

DOORHAN[®]

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OPERATOR

SHAFT-120



Installation and Operating Manual

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1. GENERAL INFORMATION

The electromechanical shaft operator Shaft-120 was designed for automation of industrial sectional doors.

It consists of a mechanical reducer in “oil bath” and an electric motor with an integral control unit. The reducer and the motor have a common housing.

A 3-position control post is connected to the control unit. The operator can be mounted either on the shaft or via the intermediate chain drive (optional).

1.1. BASIC FUNCTIONS

The automatic stop system enables quick and reliable stop of the motor in close and open positions.

The self-locking reducer enables mechanical lock of the door shaft, when the motor does not work. In case of power cut you can release the operator by pulling the cord with a red handle and open the door manually using the chain.

Double limit switches enable safe and reliable operation of the operator.



WARNING! Check the torsion springs for correct adjustment regularly: when the springs are not adjusted properly, the release can cause spontaneous closing of the door.

In an emergency case the door can be controlled manually with the chain.



WARNING! Use the manual chain without the release only in emergency, otherwise the chain reducer can fail.

1.2. TECHNICAL SPECIFICATIONS

Parameters	Characteristics
Power supply	400 V/50 Hz
Torque	120 N·m
Motor speed	1 400 rpm
Shaft hole (with key way)	25.4 mm
Manual chain length	12 m
Shaft speed	22 rpm
Weight with chain	24 kg
Dimensions	430 × 290 × 120 mm
Thermal protection	120°C
Intensity	65%
Oil amount	0.25 l
Engine power	700 W
Protection rating	IP44
Operating temperature range	-20...+55°C
Continuous operation time	10

1.3. OPERATOR PACKAGE

Upon receiving the operator, unpack it and inspect visually. Make sure, that the operator is not damaged. If any damages are found, please contact your supplier.

The operator components included in the standard package are listed in the following table.

No	Name	Quantity
1	Operator	1
2	Bracket	1
3	Set of fastenings	1
4	Manual operator chain (12 m)	1
5	External button switch	1
6	Manual	1

2. SAFETY INSTRUCTIONS



WARNING! IMPORTANT SAFETY INSTRUCTIONS. Follow all instructions since incorrect installation can lead to severe injury.

- Follow all instructions since incorrect installation can lead to severe injury.
- Shaft-120 was designed for automation of industrial sectional doors. Do not use the operator for other than intended purposes.
- DoorHan shall not be held responsible in case of injury caused by misuse of the product.
- Prior to installation make sure that the door is properly balanced and moves smoothly.
- Installation must be performed in accordance with the standards EN12453 and EN 12445. For countries, which are not EC members, these requirements are to be met.
- Check if the door conforms to the standards EN12604 and EN 12605 (see documentation accompanying the door). For countries, which are not EC members, the above mentioned requirements shall be met in order to obtain an appropriate safety level.
- Mechanical units of the door shall conform to the standards EN12604 and EN 12605.
- Prior to installation, check that the location of operator installation is suitable by its climatic conditions to technical specifications of the operator.

- Do not install the operator in premises containing quick inflammable substances or other dangerous environments as it can cause explosion or fire.
- During assembly, installation and adjustment use tools specified in section “Tools” of this manual.
- When performing operation at height, use a stable support.
- When drilling holes, use protection for hands and eyes.
- For fastening of the item, use hardware supplied with the operator or other analogous one.
- Disconnect the supply when cleaning or other maintenance is being carried out, if the appliance is automatically controlled.
- If the operator is installed on the door with a wicket door an additional safety device should be used to prevent operator activation when the wicket door is open.
- Ensure that entrapment between the driven part and the surrounding fixed parts due to the opening movement of the driven part is avoided.
- It is highly recommended to use DoorHan optional equipment as the accessories produced by other manufacturers can damage the automated system.
- DoorHan is not responsible for unstable work of the automatic system when using safety devices and accessories, which are produced by other manufactures without agreement with DoorHan.
- Never leave the electric motors in released condition. This may cause uncontrolled movement of the door leaves and, consequently, their breakdown.
- Do not use the operator if it needs repair or adjustment as installation defects or unbalanced door can cause injury.
- DoorHan shall not be held liable in case of improper installation of the item and damage arisen during operation.
- Since the operator does not have a power cord with a plug it shall be connected to the mains supply via automatic switch with a minimal distance of 3 mm between the neighboring contacts. It is recommended to use a 10 A triple-pole circuit-breaker.
- Be sure there are no obstructions to door travel.
- Do not make any changes in the automatic system not specified in this manual.
- Remove package of the item and dispose of it. Keep the package materials away from children.
- Always keep remote controls out of reach of children. Never permit children to operate or play with garage door control push buttons or remote controls.
- No one should cross the pass of the moving door.
- The content of the manual shall not be basis for any claim.
- The manufacturer reserves the right to modify the design of the product described in this manual without preliminary notice.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- Permanently fix the label concerning the manual release adjacent to its actuating member.
- Approach without the safety devices is allowed control mode driven by holding the button.
- The Installation and configuration of the actuator must only be carried out by qualified specialists.
- After installing the drive, test force according to standards EN 12445 and EN 12453.



