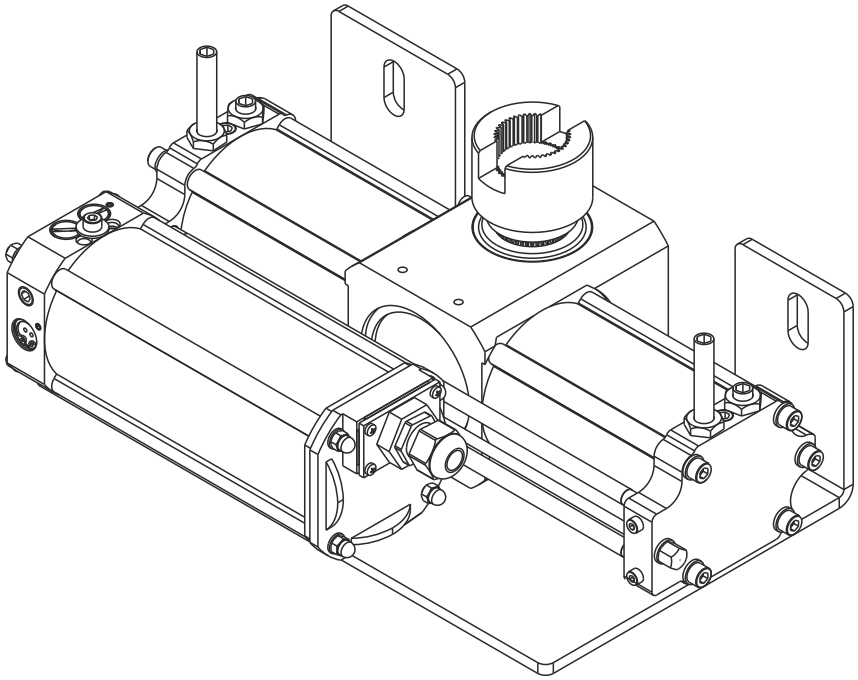


:FLOOR

CE

FLOOR 850 - (81500)
FLOOR 854 - (81524)
FLOOR 880 - (81800)
FLOOR 884 - (81824)

Underground hydraulic operator
INSTRUCTIONS FOR INSTALLATION

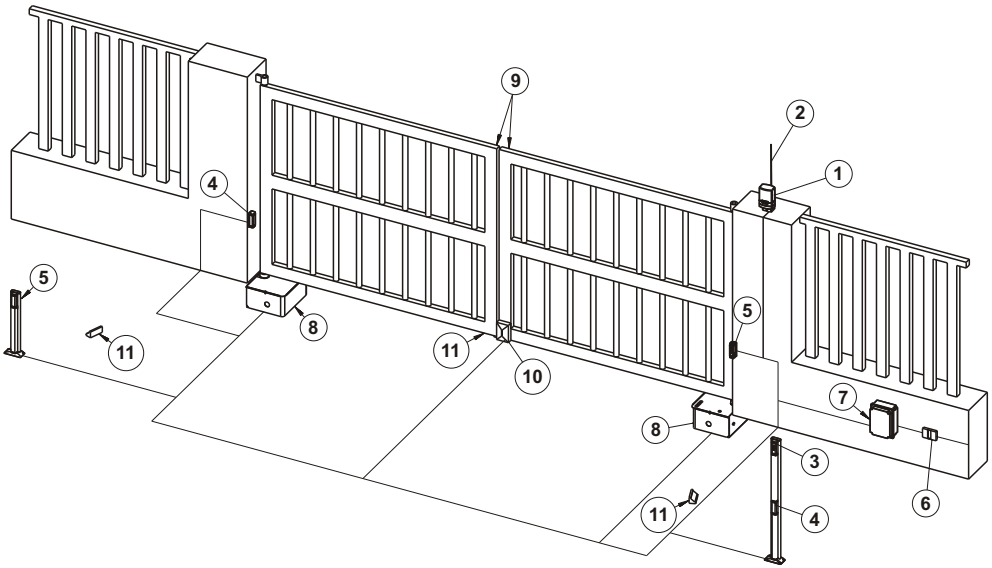
UK

UK

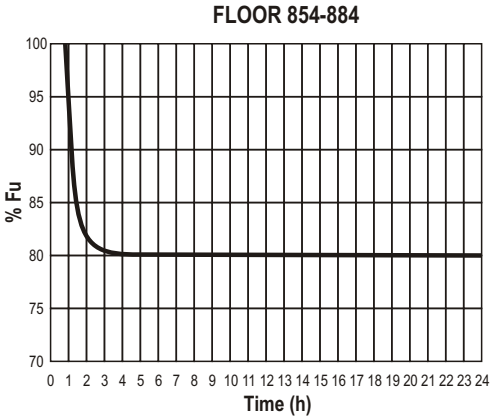
- This product has been tested in Gi.Bi.Di. verifying the perfect correspondence of the characteristics to the current directive.
- Gi.Bi.Di. S.r.l. reserves the right to modify the technical data without prior notice depending on the product development.

⚠ **PLEASE READ CAREFULLY THIS MANUAL BEFORE PROCEEDING WITH THE INSTALLATION.**

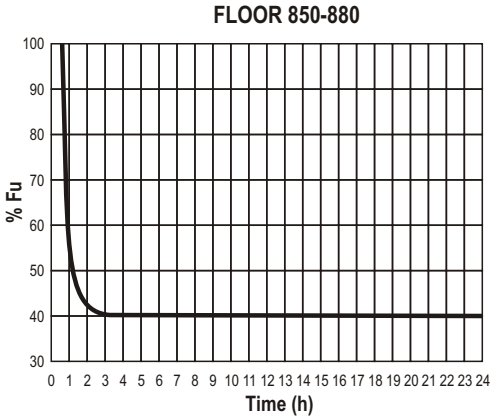
1


9
2
1
4
5
8
11
11
10
5
7
8
3
6
11
4

2a


FLOOR 854-884
100
95
90
85
80
75
70
% Fu
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Time (h)

2b

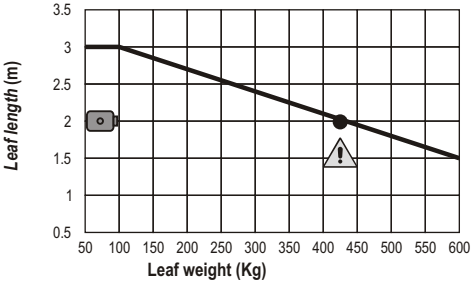

FLOOR 850-880
100
90
80
70
60
50
40
30
% Fu
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Time (h)

