



Last version of this manual

IP1783EN•2023-04-18

# Ditec



## Ditec DOR

Technical Manual

# Folding doors operator

(translation of the original instructions)

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## Legend



This symbol indicates instructions or notes relating to safety which require special attention.



This symbol indicates useful information for the correct operation 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](http://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, emergency 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 3 mm 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 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 (Directive 2006/42/EC, Annex II-B)

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

declare, under our sole responsibility, that the type of equipment with the name:

Ditec DOR                      Automation for folding doors

complies 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 Amendment 2)

Harmonised European standards which 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 + A15:2021

Other standards or technical specifications which have been applied:

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

EN 12453:2017

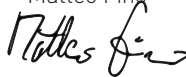
The manufacturing process guarantees that the equipment complies with the technical documentation.

Responsible for the technical documentation:

Matteo Fino  
BSP Ind channel & Gate Automation  
Ditec S.p.A.  
Largo U. Boccioni, 1  
21040 Origgio (VA)  
Italy

Signed on behalf of ASSA ABLOY Entrance Systems AB by:

Place	Date	Signature	Position
Origgio	2023-04-18	Matteo Fino	Head of Ind channel & Gate Automation



# UK Declaration of Conformity

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 DOR                      Automation for folding doors

complies with the following directives and their amendments:

Supply of Machinery (Safety) Regulations 2016  
Electromagnetic Compatibility Regulations 2016  
The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (RoHS)

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 + A15:2021

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

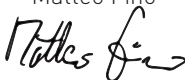
The manufacturing process ensures the compliance of the equipment with the technical file.

Responsible for technical file:


Matteo Fino  
BSP Ind channel & Gate Automation  
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	2023-04-18	Matteo Fino	Head of Ind channel & Gate Automation



# 1. Technical data

	DOR1BH	DOR1BHS
Power supply	24 V $\overline{=}$	
Absorption	12 A	
Torque	300 Nm	
Max. door weight	500 kg	
Max. door width	1,5 m + 1,5 m	
Revolution transmission shaft	2,5 RPM	
Service class	4 - INTENSIVE (tested up to 300.000 cycles)	
Intermittence	S2= 30 min (T= 25°C) S3= 50% (T= 25°C)	
Cycles / hour *	45 (T= 25°C)	
Continuous cycles **	43 (T= 25°C)	
Temperature (T)		
Degree of protection	IP44 IPX4 with limit switch	IP55 IPX5 with limit switch
Control panel	LCU40H - LCU40HJ	

**i** \* Indicative cycles consider a time per opening/closing maneuver of 20 sec and pause time of 20 sec. Full cycle time of 80 sec.

\*\* Indicative cycles consider a time per opening/closing maneuver of 20 sec and pause time of 1 sec. Full cycle time of 42 sec.

## 1.1 Operating instructions

**Use: INTENSIVE** (for single or double wing folding doors).

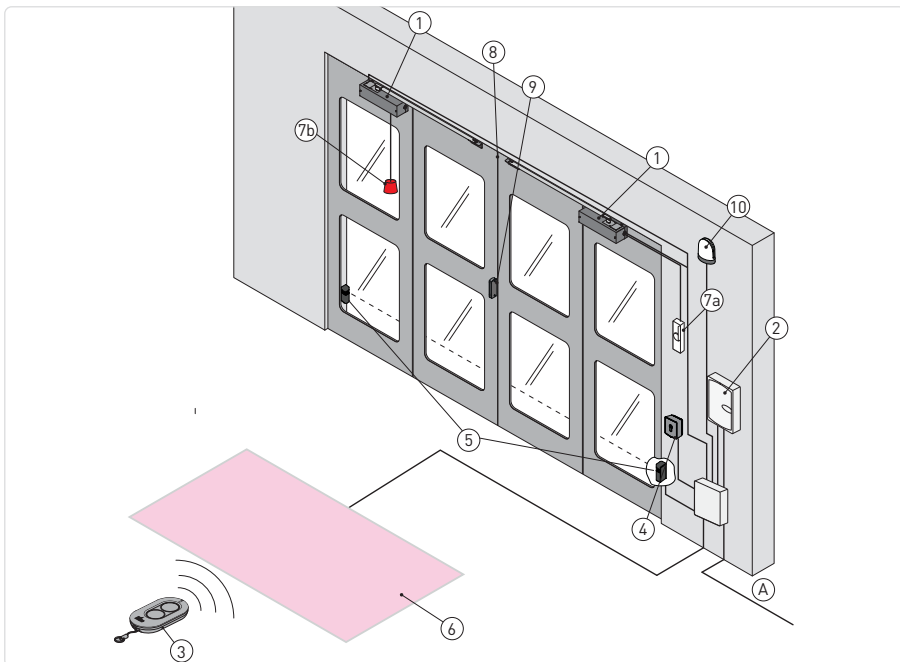
- Not suitable for gates or doors incorporating pedestrian auxiliary doors.
- Performance characteristics are to be understood as referring to the recommended weight (approx. 2/3 of maximum permissible weight) and at an ambient temperature of 25°C. When used with the maximum permissible weight a reduction in the above mentioned performance can be expected.
- Service class, running times, and the number of consecutive cycles are to be taken as merely indicative Having been statistically determined under average operating conditions, and are therefore not necessarily applicable to specific conditions of use.
- Each automatic entrance has variable elements such as: friction, balancing and environmental factors, all of which may substantially alter the performance characteristics of the automatic entrance or curtail its working life or parts thereof (including the automatic devices themselves). The installer should adopt suitable safety conditions for each particular installation.

