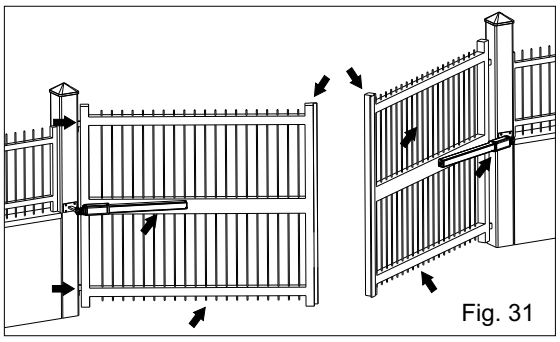


Fig. 31

INITIAL CHECK AND PUTTING IN SERVICE

After having completed all necessary operations, for the correct installation of the product MINI TANK, described in the present manual and after having valued all resting risks which could arise in whatever installation **is necessary to test the automation to guarantee the max. security** and in particular way to guarantee the respect of what foreseen by the law and the normatives in force. In particular the test must be executed following the **EN12445** ruel which establishes the testing methods for the testing of the gate operators respecting the established limits by the **EN 12453 law.**

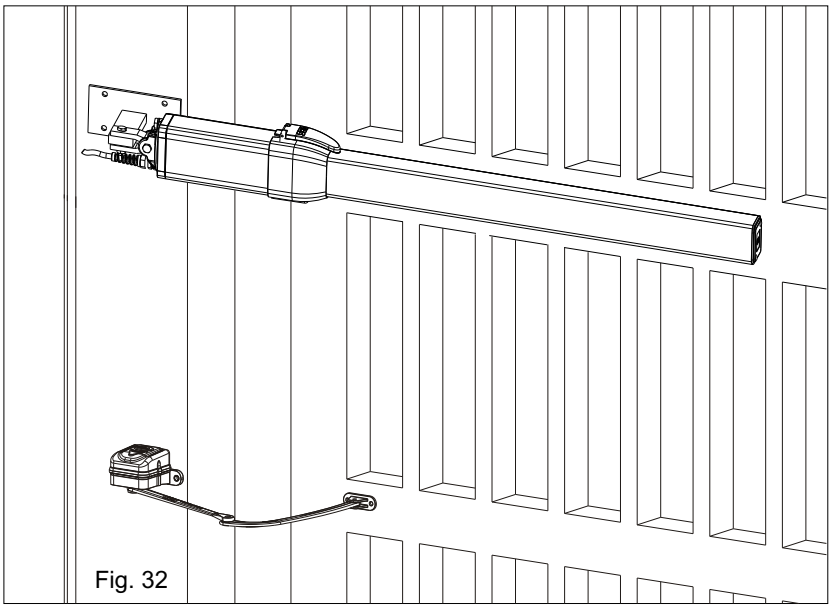


Fig. 32

SAFETY GATE

For a correct and safe installation it is strongly recommended to install the Safety Gate, **which allows the fulfilment of the force diagram included in the EN 12453** ruel and the testing of the putting in service and of the whole installation.

NOTE: In case of installations as shown in the figure on the right it is possible to use the Safety Gate with a straight rod (solving the dimensions problem of the arm, see drawing on the left)

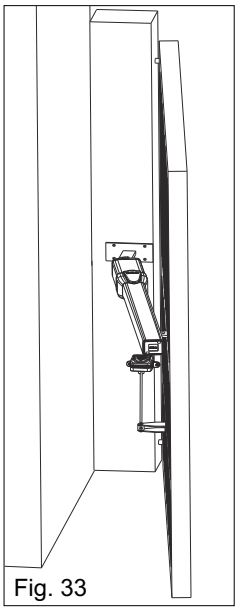


Fig. 33

SAFETY PRECAUTIONS
All electrical installation work should conform to current regulations.
A 16A - 0,030A differential switch must be incorporated into the source of the gate main electrical supply and the entire system must be properly earth bonded. Remember to separate mains (230/115 V) carrying cables from low voltage control cables.
INTENDED USE
The Mini Tank in all his versions has been planned to be used exclusively for the automation of swing gates
SPARE PARTS
To obtain spare parts contact: **SEA s.r.l. ZONA Ind.le, 64020 S.ATTO Teramo Italia**
SAFETY AND ENVIRONMENTAL COMPATIBILITY
Please dispose of the product and circuit packing materials in a responsible and appropriate way.
When being transported this product must be properly packaged and handled with care.
MAINTENANCE AND DECOMMISSION
The decommission and maintenance of this unit must be carried out by specialised and authorised personnel only.
LIMIT OF GUARANTEE
For the guarantee see the sales conditions on the official SEA price list.
NOTE: THE MANUFACTURER CAN NOT BE DEEMED RESPONSIBLE FOR ANY DAMAGE OR INJURY CAUSED BY IMPROPER USE OF THIS PRODUCT.
SEA reserves the right to do changes or variations that may be necessary to its products with no obligation to notice.