Gruppo Norton S.r.l.

*A*utomatismi per *A*perture

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Msc



ENG

Installation and maintenance manual for automations for sliding gates.

MSC 6oo FCM ☐ FCE ☐ Q ☐

MSC 8oo FCM ☐ FCE ☐ Q ☐

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WARNINGS FOR THE INSTALLER

GENERAL OBLIGATIONS FOR SAFETY

1) **ATTENTION! It is important for personal safety to follow all instructions carefully. Incorrect installation or incorrect use of the product can lead to serious personal injury.**

2) Read the instructions carefully before starting to install the product.

3) The packaging materials must not be left within the reach of children as they are sources of danger.

4) Keep the instructions.

5) This product was designed and built exclusively for the use indicated in this documentation. Any other use not expressly indicated could jeopardize the integrity of the product and/or represent a source of danger.

6) Gruppo Norton declines any liability deriving from improper use or use other than that for which the automatism is intended.

7) Do not install the appliance in an explosive atmosphere: the presence of flammable gas or fumes constitutes a serious danger to safety.

8) The mechanical construction elements must comply with the provisions of the UN18612, CEN pr EN 12604 and CEN pr EN 12605 Standards.

   For non-EEC countries, in addition to the national regulatory references, the above Standards must be followed to obtain an adequate level of safety.

9) Gruppo Norton is not responsible for the non-compliance with Good Technique in the construction of the closures to be motorized, as well as for the deformations that may occur during use.

10) The installation must be carried out in observance of the UN18612, CEN pr EN 12453 and CEN pr EN 12635 Standards. The safety level of the automation must be CE.

11) Before carrying out any work on the system, cut off the power supply.

12) Provide an omnipolar switch on the automation power supply network with contact opening distance equal to or greater than 3mm. It is advisable to use a 6A magnetothermal switch with omnipolar switch.

13) Check that there is a differential switch with a 0.03A threshold upstream of the system.

14) Check that the earthing system is made in a workmanlike manner and connect the metal parts of the closure to it. Also connect the Yellow/Green wire of the automatism to earth.

15) The safety devices (e.g.: photocells, sensitive edges, etc.) make it possible to protect any danger areas from mechanical risks of movement, such as e.g. crushing, conveying, shearing.

16) The use of at least one luminous signal as well as a warning sign adequately fixed on the frame structure is essential for each system, in addition to the safety devices.

17) Gruppo Norton declines all responsibility for the safety and proper functioning of the automation if system components not manufactured by Gruppo Norton are used.

18) For maintenance, use only original Gruppo Norton parts.

19) Do not make any modifications to the components forming part of the automation system.

20) The installer must provide all the information relating to the manual operation of the system in the event of an emergency and deliver the "User's Guide" attached to the product to the user of the system.

21) Do not allow children or people to stay near the product during operation.

22) Keep radio controls or any other pulse generator out of the reach of children, to prevent the automation from being activated involuntarily.

23) The user must refrain from any attempt to repair or intervene directly and contact only qualified personnel.

24) **Anything that is not expressly provided for in these instructions is not permitted.**

MSC 600 - MSC 800 GEARMOTOR

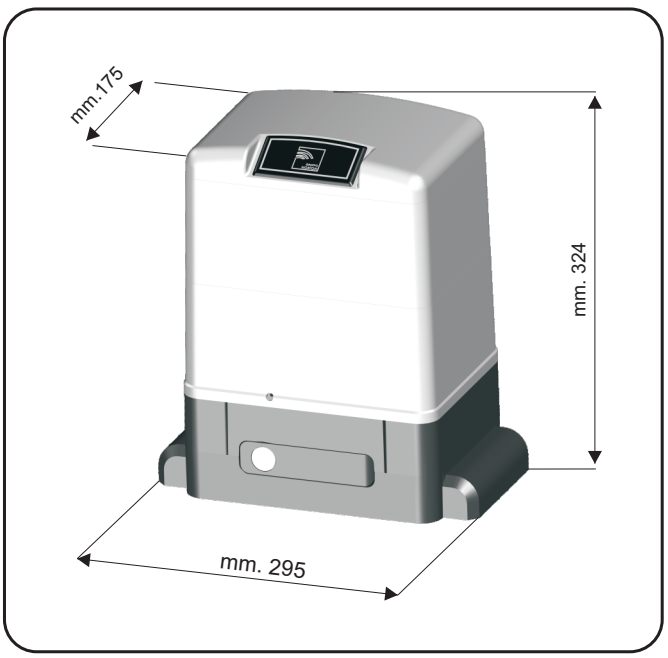
These instructions are valid for the following models:
MSC 600 FCE, MSC 600 FCM, MSC 800 FCE and MSC 800 FCM.

