INDEX

1. GENERAL WARNINGS

THANK YOU

Thank you for purchasing a Fadini product.
Please read these instructions carefully before using this appliance. The instructions contain important information which will help you get the best out of the appliance and ensure safe and proper installation, use and maintenance. Keep this manual in a convenient place so that you can always refer to it for the safe and proper use of the appliance.

INTRODUCTION

This operator is designed for a specific scope of applications as indicated in this manual, including safety, control and signaling accessories as minimum required with Fadini equipment. □ Any applications not explicitly included in this manual may cause operation problems or damages to properties and people. □ Meccanica Fadini S.r.l. is not liable for damages caused by the incorrect use of the equipment, or for applications not included in this manual or for malfunctioning resulting from the use of materials or accessories not recommended by the manufacturer. □ The manufacturer reserves the right to make changes to its products without prior notice. □ All that is not explicitly indicated in this manual is to be considered not allowed.

BEFORE INSTALLATION

Before commencing operator installation assess the suitability of the access, its general condition and the structure. □ Make sure that there is no risk of impact, crushing, shearing, conveying, cutting, entangling and lifting situations, which may prejudice people safety. □ Do not install near any source of heat and avoid contacts with flammable substances. □ Keep all the accessories able to turn on the operator (transmitters, proximity readers, key-switches, etc) out of the reach of the children. □ Transit through the access only with stationary operator. □ Do not allow children and/or people to stand in the proximity of a working operator. □ To ensure safety in the whole movement area of a gate it is advisable to install photocells, sensitive edges, magnetic loops and detectors. □ Use yellow-black strips or proper signals to identify dangerous spots. □ Before cleaning and maintenance operations, disconnect the appliance from the mains by switching off the master switch. □ If removing the actuator, do not cut the electric wires, but disconnect them from the terminal box by loosening the screws inside the junction box.

INSTALLATION

All installation operations must be performed by a qualified technician, in observance of the Machinery Directive 2006/42/CE and safety regulations EN 12453 - EN 12445. □Verify the presence of a thermal-magnetic circuit breaker 0,03 A - 230 V - 50 Hz upstream the installation. □ Use appropriate objects to test the correct functionality of the safety accessories, such as photocells, sensitive edges, etc. □ Carry out a risk analysis by means of appropriate instruments measuring the crushing and impact force of the main opening and closing edge in compliance with EN 12445. □ Identify the appropriate solution necessary to eliminate and reduce such risks. □ In case where the gate to automate is equipped with a pedestrian entrance, it is appropriate to prepare the system in such a way to prohibit the operation of the engine when the pedestrian entrance is used. □ Apply safety nameplates with CE marking on the gate warning about the presence of an automated installation. □ The installer must inform and instruct the end user about the proper use of the system by releasing him a technical dossier, including: layout and components of the installation, risk analysis, verification of safety accessories, verification of impact forces and reporting of residual risks.

INFORMATION FOR END-USERS

The end-user is required to read carefully and to receive information concerning only the operation of the installation so that he becomes himself responsible for the correct use of it. □ The end-user shall establish a written maintenance contract with the installer/ maintenance technician (on -call). □ Any maintenance operation must be done by qualified technicians. □ Keep these instructions carefully.

WARNINGS FOR THE CORRECT OPERATION OF THE INSTALLATION

For optimum performance of system over time according to safety regulations, it is necessary to perform proper maintenance and monitoring of the entire installation: the automation, the electronic equipment and the cables connected to these. □ The entire installation must be carried out by qualified technical personnel, filling in the Maintenance Manual indicated in the Safety Regulation Book (to be requested or downloaded from the site www.fadini.net/supporto/ downloads). □ Operator: maintenance inspection at least every 6 months, while for the electronic equipment and safety systems an inspection at least once every month is required. □ The manufacturer, Meccanica Fadini S.r.l., is not responsible for non-observance of good installation practice and incorrect maintenance of the installation.

DISPOSAL OF MATERIALS

Dispose properly of the packaging materials such as cardboard, nylon, polystyrene etc. through specializing companies (after verification of the regulations in force at the place of installation in the field of waste disposal). Disposal of electrical and electronic materials: to remove and dispose through specializing companies, as per Directive 2012/19/UE. Disposal of substances hazardous for the environment is prohibited.

CE DECLARATION OF CONFORMITY of the manufacturer:

Meccanica Fadini S.r.l. (Via Mantova, 177/A - 37053 Cerea - VR - Italy) declares under own responsibility that **HINDI 880 EVO** complies with the 2006/42/CE Machinery Directive, and also that it is sold to be installed in an "automatic system", along with original accessories and components as indicated by the manufacturing company. An automatic gate operator is, by law, a "machinery" and therefore the installer must fit the equipment with all of the applicable safety norms. The installer is also required to issue the installer's Declaration of Conformity. The manufacturer is not liable for possible incorrect use of the product. The product complies with the following specific norms: analysis of the risks and subsequent action to cure them as per EN 12445 and EN 12453, Low Voltage Directive 2014/35/UE, Electromagnetic Compatibility 2014/30/UE. In order to certify the product, the manufacturer declares under own responsibility the compliance with the EN 13241-1 PRODUCT NORMS.
Tested and certified: CE marking and type testing according to ITT PDC N. 2392-2008.
The CE conformity declaration can be downloaded from the website www.fadini.net

President of the Board
Meccanica Fadini S.r.l.

Paolo Fadini

SYMBOL LEGEND

Pay attention

The current electrical danger

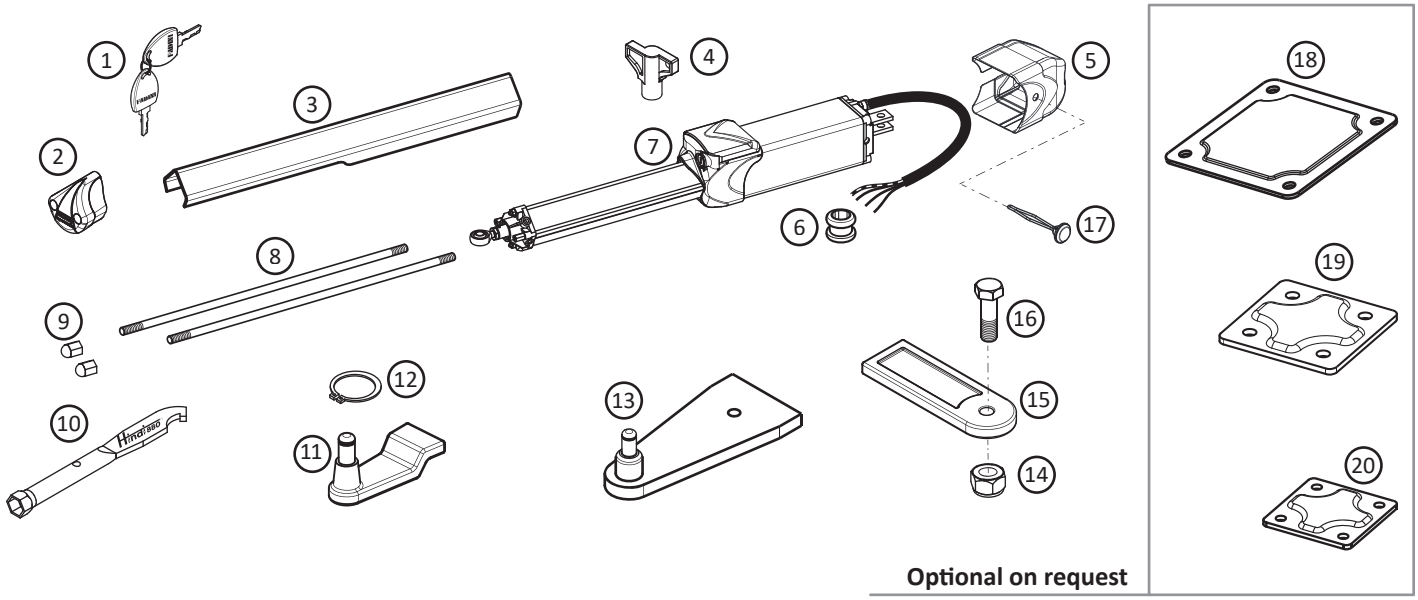
Read the instruction manual

The measurements, unless otherwise specified, are in millimeters.

