

## LKS 310

Actuator for air dampers on multi-stage  
and modulating burners

### Instruction Handbook



### APPLICATION

The LKS 310 air damper actuator is designed to be fitted to multi-stage or modulating oil and gas burners with fully closed position.

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## DESCRIPTION

A synchronous motor powers an output shaft and a backlashfree cam shaft via a gear reducer.

The cam shaft operates limit and auxiliary switches. The position at which one of the limit or auxiliary switches operates can be adjusted steplessly within the operating range using the associated cam disc. Manually adjustable lever-operated cams or spindle-driven cams, which can be adjusted with a screwdriver, are available.

## FEATURES

Electric actuator up to 15 Nm

- Drive times: 3.5 ... 30 sec.
- Gearing can be decoupled
- Position indicator
- Easily adjustable limit and auxiliary switches
- Synchronous motor
- Particularly stable design in aluminium housing

### Variants:

- clockwise or counter clockwise rotation
- with integrated electronic circuitry
- different shaft versions

## SPECIFICATION

### Type overview

#### Clockwise rotation <sup>1)</sup>

Diagram <sup>2)</sup>	Shaft <sup>3)</sup>	Drive time <sup>4)</sup>	Load torque <sup>5)</sup>	Holding torque	Voltage <sup>6)</sup>	Type	Remarks <sup>7)</sup>
Nr.	Nr.	s	Nm	Nm	V		
S1	5D	30	15	10	230	<b>LKS 310-15</b> (A-5D-30 S1)	Spindle-driven cam
S12	5D	30	15	10	230	<b>LKS 310-21</b> (A-5D-30 S12)	Spindle-driven cam
S7	5B	30	15	10	230	<b>LKS 310-22</b> (A-5B-30 S7)	
S7	5B	10	10	10	230	<b>LKS 310-24</b> (A-5B-10 S7.1)	
S7	5B	15	15	10	230	<b>LKS 310-25</b> (A-5B-15 S7.1)	
S12	5D	7	7	7	110	<b>LKS 310-34</b> (A-5D-7 S12.1)	Spindle-driven cam
S7	5C	30	15	10	230	<b>LKS 310-35</b> (A-5C-30 S7) IP54	

#### Counter-clockwise rotation <sup>1)</sup>

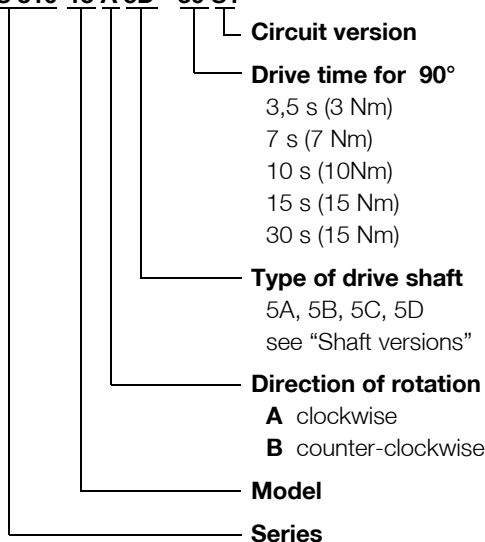
Diagram <sup>2)</sup>	Shaft <sup>3)</sup>	Drive time <sup>4)</sup>	Load torque <sup>5)</sup>	Holding torque	Voltage <sup>6)</sup>	Type	Remarks <sup>7)</sup>
Nr.	Nr.	s	Nm	Nm	V		
S8	5A	3,5	3,5	3,5	230	<b>LKS 310-10</b> (B-5A-3.5 S8)	
S7	5C	3,5	3,5	3,5	230	<b>LKS 310-17</b> (B-5C-3.5 S7.1)	
S7	5B	15	15	10	230	<b>LKS 310-31</b> (B-5B-15 S7.1)	
S7	5B	10	10	10	230	<b>LKS 310-32</b> (B-5B-10 S7.1)	

