



**SEA**<sup>®</sup> USA  
ELECTRONIC  
OPENING  
SYSTEMS  
International registered trademark n. 2.777.971

117 (Vela Ind. Series)

# VELA INDUSTRIAL



SEA USA Inc.  
10850 N.W. 21st unit 160 DORAL MIAMI  
Florida (FL) 33172  
Phone: ++1-305.594.1151 Fax: ++1-305.594.7325  
Toll Free: 800.689.4716

web site: [www.sea-usa.com](http://www.sea-usa.com)

e-mail: [sales@sea-usa.com](mailto:sales@sea-usa.com)

### GENERAL SAFETY REGULATIONS FOR THE INSTALLER

- The installer has to read and understand the functioning of this operator system, its safety features and knowing the manual function in case of emergency.
- Do not modify in any way the automated system's components. SEA USA Inc. declines all liability concerning the automated system's security and efficiency if the used components are not produced by SEA USA Inc. For maintenance, strictly use original SEA USA Inc. spare parts.
- The installer shall supply the user with all information concerning the proper operation of the product, the system's manual functioning in case of emergency and shall hand over to the user the warnings handbook supplied with the product.
- SEA USA Inc. recommends the system to have reversing sensor (encoder) on the drive shaft of the motor. In case of swing/linear/in-ground hydraulic operators/barriers, SEA USA Inc. recommends to install the SAFETY GATE as an additional reversing sensor. Reversing devices are required to prevent the system from closing on vehicular traffic and/or help to prevent injuries to pedestrians.
- It is recommended to use indicator-lights as well as warning signs for every system. Both should be visible on each side of the gate and well fixed on the frame structure.
- Do not leave packing materials (plastic, polystyrene, etc.) within children's reach, as they are potential sources of danger.
- For products having an emergency release, it is recommended to use it only when the gate/barrier is closed.
- Remove all locks connected to the gates before installing the operator.
- Where possible, install the opener control 7 feet or more above the floor. For products having an emergency release, mount the emergency release 6 feet above the floor.
- Locate the control button: (a) within sight of door, (b) at minimum height of 5 feet so that small children are not able to reach it, and (c) away from all moving parts of the door.
- Install entrapment Warning Label next to the control button in a prominent location. Attach marking next to the emergency release.
- Do not employ for any reason automatic closing devices (such as timer, loop sensors, or similar), and do not connect any other activation devices.

### GENERAL SAFETY REGULATION FOR THE USER

- Sea strongly recommends to follow these instructions literally to prevent very serious damages to persons. 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 USA Inc. declines all liability caused by improper use or different use in respect to the intended one.
- Only qualified personnel can install, repair and periodically check this equipment.
- 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 centres. User can apply only the emergency manual function.
- The system has been designed for the control of vehicular traffic only. Pedestrians or bicycles must have a separate access opening.
- 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.
- Transit through the leaves or barrier is allowed only when the gate/barrier is fully open. Operate system only if it is fully visible, and free of obstructions.
- For products having an emergency release use it only when the door/barrier is closed.

### ELECTRICAL CONNECTIONS - SAFETY INSTRUCTIONS

- Disconnect the battery back up, if included, before disconnecting main power supply.
- Always disconnect power supply during installation or servicing of the product.
- All electrical connections from the control panel's to the operator's must be made in a waterproof junction box.
- The system requires a separate power supply circuit. Check that the main power supply circuit breakers are separated, intended solely for this equipment and rated for 15 AMPS. Visually check that the circuit breakers are in OFF position and mark the circuit breakers USED prior to installation.
- Permanent wiring must be used and installed to the operator as required by local electrical codes and It is recommended to do by a licensed electrician. It is also recommended to check the local building code requirements before making any type of wiring to be sure that all wirings comply with them. Local building codes will take precedence. It is recommended to use different colours for all wirings' codes.
- Distance for low voltage control wires, i.e., open input, single leaf, open input and stop input, can run up to 3000 feet with 18 AWG wire. Low voltage controls and communication wirings must all be separated by a minimum of 1 foot from high voltage power wiring and in a separate conduit.

### GROUNDING

- Good grounding and proper surge suppression are an integral part of proper installation for all operator systems. One or all of the followings may require surge suppressors: high voltage power lines, low voltage power lines, telephone lines, data lines, low voltage control lines and loops. Quantity of surge suppression requires depends on susceptibility of the area to lightning and power surges. Good grounding is essential to realize maximum protection.
- If the circuit breaker box is located close to the gate/barrier operator system, for example, in a guardhouse, then the ground from that circuit can be used to ground the gate operator system. Eliminate all 90° bends in ground wires and keep a minimum distance of three feet between the surge suppressor and the equipment to protect.
- If the power source or circuit breaker box is not located close to the operator system, an Isolated Ground Zone (IGZ) must be created. An IGZ is an imaginary circle drawn around the operator system. An IGZ can also be created, if the circuit breaker box is located close to the operator system. The operator system not only includes the operator and control panel, but all accessories and devices associated with it at that controlled entry point. This includes loop detectors, card readers, digital entries, telephone entries, any device that has or requires grounding and all the surge suppressors. The ground bus is a common ground point called Single Point Ground (SPG). It is used to bond all the equipments and devices grounded in the IGZ together. The SPG is very important because it helps to eliminate different ground potentials that can be present on the equipment and that could cause damages even with surge suppressors.
- Do not use or connect the ground wire coming from the circuit breaker box. By using an Isolated Ground Zone, you have to separate the operator system from the house or building ground. This eliminates ground potentials. It is recommended the ground bus to be located in a separate NEMA type enclosure. All grounds will be tied to this ground bus.
- Equipment ground wire should be of minimum 12 AWG. The main ground wire from the bus bar to the ground rod should be an 8 or 6 AWG copper wire. Ground rod should be minimum 10 feet in length, (length depends on local soil conditions).
- For more information, regarding good grounding practices check: National Electric Code art. 250; IEEE Emerald Book, standard 100; International Association of Electric Inspectors.

**INSTALLATION WARNINGS**

- For gate operators: install only when
  - A. The operator is appropriate for the gate's construction and usage Class.
  - B. All opening spaces on the wall of the horizontal slide gate are guarded or screened from the bottom of the gate to a minimum of 4 feet (1m) above the ground so that it could be possible to keep on the entire surface of the wall a minimum distance of 2-1/4 (57,15mm) inches from the gate and the wall on which the gate runs.
  - C. All exposed pinch points are eliminated or guarded
  - D. Guarding is supplied for exposed rollers.
  - E. Check if the gate works freely in both directions before installing the gate operator system. Any necessary repair to the gate must be done before installing the equipment. Swinging gate shall not open into public access areas.
- The operator systems must be installed in a proper place to prevent contacts with adjacent structures in opening and closing. Watch out to install the system so that users could have full view of the area.
- For operators using non-contact sensors:
  - A. See instructions on the placement of non-contact sensors for each Type of application.
  - B. Watch out to reduce the risk of nuisance tripping of the sensor.
  - C. One or more non-contact sensors shall be located where the risk of entrapment or obstruction exists, such as the perimeter reachable by a moving gate or barrier.
- For operators utilizing contact sensors:
  - A. One or more contact sensors must be located where the risk of entrapment or obstruction exists, such as the operators' edges. They should be installed both inside and outside the operator's edge.
  - B. A hardwired contact sensor must be installed, watching out to arrange its wiring so that the communication between the sensor and the operator should not be subjected to mechanical damage.
  - C. A wireless contact sensor such as a radio frequency (RF) signal transmitter must be located where the signal's transmission cannot be obstructed by structures or natural landscaping.
- Controls should be far enough from the gate or barrier so that the user is prevented from coming in contact with them while operating the controls. Controls are intended to be used to reset an operator after 2 sequential activations of the entrapment protection device and must be located in the line-of-sight of the outdoor. Install a security feature if controls are easily accessible, to prevent unauthorized use.

**AFTER INSTALLATION**

- Check that: the open and close force are properly adjusted; the piston does not bottom out in either direction, the breather screws have been removed, the positive stops used are sufficient for stopping the gate properly, all the pinch points and potential entrapment areas are reduced.
- Check and test all reversing devices.
- The installer should instruct user on the operator system's proper operation. They should together review the basic functions of the reversing devices and how to periodically test them. Reversing devices include one or more of the followings: reversing loops, photocells, reversing edges, etc. The installer has to instruct user on how to remove the operator system from service, on shutting power off on the service panel and how to use the operator system manually.

