PENTAIR SÜDMO

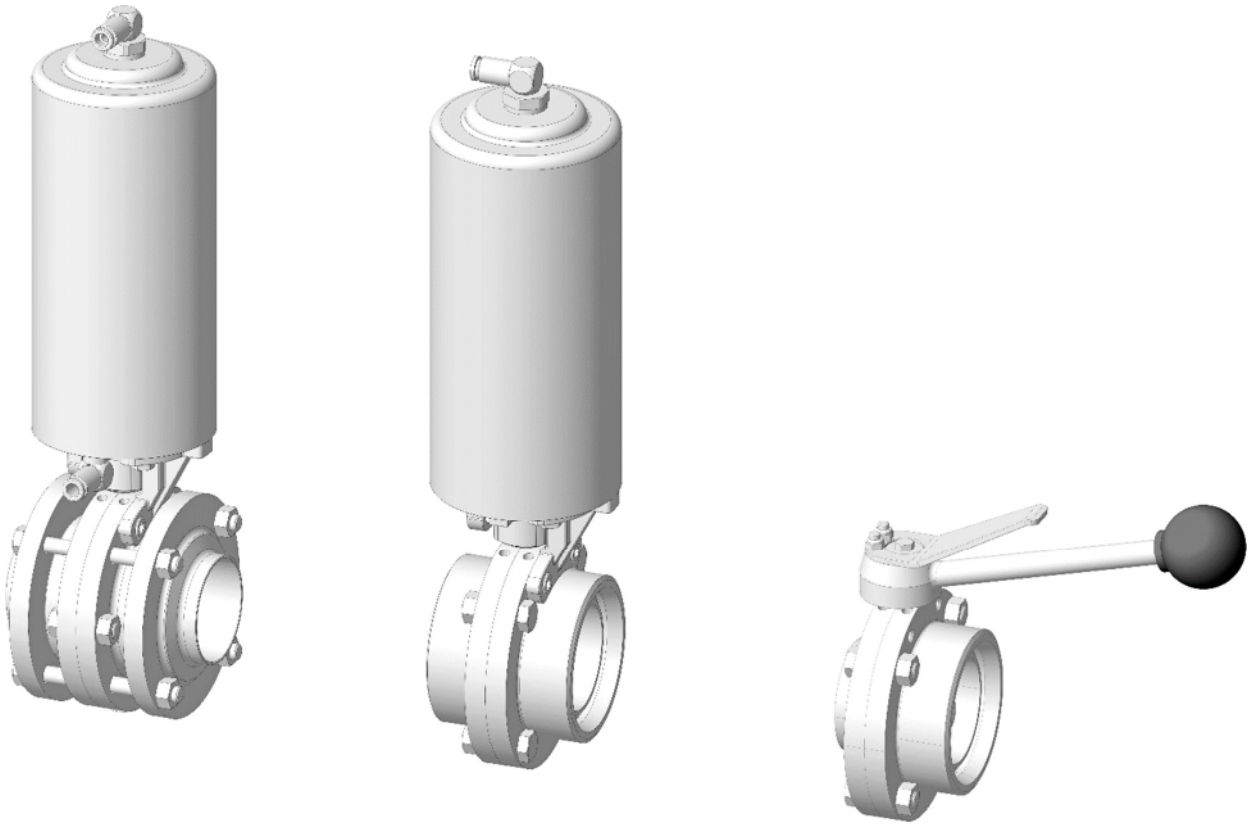
Operating instructions

Butterfly valve
BV Perform series

Nominal diameters:
DN 015 – 100, OD 1.00" – 4.00", ISO 025 – 100

Part 2: Assembly instructions

- Copy of the original operating instructions -



Version 1.03

1. Table of contents

2. Precautions

2.1. Warning information

Butterfly valves in the BV Perform series – hereinafter also known as fittings – have been built according to state-of-the-art standards and recognised safety regulations.
However, these fittings can cause risks of danger to life for users or third parties if they are handled improperly or not used for their intended purpose.
It can also lead to function limitations and/or damage to the butterfly valves themselves, and other material assets.

DANGER

This symbol refers to an imminent threat to the life and health of persons.
Death, serious injuries or other serious impacts to health and/or significant property damage **will** occur if the warning notes associated with this symbol are not observed and/or the relevant precautionary measures are not taken.

WARNING

This symbol refers to an imminent threat to the life and health of persons.
Death, serious injuries or other serious impacts to health and/or significant property damage **may** occur if the warning notes associated with this symbol are not observed and/or the relevant precautionary measures are not taken.

CAUTION

This symbol refers to a possible threat to the health of persons.
Minor injuries and/or damage to property **may** occur if the warning notes associated with this symbol are not observed and/or the relevant precautionary measures are not taken.

Information/Note

This symbol refers to important information on the proper and safe of use of the fittings, which must be observed.
Non-observance of this information **may** result in injuries and/or function disorders of the fittings, and damage to property.

2.2. General

Information/Note
All people who are involved with the transport, assembly, connection, disassembly, commissioning, management, operation, cleaning, disinfection, maintenance, decommissioning, repair, storage or disposal of butterfly valves must have read and understood these general operating instructions (Part 1). Moreover, all of the aforementioned people must also have read and understood the type-specific assembly instructions (Part 2) for the specific butterfly valves they are handling.

⇒ The intended use of the butterfly valve includes:

- ➔ compliance with all safety notes in these operating instructions for the butterfly valve.
- ➔ compliance with all national and international laws, ordinances, specifications, guidelines and other regulations that are in force at the installation location.
- ➔ in-house work and safety regulations.
- ➔ performing regular inspection and maintenance work.

Information/Note
Pentair Südmo GmbH is not liable for any damage resulting from improper use of the butterfly valve.