### Legende

- 1) when viewing from direction A (see dimensional drawing)
- 2) see "Circuit diagrams"
- 3) see "Shaft versions"
- 4) at 50 Hz for 90°  
at 60 Hz, Drive times are about 20 % shorter
- 5) under nominal conditions  
under extreme conditions (e.g. +60 °C, 230V -15%) the torques will be 25% lower
- 6) +10% -15%; 50...60Hz  
at -15%; torque reduced by approx. 20% at undervoltage
- 7) Standard: Lever-operated cam

**Technical data**

<b>Housing</b>	robust aluminium housing with plastic cover
<b>Weight</b>	approx. 1.8 kg
<b>Drive motor</b>	reversible synchronous motor
<b>Clutch</b>	red lever, separates gearing from motor
<b>Gearing</b>	spur gearing, maintenance-free
<b>Drive shaft</b>	steel
<b>PCBs</b>	for all electrical functions, increased conductor thickness wire cross-section
<b>Connection system</b>	terminal blocks
<b>Fitting and fastening</b>	front of gear acts as contact area. Fixing from outside via M5 or M6 screws, thread in housing
<b>Switch point setting</b>	stepless cam setting, lever-operated or spindle-driven cams; if spindle-driven, with superimposed scale
<b>Position indicator</b>	if desired the cover can contain a window and pointer, internally via a co-running pointer and scale
<b>Mains voltage</b>	230 V -15% +10%
<b>Mains frequency</b>	50 Hz or 60 Hz
<b>Safety class</b>	I VDE 0631
<b>Power consumption</b>	7...15 VA
<b>Duty cycle</b>	Depending on motor, 50 to 70 % in 2 minutes
<b>Interference suppression</b>	N (according to VDE 0785)
<b>Actuating angle</b>	90°, in exceptional cases also larger any
<b>Mounting position</b>	any
<b>Protection</b>	IP54, with appropriate design of the cable entries, cover without window (DIN 40050)
<b>Cable entries</b>	2 x PG11
<b>Cable connection</b>	terminal block for 0.5 mm <sup>2</sup> (min.) and 2.5 mm <sup>2</sup> (max.)
<b>Direction of rotation</b>	see "Type overview"
<b>Torque and holding torque</b>	see "Type overview"
<b>Drive times</b>	3.5 ... 30 sec for 90°
<b>Limit and auxiliary switches</b>	max. 7 operation with adjustable cam discs, cams coloured in normal way: blue   fully closed position orange low load red     high load black  spare switches for additional functions switching voltage AC 24 .... 230 V switching capacity with inductive loads 250 VA
<b>Ambient temperature</b>	operation 0...+60° C transport and storage -20...+60° C

**Ordering information****LKS 310-15 A 5D - 30 S1****Standards and approvals****Conformity**

Honeywell certifies herewith that the actuator LKS 310 complies with the following regulations and standards:

- Standards of European Union 73/23 EWG and 93/68 EWG
- EN 60730-1 : 1991 A1 and A11 : 1991
- EN60730-2-5 : 1991

