



# Part-turn actuators (compact design)

## Product features

- Wide torque range
- Wide range of positioning times
- Constant positioning times under fluctuating loads
- Up to four auxiliary position switches possible
- Wide selection of output shafts
- Custom shafts possible
- Solid metal housing
- Maintenance-free gearbox
- Operates in any position

## Overview

The NK series of compact actuators is designed to control smaller and smooth-running valves utilized in industrial applications.

The robust construction and metal housing made of a die-cast zinc alloy that offers protection class IP65 as well as the extremely compact design ensure these actuators are both suitable for harsh operating environments and installation in confined spaces.

When fitted with optional position indicators and TUV-approved potentiometers for electronic fuel/air ratio control systems these compact actuators are ideally suited for use in industrial furnace installations and combustion plants.

A diverse range of adapters ensure they can be easily mounted onto butterfly valves and smoothly operating ball valves.



## Product details

### HOUSING

- Housing and hood made of corrosion-resistant die-cast zinc
- Coated with silicon-free paint
- Colour: RAL 7032 Pebble Grey
- One cable entry M20x1.5
- Two cable entries M16x1.5
- Protection class IP65 to DIN EN 60529
- Options:
  - Custom colours
  - Sealed with clear coating material and corrosion-preventative wax to improve corrosion resistance
  - Electric anti-condensate heater (helps prevent build-up of condensate in the actuator)

### MOTOR

- Single-phase AC synchronous motor with permanent magnet, reversible
- 230 V  $\pm$  10%, 50/60 Hz  $\pm$  5%
- ON time 100% duty cycle on request
- Short start/stop times
- Insulation class B to VDE 0530
- Synchronous motors maintain speed and constant positioning times irrespective of the load
- Options:
  - DC motor
  - Custom voltages
  - Custom frequencies

### GEARBOX

- Spur gearing with straight-toothed steel gears
- Robust, maintenance-free
- Permanently lubricated gears
- Self-lubricating sintered bronze bearing
- Encapsulated version, operates in any position

### OUTPUT SHAFT

- $\varnothing$  10 mm, form D
- Options:
  - Alternative diameters and forms to customer requirements on request

### ELECTRICAL CONNECTION

- Screw-type terminals
- Depending on the version it is possible to retrofit between one to four additional auxiliary position switches

### CONTROLS

- Open/close signals
- Options:
  - Additional potential-free switching contacts
  - Electronic position controller ESR-NK (integrated in actuator)
  - Potentiometer 200  $\Omega$  ... 10 k $\Omega$

### AMBIENT TEMPERATURE

- -15 °C to +60 °C
- 0 °C to +60 °C when utilizing electronic position controller ESR-NK
- Options:
  - Up to +80 °C, duty cycle S3-50%
  - Down to -40 °C

### ANGLE OF ROTATION LIMITED BY SNAP-ACTION

#### POSITION OFF SWITCH

- Two limit switches
- All travel-dependent switches actuated by infinitely adjustable control cams
- CO switches with silver-plated contacts
- Switch connections routed to terminal strip
- Max. switching capacity: 2.5 A, 250 V AC
- Option:
  - Switches with gold-plated contacts

### POSITION SENSOR FOR EXTERNAL POSITION INDICATION (OPTIONAL)

- With potentiometer
  - Choice of wire-wound or conductive plastic potentiometer
  - Tandem potentiometers possible
  - It is possible to adapt the electrical angle of rotation of the potentiometer to the desired angle of rotation utilizing a gear train.
  - Special potentiometers with TUV-approved form-fit attachment solution are available for electronic fuel/air ratio control.
- With 4 ... 20 mA transmitter
  - Utilizing a gear train it is possible to adapt the electrical angle of rotation of the transmitter to the desired angle of rotation.

### MECHANICAL POSITION INDICATOR (OPTIONAL)

- Position indicator on hood
- Graduated scale OPEN/CLOSED, 0° ... 90°, blank or to customer specification

### MANUAL OPERATION (OPTIONAL)

- Using a handwheel it is possible to manually adjust the position of the output shaft and valve.
- Position switch-off setting is retained during manual operation.
- Handwheel remains motionless during electrical operation.

