



SEA[®]

Sistemi Elettronici
di Apertura Porte e Cancelli
International registered trademark n. 804888

CE

Italiano

English

Français

Español

Deutsch

SATURN

600 - 1000 - 2000 (230V-115V)

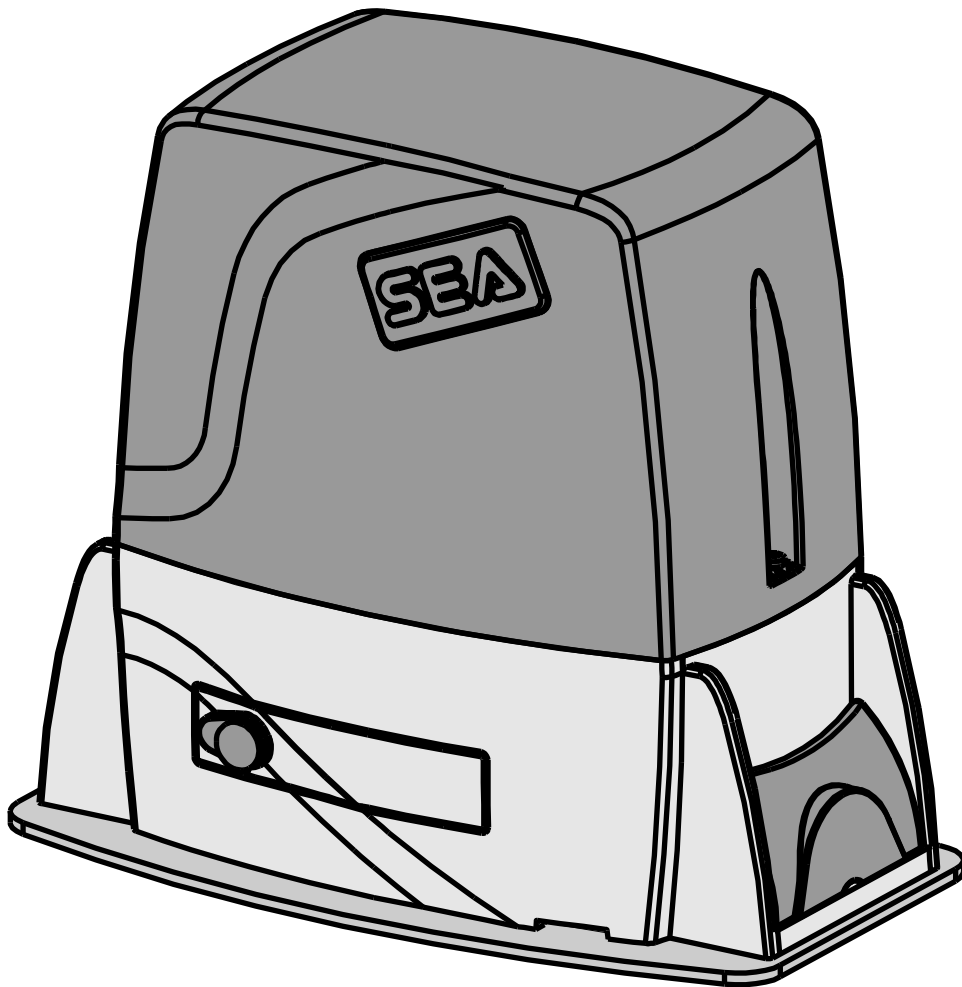
600 - 1500 24V (230V)

1500 24V (115V)

