

## **INSTALLATION MANUAL**

**PH, PH1**

**Hydraulic operator for swing gate**

## WARNINGS FOR THE INSTALLER

### GENERAL SAFETY OBLIGATIONS

**1) ATTENTION! To ensure the safety of people, it is important that you read all the following instructions. Incorrect installation or incorrect use of the product could cause serious harm to people.**

2) Carefully read the instructions before beginning to install the product.

3) Do not leave packing materials (plastic, polystyrene, etc.) within reach of children as such materials are potential sources of danger.

4) Store these instructions for future reference.

5) 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.

6) Manufacturer declines all liability caused by improper use or use other than that for which the automated system was intended.

7) Do not install the equipment in an explosive atmosphere: the presence of inflammable gas or fumes is a serious danger to safety.

8) The mechanical parts must conform to the provisions of Standards EN 12604 and EN 12605.

9) Manufacturer is not responsible for failure to observe Good Technique in the construction of the closing elements to be motorised, or for any deformation that may occur during use.

10) The installation must conform to Standards EN 12453 and EN 12445. For non-EU countries, to obtain an adequate level of safety, the Standards mentioned above must be observed, in addition to national legal regulations.

11) Before attempting any job on the system, cut out electrical power.

12) The mains power supply of the automated system must be fitted with an all-pole switch with contact opening distance of 3mm or greater. Use of a 6A thermal breaker with all-pole circuit break is recommended.

13) Make sure that a differential switch with threshold of 0.03A is fitted upstream of the system.

14) Make sure that the earthing system is perfectly constructed, and connect metal parts of the means of the closure to it.

15) The safety devices (EN 12978 standard) protect any danger areas against mechanical movement risks, such as crushing, dragging, and shearing.

16) Use of at least one indicator-light is recommended for every system, as well as a warning sign adequately secured to the frame structure, in addition to the safety devices.

17) Manufacturer declines all liability as concerns safety and efficient operation of the automated system, if system components not produced by manufacturer are used.

18) For maintenance, strictly use original parts.

19) Do not in any way modify the components of the automated system.

20) The installer shall supply all information concerning manual operation of the system in case of an emergency, and shall hand over to the user the warnings handbook supplied with the product.

21) Do not allow children or adults to stay near the product while it is operating.

22) Keep radiocontrols or other pulse generators away from children, to prevent the automated system from being activated involuntarily.

23) The user must not attempt any kind of repair or direct action whatever and contact qualified personnel only.

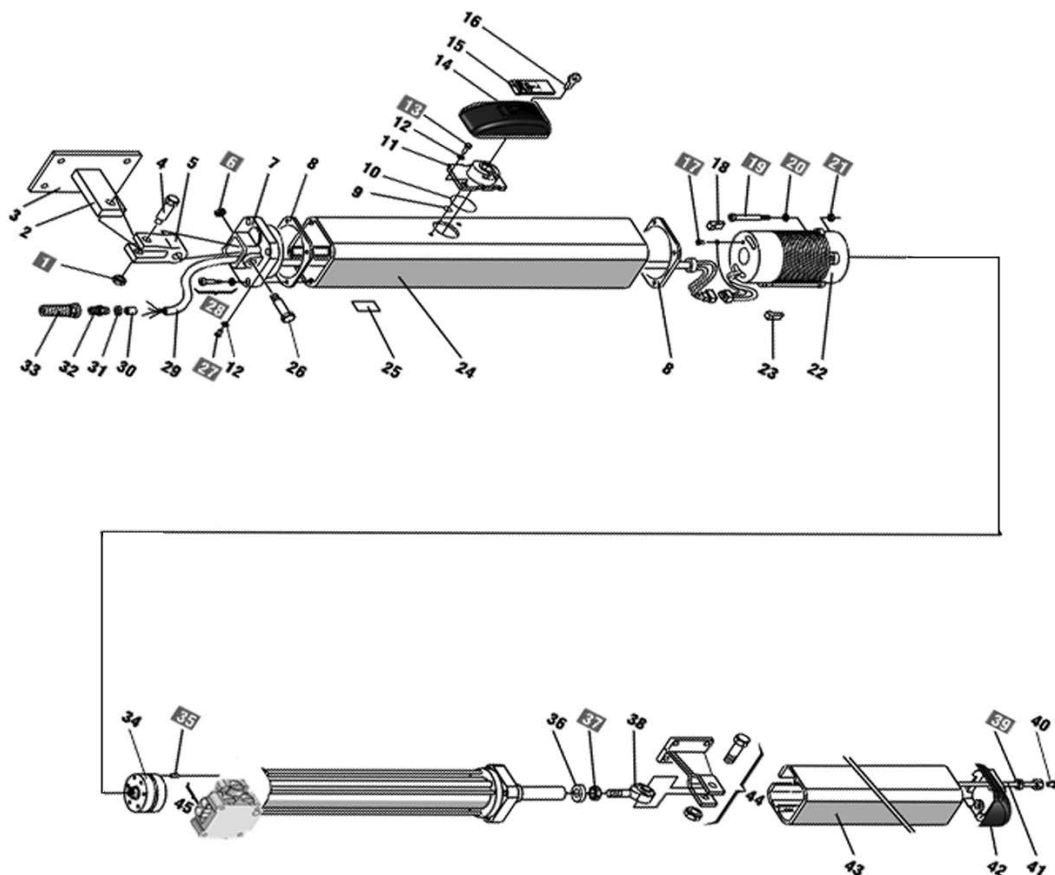
24) Transit is permitted only when the automate system is idle.

