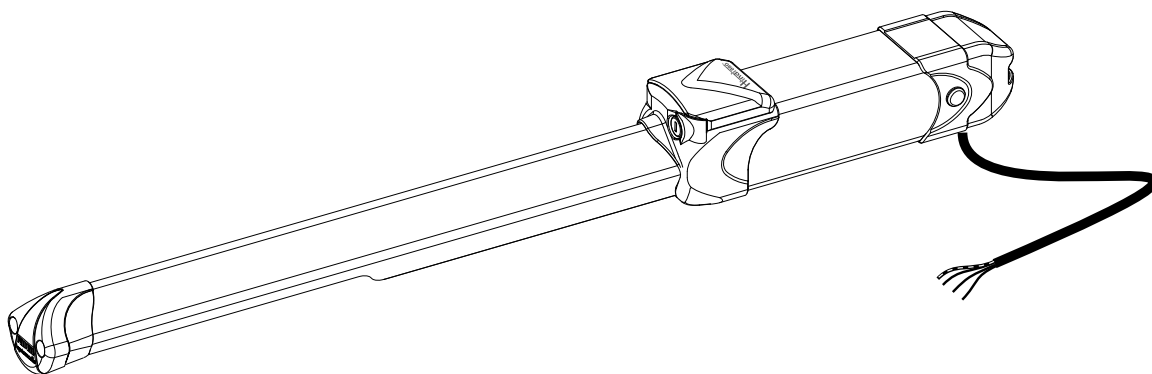


Hindi *EVO*
880®

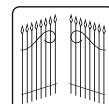


universal oil-hydraulic operator for swing gates



EN 13241
EN 12453
EN 12445

Made in Italy



FADINI
the gate opener

GENERAL WARNINGS FOR PEOPLE SAFETY

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 snc 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 snc, 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 snc (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 No. 2392-2008.

Meccanica Fadini s.n.c.
Director in charge



GENERAL INFORMATION ABOUT THE PRODUCT

HINDI 880-evo is an oil-hydraulic operator for external application on swinging gates to automatically open and close them. 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 main asset of HINDI 880-evo is that of including, in one version only, all the available oil-hydraulic options as it can be turned into any of the following units: double- or single-locking, non locking and in this case the gates do not need any release action first and can be operated by hand in either one direction or both travel directions (always reversible), adjustable braking control in opening and closing or non braking option.

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

Optional on request

<p>1 - N° 2 coded keys to open the sliding cover</p> <p>2 - Cover front plug</p> <p>3 - Anodized aluminium cover</p> <p>4 - Inner manual release key</p> <p>5 - Rear protection cap</p> <p>6 - cable gland</p> <p>7 - Oil-hydraulic operator: stroke range 150 mm, 280 mm and 400 mm</p> <p>8 - N° 2 tie rods for cover fixing</p> <p>9 - N° 2 grommet nuts for cover and plug fixing</p> <p>10 - Round-headed spanner</p>	<p>11 - Front fixing for Hindi 880-evo strokes 150 mm and 280 mm</p> <p>12 - front fixing circlip</p> <p>13 - Front fixing for Hindi 880-evo stroke 400 mm</p> <p>14 - M12 self-locking nut</p> <p>15 - Rear fixing to gate post</p> <p>16 - M12x40 rear fixing screw</p> <p>17 - Rear cap fixing pin</p> <p>18 - Rear patching plate 150x150 mm - (optional) code No. 8311L</p> <p>19 - Front patching plate 120x120 mm - (optional) code No. 8310L</p> <p>20 - Front patching plate 84x84 mm - (optional) code No. 8312L</p>
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Pic. 1

SCOPE OF APPLICATION

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.

1,0 m 2,5 m (*) 4 m (*)

stroke 150 stroke 280 stroke 400 with an electric lock

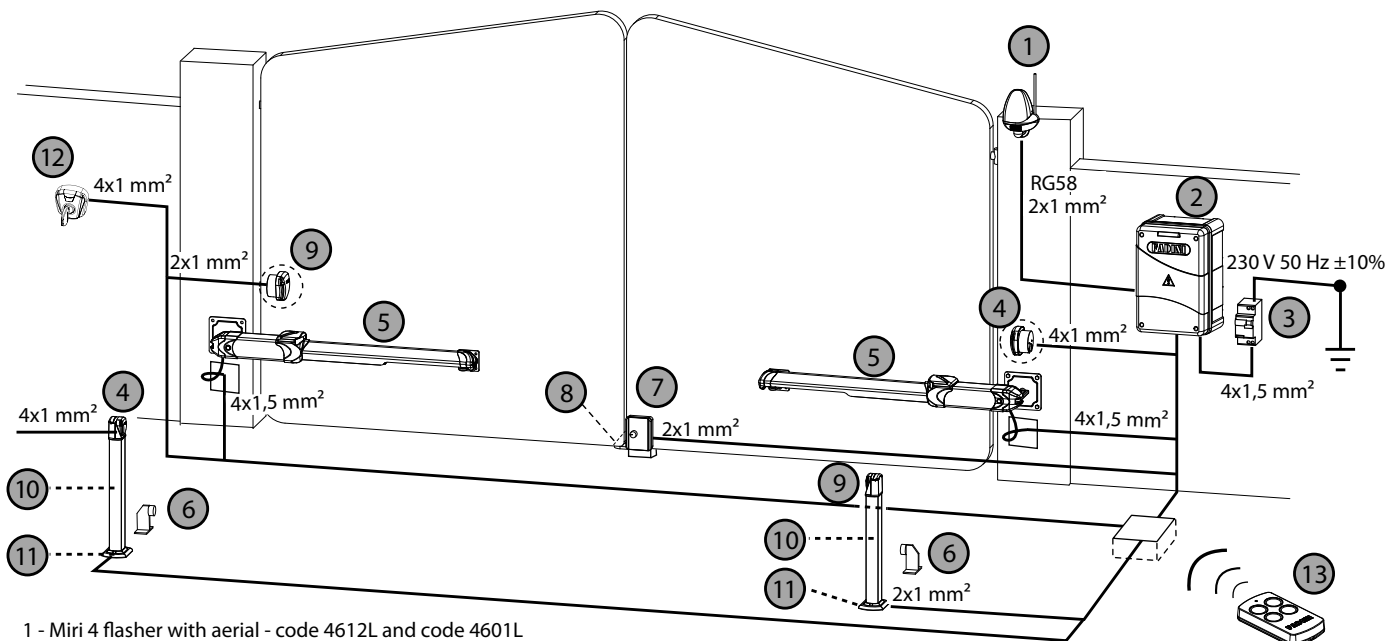
(*) = for gate leaves equal to or wider than 2,0 meters, it is always recommended that an electric lock be fitted.

