

Process valves of the CLASSIC Type 2000 and 2012

Prozessventile der Reihen CLASSIC Typ 2000 und 2012

Vannes de process des séries CLASSIC Type 2000 et 2012

Seal set

Dichtungssatz

Jeu de joint

Replacement Instructions

Austauschanleitung

Instructions de remplacement



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1 REPLACEMENT INSTRUCTIONS

These instructions describe the procedure for changing the seal set in Type 2000 and Type 2012 valves with the currently available design. You can read about changing the seal set for devices with an older design in the service instructions in Type 2000 at: country.burkert.com

Important safety information.

- ▶ The instructions must be read and understood.

You will find the detailed description of your device in the operating instructions at: country.burkert.com

1.1 Symbols used



DANGER

Immediate danger! Serious or fatal injuries.

NOTE

Warns of damage.



Important tips and recommendations.



Refers to information in these replacement instructions or in other documentation.

- ▶ Designates instructions to avoid a danger.
- Designates a procedure which you must carry out.

2 DISASSEMBLE ACTUATOR



DANGER

Risk of injury due to high pressure and escaping medium.

- ▶ Only work on depressurised systems. Vent and drain the lines.

The tool required for changing the wear part is not included in the scope of delivery. This can be found on our website country.burkert.com by entering the order number of your wear part. If you have any queries, please contact your sales department.

The actuators have different structures, depending on their control function.

- Actuator control function A (closed by spring action in resting position)
- Actuator control function B (opened by spring action in resting position)
- Actuator control function I (double-acting)

NOTE

Disassemble the actuator completely to replace all seals.

- ▶ Do not use any pointed or sharp-edged auxiliary materials.



DANGER

Risk of injury when opening the actuator.

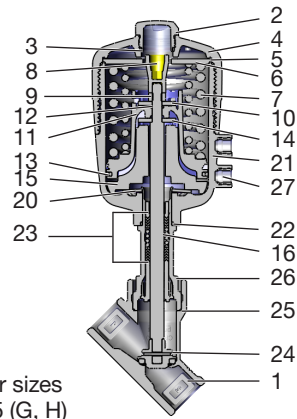
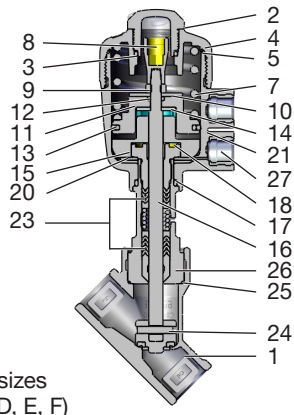
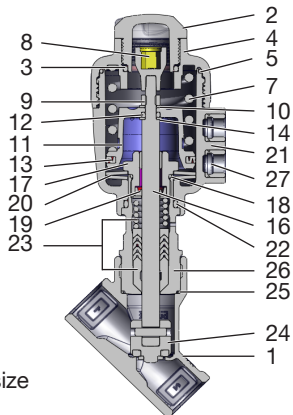
The actuator contains a spring under tension. When the actuator is opened, the spring will jump out and may cause injuries.

- ▶ Open the actuator carefully.

2.1 Notes for disassembly steps (Chapter 2.3)

1	For valves closed by spring action: pressurise pilot air port 1 with 5 bar compressed air, disassemble valve body, then vent valve
2	Ignore if a control unit is installed on the process valve. Loosen external piping on actuator housing.
3	Special wrench required to press against the hexagon of the actuator housing. The control unit must be disassembled if necessary. Notes on this in the control unit instructions.
4	Press carefully against the cylindrical part of the swivel plate (tighten)
5	Press against tube hexagon
6	Do not damage the sealing surface in the tube

2.2 Drawings



Item	Designation	Item	Designation	Item	Designation	Item	Designation
1	Valve body	2	Transparent cap	15	Filler piece	16	Spindle
3	O-ring 1	4	Cover	17	Screw	18	O-ring 4
5	O-ring 2	6	Washer 1 (only for G and H)	19	Lip seal	20	Disc springs
7	Compression spring (CFA top, CFB bottom)	8	Position indicator	21	Bush	22	O-ring 5
9	Nut	10	Washer 2	23	Compression spring, thrust collar, v-seal, wiper		
11	Piston	12	O-ring 3	24	Swivel plate	25	Seal
13	Piston seal	14	Washer 3	26	Tube	27	Pilot air port 1

2.3 Disassembly steps

The actuator is disassembled in the following order (*parts in italics are not available for all variants, see Chapter “2.1” for footnotes*)

