IP2250EN • 2021-09-16

Ditec PWR25H/35H

Automation for hinged gates

(translation of the original instructions)

Technical Manual

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Key

This symbol indicates instructions or notes regarding safety, to which special attention must be paid.

This symbol indicates useful information for the correct functioning of the product.

General safety precautions

ATTENTION! Important safety instructions.
Please follow these instructions carefully. Failure to observe the information given in this manual may lead to severe personal injury or damage to the equipment.
Keep these instructions for future reference.
This manual and those for any accessories can be downloaded from www.ditecautomations.com.

This installation manual is intended for qualified personnel only •Installation, electrical connections and adjustments must be performed by qualified personnel, in accordance with Good Working Methods and in compliance with the current regulations • Read the instructions carefully before installing the product. Wrong installation could be dangerous • Before installing the product, make sure it is in perfect condition •

The packaging materials (plastic, polystyrene, etc.) should not be discarded in the environment or left within reach of children, as they are a potential source of danger • Do not install the product in explosive areas and atmospheres: the presence of inflammable gas or fumes represents a serious safety hazard • Make sure that the temperature range indicated in the technical specifications is compatible with the installation site • Before installing the motorization device, make sure that the existing structure, as well as all the support and guide elements, are up to standards in terms of strength and stability. Verify the stability and smooth mobility of the guided part, and make sure that no risks of fall or derailment subsist. Make all the necessary structural modifications to create safety clearance and to guard or isolate all the crushing, shearing, trapping and general hazardous areas • The motorization device manufacturer is not responsible for failure to observe Good Working Methods when building the frames to be motorized, or for any deformation during use • The safety devices (photocells, safety edges, emergen-

cy stops, etc.) must be installed taking into account the applicable laws and directives, Good Working Methods, installation premises, system operating logic and the forces developed by the motorized door or gate • The safety devices must protect against crushing, cutting, trapping and general danger areas of the motorized door or gate. Display the signs required by law to identify hazardous areas. Each installation must bear a visible indication of the data identifying the motorized door or gate • Before connecting the power supply, make sure the plate data correspond to those of the mains power supply. An omnipolar disconnection switch with a contact opening distance of at least 3mm must be fitted on the mains supply. Check that there is an adequate residual current circuit breaker and a suitable overcurrent cutout upstream of the electrical installation in accordance with Good Working Methods and with the laws in force • When requested, connect the motorized door or gate to an effective earthing system that complies with the current safety standards • Before commissioning the installation to the end user, make sure that the automation is adequately adjusted in order to satisfy all the functional and safety requirements, and that all the command, safety, and manual release devices operate correctly •

During installation, maintenance and repair operations, cut off the power supply before opening the cover to access the electrical parts • The protection cover of the operator must be removed by qualified personnel only.

The electronic parts must be handled using earthed antistatic conductive arms. The manufacturer of the motorization declines all responsibility if component parts not compatible with safe and correct operation are fitted • Only use original spare parts for repairing or replacing products • The installer must supply all information concerning the automatic, manual and emergency operation of the motorized door or gate, and must provide the user with the operation and safety instructions.

Declaration of incorporation of partly completed machinery

EC Declaration of Incorporation

We:
ASSA ABLOY Entrance Systems AB
Lodjursgatan 10
SE-261 44 Landskrona
Sweden

Declare under our sole responsibility that the types of equipment with names:

Ditec PWR25H	Automation for swing gates with mechanical limit switches
Ditec PWR35H	Automation for swing gates with magnetic limit switches

Comply with the following directives and their amendments:

2006/42/EC	Machinery Directive (MD), regarding the following essential health and safety requirements: 1.1.2, 1.1.3, 1.2.1, 1.2.2, 1.2.3, 1.2.4.2, 1.2.6, 1.3.9, 1.4.3, 1.7.2, 1.7.3, 1.7.4, 1.7.4.1, 1.7.4.2.
2014/30/EU	Electromagnetic Compatibility Directive (EMCD)
2011/65/EU	Restriction of hazardous substances (RoHS 2)
2015/863/EU	Restriction of hazardous substances (RoHS 2 Amendment)

Harmonized European standards that have been applied:

EN 61000-6-3:2007 + A1:2011 + AC:2012
EN 60335-1:2012 + AC:2014 + A11:2014 + A13:2017 + A1:2019 + A14:2019 + A2:2019

Other standards or technical specifications that have been applied:

IEC 60335-1:2010 + C1:2010 + C2:2011 + A2:2013 + C1:2014 + A2:2016 + C1:2016
EN 12453:2017

The manufacturing process ensures the compliance of the equipment with the technical file.

Do not put equipment into service until the installed finished Automatic Entrance System has been declared compliant with Directive 2006/42/EC on Machinery.