Pic. 2

WIRING DIAGRAM AND ACCESSORIES

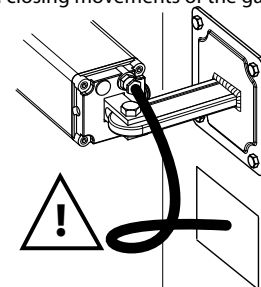
Before fitting Hindi 880-evo make sure the installation is pre-set for all the safety and control accessories as required.

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



- 1 - Miri 4 flasher with aerial - code 4612L and code 4601L
- 2 - Elpro 27 controller (installed in a protected and sheltered place) - code 7047L with VIX 53/2 R plug-in radio receiver - code 5311L
- 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 - Fit 55 recess photocell receiver - code 551L
- 5 - Hindi 880-evo
- 6 - Open position gate stop (compulsory, not supplied with the equipment)
- 7 - Electric lock: Hindi 880-evo non locking version and with gate leaves wider than 2,0 m
- 8 - Closed position gate stop (compulsory, not supplied with the equipment)
- 9 - Fit 55 recess photocell transmitter - code 551L
- 10 - 0,5 m post - code 555L
- 11 - Post fixing plate with cover - code 554L
- 12 - Chis 37 recess key-switch - code 371L
- 13 - VIX 53/4 TR - code 5313GL

The electric cable must dangle free of any impediment during the opening and closing movements of the gates.



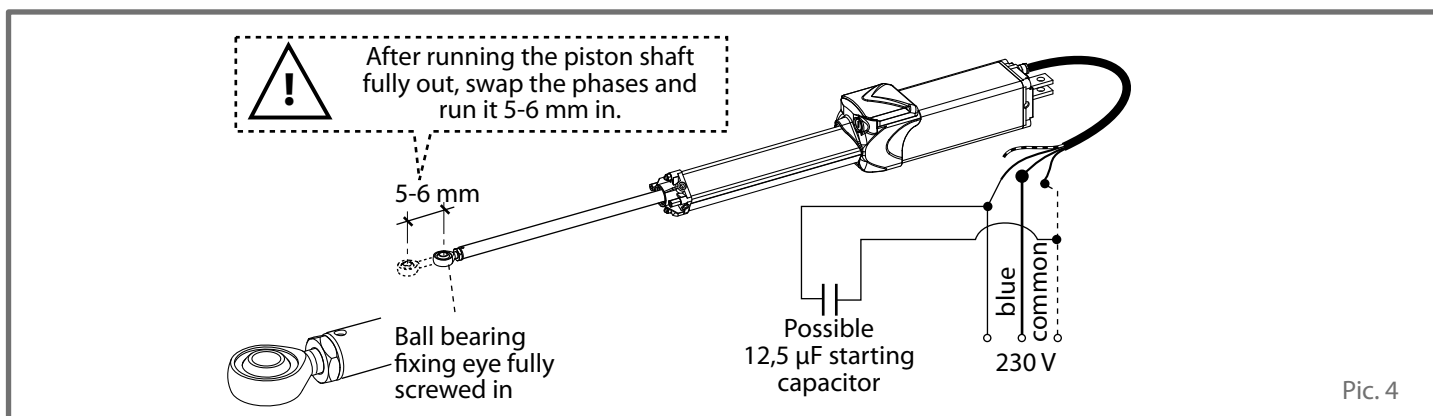
! IMPORTANT: gate stops in open and closed gate positions are absolutely necessary for the proper functioning of Hindi 880-evo.

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).

