

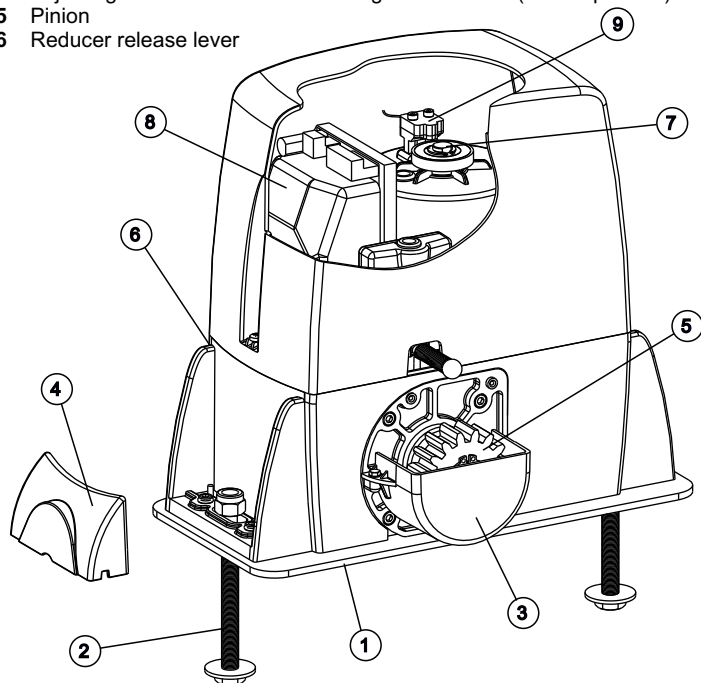


The **SATURN** and the **BOXER** are motor reducers designed for the automation of sliding gates with **grease** lubrication or in **oil bath**, depending on the versions.

The irreversibility of the motor reducers allows a perfect and safe gate closing, and makes the installation of an electric lock unnecessary. In case of electric power cut, the lock device placed on the front part of the motor reducer allows the manual opening and closing. The operators are equipped with an electronic clutch device and **adjustable mechanical clutch (if present)**, which provides an adjustment of the thrust on the gate, furthermore the **electronic inversion system** (optional) through **encoder** makes out of the Saturn and Boxer motor reducers a safe and reliable operators allowing in a simple way to respect the laws in force in the country where the product will be installed.

MAIN PARTS DENOMINATION

- | | |
|-------------------------------|--|
| 1 Adjustable foundation plate | 7 Screw for mechanical clutch adjustment |
| 2 Anchor bolts | (Where present) |
| 3 Pinion protection | 8 Electronic unit |
| 4 Adjusting screws cover | 9 Magnetic encoder (Where present) |
| 5 Pinion | |
| 6 Reducer release lever | |



Example: Saturn.

SATURN 600-1000-2000 (230V)			
TECHNICAL DATA	600	1000	2000
Power supply	230 V~ 50/60 Hz		
Power	330W	550W	750W
Absorbed current	1,6 A	2,6 A	3,0 A
Motor capacitor	10 mF	12,5 mF	12,5 mF
Working frequency	35%	35%	30%
Working Temperature	-20°C / +55°C		
Thermoprotection	150°C		
Weight	12 kg	13 kg	14,5 kg
Anticrushing clutch	Electronic	Electronic/Mechanical	
Protection degree	Ip55		
Pinion Z16 (Z20) speed	0,15 (0,18) m/s		
Maximum torque	30 Nm	55 Nm	70 Nm
Gate maximum weight	600 kg	1000 kg	2000 kg
Mechanical clutch	No	Yes	Yes
Limit switch	Inductive or mechanical		

Only the OIL version has a clutch

SATURN 600-1000-2000 (115V)			
TECHNICAL DATA	600	1000	2000
Power supply	115 V (±5%) 50/60 Hz		
Power	400W		500W
Absorbed current	3,2 A		5,0 A
Motor capacitor	50 µf		70µf
Working frequency	20%	25%	40%
Working Temperature	-20°C / +55°C		
Thermoprotection	150°C		
Weight	12 kg	13 kg	14,5 kg
Anticrushing clutch	Electronic		Electr./Mech.
Protection degree	IP55		
Pinion Z16 (Z20) speed	0,15 (0,18)m/s		
Maximum torque	50 Nm	55Nm	70Nm
Gate maximum weight	600 kg	1000kg	2000kg
Mechanical clutch	No		Yes
Limit switch	Inductive or mechanical		