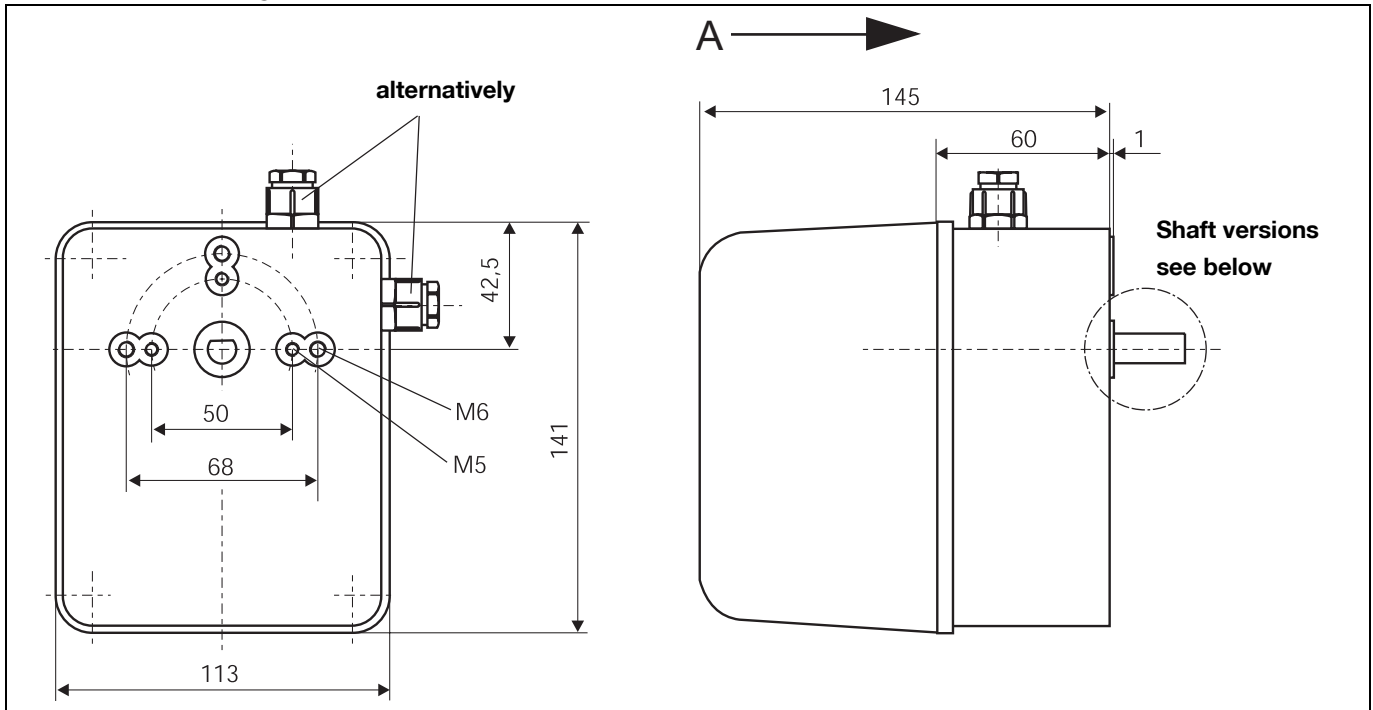
**Accessories**

Potentiometer-retrofit sets only on request.

