



Instruction Manual

SKP

Pneumatic Actuator for Ball Valves



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Safety Information

General Instructions

To ensure safe operation, the device should only be operated according to the specifications in the instruction manual. The requisite Health & Safety regulations for a given application must also be observed. This statement also applies to the use of accessories.

Every person who is commissioned with the initiation or operation of this device must have read and understood the operating instructions and in particular the safety instructions!

The liability of the manufacturer expires in the event of damage due to improper use, non-observance of this operating manual, use of insufficiently qualified personnel and unauthorized modification of the device.

Proper Usage

The pneumatic actuator built on the ball valves of the model series SKG01 or SKG02 enables remote controlled opening and closing of the ball valve. All other usage is regarded as being improper and outside the scope of the device.

The series SKP devices should not be deployed as the sole agents to prevent dangerous conditions occurring in plant or machinery. Machinery and plant need to be designed in such a manner that faulty conditions and malfunctions do not arise that could pose a safety risk for operators.

Qualified Personnel

The SKP devices may only be installed by trained, qualified personnel who are able to mount the devices correctly. Qualified personnel are persons, who are familiar with assembling, installation, placing in service and operating these devices and who are suitably trained and qualified.

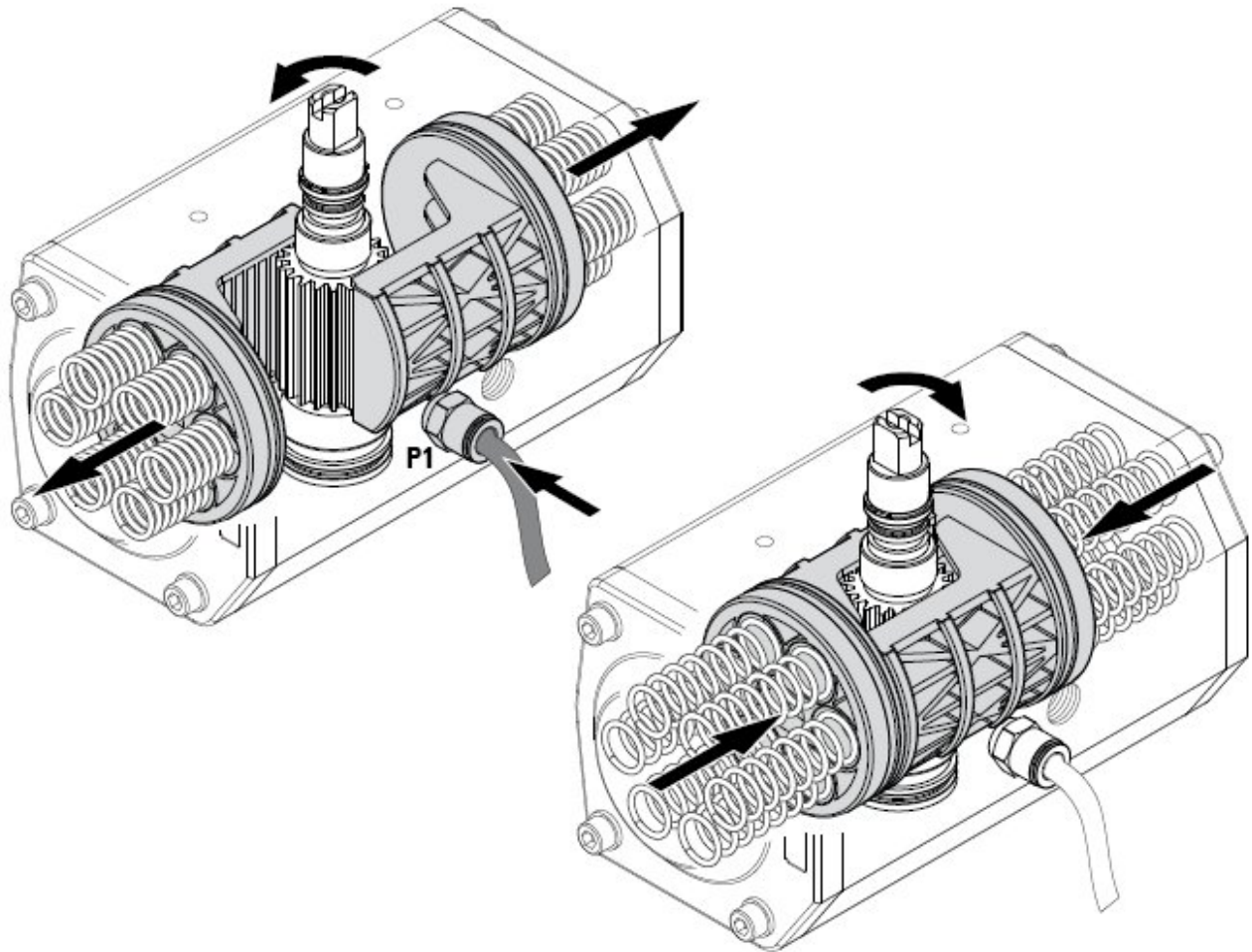
Inward Monitoring

Please check directly after delivery the device for any transport damages and deficiencies. Additional with reference to the accompanying delivery note the number of parts must be checked. Claims for replacement or goods which relate to transport damage can only be considered valid if the delivery company is notified without delay.

Description of function

Function „single-acting“

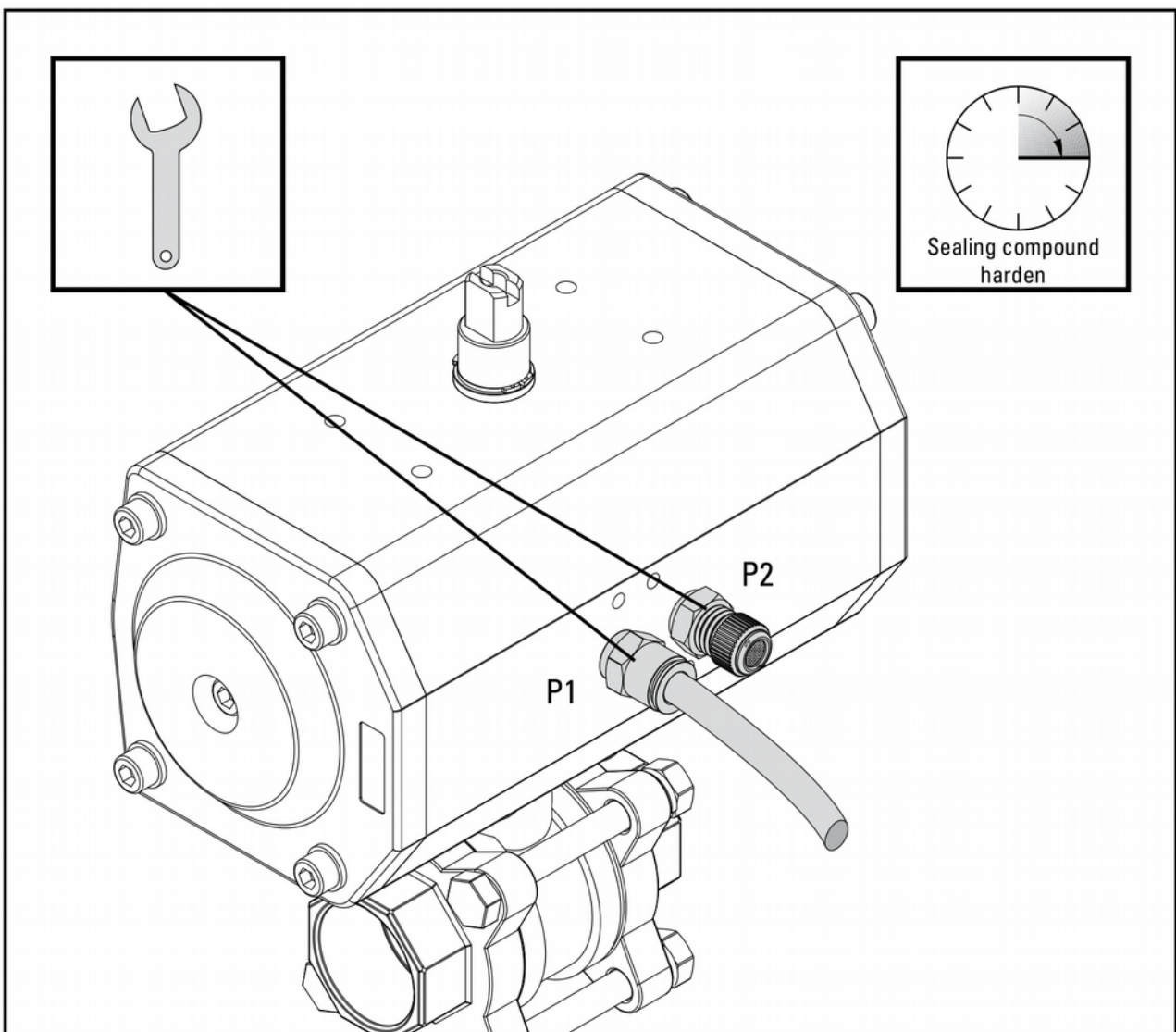
Pressure is given through port „P1“ into the actuator between the two piston surfaces. The pistons expand against the spring force. The pistons force will be transfer to the pinion by racks. The pinion turns round counterclockwise about 90° ->the actuator moves into the position „OPEN“. Exhausting the port „P1“ the pistons will be replaced by the spring force. Therefore the pinion turns clockwise about 90° -> the actuator moves into the position „Close“. The springs will be able to adjust to the working conditions.