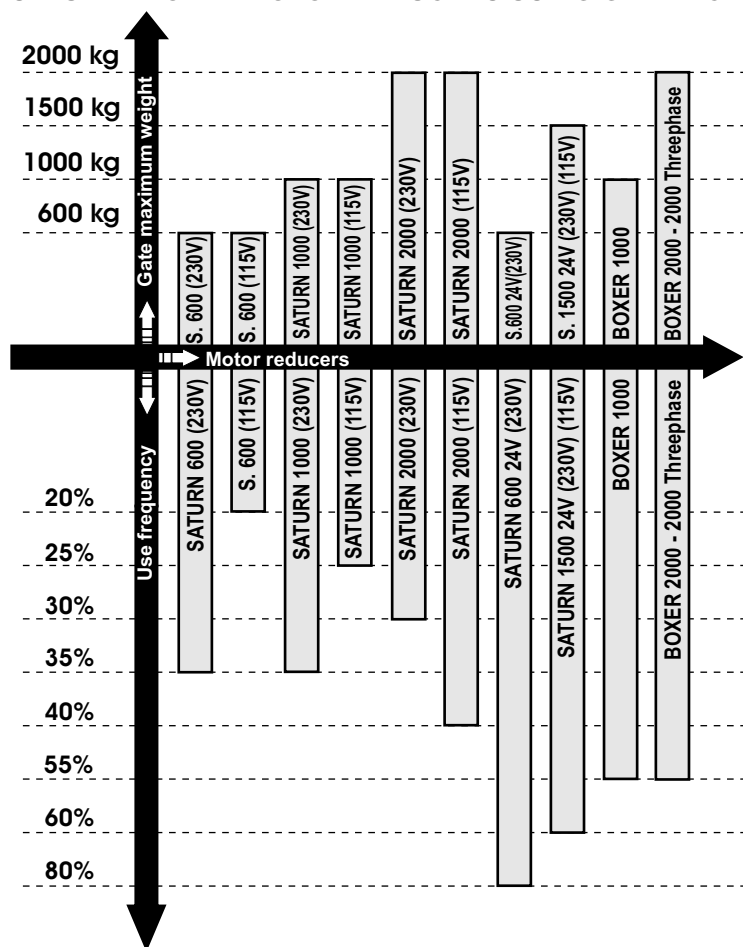
SATURN 600 24V (230V) - 1500 24V (230V) (115V)			
TECHNICAL DATA	600 24V (230V)	1500 24V (230V)	1500 24V (115V)
Power supply	230V~ 50/60 Hz		115V~ 50/60 Hz
Motor	24V---		
Absorbed power	90W	150W	
Working frequency	80%	60%	
Working Temperature	-20°C ÷ +55°C		
Weight	14,0 kg	14,5 kg	
Anticrushing clutch	Electronic		
Protection degree	Ip55		
Pinion Z16 speed	Adjustable		
Maximum torque	0 - 35 Nm	0 - 65 Nm	
Gate maximum weight	600 kg	1500 kg	
Limit switch	Inductive/mechanical		

BOXER 1000-2000-2000 Threephase			
TECHNICAL DATA	1000	2000	2000 THREEPHASE
Power supply	230V (±5%) 50/60Hz		230V/380V(±5%) 50/60Hz
Power	550W	750W	400W
Absorbed current	2,6 A	3,0 A	1,0 A
Motor capacitor	10 µf	12,5 µf	-
Working frequency	55%		
Working Temperature	-20°C↯+55°C↯		
Thermoprotection	150°C		-
Weight	14 kg	15 kg	
Anticrushing clutch	Electronic/Mechanical		Mechanical
Protection degree	IP55		
Pinion Z16 (Z20) speed	0,15 (0,18) m/s		
Maximum torque	55 Nm	70 Nm	
Gate maximum weight	1000 kg	2000 kg	
Mechanical clutch	Yes		
Limit switch	Inductive or mechanical		

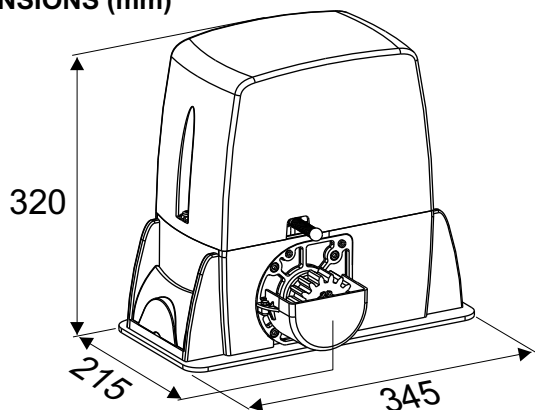
Note: The frequency of use is valid only for the first hour at 20°C room temperature.



SATURN - BOXER MOTOR REDUCERS USING GRAPHIC



DIMENSIONS (mm)



1. GATE ARRANGEMENT

Before starting with the installation check if all the gate parts (fixed and mobile) have a strong and as less as possible deformable structure, also make sure that :

- The leaf is rigid and compact;
- The inferior slideway is perfectly straight, horizontal and without any obstacles which could obstruct the gate sliding;
- The inferior sliding wheels are equipped with greasable or water tightened bearings;
- The superior slideway has been produced and placed so that the gate is in a perfect vertical position;
- Mechanical stops of the leaf are always installed in order to avoid possible derailment of it.

2. FOUNDATION PLATE ANCHORAGE

To install the foundation plate it is necessary to:

2.1. Prepare a concret basement with the dimensions shown in Fig. 1 where the foundation plate and the anchor bolts will be concreted.

NOTE: It is recommended, gate structure permitting, to lift the foundation plate about 50mm from the ground, in order to avoid eventual water stagnation.