The MSC 600 - MSC 800 automations for sliding gates are electromechanical gearmotors which transmit movement to the sliding gate via a pinion suitably coupled to a rack fixed in the gate itself.

MSC automations guarantee mechanical locking of the gate and therefore there is no need to install the lock.
MSC geared motors are equipped with a mechanical clutch (MSC 800) and an electronic clutch via a control unit (MSC 600), which offer the necessary adjustable crush safety. A convenient manual release makes the gate manoeuvrable in the event of a blackout or malfunction.
The MSC 600 - MSC 800 gearmotors have been designed and built for vehicular access control. Avoid any other different use.

1. DESCRIPTION AND TECHNICAL CHARACTERISTICS

1.1. DIMENSIONS MSC 600 - MSC 800



1.2. MAXIMUM USE CURVE

The curve makes it possible to identify the maximum work time (T) according to the frequency of use (F).
Ex: The MSC 600 and MSC 800 gearmotors can operate continuously at a frequency of use of 30%.

To guarantee correct operation, it is necessary to operate in the working range under the curve.

Important: The curve is obtained at a temperature of 24 °C. Exposure to direct sunlight can cause decreases in the frequency of use up to 20%.

Calculation of frequency of use

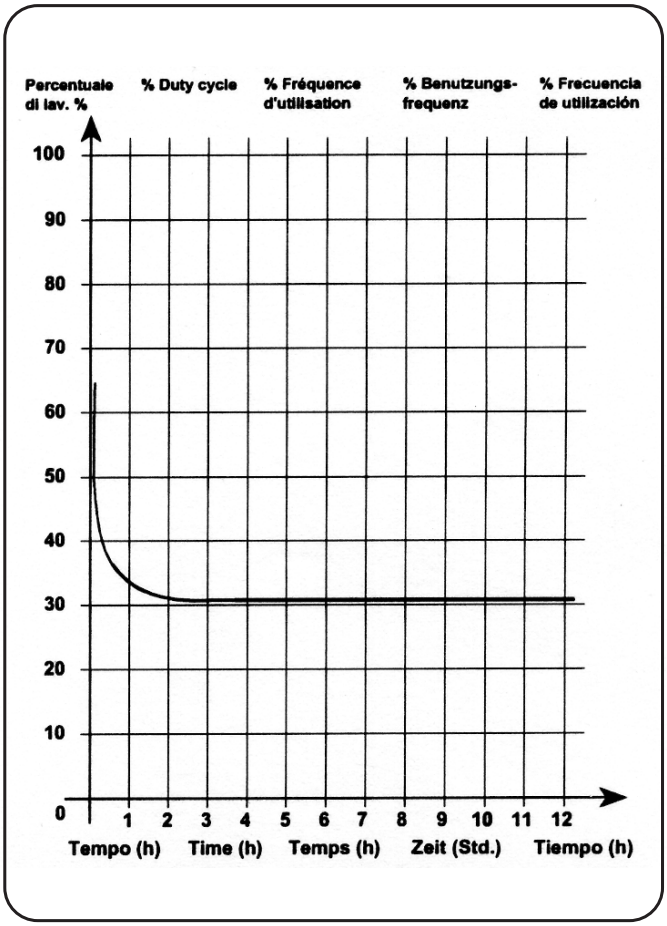
is the percentage of actual work time
(opening + closing) compared to the total cycle time (opening + closing + dwell times).