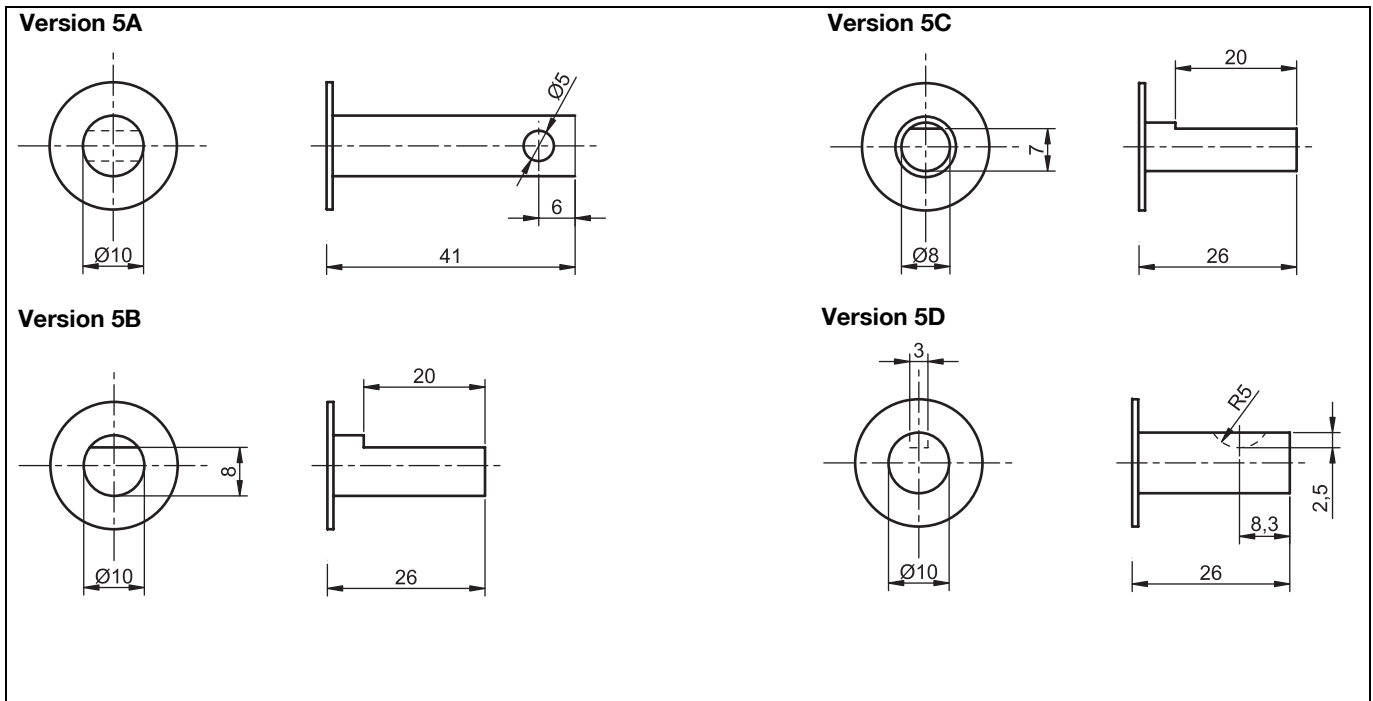
**CAUTION**

Condensation, icing and exposure to water not permitted

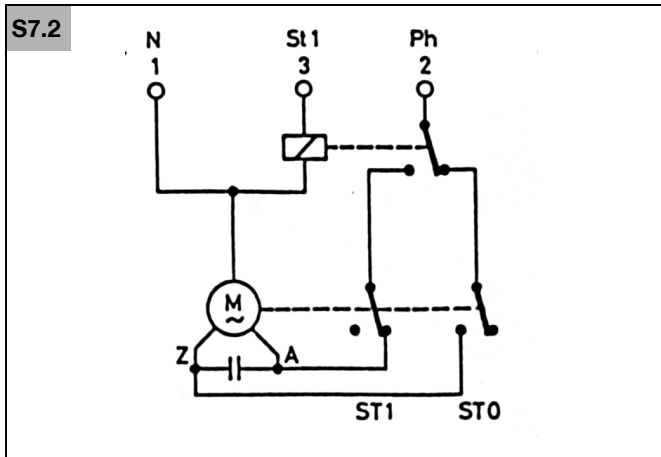