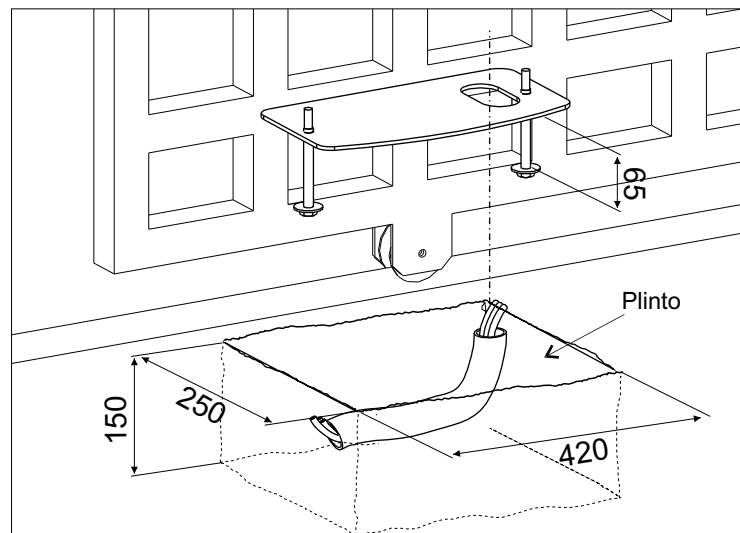


Fig. 1

DIMENSIONS (mm)

2.2. Before cementing the plate insert a flexible plastic duct of at least 30mm in diameter into the special hole of the plate.

2.3. Before concreting in the plate, make sure that it is perfectly leveled and that the distance of 58-67 mm as shown in Fig. 2 is respected.

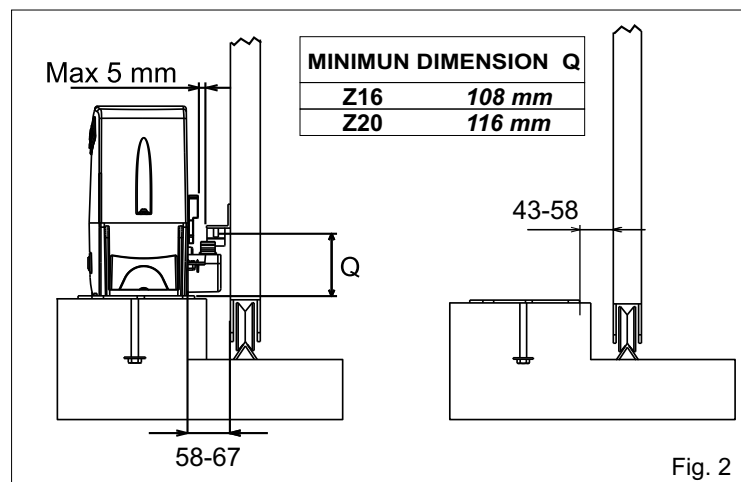


Fig. 2

3. CABLES PASSAGE ARRANGEMENT

Saturn and Boxer are provided with two different holes for electric cables passage.

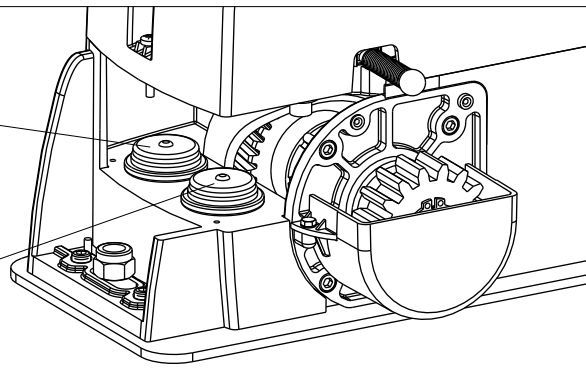
It's very important to make the low - tension 230V~ cables pass through one hole and the very low safety tension cables 24V through the other one (Fig. 3)



Fig. 3

Hole 1

Hole 2



4. FITTING OF THE MOTOR REDUCER

4.1. Insert the 4 grains into the special holes, so that it is possible to adjust the motor reducer height on the plate (Fig. 4).

At the end of installation check if the 4 grub screws are well gripped on the foundation plate.

4.2. Fix the motor reducer to the foundation plate with the 2 included nuts, adjusting the side position (Fig. 5) so to respect the shown quota in (Fig. 2).

4.3. Remove the closing loading oil cap (red) and substitute it with that supplied apart provided with the airhole (black).