Responsible for technical file:

Matteo Fino
Business Area PGA
Ditec S.p.A.
Largo U. Boccioni, 1
21040 Origgio (VA)
Italy

Signed for and on behalf of ASSA ABLOY Entrance Systems AB by:

Place	Date	Signature	Position
Origgio	2021-09-16	Matteo Fino	President B.A. PGA

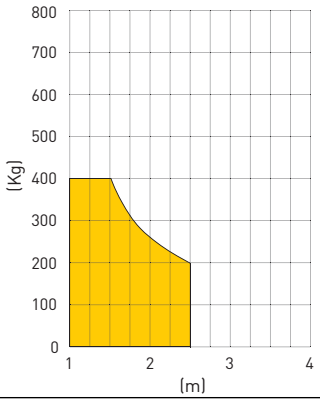
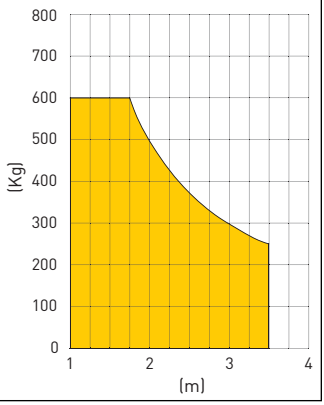
IP2250EN

1. Technical specifications

Tab. 1.0

	PWR25H	PWR35H
Power	24V⎓	
Maximum power	5A	5.5A
Absorbed power	55W nom. / 120W max	65W nom. / 132W max
Maximum thrust	2000 N	3000 N
Maximum stroke	350mm	450mm
Opening time	10÷60 s/90°	14÷80 s/90°
Intermittence	80 cycles/day [max] 30 consecutive cycles at 20°C	max 150 cycles/day [max] 50 consecutive cycles at 20°C
Duration	From 90,000 to 150,000 cycles based on the conditions indicated in table 3.1 (see the durability graphs of the product)	From 120,000 to 300,000 cycles based on the conditions indicated in table 3.1 (see the durability graphs of the product)
Operating temperature	-20°C / +55°C (-35°C + 55°C with NIO active)	
Degree of protection	IP44	IP44
Dimensions (mm)	820 x 100 x 107 h	970 x 100 x 107 h
Weight (Kg)	7.8	9

Graph 1.0

	PWR25H	PWR35H
Usage limits (gate wing weight and length)		

WARNING: To prevent burglary, the use of an electric lock is recommended with wings longer than 2.3m.

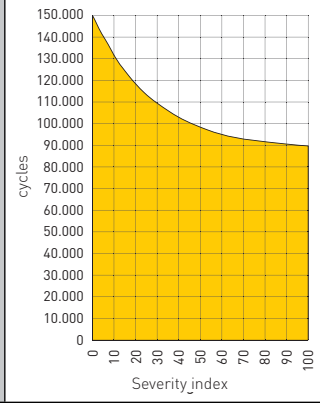
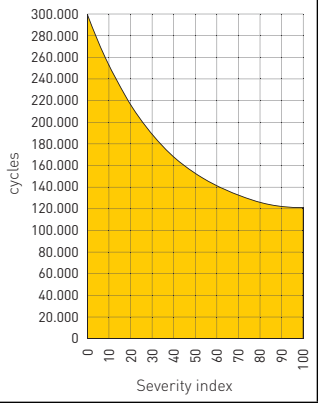
Tab. 1.1

Severity index			
		PWR25H	PWR35H
Wing weight	>150Kg	10	-
	>200Kg	20	-
	>300Kg	30	10
	>400Kg	-	20
	>500Kg	-	30
Wing width	>2m	20	10
	>3m	-	20
Solid wing		15	
Windy area		15	
Speed setting VA/VC/PO/PC over the default values		10	
Force setting R1/R2 over the default values		10	

The durability of the product is influenced by the severity index:

with reference to Tab. 1.1, according to the type of piston, the weight and the width of the wing and the use conditions, different corrective factors were estimated, the sum of which influence the operator durability (see Tab. 3.2).

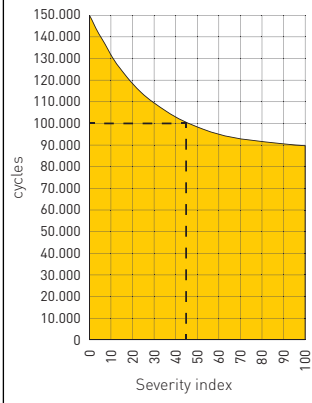
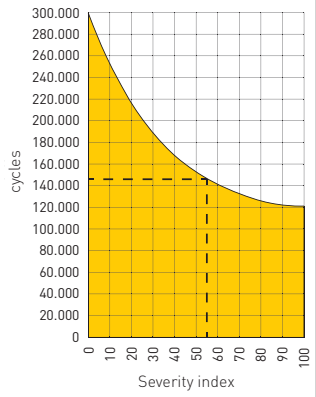
Tab. 1.2

	PWR25H	PWR35H
Durability of the product		

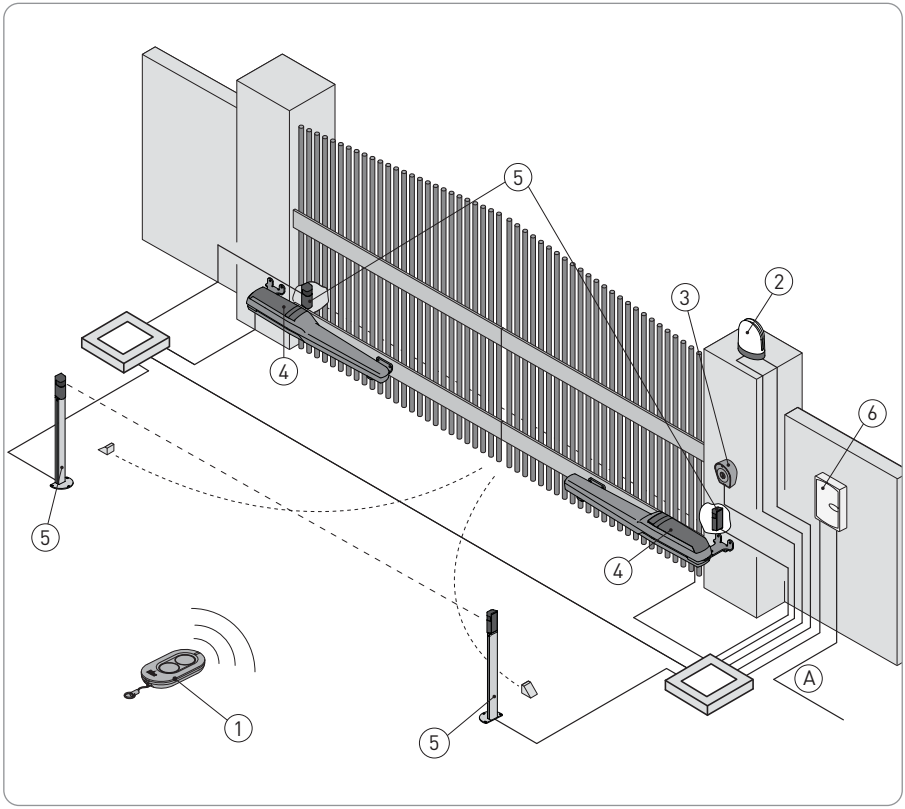
Two examples of the operator durability calculation are shown below:

Example of the duration calculation for PWR25H	
Wing weight >150 Kg	10
Wing width >2m	20
R1/R2>default	0
Windy area	15
Total severity index	**45**
Estimated duration 100,000 cycles	

Example of the duration calculation for PWR35H	
Wing weight >300 Kg	10
Wing width >3m	20
R1/R2>default	10
Windy area	15
Total severity index	**55**
Estimated duration 148,000 cycles	

PWR25H	PWR35H
	

2. Standard installation



Ref.	Description	Cable
1	Transmitter	/
2	Flashing light	2 x 1 mm²
	Antenna (integrated into the flashing light)	coaxial 58 Ω
3	Key selector switch	4 x 0.5 mm²
	Digital combination wireless keypad	/
4	Actuator PWR25H	2 x 1.5 mm²
	Actuator PWR35H	
	Actuator PWR35H with magnetic limit switches	3 x 1.5 mm²
5	Photocells	4 x 0.5 mm²
6	Control panel	3G x 1.5 mm²
A	Connect the power supply to a type-approved omnipolar switch, with a contact opening distance of at least 3mm (not supplied). The connection to the mains must follow an independent path, separate from the connections to the control and safety devices.	

3. Gearmotor dimensions and references

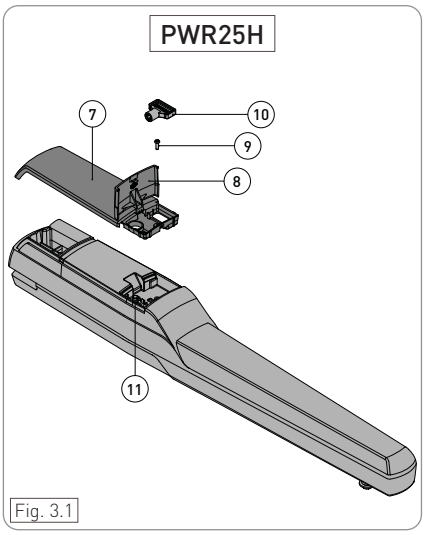


Fig. 3.1

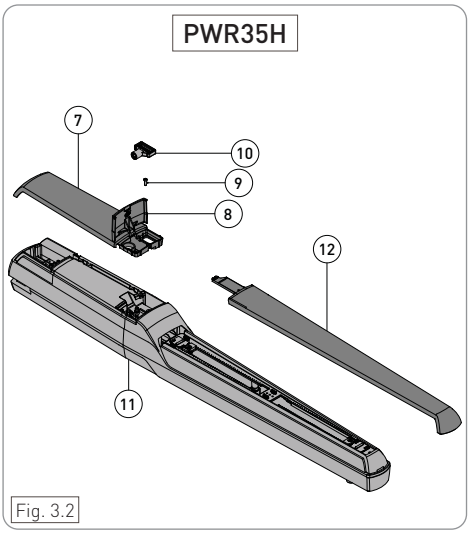
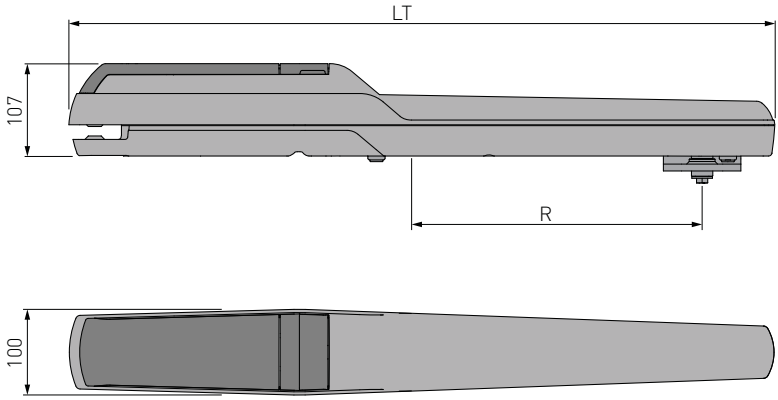


Fig. 3.2

Ref.	Description
7	Rear cover
8	Release lock hatch
9	Cover fastening screw
10	Release key
11	Release pin
12	Front cover