Actuator C/actuator diameter Ø40

→ Valve body¹ – *Transparent cap*² – O-ring 1² – Cover³ – *O-ring 2* – *Top compression springs* – *Position indicator*⁴ – Nut⁴ – Washer 2 – Piston with O-ring 3 and piston seal – Washer 3 – *Bottom compression spring* – Spindle – Screw⁵ – O-ring 4 – Washer 4 – Lip seal – Disc springs – Bush⁵ – O-ring 5 – Compression spring, thrust collar, v-seal, wiper⁶

Actuator D, E, F/actuator diameter Ø50, 63, 80

→ Valve body¹ – *Transparent cap*² – O-ring 1² – Cover³ – *O-ring 2* – *Top compression spring(s)* – *Position indicator*⁴ – Nut⁴ – Washer 2 – Piston – O-ring 3 – Piston seal – Washer 3 – *Filler piece* – *Bottom compression spring* – Spindle – Screw⁵ – Disc springs – Bush⁵ – O-ring 5 – all v-seals, thrust collars, compression spring, wiper⁶

Actuator G, H/actuator diameter Ø100, 125

→ Valve body¹ – *Transparent cap*² – O-ring 1² – Cover³ – *O-ring 2* – Washer 1 – *Top compression spring(s)* – *Position indicator*⁴ – Nut⁴ – Washer 2 – Piston – O-ring 3 – Piston seal – Washer 3 – *Filler piece* – *Bottom compression spring*

3 ASSEMBLY

3.1 Assembly preparation

Dimensions of selected sealing elements

	Actuator size					
	C	D	E	F	G	H
O-ring 1	20.29 x 2.62 (current structure); lip seal 4 x 8 x 3 (old design)	20.29 x 2.62	20.29 x 2.62	20.29 x 2.62	30 x 2.5	30 x 2.5
O-ring 2	40 x 2	50.52 x 1.78	63.22 x 1.78	82.22 x 2.62	102 x 3	126.67 x 2.62
O-ring 3	5 x 2	6 x 2	6 x 2	8 x 2	10 x 2	10 x 2
O-ring 4	16 x 1.5	-	-	-	-	-
O-ring 5	19.18 x 2.46	19.18 x 2.46	23.47 x 2.62	23.47 x 2.62	28.24 x 2.62	28.24 x 2.62
O-ring 5	-	-	-	-	31.42 x 2.62 (old design)	31.42 x 2.62 (old design)

- Clean all individual parts. Maintain lubrication on the running surface of the piston seal in the bush and the groove base of the piston.
- Grease all remaining seals with OKS lubricant. Some packing glands contain v-seals made from different materials. In this instance, the v-seal labelled with a green stripe is the bottom v-seal.
- Grease all stainless steel threads with Klüberpaste lubricant.

3.2 Notes for assembly steps (Chapter 3.3)

1	Parts can be slid into the tube with the aid of the screw and/or spindle guide.
2	Some wear part sets contain v-seals made from different materials. In this instance, the v-seal labelled with a green stripe is the bottom v-seal.
3	Make sure the disc springs are positioned centrally.
4	Grease the spindle lightly with OKS lubricant, place assembly sleeve on spindle thread; remove assembly sleeve again after sliding the spindle through the v-seals.
5	Press carefully against the cylindrical part of the swivel plate (tighten); wet spindle thread with Loctite 274.
6	Special wrench required to press against the hexagon of the actuator housing.
7	Ignore for variants with control unit. Notes on control unit assembly in the control unit instructions.
8	For valves closed by spring action: pressurise pilot air port 1 with 5 bar compressed air, assemble valve body, then vent valve. All valves: apply a wrench to the hexagon head of the tube and screw in.

3.3 Assembly steps

The actuator is assembled in the following order (*parts in italics are not available for all variants, see Chapter “3.2” for footnotes*)

Actuator C/actuator diameter Ø40

→ Tube – Wiper¹ – Bottom v-seal¹ – 3 more v-seals^{1,2} – Thrust collar¹ – O-ring 5 – Bush – Compression spring – Washer 4 – Disc springs³ – Lip seal – O-ring 4 – Screw – Spindle⁴ – *Bottom compression spring* – Washer 3 – O-ring 3 – Piston with piston seal – Washer 2 – Nut⁵ – *Position indicator* – *Top compression spring* – O-ring 2 – Cover⁶ – O-ring 1⁷ – *Transparent cap*⁷ – Seal – Valve body⁸