2c

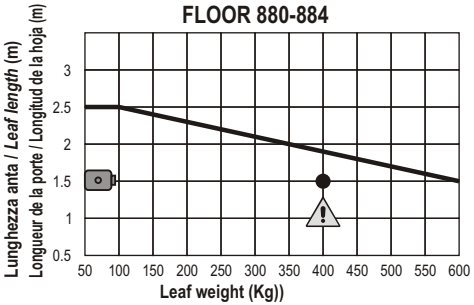
= Electric lock

= BAC Limit

FLOOR 850-854



FLOOR 880-884



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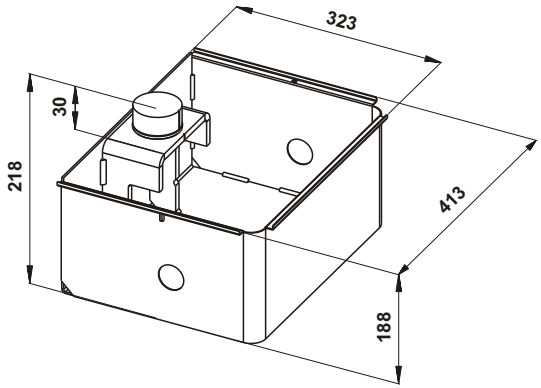

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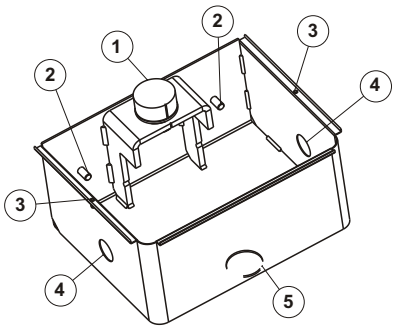

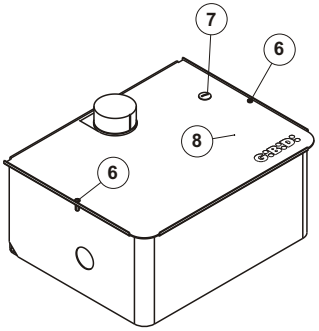

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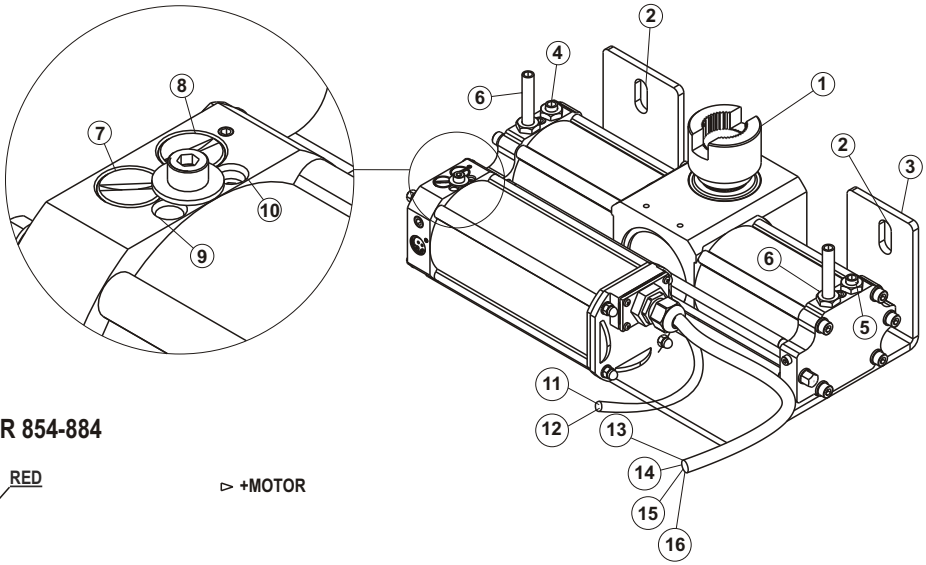
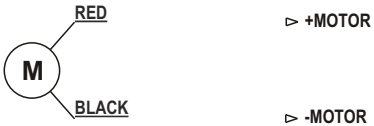
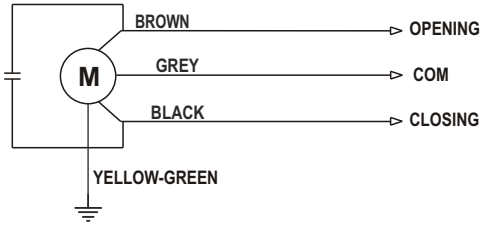


FLOOR 854-884



FLOOR 850-880



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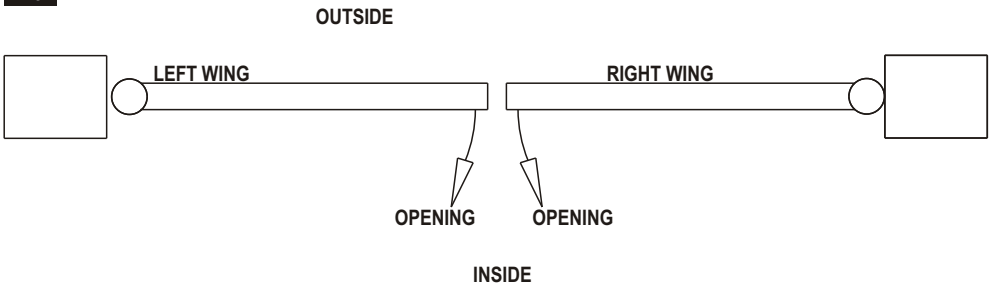

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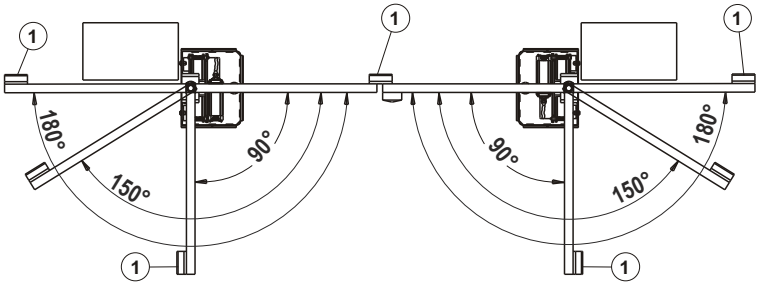
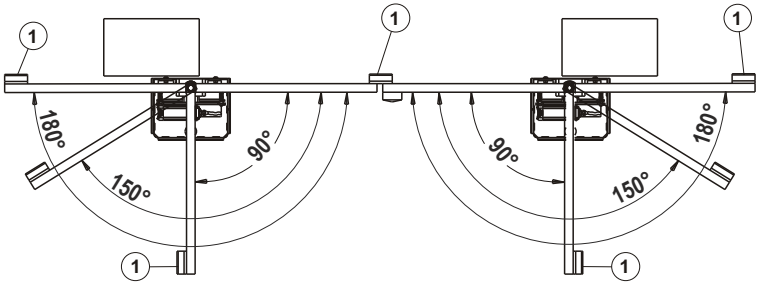