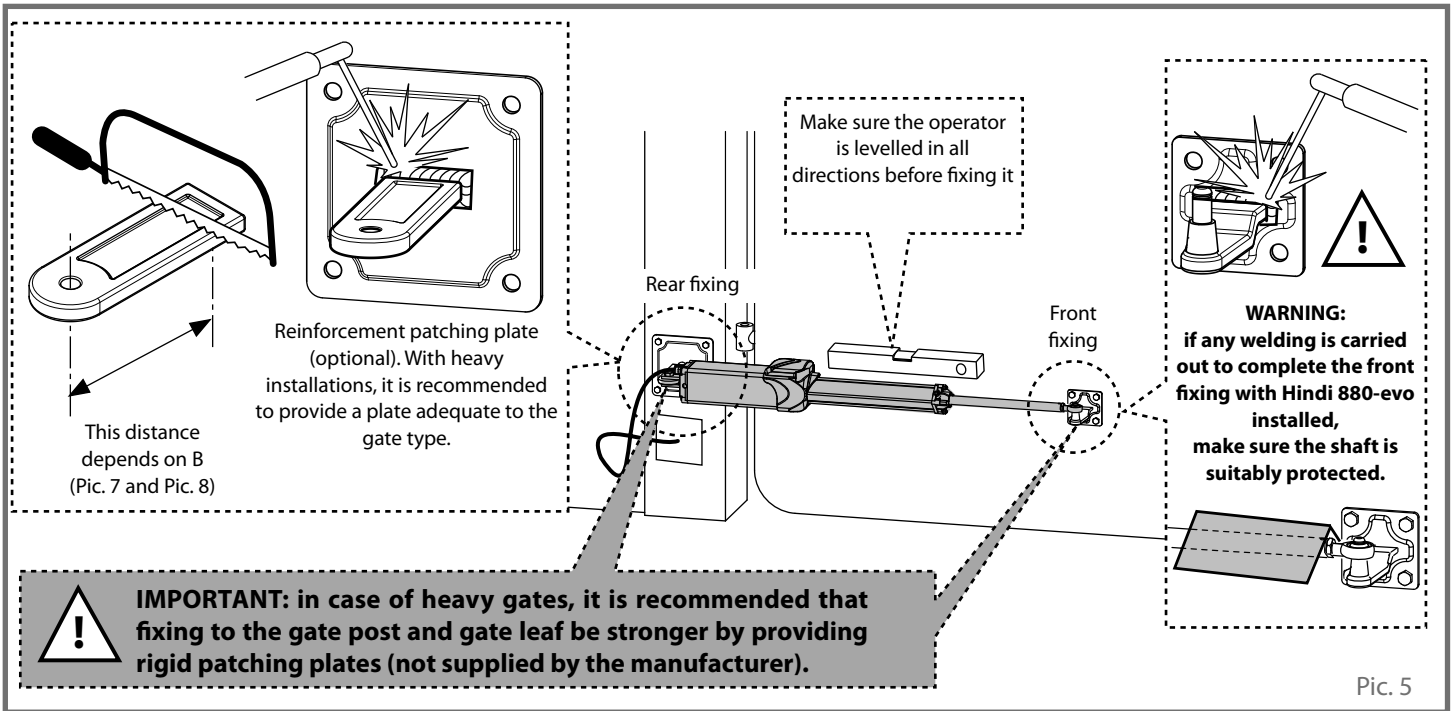


Pic. 4

English

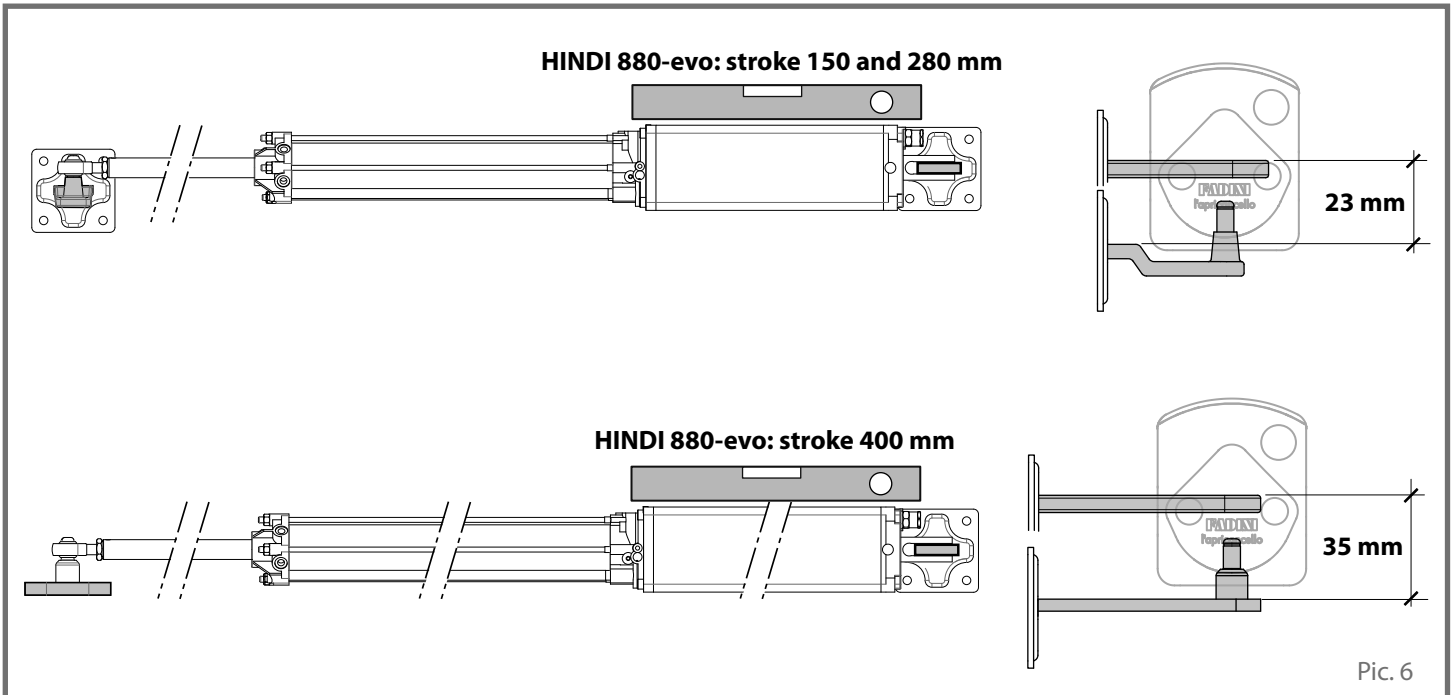
PREPARING THE FIXING PLATES

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).



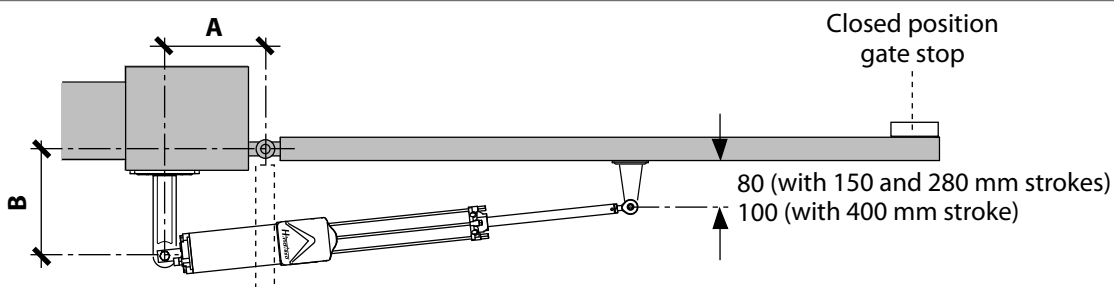
Pic. 5

Misalignment between post- and gate-fixings:



Pic. 6

FIXING GEOMETRY FOR THE GATE TO OPEN INWARDS



Fixing distances for 95° opening

stroke (mm)	A	B
150	60	80
280 (non braking)	130	130
280 (braking)	120	130
400 (non braking)	210	180
400 (braking)	200	160