25) Maintenance: check at least every 6 months the efficiency of the system, particularly the efficiency of the safety devices (including, where foreseen, the operator thrust force) and of the release devices.

**26) Anything not expressly specified in these instructions is not permitted.**

# HYDRAULIC OPERATOR PH 275 - PH 390

## Exploded sight



## Technical specifications

MODEL	PH 275				PH 390			
	R	BA	BC	BAC	R	BA	BC	BAC
Hydraulic lock	NO	yes open	yes closed	yes open-closed	NO	yes open	yes closed	yes open-closed
Slow travel	Hydraulic slow down (only closing)							
Rod stroke (MAX)	275 mm				390 mm			
Rod linear speed	1,3 cm./sec.							
Traction / Thrust force to 15 bar	190 Kg. (1850 N)				220 Kg. (2240 N)			
Pump flow-rate (l/m)	1							
Hydraulic oil	Total 52-AT42							
Operating ambient temperature	- 25° C + 70° C							
Protection class	IP 55							
Operator weight	9 Kg.				10 Kg.			
Power supply	230 V ac (+6% - 10%) 50Hz							
Absorbed power	250 W				350 W			
Absorbed current	1 A				1,9 A			
Electric motor (rpm)	1400							
Thermal protection	120° C							
Capacitor	8 µF - 400 V				10 µF - 400 V			

# HYDRAULIC OPERATOR PH 275 - PH 390

These instructions apply to the following models: PH 275 R, PH 275 BA, PH 275 BC, PH 275 BAC, PH 390 R, PH 390 BA, PH 390 BC, PH 390 BAC.

The hydraulic operator PH 275 and PH 390 for swing gate, they are constituted by an enbloc composed of an electric pump and hydraulic piston that transmits the movement to the gate.

The models endowed with hydraulic lock (BA - BC - BAC) don't require the installation of electric lock, as they guarantee mechanical locking of the leaf when the motor is not operating.

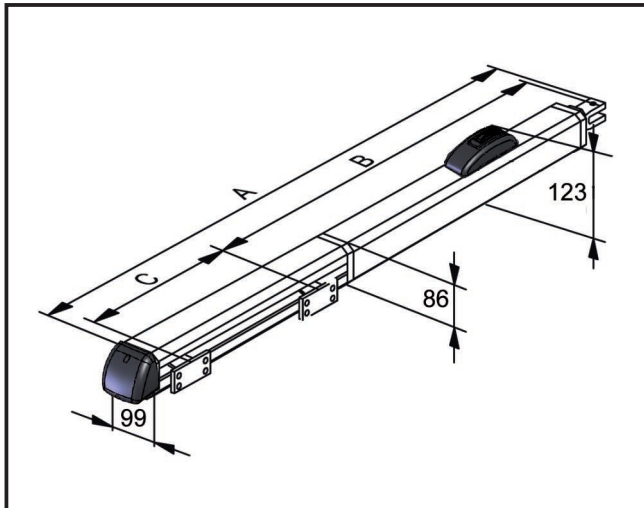
The models without a hydraulic locking, (R) require the installation of electric locks to ensure the leaf is mechanically locked.

The hydraulic operator PH 275 and PH 390 whose designed and produced for to automate swing gates.

To avoid any other use.