2. PRODUCT DESCRIPTION AND INTENDED USE

This actuator is intended for the automation of swing gates and swing doors, for residential or collective (condominium) use. It is an oil-hydraulic product and therefore it possesses all the advantages this kind of technology can offer such as reliability, smooth linear movements and adjustable thrust power made possible by the pressure valves, it can suit any kind of swinging gates.
The innovative EVO valve design allows, in a single model, to configure the hydraulic locking device as required: **N** reversible non locking | **A** locking in open position | **B** locking in closed position | **BB** bidirectional locking. Hydraulic slowdown (braking) in opening only, in closing only, in opening and closing, or non braking at all.
An electronic control board is required for the functioning of the operator and has to be externally installed in a sheltered place. The electronic unit controls all the moving functions either in automatic or semi-automatic modes, depending on the user's requirements. The operator can come complete with a range of accessories that ensure safety and full control of the operations in any application, public or private.

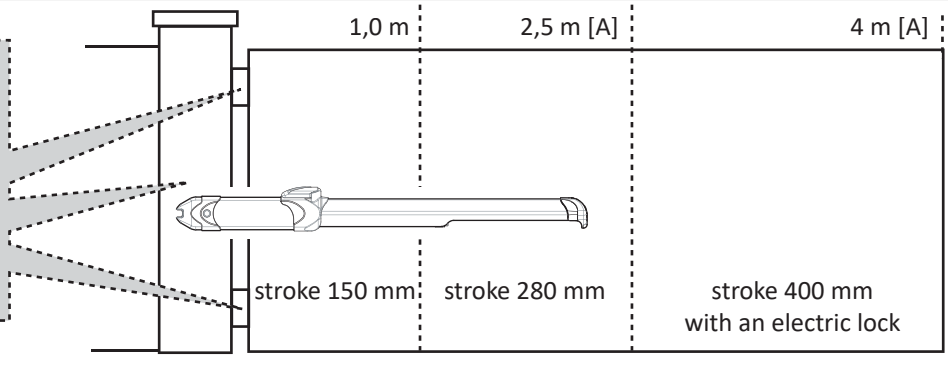
COMPONENTS AND ACCESSORIES SUPPLIED WITH IT



1. N° 2 coded keys to open the sliding cover
2. Cover front plug
3. Anodized aluminium cover
4. Inner manual release key
5. Rear protection cap
6. Cable gland
7. HINDI 880 EVO stroke 150 | 280 | 400 mm
8. N° 2 tie rods for cover fixing
9. N° 2 grommet nuts for cover and plug fixing
10. Round-headed spanner
11. Front fixing (150 | 280 mm)
12. Seeger E12
13. Front fixing (400 mm)
14. M12 self-locking nut
15. Rear fixing to gate post
16. M12x40 rear fixing screw
17. Rear cap fixing pin
18. Rear patching plate 150x150 mm - (optional) code 8311L
19. Front patching plate 120x120 mm - (optional) code 8310L
20. Front patching plate 84x84 mm - (optional) code 8312L

Pic. 1

IMPORTANT:
the gate post and the rotation hinges must be adequate to take the gate weight and inertia during the entire opening and closing movements.



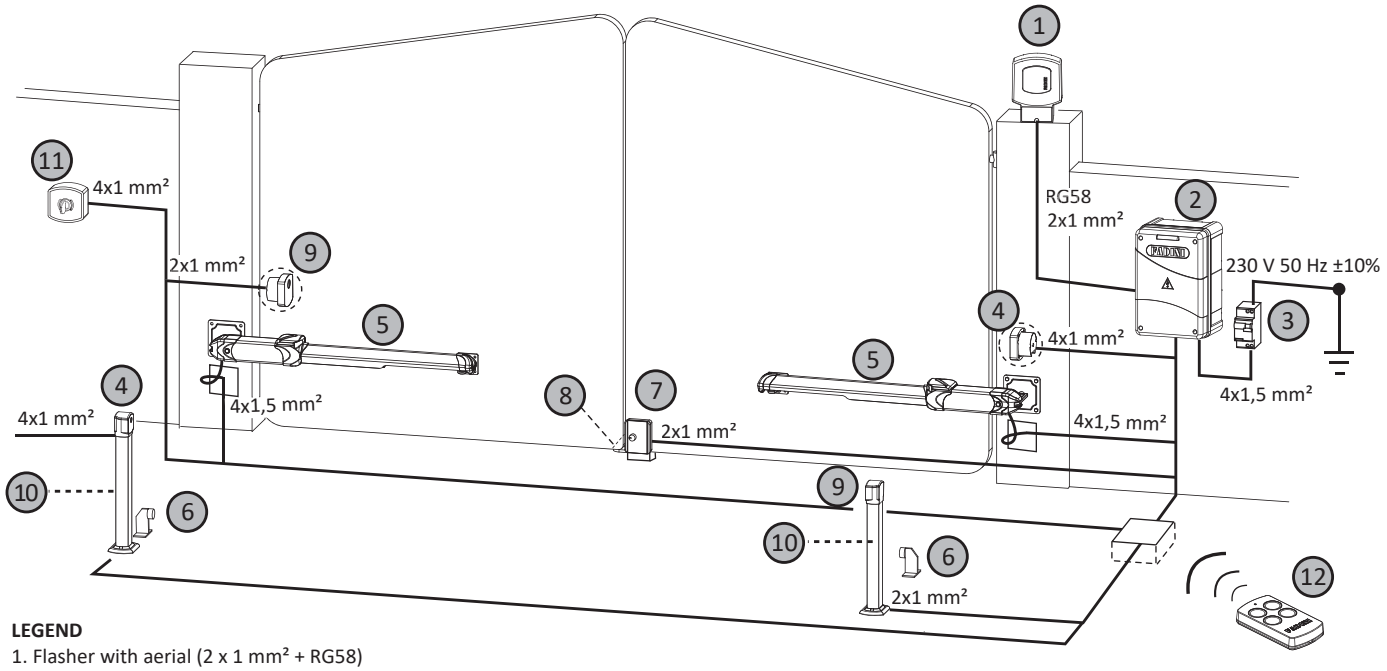
Pic. 2

[A] = for gate leafs equal to or wider than 2 m, it is always recommended that an electric lock be fitted.

3. TYPE OF SYSTEM

Before fitting HINDI 880 EVO make sure the installation is pre-set for all the safety and control accessories as required.

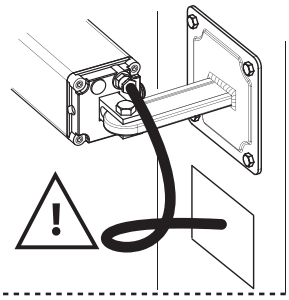
General layout: it is the installer's responsibility to lay the connection pipes and tubes as properly and correctly required.