The calculation formula is as follows:

$$\%F = \frac{Ta + Tc}{Ta + Tc + Tp + Ti} \times 100$$

Where:
Ta = opening time
Tc = closing time
Tp = pause time
Ti = interval time between one complete cycle and the next

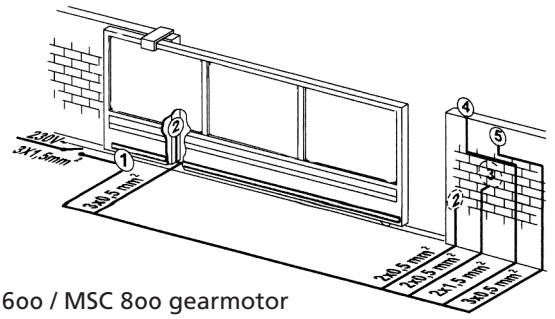
Usage frequency graph



1.3. TECHNICAL FEATURES

MODEL	MSC 600	MSC 800
Power supply	230Vac (+6% - 10%) 50Hz	
Motor power (W)	350	450
Eletric motor RPM	1400	
Current (A)	1,5	1,7
Capacitor	12,5 µf	18 µf
Torque (Nm)	18	24
Pinion	Modulo 4 - Z16	
Height pinion – floor - rack	80 mm	
Thrust force (N)	600	800
Thermal protection	130°C	130°C
Frequency of use	30%	30%
Lubrication	grease	grease
Limit switch	mechanical	
Operating temperature	-20°C +55°C	
Gearmotor weight (Kg)	8	9
Class protection	IP 44	
Max gate weight (Kg)	600	800
Speed Gate	12 mt/min.	
Clutch	No (the use of an electronic clutch is recommended)	

2. ELECTRICAL ARRANGEMENTS (standard system)



1) MSC 600 / MSC 800 gearmotor
2) Photocells
3) Key button
4) Flasher
5) Radio receiver

Fig. 2

3. AUTOMATION INSTALLATION

3.1. PRELIMINARY CHECKS

For safety and correct operation of the automation, check that the following requirements are met:

- The structure of the gate must be suitable for being automated. In particular, it is required that the diameter of the wheels is related to the weight of the gate to be automated, that an upper guide is present and that there are mechanical limit switches to prevent derailments of the gate.
- The characteristics of the ground must guarantee sufficient sealing of the foundation plinth.
- There must be no pipes or electric cables in the plinth excavation area.
- If the gearmotor is exposed to passing vehicles, possibly provide adequate protection against accidental impacts.

- Check that there is an efficient earth connection for the gearmotor connection.

3.2. FOUNDATION PLATE INSTALLATION

The foundation plate must be positioned according to the indications given in (Fig. 3 and Fig. 4), possibly on a reinforced concrete plinth at floor level; all this to guarantee the correct coupling between pinion and rack.
The foundation plate can be installed in two different ways:

a) Walling method

- After having created a suitable reinforced concrete plinth (Fig.6) and provided one or more corrugated pipes for the passage of the electric cables, pass the pipes through the hole provided in the foundation plate supplied, extract the two pre-drilled clamps (Fig. 5) and drown them in the reinforced concrete plinth. Check the flatness of the foundation plate with a level.

b) Tessellation method

- After having created an adequate reinforced concrete plinth (Fig.6) and foreseen one or more corrugated pipes for the passage of the electric cables, pass the pipes through the hole provided in the foundation plate supplied, drill 4 holes in the reinforced concrete plinth respecting the positions and dimensions shown in the foundation plate (Fig. 5) ABCD ; place 4 fischer plugs D. 10 mm, place the foundation plate on them and fix it with the screws.
  In both cases prepare the electric cables for connection to the accessories and the electric power supply and facilitate the electric connections by making the cables protrude by about 45 cm. from the hole in the foundation plate.