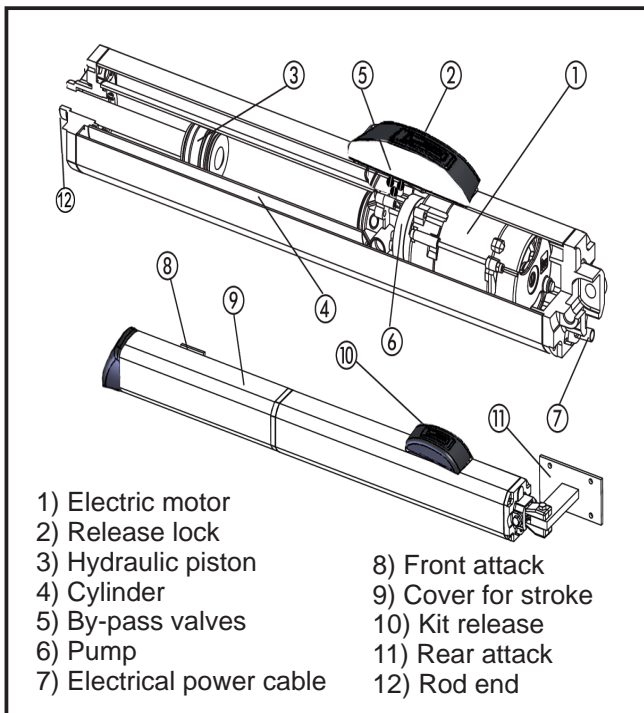
## 1. DESCRIPTION AND TECHNICAL SPECIFICATIONS

### 1.1. DIMENSIONS PH 275 - PH 390



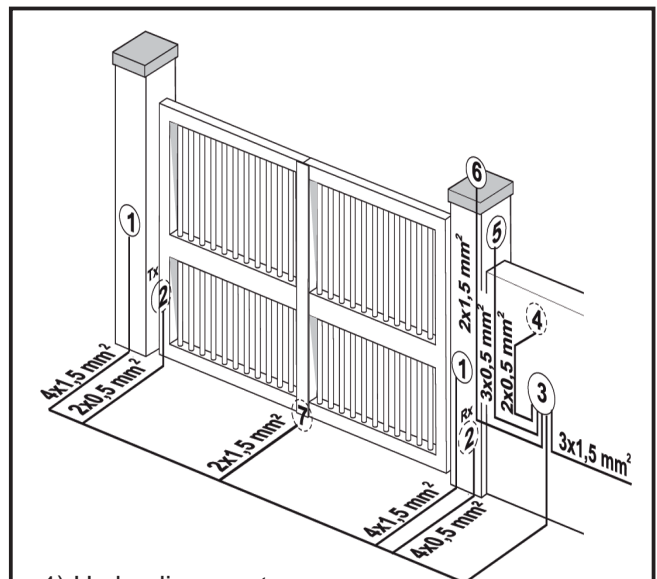
MODEL	DIMENSIONS (mm)		
	LENGTH (A)	Distance attacks (B)	Rod stroke (C)
PH 275	1090	705	270
PH 390	1330	825	390

### 1.2. OPERATOR DESCRIPTION PH 275 - PH 390



- |                           |                     |
|---------------------------|---------------------|
| 1) Electric motor         | 8) Front attack     |
| 2) Release lock           | 9) Cover for stroke |
| 3) Hydraulic piston       | 10) Kit release     |
| 4) Cylinder               | 11) Rear attack     |
| 5) By-pass valves         | 12) Rod end         |
| 6) Pump                   |                     |
| 7) Electrical power cable |                     |

## 2. ELECTRIC STANDARD DEVICES



- |                           |                   |
|---------------------------|-------------------|
| 1) Hydraulic operators    | 5) Receiver       |
| 2) Photocells             | 6) Flashing light |
| 3) Electronic control box | 7) Electric lock  |
| 4) Key selector           |                   |



You needs always to separate the connecting cables of the low voltage accessories from the 230 V. Use separate sheaths to avoid any type of interference.

#### Connect power cables hydraulic operator:

- Co (Common) = gray cable
- Ap (open) = brown cable
- Ch (closing) = black cable
- T (earth) = yellow / green

## 3. INSTALLING SYSTEM

### 3.1. PRELIMINARY CHECKS OF THE GATE

For a correct operating gate must satisfy the following conditions:

- robust and rigid structure of the leaves;
- the leaf movement should be smooth and uniform but without any friction during the race;
- the hinges must be in excellent state;
- limit mechanical stops placed.

Any metalwork shall be conducted before installation of automation.

The state of the gate structure influence the reliability and safety of the automatism.

### 3.2. HYDRAULIC OPERATOR INSTALLATION

A) Attach the rear mounting on the pillar and follow the signs of Tables A and B, modify, if necessary, the length of the attack (fig. 1).

Compliance with the dimensions shown in the above tables to ensure the smooth operation of the automatism.

In the case of an iron pillar carefully weld the rear mounting directly on the pier.

