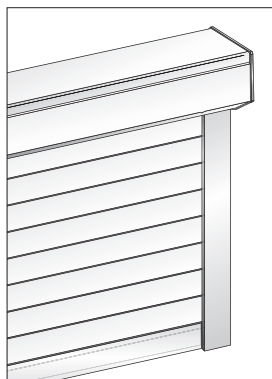


Roller
shutter
systems



OPERATING MANUAL

ROLLER
GARAGE DOORS

2014

www.alutech-group.com

OPERATING MANUAL FOR ROLLER GARAGE DOORS

Dear customer!

We're delighted that you have chosen Alutech product and we hope that the high quality of our products will confirm the correctness of your choice.

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1. INTRODUCTION

This manual includes technical information about mounting, testing and commissioning of roller garage doors, and also the information about their maintenance.

This information is intended for competent technical staff of organizations, producing mounting and maintenance of the doors.

Information in sections "Product structure and operation order", "Safety requirements", "After-sales service" and "Warranty" is intended for the end user.

You should carefully read this Manual before the doors mounting and beginning of their operation.

This manual must be in a disposable place near the doors.

The manufacturer and organization producing the doors mounting don't bear responsibility for damage caused by failure to comply with provisions of this Manual when operating or using the doors inappropriately.

The contents of this document may not be the basis for legal claims. The Alutech Company reserves the right to make amendments and additions in this Manual.

2. DESCRIPTION AND OPERATION

2.1 PURPOSE OF PRODUCT

Roller garage doors are mechanical or electric mechanical devices, designed to be mounted in window and door openings of buildings in order to protect windows and doors from malicious damage and destruction, to prevent unauthorized access to premises, and also to reduce the heat inflow-outflow, to provide wind, noise and bright light protection.

Roller garage doors can be mounted inside or outside of premises. Plus, it's possible to provide a number of door components' position relative to the plane of window or door opening.

Max. outside temperatures for roller garage doors are from -60 °C to +40 °C.

Manual and automatic (usage of electric motor) operation.

Electric motors are designed to be connected to the electric network with current frequency 50 Hz and rated voltage 220V.

Electric motors can be used inside of premises with the ambient temperature range from -20°C to +50 °C.

Roller garage doors are not designed to be installed in explosion and fire hazard zones of buildings, as well as on escape routes and as fill openings of fire barriers.

2.2 GENERAL PRODUCT INFORMATION

AG/77, AR/55, AR/555, AR/52, AER55/S, AER55m/S profiles, fabricated according to technical requirements of the Republic of Belarus 37503931.001-2000, are applied as the main profile of roller garage doors' curtain. EV/77W and EA/77 extruded profiles can be applied with AG/77 as additional profiles.

Overall dimensions of roller garage doors and type of operation are indicated in the supply agreement.

2.3 PRODUCT STRUCTURE AND OPERATION ORDER

Main components of roller garage doors: curtain, shutter box, guide rails, end slat and motor with control elements (see fig. 1).

Control of roller garage doors' curtain is carried out using the next motor types:

- electric motor
- electric motor with NHK (with manual override system)

Note: roller garage doors can be equipped with distance controls, electronic locks and others additional control devices. If necessary, operation instructions for additional devices are attached to this instruction by the manufacturer.

! **As additional security measures, roller garage doors can be also equipped with the safety brake or safety edge system.**

Structure and operation order of roller garage doors with electric motor (see fig. 1):

Curtain of roller garage doors is operated by electric motor using local (switches, lock switches) or distance control devices (radio transmitters).

On customer request the electric motor can be delivered with manual override system (NHK) — crank rod motor.

Opening (closing) of the curtain:

- press (turn) the switch button (pos. 18) in direction "opening" ("closing") and hold it until the response of electric motor's limit switch, producing the full stop of curtain.

Note: if lock switches are delivered, the key must be inserted in a lock switch and turned in direction "opening" ("closing") and hold it until the response of electric motor's limit switch.

During the opening (closing) of curtain release the switch button (key) to stop the curtain in intermediate position. The curtain will restart moving, if you press again or turn the button (key) in necessary direction.