## 1.2 Machinery Directive

Pursuant to Machinery Directive (2006/42/EC) the installer who motorizes a door or gate has the same obligations as the manufacturer of machinery and as such must:

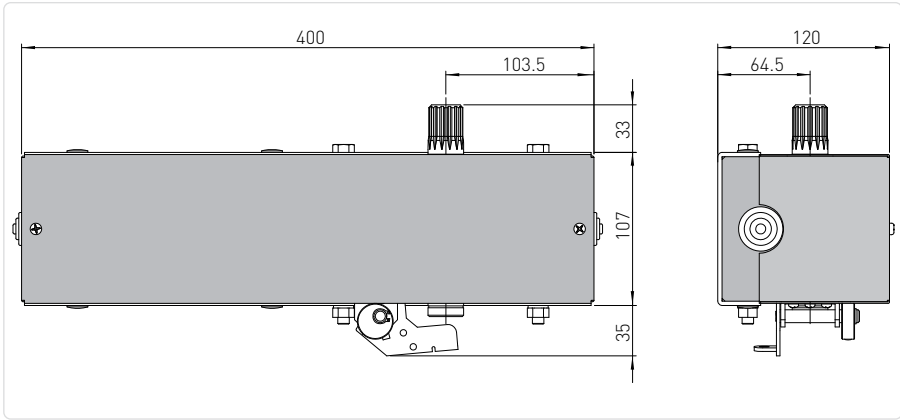
- prepare the technical file which must contain the documents indicated in Annex V of the Machinery Directive;  
(The technical file must be kept and placed at the disposal of competent national authorities for at least ten years from the date of manufacture of the motorized door);
- draw up the EC Declaration of Conformity in accordance with Annex II-A of the Machinery Directive and deliver it to the customer;
- affix the EC marking on the motorized door in accordance with point 1.7.3 of Annex I of the Machinery Directive.

## 2. Standard installation



Ref.	Code	Description	Cable
A		Connect the power supply to an approved omnipolar switch with an opening distance of the contacts of at least 3 mm (not supplied). The connection to the mains must be made via an independent channel, separated from the connections to command and safety devices.	
1	DOR1BH DOR1BHS	Gearmotor Gearmotor water and dustproof	2 x 1,5 mm <sup>2</sup>
2	LCU40H-HJ	Control panel	3G x 1.5 mm <sup>2</sup>
3	ZEN	Transmitter	/
4	AXK4	Digital combination wireless keypad	/
	AXK5M	Wall-mounted key-operated selector switch with European cylinder	4 x 0.5 mm <sup>2</sup>
	AXK5N	Semi-recessed key-operated selector switch with European cylinder	
	AXK5NM	Wall-mounted key-operated selector switch without cylinder	
	AXK5NI	Semi-recessed key-operated selector switch without cylinder	
	AXR7	RFID reader unit	5 x 0.5 mm <sup>2</sup>
5	LIN2 LIN2B AXP2 LAB4	Photocells	4 x 0.5 mm <sup>2</sup>
6	LAB9	Magnetic loop	2 x 1,5 mm <sup>2</sup>
7a	DEB04	Key release handle	/
7b		Release cord	
8	SOFAP20 SOF2M20-SOF3M20 SOFA15-SOFA20-SOFA25	Safety edge	2 x 0,5 mm <sup>2</sup> min
9	GOPAV	Radio system for safety edges	/
10	FLM	Flashing light	2 x 1 mm <sup>2</sup>
	FL24	Antenna (integrated in the flashing light)	coassiale RG-58 (50 Ω)