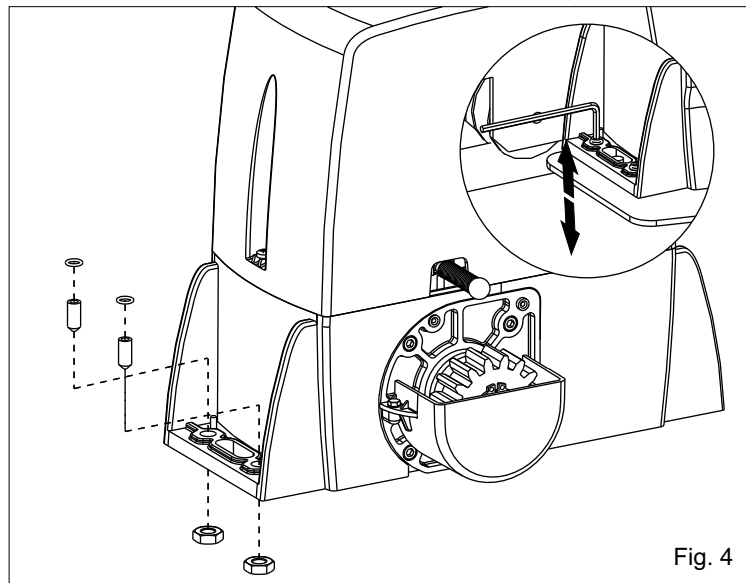


Fig. 4

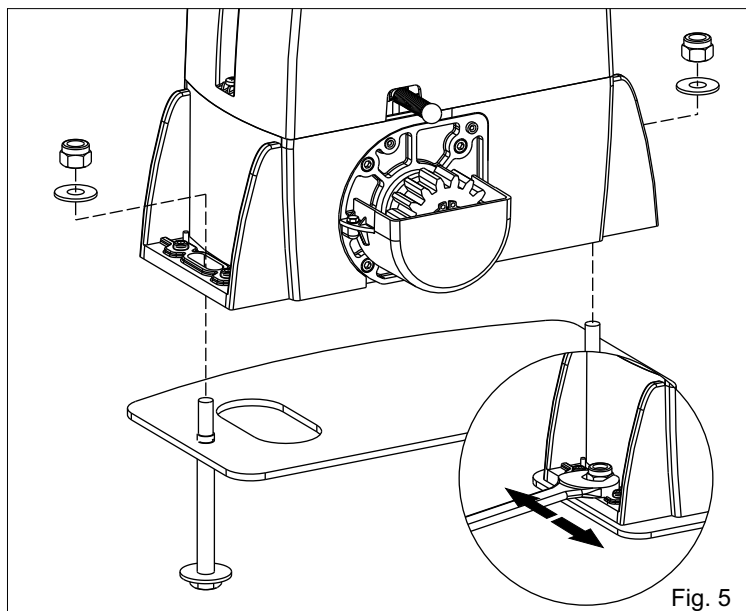


Fig. 5

5. GEAR RACK MOUNTING

5.1. Release the motor and open the leaf completely;

5.2. Fix on each gear rack element the support pawls with the appropriate lock screws, make sure to put them in the upper part of the hole (Fig. 6);

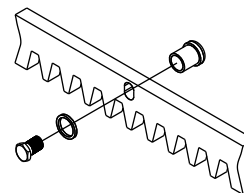


Fig. 6

5.3. Lean the gear rack element on the toothed pinion of the motor in parallel to the ground slideway of the gate, as shown in Fig. 7 and electrically weld the central pawl B to the gate structure (Fig. 8).

Manually move the gate until pawl C is placed corresponding to the pinion and fix it through electric welding. Repeat the same procedure for pawl A after having placed it corresponding to the pinion;

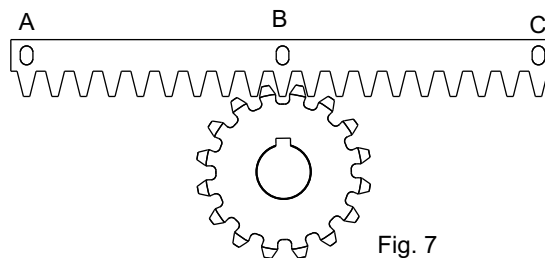


Fig. 7

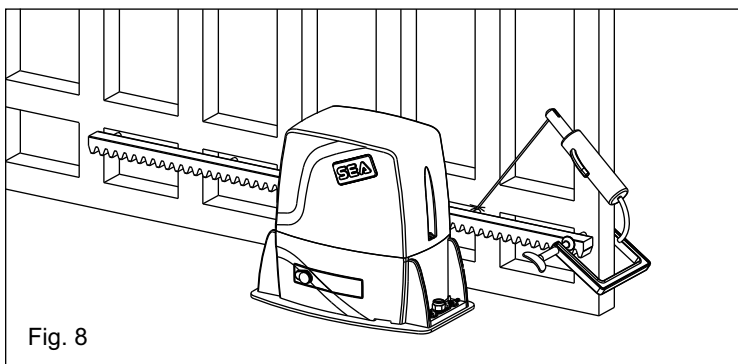


Fig. 8

5.4. Make sure that all the gear rack elements are perfectly aligned and placed correctly (teeth in phase). It's suggested to place two aligned elements in front of a third one as shown in Fig. 9;

5.5. Repeat the above described operation for all the remaining gear rack elements which have to be installed;

5.6. To avoid that the door weights down on the pinion (Fig. 10) lift up the whole rack about 1,5 mm.

Warning: Keep a gap of about 0,5 mm between pinion tooth and gear rack tooth;

5.7. Make sure that the gear rack works at the center of the pinion along all rack elements, if necessary, adjust the length of the spacers.