Note: After the security devices are triggered, the curtain can be stopped when closing.

! **After automatic lockout of electric motor, place the switch button (key) in neutral position.**

Operation order of roller garage doors with electric motor with manual override system (NHK):

Opening (closing) of curtain in operating mode is carried out according to p.2.3.3.

Opening (closing) of curtain in emergency mode:

! **ATTENTION! Emergency mode means the operation of roller garage doors in case of the voltage absence in electric motor network.**

Curtain opening:

- if roller garage doors are delivered with demountable crank rod, insert the motor hook of crank rod in the loop hole of the electric motor. Rotate the motor handle by hand and at the same time hold the rod by the other hand. The curtain opening is carried out until the last lath will reach the lower limit of the shutter box. The further curtain opening is forbidden: curtain can be moved out of guide rails.

Curtain closing:

- rotate the motor handle (crank rod) by hand and at the same time hold the rod by the other hand until the full closure of laths. The further rotation of the handle is forbidden: it requires considerable effort and leads to the mechanism damage. The motor damaged in this way isn't covered by warranty.



ATTENTION! It's strictly forbidden to use the manual override system in the presence of mains voltage. It leads to the motor damage.

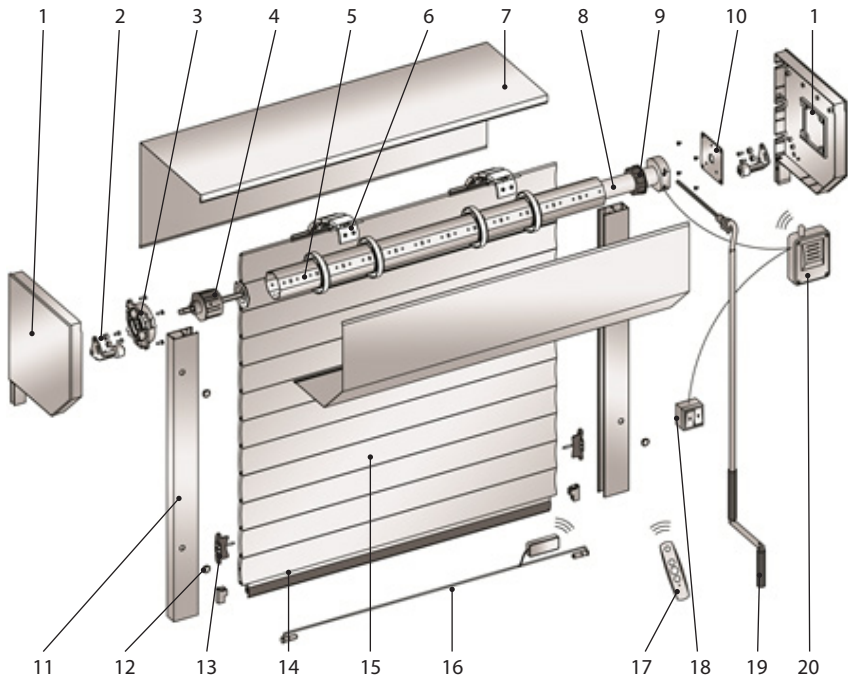


Fig. 1. Components of roller garage doors with electric motor:

- | | |
|--------------------------|-----------------------|
| 1. End cap | 11. Guide rail |
| 2. Entry guide | 12. Plug |
| 3. Ball bearing | 13. Side lock |
| 4. Adjustable cap | 14. End slat |
| 5. Octagonal tube | 15. Curtain |
| 6. Assembled safety lock | 16. Safety edge |
| 7. Shutter box | 17. Radio transmitter |
| 8. Electric motor | 18. Switch |
| 9. Adapter | 19. Crank rod |
| 10. Motor bracket | 20. Control unit |

2.4 Main safety systems

2.4.1 Safety brake

Main purpose of the safety brake is prevention of curtain drop. The safety brake blocks the motor tube if the rotation speed is more than 22 min^{-1} . Due to this fact, the additional security and operation safety of doors with heavy curtain are ensured.