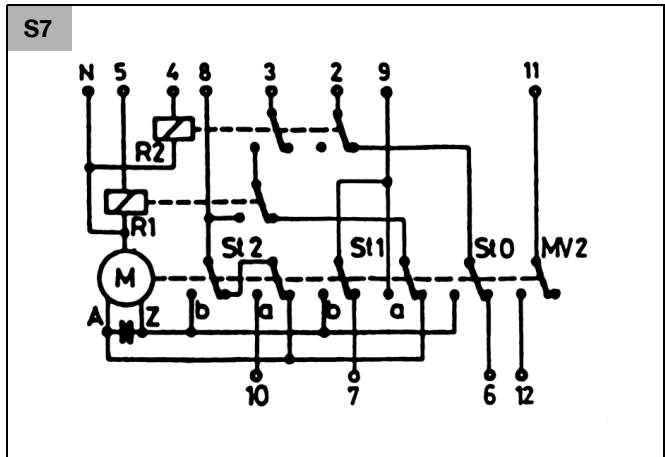
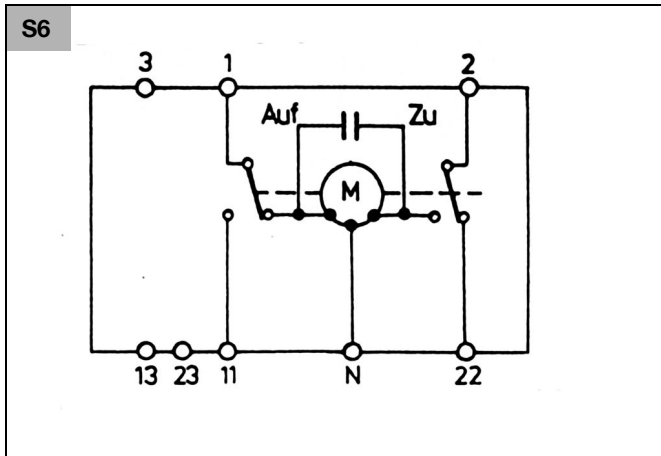
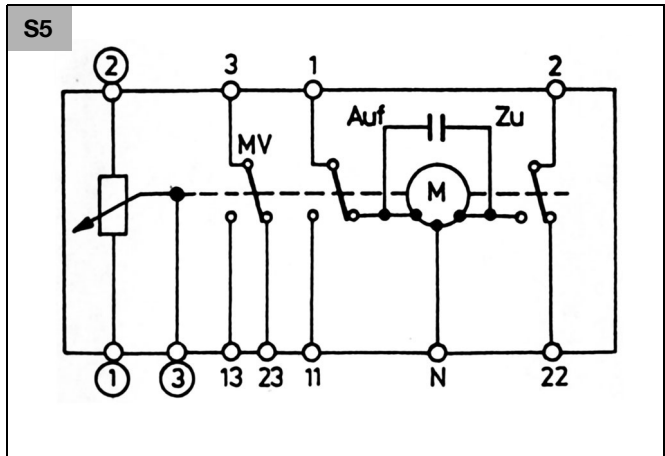
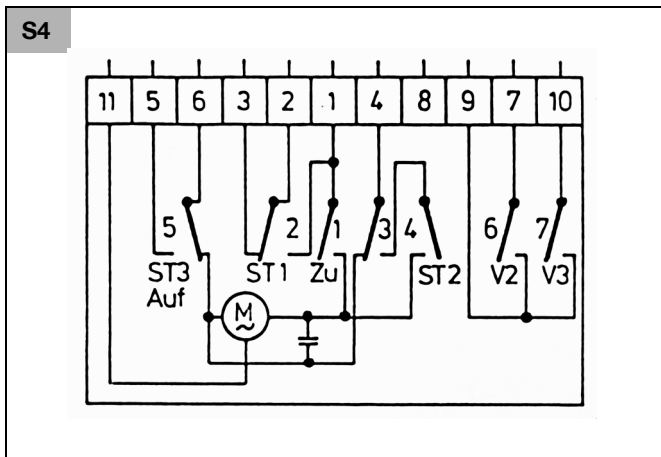