1
1
1
180°
150°
90°
90°
150°
180°
1
1

7c


1
1
1
180°
150°
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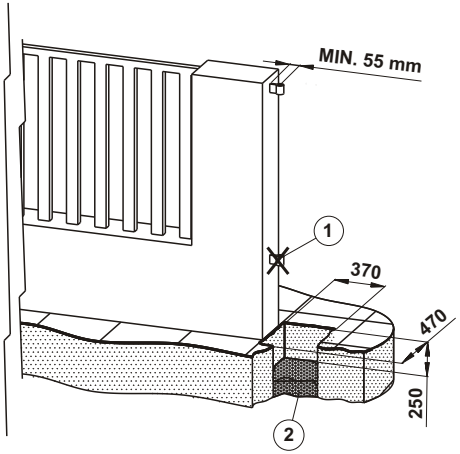
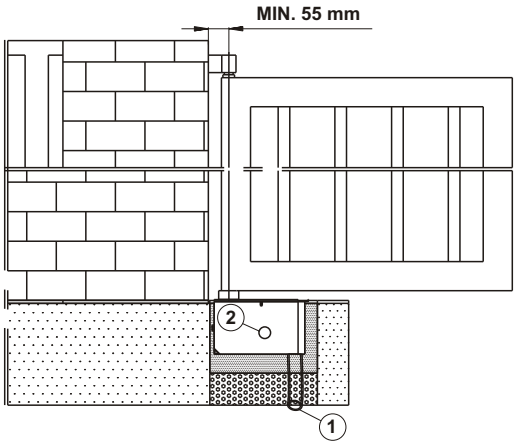
1
1

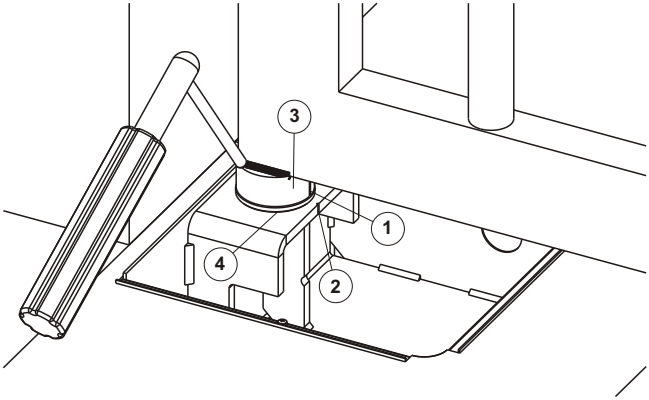
8a


MIN. 55 mm
1
370
470
250
2

8b


MIN. 55 mm
2
1

9a



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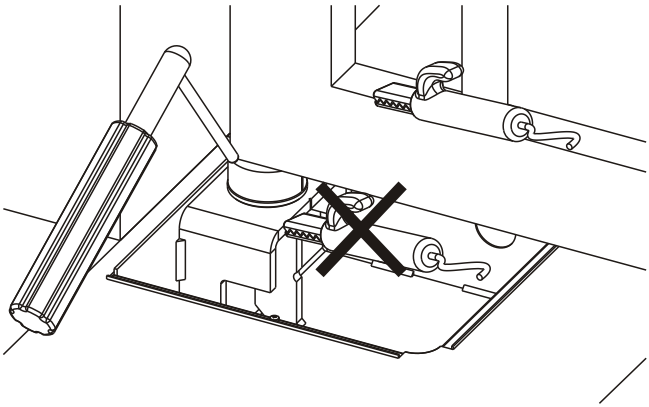

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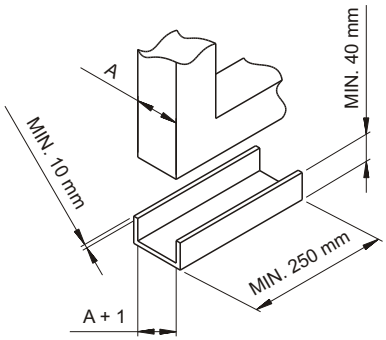

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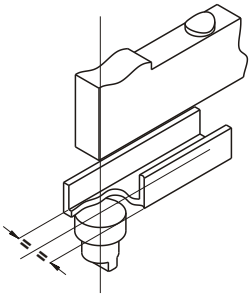

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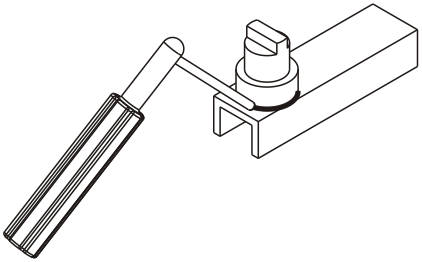

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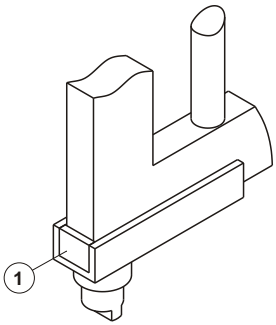

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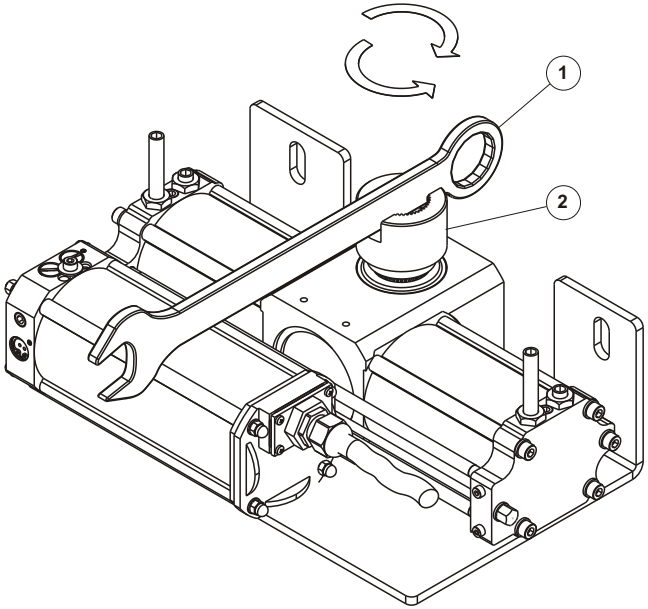