Fixing distances for 120° opening

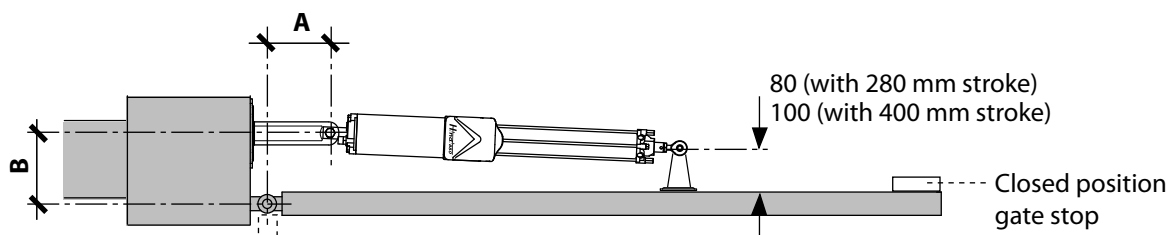
stroke (mm)	A	B
280 (non braking)	130	85
280 (braking)	130	80
400 (non braking)	190	120
400 (braking)	200	90



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

FIXING GEOMETRY FOR THE GATE TO OPEN OUTWARDS



Fixing distances for 95° opening

stroke (mm)	A	B
280	100	170
400	180	210



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.

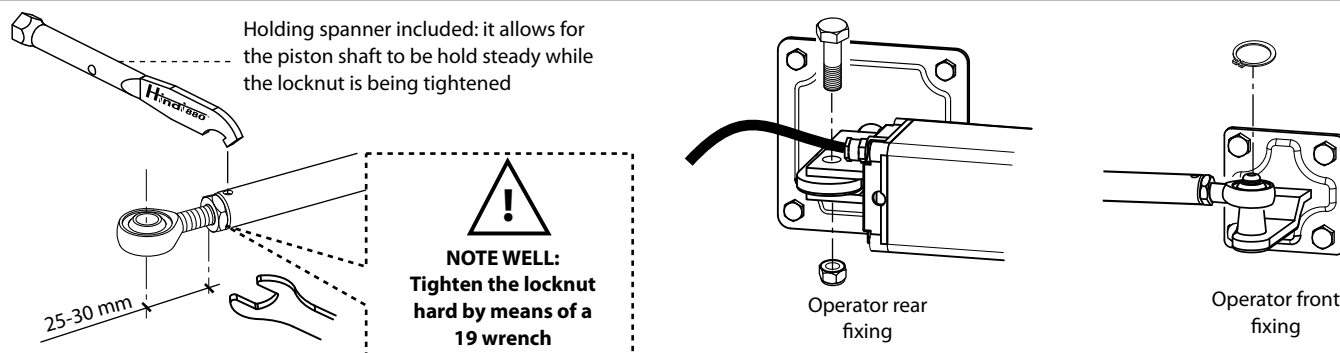
Pic. 8

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).



Pic. 9

SETTING HINDI 880-evo TO THE REQUIRED OPERATING MODES

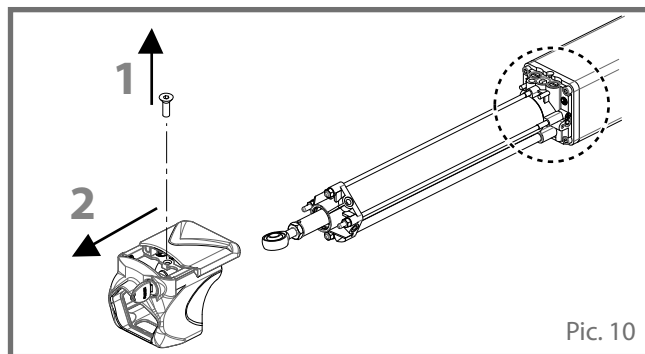
General description

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).

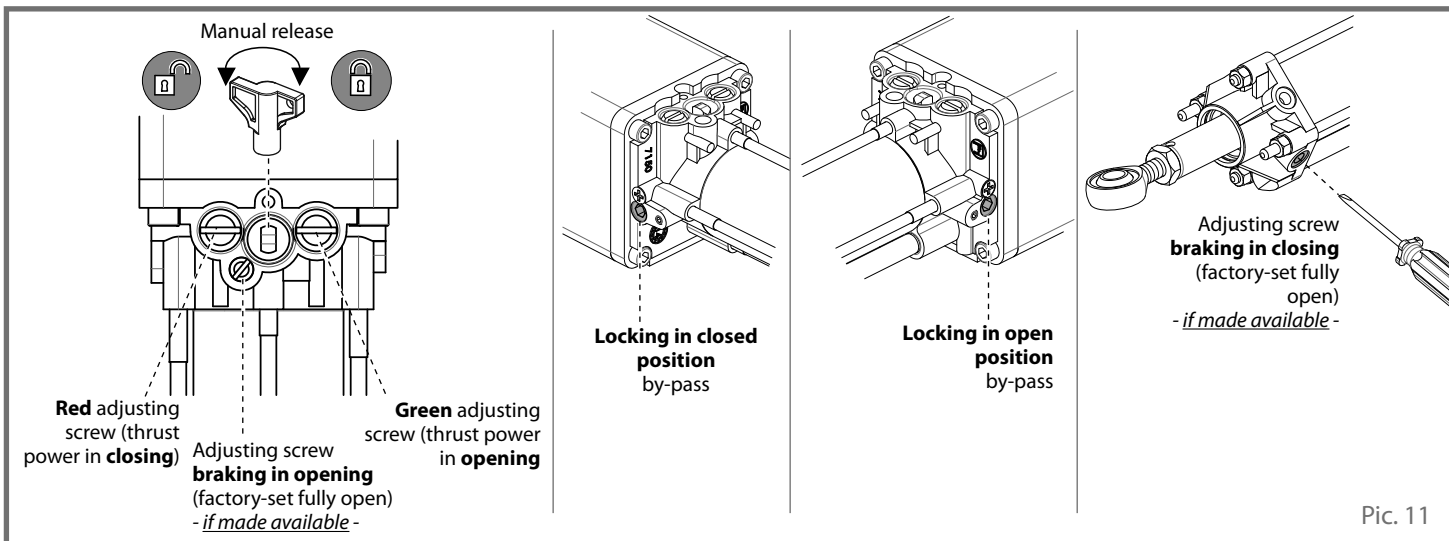
The adjusting screws and by-passes of the operator are all in the valve block and in the operator head (Pic.11).