In the case of masonry opt for one of the following solutions:

- 1) Cash suitably a plate to wall, and then pay back the attack;
- 2) Fix to the pillar, with screws and dowel, the rear mounting plate and weld the rear mounting plate (Fig. 2);

B) Attach the operator to the rear (Fig. 2);

C) Tighten the front end in the middle (rod) on the shaft and tighten the nut (fig. 3);

D) Release the hydraulic operator; (Fig. 10)

E) Remove the chromed rod to the full bar;

F) Re-lock the hydraulic operator; (Fig. 10)

G) Install the front end on the stroke (Fig. 4);

H) Close the door of the gate and, keeping the operator in perfectly level position, locate the position of a front on the wing (Fig. 4);

I) Temporarily fasten the front attachment on the gate by two spot welds (protect the stroke from any welding slag);

L) Release the hydraulic operator, make sure the gate is open and free to stay on the mechanical stops to limit pre-installed and verify that the movement of the gate is smooth and without friction;

M) Remove the operator from its temporarily and permanently weld the front attachment on the wing(Fig. 5);

N) Attach the cover rod hydraulic operator (Fig. 7);

O) Re-lock the hydraulic operator and to effectue the electrical connections with the electronic equipment, according to the instructions in the manual.

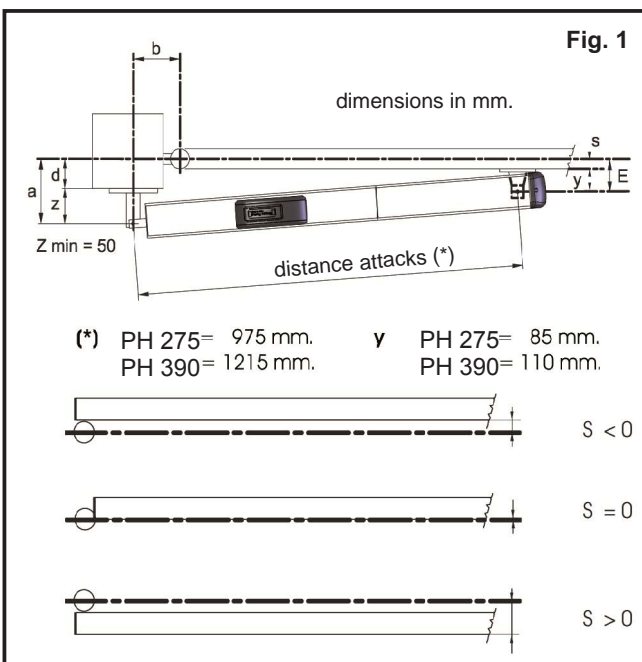
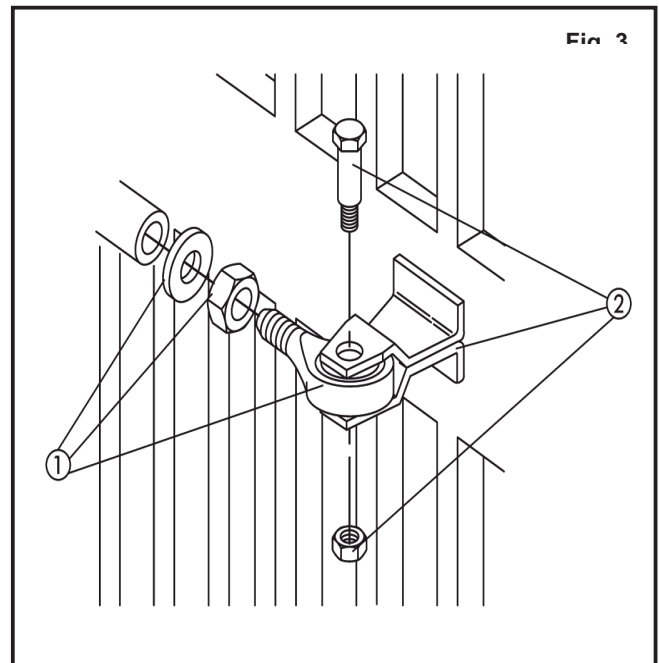
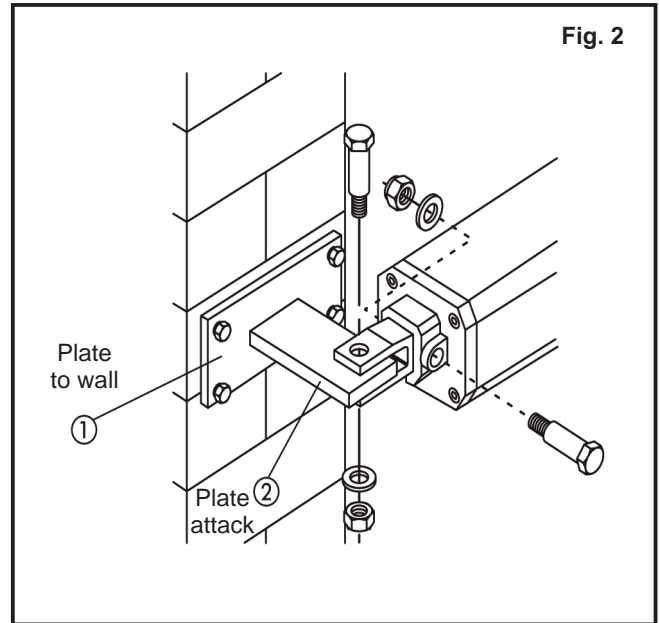