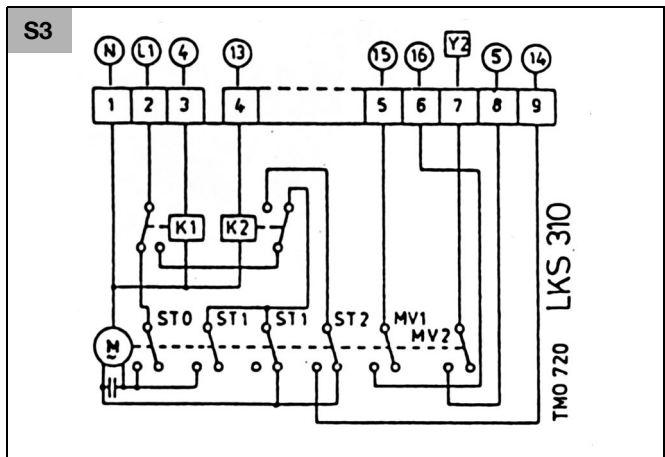
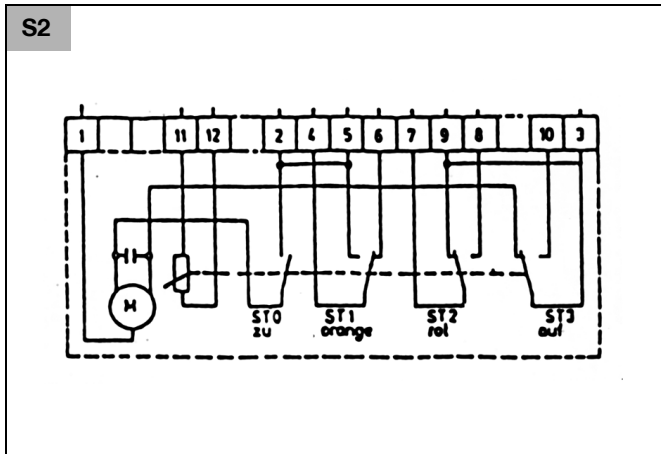
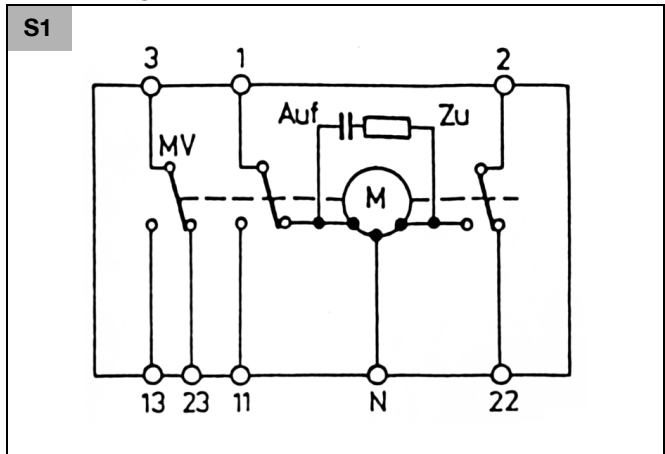
**Dimensional drawing**