BOXER

1000 - 2000

2000 Trifase





MOUNTING AND CONNECTING INSTRUCTIONS

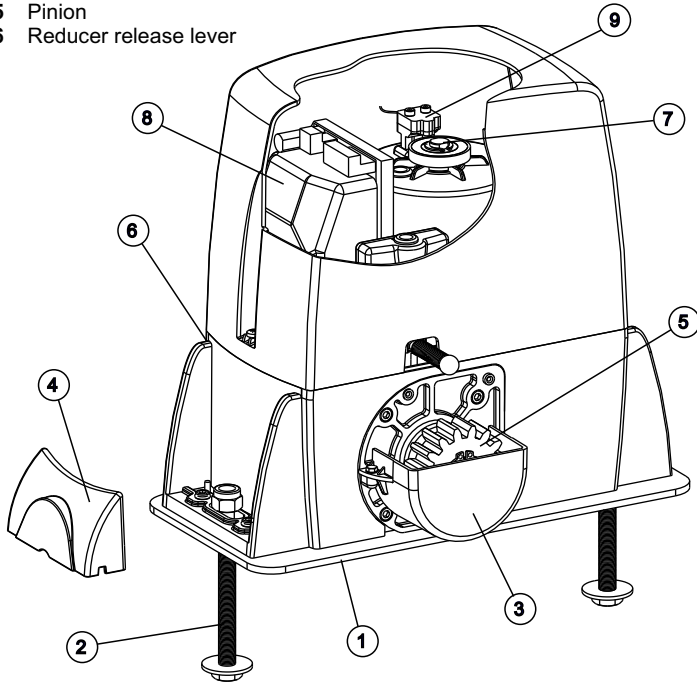
ENGLISH

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		

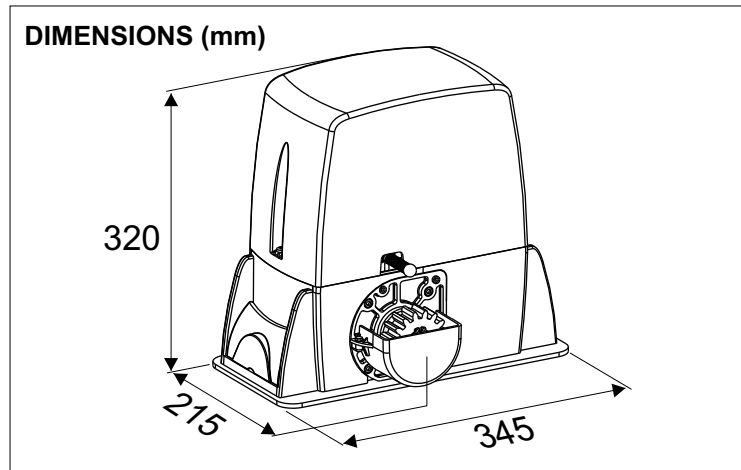
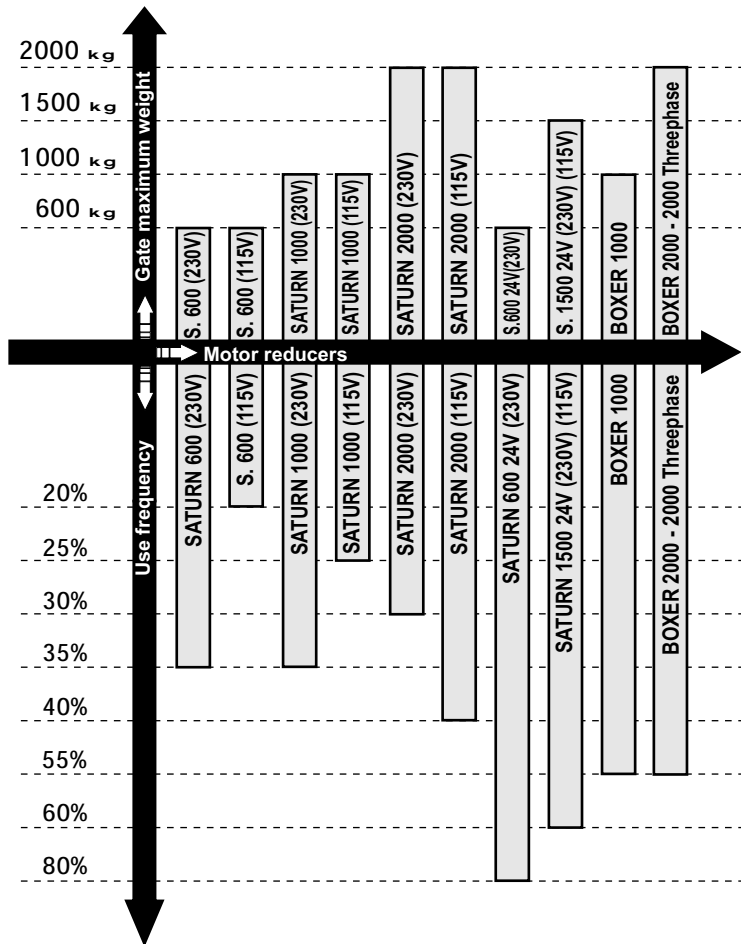
SATURN 600 24V (230V) - 1500 24V (230V) (115V)			
TECHNICAL DATA	600 24V (230V)	1500 24V (230V)	1500 24V (115V)
Power supply	230V~ 50/60 Hz		115V~ 50/60 Hz
Motor	24V ---		
Absorbed power	90W	150W	
Working frequency	80%	60%	
Working Temperature	-20°C ↕ +55°C ↕		
Weight	14,0 kg	14,5 kg	
Anticrushing clutch	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



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 :

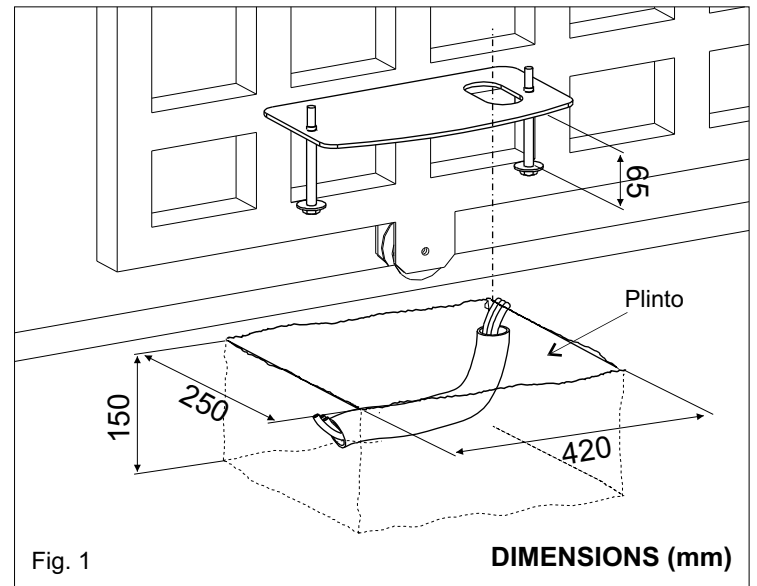
- a) The leaf is rigid and compact;
- b) The inferior slidway is perfectly straight, horizontal and without any obstacles which could obstruct the gate sliding;
- c) The inferior sliding wheels are equipped with greasable or water tightened bearings;
- d) The superior slidway has been produced and placed so that the gate is in a perfect vertical position;
- e) 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:

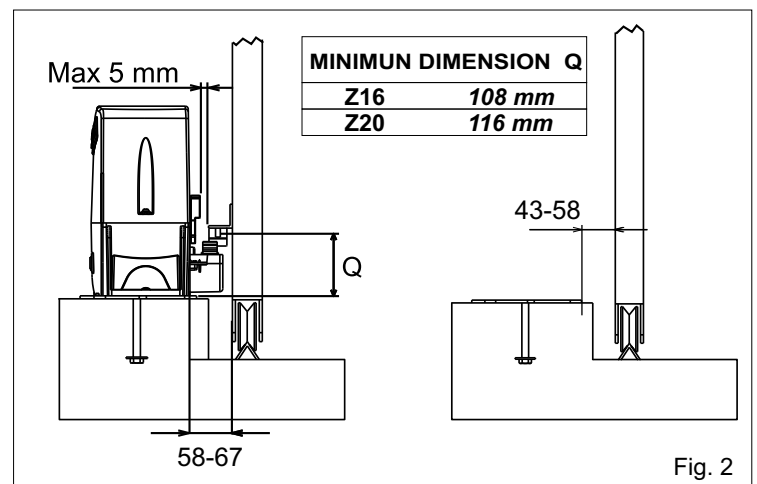
2.1. Prepare a concret basement with the dimensions shown in Fig. 1 where the foundation plate and the anchor bolts will be concreted.

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)



2.2. Before concreting in the plate insert a flexible plastic duct \varnothing 35 mm minimum) into the special hole of the plate.

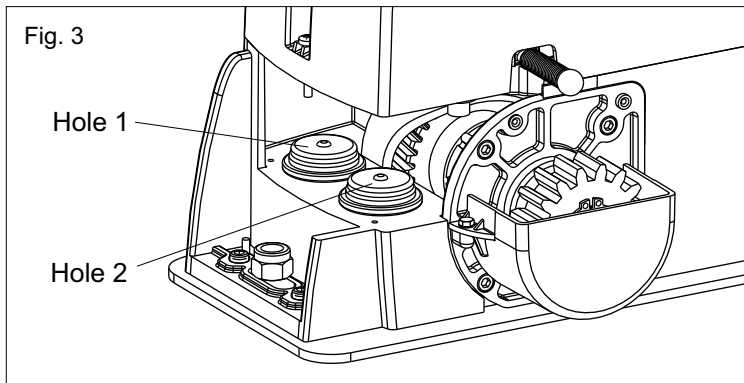
2.3. Before concreting in the plate, make sure that it is perfectly leveled and that the distance of 50-55mm as shown in Fig. 2 is respected.



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 (SELV) cables (24V=) through the other one (Fig. 3)



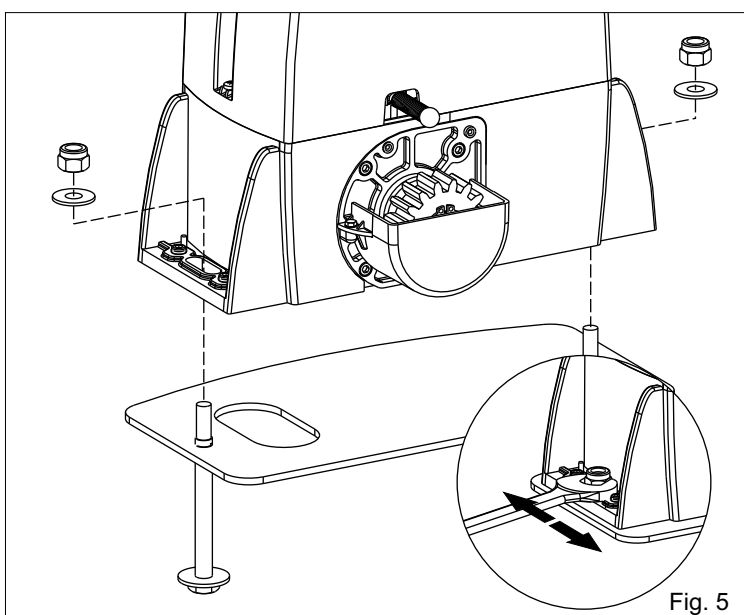
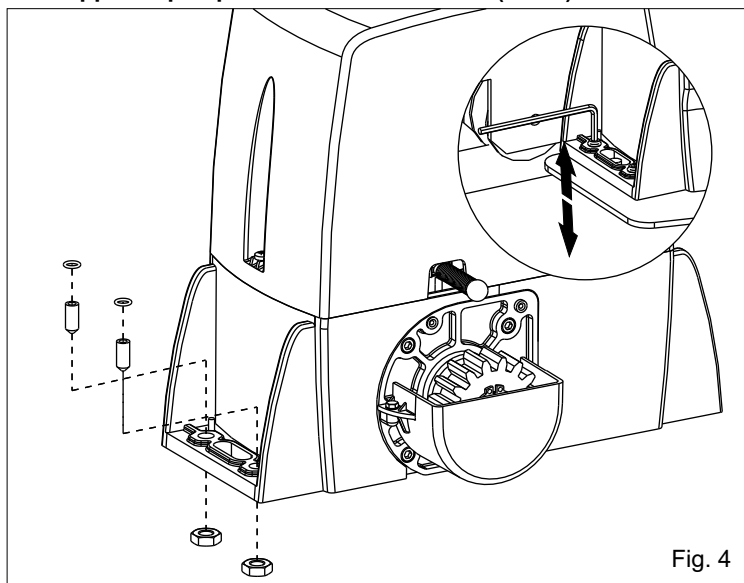
4. FITTING OF THE MOTOR REDUCER

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).