**GENERAL ENTRAPMENT PROVISIONS**

**A vehicular operator must be installed with one independent primary and one independent secondary means at least to protect against entrapment (see Table A):**

<b>TABLE A</b>	<b>OPERATOR CATEGORY</b>			
	<b>Horizontal slide, vertical life and vertical pivot</b>		<b>Swing and vertical barrier</b>	
<b>USAGE CLASS</b>	Primary Type	Secondary Type	Primary Type	Secondary Type
<b>Vehicular I and II</b>	<b>A</b>	<b>B1 B2 D</b>	<b>A C</b>	<b>A B1 C D</b>
<b>Vehicular III</b>	<b>A B1 B2</b>	<b>A B1 B2 D E</b>	<b>A B1 C</b>	<b>A B1 C D E</b>
<b>Vehicular IV</b>	<b>A B1 B2 D</b>	<b>A B1 B2 D E</b>	<b>A B1 C D</b>	<b>A B1 C D E</b>

**Note:** The same type of device shall not be utilized for both the primary and secondary entrapment protection means. The use of a single device to cover both the opening and closing directions is in accordance with the requirements; however, a single device is not required to cover both directions. A combination of one Type B1 for one direction and one Type B2 for the other direction is the equivalent of one device, for the purpose of complying with the requirements of either the primary or secondary entrapment protection means.

**Entrapment protection types**

- Type A: Inherent entrapment sensing system.
- Type B1: Provision for connection of a non-contact sensor (photoelectric or equivalent).
- Type B2: Provision for connection of a contact sensor (edge device or equivalent).
- Type C: Inherent adjustable clutch or pressure relief device.
- Type D: Provision for connection of an actuating device requiring continuous pressure to maintain opening or closing motion of the gate.
- Type E: An inherent audio alarm.

**CLASS OF OPERATORS**

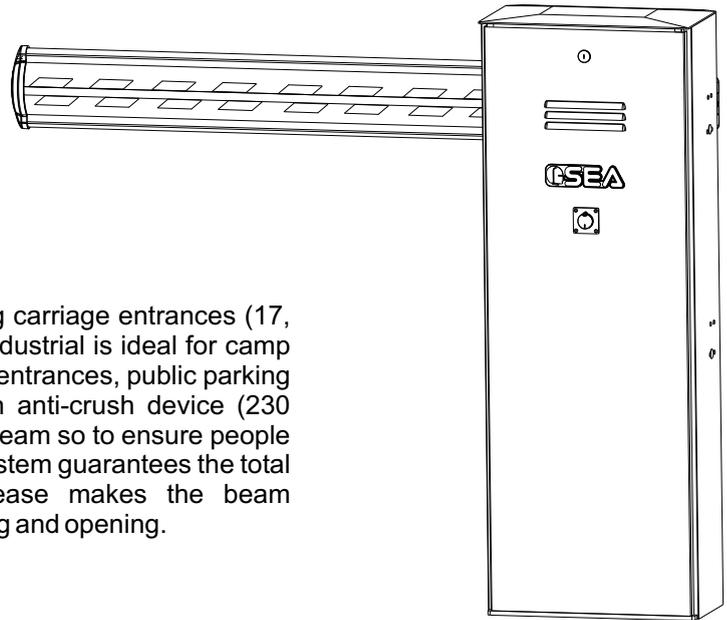
**RESIDENTIAL VEHICULAR GATE OPERATOR - CLASS I** - A vehicular operator (or system) intended for use in a home of one-to four, single-family dwelling, or a garage or parking area associated therewith.

**COMMERCIAL/GENERAL ACCESS VEHICULAR OPERATOR - CLASS II** - A vehicular operator (or system) intended for use in a commercial location or building such as multi-family housing unit (five or more single family units), hotel, garage, retail store, or other building servicing the public.

**INDUSTRIAL/LIMITED ACCESS VEHICULAR OPERATOR - CLASS III** - A vehicular operator (or system) intended for use in an industrial location or building such as a factory or loading dock area or other locations not intended to service the public, in which unauthorized access is prevented via supervision by security personnel.



SEA s.r.l. is glad to congratulate and thank you for choosing our product. Your choice will allow you to understand how our factory, according to studies, research and above all the needs of our customers, wants to gather technology, reliability and safety together keeping in mind use and installation easiness.



**General characteristics**

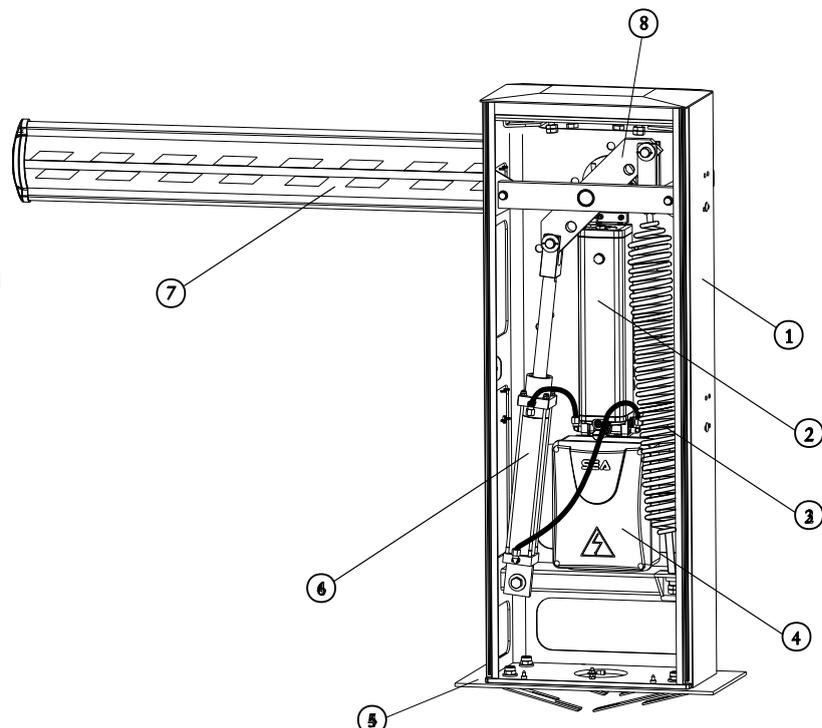
Vela Industrial is an electro-mechanical automation for big carriage entrances (17, 20, 23, 25 feet). The places for fitting are multiple; Vela Industrial is ideal for camp entrances, hospitals, yards, private roads, port and airport entrances, public parking with half-intensive working cycles. It is provided with an anti-crush device (230 version) that ensures a strength of max. 33 pound on the beam so to ensure people and things against accidents. An accurate slowing down system guarantees the total control of the momentum strength. The manual release makes the beam independent from the operator so to allow the manual closing and opening.

**The automation consists of :**

- 1 The cataphoresis and epoxy treated dust painted steel sheet casing protects all mechanical and electric devices from atmospheric agents. On request it is also possible to receive the casing in stainless steel.
- 2 The balancing spring is delivered according to the beam length, inside the beam kit (See spring tab.)
- 3 Electronic control unit for 230 version, advanced device which allows the programming and control of all working and safety systems.
- 4 Operator with manual release for the manual opening of the beam in case of damages.
- 5 Beam in extruded aluminium, available sizes: from 17 to 25 feet.
- 6 Mounting plate out of steel sheet coated with zinc.
- 7 Balancing wheel in galvanized steel.

**List of the main parts:**

1. Vela Industrial Series casing
2. Hydraulic pump unit
3. Balancing spring
4. Electronic Control Unit
5. Vela Ind. mounting plate
6. Piston
7. Aluminium beam
8. Balancing lever



### Technical data

Voltage supply:	115 V~ 50/60 Hz
Power absorption:	220W
Opening time:	8-12 s
Max. Beam length:	25 feet with fork / 23 feet side fixation
Protection degree:	Ip55
Motor revolutions:	1400 RPM/min.
Operating temperature:	-4°F ÷ + 131°F
Weight:	183 pound
Manual release:	Yes
Use frequency:	75%

**Note1:** The frequency of use is valid only for the first hour at 68°F room temperature.

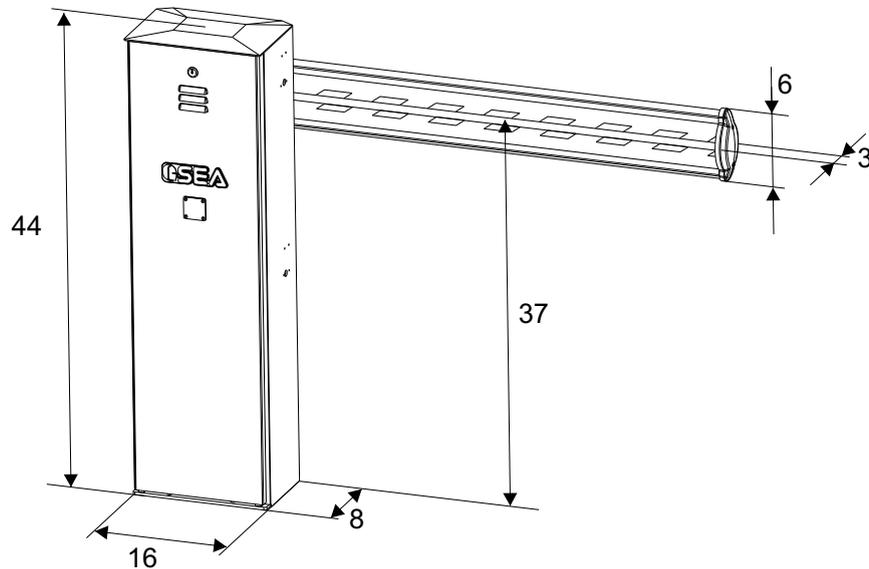
**Nota2:** For a frequency of more than 60%, it is recommended to use the mechanical and electronic limit switch kit for a best duration in time.

