

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 ¹⁾

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

Counter-clockwise rotation ¹⁾

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

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

CAUTION

Condensation, icing and exposure to water not permitted

Ordering information**LKS 310-15 A 5D - 30 S1****Circuit version****Drive time for 90°**

3,5 s (3 Nm)

7 s (7 Nm)

10 s (10Nm)

15 s (15 Nm)

30 s (15 Nm)

Type of drive shaft

5A, 5B, 5C, 5D

see "Shaft versions"

Direction of rotation**A** clockwise**B** counter-clockwise**Model****Series****Standards and approvals****Conformity**

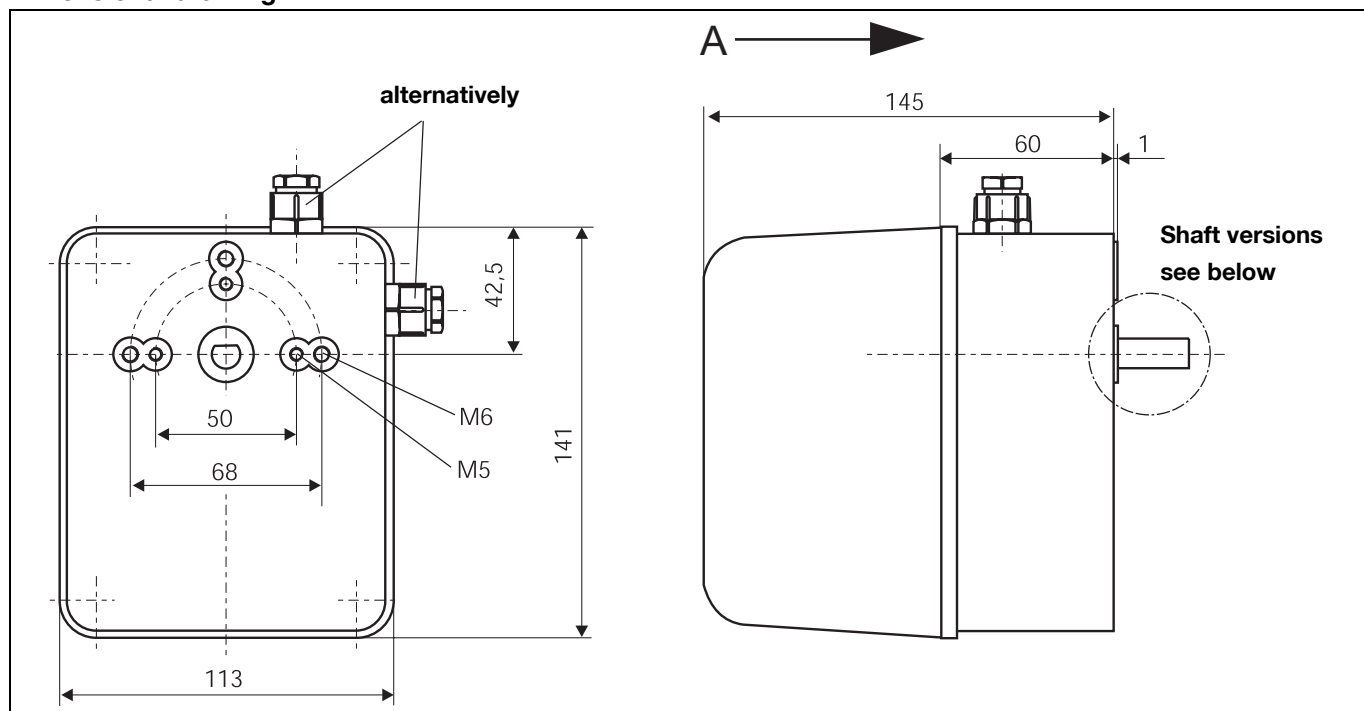
Honeywell certifies herewith that the actuator LKS 310 complies with the following regulations and standards:

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

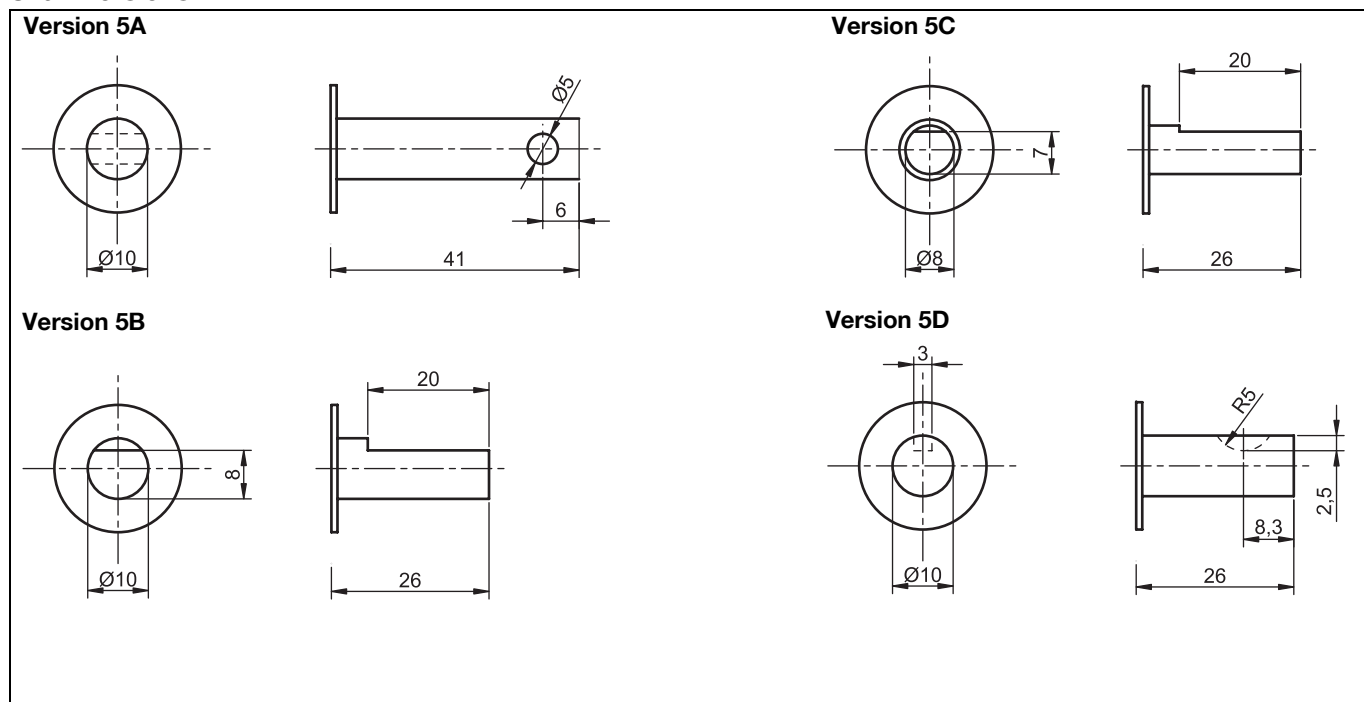
Accessories

Potentiometer-retrofit sets only on request.