5. GEAR RACK MOUNTING

5.1. Release the motor reducer and take the leaf to complete opening;

5.2. Fix to each gear rack element the support pawls using the appropriate lock screws, taking care to place them in the upper part of the hole (Fig. 6);

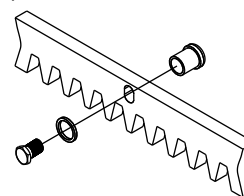


Fig. 6

5.3. Lean the gear rack element on the toothed pinion of the motor so that it results parallel to the ground slideway of the gate, place it 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 in correspondence to the pinion, now fix it with electric welding. Repeat the same procedure for pawl A after having placed it in correspondence to the pinion;

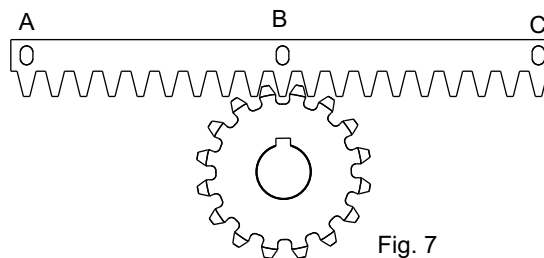
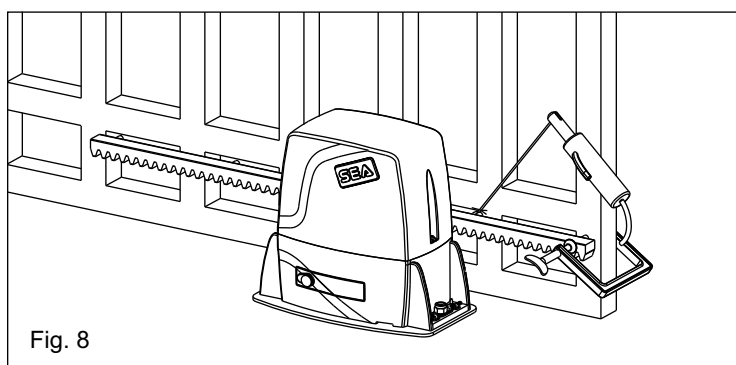


Fig. 7



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 distance pieces length.

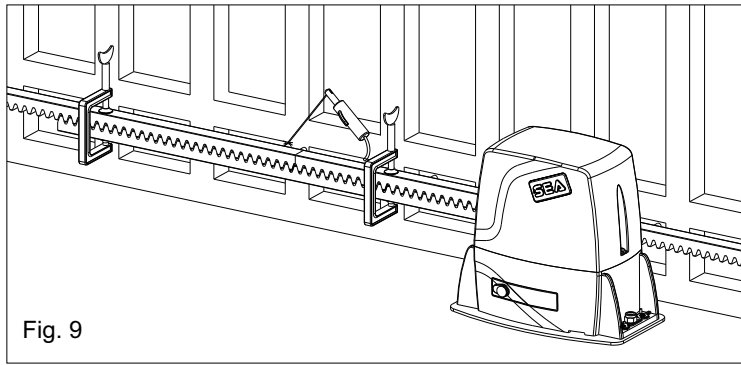


Fig. 9

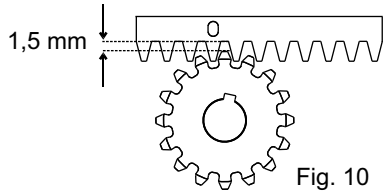


Fig. 10

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).