Pneumatically Installation

The installation of the air supply have to take place with great care. Especially the threaded connection, fittings and sealings have to be clean and free of pollution. Pollution which attains inside the actuator, will causes hasten wear and the damage of the sealings and the treads.

- At first you have to remove the protection caps from the ports „P1“ and „P2“.
- Screw in a suitable pneumatic fitting into the port „P1“ by using a fit seal-ing compound and tighten the fitting.
- Insert a hose into the fitting at port „P1“ which will feed the actuator with compressed air during the opening operation.
- Screw in a throttle valve with silencer into the port „P2“ by using a fit sealing compound and tighten the throttle valve.
- Tighten the hose in the fitting at port „P1“.
- Check the tightness of all connections.
- This completes the mounting and the pneumatically installation of the actuator.



Disassembly

Although the disassembly of an actuator in principle proceeds in the reverse sequence to the mounting, some essential points should be clarified!

In order, for example, for the operational chemical plant which was mentioned at the beginning to remain in operation:

- Will the actuator to be disassembled be replaced immediately by another (of equal valve)? If not, in which position should the actuator be, following the disassembly?
- Must the actuator be fixed in its intended position?
- If appropriate, does the production process of the plant need to be stopped?
- Is it necessary to inform specific personnel about the disassembly? etc.

Never remove a armature under pressure.

Ball valves are able to enclose the pressurize medium. Release the pressure in the pipes, to relieve the pressure at the armature.

Pneumatically disassembly

Turn the actuator with the slide/valve/flap into its fix position !

Switch off the compressed air supply and the control of the actuator!

If necessary, set up warning signs in order to prevent

- the inadvertent starting up of the devices / machines / plants, or
- the switching on of power supply of the control of the actuator

Loosen the fitting of the pilot medium and take away the pipe of the pilot medium.

Close the pipe of the pilot medium if the pipe is not also being disassembled or is not to be immediately reconnected to another pneumatic actuator.

Mechanical disassembly

Unscrew the four fastening screws of the actuator and pull the actuator from mounting position.

This completes the disassembly of the actuator.

SKP

Pneumatic Actuator for Ball Valves

- ready mounted on ball valves
SKG01 or SKG02
- actuator single or double acting
- options: control valves, limit switches



Description:

The pneumatic part-turn actuator mounted on the SKG01 or SKG02 series ball valves enables the remote-controlled opening and closing of the ball valve.

The rotary actuator can optionally be equipped with 3/2-way or 5/2-way magnetic valves for electrical control.

Using the optional limit switches, feedback signals on the switching status of the ball valve can be sent to the control system.

Typical applications:

The ball valves with pneumatic actuator are used wherever pipelines are to be opened or closed automatically.