## 2.1 Dimensions





### 3. Installation

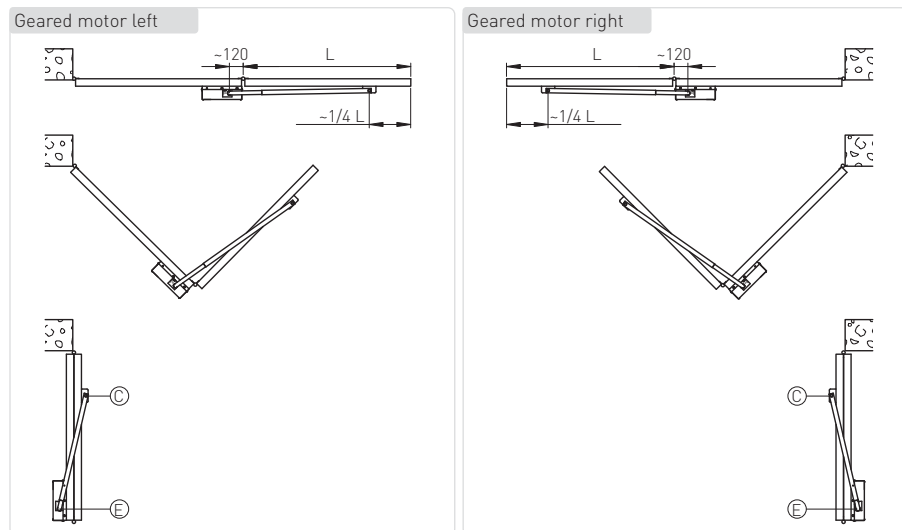
Unless otherwise specified, all measurements are expressed in millimetres (mm).

#### 3.1 Preliminary checks

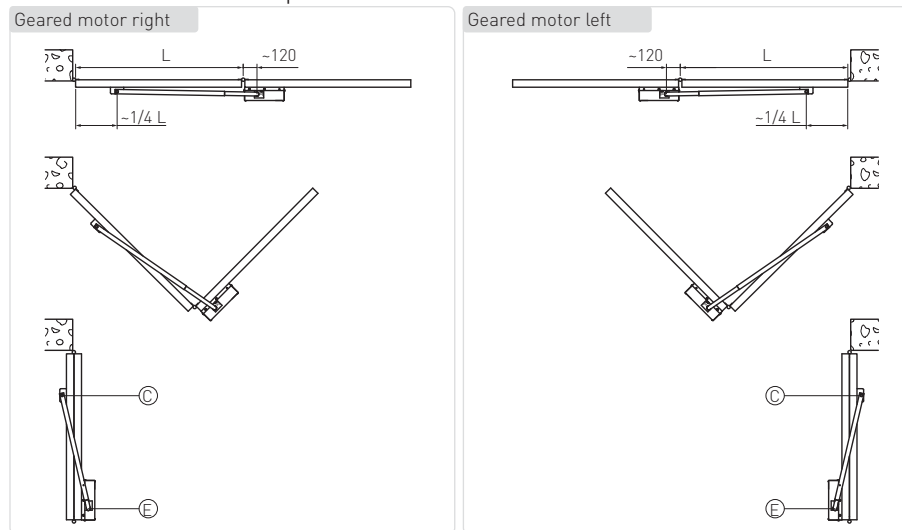
Check that the structure is sufficiently rugged and that the hinge pivots are properly lubricated. Provide an opening and closing stop.

Select installation mode.