3.3 MECHANICAL INSTALLATION

The foundation plate can be installed in two different ways:

1) open the lid and position the gearmotor on the foundation plate, passing the electric cables through the cable gland hole (Fig. 6.1);
2) fix the gearmotor to the foundation plate with the screws and washers provided (Fig. 6.1);
3) adjust the height of the gearmotor and the distance from the gate according to the dimensions indicated in (Fig.6)
   NOTE: this operation is useful for positioning the rack with the possibility of adjusting it;
4) manually release the gearmotor by operating the release lever (Fig. 9.1)
   NOTE: this operation is necessary to then proceed with the assembly of the rack.

Fig. 3

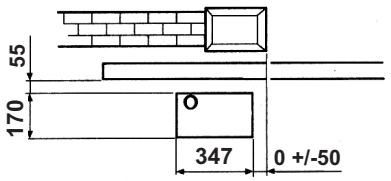


Fig. 4

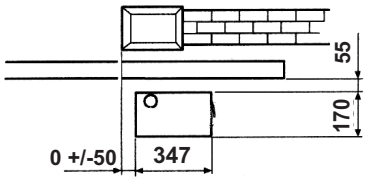


Fig. 5

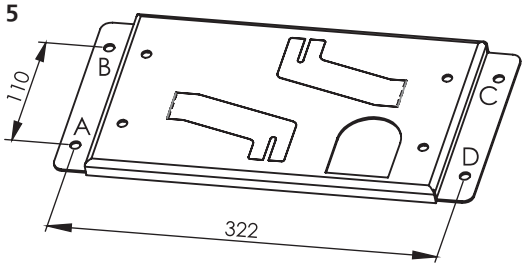
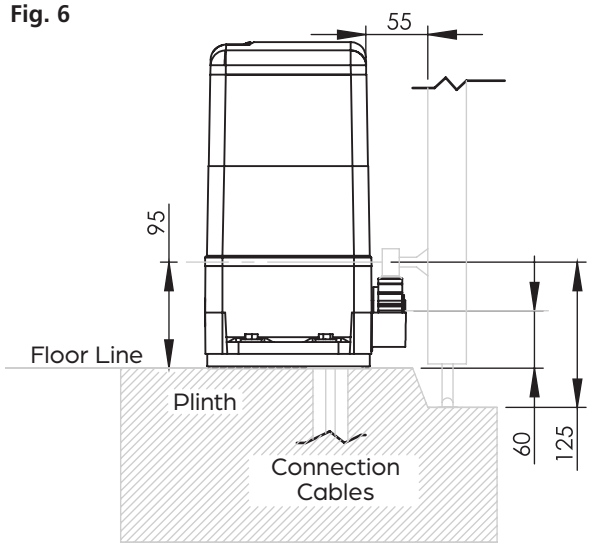


Fig. 6



3.4. ASSEMBLY OF THE RACK

3.4.1. WELDED STEEL RACK (fig.7)

1) Fit the three threaded pawls on the rack element, positioning them in the upper part of the slot. In this way, the play on the slot will allow for any adjustments over time.
2) Manually bring the leaf to the closed position.
3) Rest the first piece of rack level on the pinion and weld the threaded pawl on the gate.
4) Move the gate manually, checking that the rack rests on the pinion and weld the second and third pawls.
5) Approach another rack element to the previous one using a piece of rack to phase the teeth of the two elements.
6) Manually open the gate and weld the three threaded pawls continuing until the gate is completely covered.

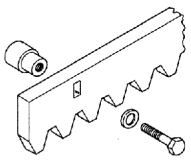


Fig. 7

3.4.2. SCREW-ON STEEL RACK (fig. 8)

1) Manually bring the leaf to the closed position.
2) Rest the first piece of rack level on the pinion and place the spacer between the rack and the gate, positioning it in the upper part of the slot.
3) Mark the drilling point on the gate. Drill diam. 6.5 mm and thread with taps diam. 8mm. Screw in the bolt.
4) Move the gate manually, checking that the rack rests on the pinion and repeat the operations in point 3.
5) Approach another rack element to the previous one using a piece of rack to phase the teeth of the two elements.
6) Move the gate manually and proceed with the fixing operations as for the first element, continuing until the gate is completely covered.