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:

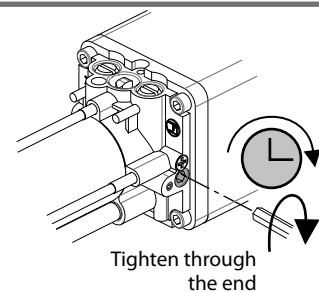
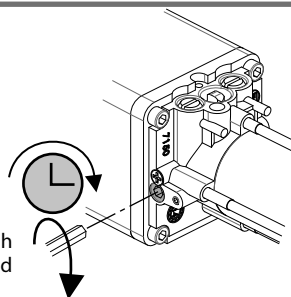
In case of power failure, the gate stays still in its position in both directions.

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 20).



Tighten through the end



Pic. 12

HYDRAULIC LOCKING IN CLOSED POSITION version:

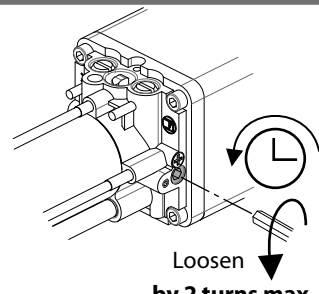
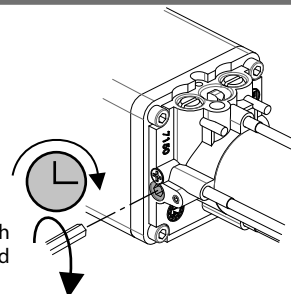
In case of power failure, the gate can only be closed by hand.

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 20).



Tighten through the end



Pic. 13

HYDRAULIC LOCKING IN OPEN POSITION version:

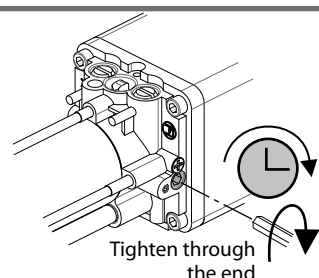
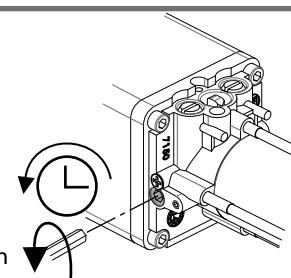
In case of power failure, the gate can only be opened by hand.

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 20).



Loosen by 2 turns max.



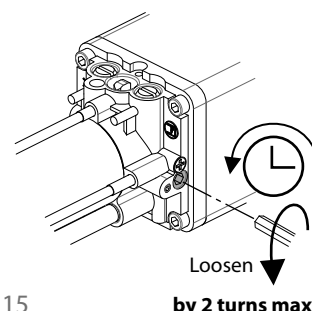
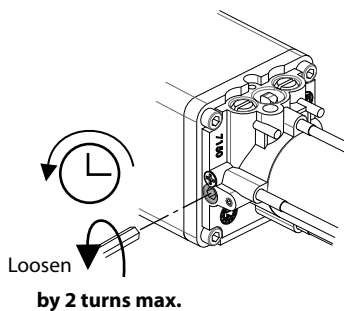
Pic. 14

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.



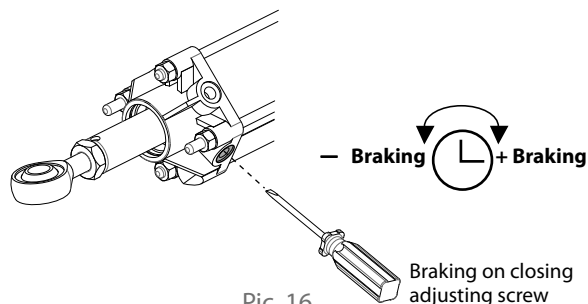
Pic. 15

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.



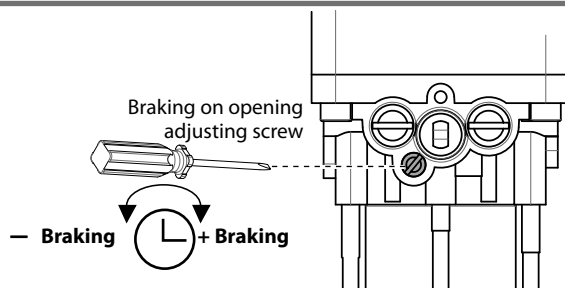
Pic. 16

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.



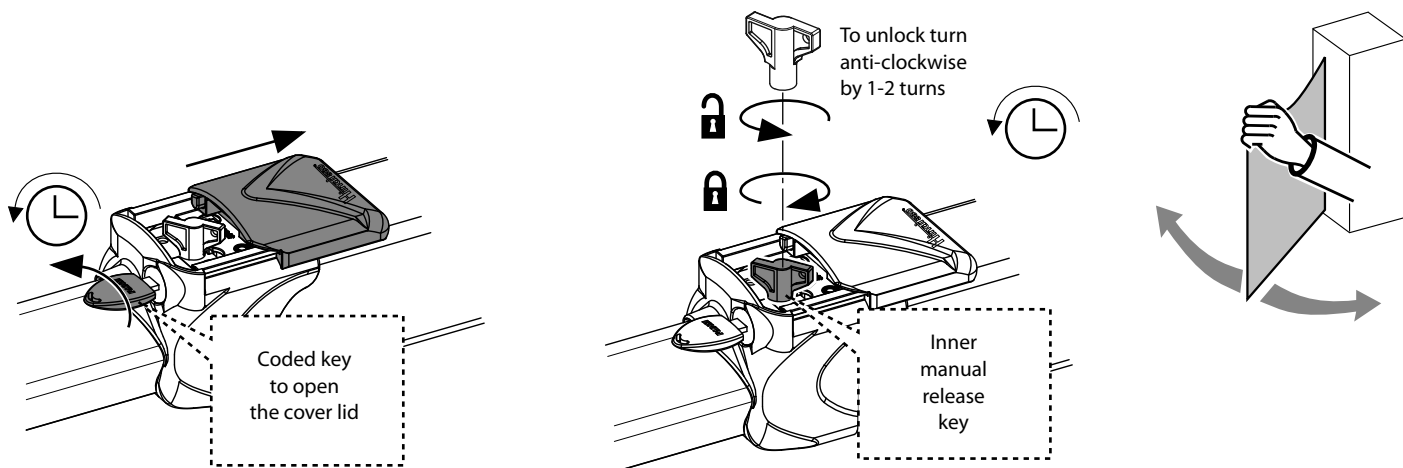
Pic. 17

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).