##### 3.1.1 Geared motor concealed



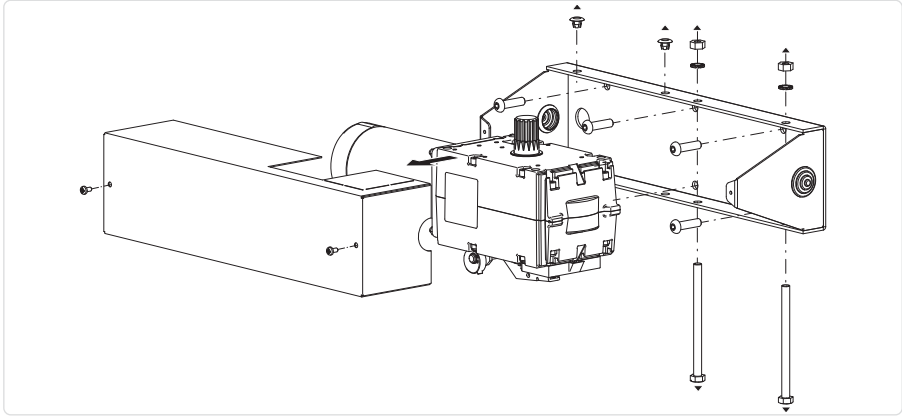
##### 3.1.2 Geared motor exposed



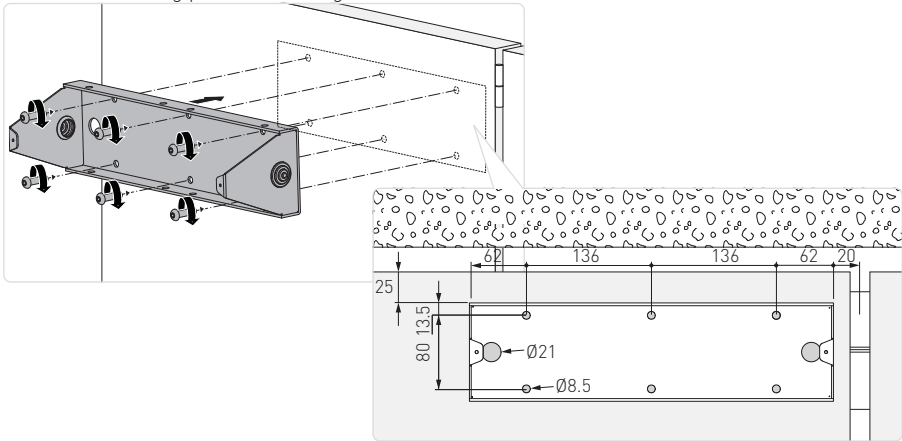
## 3.2 Geared motor installation

### 3.2.1 Example of installation of out-of-light geared motor left:

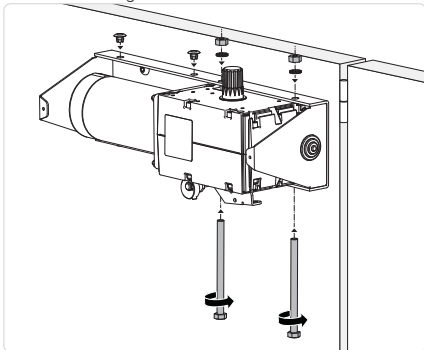
1. Disassemble the geared motor



2. Fix the mounting plate to the wing.



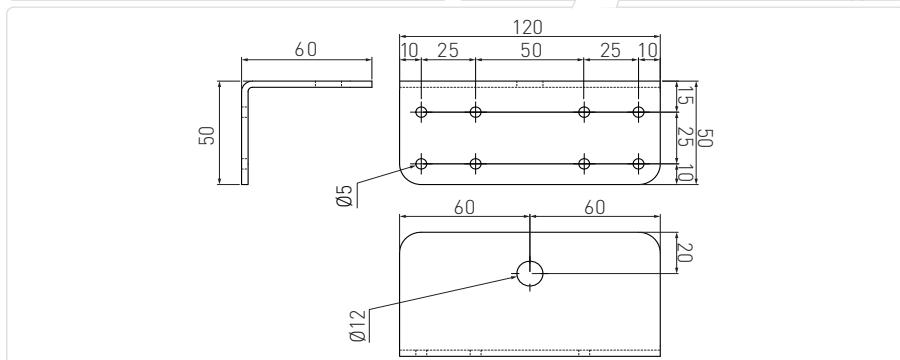
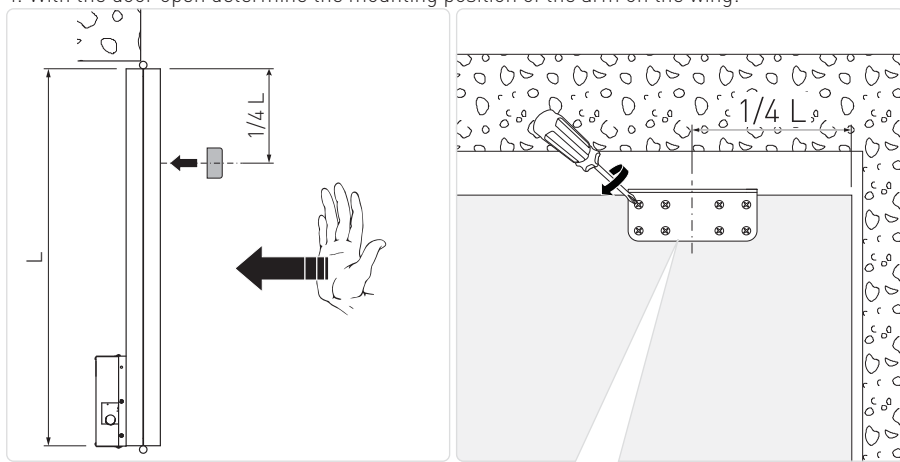
3. Install the geared motor on to the mounting plate.



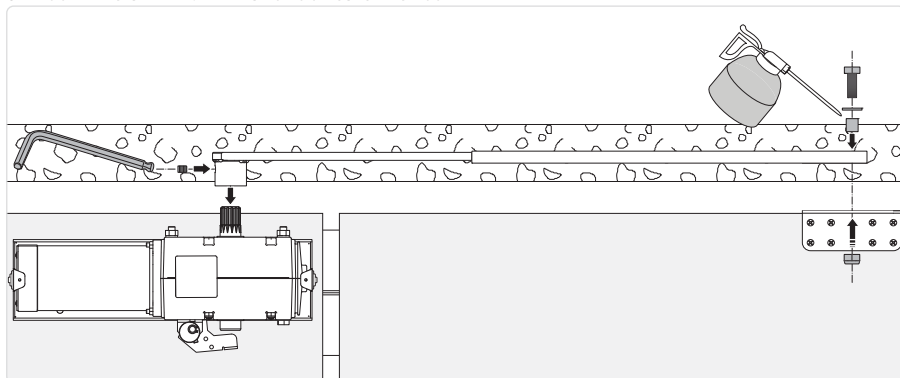
**ATTENTION:** the geared motor shaft must always be turned upwards, facing the hinge between the two wings.