Model	L [mm]	R [mm]
PWR25H	820	350
PWR35H	970	450

4. Installation

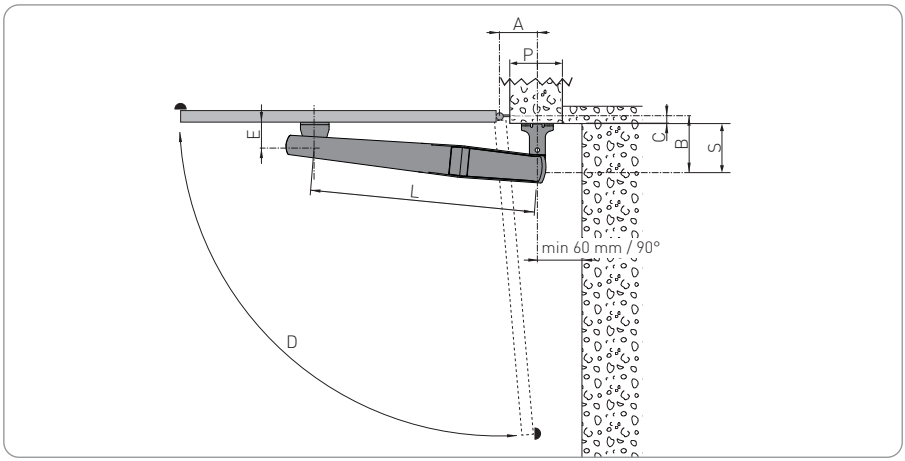
The declared operating and performance features can only be guaranteed with the use of Ditec accessories and safety devices.
Unless otherwise specified, all measurements are expressed in mm.

4.1 Preliminary checks

Check that the structure of the gate is sturdy and that the hinges are lubricated and function smoothly. If possible, provide an opening and closing stop, otherwise use the integrated mechanical stops and/or the electric limit switch (optional) if available. The mechanical parts must be in accordance with the provisions of the EN12604 standard.

The fixing point of the automation varies depending on the space available and the gate to be automated, therefore it is up to the installer to choose each time the best solution to ensure the correct operation of the system.

The installation measurements indicated in the table allow to choose the values of [A] and [B] on the basis of the desired opening angle and in relation to the on site spaces and overall dimensions.
Increasing measurement [A], you reduce the opening approach speed.
Reducing measurement [B], you increase the degrees of gate opening.
Measurements [A] and [B] must, however, be compatible with the effective stroke of the piston.



Tab. 4.1

	A [mm]	B [mm]	C [mm]	S [mm]	D	E [mm]	L [mm]	P min [mm]
PWR25H	90	160	50	110	95°	90	700	110
	110	160	50	110	100°			120
	150	130	50	80	110°			160
	130	150	70	80	90°			140
	110	180	100	80	90°			120
	100	190	110	80	90°			110
PWR35H	90	190	50	140	95°	110	850	100
	130	190	50	140	100°			140
	150	190	50	140	110°			160
	130	180	70	110	90°			140
	130	210	100	110	90°			140
	110	260	150	110	90°			120
	100	280	200	80	90°			110

4.2 Bracket fastening

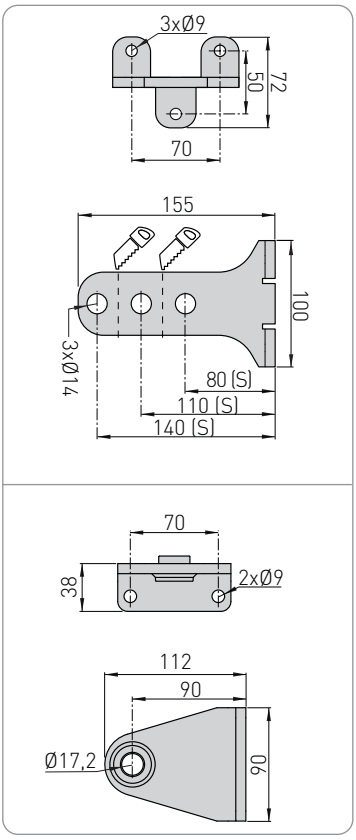
After choosing the most suitable fastening point for the front bracket [14] to the gate wing, to determine the height position, proceed with the sizing, positioning and fixing of the rear bracket [13]. If necessary, shorten the rear bracket [13] following measurement (S) in Tab. 4.1.

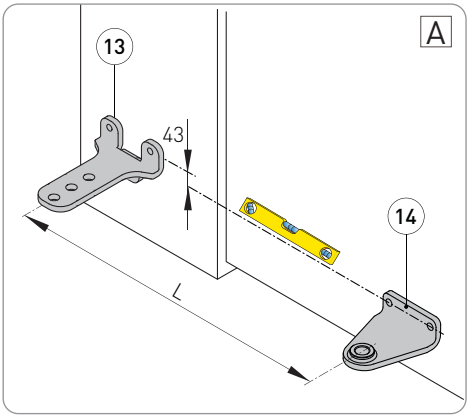
- Once you have fastened the rear bracket [13] following the measurements indicated on page 10, fasten the front bracket [14] to the gate.
- With the gate completely closed, position the front bracket [14], in accordance with measurement (L). Check that the front bracket [13] and rear bracket [14] are properly levelled as shown in the following figures and fasten the front bracket [13] to the gate.