LEGEND

1. Flasher with aerial (2 x 1 mm² + RG58)
2. Controller with plug-in radio receiver
3. 230 V - 50 Hz - 0,03 A magneto-thermal differential circuit breaker (not supplied with the equipment) (2,5 mm² cable section beyond 100 m)
4. Photocell receiver (4 x 1 mm²)
5. HINDI 880 EVO oil-hydraulic operator
6. Open position gate stop
7. Electric lock: HINDI 880 EVO non locking version and with gate leafs wider than 2 m
8. Closed position gate stop
9. Photocell transmitter (2 x 1 mm²)
10. Anodized aluminium post for outdoor applications
11. Keyswitch or push buttons panel (4 x 1 mm²)
12. Radio transmitter

Make sure to leave a wide bend in the electrical cable



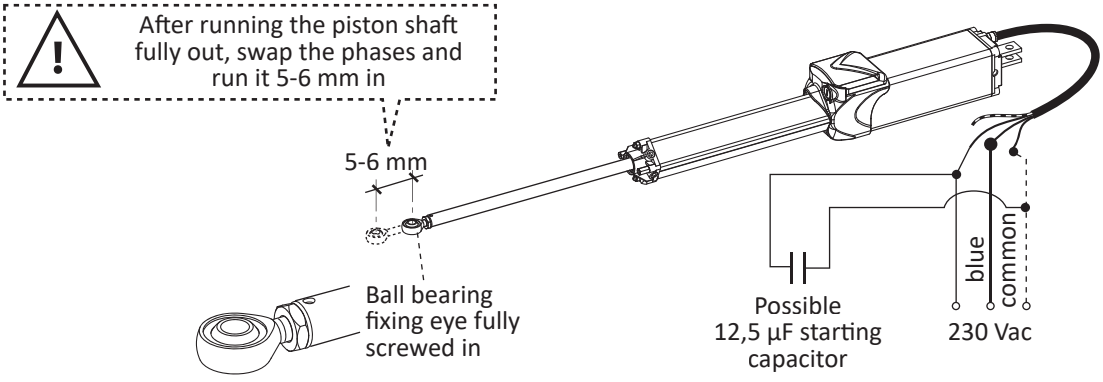
IMPORTANT: correctly position the gate stops for opening and closing.

Pic. 3

FIRST OPERATIONS TO RUN THE PISTON SHAFT

Before fixing the operator to the gate and gate post, power supply HINDI 880 EVO and run the piston shaft fully out; then swap the phases and run it 5-6 mm in.

IMPORTANT: then fully screw the ball bearing fixing eye into the shaft (Pic. 4).