### OPTIONS

- Other voltage/frequency
- Other ambient temperature range
- Handwheel
- Additional auxiliary position switches
- Custom control cams
- Electronic position controller ESR-NK
- Position sensor
- Anti-condensate heater
- Relay to switch several actuators in parallel
- On the spot mechanical position indicator
- Potentiometer
- Components to UL standard

### INSTALLATION

- Easy to install thanks to a stable bracket
- Installation possible with stud bolts on request
- No fuss coupling to valve stem by means of:
  - Hand-operated lever
  - Lever arm, clamping lever, ball-and-socket joint, connecting rods, spring-loaded connecting rods
  - Flexible shaft coupling
  - Rigid shaft coupling

### ORDER DETAILS

- Device type
- Torque
- Positioning time
- Output shaft type
- Operating voltage/frequency
- Desired options
- When ordering a potentiometer:
  - Resistance value
  - Desired actuator angle of rotation
- Information to preset position switches and potentiometers
- Or order number
- Desired valve, where applicable

## ACTUATORS – NK SERIES, 230 V, 50(60) Hz (OPTIONAL 115 V, 50(60) Hz)

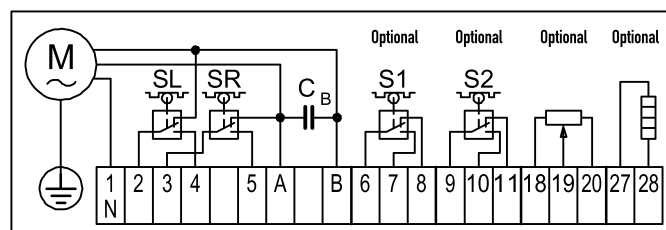
Type	Positioning time 90°	Torque	Power consumption (max.)	Turning range	Shaft	Weight	Order No.
NK 00803 *	0.8(0.65) s	3 Nm	31 VA	0 - 300°	14.5/ø12/2-fl	2.9 kg	8060
NK 0302	3(2.5) s	2 Nm	7 VA	0 - 300°	30/ø10/D/25	2.5 kg	8020
NK 0305 *	3(2.5) s	5 Nm	18 VA	0 - 300°	30/ø10/D/25	2.5 kg	8030
NK 0310 *	3(2.5) s	10 Nm	31 VA	0 - 300°	30/ø10/D/25	2.6 kg	8040
NK 1510	15(13) s	10 Nm	7 VA	0 - 300°	30/ø10/D/25	2.5 kg	8002
NK 3010	30(25) s	10 Nm	7 VA	0 - 300°	30/ø10/D/25	2.5 kg	8003
NK 6010	60(50) s	10 Nm	7 VA	0 - 300°	30/ø10/D/25	2.5 kg	8004
NK 0315 *	3(2.5) s	15 Nm	31 VA	0 - 300°	30/ø10/D/25	2.6 kg	8045
NK 1515 *	15(13) s	15 Nm	18 VA	0 - 300°	30/ø10/D/25	2.5 kg	8002
NK 3015	30(25) s	15 Nm	7 VA	0 - 300°	30/ø10/D/25	2.5 kg	8003
NK 6015	60(50) s	15 Nm	7 VA	0 - 300°	30/ø10/D/25	2.5 kg	8004

\*: duty cycle S3-50%

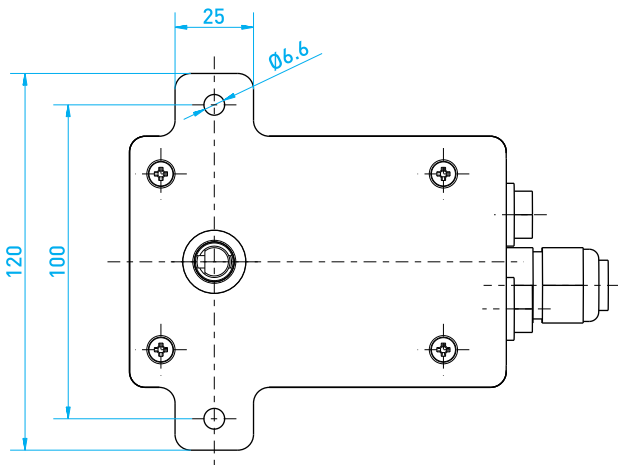
## ACTUATORS – NK DC SERIES, 24 V

Type	Positioning time 90°	Torque	Power consumption (max.)	Turning range	Shaft	Weight	Order No.
NK DC0310	~3 s	10 Nm	27 W	0 - 300°	30/ø10/D/25	2.6 kg	8065
NK DC0315	~3 s	15 Nm	27 W	0 - 300°	30/ø10/D/25	2.6 kg	8068
NK DC0710	~7 s	10 Nm	12 W	0 - 300°	30/ø10/D/25	2.5 kg	8070
NK DC0715	~7 s	15 Nm	27 W	0 - 300°	30/ø10/D/25	2.6 kg	8072
NK DC3010	~30 s	10 Nm	5 W	0 - 300°	30/ø10/D/25	2.5 kg	8074