Actuator D, E, F/actuator diameter Ø50, 63, 80

→ Tube – Wiper¹ – Bottom v-seal^{1,2} – 3 more v-seals¹ – Thrust collar 1 – Compression spring – Thrust collar¹ – 3 v-seals¹ – O-ring 5 – Bush – Disc springs³ – Screw – Spindle⁴ – *Filler piece* – *Bottom compression spring* – Washer 3 – Piston with piston seal and O-ring 3 – Washer 2 – Nut⁵ – *Position indicator* – *Top compression spring* – O-Ring 2 – Cover⁶ – O-ring 1⁷ – *Transparent cap*⁷ – Seal – Valve body⁸

Actuator G, H/actuator diameter Ø100, 125

NOTE

► Only assemble valve body after replacing the packing gland.

→ Tube with bush – *Filler piece* – *Bottom compression spring* – Washer 3 – Piston with piston seal and O-ring 3 – Washer 2 – Nut⁴ – *Position indicator* – *Top compression spring(s)* – Washer – O-Ring 2 – Cover⁶ – O-Ring 1 – *Transparent cap*

Tightening torques [Nm]		
Screw - tube	Spindle - nut	Position indicator nut
M18: 35 ±2	M5: 3.5 +1	M5-6: 1.1 +0.2
M20: 50 ±3	M6: 6 +1.5	M10: 2 ±0.2
	M8: 10 +2	
	M10: 20 +3	

Tube - body	Bush - cover	Cover - transparent cap
M20: 40 +10/-5	M48: 25 ±2	1.5 + 0.2
M28: 45 +10/-5	M58: 35 ±2	
M34: 50 +10/-5	M72: 40 ±3	
M40: 60 +10/-5	M92: 60 ±10	
M50: 65 +10/-5	M116: 80 ±15	
M58: 65 +10/-5	M144: 110 ±20	
M70: 70 +10/-5		
M84: 70 +10/-5		

4 CHANGING THE PACKING GLAND (ONLY ACTUATOR SIZE Ø100 and Ø125)

Prerequisite: actuator is assembled, valve body is disassembled.

Disassembly in the following order:

- Support swivel plate on the cylindrical part using a prism or something similar
- Push out pin with a pin punch and remove swivel plate
- Unscrew spindle guide using the installation wrench and an open-end wrench



WARNING!

Risk of injury from parts being ejected!

When the spindle opening is exposed, the individual parts of the packing gland will be pushed out at an undefined speed when the pilot air port is pressurised.

- ▶ Before pressurising with pilot air, safeguard the area around the outlets (e.g. place spindle on a firm surface).

- Pressurise pilot air port 1 with 6...8 bar and blow out v-seals
- Clean parts
- Some packing glands contain v-seals made from different materials. The v-seal labelled with a green stripe is then the bottom v-seal
- Heavily grease each v-seal with OKS lubricant
- Grease all stainless steel threads with Klüberpaste lubricant
- Place individual parts of the packing gland on the spindle in the prescribed direction and order and slide into the tube
- Mount spindle guide. Tightening torque 15 Nm
- Connect swivel plate to spindle
- Align boreholes in the swivel plate and spindle
- Support swivel plate on the cylindrical part using a prism or something similar
- Insert pin into borehole

- Caulk pin boreholes on both sides of the swivel plate using a chisel or centre punch
- Replace seal
- For control function A: pressurise pilot air port 1 with compressed air (5 bar)
- Screw valve body and tube together. For tightening torque, see “Tightening torque” table

5 ASSEMBLY TOOLS

The tool required for changing the wear part is not included in the scope of delivery. You can find it on our home page by entering the order number for your wear part. If you have any questions, please contact your sales department.

5.1 Assembly wrench

Is needed to open the actuator housing.

Actuator size	Tool
C (40), D (50)	639175 Assembly wrench actuator size C/D
E (63)	639170 Assembly wrench actuator size E
F (80)	639171 Assembly wrench actuator size F
G (100)	639172 Assembly wrench actuator size G
H (125)	639173 Assembly wrench actuator size H

5.2 Spindle assembly sleeve

Is needed for changing the packing gland of actuator sizes D-F

Actuator size	Tool
C (40)	639165 Assembly sleeve D40
D (50)	639166 Assembly sleeve D50
E (63)	639167 Assembly sleeve D63
F (80)	639168 Assembly sleeve D80

5.3 Installation wrench for spindle guide

Is needed for changing the packing gland of actuator sizes G and H.

Actuator size	Tool
G (100) / H (125)	683223 Assembly wrench actuator size G/H

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Operating Instructions 2502/01_EU-ML_00815462 / Original DE

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