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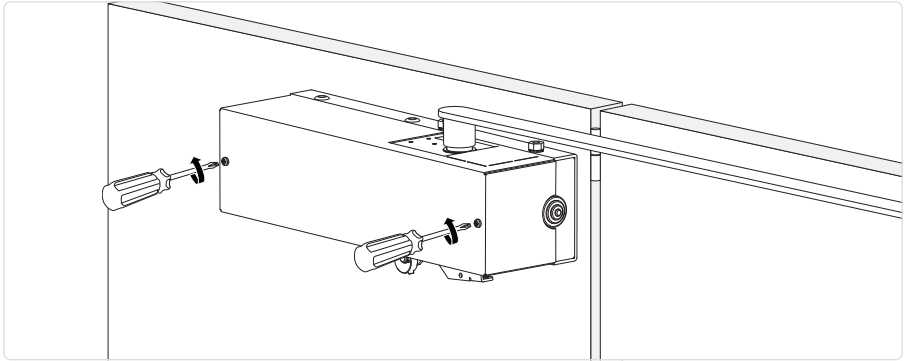
4. With the door open determine the mounting position of the arm on the wing:



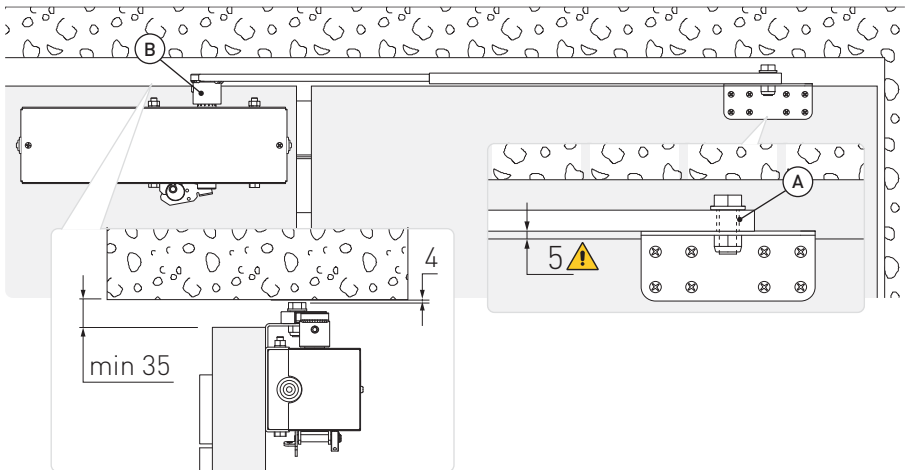
5. Mount the arm DORBD and lubricate the rod:



6. Fit the gearmotor cover



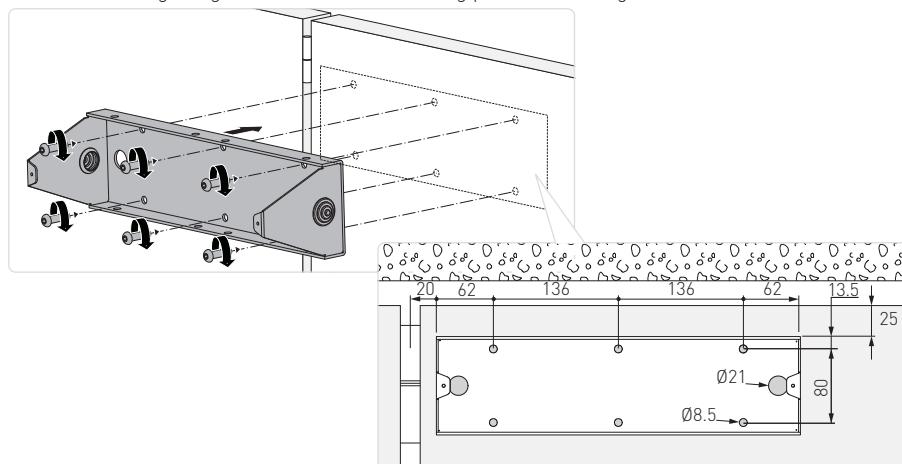
**ATTENTION:** in the open-door position, check that the arm does not interfere with the bushing of the bar [A], or that the tube does not interfere with the grooved bushing [B]. In case of interference, the arm and tube can be shortened, provided that they are suitably deburred and rounded.