TABLE «A»:PH 275 - Fixing brackets

OPENING ANGLE	a (mm)	b (mm)	c(*) (mm)	d(**) (mm)	s (mm)
90°	130	130	270	80	20
115°	100	120	270	50	20
125°	90	120	270	40	0

(\*) rod stroke required to stem the hydraulic slowdown in the closing  
 (\*\*) max dimensions

TABLE «B»:PH 390 - Fixing brackets

OPENING ANGLE	a (mm)	b (mm)	c(*) (mm)	d(**) (mm)	s (mm)
90°	200	160	390	150	20
115°	170	160	390	110	20
125°	130	170	390	80	20

(\*) rod stroke required to stem the hydraulic slowdown in the closing  
 (\*\*) max dimensions

In the case that the dimensions of the pillar or the position of the hinge (dimension D) are not able to contain the dimension A as it wishes, it is necessary to make a niche on the pillar (Fig. 6), the dimension A must be always greater than the distance E.

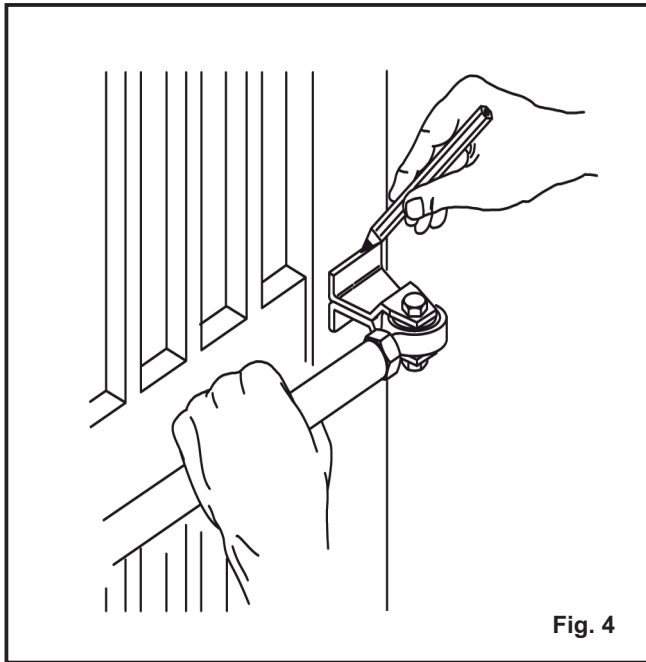


Fig. 4

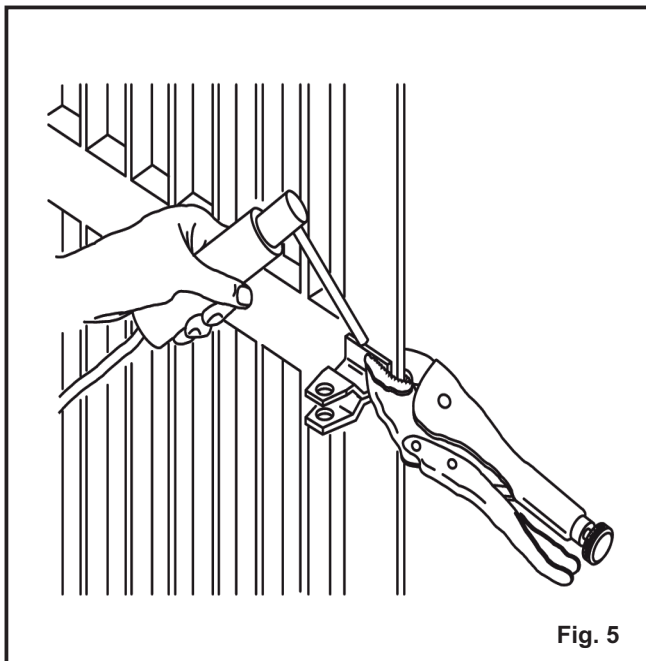