Rectangular beam		
Barrier Length	D. Spring	Fexlible support
17 feet	0,41 in.	yes
20 feet	0,43 in.	yes
23 feet	0,45 in.	yes
25 feet	0,49 in.	yes

B-light Beam		
Barrier Length	D. Spring	Fexlible support
17 feet	0,41 in.	yes
20 feet	0,43 in.	yes
23 feet	0,45 in.	yes

Side beam with skirt		
Barrier Length	D. Spring	Type of skirt
17 feet	0,43 in.	15 feet
20 feet	0,45 in.	18 feet
23 feet	0,49 in.	21 feet

### Dimensions (inches):



### FITTING INSTRUCTIONS

#### 1) Position of spring



#### Right hand closing barrier

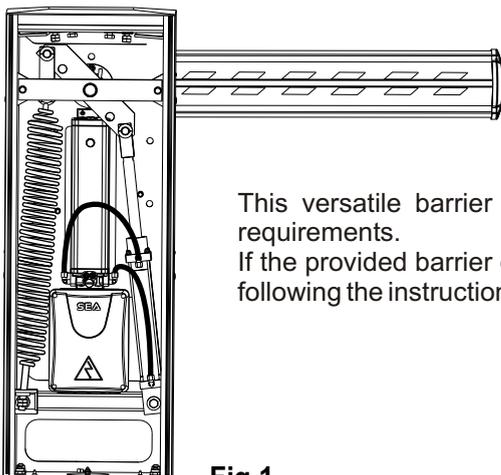


Fig.1

#### Left hand closing barrier

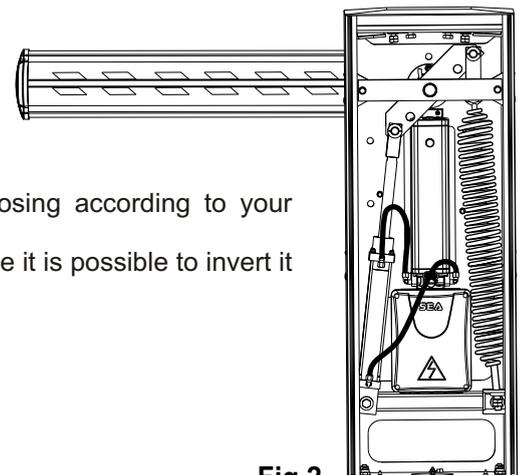


Fig.2

This versatile barrier allows the left or right hand closing according to your requirements.  
If the provided barrier does not close on the desired side it is possible to invert it following the instructions.

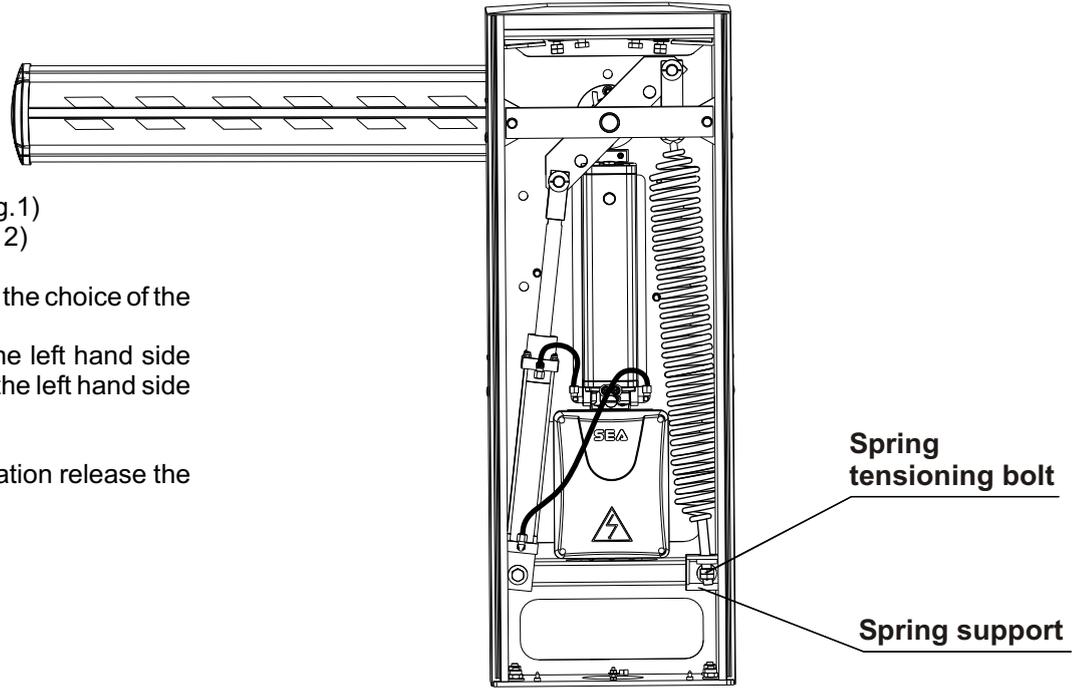
**N.B.:** The operator comes as shown in Fig.1 (Closing on the right hand side).

Example:  
Barrier with right hand closing (Fig. 1)  
Barrier with left hand closing (Fig. 2)

Before installing the spring check the choice of the barrier, if right or left hand side.

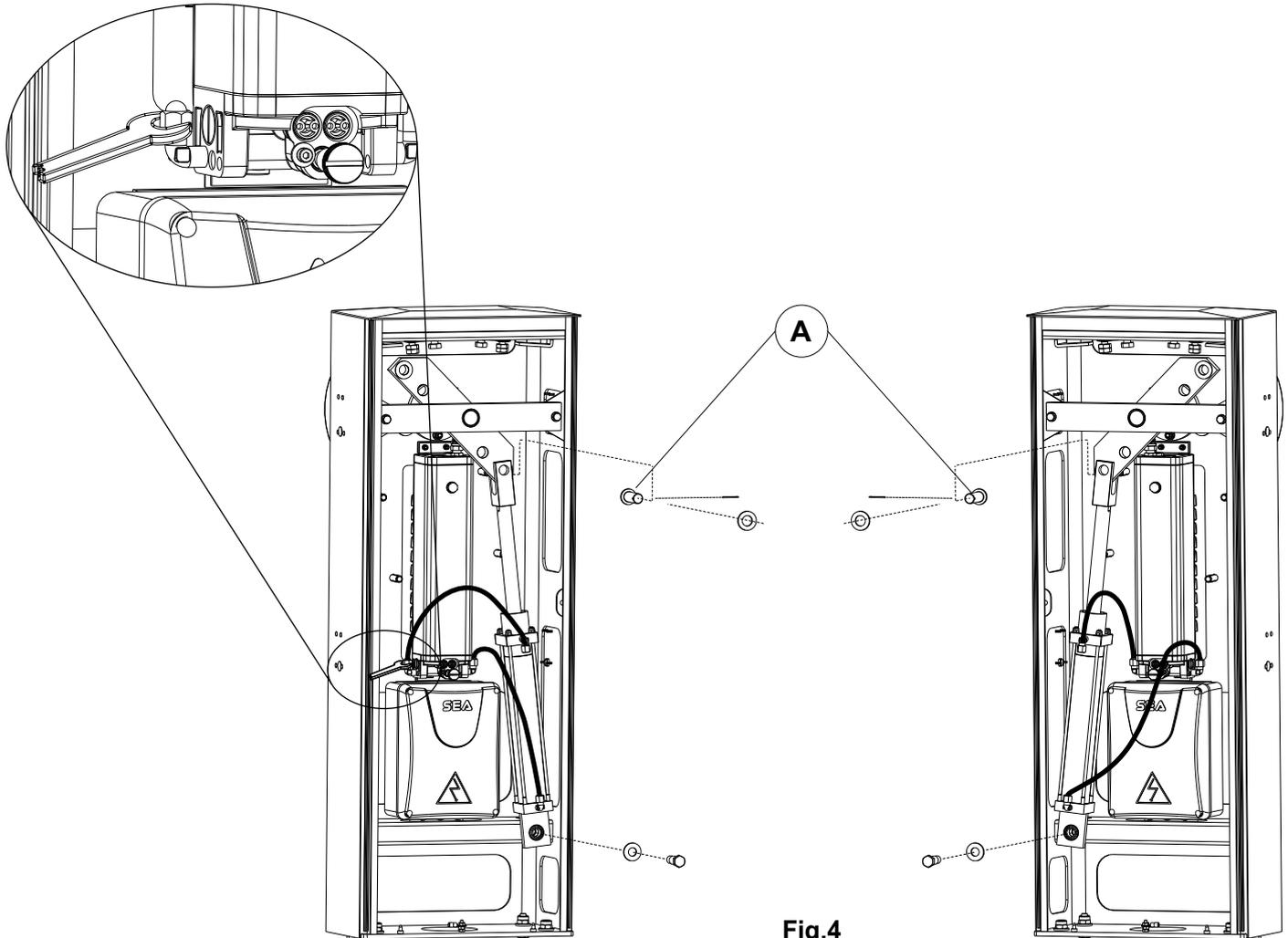
If the barrier is with closing on the left hand side move the piston from the right to the left hand side as shown in Fig.4 and 5.