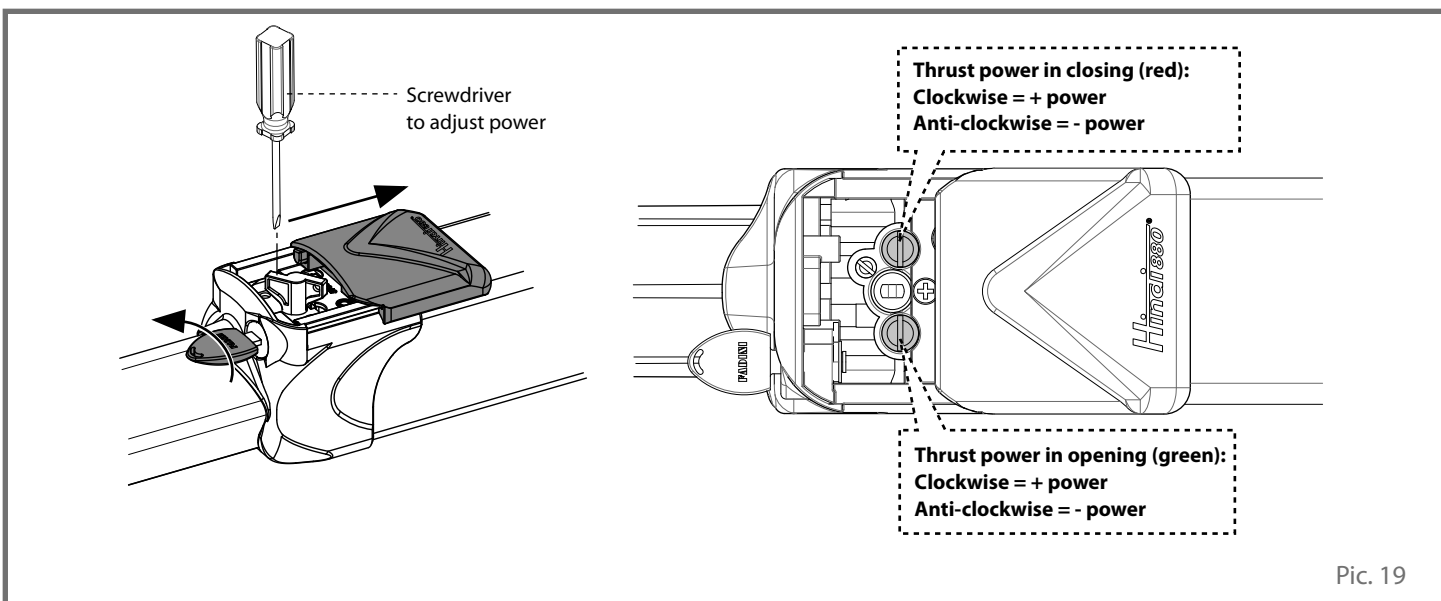
Pic. 18

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).

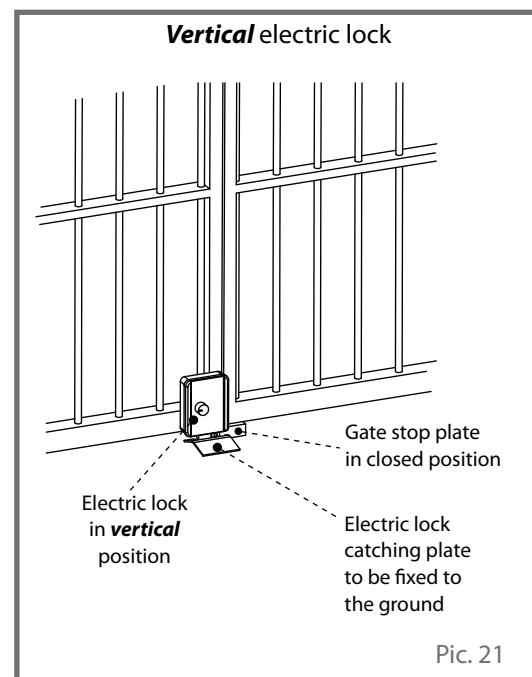
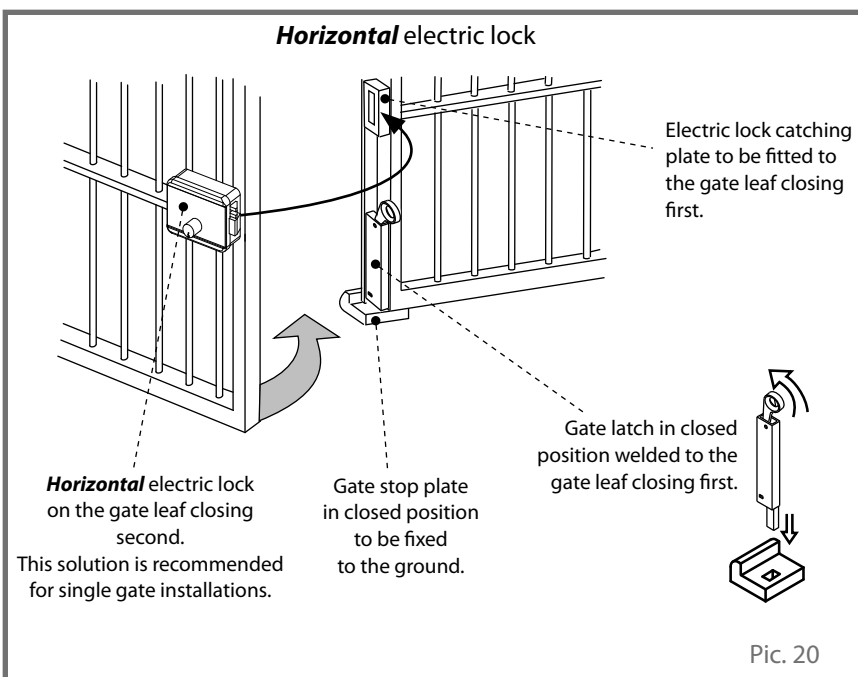
Red screw = it adjusts the thrust power in the closing cycle of the gate/s.