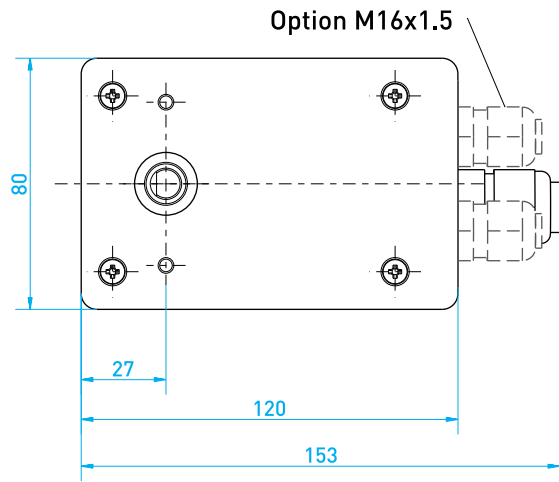
## SCHEMATIC DIAGRAM STANDARD AC



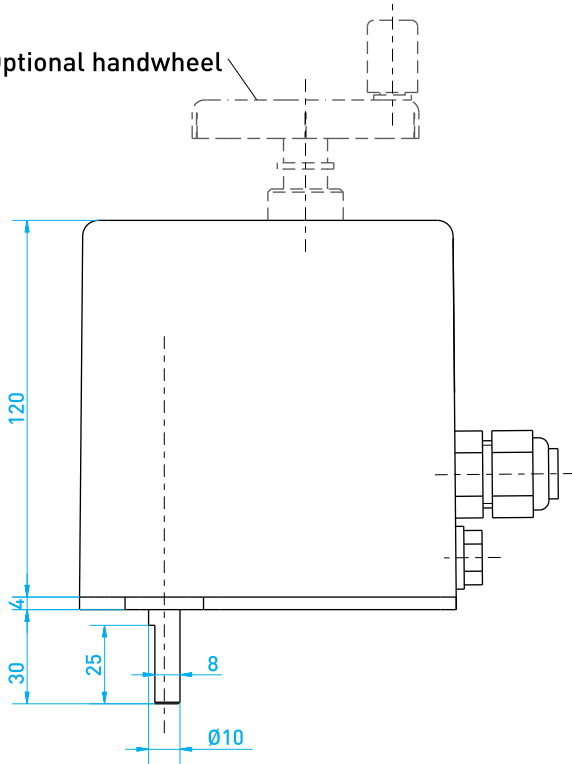
# Dimensions



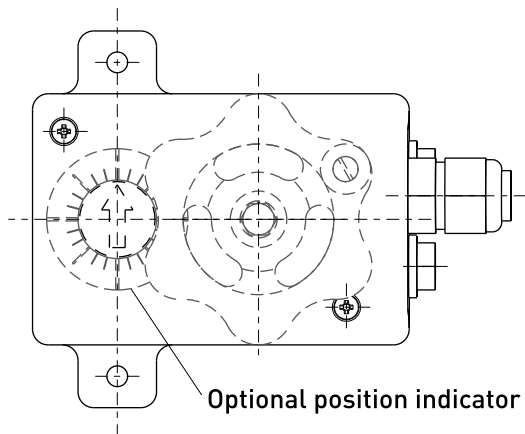
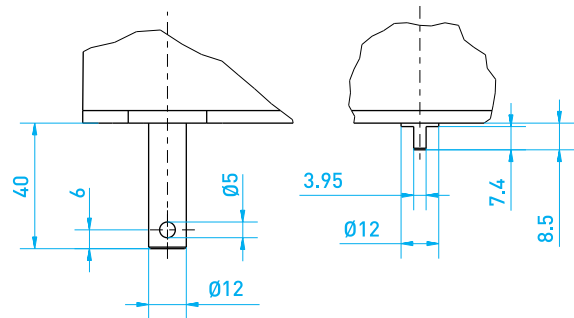
Option without lugs / with stud bolt underneath



Optional handwheel



Additional shafts - versions



Optional position indicator