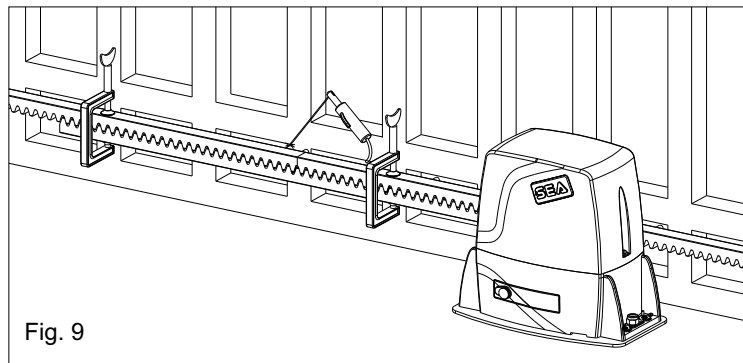


Fig. 9

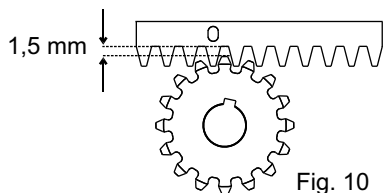


Fig. 10

6. LIMIT SWITCH ADJUSTMENT

6.1. In order to install and adjust the limit switch in opening, follow the below mentioned instructions (Fig. 11):

- Take the gate to complete opening,
- Place the small plate on the gear rack so that the limit switch is (small lever in case of mechanical limit switch (Fig. 12); small pointers placed on the upper part in case of inductive limit switch (Fig. 13)) in correspondence of point X which is placed 50 mm from the folded side of the small plate (Fig. 14) and fix it with the delivered screws (Fig. 15).

6.2. In order to install and adjust the limit switch in closing, follow the below mentioned instructions (Fig. 11):

- Take the gate to complete closing
- Place the small plate on the gear rack so that the limit switch is in correspondence of point X which is placed 50 mm from the folded side of the small plate (Fig. 14) and fix it with the delivered screws (Fig. 15).

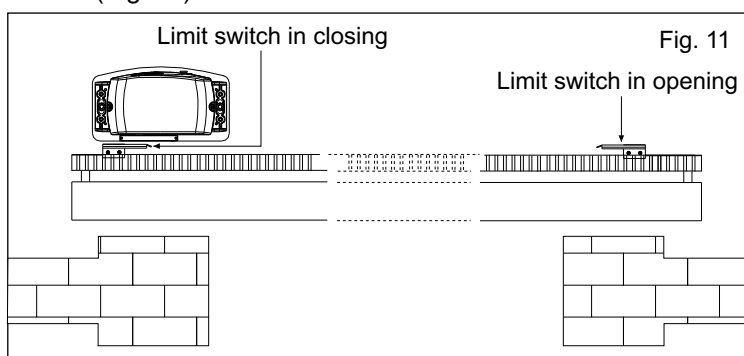


Fig. 11

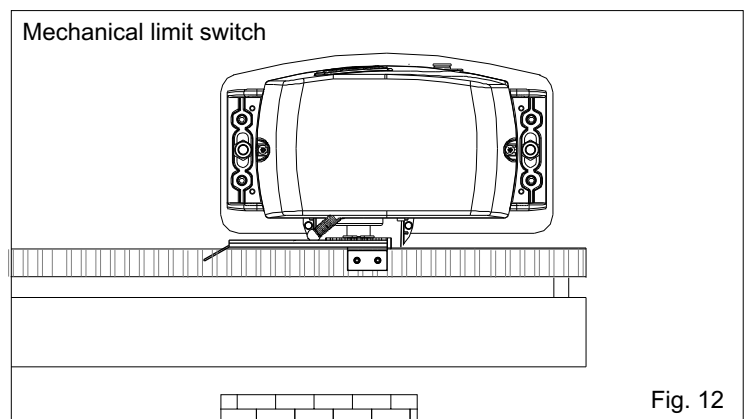


Fig. 12

Inductive limit switch

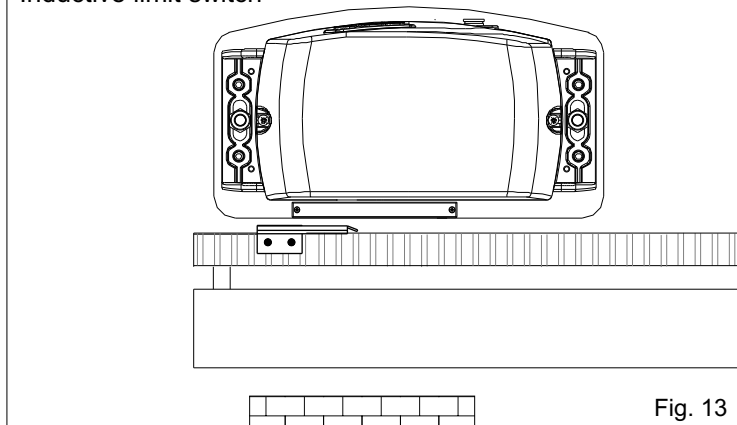


Fig. 13

Position in which must be the spring (mechanical limit switch) or the pointer (inductive limit switch)