Green screw = it adjusts the thrust power in the opening cycle of the gate/s.

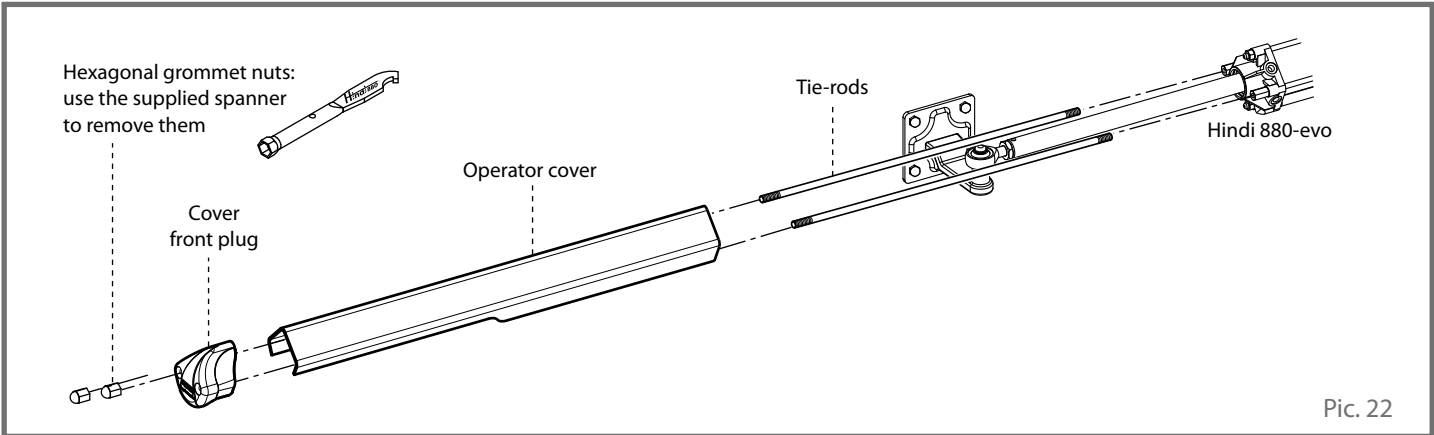


INSTALLING THE ELECTRIC LOCK

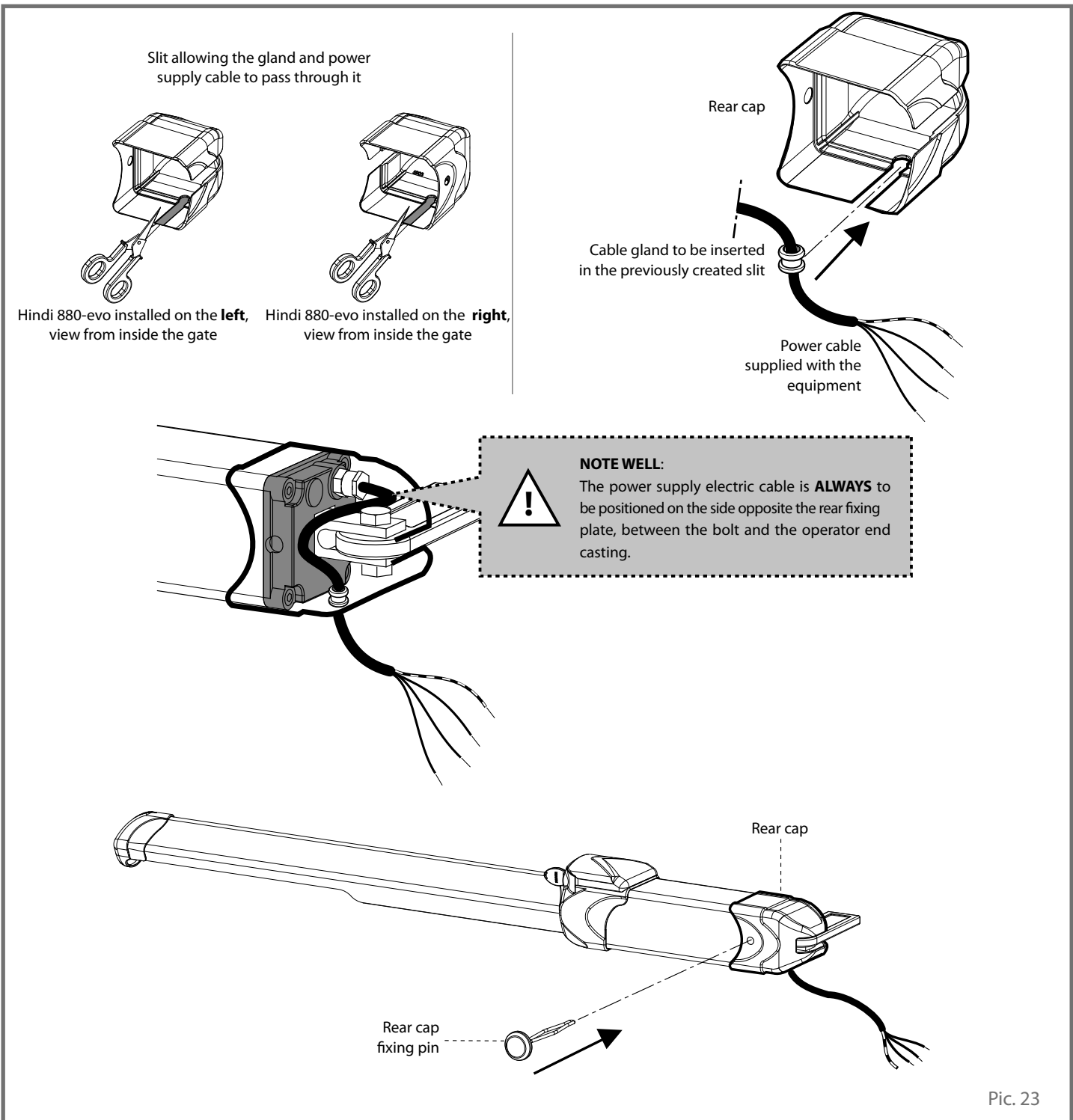
An electric lock is always required to be fitted to the gate/s whenever **Hindi 880-evo corresponds to the reversible version** (non locking action by the hydraulic circuit) and **the gate leaf is wide up to or wider than 2,0 meters** (Pic. 20 and Pic. 21).