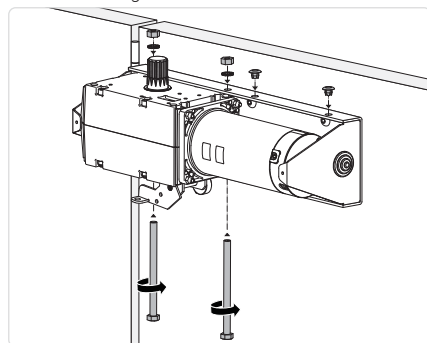
7. Release the geared motor by pulling the cord and securing it in the release position (fit the chapter 4).
8. Perform a manual maneuver to ensure that the movement is devoid of obstacles or friction and that the arm stays horizontal.
9. Re-lock the geared motor.

### 3.2.2 Example of installation of out-of-light geared motor right:

1. After removing the gearmotor, attach the fixing plate to the wing:

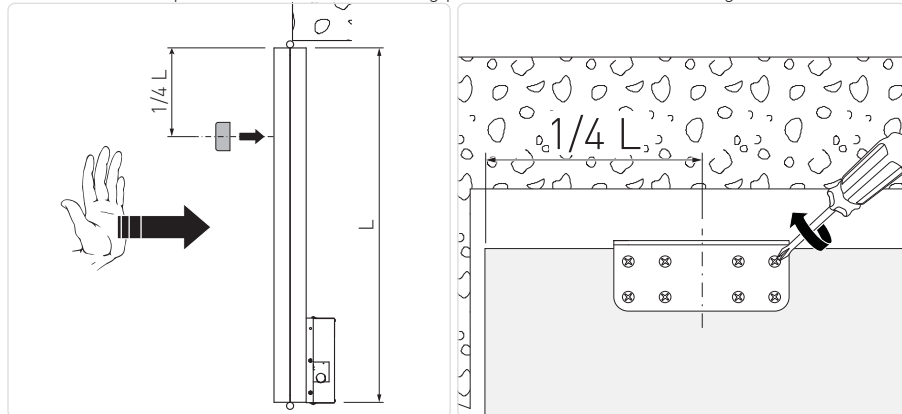


2. Install the geared motor on to the mounting plate.



**ATTENTION:** the geared motor shaft must always be turned upwards, facing the hinge between the two wings.

3. With the door open determine the mounting position of the arm on the wing:

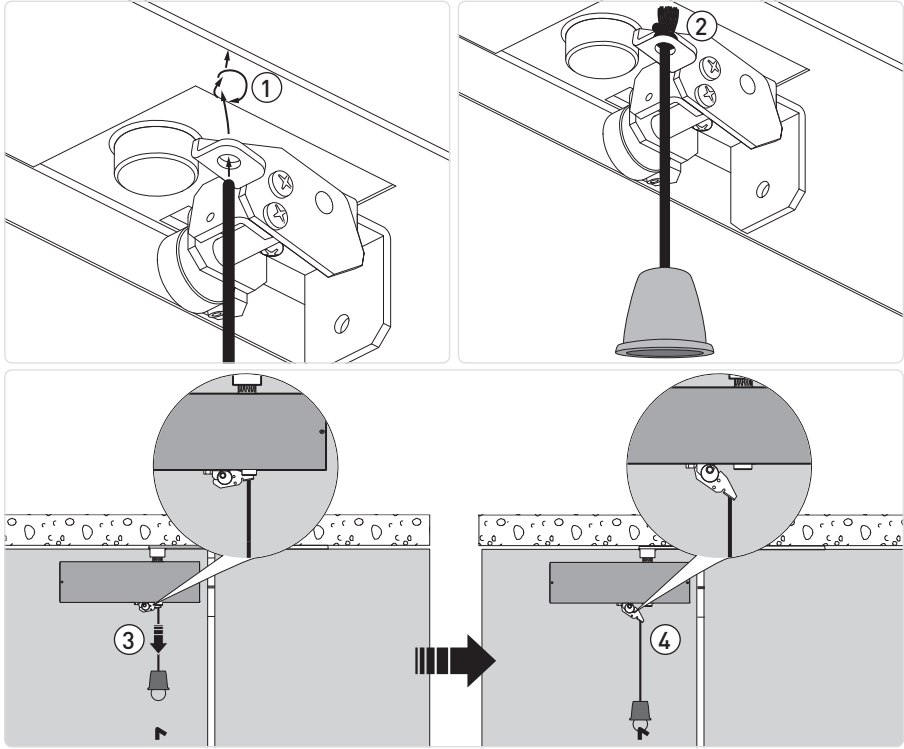


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**i** Repeat operations [5] and [6] in paragraph 3.2.1 .

## 4. Installing the release cord

The automation system is supplied with a release rope, which must be tied with a knot to the release lever [1 and 2], as shown below:



In case of faulty operation or power failure, pull the release cord downwards [3] and secure it by means of the appropriate ring [4]. To return to normal operation, release the ring and leave the cord free. The release pin will automatically return to the lock position.