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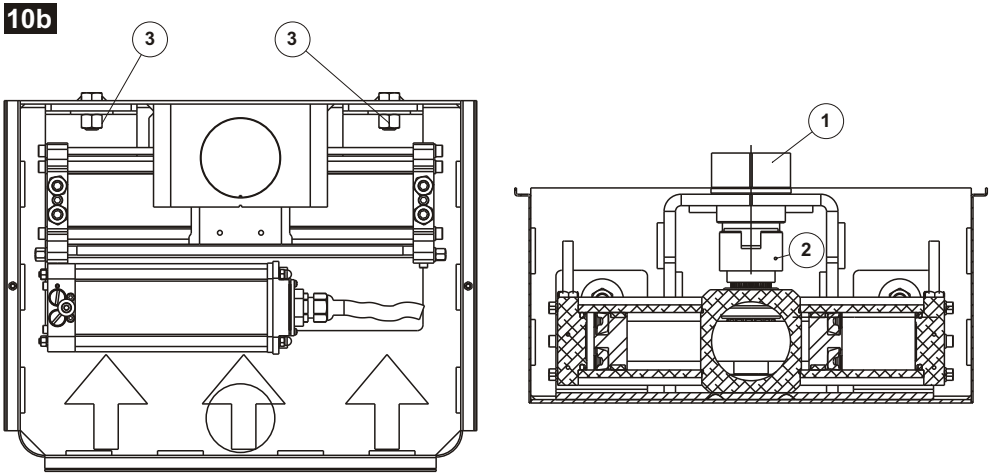

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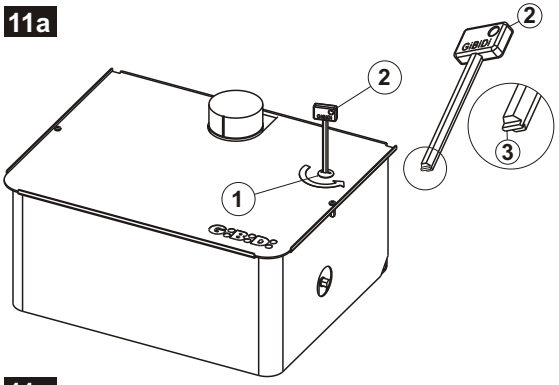

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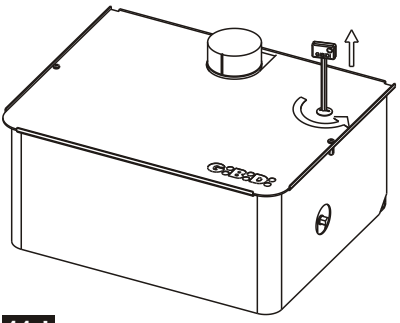

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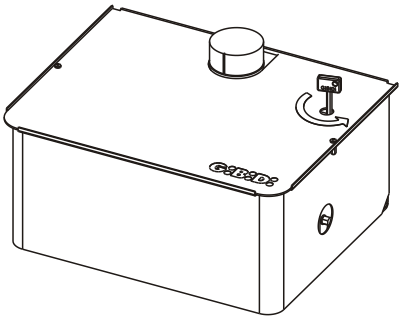

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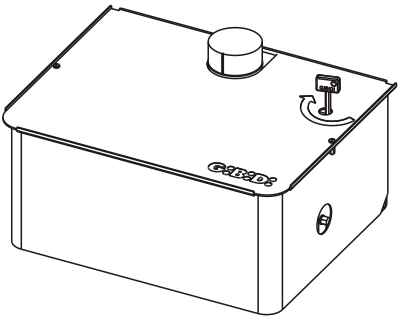

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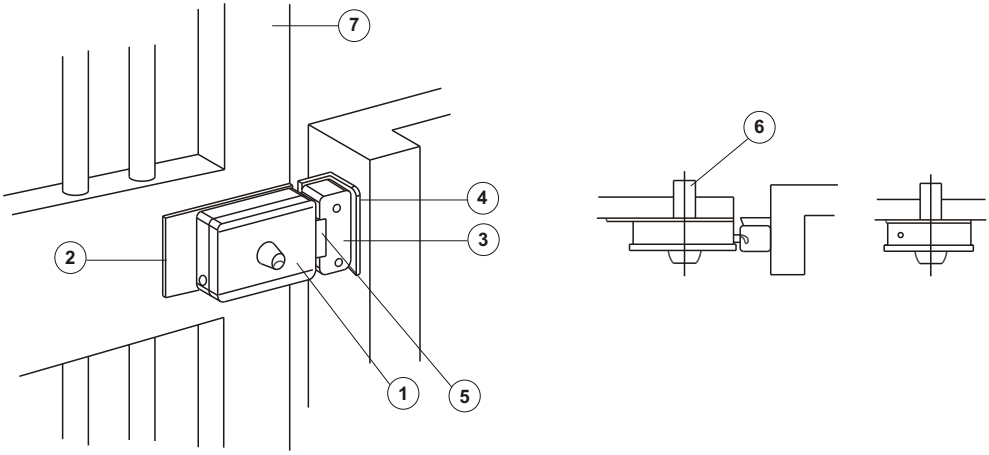