**N.B.:** Before executing this operation release the operator as shown in Fig. 18.



**Fig. 3**

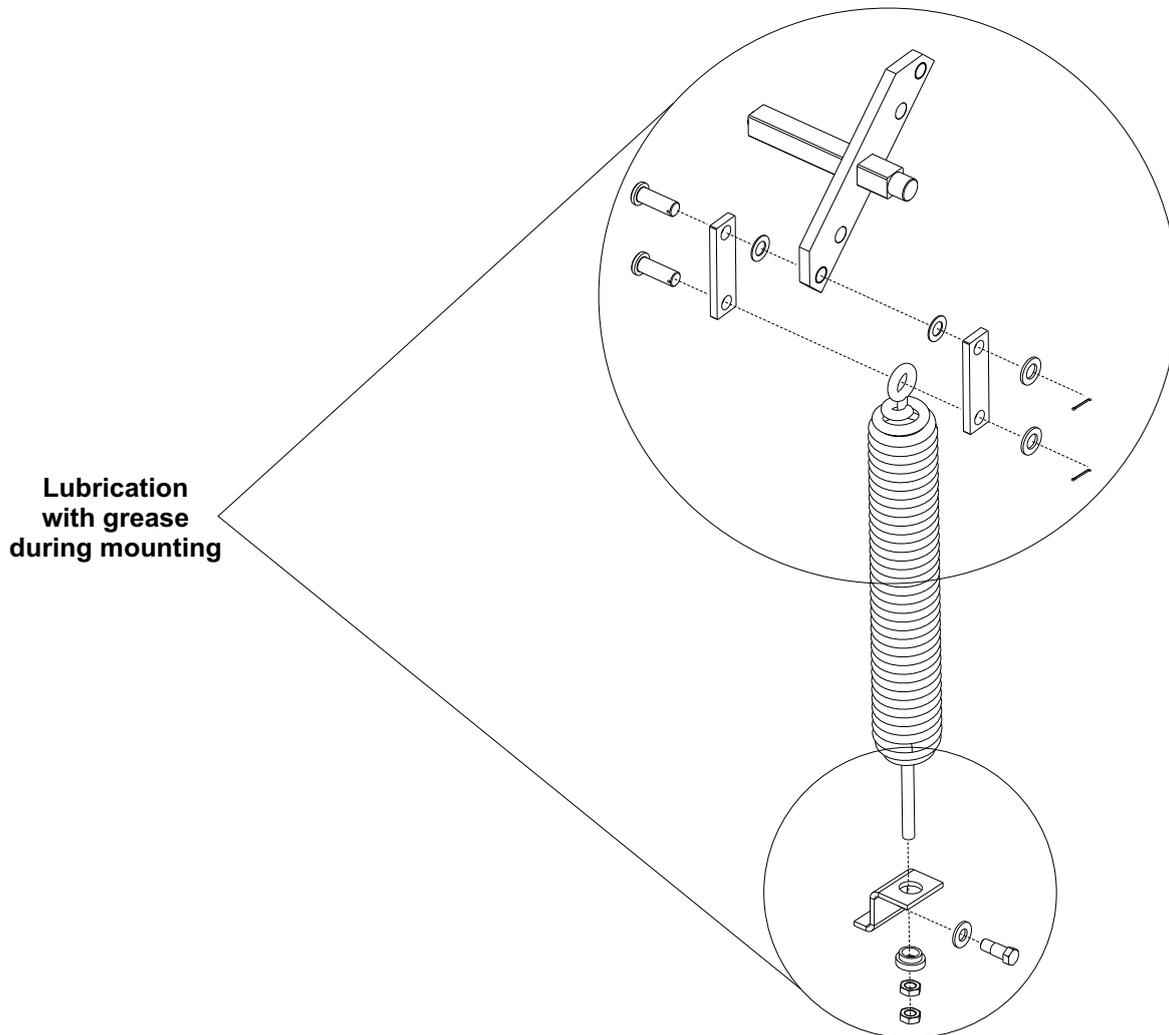
Once exchanged the piston tighten its fixation screw and lubricate with grease (Use DIN 51502 KP 2 N-20 - K 2 K-20 grease).



**Fig.4**

## 2) Mounting of the spring

Insert the spring in to the carter as shown in Fig.5.

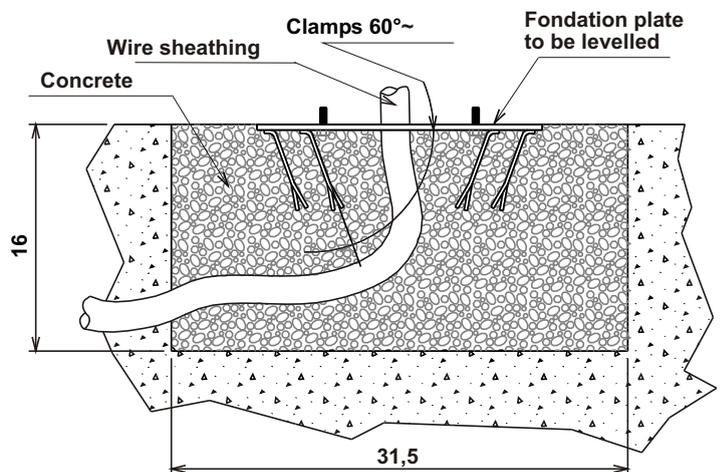


**Fig. 5**

## 3) Mounting plate fixing

- Dig a hole 31,5x24x16 inches
- Widen the foundation plate clamps at 60° (Fig. 6)
- Fill the hole with R425 concrete and place the foundation plate as in Fig. 6.
- Level the plate with care.

\* The plate has got a central hole for electric wiring so before filling the hole with concrete put an electric wire sheathing on the hole.



**Fig. 6**



#### 4) Fixing the column on the foundation plate

- Place the column so that the holes at the base correspond to the screws that emerge from the foundation plate.
- Make sure that the wire sheathing is fixed on the big central hole at the base of the column.
- Tighten the column to the foundation plate screwing the provided nuts and bolts with care.