⇒ The exact specification of the butterfly valve, such as

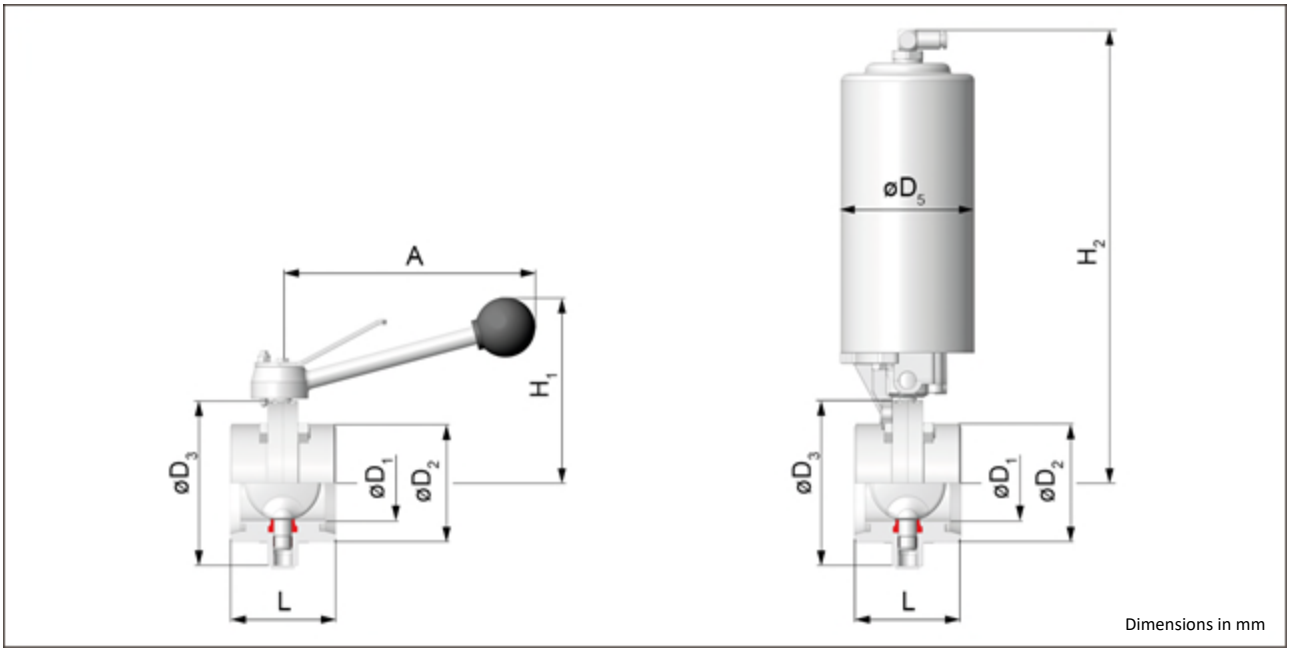
- ➔ Valve order number
- ➔ Seal kits
- ➔ Operating pressure
- ➔ Control air pressure
- ➔ etc.

can be found on the type plate attached to the valve actuator.

3. Technical data

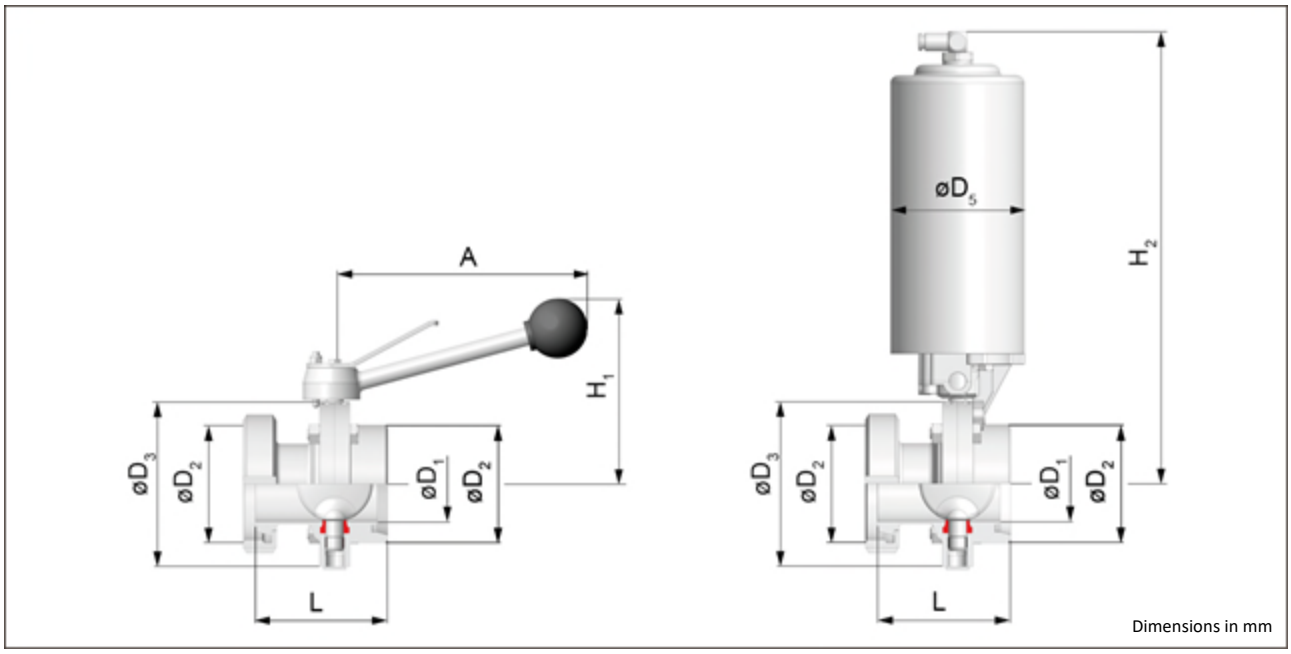
3.1. Dimensions

3.1.1. butterfly valves of types K580..., K660..., K670..., and K680... (type of connection: 2 x external threads)