Fig. 5

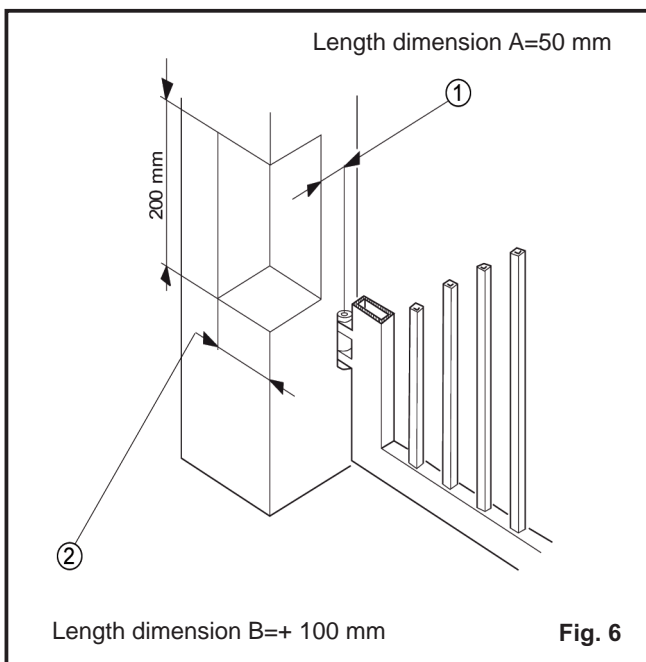
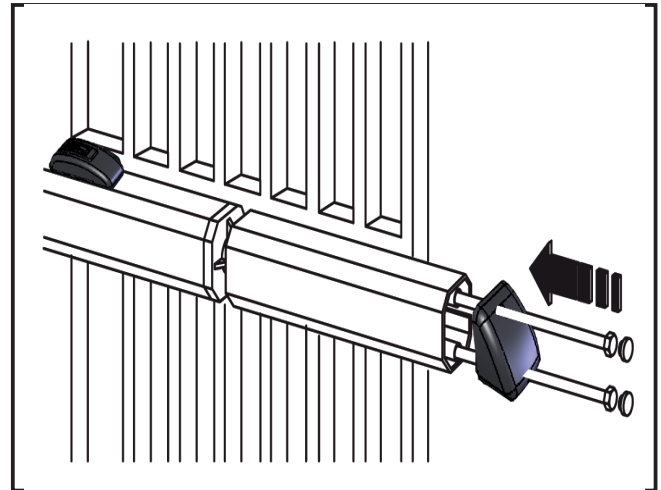


Fig. 6



### 3.3. SPECIAL INSTALLING FOR HYDRAULIC OPERATOR WITH OPENING GATE OUT (Fig. 8)

In the case of gate leaf length up to m. 2.3, it is recommend the use of hydraulic operator PH 275 BAC (lock open / close).

In the case of gate leaf length more than m. 2.3, it is recommend the use of hydraulic operator PH 275 R or PH 390 R (reversible).

The mounting dimensions of the hydraulic operator is detected by the following Table C.

In case of opening gate to the outside, adjust the anti-trap, as follows:

- Screw A = valve regulation closing force,
- Screw B = valve regulation opening force.

To reduce the torque, you need to turn the screw counterclockwise;

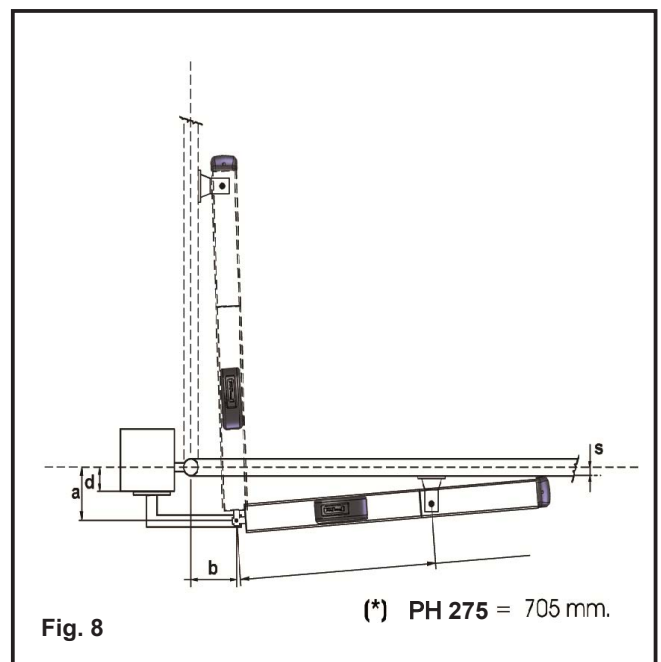
To increase the torque, you need to turn the screws clockwise.