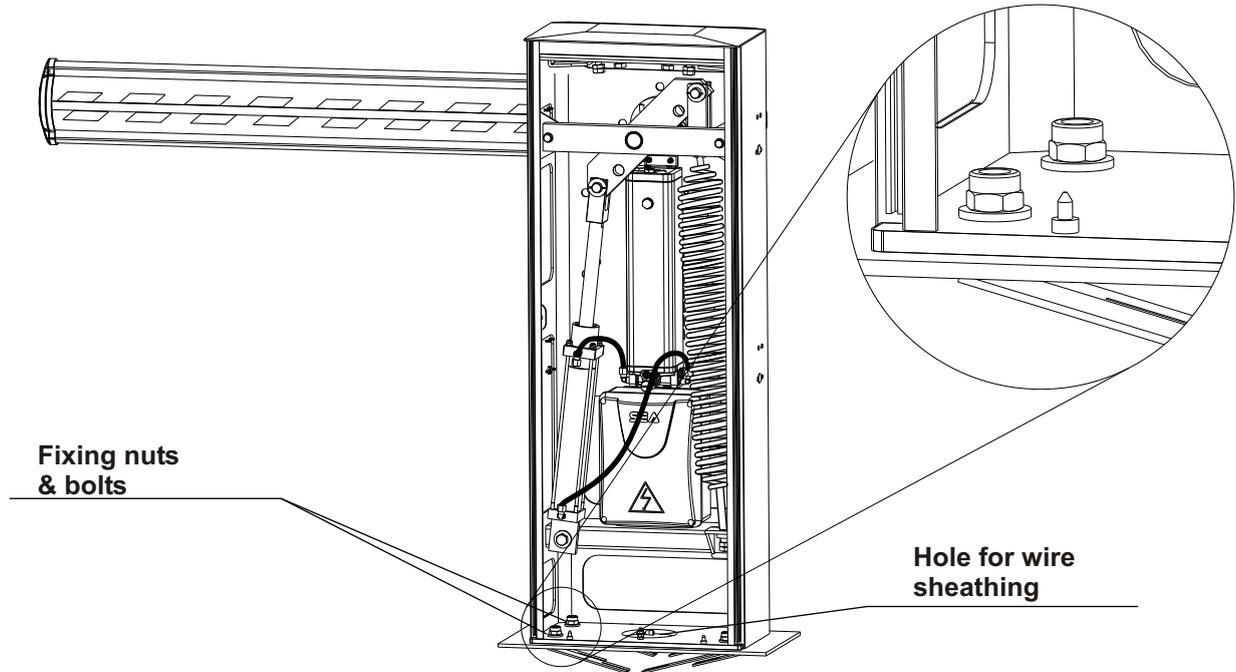


Fig. 7

#### 5) Mounting of the central beam with fork (Fig. 8)

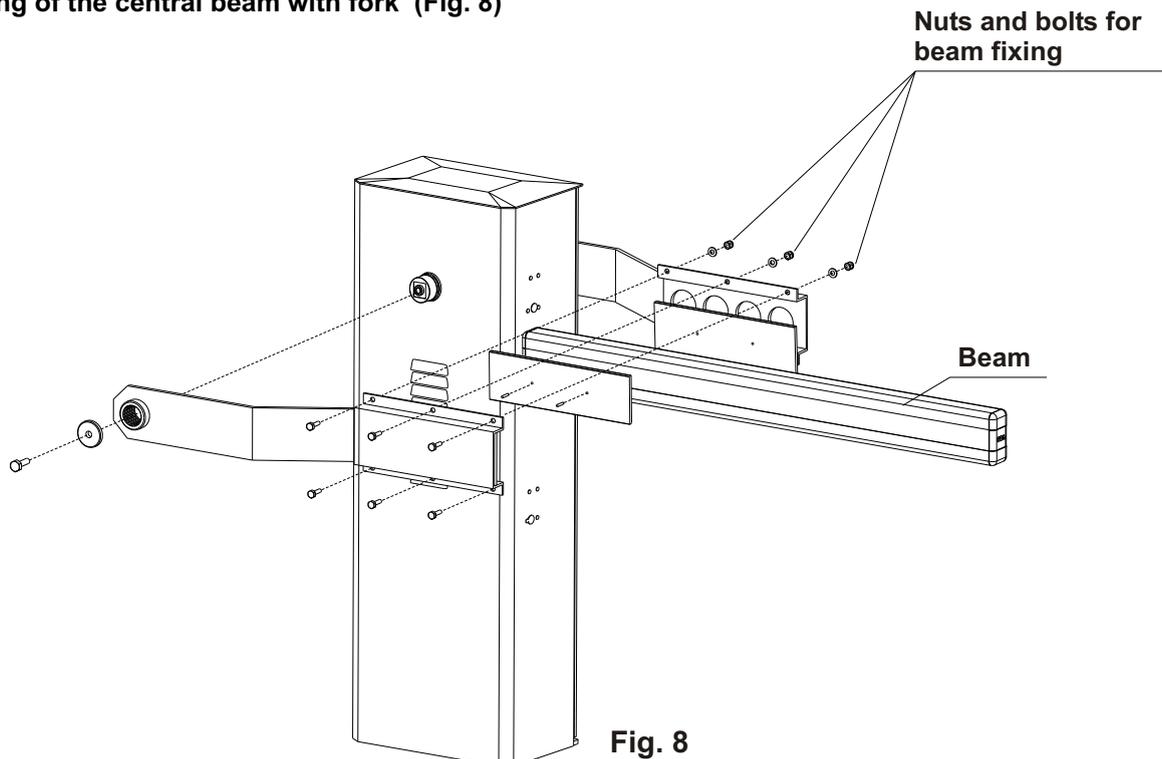


Fig. 8

6) Mounting of the B Light beam (Fig. 9)

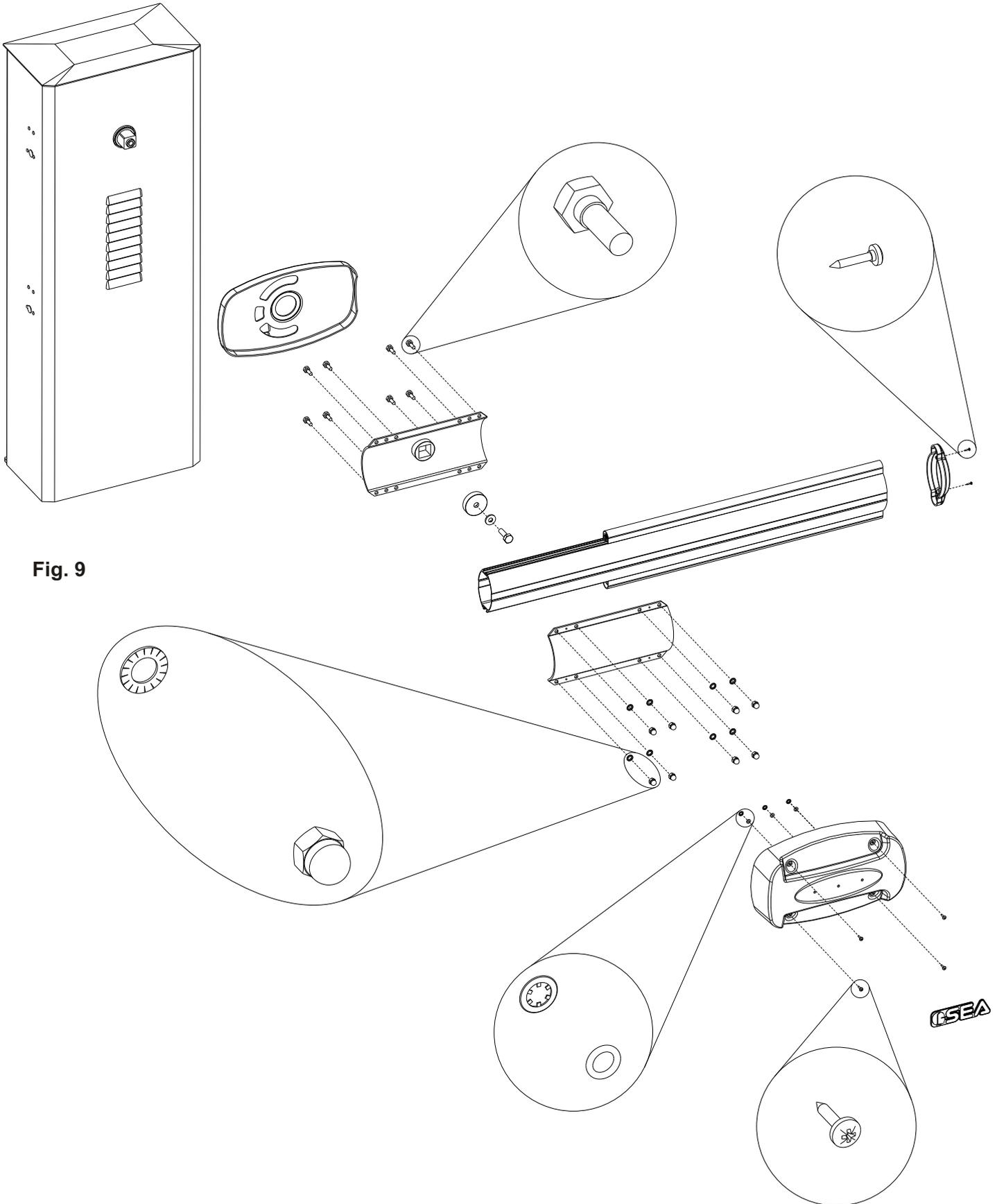


Fig. 9



### 7) Mounting of the skirt on the beam

N.B.: The skirt can be installed only on lateral mounted beams.