The tube is blocked when the gear of electric motor is failed. In this case, the curtain drops dramatically down (speed rotation of tube more than 22 revolutions per minute), leading to the brake action.

Along with the tube blocking, the electric motor is switched off because of the rotation of brake central part (Fig.2. pos.3) relative to the frame (Fig.2, pos.2). Rotating, the brake presses the switch (Fig.2, pos.1) and breaks the power circuit of the electric motor.

The brake is installed on one of the end caps or console, from the opposite side of motor. The rod of adjustable cap, installed in the tube, must enter inside the brake.

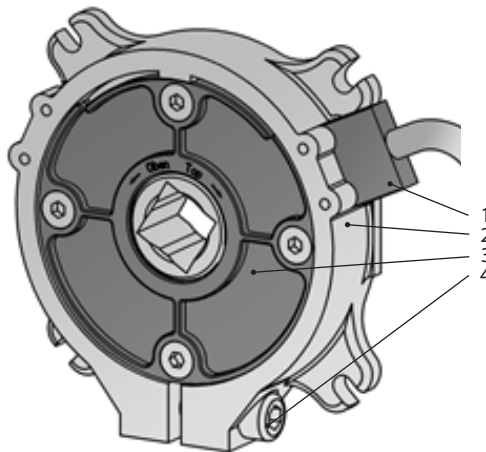


Fig. 2 Safety brake structure

2.4.2 Safety edge system:

Safety edge is one of the main safety systems for roller garage doors. When the lower edge of curtain meets an obstacle, for example, a car, human, etc, the system stops the running of roller garage doors and then changes it on the opposite.

The system is composed of the following components and devices (see fig. 3 and 4):

- control unit with built-in radio receiver
- transmitter/receiver of the edge signal
- optosensors
- insert under the end slat
- stopper
- radio transmitter

Principle of wireless safety edge system operation:

- optosensors are installed in the insert of the end slat. Stoppers are installed in the end slat from the both sides to protect optosensors against damages (Fig. 4)
- when the curtain goes down and meets an obstacle, the rubber insert is deformed, light-ray is interrupted, and optosensors give a signal to transmitter/receiver, installed on the lower edge of curtain (end slat).
- then, transmitter passes a radio signal to the control unit with built-in radio receiver about the obstacle presence. According to programmed operation of the control unit the roller garage doors will stop and after that start going up until the full opening.

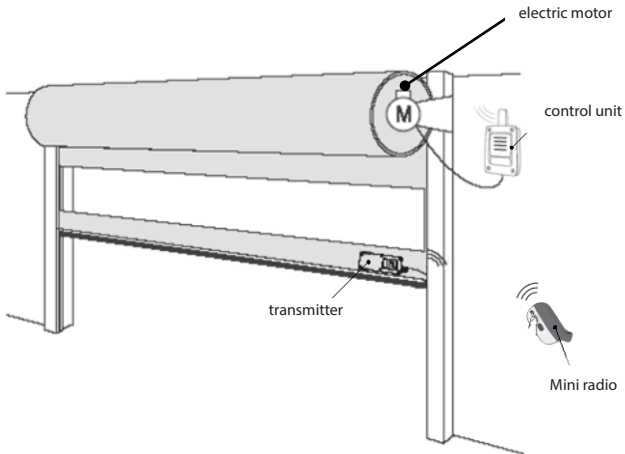


Fig. 3 Scheme of safety edge system automation

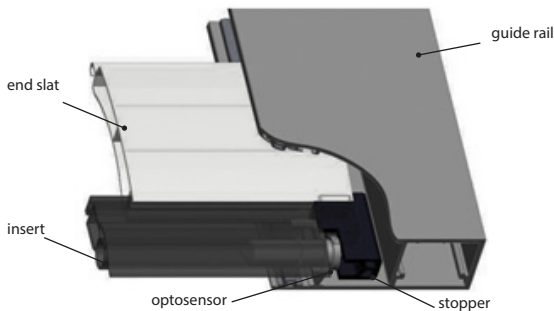


Fig. 4 Layout of safety edge components

Operation principle of wire safety edge system is almost equal to the operation principle of wireless system. The only difference is that there is no receiver in this system, and the signal from optosensors is passed directly to the control unit through spiral cable.