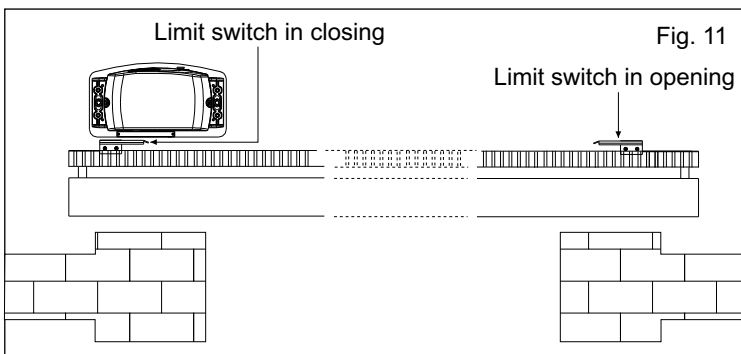


Fig. 11

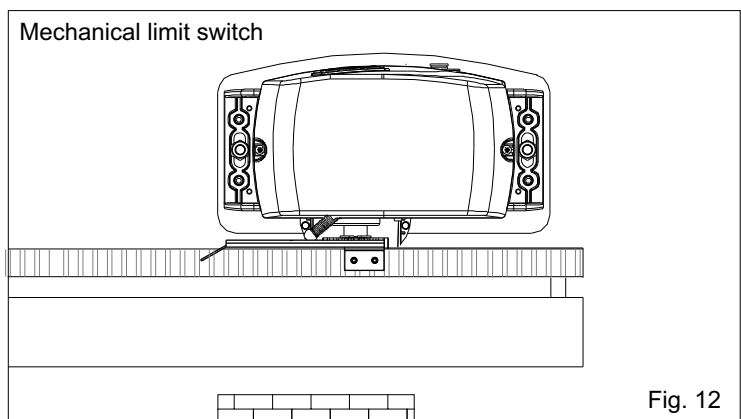


Fig. 12

Inductive limit switch

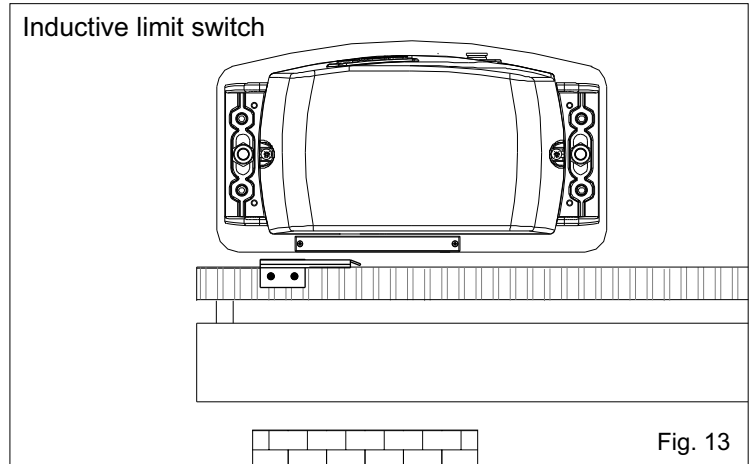


Fig. 13

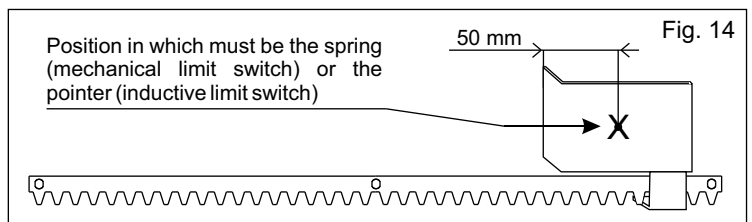


Fig. 14

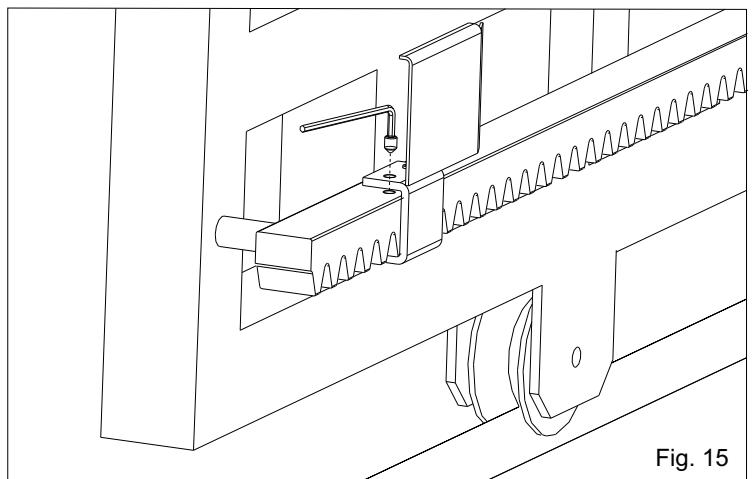
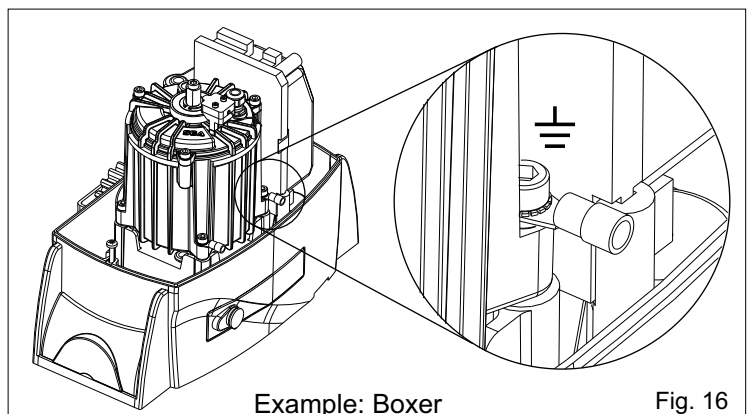


Fig. 15

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



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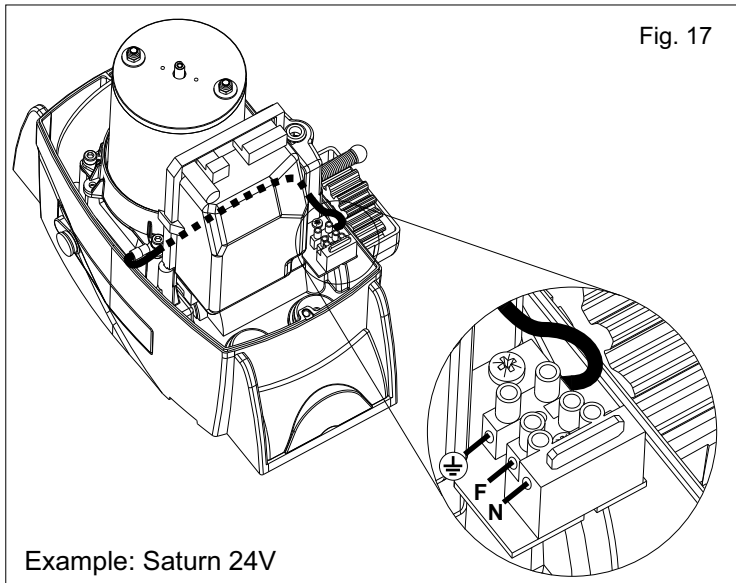