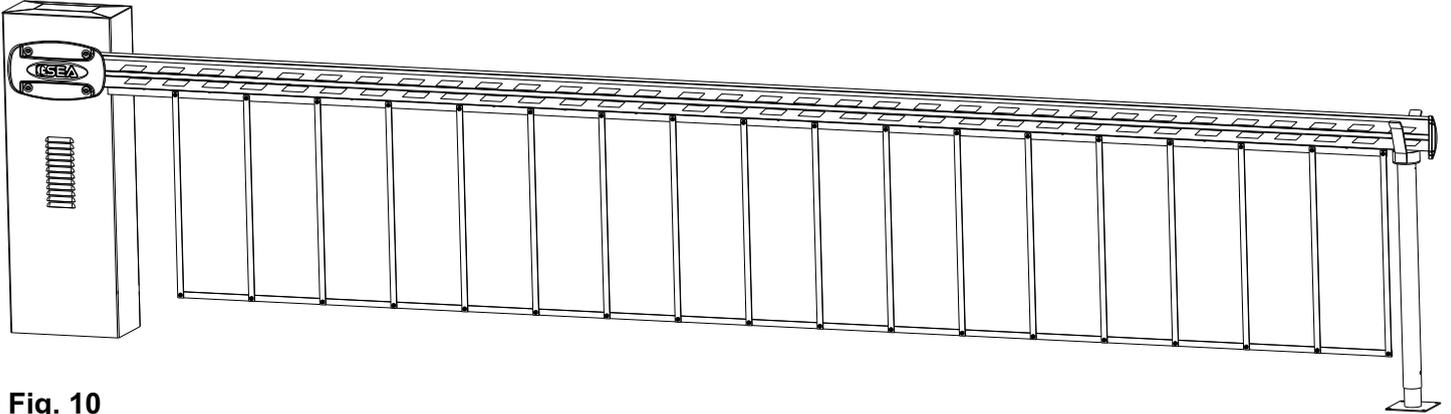


Fig. 10

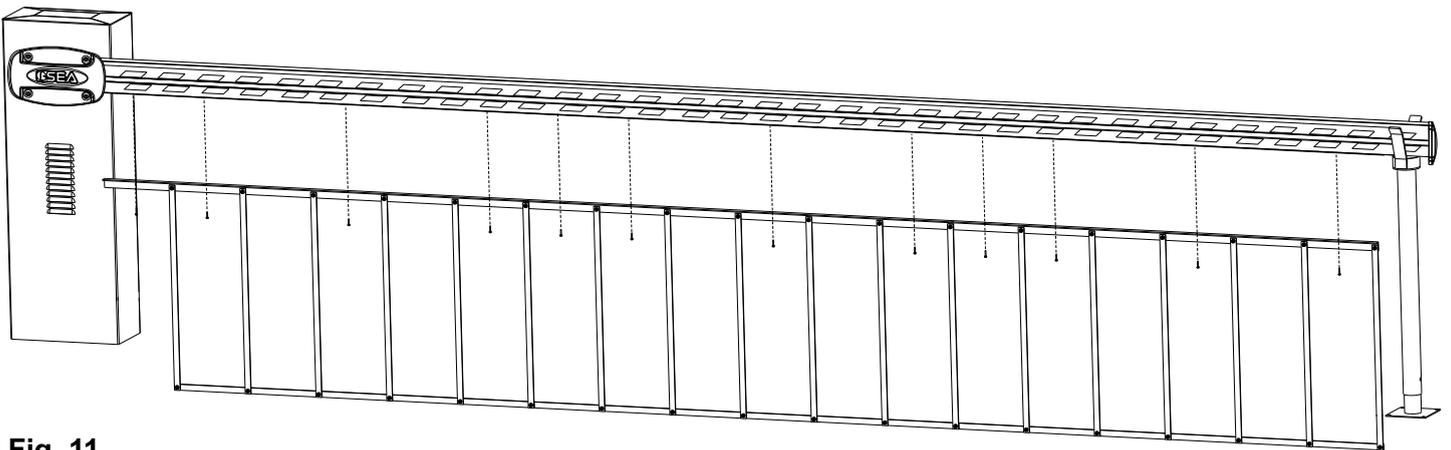


Fig. 11

### 8) Balancing the spring

- Turn the manual release valve anti-clockwise to release the operator so that the beam can be opened and closed manually.

- Place the beam at approx. 45° and execute the balancing with the nuts of Fig. 12.  
To obtain a correct balancing the beam must be on 45° and the operator must be unlocked.

- Tight or untight the spring adjusting bolt locknut so that the spring reaches a balance point with the beam at 45° (Fig.12).

- After balancing fix the spring adjusting bolt locknut with the bolt and block the operator.

**NOTE: For the correct balancing of the beam it is recommended to unhook the piston from the balance wheel extracting the pivot as in fig.4**

### 9) Barrier power supply

Now it is possible to power supply the barrier with 115V~50/60 Hz.

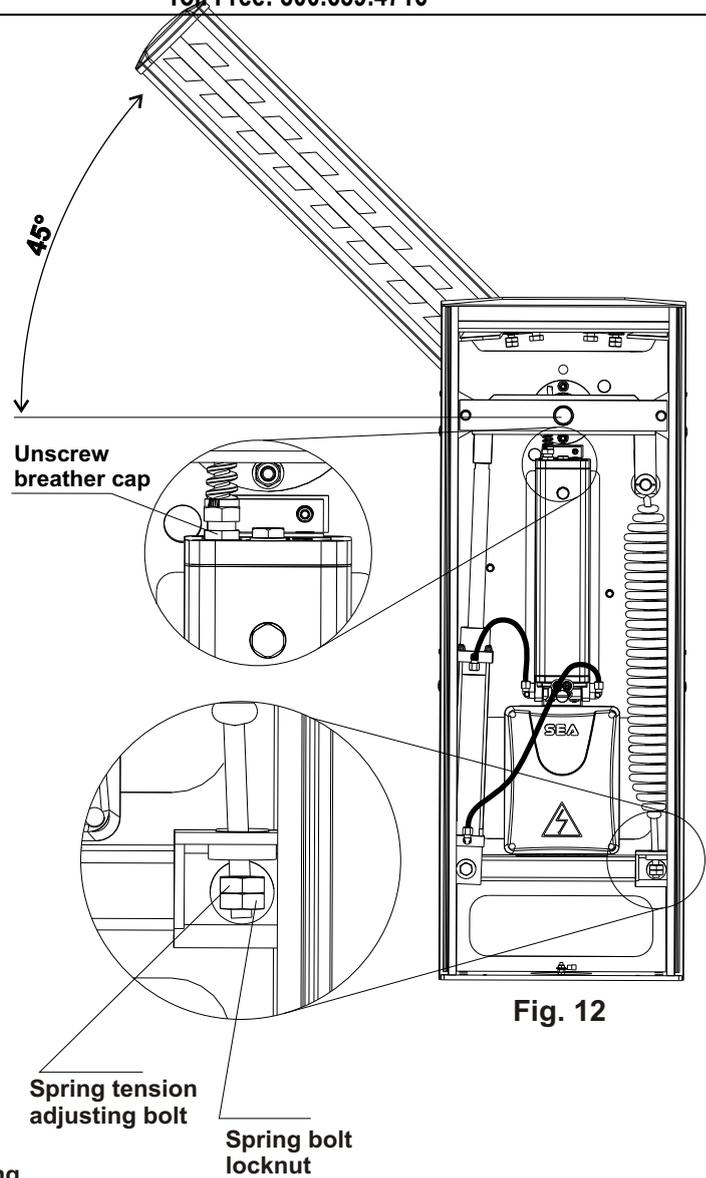


Fig. 12

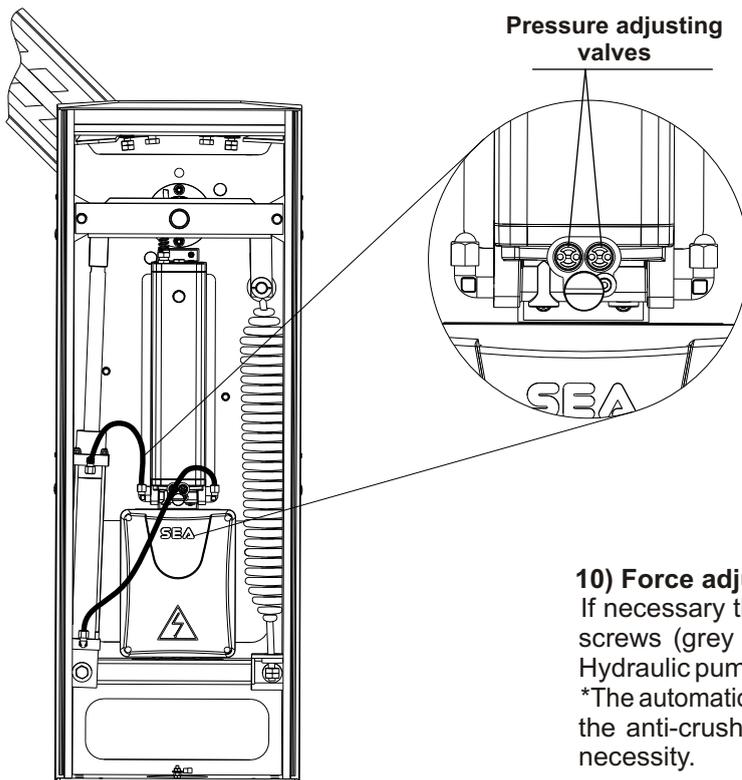


Fig. 13

### 10) Force adjustment

If necessary the piston force can be adjusted by the two adjusting screws (grey and yellow) placed on the front lower place of the Hydraulic pump unit (Fig. 13).

\*The automation is adjusted at 33 pound force ex works so to guarantee the anti-crush safety. We recommend to adjust it only in case of necessity.

### 11) Levelling the beam

**Important:** This manoeuvre must be executed only if at the end stroke the beam is not in perfectly horizontal position in closing or in perfectly vertical position in opening.

- Unlock the actuator through the release screw so that the beam opens and closes manually.

- Release the end stroke screws unscrewing the lock nuts on the limit switch (Fig. 14).

- Screw or unscrew the end stroke screws so that the beam stays in perfectly vertical position in opening and in perfectly horizontal position in closing (Fig. 14).

- After levelling, fix the end stroke by tightening the lock nuts on the limit switch and block the actuator.