The short switching times (typical < 1 second) enable a fast reaction to the requirements of the respective process.

In contrast to magnetic valves, however, pressure peaks in the pipeline caused by water hammer are avoided.

Mode of Operation:

Actuator: single-acting
with spring forced closed (standard)
with spring forced open (option)
double-acting

Suitable for:
ball valve with threaded connection: see data sheet SKG01
ball valve with flange connection: see data sheet SKG02

Selection:

Process connection (G)	SKG01, with threaded connection							
	SKG01.1, 2/2-way				SKG01.4-5, 3/2-way			
	single-acting		double-acting		single-acting		double-acting	
	brass	st. st.	brass	st. st.	brass	st. st.	brass	st. st.
1/4	-	-	-	-	43	-	43	-
3/8	-	-	-	-	43	-	43	-
1/2	43	55	43	43	55	55	43	43
3/4	43	55	43	43	63	55	55	43
1	55	55	43	43	63	63	55	55
1 1/4	55	55	43	43	63	70	55	63
1 1/2	63	70	55	55	70	85	63	70
2	63	70	55	55	85	100	63	70
2 1/2	85	-	70	-	-	-	-	-
3	85	-	70	-	-	-	-	-
4	100	-	85	-	-	-	-	-

Process connection (DN)	SKG02, 2/2-way, with flange connection							
	SKG02.1, compact, PN 16				SKG02.4, standard, PN 16			
	single-acting		double-acting		single-acting		double-acting	
	steel	st. st.	steel	st. st.	cast iron	st. st.	cast iron	st. st.
15	55	55	43	43	-	55	-	43
20	55	55	43	43	-	55	-	43
25	63	63	43	43	63	63	43	55
32	63	63	55	55	63	85	55	55
40	70	70	55	55	70	85	55	63
50	70	70	63	63	70	100	63	70
65	85	85	70	70	85	127	70	85
80	100	100	85	85	100	127	85	85
100	127	127	100	100	127	143	100	100
125	127	127	100	100	127	185	100	127
150	163	163	127	127	163	210	127	143
200	210	210	163	163	210	-	163	185

Product Selection:

- select ball valve according to data sheet SKG01 or SKG02
example: SKG01.1.0.1.4.0
- select suitable actuator according to type code
example: SKP.ED.TM5-24.0
- complete order number:
SKG01.1.0.1.4.0.SKP.ED.TM5-24.0

Order Code:

Order number: SKP. ED. TM5-24. 0

Pneumatic actuator for ball valves

Mode of operation:

EE-Z = single-acting,
with spring forced closed (standard)
EE-A = single-acting,
with spring forced open (option)
ED = double-acting

Control valves (attached to part-turn actuator):

0 = without
TM3-24 = 3/2-way magnetic valve, 24 VDC,
(only for single-acting actuators)
TM3-230 = 3/2-way magnetic valve, 230 VAC,
(only for single-acting actuators)
TM5-24 = 5/2-way magnetic valve, 24 VDC,
(only for double-acting actuators)
TM5-230 = 5/2-way magnetic valve, 230 VAC,
(only for single-acting actuators)
S = special version

Options:

0 = without
S1 = 2 switches (for piston diameter 43...143 mm)
S2 = 2 switches (for piston diameter 163...210 mm)
9 = please specify in plain text

Technical Data:

Actuator

housing: aluminium, anodised
control medium: air, filtered, min. according to PNEUROP / ISO KI. 4
control pressure: 2–10 bar, recommended 6–8 bar
angle of rotation: 90 °
torque: 5-300 Nm, depending on nominal size of ball valve
ambient temperature: –20...+80 °C (140 °C on request)

Control valves

material: aluminium housing
internal parts: brass, plastic
medium: air, 3–10 bar
air connection: G 1/4
electrical connection: cube plug acc. to DIN 43650
media temperature: –10...+70 °C

Limit switches:

version: electromechanical microswitches in plastic housing
2 x N/O / N/C
switching capacity: max 250 V, max 10 A
electrical connection: cable screw M20 x 1,5
ambient temperature: –20...+100 °C