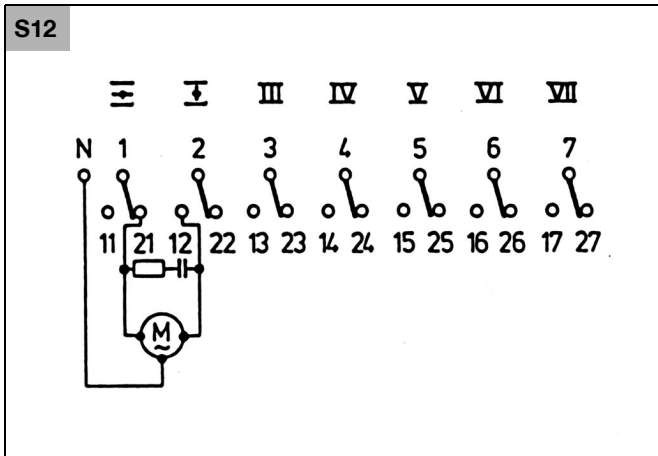
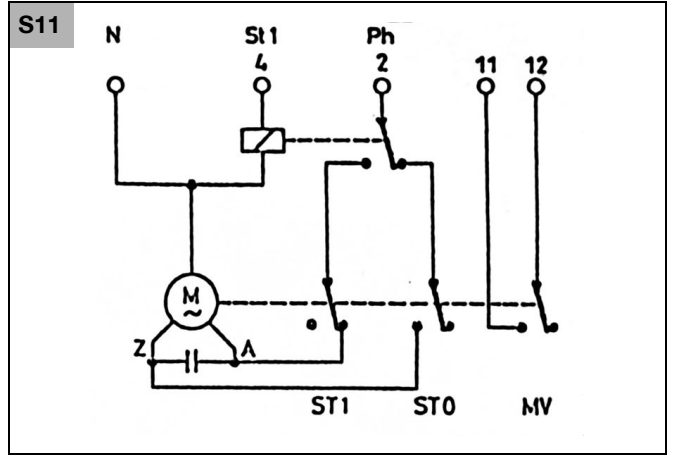
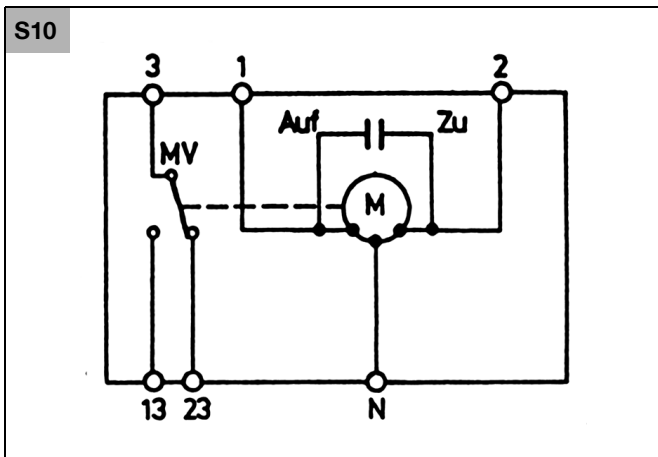
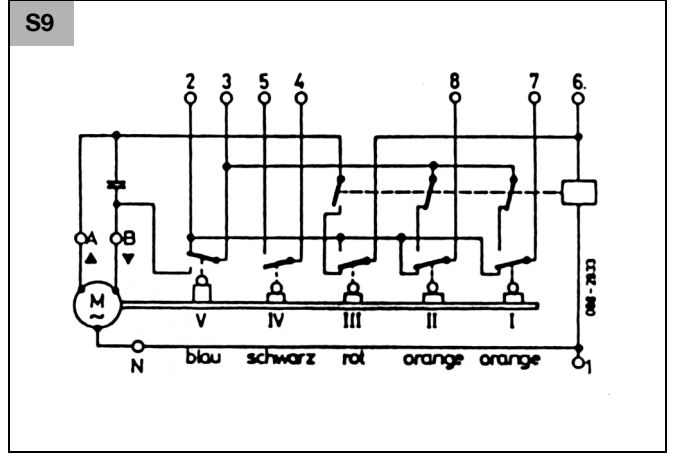
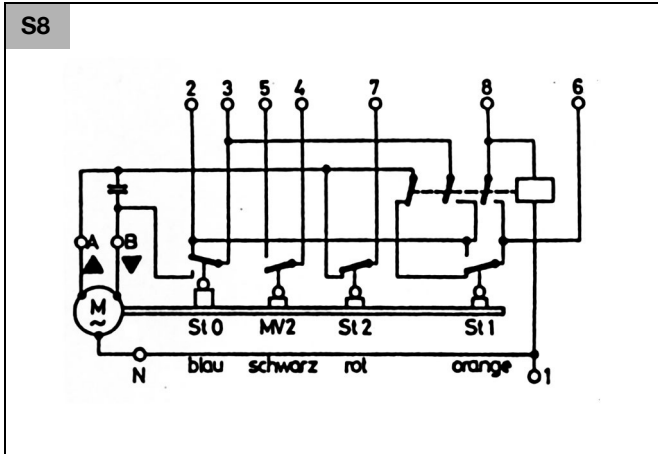
**Shaft versions**



Circuit diagrams



ENTIC-0114SZ20 R0506



## INSTALLATION

### Safety Guidelines

#### WARNING



- The regulations and standards applicable in each particular case must be observed.
- Installation must only be carried out by qualified technicians.
- Electrical wiring must comply with national and local regulations.
- Disconnect the actuators completely from the power supply when working close to terminals and connections.

1. Screw the housing cover securely in place to provide shock-hazard protection on the actuator and all electrical connections.
2. Always lay the burner ignition cable separately and as remotely as possible from the device and other cables.
3. Electromagnetic emissions must be checked on a case by case basis.

## COMMISSIONING AND INSPECTION

### Safety Guidelines

#### WARNING



- Commissioning and inspection may only be carried out by qualified personnel.
- Carefully check all cabling and wiring prior to commissioning.

### Function control

For safety reasons the actuator should be tested on commissioning the installation as well as after a service or longer shut-down.

## REPAIRING AND DISPOSAL



It is forbidden to do any repairing on actuator LKS 310.



The distributor of the heating system assures the professional disposal or the forwarding to the manufacturer for inspection.