50 mm

Fig. 14

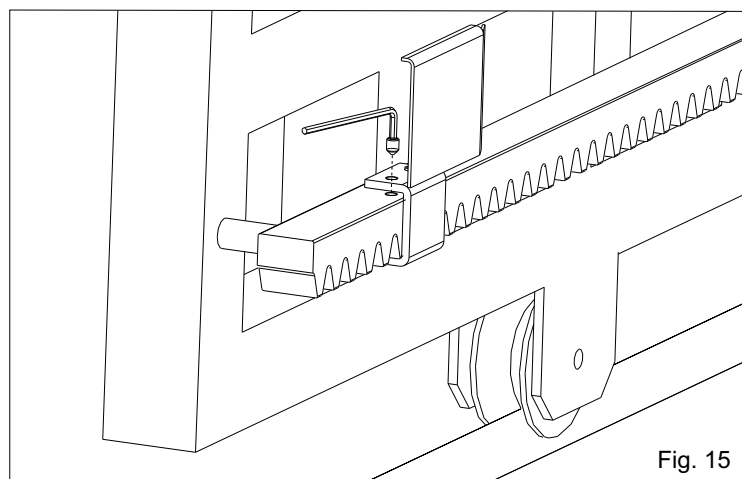
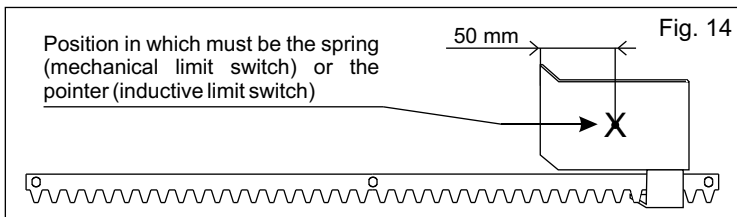
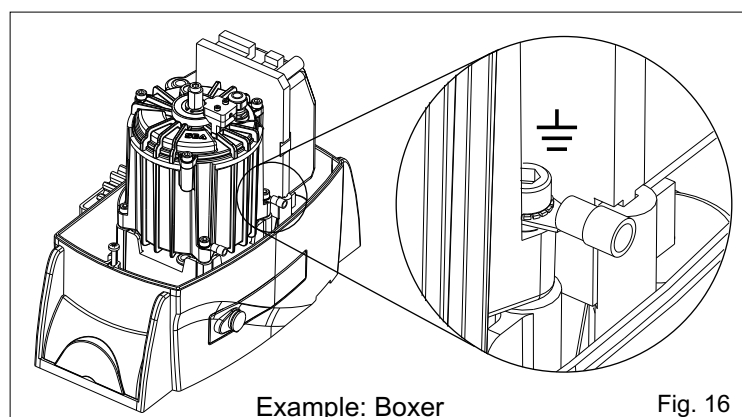


Fig. 15

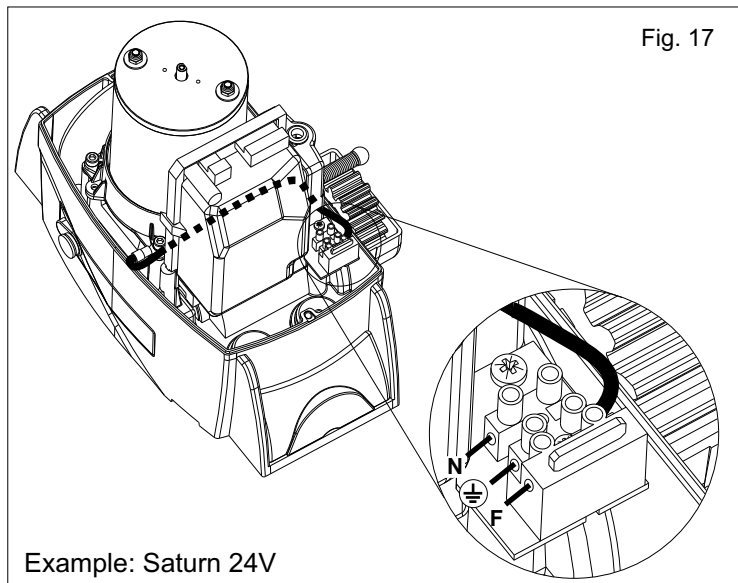
Adjusting the trimmer for braking, placed on the electronic control unit, it is possible to make the gate stop on the desired position.

7. GROUNDING (Fig. 16 - 17)



Example: Boxer

Fig. 16



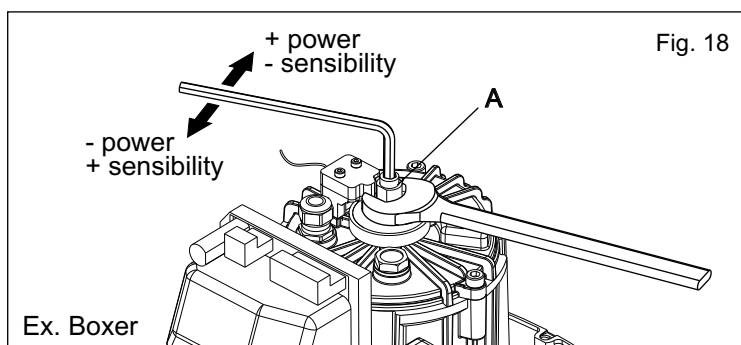
Example: Saturn 24V

8. CLUTCH ADJUSTMENT (Where present)

8.1. Switch off electric power.

8.2. In order to adjust the clutch it is necessary to:

- Act on the scrub screw "A" (Fig. 18) as follows:
- Turning clockwise = less clutch sensibility / more thrust force
- Counter clockwise = more clutch sensibility / less thrust force



Ex. Boxer

9. SCREW COVER MOUNTING

At the end of the mechanical installation and after having executed all the required adjustments, mount the two screw covers on the operator as shown in Fig. 19.