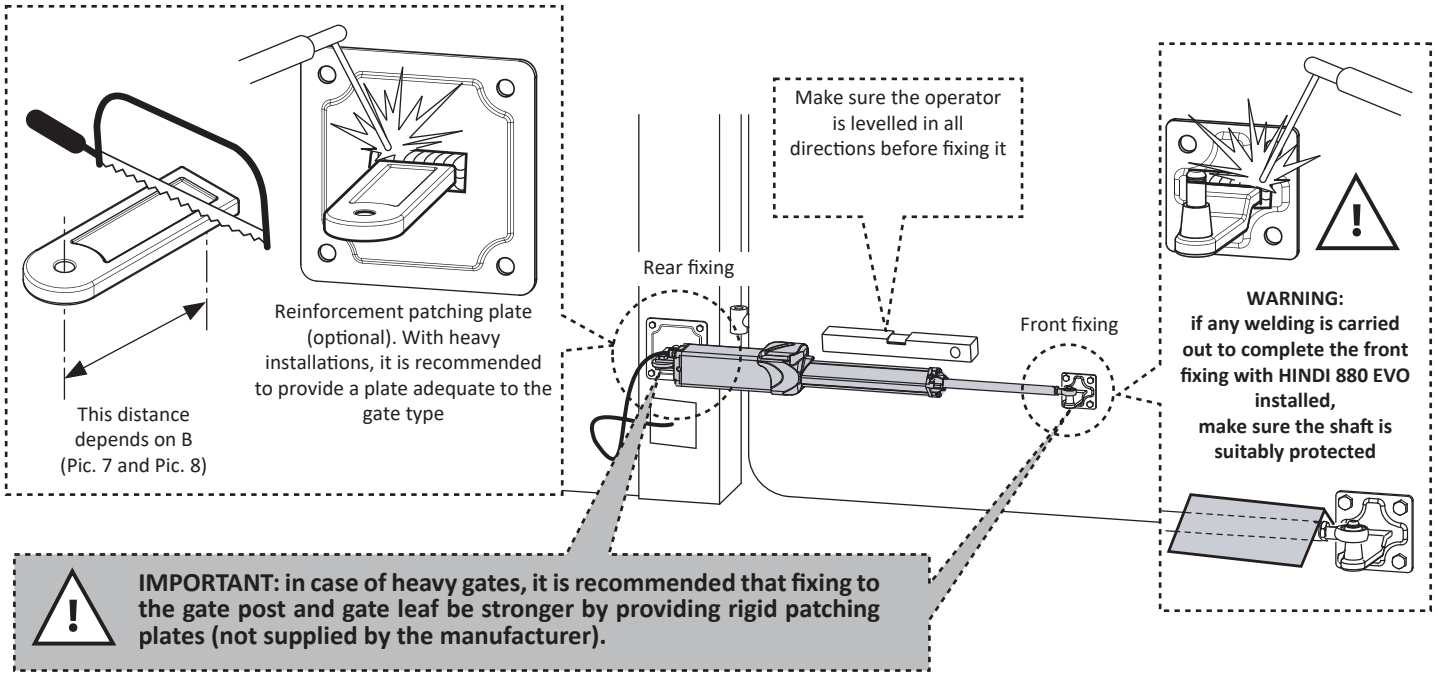


Pic. 4

4. INSTALLATION

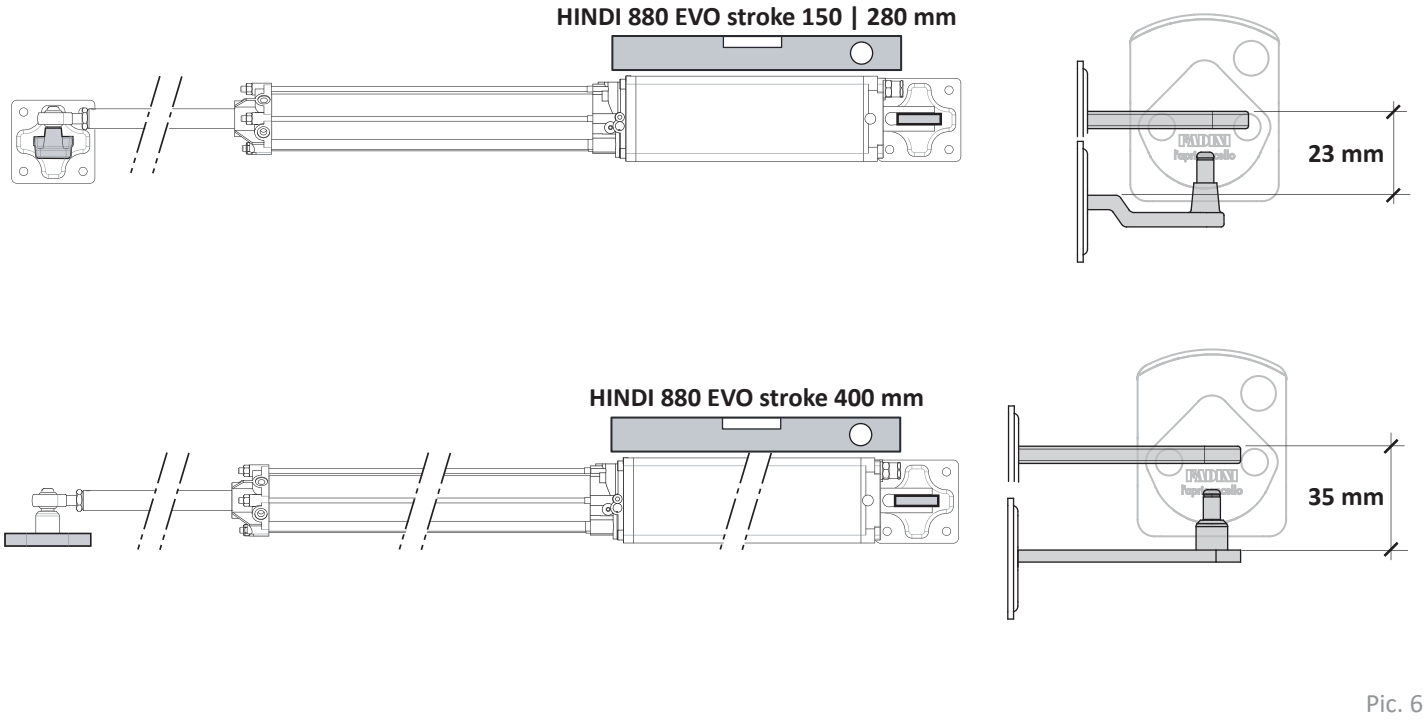
4.1 PREPARING THE FIXING PLATES

First weld the front and rear fixing plates to the patching plates (Pic. 5), after assessing the installation measurements as indicated in Pic. 6 and Pic. 7 (or in Pic. 8, in the case where opening is required to be outwards).



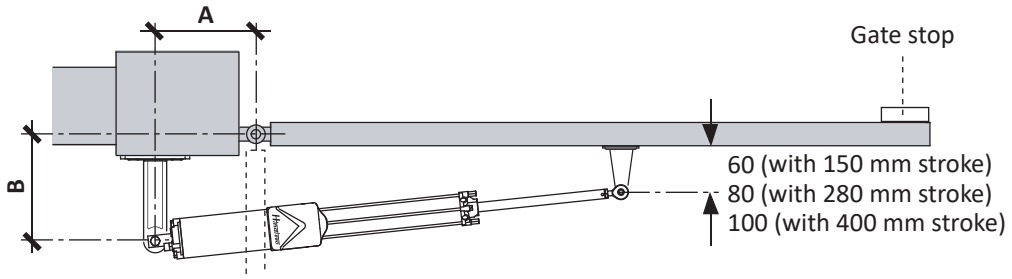
Pic. 5

Misalignment between post- and gate-fixings:



Pic. 6

4.2 DIMENSIONS FOR INWARD OPENING



*Fixing distances for **95°** opening*

stroke (mm)	A	B
150	75	75
280 (non braking)	130	130
280 (braking)	120	130
400 (non braking)	210	180
400 (braking)	200	160

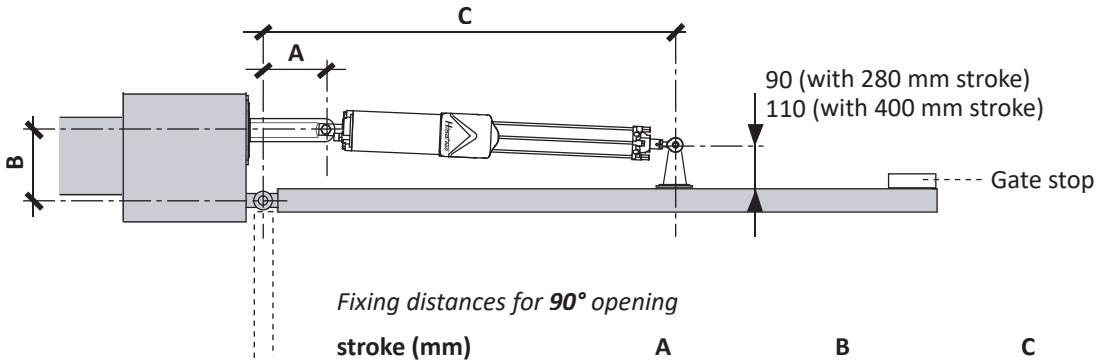
*Fixing distances for **120°** opening*

stroke (mm)	A	B
280 (non braking)	130	85
280 (braking)	130	80
400 (non braking)	190	120
400 (braking)	200	90

It is always recommended, before the operator fixing is finally completed, that a few manual tests be carried out with HINDI 880 EVO to assess that the installation distances are correct.

Pic. 7

4.3 DIMENSIONS FOR OUTWARD OPENING



*Fixing distances for **90°** opening*

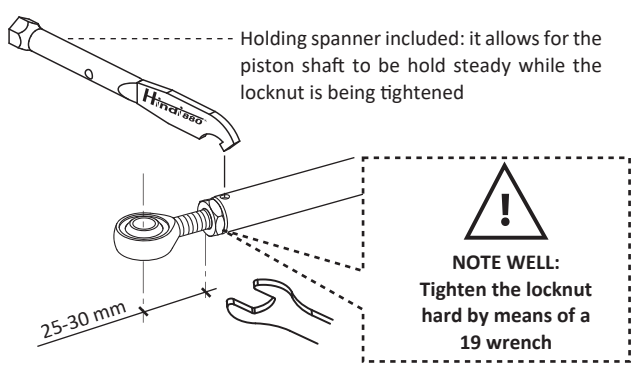
stroke (mm)	A	B	C
280 (with and without brake)	80	160	830
400 (with and without brake)	120	220	1.030

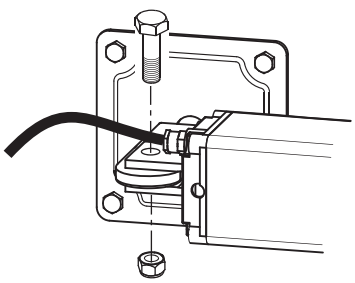
It is always recommended, before the operator fixing is finally completed, that a few manual tests be carried out with HINDI 880 EVO to assess that the installation distances are correct.

Pic. 8

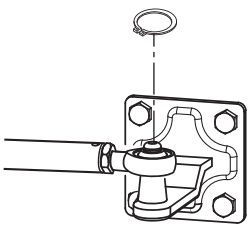
4.4 FIXING THE OPERATOR

Once finished with the mounting plates, **unscrew the ball bearing eye by 5-6 mm** (the center distance with the locknut to be **25-30 mm**): in this way a certain amount of thrust force to close direction is ensured with the gate/s in closed position.
IMPORTANT: eventually tighten the locknut hard with the help of the holding spanner supplied with the equipment.
Fasten HINDI 880 EVO on to the mounting plates by means of the supplied bolt and circlips (Pic. 9).