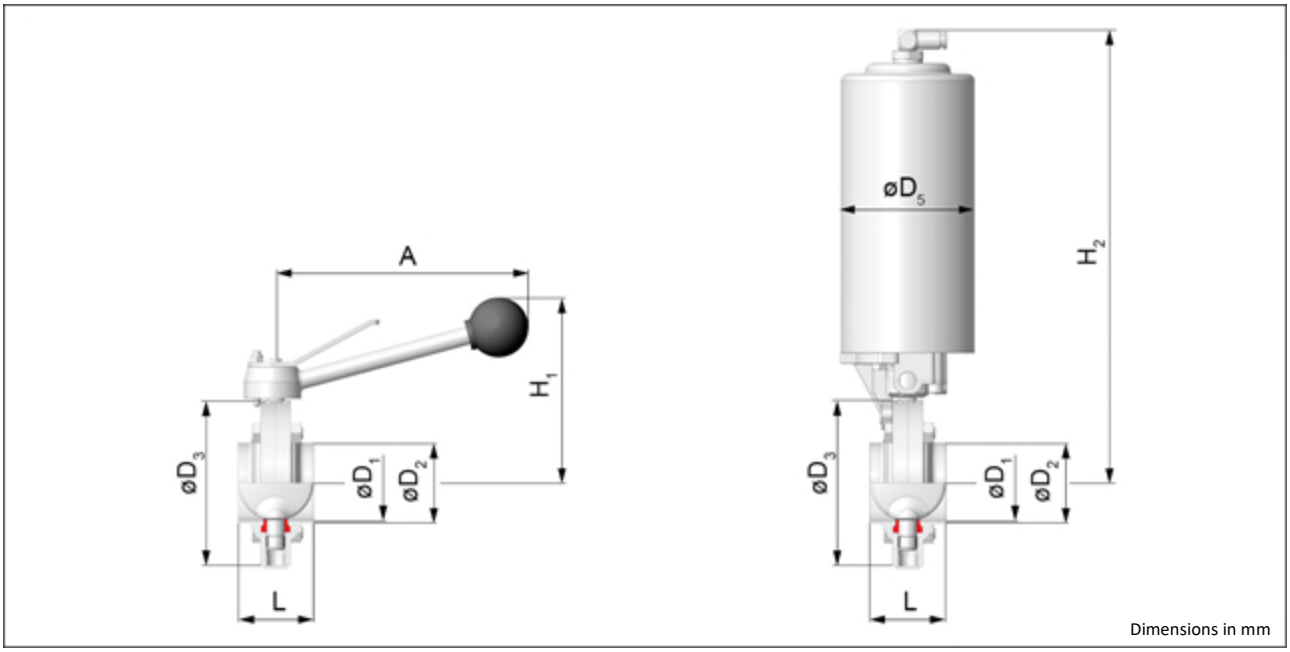
DN	øD1	øD2	øD3	øD5	A	H1	H2	L	kg	
									Manual	Pneumatic
DN 015	16	Rd 34 x 1/8''	62.5	88	167	99	275	60	1.0	4.0
DN 020	20	Rd 44 x 1/6''	84	88	167	109	284	70	1.6	4.6
DN 025	26	Rd 52 x 1/6''	84	88	167	109	284	70	1.7	4.7
DN 032	32	Rd 58 x 1/6''	90	88	167	112	287	70	1.9	4.9
DN 040	38	Rd 65 x 1/6''	96	88	167	115	290	70	2.1	5.1
DN 050	50	Rd 78 x 1/6''	109	88	167	123	297	70	2.5	5.5
DN 065	66	Rd 95 x 1/6''	126	88	167	131	305	74	3.1	6.1
DN 080	81	RD 110 x 1/4"	141	88	167	138	313	85	3.9	6.9
DN 100	100	RD 130 x 1/4"	161	88	167	148	324	85	4.8	7.8
OD 1.00"	22.1	IDF 37.05 x 1/8"	84	88	167	109	284	70	1.5	4.5
OD 1.50"	34.8	IDF 50.57 x 1/8"	96	88	167	115	290	70	1.8	4.8
OD 2.00"	47.5	IDF 64.08 x 1/8"	109	88	167	122	297	70	2.2	5.2
OD 2.50"	60.2	IDF 77.59 x 1/8"	126	88	167	131	305	75	2.8	5.8
OD 3.00"	72.9	IDF 91.11 x 1/8"	141	88	167	138	313	85	3.5	6.5
OD 4.00"	97.4	IDF 118.14 x 1/8"	161	88	167	148	324	85	4.6	7.6

3.1.2. Butterfly valves of types K581..., K661..., K671..., and K681... (type of connection: 1 x external thread, 1 x slotted nut)



DN	øD1	øD2	øD3	øD5	A	H1	H2	L	kg Manual	kg Pneumatic
DN 015	16	Rd 34 x 1/8"	62.5	88	167	99	275	71.5	1.0	4.0
DN 020	20	Rd 44 x 1/6"	84	88	167	109	284	77.5	1.6	4.6
DN 025	26	Rd 52 x 1/6"	84	88	167	109	284	81.5	1.8	4.8
DN 032	32	Rd 58 x 1/6"	90	88	167	112	287	84.5	2.0	5.0
DN 040	38	Rd 65 x 1/6"	96	88	167	115	290	85.5	2.2	5.2
DN 050	50	Rd 78 x 1/6"	109	88	167	123	297	87.5	2.7	5.7
DN 065	66	Rd 95 x 1/6"	126	88	167	131	305	93.5	3.6	6.6
DN 080	81	RD 110 x 1/4"	141	88	167	138	313	121.5	4.5	7.5
DN 100	100	RD 130 x 1/4"	161	88	167	148	324	128.5	5.8	8.8