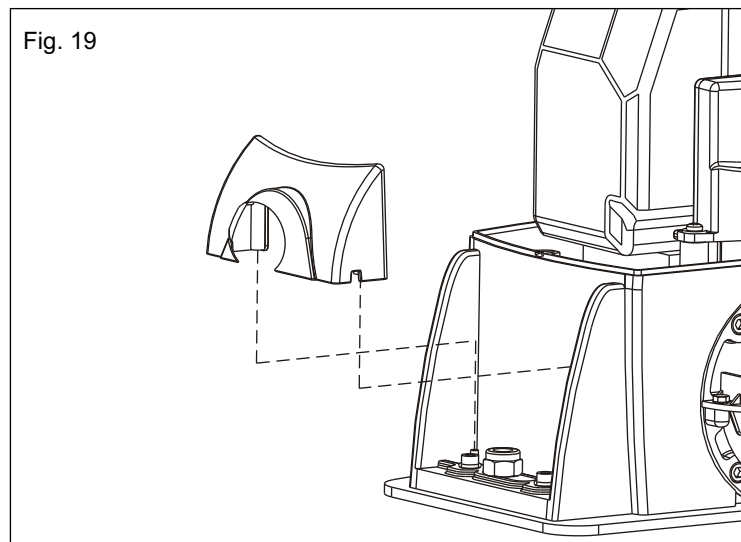


Fig. 19

10. ELECTRIC CONNECTIONS OF THE INSTALLATION (Fig. 20)

The cable measures are indicated in mm²

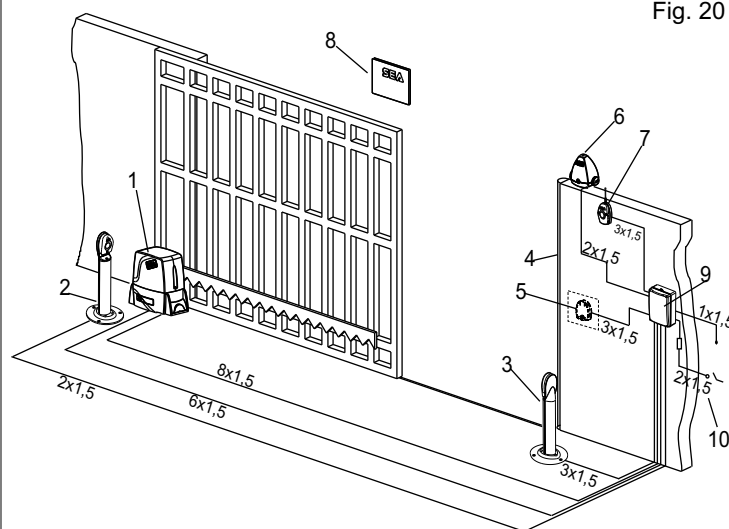


Fig. 20

- | | | |
|---------------------------|--------------------|-----------------------------|
| 1) Saturn - Boxer | 5) Key push button | 8) Warning notice |
| 2) Photocell Sx | 6) Flasher | 9) Junction box |
| 3) Photocell Dx | 7) Receiver | 10) Differential 16A - 30mA |
| 4) Mechanical safety edge | | |

Ex. 230V version with integrated electronic control unit

11. RISK EXAMINATION

The points pointed by arrows in Fig. 21 are potentially dangerous. The installer must take a thorough risk examination to prevent crushing, conveying, cutting, grappling, trapping so as to guarantee a safe installation for people, things and animals (Re. Laws in force in the country where the installation has been made.)

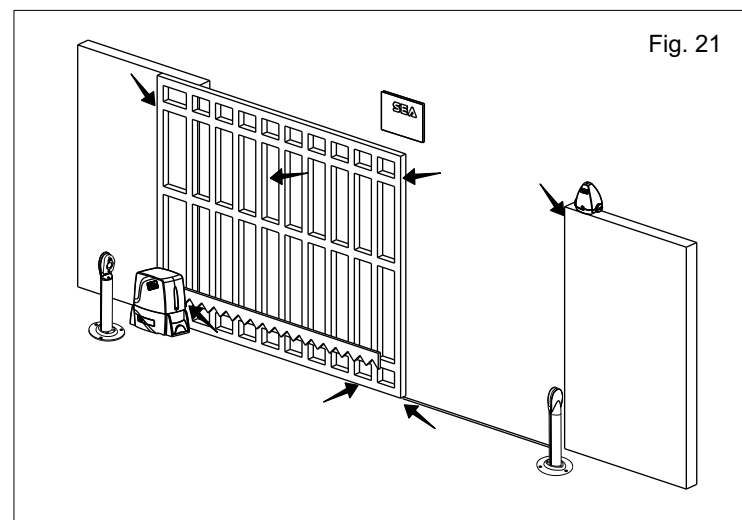


Fig. 21

NOTICE

SEA s.r.l. can not be deemed responsible for any damage or accident caused by product breaking, being damages or accidents due to a failure to comply with the instructions herein. The guarantee will be void and the manufacturer responsibility (according to Machine Law) will be nullified if SEA Srl original spare parts are not being used.

The electrical installation shall be carried out by a professional technician who will release documentation as requested by the laws in force. This is a quotation from the GENERAL DIRECTIONS that the installer must read carefully before installing. Packaging materials such as plastic bags, foam polystyrene, nails etc must be kept out of children's reach as dangers may arise.



Page for both instaler and user

12. RELEASE SYSTEM FOR SATURN

12.1. To release procede as follows:

- Insert the key, **push** and turn about 90° clockwise (Fig. 22).
- Pull the release lever until it stops, about 90° (Fig. 23).