Operator rear fixing



Operator front fixing

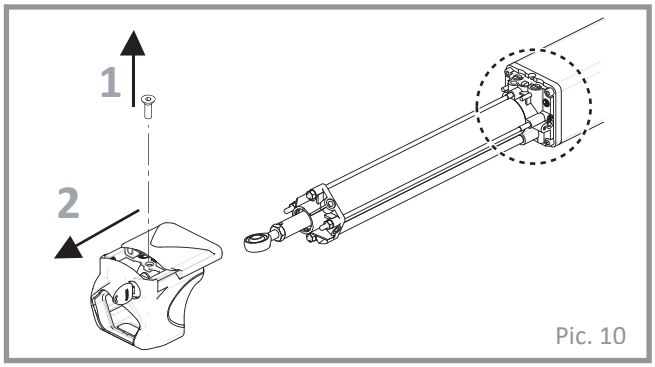
Pic. 9

5. SETTING TO THE REQUIRED OPERATING MODES

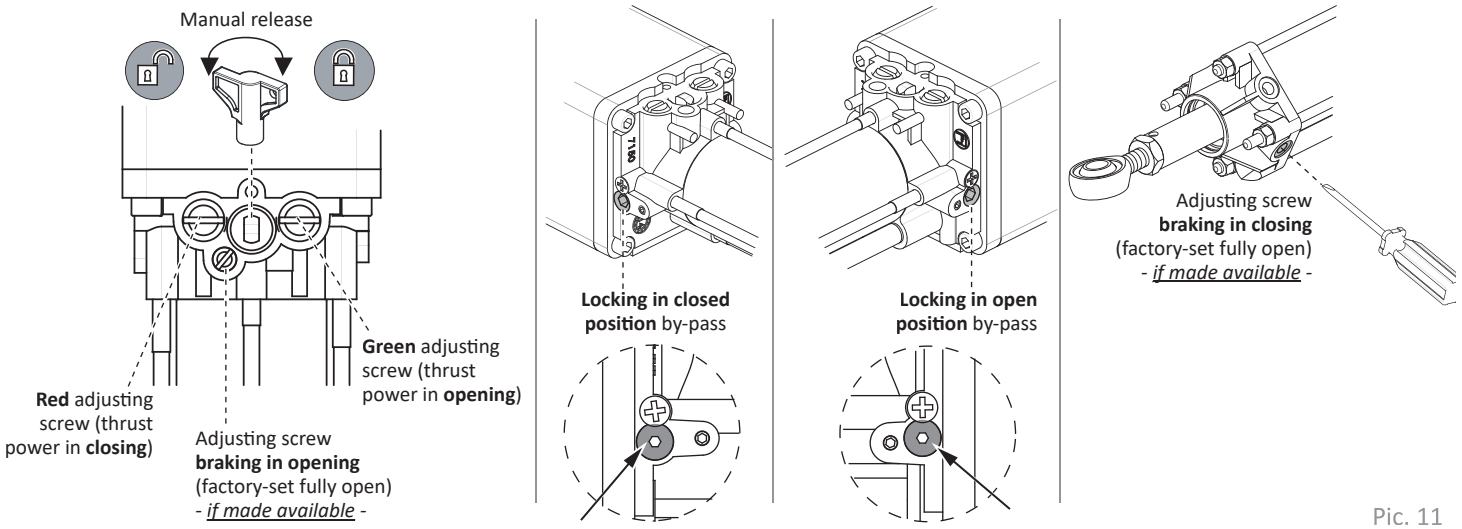
It is required first of all that the valve cover be removed. To do this, remove the fastening screw inside the cover itself (Pic. 10).

The adjusting screws and by-passes of the operator are all in the valve block and in the operator head (Pic. 11).

NOTE WELL: the oil-hydraulic operator HINDI 880 EVO comes factory pre-set as a bidirectional locking and non braking unit.



Pic. 10

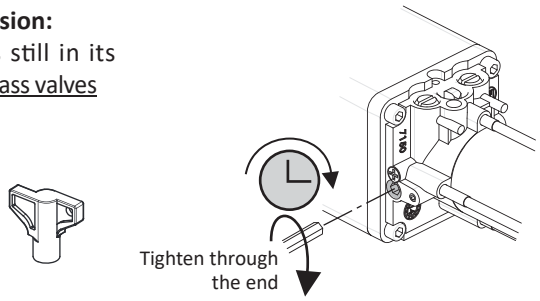


Pic. 11

The pictures that follow illustrate all of the possible setting options to turn the operator into the version that most meets the installation requirements.

HYDRAULIC BIDIRECTIONAL LOCKING version:
In case of power failure, the gate stays still in its position in both directions. Tighten both by-pass valves through to the end, avoid overtightening.

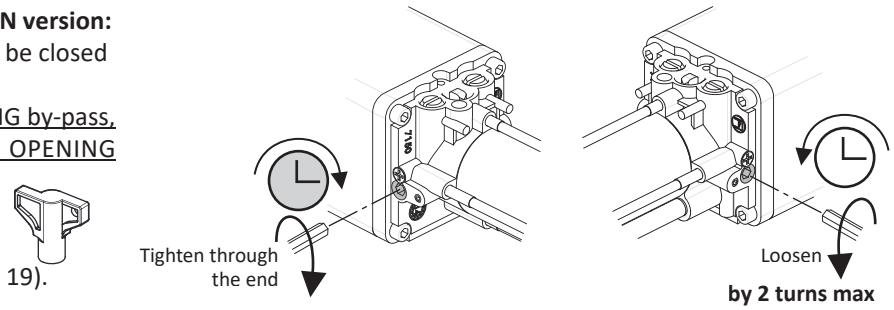
To unlock and manually operate the gate, use the release key (Pic. 18 page 19).



Pic. 12

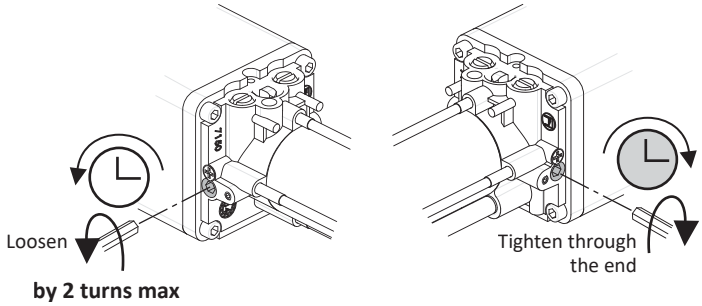
HYDRAULIC LOCKING IN CLOSED POSITION version:
In case of power failure, the gate can only be closed by hand.
Tighten through the end ONLY the CLOSING by-pass, avoid overtightening and unscrew the OPENING by-pass by 2 turns maximum.

To unlock and manually operate the gate, use the release key (Pic. 18 page 19).



Pic. 13

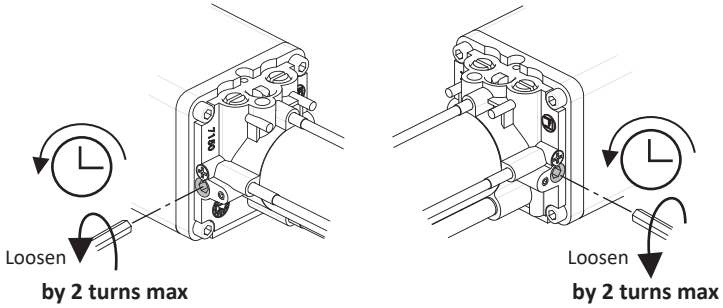
HYDRAULIC LOCKING IN OPEN POSITION version:
In case of power failure, the gate can only be opened by hand.
Tighten through the end ONLY the OPENING by-pass, avoid overtightening and unscrew the CLOSING by-pass by 2 turns maximum.
To unlock and manually operate the gate, use the release key (Pic. 18 page 19).