WARNING! For safe and correct operation of the operator put a stopper to limit the door travel.



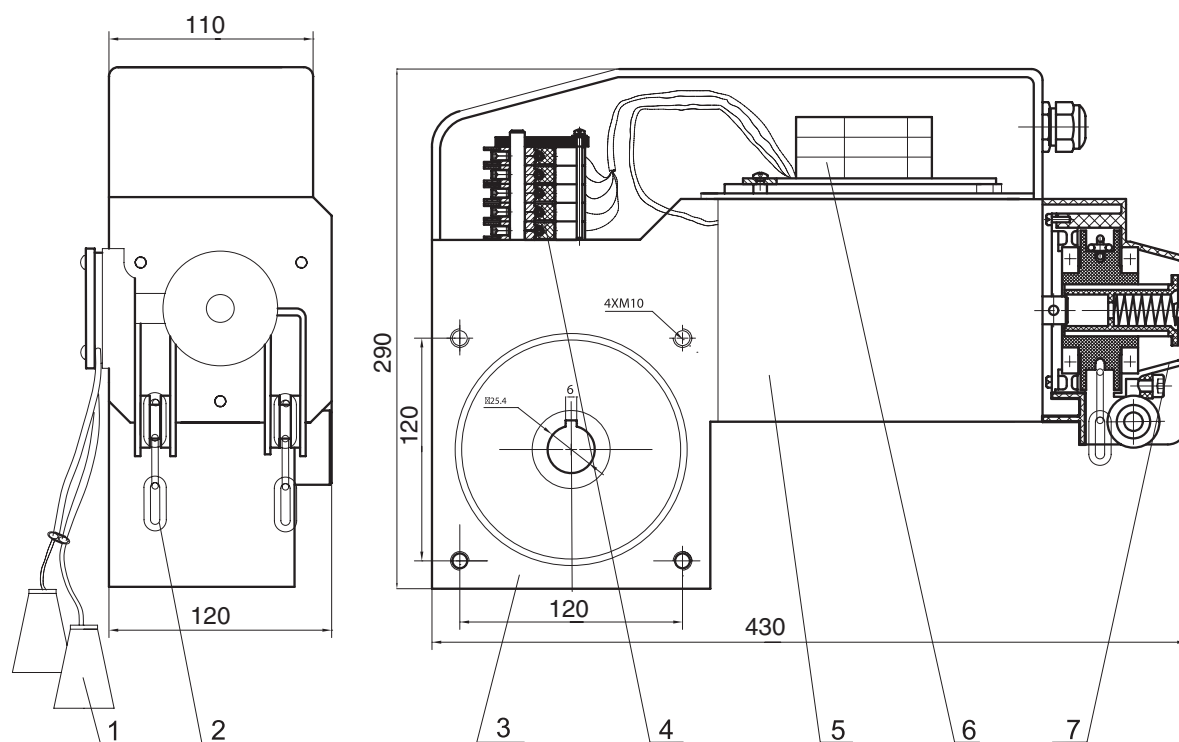
WARNING! RISK OF INJURY!