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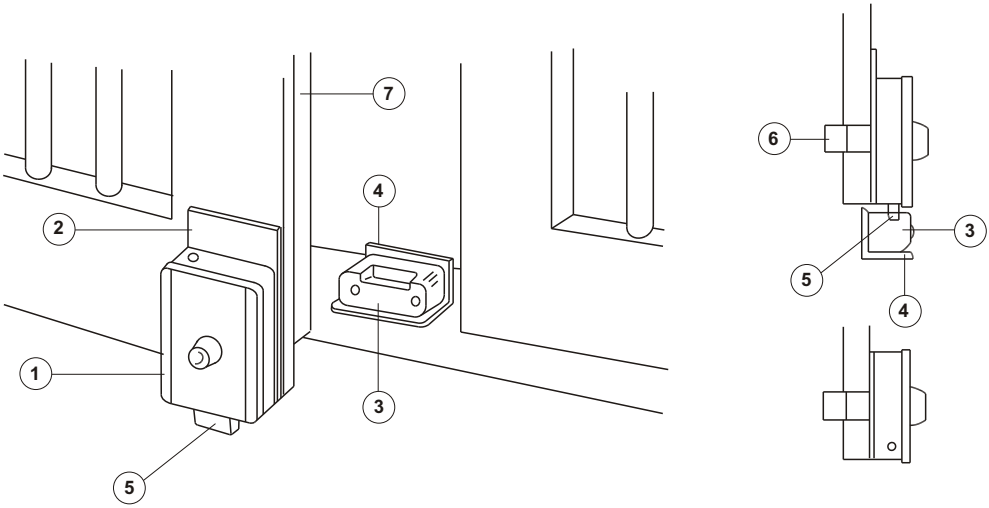

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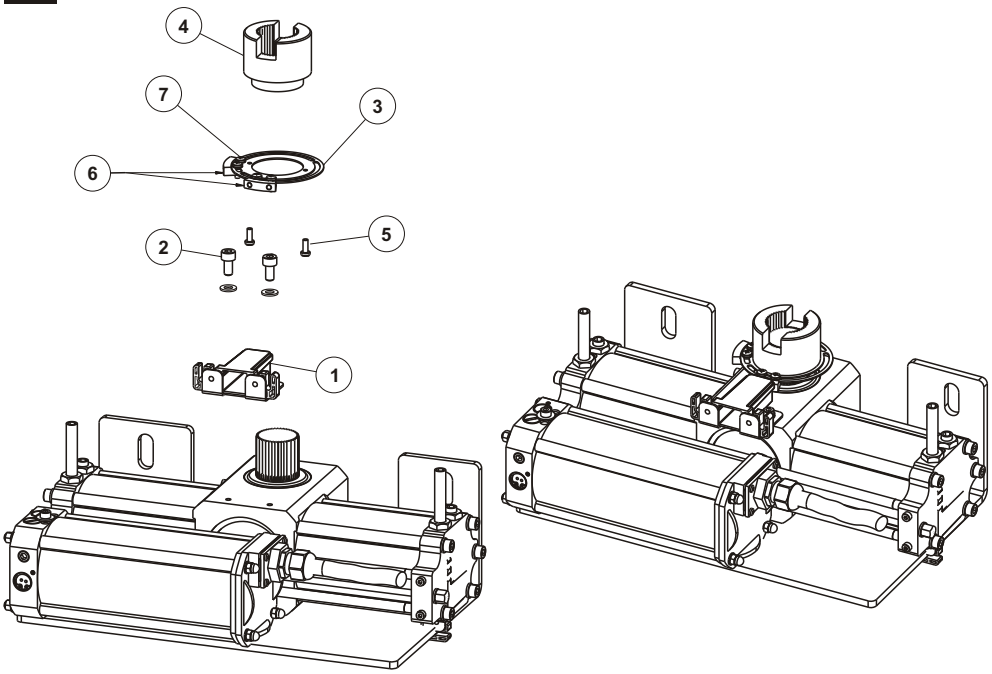

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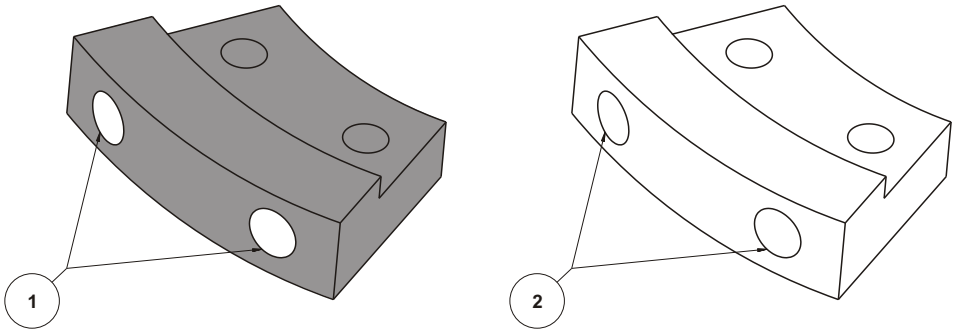
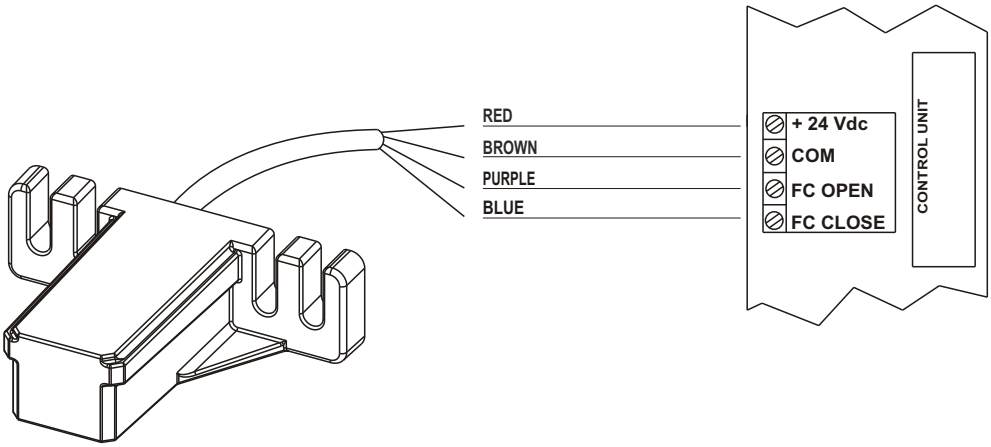