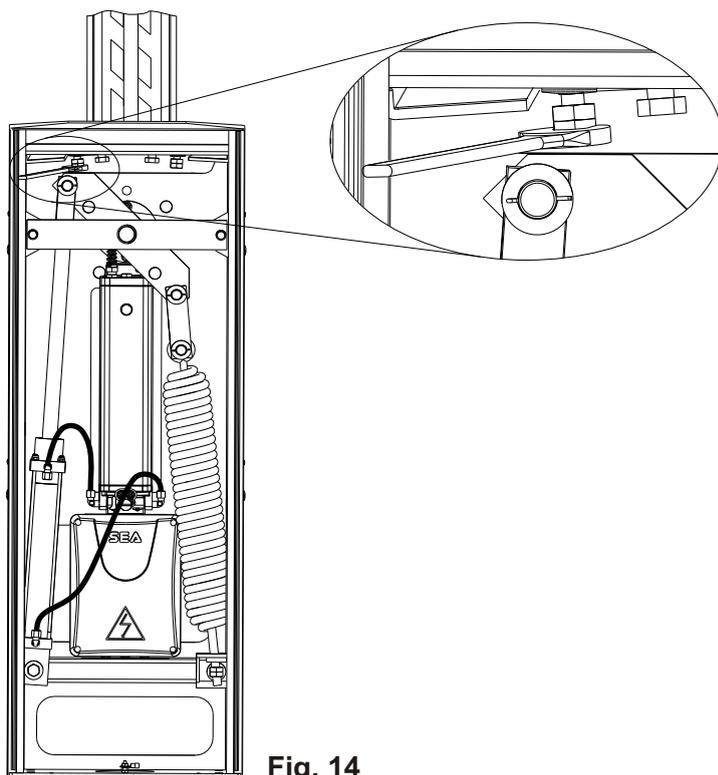


Fig. 14

### 12) Levelling of the central beam with fork

First extract the screws B, than the screws C (Fig. 15). Continue as described in the preceding paragraph.

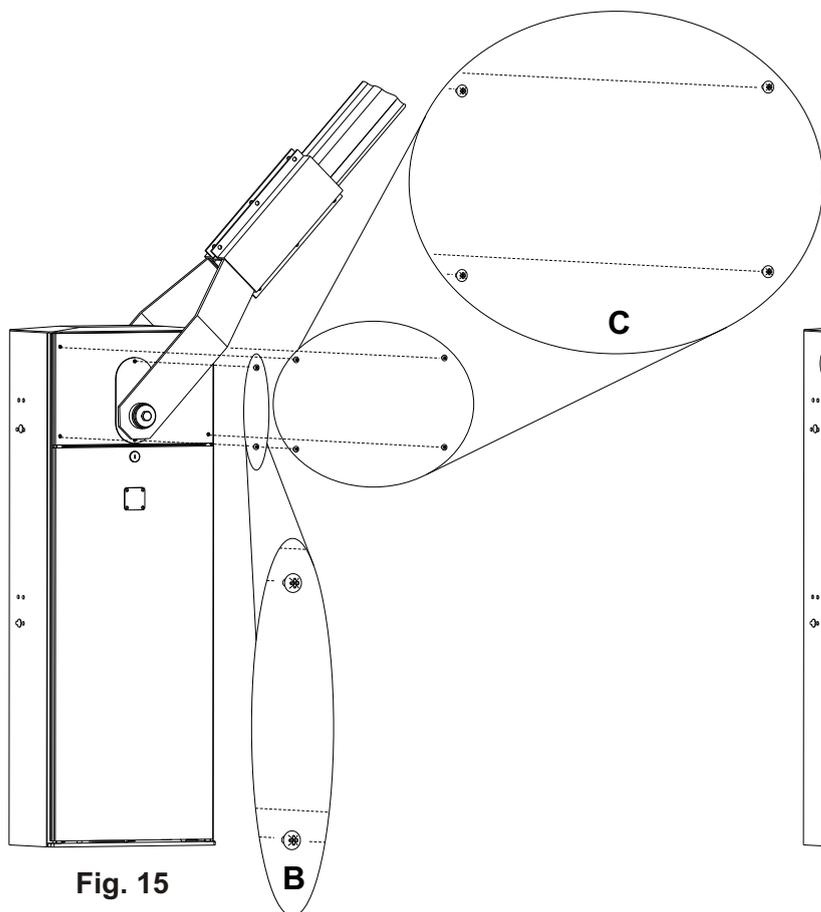


Fig. 15

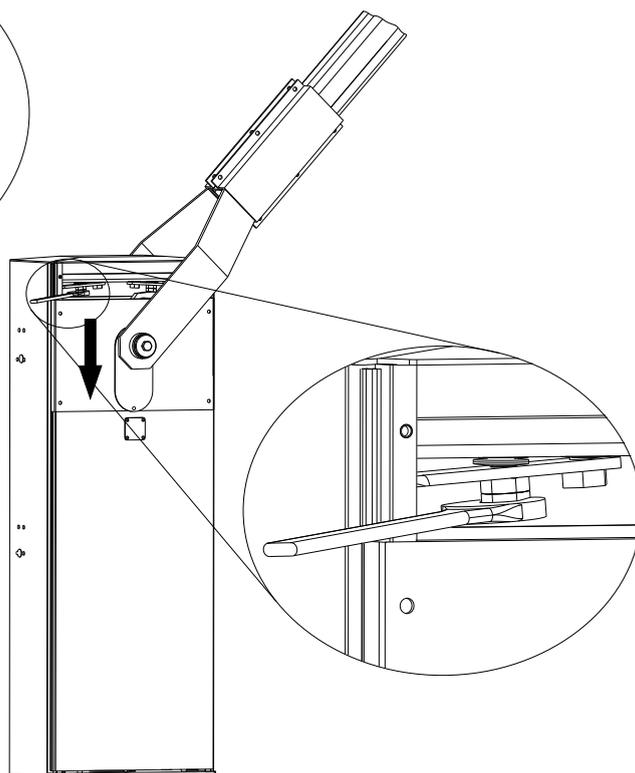


Fig. 16

### 13) Standard installation

In Fig.17 you find the necessary wiring for the barrier installation.  
The two numbers placed next to the electric cables show their quantity and section.

**Legend:**

- 1) Electronic control unit
- 2) Photocell (receiver)
- 3) Photocell (transmitter)
- 4) Key switch
- 5) Radio receiver
- 6) Warning light
- 7) Push button board
- 8) Main switch

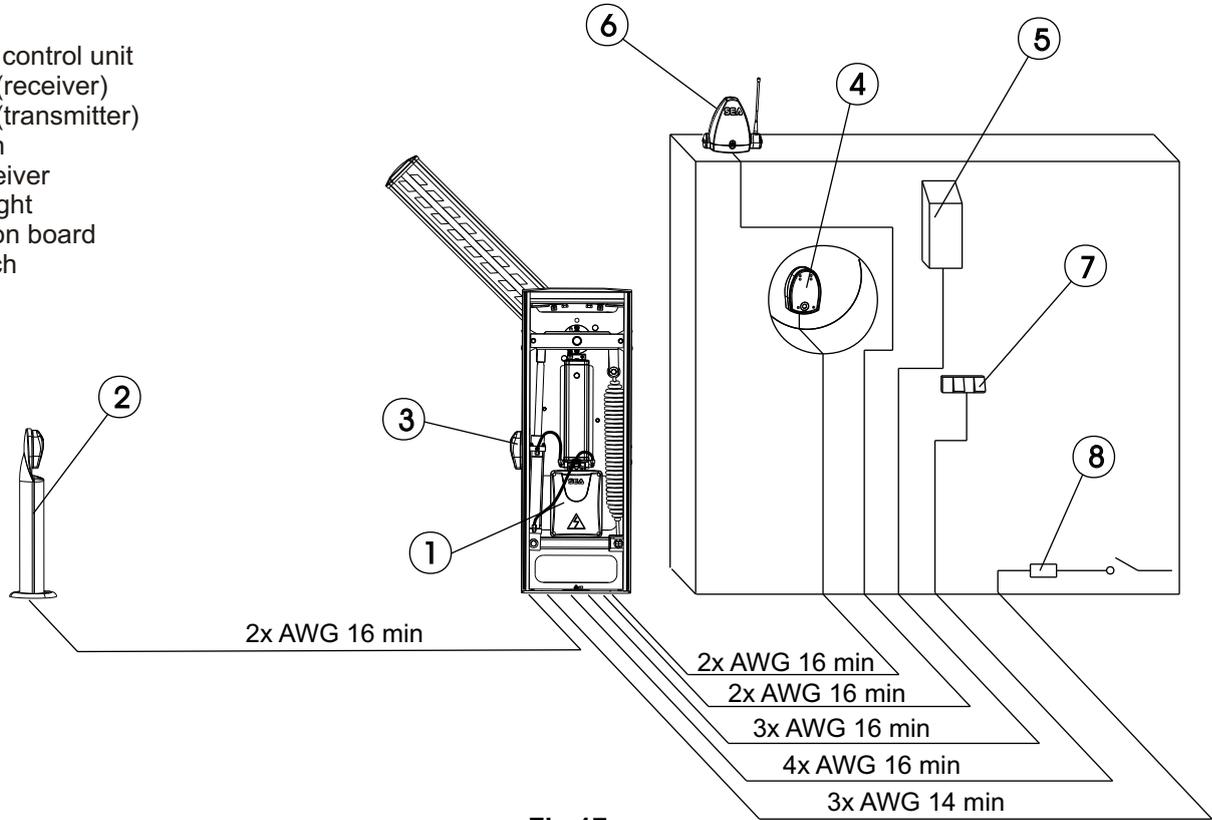


Fig.17

### 14) Accessories for VELA INDUSTRIAL



KEY SWITCH



PHOTOCELLS



SKIRT (ONLY ON SIDE BEAM)