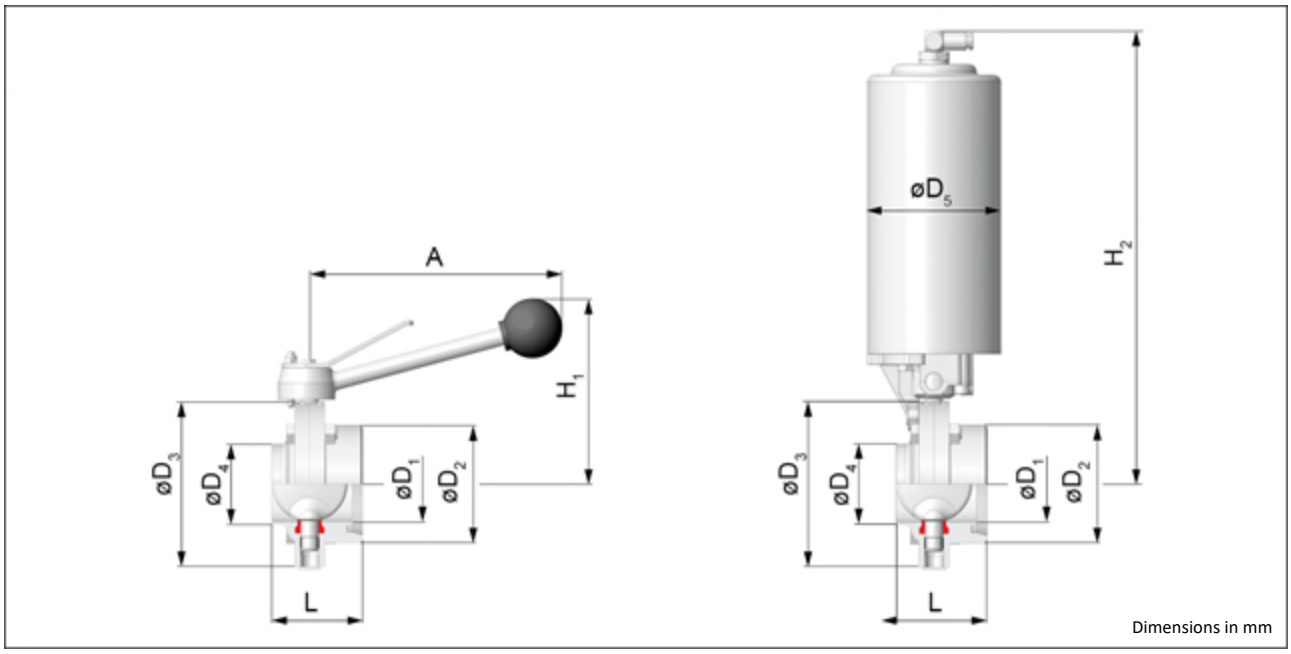
3.1.3. Butterfly valves of types K582..., K662..., K672..., and K682... (type of connection: 2 x welding ends)