## 6. Electrical connections



**NOTE:** the electrical wiring and the start-up of the gearmotors are shown in the control panel installation manuals.

Before connecting the power supply, make sure that the data on the plate correspond to the electricity distribution network data. Provide an omnipolar switch/disconnector on the power network with a contact opening distance of 3 mm or more. Check that there is a suitable residual-current device and surge protector upstream of the electrical system. Use an H05RN-F 3G1.5 electrical cable and connect it to terminals L (brown) and N (blue) inside the automation system. Connect the earth cable (⊕) (yellow/green) to the earth terminal.



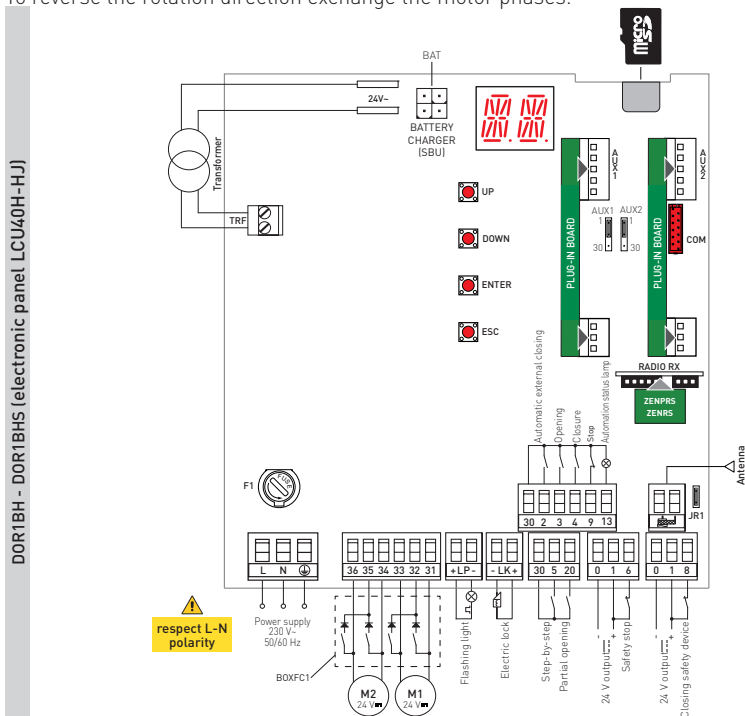
**ATTENTION:** always observe L-N polarity when connecting to the mains.

Secure the cable by means of the cable clamp and only unsheathe it at the terminal. Connections to the electrical distribution network and any other low-voltage conductors (230 V), in the section outside the automation system, must be made with corrugated pipes that are independent and separate from the path of connections to the control and safety devices (SELV = Safety Extra Low Voltage). Make sure there are no sharp edges that could damage the power cord.



Ensure that the mains connection cables, any other low-voltage cables (230 V), and safety extra-low voltage safety accessory connection cables in the portion located inside the product are kept well separated from the gear motor body.

To reverse the rotation direction exchange the motor phases.

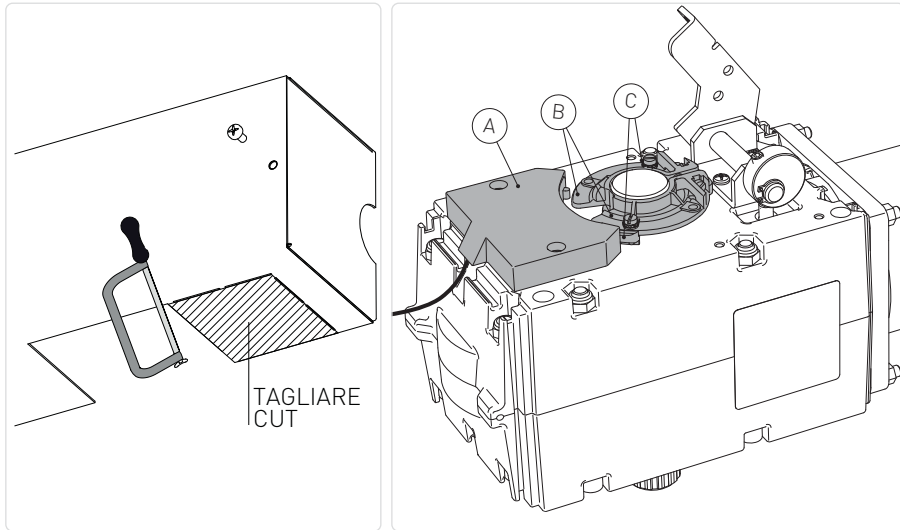


For complete control panel instructions see manual LCU40H-HJ - IP2246:



## 6. Installing the accessories

### 6.1 Rotary limit switch unit (BOXFC1)



Réf.	Description
A	Micro-interrupteurs
B	Brides
C	Cames

For the correct assembly of the limit switches, see the relative technical documentation BOXFC1 - IP1596:



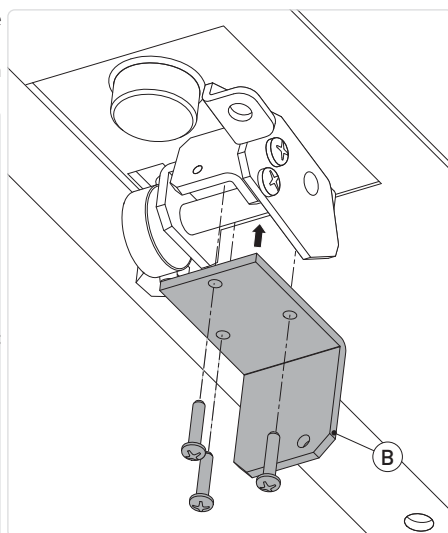
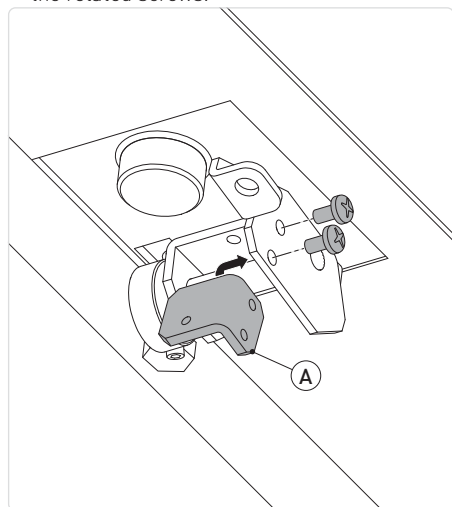
[https://www.ditecautomations.com/global/market-documents/QR/Multilanguages/ACCESSORIES/GA/Ditec\\_BOXFC1\\_technical-manual\\_IP1596.pdf](https://www.ditecautomations.com/global/market-documents/QR/Multilanguages/ACCESSORIES/GA/Ditec_BOXFC1_technical-manual_IP1596.pdf)



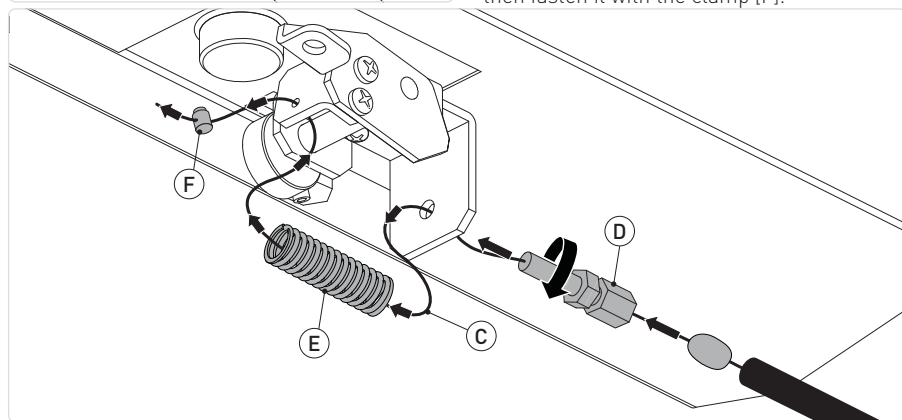
## 6.2 Installing the key-operated handle with DEB04 release cord

To correctly install the DEB04 release handle follow the procedure described below:

1. Assemble brackets [A] and [B] supplied, with the related screws.



2. Insert the release cord [C] through the adjuster [D], the spring [E] and the release bracket [A], then fasten it with the clamp [F].



For complete instructions see the relative technical manual. DEB - IP1500:



## 7. Routine maintenance plan

Carry out the following operations and checks every 6 months or 36,000 cycles, or according to the intensity of use of the automation.

Disconnect the 230 V~ power supply and batteries (if present):

- Lubricate the gearmotor levers.
- Lubricate the wing rotation pin.
- Lubricate the gate hinges.
- Check the electrical wiring is in good condition.
- Check that the gearmotor fastening screws are tight.

Reconnect the 230 V~ power supply and batteries (if present):

- Check the power adjustment.
- Check that all commands and safety functions are operating correctly (photocells).
- Check the release system is working correctly.
- If batteries are fitted, check they are working properly (in continuity) by disconnecting the power supply and performing a series of consecutive operations. At the end, reconnect the 230 V~ power supply.




**NOTE:** for spare parts, please see the spare parts list.

## 8. Troubleshooting

Problem	Possible cause	Operation
The door doesn't open or close.	No power supply.	Make sure the mains supply is active.
	Gearmotor released.	See the release instructions.
	Photocells occupied.	Check the photocells are clean and operating correctly.
	Permanent STOP command.	Check the STOP command or the control panel.
	Faulty selector.	Check the selector or control panel.
	Faulty remote control	Check the condition of the batteries.
The door opens, but it doesn't close.	Electric lock not working	Check the lock is positioned and working correctly.
	Photocells occupied.	Check the photocells are clean and operating correctly.

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