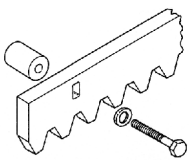


Fig. 8

3.4.3. SCREW-ON NYLON RACK (fig. 9)

1) Manually bring the leaf to the closed position.
2) Place the first piece of rack level on the pinion and mark the drilling point on the gate.
   Drill with a 4 mm diameter drill bit and screw in the 6 x 20 mm self-tapping screw with relative reinforcement plate.
3) Move the gate manually, checking that the rack rests on the pinion and repeat the operations in point 2.
4) Approach another rack element to the previous one using a piece of rack to phase the teeth of the two elements.
5) Move the gate manually and proceed with the fixing operations as for the first element, continuing until the gate is completely covered.

NB: Check that during the travel of the gate all the elements of the rack do not go out of the pinion.

Attention: Never weld the rack elements either to the spacers or to each other (only for steel rack).

Manually check that the gate regularly reaches the mechanical limit stops and that there is no friction during travel.

Do not use grease or other lubricating products between the pinion and the rack.

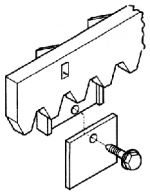
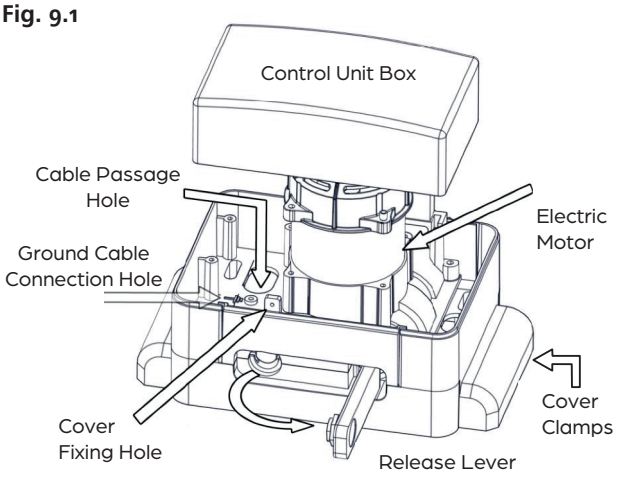


Fig. 9

Fig. 9.1



4. PUT IN ACTION

4.1. ELECTRONIC EQUIPMENT CONNECTION

Warning: Before carrying out any work on the electronic equipment (connections, programming, maintenance) always cut off the power supply.

After having laid the cables in the ducts and made the electrical connections with the various safety and control accessories (fig. 2), connect the electronic control unit according to the instructions given in the relative manual.

NOTE: connect the yellow/green grounding cable (fig. 9.1)

4.2. TEST OF AUTOMATION

Once installation is complete, carry out a thorough functional check of the automation and all the accessories connected to it.

Give the customer the "User's guide", explain the correct operation and use of the gearmotor and highlight the potentially dangerous areas of the automation.

5. MANUAL OPERATION

5.1 MOTOR RELEASE MANEUVER

NOTE: before carrying out the motor release manoeuvre, switch off the power supply to the system, in order to prevent an involuntary impulse from activating the gate during the manoeuvre.

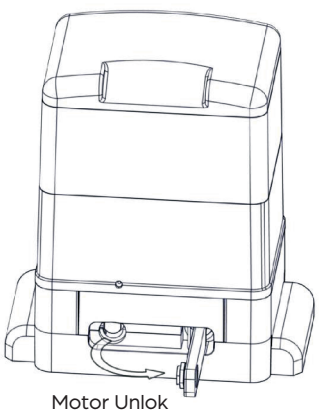
The motor release maneuver is carried out as follows (fig. 10):
1) extract the release lever and move it to the right until it reaches the end of its stroke;
2) manually carry out the opening or closing maneuver of the gate.

5.2 ENGINE BLOCK MANEUVER

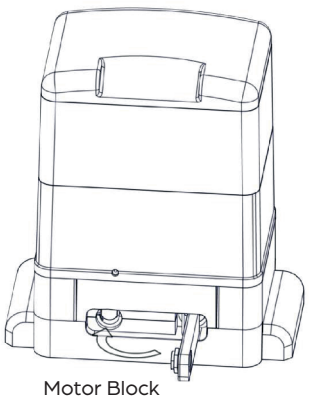
NOTE: before carrying out the motor release manoeuvre, switch off the power supply to the system, in order to prevent an involuntary impulse from activating the gate during the manoeuvre.