Fig. 17

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

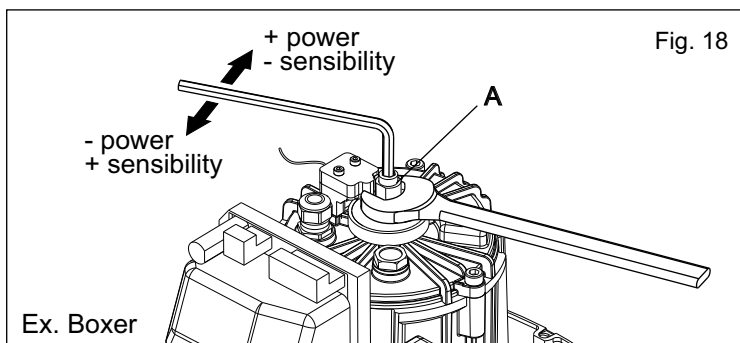


Fig. 18

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.

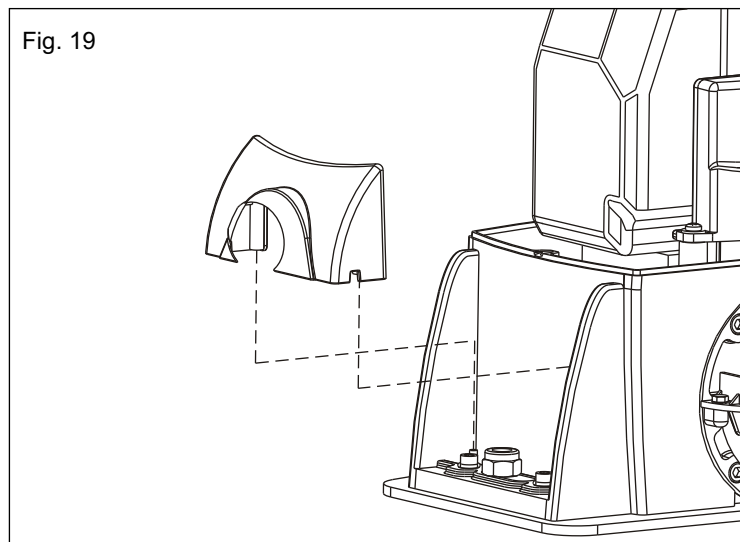
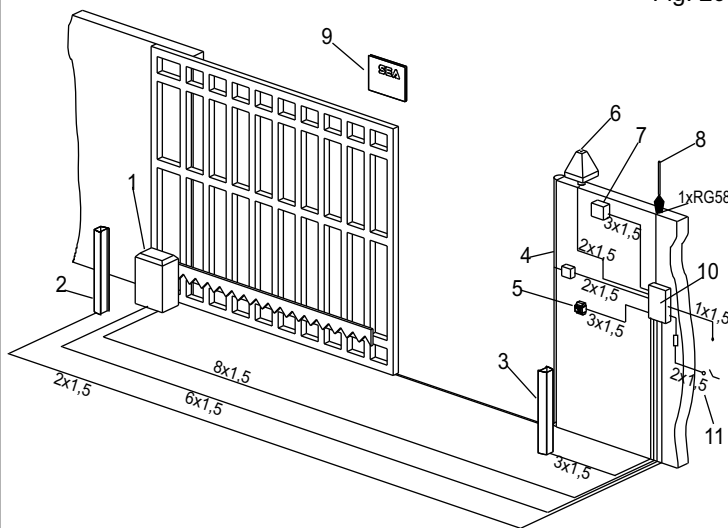


Fig. 19

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

The cable measures are indicated in mm²

Fig. 20



- | | | |
|---------------------------|--------------------|-----------------------------|
| 1) Saturn-Boxer | 5) Key push button | 9) Warning notice |
| 2) photocell Sx | 6) Flasher | 10) Junction box |
| 3) photocell Dx | 7) Receiver | 11) Differential 16A - 30mA |
| 4) Mechanical safety edge | 8) Antenna | |

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.)

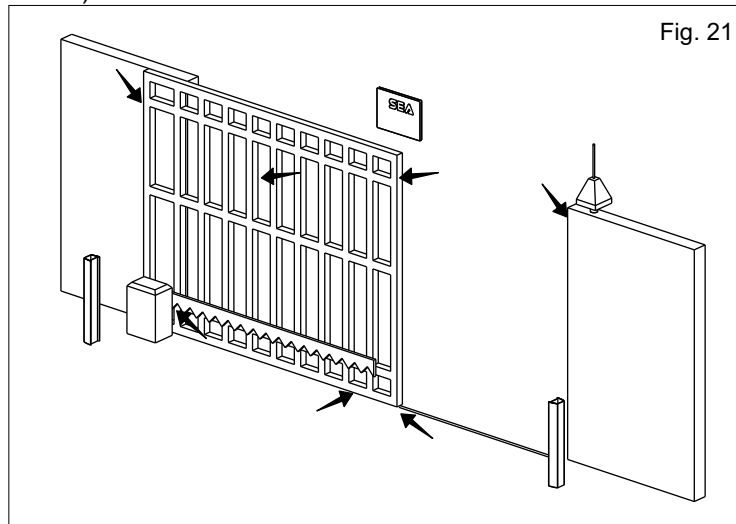


Fig. 21

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

12.1. In order to release do as follows:

- Open the lock cover, insert the key and rotate it 90° clockwise (Fig. 22).
- Pull the release lever until it stops, about 90° approximately (Fig. 23).