Have a qualified technician lay the cables 380 V AC. The cables must be laid in protective corrugated tubes. Avoid contact of cables and moving parts of the door. In case of supply cable damage, use the suitable type of the cable.

Cable needed for installation of Shaft-120 and accessories (if available):

- cable $2 \times 0.5 \text{ mm}^2$ (photocell transmitter, stepped control button);
- cable $4 \times 0.5 \text{ mm}^2$ (photocell receiver);
- cable $3 \times 1.5 \text{ mm}^2$ (power supply);
- the cables should be appropriately insulated.

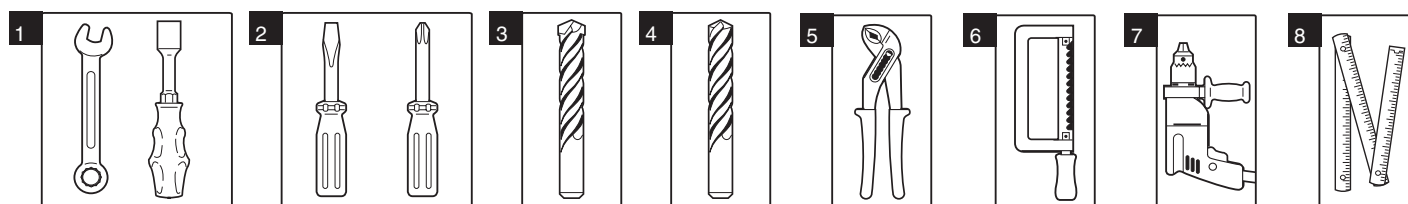
3. OPERATOR UNIT



- | | |
|--------------------|----------------------|
| 1. Release cord | 5. Motor |
| 2. Manual chain | 6. Control unit |
| 3. Reducer housing | 7. Manual drive unit |
| 4. Limit switches | |

4. OPERATOR INSTALLATION

4.1. TOOLS



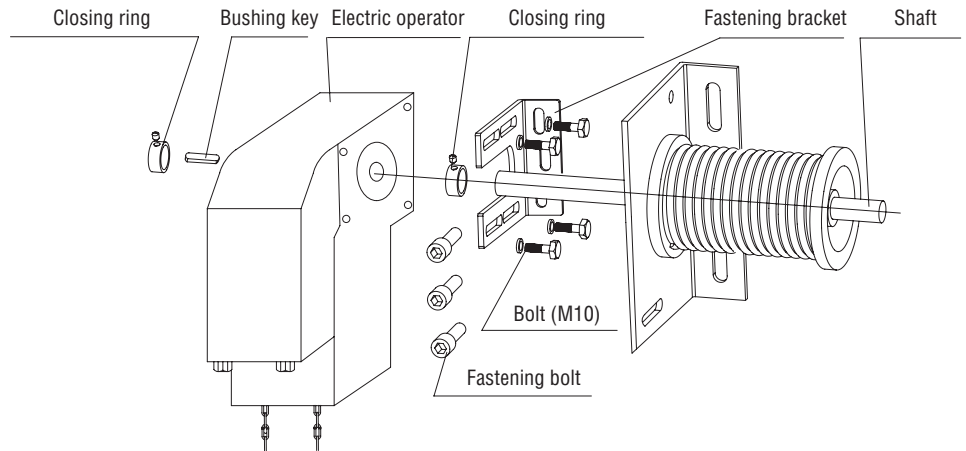
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| 1. Set of spanners | 4. Set of drills for concrete | 7. Electric drill |
| 2. Set of slotted and cross screwdrivers | 5. Pliers | 8. Tape measure (folding rule) |
| 3. Set of drills for metal | 6. Hacksaw for metal | |

Before installation make sure that the door is in good working condition and the torsion springs balance its leaf. Install the operator as described below (see par. 4.2 or 4.3).

4.2. ON-SHAFT INSTALLATION

- Install mounting bracket on the wall using screws. The mounting bracket can be installed from the left or from the right of the operator.
- Turn the release lever 180 degrees counterclockwise.
- Install the first closing ring on the door shaft.