The engine blocking maneuver is carried out as follows (fig. 10):
1) move the lever to the left until it reaches the end of its stroke;
2) operate the gate manually until the motor pinion engages.

Fig. 10



Motor Unlok



Motor Block

6. MAINTENANCE

Maintenance must be carried out at least every 6 months and on this occasion the functionality of the system and the efficiency of the safety and release devices must be checked.

7. REPAIRS

For any repairs, contact Gruppo Norton authorized technical assistance centres.

WARNING

The descriptions and illustrations in this manual are not binding. Gruppo Norton reserves the right, leaving the essential characteristics of the equipment unchanged, to make at any time and without undertaking to update this publication, the modifications it deems suitable for technical improvements or for any other constructional or commercial requirement.

ENGLISH

USER MANUAL

GEARMOTOR FOR SLIDING GATES MOD. MSC 600 - MSC 800

Read the instructions carefully before using the product and keep them for future reference.

GENERAL SAFETY RULES

The MSC 600 - MSC 800 automations, if correctly installed and used, guarantee a high degree of safety. Some simple rules of conduct can also avoid accidental problems:

- Do not stand and do not allow children, people or things to stand near the automation, avoiding them even more during operation.
- Keep out of the reach of children any other pulse generator which could unintentionally activate the automation.
- Do not allow children to play with the automation.
- Do not voluntarily oppose the movement of the gate.
- Prevent branches or shrubs from interfering with the movement of the gate.
- Keep the light signaling systems efficient and clearly visible
- Do not attempt to operate the gate manually until you have unlocked it.
- In the event of malfunctions, release the gate to allow access and wait for the technical intervention of qualified personnel.
- Once manual operation has been set, before restoring normal operation, disconnect the electrical power supply to the system.
- Do not make any modifications to the components forming part of the automation system.
- Refrain from any attempt to repair or intervene directly and contact only Gruppo Norton qualified personnel.
- Have the efficiency of the automation, safety devices and earth connection checked at least every six months by qualified personnel.

MANUAL OPERATION OF THE GATE

If the gate is operated manually due to a power failure or malfunction of the automation, the release device must be operated as follows:
1) turn off the power supply to the system;
2) extract the release lever and move it to the right until it reaches the end of its stroke (fig. 10);
3) manually operate the gate both in opening and closing.

RESTORE AUTOMATIC GATE OPERATION

If the automatic functioning of the gate is restored, proceed as follows:
1) move the release lever to the left until it reaches the end of its stroke (fig. 10);
2) operate the gate manually until the motor pinion engages;
3) reactivate the electrical power supply of the system;
4) reactivate the automatic functioning of the gate with an impulse.

DESCRIPTION

The MSC 600 - MSC 800 automations are ideal for controlling medium-frequency transit vehicle access areas. MSC 600 and MSC 800 for sliding gates are electromechanical operators which transmit movement to the leaf via a rack and pinion suitably coupled to the sliding gate. If automatic operation has been set, by sending an impulse the gate closes by itself after the selected pause time.

If semi-automatic operation has been set, a second impulse must be sent to obtain reclosing.

An opening impulse given during the reclosing phase always causes the movement to reverse. A stop pulse (if provided) always stops movement. For the detailed behavior of the sliding gate in the various operating logics, refer to the installation technician.

The automations have safety devices (photocells) which prevent the gate from closing when an obstacle is in the area they protect.
The system guarantees mechanical locking when the engine is not running and therefore no lock needs to be installed. Manual opening is therefore only possible by acting on the special release system.
A convenient manual release makes the gate manoeuvrable in the event of a blackout or malfunction. The luminous signal indicates the movement in progress of the gate.