WARNING LAMP



FIXED FORK SUPPORT



ADJUSTABLE FORK SUPPORT



FEXLIBLE FORK SUPPORT



LIMIT SWITCH KIT



COUNTER PLATE FOR FORK SUPPORT

## To the attention of users and technicians

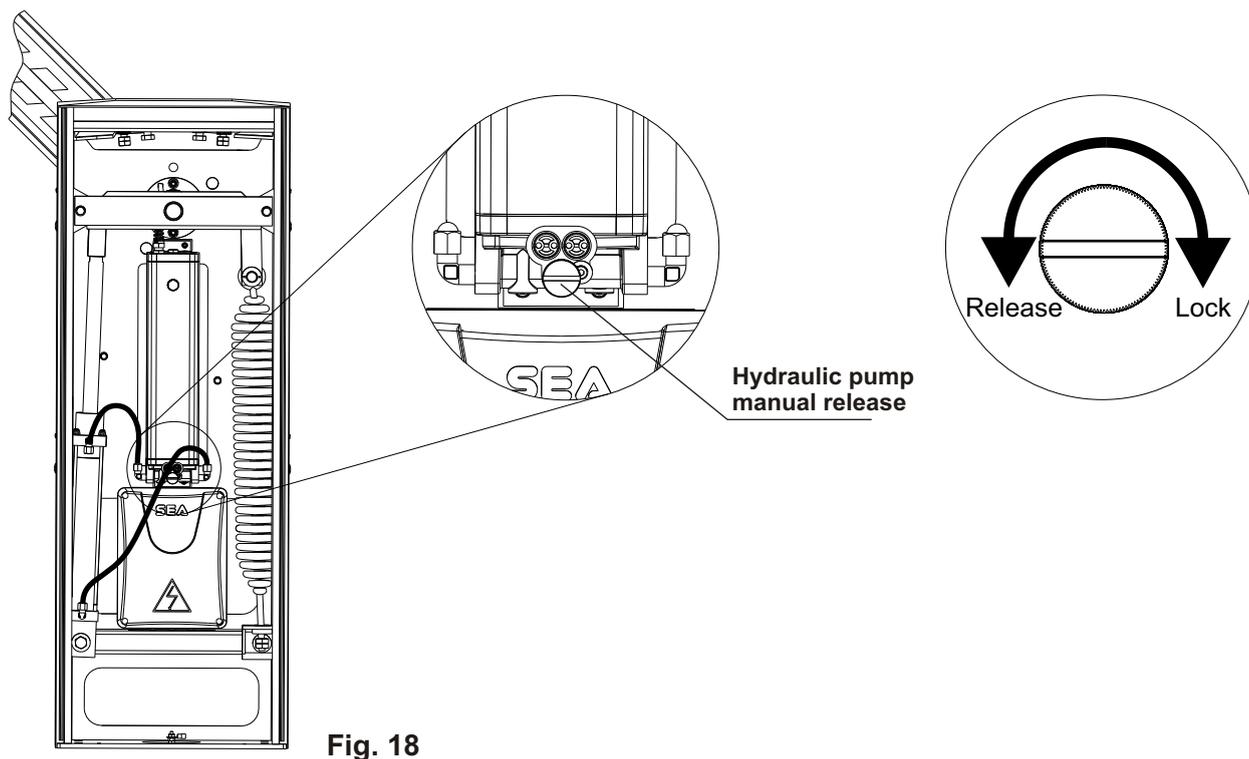
### 15) Release system

#### To release operate as follows:

- Open the door with the delivered special key
- Turn about 90° into anti-clockwise direction the release screw placed on the hydraulic unit.
- Move the beam with the hand

#### To re-lock operate as follows:

- Turn about 90° into clockwise direction the release screw placed on the hydraulic unit.
- Close the door



### PERIODICAL MAINTENANCE

Check the functionality of the release	Annually
Lubricate all moving parts	Annually
Check the efficiency of the spring (balancing)	Annually
Check the beam fixing screws, the balance and the casing	Annually
Check the integrity of the connexion cables	Annually
Verify the efficiency of the limit switches (micro-switch)	Annually

All above mentioned operations must be executed exclusively by authorized installers.



## To the attention of users and technicians

# SALES CONDITIONS

**GENERAL WARNING:** Installation must be realized using parts and accessories approved by SEA. SEA is not responsible for incorrect installations and/or non-compliance with safety standards according to the law in-force. SEA is in no way liable for any damages and/or malfunctioning due to using parts and accessories non-compliant with the UL325 safety standards.

**ORDERS:** Orders are processed upon approval by SEA. Buyers must confirm orders by sending a written Purchase Orders to SEA. Purchase Orders are intended as confirmation of orders and binding for the buyer, which accepts SEA sales condition.

**QUOTATION:** Quotation and special offers with a non-specified duration expires automatically after 30 days.

**PRICES:** Prices are based on the Price List in force. Discounts and quotation from Sales Rep. and other selling branches must be approved by SEA. Prices are F.O.B SEA Warehouse in Miami and do not include shipments costs. SEA reserves the right to modify the price list at any time and provide notice to its sales network.

**PAYMENT:** Method of payments and terms are notified by SEA and displayed on the commercial invoice.

**DELIVERY:** The delivery time on the invoice is not binding and represents an estimated delivery. Shipments costs will be charged to the buyer and SEA is not responsible for delays and/or damages occurred to the products during shipment.

**COMPLAINS:** Complains and/or claims must be notified to SEA within 7 business days after receiving the products. Claims and complains must be supported by original documents. Customer must contact the factory for instructions and authorization. Merchandise returned for credit must be current, uninstalled and unused and returned in its original packaging. Freight must be pre-paid on all authorized returns.

**REPAIRS:** Repairs and parts are subject to the availability in stock. Shipment of products for repairs must be pre-paid by the customer. Products shipped without authorization, sender's details and description of the problems will be refused. Customers must contact SEA for instructions.

**WARRANTY:** for the original buyer only:

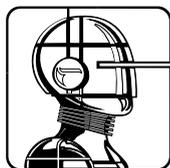
Hydraulic and oil-bath motors: 36 months warranty from the date of invoice on manufacturing, assembling and workmanship defects.

Electro-mechanic motors and electronic control systems: 24 months warranty from the date of invoice on manufacturing, assembling and workmanship defects.

Lepus and Full Tank Standard model: 60 months warranty from the date of invoice on manufacturing, assembling and workmanship defects.

No warranty will be recognized for damages due to incorrect installation and/or improper use for which the product was intended. SEA warranty obligations shall be limited to repair or replace the defective product/parts at SEA option, upon examination of the products by SEA technical Staff. All replaced parts must remain property of SEA. The warranty status of the product remains an unquestionable assessment of SEA. Buyer must ship pre-paid defective products. Products under warranty will be returned pre-paid by SEA. Recognized defects, whatever their nature, will not produce any responsibility and/or damage claims to SEA USA Inc and SEA s.r.l. Warranty shall not cover any required labor activities. Warranty will in no case be recognized if alterations and any other changes will be found on products. Warranty will not cover damages caused by carriers, expendable materials and faults due to improper use with the products specifications. No indemnities are recognized during repairing and/or replacing of the products under warranty. SEA USA Inc. and SEA s.r.l. decline any responsibility for damages to person and objects deriving from non-compliance with safety standards, installation instructions or use of the products sold. It is intended that warranty will be recognized only on products bought through the SEA authorized network. Products must be installed by professionals. No warranty will be recognized if products are installed directly by the final user. Warranty does not apply in case of unexpected events such as fire, flood, electrical power surge, lightning, vandalism and others.

**SEA USA Inc. is not responsible for errors in technical information printed in catalogs and installation manuals.**



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**SEA USA Inc.**  
**10850 N.W. 21st unit 160 DORAL MIAMI**  
**Florida (FL) 33172**  
**Phone: ++1-305.594.1151 Fax: ++1-305.594.7325**  
**Toll Free: 800.689.4716**

web site: [www.sea-usa.com](http://www.sea-usa.com)

e-mail: [sales@sea-usa.com](mailto:sales@sea-usa.com)