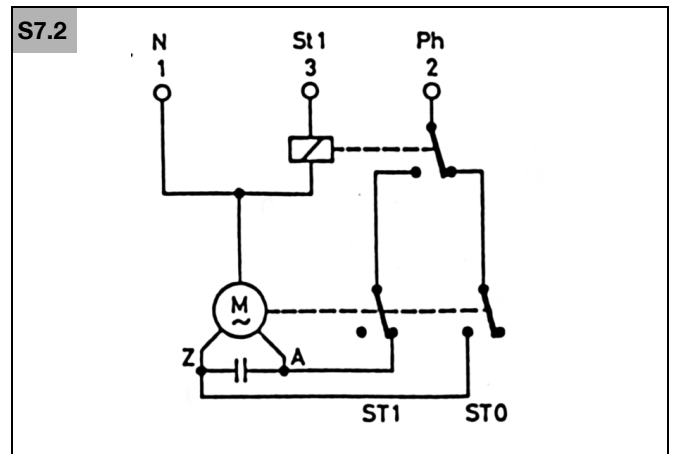
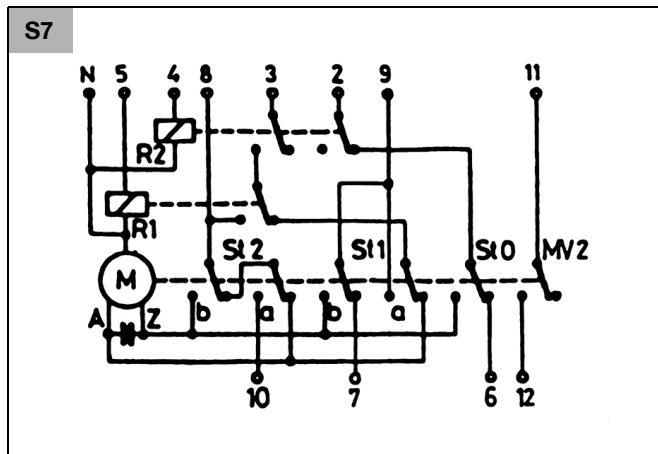
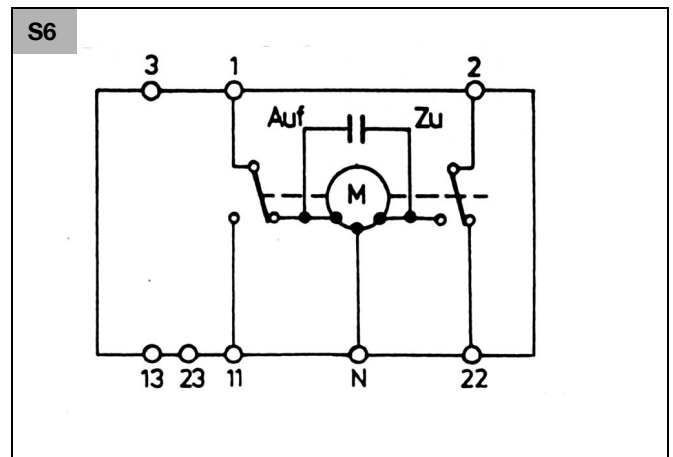
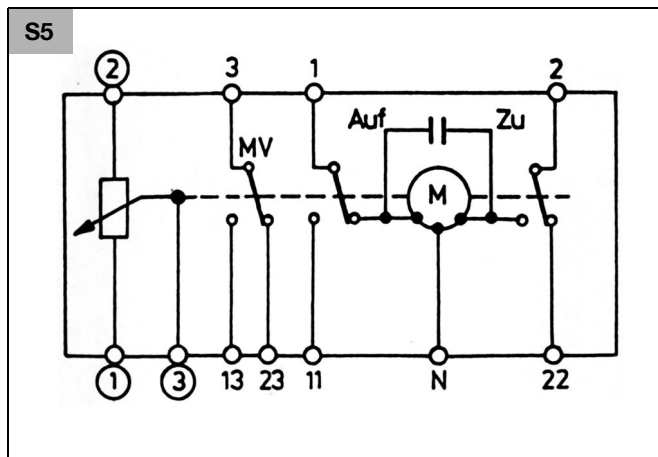
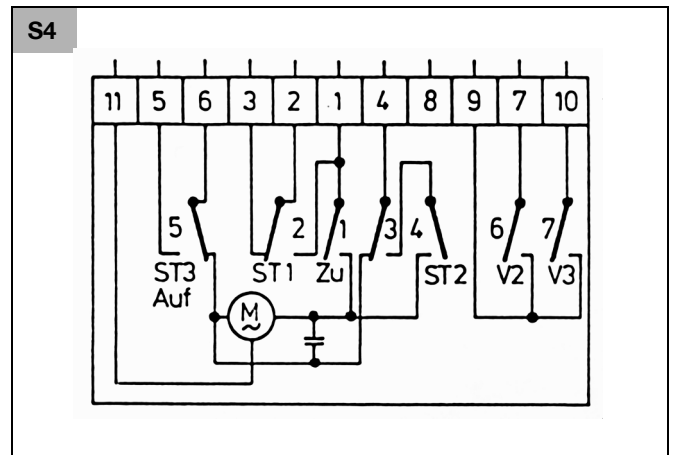
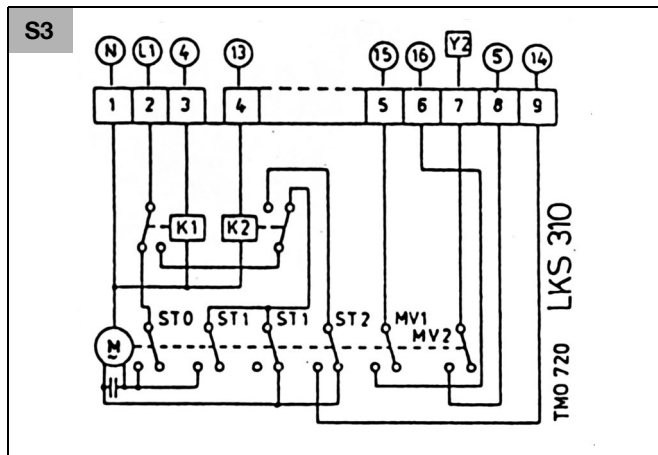
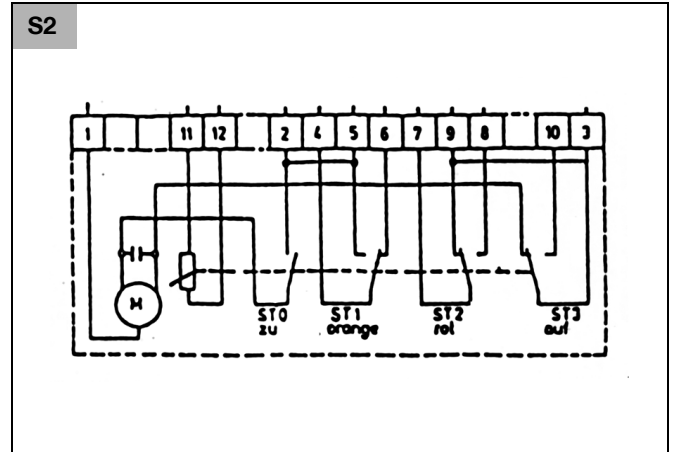
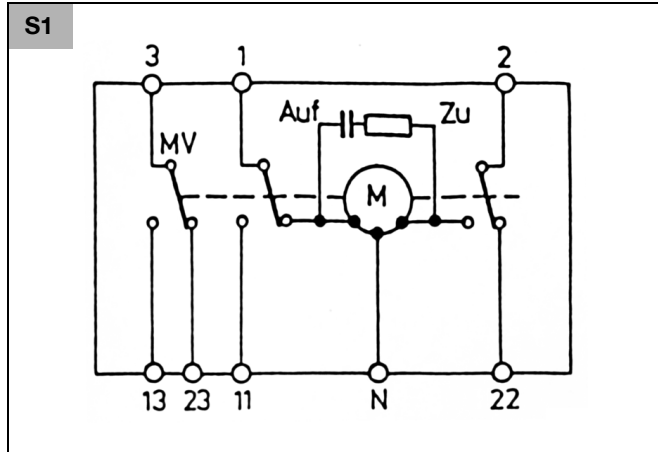
Dimensional drawing