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

12.2. 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

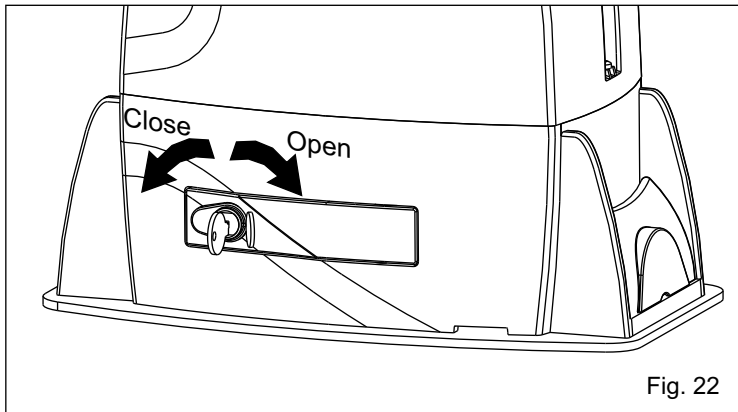


Fig. 22

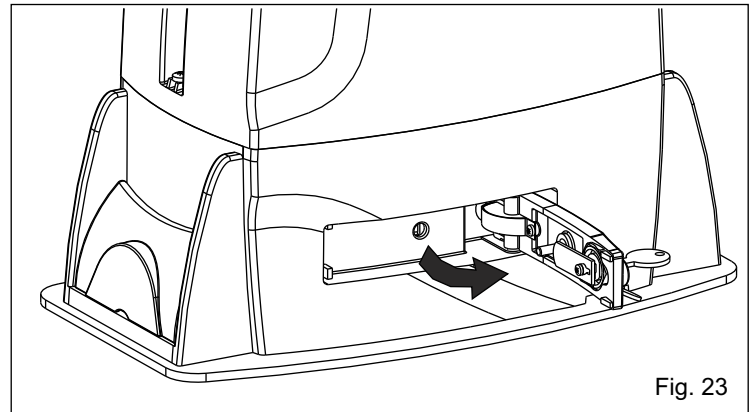


Fig. 23

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.

SAFETY PRECAUTIONS:

All electrical work and the choice of the operating logic should conform to current regulations. A 16A 0,030A 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:

SEA s.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.



Italiano AVVERTENZE GENERALI PER INSTALLATORE E UTENTE

1. Leggere attentamente le **Istruzioni di Montaggio** e le **Avvertenze Generali** prima di iniziare l'installazione del prodotto. Conservare la documentazione per consultazioni future
2. Non disperdere nell'ambiente i materiali di imballaggio del prodotto e/o circuiti
3. Questo prodotto è stato progettato e costruito esclusivamente per l'utilizzo indicato in questa documentazione. Qualsiasi altro utilizzo non espressamente indicato potrebbe pregiudicare l'integrità del prodotto e/o rappresentare fonte di pericolo. L'uso improprio è anche causa di cessazione della garanzia. La SEA srl declina qualsiasi responsabilità derivata dall'uso improprio o diverso da quello per cui l'automatismo è destinato.
4. I prodotti SEA sono conformi alle Direttive: Macchine (2006/42/CE e successive modifiche), Bassa Tensione (2006/95/CE e successive modifiche), Compatibilità Elettromagnetica (2004/108/CE e successive modifiche). L'installazione deve essere effettuata nell'osservanza delle norme EN 12453 e EN 12445.
5. Non installare l'apparecchio in atmosfera esplosiva.
6. SEA srl non è responsabile dell'inosservanza della Buona Tecnica nella costruzione delle chiusure da motorizzare, nonché delle deformazioni che dovessero verificarsi durante l'uso.
7. Prima di effettuare qualsiasi intervento sull'impianto, togliere l'alimentazione elettrica e scollegare le batterie. Verificare che l'impianto di terra sia realizzato a regola d'arte e collegarvi le parti metalliche della chiusura.
8. Per ogni impianto SEA srl consiglia l'utilizzo di almeno una segnalazione luminosa nonché di un cartello di segnalazione fissato adeguatamente sulla struttura dell'infisso.
9. SEA srl declina ogni responsabilità ai fini della sicurezza e del buon funzionamento della automazione, in caso vengano utilizzati componenti di altri produttori.
10. Per la manutenzione utilizzare esclusivamente parti originali SEA.
11. Non eseguire alcuna modifica sui componenti dell'automazione.
12. L'installatore deve fornire tutte le informazioni relative al funzionamento manuale del sistema in caso di emergenza e consegnare all'Utente utilizzatore dell'impianto il libretto d'avvertenze allegato al prodotto.
13. Non permettere ai bambini o persone di sostare nelle vicinanze del prodotto durante il funzionamento. L'applicazione non può essere utilizzata da bambini, da persone con ridotte capacità fisiche, mentali, sensoriali o da persone prive di esperienza o del necessario addestramento. Tenere inoltre fuori dalla portata dei bambini radiocomandi o qualsiasi altro datore di impulso, per evitare che l'automazione possa essere azionata involontariamente.
14. Il transito tra le ante deve avvenire solo a cancello completamente aperto.
15. Tutti gli interventi di manutenzione, riparazione o verifiche periodiche devono essere eseguiti da personale professionalmente qualificato. L'utente deve astenersi da qualsiasi tentativo di riparazione o d'intervento e deve rivolgersi esclusivamente a personale qualificato SEA. L'utente può eseguire solo la manovra manuale.
16. La lunghezza massima dei cavi di alimentazione fra centrale e motori non deve essere superiore a 10 m. Utilizzare cavi con sezione 2.5 mm². Utilizzare cablaggi con cavi in doppio isolamento (cavi con guaina) nelle immediate vicinanze dei morsetti specie per il cavo di alimentazione (230V). Inoltre è necessario mantenere adeguatamente lontani (almeno 2.5 mm in aria) i conduttori in bassa tensione (230V) dai conduttori in bassissima tensione di sicurezza (SELV) oppure utilizzare un'adeguata guaina che fornisca un isolamento supplementare avente uno spessore di almeno 1 mm.