TABLE «C»:PH 275 - Fixing brackets

OPENING ANGLE	a (mm)	b (mm)	s (mm)	d(**) (mm)	c(*) (mm)
90°	100	90	0	50	190
90°	110	100	0	60	210
90°	120	110	0	70	230
90°	130	120	0	80	250

(\*) rod stroke required without the hydraulic slowdown

(\*\*) max dimensions



#### 4. ANTI-CRUSHING CONTROL SYSTEM - FINAL OPERATIONS - TEST AUTOMATION

##### 4.1. SETTING ANTI-TRAP (fig.9)

The hydraulic operators PH, they have a security anti-trap for to control the hydraulic operator force, in the presence of an obstacle during the movement of the gate.

The force is adjusted as follows:

- slide to unlock and lift the cap
- lift the base of the release
- to act on the control valves:
  - 1) valve "A" to adjust the opening force
  - 2) valve "B" to adjust the closing force
  - 3) valve "C" to unlock it completely.

Turning the valve clockwise to increase torque, and counterclockwise to decrease the torque.

The adjustment of the torque limiters, in EU member states, is subject to standards EN 12445 and EN 12453.

In the other states is subject to local regulations.

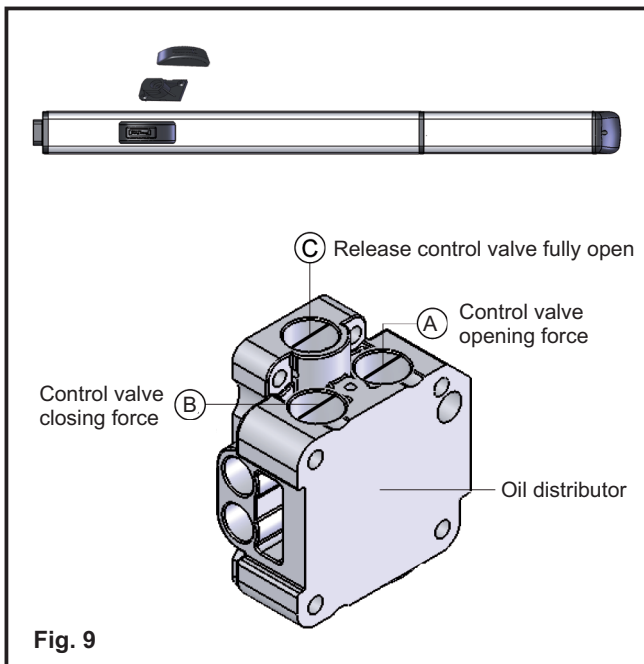


Fig. 9

##### 4.2. FINAL OPERATION

After the adjusting anti-trap, follow these steps:

- close the device of the release
- remove the vent screw (Fig. 10).

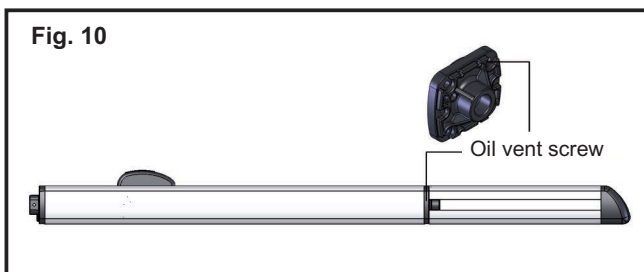


Fig. 10

##### 4.3. AUTOMATISM TEST

After installation proceed with care to the test for verification the automation functionality and all the accessories connected with particular attention to security devices.

Give the "User Guide" to customer and explain the correct use of the automated system and highlight areas of potential danger from it.

#### 5. MANUAL OPERATION AND RESET

##### 5.1. MANUAL OPERATION

In case is necessary to manually operate the gate for absence of electric tide or damage of the automation, you must be acted on the device of unblocking as it follows:

- to open the cork of coverage unblocking and to insert the special key in endowment;
- to rotate the key counterclockwise sense for to unlock;
- to effect manually the manoeuvre opening or closing of the gate.

##### 5.2. AUTOMATED SYSTEM RESET

Before proceeding to the reset of the automated system, after manual unblocking, it is advisable to disconnect the power supply of the automatism, with the purpose to avoid that an unintentional impulse can operate the automation.

The reset operation must be effected as it follows:

- to rotate the key of unblocking counterclockwise sense up to the arrest;
- to close again the cork of coverage of the unblocking system;
- to insert again the power supply of the automation;
- to start the automation.

#### 6. MAINTENANCE AND REPAIR

##### 6.1. MAINTENANCE

The functional verification of the plant is recommended every six months, with particular attention to the efficiency of the safety devices and unblocking, included the verification of the thrust force of the hydraulic operator; it is also well to verify the degree of functionality of the hinges of the gate. Check the level oil inside the oil tank.