CE DECLARATION OF CONFORMITY FOR MACHINES

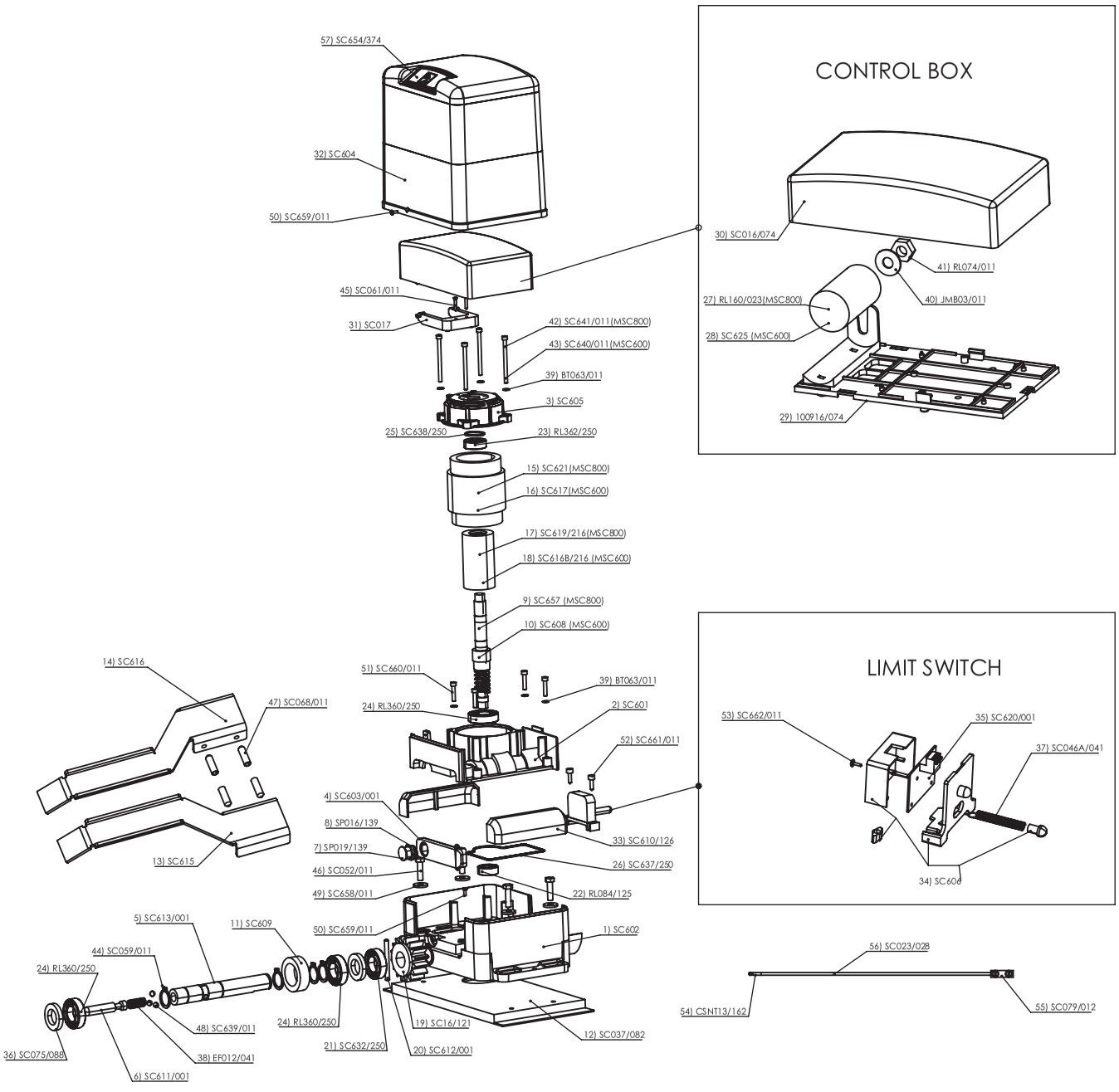
(DIRECTIVE 89/392 EEC, ANNEX II, PART B)