Dimensions in mm

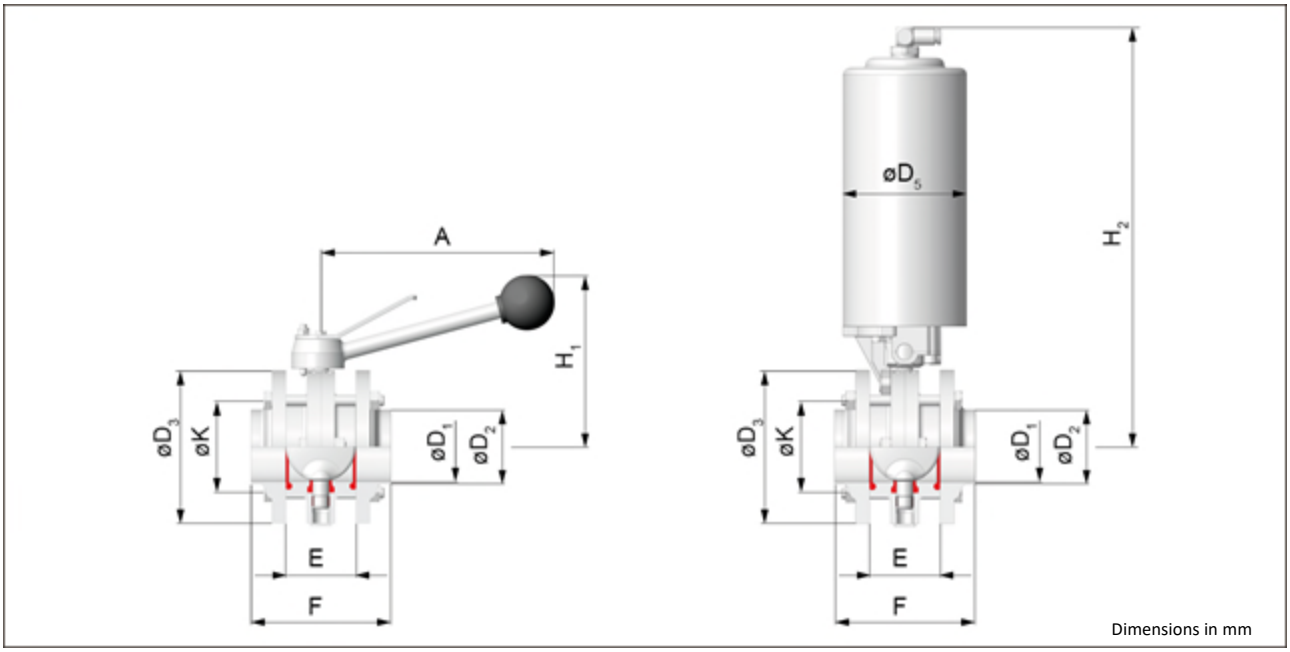
DN	øD1	øD2	øD3	øD5	A	H1	H2	L	kg Manual	kg Pneumatic
DN 015	16	19	62.5	88	167	99	275	50	0.8	3.9
DN 020	20	23	84	88	167	109	284	50	1.2	4.2
DN 025	26	29	84	88	167	109	284	50	1.3	4.3
DN 032	32	35	90	88	167	112	287	50	1.4	4.4
DN 040	38	41	96	88	167	115	290	50	1.5	4.5
DN 050	50	53	109	88	167	123	297	50	1.8	4.8
DN 065	66	70	126	88	167	131	305	50	2.3	5.3
DN 080	81	85	141	88	167	138	313	85	2.7	5.7
DN 100	100	104	161	88	167	148	324	85	3.4	6.4
OD 1.00"	22.1	25.4	84	88	167	109	284	50	1.3	4.3
OD 1.50"	34.8	38.1	96	88	167	115	290	50	1.5	4.5
OD 2.00"	47.5	50.8	109	88	167	122	297	50	1.8	4.8
OD 2.50"	60.2	63.5	126	88	167	131	305	50	2.3	5.3
OD 3.00"	72.9	76.2	141	88	167	138	313	85	2.7	5.8
OD 4.00"	97.4	101.6	161	88	167	148	324	85	3.5	6.5
ISO 025	29.7	33.7	84	88	167	109	284	50	1.3	4.3
ISO 032	38.4	42.4	96	88	167	115	290	50	1.5	4.5
ISO 040	44.3	48.3	96	88	167	115	290	50	1.5	4.5
ISO 050	56.3	60.3	109	88	167	123	297	50	1.7	4.7
ISO 065	72.1	76.1	141	88	167	138	313	85	2.8	5.8
ISO 080	84.3	88.9	141	88	167	138	313	85	2.8	5.8
ISO 100	109.7	114.3	161	88	167	148	324	85	3.3	6.3

3.1.4. Butterfly valves of types K585..., K665..., K675..., und K685... (type of connection: 1 x external thread, 1 x welding end)



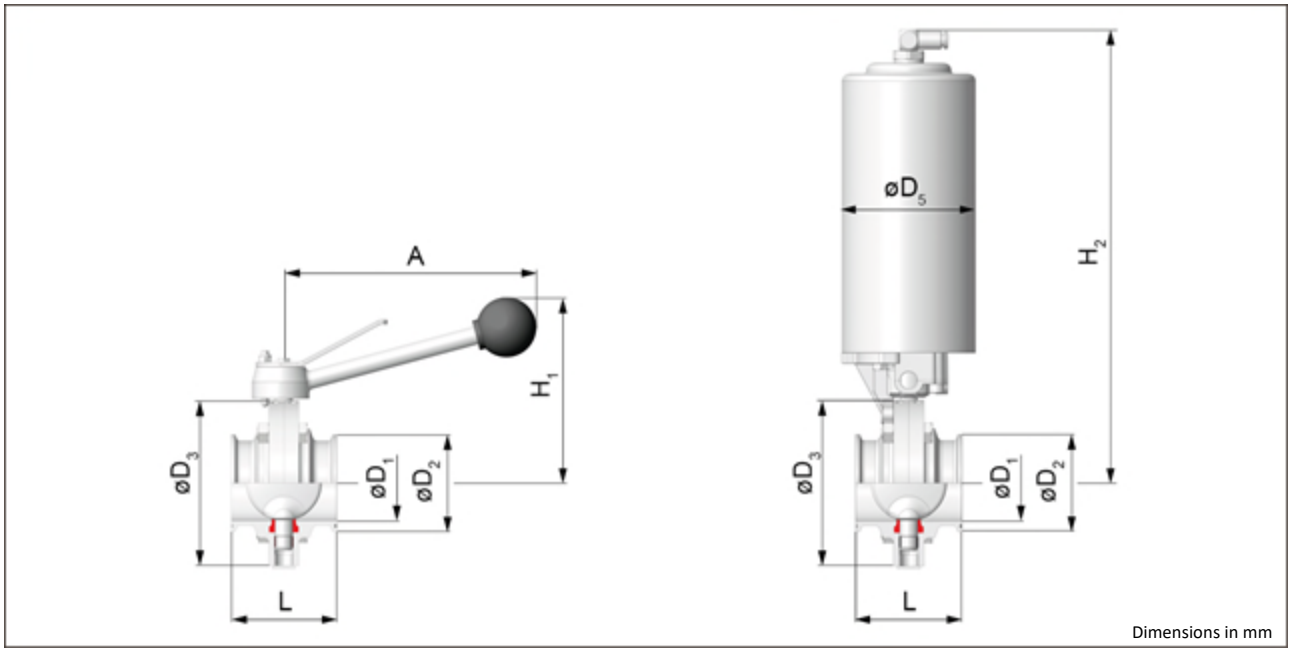
DN	$øD_1$	$øD_2$	$øD_3$	$øD_4$	$øD_5$	A	H_1	H_2	L	kg Manual	kg Pneumatic
DN 015	16	Rd 34 x 1/8''	62.5	19	88	167	99	275	55	0.9	3.9
DN 020	20	Rd 44 x 1/6''	84	23	88	167	109	284	60	1.4	4.5
DN 025	26	Rd 52 x 1/6''	84	29	88	167	109	284	60	1.5	4.5
DN 032	32	Rd 58 x 1/6''	90	35	88	167	112	287	60	1.6	4.6
DN 040	38	Rd 65 x 1/6''	96	41	88	167	115	290	60	1.8	4.8
DN 050	50	Rd 78 x 1/6''	109	53	88	167	123	297	60	2.1	5.1
DN 065	66	Rd 95 x 1/6''	126	70	88	167	131	305	62	2.7	5.7
DN 080	81	RD 110 x 1/4"	141	85	88	167	138	313	85	3.3	6.3
DN 100	100	RD 130 x 1/4"	161	104	88	167	148	324	85	4.1	7.1
OD 1.00"	22.1	IDF 37.0 5 x 1/8"	84	25.4	88	167	109	284	60	1.4	4.4
OD 1.50"	34.8	IDF 50.57 x 1/8"	96	38.1	88	167	115	290	60	1.7	4.7
OD 2.00"	47.5	IDF 64.08 x 1/8"	109	50.8	88	167	122	297	60	2.0	5.0
OD 2.50"	60.2	IDF 77.59 x 1/8"	126	63.5	88	167	131	305	62.5	2.6	5.6
OD 3.00"	72.9	IDF 91.11 x 1/8"	141	76.2	88	167	138	313	85	3.1	6.1
OD 4.00"	97.6	IDF 118.14 x 1/8"	161	101.6	88	167	148	324	85	4.0	7.1