3. MOUNTING AND TESTING

3.1 MOUNTING OF ROLLER GARAGE DOORS

Mounting of roller garage doors must be made according to requirements of "Mounting instruction" for concrete type and version of roller garage doors. Instruction requirements must be rigorously fulfilled.

Mounting, connection and adjustment of the electric motor, security elements and automatism must be carried out according to "Mounting instruction" for applied products.

During the mounting you must comply with requirements of legislation, standards and rules relative to the safety and protection of human health measures established in the country, where the doors are mounted.

Mounting of roller garage doors must be carried out in compliance with requirements of Directive 89/106/EEC (Construction products), Directive 98/37/EC (Machinery Directive), including the next standards:

EN 13241-1: 2003+A1 «Industrial, commercial and garage doors and gates. Product standard. Part 1. Products without fire resistance or smoke control characteristics;

EN 12604: 2000 «Industrial, commercial and garage doors and gates — Mechanical aspects — Requirements»

EN 12605: 2000 « Industrial, commercial and garage doors and gates — Mechanical aspects — Test methods»

EN 12453: 2000 «Industrial, commercial and garage doors and gates — Safety in use operated doors– Requirements»

EN 12445: 2000 « Industrial, commercial and garage doors and gates — Safety in use operated doors– Test methods»

3.2 TESTING OF ROLLER GARAGE DOORS

After the mounting of roller garage doors by competent specialists completed, the initial testing of doors is carried out.

Competent specialist is a specialist, who on the basis of his education and professional experience has sufficient knowledge of motorized doors, and who knows the appropriate government safety standards, accident prevention regulations and generally accepted technical rules (for ex., rules of professional insurance association, standards) may conduct examination of the operation security of roller garage doors. These specialists are, for example, experts, highly qualified staff of doors' manufacturer, supplier or skilled staff of the mounting organization.

Competent specialists must present a report about testing procedure impartially and independently of other, for ex., economic circumstances.

Test results must be recorded and confirmed in written form.

Inspection documents of roller garage doors must be in a disposal place to become familiar.

4. ACCEPTANCE OF PRODUCT BY CUSTOMER

After the initial testing of doors competent specialists of organization, which has mounted and tested the doors, must train the user of right and safe door operation, actions in case of emergency or power blackout, and inform the user about the procedure of maintenance and technical service.

The user must be informed about possible unprotected residual risks and risks of roller garage doors misuse.

When the doors are accepted by the customer, Acceptance protocol is executed. The Acceptance protocol is executed in two copies (for installer and user) and is signed by both parties.

During the acceptance procedure the user must receive the operation documentation with a note of its transfer in Acceptance protocol.

5. SAFETY REQUIREMENTS

Structure of roller garage doors provides the safe product operation in case of compliance with the operation order and requirements mentioned below.

While operating the roller garage doors, the visual control of the up-and-down curtain running must be carried out to prevent the appearance of people and foreign objects in the working area.

Space required for the doors' operation must always be free of building structures, heating and ventilation piping etc. Obstacles or barriers must not be on the way of curtain running.

While operating the roller garage doors, it's forbidden:

- interfere in the curtain running (up and down) by hands, foreign objects;
- be in the running area during the closing of curtain;
- entry and exit may be carried out only after the doors stopped in the top extreme position. In this case, you must make sure that any possibility to touch doors' structural components by a vehicle is excluded;
- pass the radio transmitter to children and tell them the codes. Ensure the switch is not accessible to children;
- operate the roller garage doors with electric motor if there are visible damages of power cables or control devices (switches, radio transmitters etc).

In case of operating irregularity of your roller garage doors, particularly, if there is some strange noise, smell or other disturbing thing, stop using them and contact service department of organization, which mounted the product, or accredited representatives.