FITTING THE REAR PROTECTION CAP AND COVER FIXING



Pic. 22



Pic. 23

MAINTENANCE RECORD

hand over to the end user of the installation



Installation address:	Maintainer:	Date:
-----------------------	-------------	-------

Installation type: Sliding gate <input type="checkbox"/> Folding door <input type="checkbox"/> Swinging gate <input checked="" type="checkbox"/> Road barrier <input type="checkbox"/> Over-head door <input type="checkbox"/> Bollard <input type="checkbox"/> Lateral folding door <input type="checkbox"/> <input type="checkbox"/>	Operator model: Dimensions per gate leaf: Weight per gate leaf:	Quantity of models installed: 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



English

TECHNICAL DATA

OIL-HYDRAULIC OPERATOR

Opening time			
stroke 150 mm	(P5): 10 s + Br.T.		
stroke 280 mm	(P3): 26 s + Br.T.	(P5): 17 s + Br. T.	
stroke 400 mm	(P3): 37 s + Br.T.	(P5): 26 s + Br.T.	
Piston diameter	45 mm		
Shaft diameter	20 mm		
Thrust power	(P3): 0 ÷ 6.300 N (P5): 0 ÷ 5.400 N		
Average working pressure	1 MPa (10 bar)		
Maximum pressure	3,5 MPa (35 atm)		
Hydraulic oil	Fadini Oil - code 708L		
Working temperature	- 25 °C + 80 °C		
Protection grade	IP 67		
Weight complete with accessories	9,5 kg (stroke 150 mm)		
	11 kg (stroke 280 mm)		
	14 kg (stroke 400 mm)		

Br. T. = Braking Time, varies depending on the setting done on the operator

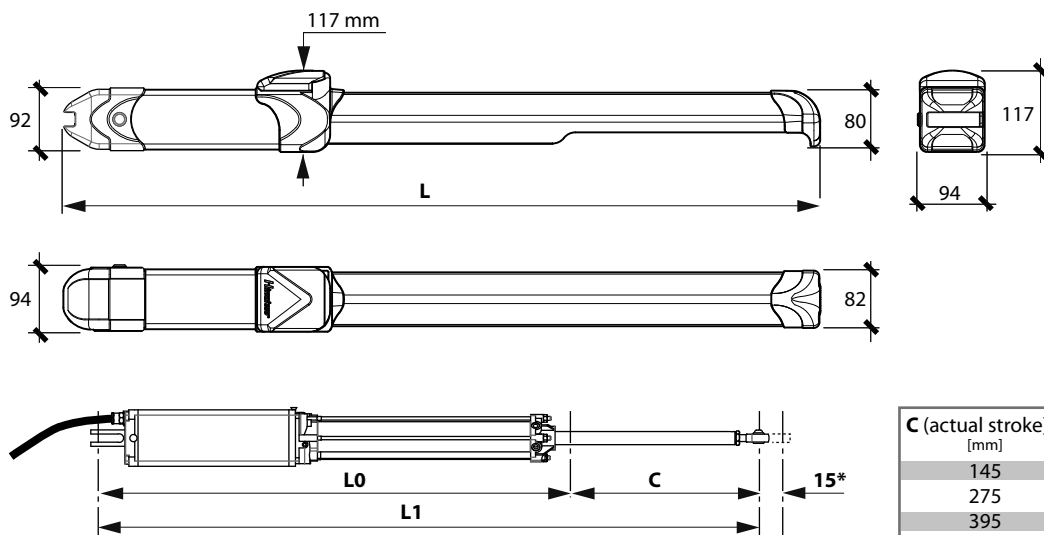
Note: beyond 2,0 meters of gate width, it is always recommended that a gate lock be fitted.

ELECTRIC MOTOR

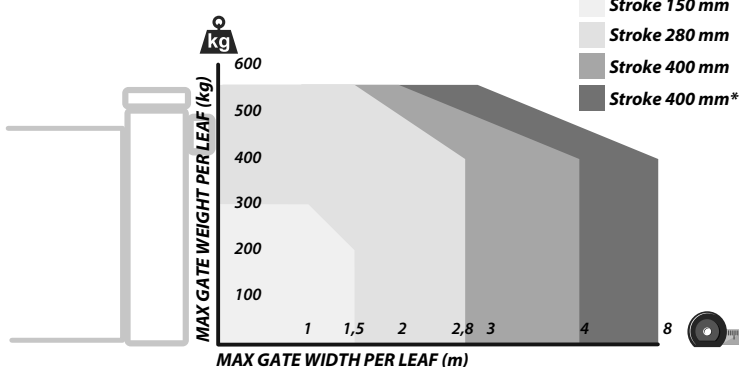
Power output	0,18 kW (0,25 HP)
Absorbed power	250 W
Supply voltage	230 Vac - 50 Hz
Absorbed current	1,2 A
Motor rotation speed	1.350 rpm
Capacitor	12,5 µF
Intermittent service	S3

PERFORMANCE

Frequency of use	very intensive
Duty cycle (P5)	opening 17 s
	dwell 30 s
	closing 21 s
	dwell 40 s
Time of one complete cycle	108 s
Complete cycles	n° 33/hour
Annual cycles (8 hours per day)	n° 81.760 cycles



* these distances can vary depending on the position of the ball bearing eye



The gate structure, design (solid, in-filled), height and strong wind pressure may affect and decrease the indicated values. Make always sure the gate structure is adequate to automation.