3.1.5. Butterfly valves of types K587…, K667…, K677…, and K687… (type of connection: sandwich style)



DN	øD1	øD2	øD3	øD5	A	H1	H2	E	F	øk	kg Manual	kg Pneumatic
DN 015	16	19	62.5	88	167	99	275	50	100	50	1.5	4.5
DN 020	20	23	62.5	88	167	109	284	50	100	50	1.5	4.5
DN 025	26	29	84	88	167	109	284	50	100	67	2.4	5.4
DN 032	32	35	90	88	167	112	287	50	100	73	2.6	5.6
DN 040	38	41	96	88	167	115	290	50	100	80	2.9	5.9
DN 050	50	53	106	88	167	123	297	50	100	93	3.5	6.5
DN 065	66	70	126	88	167	131	305	50	100	110	4.2	7.3
DN 080	81	85	141	88	167	138	313	50	100	125	4.8	7.9
DN 100	100	104	161	88	167	148	324	50	100	145	6.0	9.1
OD 1.00"	22.1	25.4	84	88	167	109	284	50	100	67	2.5	5.5
OD 1.50"	34.8	38.1	96	88	167	115	290	50	100	80	3.0	6.0
OD 2.00"	47.5	50.8	109	88	167	115	290	50	100	93	3.6	6.6
OD 2.50"	60.2	63.5	126	88	167	131	305	50	100	110	4.5	7.5
OD 3.00"	72.9	76.2	141	88	167	138	313	50	100	125	5.4	8.4
OD 4.00"	97.4	101.6	161	88	167	148	324	50	100	145	6.3	9.3
ISO 025	29.7	33.7	84	88	167	109	284	50	100	67	2.3	5.3
ISO 032	38.4	42.4	96	88	167	115	290	50	100	80	2.9	5.9
ISO 040	44.3	48.3	96	88	167	115	290	50	100	80	2.7	5.7
ISO 050	56.3	60.3	109	88	167	115	290	50	100	93	3.1	6.2
ISO 065	72.1	76.1	141	88	167	138	313	50	100	125	5.6	8.7
ISO 080	84.3	88.9	141	88	167	138	313	50	100	125	4.7	7.7
ISO 100	109.7	114.3	161	88	167	148	324	50	100	145	5.3	8.3

3.1.6. Butterfly valves of types K588..., K668..., K678..., and K688... (type of connection: 2 x clamps)



DN	øD1	øD2	øD3	øD5	A	H1	H2	L	kg Manual	kg Pneumatic
DN 025	26	50.5	84	88	167	109	284	70	1.6	4.6
DN 040	38	50.5	96	88	167	115	290	70	1.7	4.7
DN 050	50	64.0	109	88	167	123	297	70	2.0	5.0
DN 065	66	91.0	126	88	167	131	305	74	2.8	5.8
DN 080	81	106.0	141	88	167	138	313	85	3.3	6.3
DN 100	100	119.0	161	88	167	148	324	85	3.7	6.8
OD 1.00"	22.1	50.5	84	88	167	109	284	70	1.7	4.7
OD 1.50"	34.8	50.5	96	88	167	115	290	70	1.8	4.8
OD 2.00"	47.5	64.0	109	88	167	123	297	70	2.1	5.2
OD 2.50"	60.2	77.5	126	88	167	131	305	74	2.6	5.6
OD 3.00"	72.9	91.0	141	88	167	138	313	85	3.1	6.1
OD 4.00"	97.4	119.0	161	88	167	148	324	85	4.0	7.0
ISO 025	29.7	50.5	84	88	167	153	285	70	1.5	4.8
ISO 032	38.4	64.0	96	88	167	165	291	70	1.9	4.9
ISO 040	44.3	64.0	96	88	167	165	291	92	1.6	4.5
ISO 050	56.3	77.5	109	88	167	179	297	106	1.9	4.9
ISO 065	72.1	91.0	141	88	167	211	313	140	3.1	6.0
ISO 080	84.3	106	141	88	167	221	313	85	3.0	5.0
ISO 100	109.7	130	161	88	167	232	324	141	3.8	6.7