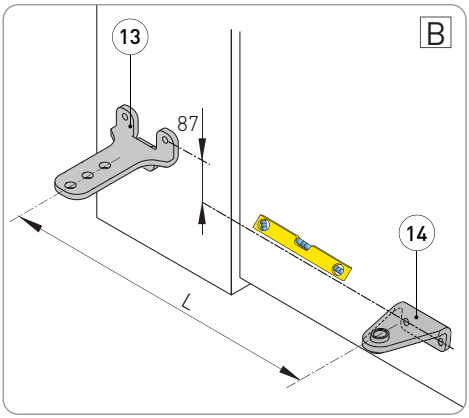
NOTE: If necessary, the front bracket [14] can be rotated and fixed as shown in figures [B], in this way the operator position will be higher by about 40 mm.

Configuration [A] is the one recommended for a greater mechanical resistance.

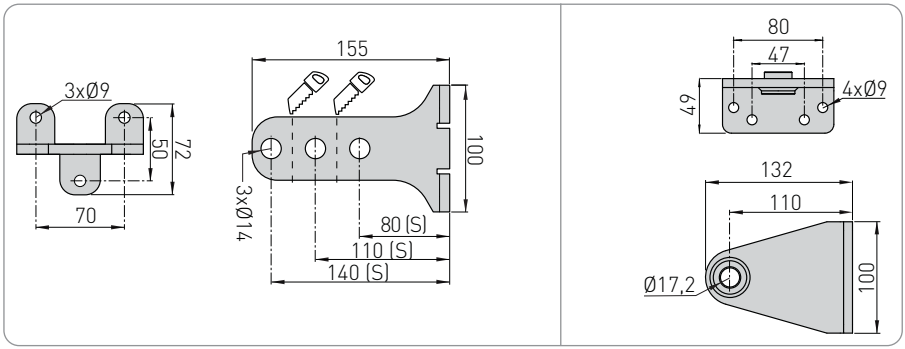
PWR25H

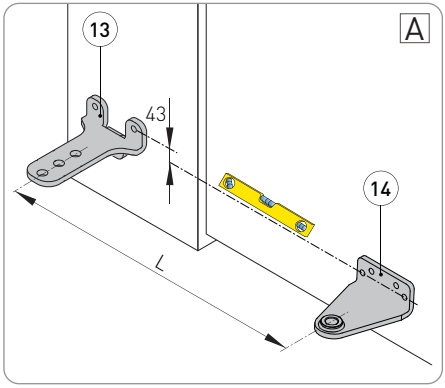


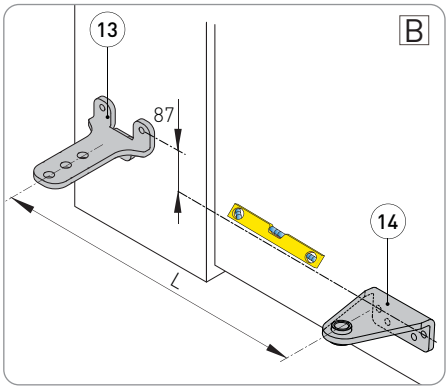




PWR35H

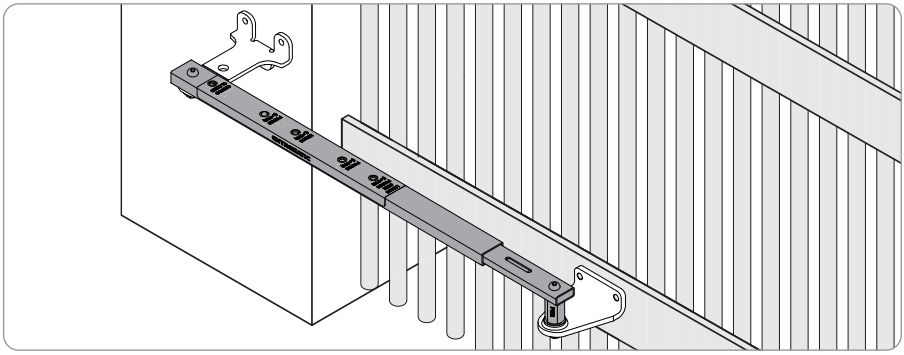






4.3 Positioning template usage (PWRMI)

The positioning of the brackets can be greatly simplified by using the positioning template (optional accessory), which allows to establish with certainty the fixing positions and distances of a bracket with respect to the other during installation. In this way positioning errors and incorrect alignment of the fixing holes are avoided thanks to the level integrated in the template.
The installation template is compatible with all pistons of the PWR, Obbi and Luxo series.