English GENERAL NOTICE FOR THE INSTALLER AND THE USER

1. Read carefully these Instructions before beginning to install the product. Store these instructions for future reference
2. Don't waste product packaging materials and /or circuits.
3. This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the good condition/operation of the product and/or be a source of danger. SEA srl declines all liability caused by improper use or different use in respect to the intended one.
4. The mechanical parts must be comply with Directives: Machine Regulation 2006/42/CE and following adjustments), Low Tension (2006/95/CE), electromagnetic Consistency (2004/108/CE) Installation must be done respecting Directives: EN12453 and EN12445.
5. Do not install the equipment in an explosive atmosphere.
6. SEA srl is not responsible for failure to observe Good Techniques in the construction of the locking elements to motorize, or for any deformation that may occur during use.
7. Before attempting any job on the system, cut out electrical power and disconnect the batteries. Be sure that the earthing system is perfectly constructed, and connect it metal parts of the lock.
8. Use of the indicator-light is recommended for every system, as well as a warning sign well-fixed to the frame structure.
9. SEA srl declines all liability as concerns the automated system's security and efficiency, if components used, are not produced by SEA srl.
10. For maintenance, strictly use original parts by SEA.
11. Do not modify in any way the components of the automated system.
12. The installer shall supply all information concerning system's manual functioning in case of emergency, and shall hand over to the user the warnings handbook supplied with the product.
13. Do not allow children or adults to stay near the product while it is operating. The application cannot be used by children, by people with reduced physical, mental or sensorial capacity, or by people without experience or necessary training. Keep remote controls or other pulse generators away from children, to prevent involuntary activation of the system.
14. Transit through the leaves is allowed only when the gate is fully open.
15. The User must not attempt to repair or to take direct action on the system and must solely contact qualified SEA personnel or SEA service centers. User can apply only the manual function of emergency.
16. The power cables maximum length between the central engine and motors should not be greater than 10 m. Use cables with 2,5 mm² section. Use double insulation cable (cable sheath) to the immediate vicinity of the terminals, in particular for the 230V cable. Keep an adequate distance (at least 2.5 mm in air), between the conductors in low voltage (230V) and the conductors in low voltage safety (SELV) or use an appropriate sheath that provides extra insulation having a thickness of 1 mm.

Français CONSIGNES POUR L'INSTALLATEUR ET L'UTILISATEUR

1. Lire attentivement les instructions avant d'installer le produit. Conserver les instructions en cas de besoin.
2. Ne pas disperser dans l'environnement le matériel d'emballage du produit et/ou des circuits
4. Ce produit a été conçu et construit exclusivement pour l'usage indiqué dans cette fiche. Toute autre utilisation non expressément indiquée pourraient compromettre l'intégrité du produit et/ou représenter une source de danger. SEA srl décline toute responsabilités qui dériverait d'usage improprie ou différent de celui auquel l'automatisme est destiné. Une mauvaise utilisation cause la cessation de la garantie.
5. Les composants doivent répondre aux prescriptions des Normes: Machines (2006/42/CE et successifs changements); Basse Tension (2006/95/CE et successifs changements); EMC (2004/108/CE et successifs changements). L'installation doit être effectuée conformément aux Normes EN 12453 et EN 12445.
6. Ne pas installer l'appareil dans une atmosphère explosive.
7. SEA srl n'est pas responsable du non-respect de la Bonne Technique de construction des fermetures à motoriser, ni des déformations qui pourraient intervenir lors de l'utilisation.
8. Couper l'alimentation électrique et déconnecter la batterie avant toute intervention sur l'installation. Vérifier que la mise à terre est réalisée selon les règles de l'art et y connecter les pièces métalliques de la fermeture.
9. On recommande que toute installation soit doté au moins d'une signalisation lumineuse, d'un panneau de signalisation fixé, de manière appropriée, sur la structure de la fermeture.
10. SEA srl décline toute responsabilité quant à la sécurité et au bon fonctionnement de l'automatisme si les composants utilisés dans l'installation n'appartiennent pas à la production SEA.



Questo articolo è stato prodotto seguendo rigide procedure di lavorazione ed è stato testato singolarmente al fine di garantire i più alti livelli qualitativi e la vostra soddisfazione. Vi ringraziamo per aver scelto SEA.

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