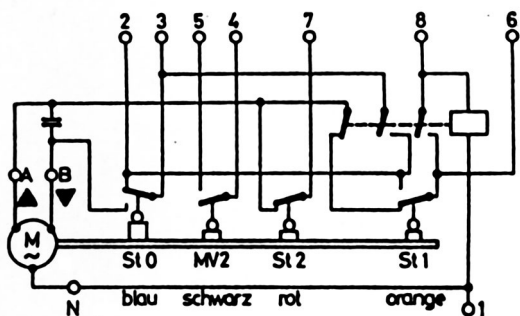
Shaft versions



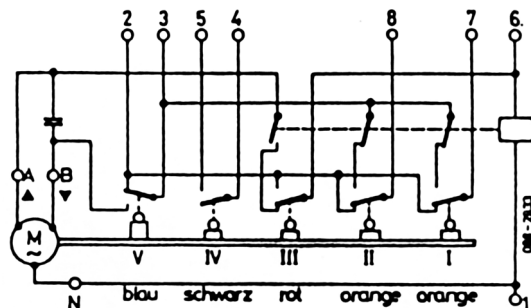
Circuit diagrams



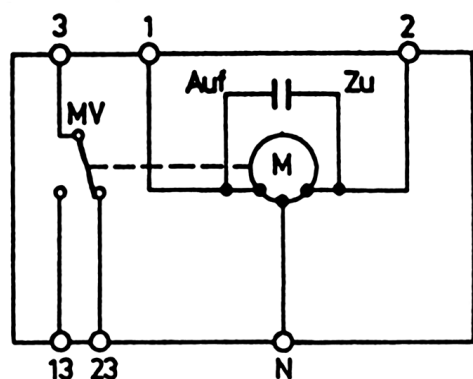
S8



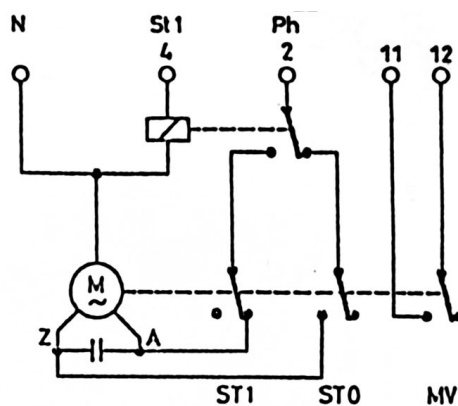
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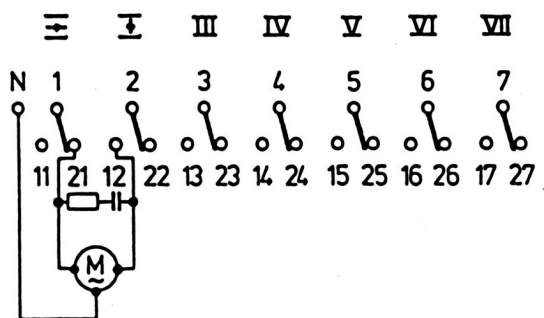
S10



S11



S12



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.

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