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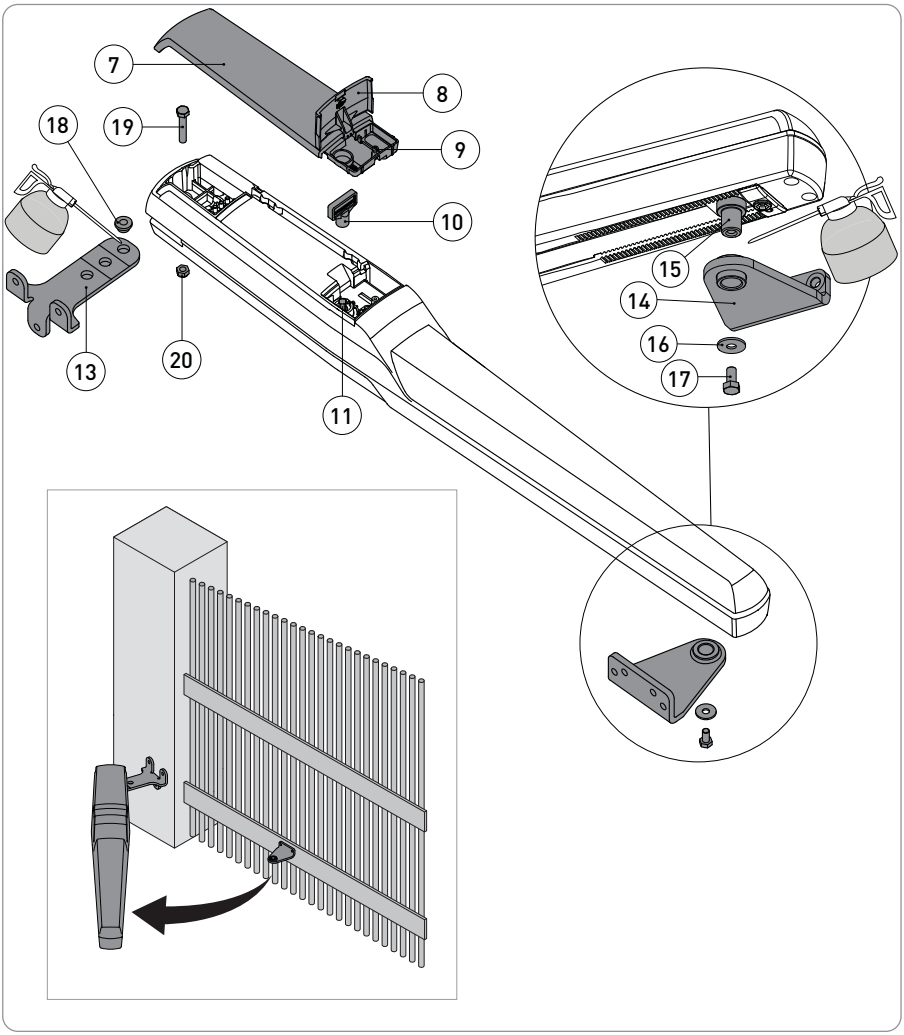
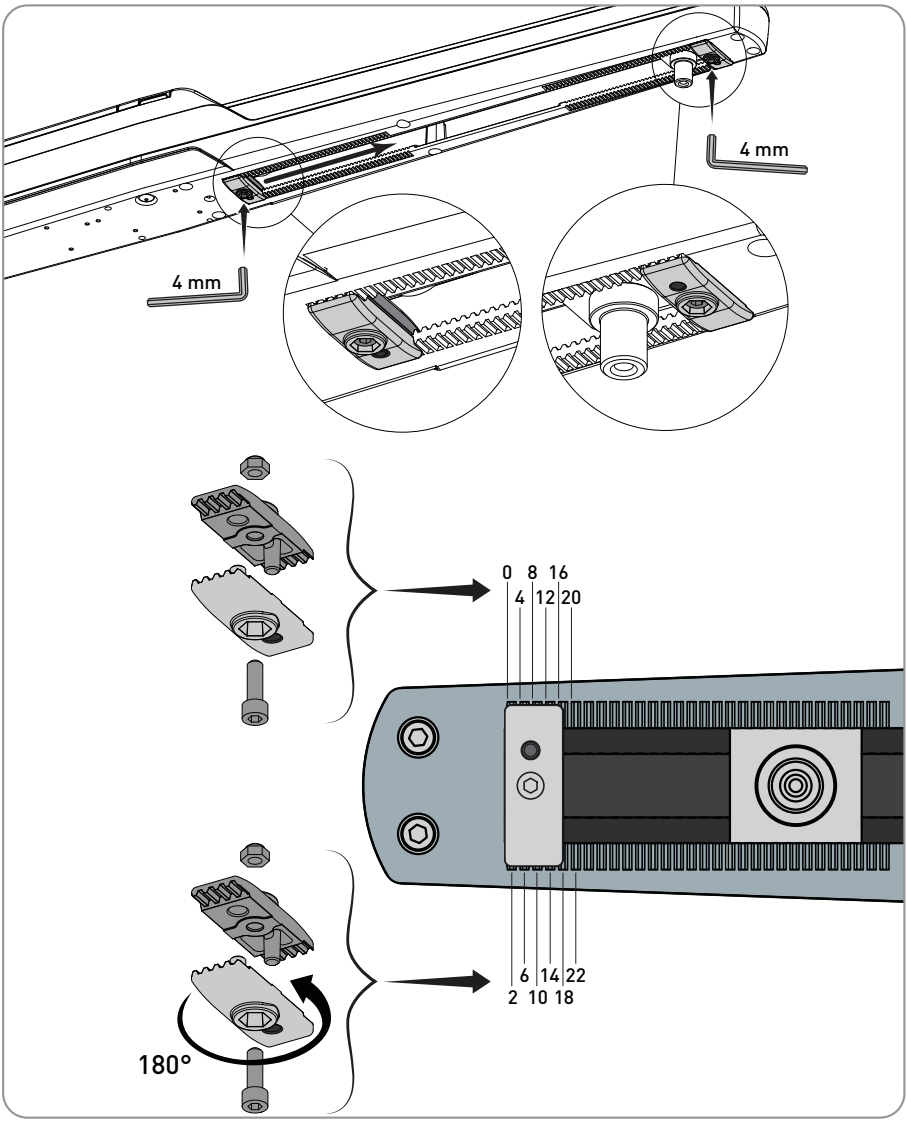
4.4 Gearmotor installation

- Open the release lock hatch [8], loosen the screw [9] and remove the rear cover [7].
- Release the piston by inserting the key [10] in the appropriate pin [11] and turn it counter-clockwise as indicated by the arrow.
- Insert the rear bushing [18] into the hole of the rear bracket [13] and lubricate the pivot points.
- Fix the piston to the rear bracket, fully tightening the M8x45 screw [19] to nut [20].
- Open the wing manually and insert the front mounting pin [15] into the hole of the front fastening bracket [14]; block the pin in the bracket using the washer [16] and the M8x16 screw [17] supplied.
- Moving the gate manually, check that the entire stroke takes place without interference.