ATTENTION! Frequent opening and closing of curtain of the roller garage doors with electric motor, when the ambient temperature is high, or continuous running of doors during 4-5 minutes, can activate the built-in thermostwitch. In this case, the electric motor will be blocked to cool to the operating temperature. Please, wait some time (approximately 15 minutes).

Inspection and repair of roller garage doors must be performed only by skilled staff from service department of the organization, which carried out the mounting.

It's forbidden to adjust, repair, reinstall or change the product structure by yourself. Remember that the service must be performed only by the authorized skilled staff.



ATTENTION! The owner is solely responsible for the usage of doors, even if they could be used by third parties.

6. AFTER-SALES SERVICE

6.1 Period of after-sales service

After-sales service must be performed only by competent specialists, with sufficient knowledge of doors' structure, of safety requirements (skilled staff of manufacturer, supplier or staff of mounting organization).

! **ATTENTION! The user is free to perform by HIMSELF ONLY cleaning and washing of doors, and also removing of the ice.**

! **ATTENTION! If the roller garage doors are covered by ice in winter it's recommended to remove the ice before opening the curtain by two light blows with a soft object from external or internal side.**

After-sales service is performed with the following frequency:

- every 12 months. After-sales service is performed every 6 months, if the doors are operated in specific conditions. Specific conditions mean:
 - operation in places with high humidity;
 - operation in industrial, stock and garage premises with door operation intensity more than 10 cycles per day (a cycle means one round up and down of the curtain);
 - operation in difficult climatic conditions (high wind load, zones with negative temperatures during more than 6 months).

It's recommended to perform the after-sales service, when the repair work in premises with installed roller garage doors is completed (plastering, painting, etc).

Technical service results must be recorded and confirmed in written form.

Examination documents for motorized doors must be in a disposal place to become familiar.

! **ATTENTION! After-sales service doesn't include the repair work, related to doors' de-mounting, replacement of elements, fabrication of new elements and etc. Repair work needs a separate agreement.**

If the USER refuses the repair work, he must be informed by a letter that the further operation of roller garage doors is insecure.

6.2 Washing and maintenance

It's necessary to keep clean all doors' elements in order to maintain the roller garage doors in good working order and operation availability. If necessary you should clean the doors from the dust, dirt, leaves, small branches and etc.

Use a rag, sponge and detergents (nonaggressive) to wash.

If aggressive chemicals contacted the door surface, wash them off by appropriate agents. If the rust appears on metal surfaces, clean and colour rusted points.

Wash glasses with warm water, if necessary, agents to clean plastics may be used. Used cleaning agents must be neutral to the acrylic or polycarbonate.

! **ATTENTION! Don't use abrasive cleaning fluids and/or agents containing alcohol to wash glasses.**

It's necessary to keep clean the contact point of the floor and lower edge seal of the end slat, especially in winter, because the presence of foreign objects (snow, dust, ice, etc) can lead to its destruction.

7. WARRANTY AND RESPONSIBILITY

Please note that your warranty is only valid if the roller garage doors are properly mounted, operated and maintained according to functional specification. The manufacturer warrants all elements to be free from defects in material workmanship and processing. The company provides a warranty in accordance with relevant statutory provisions.

The purpose of door operation is opening and closing of building openings. The company isn't responsible for others purposes, nonrelevant to the operation purpose. It's forbidden to use the doors' elements for other unusual purposes.

The manufacturer isn't responsible for any damage rising from the failure to comply with the mounting instruction. During winding and unwinding of the curtain profiles rub against each other. Possible colour abrasion and local profile compression are the result of normal operation and can't be excluded, therefore, no complaint to make. Only original construction elements of the Alutech Group of companies must be used for mounting and operation of doors. The company isn't responsible for usage of non original components. The warranty isn't valid for all damages caused by application of these components.

ALUTECH
ROLLER SHUTTER SYSTEMS



«Alutech Incorporated» LLC
Republic of Belarus, 220075,
Minsk region, FEZ "Minsk", Selitskogo Str. 10
Phone: +375 (17) 299 61 11, 345 81 52
Fax: +375 (17) 345-82-82
www.alutech-group.com

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