3.2. Valve core

Application: Shut-off valve

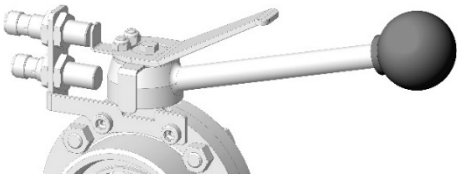
Application: Low-germ processes

Shut-off tightness:

Sealing material	Shut-off tightness
EPDM	max. 10 bar
VMQ	max. 10 bar
FKM	max. 10 bar
HNBR	max. 10 bar
PTFE	max. 6 bar

3.3. Feedback systems for butterfly valves

3.3.1. Butterfly valve, manual - Single and double feedback



⇒ Inductive feedback unit
Feedback unit data - see data sheet of the feedback unit manufacturer

⇒ Attachment kit (hand lever, including feedback units) for feedback (standard feedback unit M12)

DN 020 – 040 - order no. 2335632
DN 015 (intermediate tensioning)
OD 1.00" – 1.50"
ISO 015 – 040

DN 050 – 100 - order no. 2335633
OD 2.00" – 4.00"
ISO 050 – 100

3.3.2. Pneumatic butterfly valve - Single and double feedback

Message: Open

Message: Closed

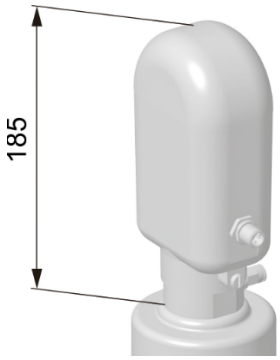
Message: Open and Closed

Diagrams: spring-closing actuator

⇒ Message:
Valve position "Open" or "Closed"
Valve position "Open" and "Closed"

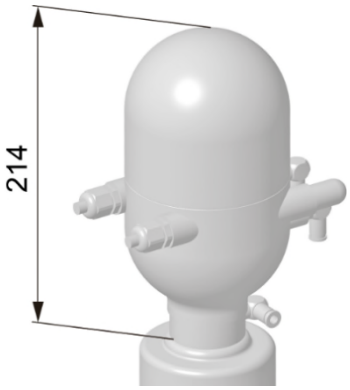
⇒ Inductive feedback unit
Feedback unit data - see data sheet of the feedback unit manufacturer

3.3.3. Pneumatic butterfly valve - SensoTop position feedback



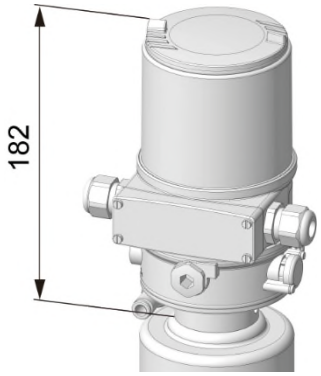
For technical data,	see SensoTop operating instructions
Pneumatic For connections,	see SensoTop operating instructions
For electrical connections,	see SensoTop operating instructions
For maintenance,	see SensoTop operating instructions

3.3.4. Pneumatic butterfly valve - IntelliTop® 2.0



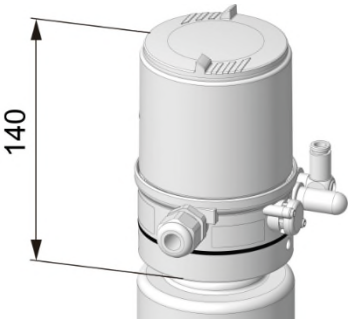
For technical data,	see IntelliTop 2.0
Pneumatic For connections,	see IntelliTop2.0 operating instructions
For electrical connections,	see IntelliTop2.0 operating instructions
For maintenance,	see IntelliTop2.0 operating instructions

3.3.5. Pneumatic butterfly valve - process controller type 8692



For technical data,	see operating instructions for process controller type 8692
Pneumatic For connections,	see operating instructions for process controller type 8692
For electrical connections,	see operating instructions for process controller type 8692
For maintenance,	see operating instructions for process controller type 8692

3.3.6. Pneumatic butterfly valve - process controller type 8694



For technical data,	see operating instructions for process controller type 8694
Pneumatic For connections,	see operating instructions for process controller type 8694
For electrical connections,	see operating instructions for process controller type 8694
For maintenance,	see operating instructions for process controller type 8694

4. Valve function

4.1. Butterfly valve, manual – Type K580 – K588

Operation: manual – gear lever

Position range: stop option below 45° and 90° for open and closed position

4.2. Pneumatic butterfly valve - Type K660 – K688

Operation: pneumatic rotary actuator

Adjustment range: 90°

4.2.1. Air opening – spring closing working method

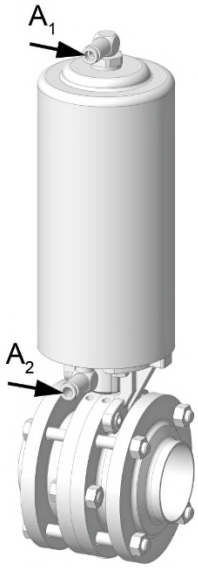
⇒ Valve position "Closed"
→ Control air pressure 0 bar at air connection A_1.
→ Fail-safe position.

⇒ Valve position "Open"
→ Control air pressure 6 bar at air connection A_1.

4.2.2. Spring opening – air closing working method

⇒ Valve position "Open"
→ Control air pressure 0 bar at air connection A_1.
→ Fail-safe position.

⇒ Valve position "Closed"
→ Control air pressure 6 bar at air connection A_1.