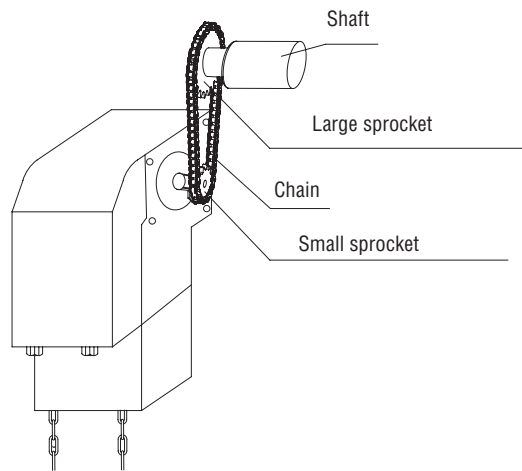
- Install the operator on the door shaft (make sure, that the bushing key is in proper position) and screw it to the mounting basis.
- Install the second closing ring on the door shaft and push it close to the operator.
- Install the first closing ring close to the operator and fix both closing rings.



4.3. INSTALLATION VIA CHAIN DRIVE

- Additional accessories for installation (bracket, large and small sprockets, chain) are purchased separately.
- Install the large sprocket on the door shaft end.
- Fix the bracket on the wall according to the length of the chain using dowels.
- Secure the operator on the bracket using 4 bolts M10. Tension the chain, having adjusted the position of the operator.

Mounting options	Torque (N.m)	Shaft speed (rpm)	Maximum amount of door shaft rotations
Direct transmission 1:1	120	22	18
Gear ratio 1:1,5	180	15	12



5. ADJUSTMENT OF EXTREME POSITIONS

5.1. CLOSE POSITION (RED CAM)

Coarse adjustment

- Make sure, that the operator is fixed rigidly; put the door in completely closed position.
- Loosen the screws for coarse adjustment of red cams, then turn them so, that the microswitches are pushed, then tighten the screws.
- Open and close the door, make sure, that the red cams push the microswitches.

Fine adjustment

- Turning the fine adjustment screw, adjust the closed position of the door.
- Open and close the door, make sure, that the red cams push the microswitches and the door remains in the desired position.
- Clockwise turn of the screw causes earlier actuation of the limit switch, counterclockwise turn of the screw causes later actuation respectively.
- Open and close the door, make sure, that the red cams push the microswitches and the door stops in the required position.

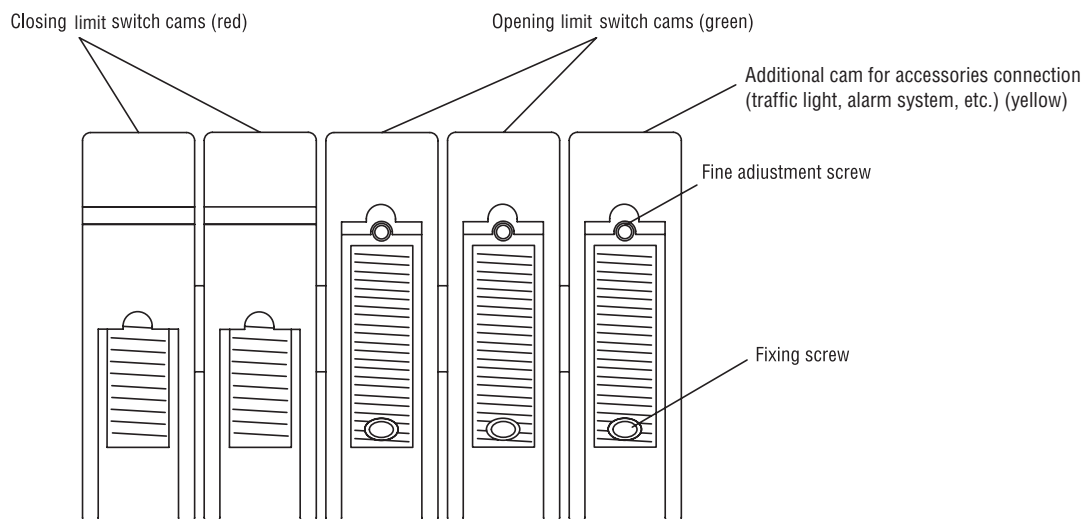
5.2. OPEN POSITION (GREEN CAM)

Coarse adjustment

- Make sure, that the operator is fixed rigidly; put the door in fully closed position.
- Loosen the screws for coarse adjustment of green cam, then turn them so, that the microswitches are pushed, then tighten the screws.
- Close and open the door, make sure, that the green cams push the microswitches.