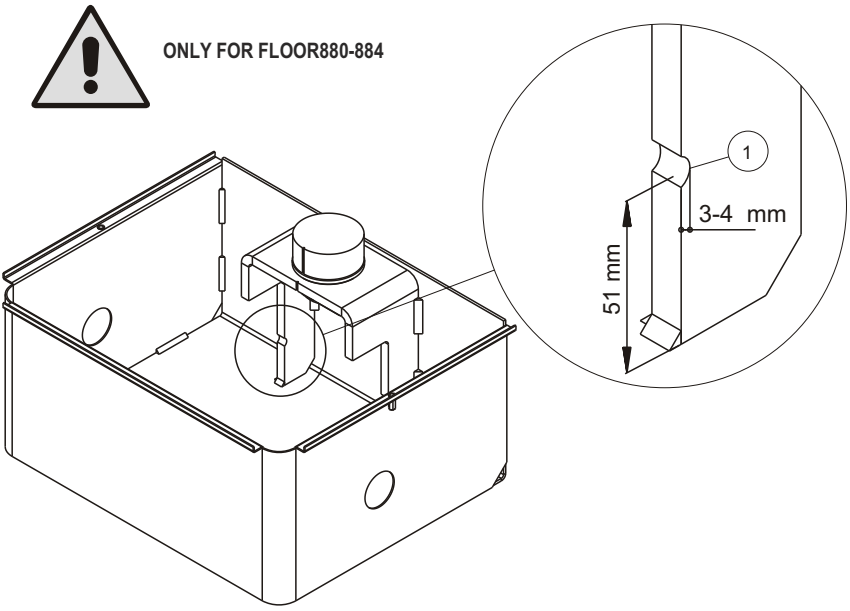
CLOSING

OPENING

16c


RED
BROWN
PURPLE
BLUE
+ 24 Vdc
COM
FC OPEN
FC CLOSE
CONTROL UNIT

18


ONLY FOR FLOOR880-884
1
3-4 mm
51 mm

UK

INTRODUCTION

FLOOR allows practically invisible automation of swing gates.

The automated device consists of an hydraulic underground operator, which transfers the movement to the leaf, and of an hydraulic control unit integrated within the operator.

FLOOR 850-854-880-884 are fully interchangeable with older FLOOR models; please refer to paragraph 18 for more informations.

INSTALLATION WARNINGS

- Before proceeding with installation, fit a magnetothermal/differential switch with a maximum capacity of 10A upstream of the system. The switch must guarantee omnipolar separation of the contacts with an opening distance of at least 3mm.
- Keep all the materials contained in the packaging away from children since they pose a potential risk.
- The manufacturer declines all responsibility for improper functioning of the automated device if the original components and accessories suitable for the specific application are not used.
- After installation, always carefully check proper functioning of the system and the devices used.
- This instruction manual addresses professionals qualified to install “powered equipment” and therefore requires good technical knowledge and installation in compliance with the regulations in force.
- Maintenance must be carried out by qualified personnel.
- Before carrying out any cleaning or maintenance operation, disconnect the control unit from the main line.
- This product has been designed and constructed exclusively for the use indicated in this documentation. Any other use may cause damage to the product and be a source of danger.
- Verify the end purpose of the product and take all the necessary safety precautions.
- Use of the products for purposes different from the intended use has not been tested by the manufacturer and is therefore on full responsibility of the installer.
- Mark the automated device with visible warning plates.
- Warn the user that children or animals should not play or stand near the gate.
- Appropriately protect the dangerous points (for example, using a sensitive edge).
- Check proper installation of the earthing system: connect all the metal parts of doors, gates, etc. and all the system components to an earth terminal.
- Exclusively use original spare parts for any maintenance or repair operations.
- Do not modify any components of the automated device unless expressly authorised by Gi.Bi.Di.
- Use suitable cable clamps to ensure that the wiring is properly connected mechanically and such that an IP 67 protection degree is maintained.

UK

WARNINGS FOR THE USER

In the event of an operating fault or failure, cut the power upstream of the control unit and call Technical Service.

Periodically check good functioning of the safety devices.

Any repairs must be carried out by specialised personnel using original and certified materials.

The product may not be used by children or persons with reduced physical, sensorial or mental capacities or without experience and knowledge.

Do not access the board for adjustments and/or maintenance.

WARNING: IMPORTANT SAFETY INSTRUCTIONS
It is important to follow these instructions to safeguard persons.
Keep this instruction booklet.

1 - ELECTRICAL LAYOUT

Set up the electric system as shown in Fig. **[1]** referring to the electric system regulations and other national regulations in force. Keep the mains power connections clearly separated from the service connections (photocells, sensitive edge, control devices, etc.).

The main components of the automated device are:

① Flashing light: 0.75 mm² 2-core (2x0.75) cable.

② Antenna: screened coaxial cable.

③ Key selector: 0.5 mm² 3-core (3x0.5) cable.

④ Photocell receiver: 0.5 mm² 4-core (4x0.5) cable.

⑤ Photocell transmitter: 0.5 mm² 2-core (2x0.5) cable.

⑥ Omnipolar magnetothermal/differential switch with minimum contact opening of 3 mm.
220-230VAC/50-60 Hz power line to the device: 1.5 mm² 3-core cable (3x1.5) (adhere to the regulations in force).

⑦ Case for electronic control unit: 3x1.5 mm² cable.

⑧ **230Vac operator**:
Power: 1.5 mm² 4-core (4x1.5) cable:
Grey = common motor; Brown = opening; Black = closing; Yellow/green = earth

24Vdc operator:
Power: 2.5 mm² 2-core (2x2.5) cable, for a maximum cable length of 6 m, beyond which the cable cross-section needs to be increased:
Red = positive; Black = negative

Optional Limit Switch:
0.5 mm² 4-core (4x0.5) cable.

⑨ 8K2 sensitive edge: 0.5 mm² 2-core (2x0.5) cable.

⑩ Electronic lock; 1.5 mm² 2-core (2x1.5) cable.

⑪ Mechanical stop in opening and closing

UK

Use appropriate cable ducts.

It is good practice to separate the power cables from the accessory connection cables and it is therefore advisable to use at least two tubes to run the cables through.

WARNING:
It is important to fit an omnipolar magnetothermal/differential switch with a minimum contact opening of 3 mm on the power line upstream of the control unit.

2 - TECHNICAL DATA

OPERATOR	FLOOR 854	FLOOR 850	FLOOR 884	FLOOR 880
Operating frequency (%Fu) at 20°C	80% **[2a]**	40% **[2b]**	80% **[2a]**	40% **[2b]**
Electric motor	24Vdc 1500rpm	230Vac 1450rpm	24Vdc 1500rpm	230Vac 1450rpm
Power absorbed	max 120 W	max 190 W	max 120 W	max 190 W
Motor capacitor	–	10 µF	–	10 µF
Protection degree	IP 67			
Maximum torque	320 Nm		300 Nm	
Nominal torque	220 Nm			
Torque adjustment	hydraulic			
Speed adjustment	yes			
Leaf rotation speed	6°/s		7°/s	
Leaf rotation angle	150°		180°	
Hydraulic oil	GBD PH-03			
Operating temperature	-20°C +60°C			
Thermal protection	–	100°C	–	100°C
Limit switch	optional			
Leaf maximum lenght	3 m **[2c]**		2,5 m **[2c]**	
Leaf maximum weight	600 Kg **[2c]**			
Opening time to 90°	15 s		13 s	
Hydraulic lock granted for maximum lenght leaf	2,0 m		1,5 m	
Minimum between pillar and axis of rotation	55 mm			
Operator weight	17 Kg (as sold)		16 Kg (as sold)	
Formula to calculate the operating frequency	$\%Fu = \frac{A + C}{A + C + P} \times 100$		A = Opening time C = Closing time P = Overall pause time A+C+P = Time between two openings	

UK

Maximum operating curve

The operating time based on the desired operating frequency can be derived from the graphs in Fig. **[2a]** and **[2b]**.