Pic. 14

REVERSIBLE version (NEVER LOCKING):
In case of power failure, it is possible to move the gate by hand in both directions.
Unscrew by 1 or 2 turns max. both opening and closing by-pass valves.

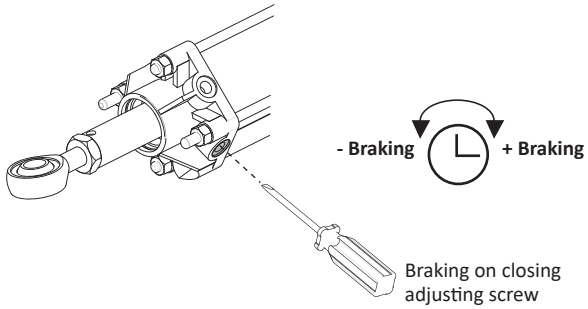
It is possible to operate the gate manually in opening and closing directions without having to unlock the operator by the release key.



Pic. 15

BRAKING ON CLOSING version (if made available):
Tighten the adjusting screw through the end, avoid overtightening. Once the piston shaft has reached the end of the permitted stroke, slightly undo this screw to adjust the braking speed during the last stretch of the piston stroke.

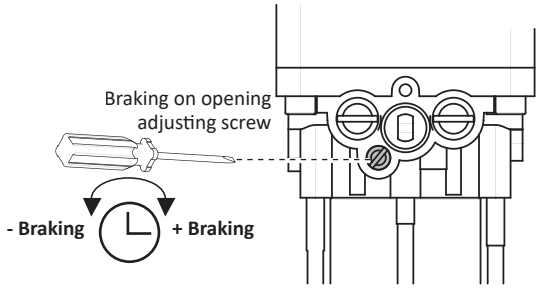
Non BRAKING ON CLOSING version:
Loosen the adjusting screw by 1-2 turns max.



Pic. 16

BRAKING ON OPENING version (if made available):
Tighten the adjusting screw through the end, avoid overtightening. Once the piston shaft has reached the end of the permitted stroke, slightly undo this screw to adjust the braking speed during the last stretch of the piston stroke.

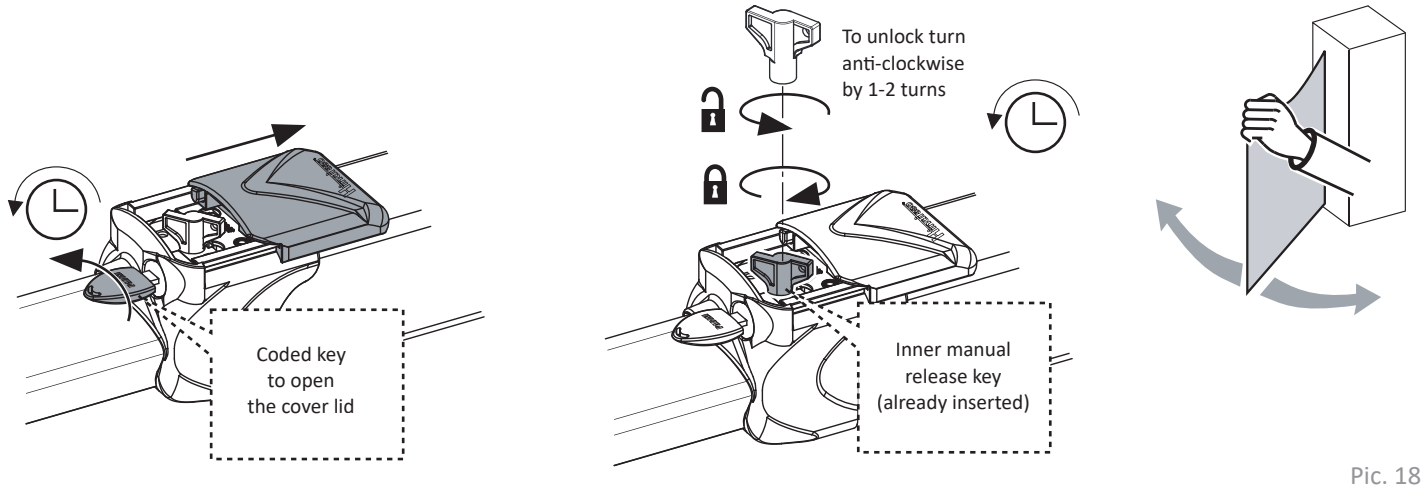
Non BRAKING ON OPENING version:
Loosen the adjusting screw by 1-2 turns max.



Pic. 17

6. UNLOCKING FOR MANUAL OPERATIONS

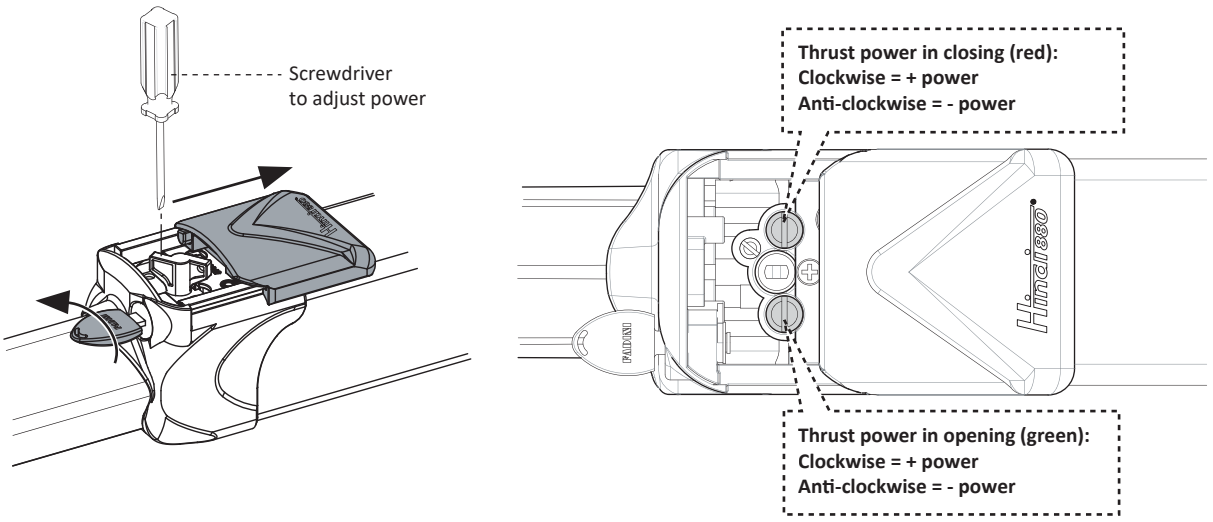
The manual release of HINDI 880 EVO operator is required to allow the gate/s to be moved by hand in case the bidirectional or single locking versions of HINDI 880 EVO are installed.
Insert the supplied coded key into the dedicted lock barrel in the valve block cover and turn it anti-clockwise to slide the lid open.
The manual release key is factory-located inside, turn it by one to two turns anti-clockwise.
Once the manual operations are over, the hydraulic circuit must be re-locked by turning the release key clockwise until securely tightened (Pic. 18).