4.5 Adjusting the mechanical end stops

The mechanical end stops are adjusted in steps of 4 mm.
Example: GATE WING STOP at stroke [R] = 340 – 344 – 348 mm, etc.
If the stopping point of the gate wing does not coincide with the required position, remove the mechanical end stop and rotate it 180° before replacing it in the toothed guide (as shown in the figure below).
In this way, the mechanical end stops are still adjusted in 4mm steps, but at points differentiated by 2 mm.
Example: GATE WING STOP at stroke [R] = 338 – 342 – 346 mm, etc.



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4.6. Electrical connections

The PWR25H and PWR35H gear-motors can be connected to control panels LCU30 and LCU40.
To connect the automation to the control panel, proceed as follows:

- Remove the rear cover [9] as shown in paragraph 4.4;
- Fit the cable gland on the automation, securing it with the nut inserted in the hole in the casting (Fig. 4.1 and 4.2), then insert the connecting cables (Fig. 4.3);
- Connect the various wires as shown in the wiring diagram in Fig. 4.4;
- Secure the rear cover [9] to the gearmotor.

The electrical wiring and start-up of the gear-motors PWR25H and PWR35H are shown in the installation manuals of control panels LCU30 and LCU40.
A flexible corrugated Ø16 pipe and related Ø20 fitting (not supplied) can be used to increase protection of the motor cable.

Fig. 4.1

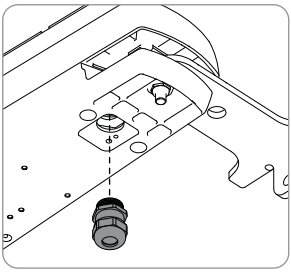


Fig. 4.2

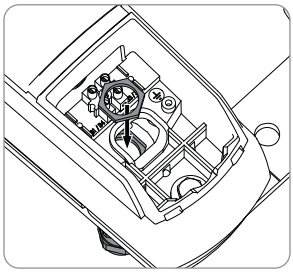


Fig. 4.3

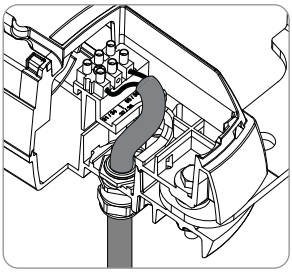
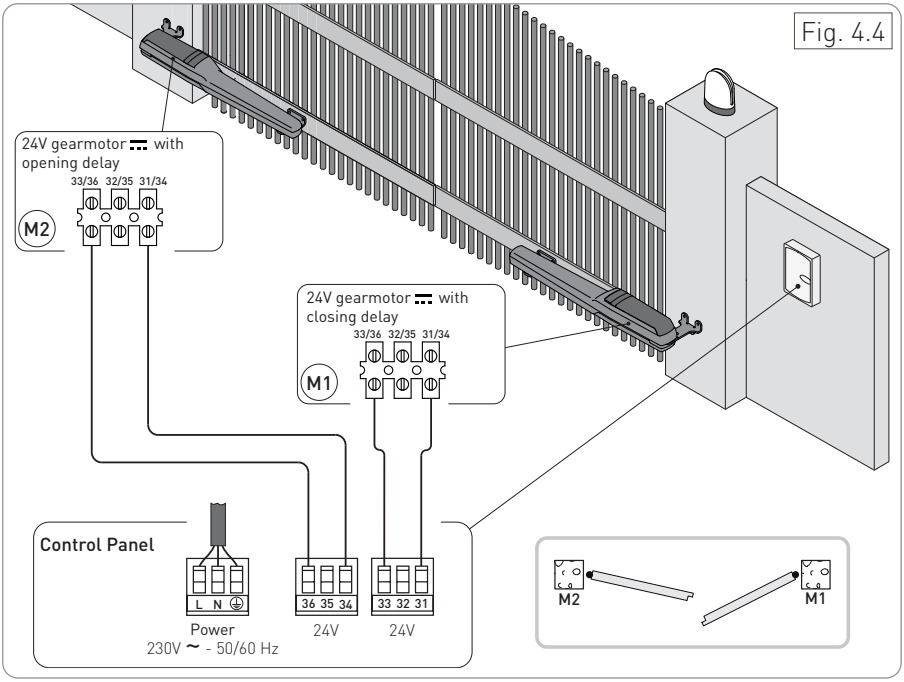


Fig. 4.4



4.7 Magnetic limit switches adjustment (PWR35H only)

The front cover must be removed for the maintenance, adjustment and/or installation of the magnetic limit switches:

- Loosen screw [11], slide the cover [12] forward and lift the front of it.