Fine adjustment

- Turning the fine adjustment screw, adjust the closed position of the door.
- Clockwise turning of the screw causes earlier actuation of the limit switch; counterclockwise turning of the screw causes later actuation of the limit switch.
- Open and close the door, make sure, that the green cams push the microswitches and the door stops in the required position.



6. RELEASE OPERATION

The electric operator Shaft-120 is equipped with a manual chain reducer, which is used for emergency lifting/lowering of the door in case of a power cut. For emergency control, pull the cord with a red handle down up to the stop to prevent automatic actuation of the operator. To return to the automatic control, pull the cord with a green handle down up to the stop.



WARNING! It is forbidden to pull down the cord with a red handle, when the operator runs, as this can damage the motor.



WARNING! Intensive regular use of the manual chain reducer is not permitted. Use it in case of emergency only.

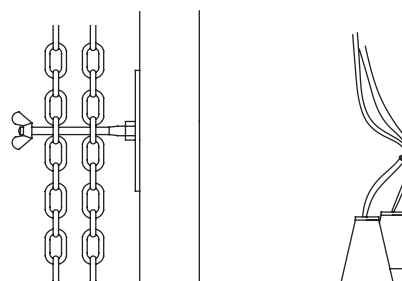


WARNING! Using the manual chain reducer, make sure, that the chain links are not deformed or dirty. Otherwise the reducer can be jammed.

If required, the door can be opened using the chain. Lengthen or shorten the chain so that its assembled edge hangs 50–150 cm above the floor. It is recommended to fix the lower part of the chain which can be a hindrance to people and equipment. Place the warning labels, showing closing and opening direction, in plain view.



WARNING! Use the chain only in case of emergency; otherwise the reducer parts can be damaged.



Secure the chain

Secure the cords

7. MAINTENANCE

- The Shaft-120 automatic system does not require any special servicing.
- Repairs may be carried out only by a qualified technician trained and certified at an authorized DoorHan centre.
- Be sure that after completion of installation the installer has shown the user how to release the door in case of emergency and has given instructions on proper operation and maintenance of the automated system.
- When carrying out maintenance, it is recommended to use DoorHan original spare parts.
- Carry out maintenance of the automatic system at least every six months.
- Regularly check if the door is properly balanced and moves smoothly when automatically operated.
- Regularly check if the extreme positions of door travel are properly adjusted and safety devices are in good working condition.
- In case of power failure the door will stop. As soon as power supply is restored you can control the operator as usual.
- After expiration of life time, the item shall be delivered in a specialized disposal point!
- If you have lost this Manual, you may request for the duplicate copy to the following address: Kralovsky VRCH 2018, Kadan, 43201, Czech Republic, or by email: europe@doorhan.com.
- The producer (DoorHan) does not supervise the installation of operators, or carry out their maintenance, thus DoorHan cannot be held liable for safety of installation, operation and maintenance of the equipment.

8. TROUBLESHOOTING

Symptom	Possible reason	Possible solution
Operator does not run	Power is off	Make sure, that the power is on
	Obstruction to the door movement	Remove the obstruction
	Bad connection of electric wires	Check reliability of electric wiring connection
	The operator is released	Engage the operator
After the manual chain has been used the operator does not work after pushing the buttons of control post or remote control	Return in the original position was not executed	Pull the reducer chain to resume operation
	The door is not balanced	Balance the door
Operator stops suddenly	The operator's thermal protection works	Let the operator cool
Door does not open/close fully	Wrong adjustment of limit switches	Adjust limit switches

DOORHAN[®]

We very much appreciate that you have chosen the product manufactured by our company and believe that you will be satisfied with its quality.

For information on purchasing, distribution and servicing
contact DoorHan central office at:
Kralovsky VRCH 2018, Kadan,
43201, Czech Republic
Telephone: +420 474 319 111
E-mail: europa@doorhan.com
www.doorhan.cz