Pic. 18

ADJUSTING THE THRUST POWER

In order to adjust the thrust power in opening and closing loosen or tighten the screws located inside the valve block cover, to be accessed by the dedicated coded key (Pic. 19).
Red screw = it adjusts the thrust power in the closing cycle of the gate/s.
Green screw = it adjusts the thrust power in the opening cycle of the gate/s.

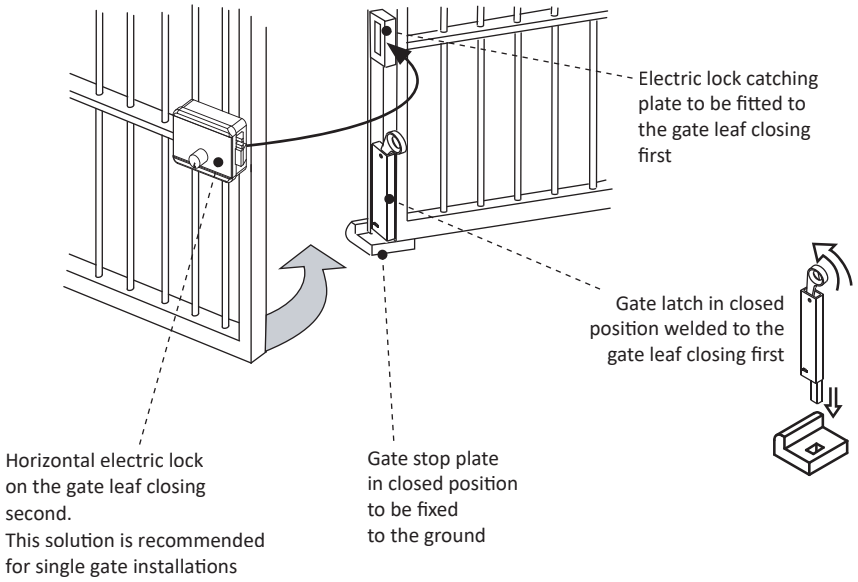


Pic. 19

INSTALLING THE ELECTRIC LOCK

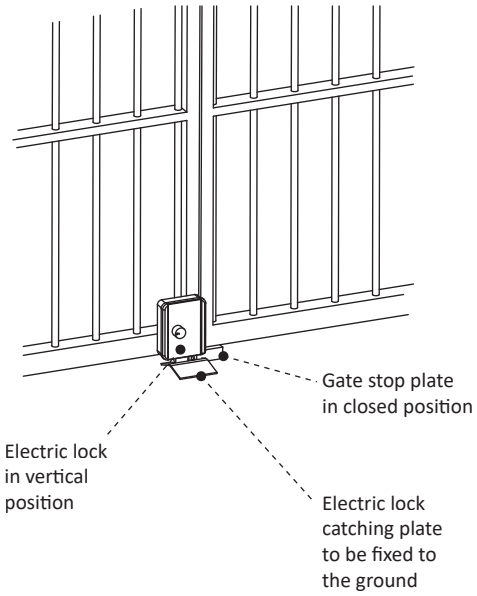
An electric lock is always required to be fitted to the gate/s whenever **HINDI 880 EVO corresponds to the reversible version** (non locking action by the hydraulic circuit) and **the gate leaf is wide up to or wider than 2,0 meters** (Pic. 20 and Pic. 21).

Horizontal electric lock



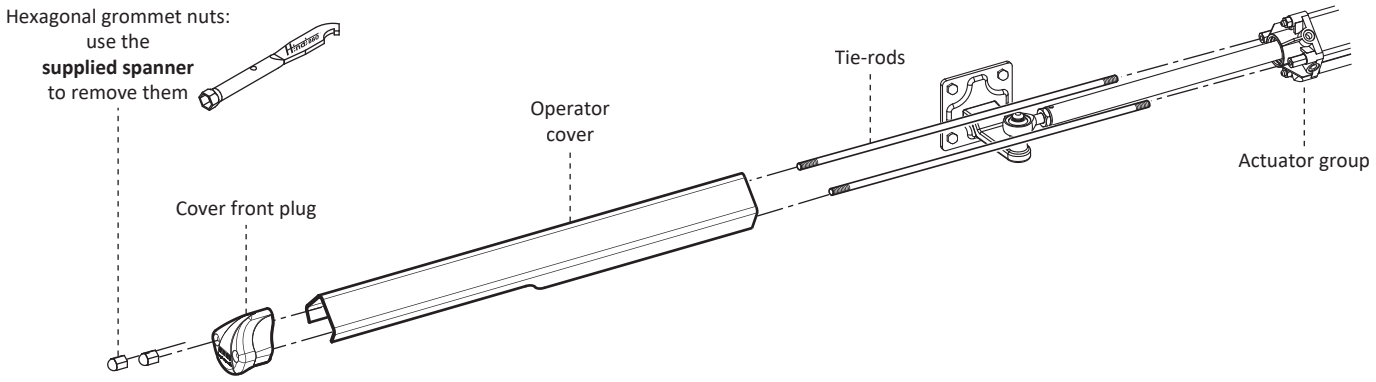
Pic. 20

Vertical electric lock

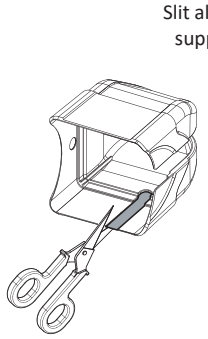


Pic. 21

FITTING THE REAR PROTECTION CAP AND COVER FIXING

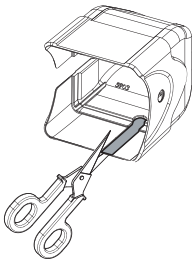


Pic. 22

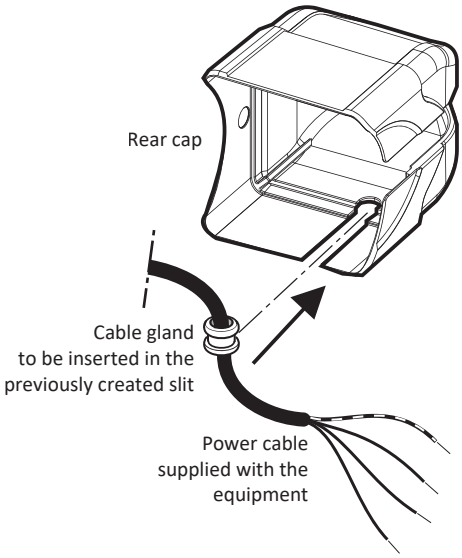


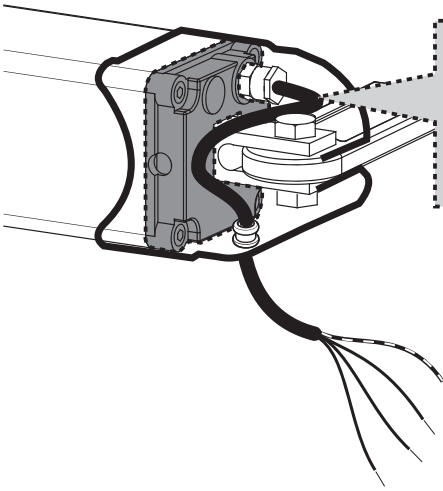
HINDI 880 EVO
installed on the **left**,
view from inside the gate