Note: when pulling the release lever the electronic control unit receives a stop impulse through the micro-switch placed on the inside (if present).

12.2. To relock procede as follows:

- Push the release lever to complete closing.
- Rotate the key counter-clockwise and extract it.

Once the lock has been restored the electronic control unit is reactivated (only if a micro-switch is mounted).

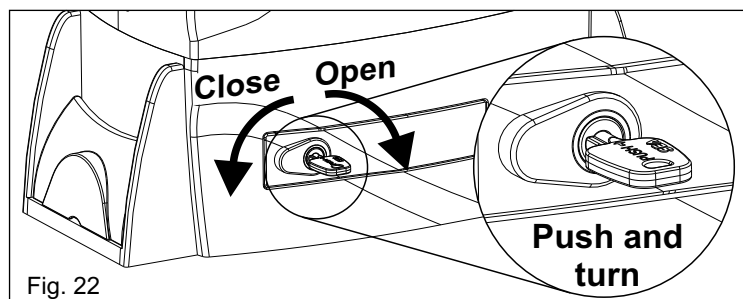


Fig. 22

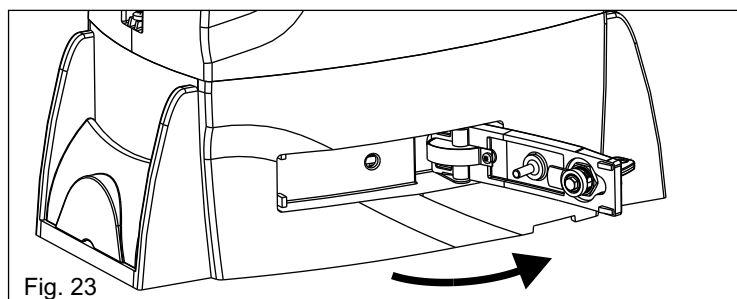


Fig. 23

13. RELEASE SYSTEM FOR BOXER

13.1. In order to release do as follows:

- Open the lock cover, insert the key and rotate it 90° clockwise (Fig. 24).
- Pull the release lever until it stops, about 90° approximately (Fig. 25).

Note: when you pull the release lever, the electronic control unit receives a stop impulse thanks to a micro-switch placed inside.

13.2. In order to relock do as follows:

- Push the release lever to complete closing.
- Rotate the key counter-clockwise and extract it.
- Close the protective lock cover.

Once the lock has been restored the electronic control unit reactivates

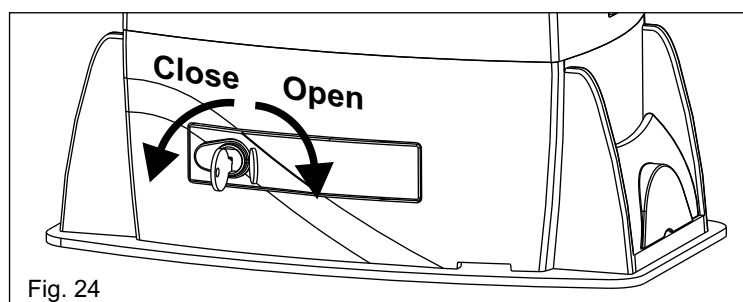


Fig. 24

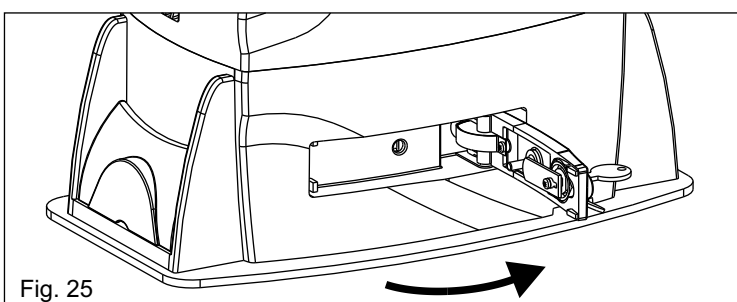


Fig. 25

SAFETY PRECAUTIONS:

All electrical work and the choice of the operating logic should conform to current regulations. A 16 A 0,030 A differential switch must be incorporated into the source of the operators main electrical supply and the entire system properly earth bonded. Always run mains carrying cables in separate ducts to low voltage control cables to prevent mains interference.

SPARE PARTS:

To obtain spare parts contact:

SEAs.r.l. - Zona Ind.le, 64020 S. ATTO Teramo Italia

SAFETY AND ENVIRONMENTAL COMPATIBILITY:

Don't waste product packing materials and/or circuits.

When being transported this product must be properly packaged and handled with care.

SEA reserves the right to do changes or variations that may be necessary to its products with no obligation to notice.

PERIODIC MAINTENANCE

Check the oil level (where present) (Use the oil level rod)	Annual
Change oil	4 years
Check the release functionality	Annual
Check the clutch functionality (where present)	Annual
Check the distance between pinion and gear rack (1.5 mm)	Annual
Check the usury status of pinion and gear rack	Annual
Check the fixing screws	Annual
Check the connection cables integrity	Annual
Check limit switch functionality and status in opening and closing and the related small plates	Annual

All the above described operations must be done exclusively by an authorized installer.