Application diagram

The maximum leaf lenght related to the weight can be derived from the graph in Figure **[2c]**.

3 - DIMENSIONS

Refer to figure **[3]**.

4 - FOUNDATION BOX DESCRIPTION

Refer to figure **[4]**.

① Self-supporting pin Ø70 mm.

② Stud for fixing operator.

③ Cover fixation holes.

④ Holes Ø40 mm for motor and limit switches wires.

⑤ Hole Ø60 mm for water draining.

⑥ Cover fixation screws.

⑦ Protective cap for manual unlocking.

⑧ Foundation box cover.

5 - FLOOR OPERATOR DESCRIPTION

Refer to figure **[5]**.

① Adjustable splined sleeve for motion transmission.

② Operator fixing slot.

③ Operator support plate.

④ ⑤ Speed adjustment cursors.

⑥ Unlocking cursors.

⑦ ⑧ Torque adjustment valves.

⑨ ⑩ Cursors for reversibility selection.

UK

6 - PRELIMINARY WARNINGS

- Check that the gate structure is adapted for installing the operator.
- Check for the fixed and mobile parts of the gate to be structurally intact and appropriate or whether require reinforcement work.
- Check that the parts subject to friction, especially the top hinge, does not require any setup.
- In the working area there must be no obstacles of any kind.
- The foundation box must be laid in an area free from cables and pipes and such as to ensure a proper seal.
- Check the existence of an efficient earth.
- The installation should be done far away from any road, so as not to pose a threat to circulation.
- It is useful to signal the automatic entrance with warning plates of easy visibility (inside and outside) and, if necessary, that warn pedestrians they are not allowed to pass through.
- If the installation presents some un-safety details, stop the work and contact your dealer.
- Check that the gate structure is strong enough. In any case the operator must push the gate at a reinforced point.
- Check that the leaves can be moved manually without effort throughout the stroke.
- Check that the mechanical stop, both in opening and closing are correctly installed.
- If the automatic system is not a completely new installation, check the wear of all components and repair or replace defective or worn parts.
- Reliability and safety are directly affected by the condition of the gate structure.

7 - DEFINITION OF LEFT-RIGHT WING AND MIDDLE INSTALLATION

The operator can be left or right and by convention is looking from the inside (opening direction) **[7a]**.

The installation of the foundation box can be done on the center line of the passage (classic installation) **[7b]** or in the passageway **[7c]**.

It is necessary to provide the mechanical stop ① **[7b] [7c]**.

UK

8 - FOUNDATION BOX LAYING

1 - Make a hole in the ground underneath the pillar **[8a]** and create a base of pebble gravel to avoid backwater ② **[8a]**.

2 - The existing bottom hinge is no more useful and must be removed ① **[8a]**.

3 - By means of spacers put the foundation box inside the hole, using the spirit level to ensure the correct installation and paying attention that the pin on the box is aligned with the top hinge of the gate **[8b]**.

4 - Make sure you have properly prepared the cable duct ② **[8b]** and the Ø60 mm drain pipe ① **[8b]**.

5 - Remove the box from the excavation and run the first concrete layer to create the basement.

6 - Make sure you have blocked all the holes on the foundation box or the concrete will enter within the box itself.

7 - Put the box on the site, make sure the box is still wide and level.

8 - Run the second concrete layer to fill in the spaces between the box and the digging.

9 - Wait for the concrete to set.

9 - LEAF INSTALLATION

The FLOOR operator must not be present within the foundation box until the leaf installation is completed, especially until all welds have been done.

The installation of the gate can be done in 2 different ways:

MODE 1

- Remove the self-supporting pin ③ **[9a]** from the foundation box, lubricate with grease and insert again.
- Phase the notch ① **[9a]** of the self-supporting pin ③ **[9a]** with the notch ② **[9a]** on the foundation box.
- Place the gate directly on the self-supporting pin ③ **[9a]**.
- Place the gate in closed position making sure that the notches on pin ① **[9a]** and box ② **[9a]** are still aligned.
- Make sure the leaf is level and that the top hinge is aligned with the pin.
- Weld the leaf on the pin, avoiding to use the box as ground for welding, because the welding current would pass through the bushing causing damage to the bushing itself **[9b]**.

MODE 2

- Take a U profile (not included) of right size **[9c]**.
- Remove the self-supporting pin ③ **[9a]** from the foundation box.
- On the U profile find the correct position for the fixation of the pin **[9d]**.

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- Weld the pin on the U profile by ensuring the milled end is perpendicular to the U section **[9e]**.
- Lubricate with grease the self supporting pinion.
- Put within the box the pin with the U profile welded.
- Place the leaf on the U profile.
- Make sure the leaf is level.
- On the U profile weld a plate of right size ① **[9f]** to block the leaf.

10 - OPERATOR INSTALLATION

*If you need to change the operator and the foundation box has been laid before the year 2011, please refer to paragraph **18**.*

- Move the leaf toward opening for about 90º.
- Unlock the operator (see chapter **11** "Manual Unlocking Operation").
- Insert a spanner or other tool ① **[10a]** into the splined sleeve milling ② **[10a]**.
- Turn round the splined sleeve ② **[10a]** towards closing until it reaches the maximum stroke available.
- Turn round the splined sleeve ② **[10a]** towards opening for about 100º.
- Remove the splined sleeve ② **[10a]** and then insert again with the milling aligned as in ② **[10b]**.
- Insert the operator within the foundation box **[10b]**.
- The millings on the self-supporting pin and on the splined sleeve should be aligned **[10b]** so as to allow the installation of the operator; if the operator does not fit you should move the leaf, turning round a little bit, until it reaches the correct alignment.
- Fix the operator with nuts ③ **[10b]**.