Slit allowing the gland and power
supply cable to pass through it

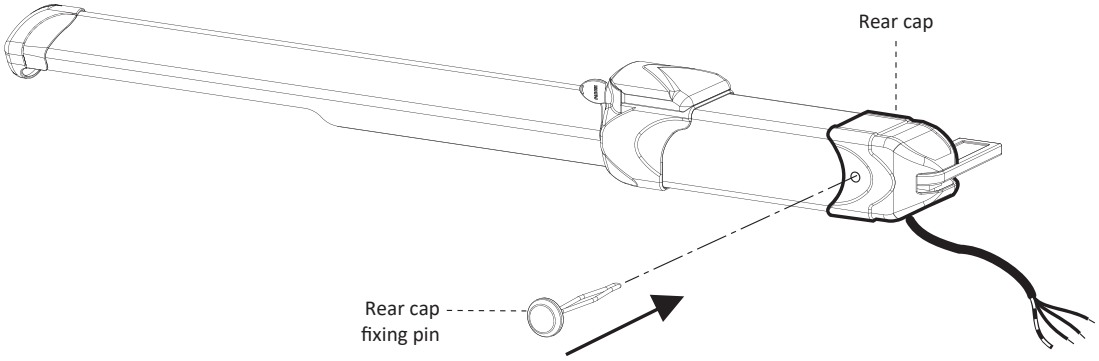


HINDI 880 EVO
installed on the **right**,
view from inside the gate





NOTE WELL:
The power supply electric cable is **ALWAYS** to be positioned on the side opposite the rear fixing plate, between the bolt and the operator end casting.



Pic. 23

7. MAINTENANCE

MAINTENANCE RECORD hand over to the end user of the installation		FADINI
Installation address:	Maintainer:	Date:

Installation type:				Operator model:	Quantity of models installed:
Sliding gate	☐	Folding door	☐		
Swinging gate	☒	Road barrier	☐	Dimensions per gate leaf:	
Over-head door	☐	Bollard	☐		
Lateral folding door	☐	.....	☐	Weight per gate leaf:	Installation date:

NOTE WELL: this document must record any ordinary and extraordinary services including installation, maintenance, repairs and replacements to be made only by using Fadini original spare parts.
This document, for the data included in it, must be made available to authorized inspectors/officers, and a copy of it must be handed over the end user/s.

The installer/maintainer are liable for the functionalities and safety features of the installation only if maintenance is carried on by qualified technical people appointed by themselves and agreed upon with the end user/s.

N°	Service date	Service description	Technical maintainer	End user/s
1				
2				
3				
4				
5				
6				

Stamp and signature
installation technician/maintainer

Signed for acceptance
end user
buyer

hand over to the end user of the installation

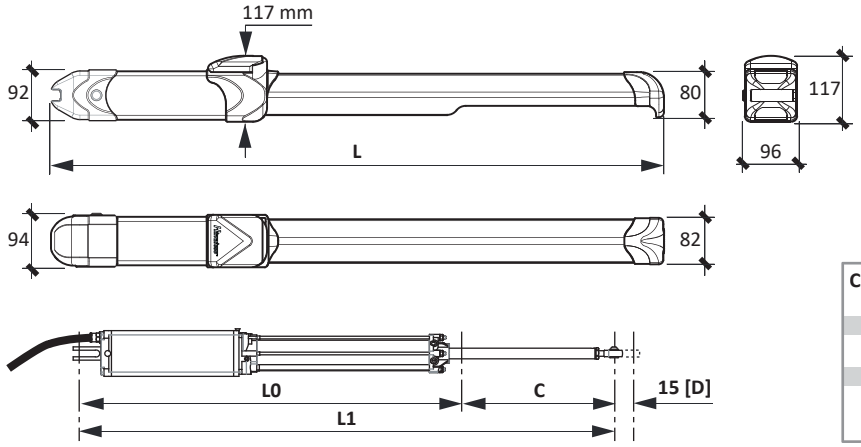
8. PRODUCT TECHNICAL DATA SHEET

8.1 TECHNICAL DATA

Rod stroke (mm)	**150**	**280**	**400**
Power supply (Vac - Hz)	230 - 50	230 - 50	230 - 50
Absorbed power (W)	250	250	250
Power yield (W)	180	180	180
Max. absorbed current (A)	1,2	1,2	1,2
Motor rotation speed (rpm)	1.350	1.350	1.350
Capacitor (µF)	12,5	12,5	12,5
Intermittent service	S3	S3	S3
Pump flow rate (l/min)	1,4 (P5)	1,4 (P5) | 0,85 (P3)	1,4 (P5) | 0,85 (P3)
Piston diameter (mm)	45	45	45
Shaft diameter (mm)	20	20	20
Linear speed opening (mm/s)	~ 15	~ 17 (P5) | ~ 11 (P3)	~ 17 (P5) | ~ 11 (P3)
Linear speed closing (mm/s)	~ 14	~ 14 (P5) | ~ 9 (P3)	~ 14 (P5) | ~ 9 (P3)
Opening time (s)	~10 + TR [B] (P5) -	~17 + TR [B] (P5) ~26 + TR [B] (P3)	~26 + TR [B] (P5) ~37 + TR [B] (P3)
Opening force (N)	0 ÷ 4.000	0 ÷ 4.200 (P5) | 0 ÷ 4.700 (P3)	0 ÷ 4.200 (P5) | 0 ÷ 4.700 (P3)
Closing force (N)	0 ÷ 5.600	0 ÷ 5.400 (P5) | 0 ÷ 6.300 (P3)	0 ÷ 5.200 (P5) | 0 ÷ 6.300 (P3)
Average working pressure	1 MPa (10 bar)	1 MPa (10 bar)	1 MPa (10 bar)
Maximum pressure	3,5 MPa (35 atm)	3,5 MPa (35 atm)	3,5 MPa (35 atm)
Working temperature (°C)	-25 ÷ +80 [C]	-25 ÷ +80 [C]	-25 ÷ +80 [C]
Oil type	708L	708L	708L
Grade of protection IP	67	67	67
Frequency of use	very intensive	very intensive	very intensive
Duty cycle (cycles/hour)	39	33	24
Weight (kg)	9,5	11	14

[B]: TR is the slowdown time, a value changing according to the adjustment made on the actuator.
[C]: -40 °C with specific optional accessories.

9. OVERALL DIMENSIONS



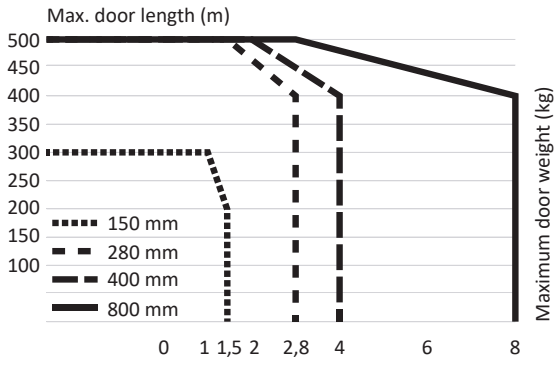
C (actual stroke) [mm]	**L**	**L0 [D]**	**L1 [D]**
145	830	605	750
275	1.094	732	1.007
395	1.374	885	1.280

[D]: These distances can vary depending on the position of the ball bearing eye

Pic. 24

10. LIMITATIONS OF USE

The shape, size of the gate, and the presence of strong winds can reduce the indicated values. Always check the integrity of the gate structure by eliminating any friction. It is always advisable to install an electric lock on swing gates to ensure reliable closure and protection of the actuators. For gates taller than 2 m, the use of an electric lock is necessary.



Pic. 25