Manufacturer: Gruppo Norton S.r.l. - Contrada Salvina snc - Area P.I.P. - 90030 Altofonte (PA) - Italy
Declares that: The gearmotor for sliding gate mod. MSC 600, mod. MSC 800
• it is built to be incorporated in a machine or to be assembled with other machinery to form a machine pursuant to Directive 89/392 EEC, and subsequent amendments 91/368/EEC, 93/44/EEC, 93/68/EEC;
• complies with the essential safety requirements of the following other EEC directives:
73/23 EEC and subsequent amendment 93/68/EEC.
89/336 EEC and subsequent amendments 92/31 EEC and 93/68/EEC
and also declares that it is not permitted to put the machinery into service until the machine in which it will be incorporated or of which it will become a component has been identified and its conformity with the conditions of Directive 89/392/EEC and subsequent amendments transposed into national legislation by Presidential Decree No. 459 of 24 July 1996.

Altofonte, 12 April 2023

The Legal Representative
Salvatore Calamonaci

MSC600GN - MSC800GN - EXPLODED VIEW



N.ART.	COD. ART.	DESCR. ART.
1	SC602	LOWER ENGINE BODY
2	SC601	UPPER ENGINE BODY
3	SC605	UPPER ENGINE CUP
4	SC603	RELEASE LEVER
5	SC613/001	SLOW SHAFT
6	SC611/001	RELEASE PLUG
7	SP019/139	DOOR LOCK
8	SP016/139	STRAIGHT LEVER
9	SC657 (MSC 800)	WORM SCREW
10	SC608 (MSC 600)	WORM SCREW
11	SC609	HELICAL WHEEL
12	SC037/082	BASE ZNB 347X175X15 THICK. 2 MM
13	SC615	RIGHT BRACKET
14	SC616	LEFT BRACKET
15	SC621 (MSC 800)	STATOR 90X50 H80
16	SC617 (MSC 600)	STATOR 90X50 H60
17	SC619/216 (MSC 800)	ROTOR 50X18 H80
18	SC616B/216(MSC 600)	ROTOR 50X18 H60
19	SC16/121	PINION Z16 SYNT
20	SC612/001	PINION PIN Z16
21	SC632/250	BEARING 6005 2BRS
22	RL084/125	BEARING 6002 2Z
23	RL362/250	BEARING 6202 2Z
24	RL360/250	BEARING 6005 2Z
25	SC638/250	WAVY RING
26	SC637/250	OR ROPE 2 MM.
27	RL160/023 (MSC 800)	18MF CAPACITOR
28	SC625 (MSC 600)	12.5MF CAPACITOR
29	100916/074	BASE CONTROL UNIT BOX
30	SC016/074	COVER CONTROL UNIT BOX
31	SC017	CONTROL UNIT BOX
32	SC604	RECTANGULAR BOX
33	SC610/126	COVER CLAMP
34	SC606	LIMIT SWITCH PLASTIC KIT
35	SC620/001	LIMIT SWITCH CARD
36	SC075/088	RING SEAL
37	SC046A/041	TRACTION SPRING
38	EF012/041	COMPRESSION SPRING
39	BT063/011	WASHERS 6592/125 ZB 5,3
40	JMB03/011	WASHER 6592/125 ZB 8,4
41	RL074/011	NUTS 8 X 1,25
42	SC641/011 (MSC 800)	SCREW 5 X 100
43	SC640/011 (MSC 600)	SCREW 5 X 80
44	SC059/011	SEGER RING EXT.25
45	SC061/011	SCREW 3,5X22
46	SC052/011	SCREW 8 X 30
47	SC068/011	GRAIN SCREW 6 X 20
48	SC639/011	SPHERE D 7.92
49	SC658/011	WASHER 8,5X22X3
50	SC659/011	SCREW 3,5 X 9,5
51	SC660/011	SCREW 5 X 25
52	SC661/011	SCREW 4,8 X 19
53	SC662/011	SCREW 3,9 X 13
54	CSNT13/162	EYELET TERMINAL
55	SC079/012	TERMINAL BLOCK 6 MMQ
56	SC023/028	UNIVERSAL CABLE 1.5MM
57	SC654/374	BOX LOGO PLATE