**In case of oil topping up must be strictly used Total oil 52-AT42**

Periodically check the proper adjustment of the anti-crushing safety (valve regulating power) and efficiency of the release system.

##### 6.2. REPAIR

The possible reparations on the automation must be effected exclusively from specialized personal, possibly authorized. To use original spare parts.

#### 7. TROUBLESHOOTING

Gate not moving	<ul style="list-style-type: none"> <li>- control power supply</li> <li>- check that the operator is released</li> <li>- check adjustment anti-crushing system</li> <li>- check oil level in the tank</li> <li>- check efficiency capacitor</li> <li>- check efficiency of the electronic control unit.</li> </ul>
Gate moving slowly	<ul style="list-style-type: none"> <li>- check adjustment anti-crushing system</li> </ul>
Gate moving to tears	<ul style="list-style-type: none"> <li>- Verify the removal of the bleed screw oil</li> <li>- to eliminate possible air in the hydraulic circuit, effecting complete cycles of opening and closing of the gate</li> </ul>
Oil leakage from the vent screw	<ul style="list-style-type: none"> <li>- It is normal for a minimum initial oil leakage, if the oil leakage is continuing, verify the perfect horizontal position of the hydraulic operator. Otherwise, contact an authorized personal.</li> </ul>
Stop leaves at slow down	<ul style="list-style-type: none"> <li>- check adjustment anti-crushing system</li> </ul>
Rod stroke variable speed	<ul style="list-style-type: none"> <li>- to verify the quotas of the angle opening</li> </ul>

## USER'S MANUAL

### HYDRAULIC OPERATOR FOR SWING GATES MOD. PH 275 and PH 390

**Read the instructions carefully before using the product and keep them for future use**

#### GENERAL SAFETY

The hydraulic operator guarantees an elevated safety degree, if correctly installed and used.

Some simple norms of behavior can avoid besides accidental drawbacks:

- Don't transit among the gate when moving.
- Before transiting among the gate to attend the complete opening.
- Don't absolutely stop among the gate.
- Don't stop and not to allow children, people or things to stop in the proximities of the automation, still avoiding it during moving.
- Tender out of the course of the children, remote controls or any other giver of impulse to avoid that the automation can be unintentionally operated.
- Don't allow the children to play with the automation.
- Don't voluntarily oppose the movement of the gate.
- To avoid that copper or bushes can interfere with the movement of the gate.
  
- To maintain efficient and well visible the bright signaling systems.
- Don't try to manually the moving of the gate, if not unlocked.
- In case malfunction, unlocked the gate for to allow the access and to attend the technical intervention of qualified personnel.
- In case of manual operation of the automatism, to disarm the electric energy before restoring the automatic operation.
  
- Don't modify the automation system .
- To abstain from any attempt of reparation or direct intervention except by qualified personnel.
- Every six months to verify the efficiency of the automation, the safety devices and of the connection earth through qualified personnel.

#### OPERATION MANUAL

in case of power failure or malfunction of the automation proceed to release maneuver as follows:

- To open the cork of protection and to insert the key in endowment

- Turn the key counterclockwise to unlock.

- Turn the key clockwise to lock.

Make the opening or closing the gate

NB: In case of hydraulic operator without unlock, you need unlock manually the electric lock.

- The restoring of normal operation must be done prior disconnect the system, turning clockwise the key release until it stops.

- Close the cap of the release.

#### DESCRIPTION

These instructions are valid for the following models:

PH 275 R - PH 275 BA - PH 275 BC - PH 275 BAC PH 390 R  
- PH 390 BA - PH 390 BC - PH 390 BAC.

The hydraulic operator consists of a hydraulic block composed of an electric pump and a hydraulic piston that transmits the movement of the leaf.

Models with hydraulic locking do not need to install the electric lock, as ensure the mechanically locked when the automated system is not working.

The other models without hydraulic lock require one or more electric locks to ensure the mechanical lock of the gate.

Depending on the model can be automated gates up to 6 meters. The operators are controlled by an electronic control unit, housed in an enclosure with adequate degree of protection against the elements.

The gate is normally closed position.

When the control unit receives an open command from the remote control or any other pulse, activates the hydraulic system and turning the leaves, until the opening position to allow access.

If you have set the automatic mode, the leaves close after the pause time selected.

If you have set the semi-automatic mode, you must send a second pulse to close the gate again.

A stop (if available) stops moving.

For details on the behavior under different operating modes, refer to the installation technician.

Automation is equipped with safety devices (photocells) which prevent the movement of the gate when there is an obstacle in the area covered by the same.

The hydraulic operator has a series of hydraulic anti-crushing safety device that limits the torque transmitted to the leaves.

The light indicates the movement in the leaves.



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