11 - MANUAL UNLOCKING OPERATION

- Unscrew the cap ① **[11a]** on the cover of the foundation box by means of the included unlocking key ② **[11a]**.
- Once removed the cap **[11b]** you can access the unlocking cursor ⑥ **[5]**.
- Insert the hexagon wrench into the hexagon seat of the cursor ⑥ **[5]**.
- Turn anti-clockwise the key for about half rotation without effort **[11c]**.
- To restore automatically functioning turn clockwise the key until the cursor ⑥ **[5]** reaches its own stop **[11d]**.

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12 - TORQUE ADJUSTMENT

To increase motor torque turn clockwise the valves ⑦ and ⑧ **[5]**; to decrease motor torque turn anti-clockwise the valves.

In detail with operator installed on LEFT leaf:

- The valve ⑦ **[5]** adjusts CLOSING torque.
- The valve ⑧ **[5]** adjusts OPENING torque.

In detail with operator installed on RIGHT leaf:

- The valve ⑦ **[5]** adjusts OPENING torque.
- The valve ⑧ **[5]** adjusts CLOSING torque.

WARNING:
During torque adjustment be aware to turn the valves smoothly and gradually without screwing or unscrewing completely. Please note that all operators are provided with the force already set in its best way during internal testing.
The operator is equipped with pressure control labels, both for right and left version, to be applied on the hydraulic control unit.

13 - SPEED ADJUSTMENT

By using the key for manual unlocking operation ① **[11]**, act on the cursors ④ and ⑤ **[5]**: turning clockwise the rotation speed of the gate decreases, turning anti-clockwise it increases.

In detail with operator installed on LEFT leaf:

- The valve ④ **[5]** adjusts speed during OPENING.
- The valve ⑤ **[5]** adjusts speed during CLOSING.

In detail with operator installed on RIGHT leaf:

- The valve ④ **[5]** adjusts speed during CLOSING.
- The valve ⑤ **[5]** adjusts speed during OPENING.

WARNING:
The speeds obtained using the valves ④ and ⑤ **[5]** are influenced by ambient temperature.
Very low speed settings together with cold temperature may cause the gate not to open or close.

14 - CONVERSION FROM IRREVERSIBILE TO REVERSIBLE OPERATOR

The FLOOR operator is manufactured and provided as IRREVERSIBLE. If you need you can transform it into reversible mode in opening or in closing or both opening and closing.

The reversibility is controlled by the cursors ⑨ and ⑩ **[5]**; turning clockwise until they are blocked the operator is irreversible; turning anti-clockwise until the top of the cursor is at level with aluminium head the operator becomes reversible.

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In detail with operator installed on LEFT leaf:

- The valve ⑨ **[5]** controls reversibility in OPENING.
- The valve ⑩ **[5]** controls reversibility in CLOSING.

In detail with operator installed on RIGHT leaf:

- The valve ⑨ **[5]** controls reversibility in CLOSING.
- The valve ⑩ **[5]** controls reversibility in OPENING.

15 - ELECTROLOCK INSTALLATION

Refers to pictures **[15a]** and **[15b]**. The electrolock must be installed on leaves 2.0 meters long or more.

① Electrolock.

② Electrolock fixing plate.

③ Bolt hooker.

④ Bolt hooking rabbet.

⑤ Bolt.

⑥ Key cilynder (on request).

⑦ Gate.

16 - LIMIT SWITCH KIT (OPTIONAL)

FLOOR operator is suited to be equipped by limit switch kit with Hall effect sensor.

The kit allows you to switch, when used with appropriate electronic control device, a better and more precise control of leaf movement; the more benefits you get with the operator FLOOR 24Vdc.

The kit consists of:

- Hall-effect sensor ① **[16a]** which is fastened with two screws on the operator housing ② **[16a]**.
- A disk plate ③ **[16a]** to be fixed under the sleeve spline ④ **[16a]** with two screws ⑤ **[16a]**.
- Two plastic magnets holders ⑥ **[16a]**, one black and one white, which are fixed on the disk plate with two screws each ⑦ **[16a]** and on which, by loosening the screws, they will be free to slide.

Each magnet holder is pre-assembled with two magnets oriented in the same sense of polarization: the black one is pre-assembled with two magnets that control the closing, the white one is pre-assembled with two magnets that control the opening **[16b].**

The wiring diagram of the sensor is in **[16c]**.

Using Gi.Bi.Di. control units properly set, the former magnet passing on the Hall effect sensor starts slow down motion, the latter stops slow down motion.
Refer to the instruction manual of the electronic control unit.

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17 - FINAL CHECKS

Power the automatic system:

- If installed, check for the correct operation of the limit switch manually moving the leaf.

Run one or more operation cycles and check:

- The correct operation of the safety devices;
- The correct movement of both the leaves;
- That the foundation plate is solid;
- That the automatic gate complies with the essential safety requirements required by the Machinery Directive (2006/4/CE)

18 - FLOOR 880-884 INSTALLATION WITHIN OLDER FLOOR FOUNDATION BOX

If you need to install the operator within an existing box you must check that the box has the supporting post of the leaf shaped like ① **[18]**.

If the foundation box does not have the lightening in ① **[18]** you must create them using proper tools (flexible), the work area will need to apply a protective coat to avoid oxidation (zinc spray).

19 - MAINTENANCE

Carry out periodic checks on the gate with particular attention to:

- Check the hinges;
- Check the correct operation of the safety devices;
- Unlock the operator and verify there is no friction points during the whole stroke;
- Check the self-lubricating bushing.

Periodically check the correct functioning of anti-crushing safety and the efficiency of the unlocking system which allows the manual operation (see relevant paragraph).

The safety devices installed must be checked at least each 6 months.

Gi.Bi.Di. S.r.l. reserves the right to modify the technical data without prior notice depending on the product development.

20 - MALFUNCTIONING

In the event of any malfunction, cut the power to the system and call in a qualified technician (installer).

During out of service activate manual release to allow manual opening and closing.

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CE Declaration of conformity

The manufacturer:

GI.BI.DI. S.r.l.

Via Abetone Brennero, 177/B,
46025 Poggio Rusco (MN) ITALY

declares that the products:

HYDRAULIC OPERATOR FLOOR 854-850-884-880

are in conformity with the following EEC Directives:

- **EMC Directive 2004/108/CE and subsequent amendments**;
- **LVD Directive 2006/95/CE and subsequent amendments (FLOOR 850-880)**

and that the following harmonised standards have been applied:

- **EN60335-1; EN61000-6-1; EN61000-6-3**

Date 13/10/2017

The legal Representative
Michele Prandi

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