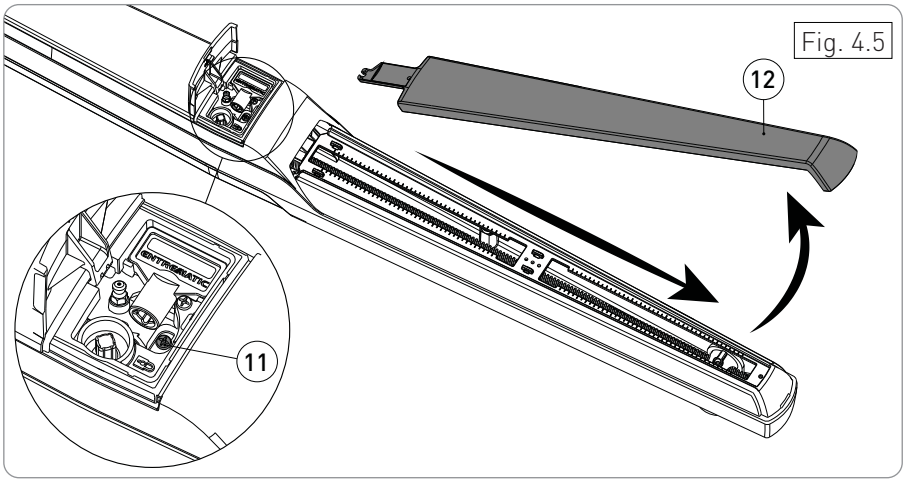


Fig. 4.5

- Loosen the sensor support screws, adjust the opening and closing position of the sensors using the notches as a guide, and tighten the screws.
- Secure the cables to the appropriate supports using cable straps.

See the instructions attached to the limit switch kit for additional information.

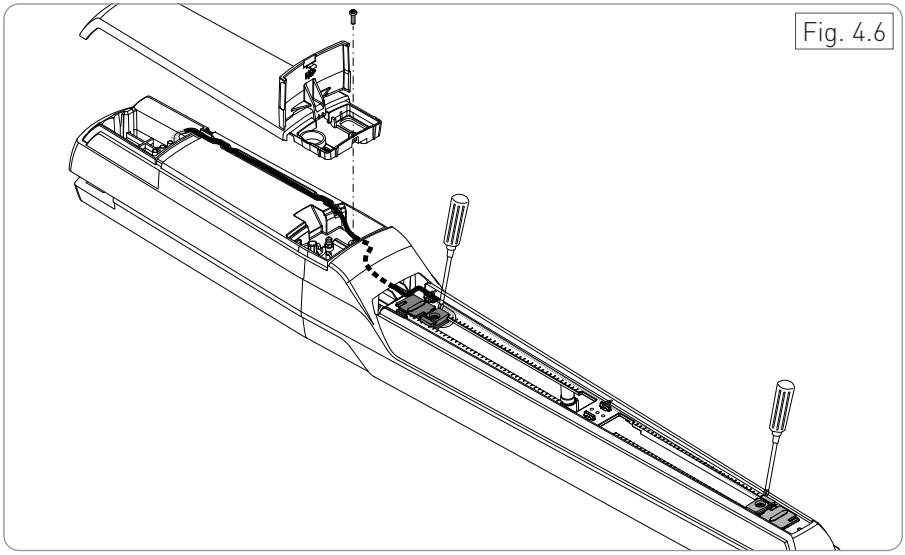


Fig. 4.6

5. Routine maintenance plan

5.1 Maintenance every 6 months or 10,000 cycles

Perform the following operations and checks every 6 months or based on the intensity of use of the automation.

Disconnect the 230 V~ power supply and batteries (if present):
- Clean and lubricate the gate's rotation pins, hinges and drive screws with neutral grease.
- Check the resistance of the fixing points.
- Check the electrical wiring is in good condition.

Reconnect the 230V~ power supply and batteries (if present):
- Check the power adjustment.
- Check that all commands and safety functions (photocells) are operating correctly.
- Check that the release system is working correctly.
- Test the batteries (in continuity) if present, disconnecting power and performing a few manoeuvres in succession. Once performed, turn on the 230 V~ power supply again.

5.2 Maintenance every 12 months or 20,000 cycles (PWR35H only)

- Lubrication of the reducer gears and motor worm screw:
  insert lubricant using a manual greaser, connecting it to the specific filler valve (model NIP DIN 71412A-M6) inside the manual release compartment [Fig. 5.1].
  Amount of grease to be inserted (5ml) = (8-10g).
- Lubrication of the drive screw and split nut / nut screw:
  remove the plastic front cover [see par. 4.7] and spread the lubricant on the upper visible part of the drive screw [Fig. 5.2].
  Approx. amount of grease to be used (5ml) = (8-10g).

Recommended grease: type **EP1**.

Fig. 5.1

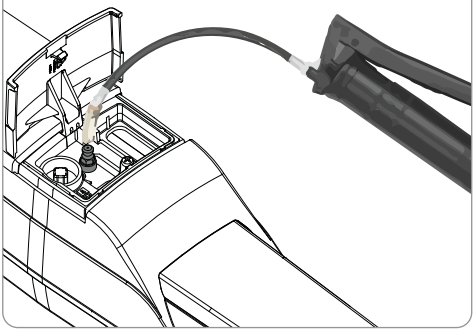


Fig. 5.2

6. Troubleshooting

Problem	Possible cause	Operation
The gate doesn't open or close.	No power supply.	Check that the mains power supply is present.
	Gearmotor released.	See release instructions.
	Photocells interrupted.	Check that the photocells are clean and operating correctly.
	Permanent stop command.	Check the stop command or control panel.
	Faulty selector.	Check the selector or control panel.
	Faulty remote control	Check the condition of the batteries.
	Electric lock not working	Check the positioning and proper operation of the lock.
The gate opens but doesn't close.	Photocells interrupted.	Check that the photocells are clean and operating correctly.

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