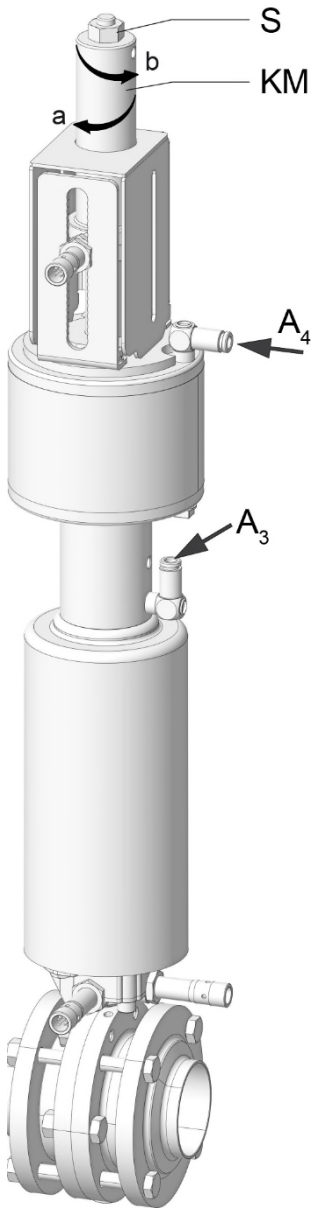


4.2.3. Air opening – air closing working method

⇒ Valve position "Open"
→ Control air pressure 6 bar at air connection A_1.

⇒ Valve position "Closed"
→ Control air pressure 6 bar at air connection A_2.

4.3. Pneumatic butterfly valve - Type K660 – K688 with three-position drive



Actuation: Pneumatic rotary actuator

Adjustment range: 90°

4.3.1. Air opening – spring closing working method

⇒ "Closed" valve position
→ Control air pressure 0 bar on air connection A_3.
→ Control air pressure 0 bar on air connection A_4.
→ Fail-safe position.

⇒ "Open" valve position
→ Control air pressure 6 bar on air connection A_3.
→ Control air pressure 0 bar on air connection A_4.

⇒ Interim position
Control air pressure 0 bar at connection A_3.
Control air pressure 6 bar at connection A_4.

4.3.2. Spring opening – air closing working method

⇒ "Open" valve position
→ Control air pressure 0 bar on air connection A_3.
→ Control air pressure 0 bar on air connection A_4.
→ Fail-safe position.

⇒ "Closed" valve position
→ Control air pressure 6 bar on air connection A_1.
→ Control air pressure 0 bar on air connection A_4.

⇒ Interim position
Control air pressure 0 bar at connection A_3.
Control air pressure 6 bar at connection A_4.

4.3.3. Setting the intermediate position

Note

Rotation angle: 0° – 60° continuously adjustable

Stroke adjustment: 0 – 45 mm

Control: 2 solenoid valves are required.
– One for Open – Closed position
– One for the clock position

Increase rotation angle

⇒ Loosen the hexagon nut (S).
⇒ Turn the contact knob (KM) in the direction of the arrow **a** (clockwise).
⇒ Secure adjustment by hexagon nut (S).

Reduce rotation angle

⇒ Loosen the hexagon nut (S).
⇒ Turn the contact knob (KM) in the direction of the arrow **b** (anti-clockwise).
⇒ Secure adjustment by hexagon nut (S).

5. Valve connection piping

5.1. Installation position

5.1.1. Manual butterfly valve

⇒ Any installation position

5.1.2. Butterfly valve with spring reset function

(valve actuator working method: air opening - spring closing or spring opening – air closing)

⇒ Any installation position

Information/Note
The system operator must always ensure that no liquids (external cleaning, product) penetrate the actuator through the ventilation hole.

5.1.3. Butterfly valve without spring reset function

(valve actuator working method: air opening - air closing)

⇒ Any installation position

5.2. Valve connections

Connection variants

- 2 x external threads
- 1 x external thread, 1 x slotted nut
- 2 x welding ends
- Intermediate tensioning
- 2 x clamps

For welding instructions, see chapter "Welding and assembly notes".

5.3. Installation notes for butterfly valves

⇒ Disassemble butterfly valve in accordance with assembly instructions.
⇒ Weld and/or mount the butterfly valve into the pipeline.

Information/Note
Welding information ⇒ Dismount the seals before welding. ⇒ Weld valve housing free from tension and distortions. ⇒ Welding work may only be performed by trained staff (DIN EN ISO 9606-1 W8). Assembly instructions ⇒ No foreign matter must remain in the pipeline when the valves are assembled.

⇒ For assembly instructions, see chapter "Disassembly - Assembly".

6. Disassembly – Assembly

Assemble the butterfly valve in general in accordance with the danger notes (see chapter "Preparatory measures for disassembly - assembly").

6.1. Preparatory measures for disassembly - assembly

WARNING

⇒ The butterfly valves may only be assembled by qualified, specially trained staff.
- ➔ Training or instruction according to the currents standards of the safety regulations.
- ➔ For systems with explosion protection:
  Training and/or instruction or authorisation to perform work on the systems subject to explosion hazards (observe ATEX regulations) (ATEX-Vorschriften beachten).

⇒ Get information on possible risks that could be caused by residues of the operating medium and take suitable measures if necessary (safety gloves, safety goggles etc.), before performing maintenance and service work on the butterfly valve.

⇒ Before disconnecting the valve connections and the flange connection of the valve bodies, make sure that
- ➔ the work is only carried out in a depressurized state and with the media supply shut off.
- ➔ the butterfly valve and all pipeline elements leading to the valve have been emptied and cleaned or flushed.
- ➔ the fittings have cooled down.
- ➔ the commissioning of the system through a third party is excluded.
- ➔ the pressure build-up which may form in sealed pipelines is counteracted.
- ➔ the disassembly – assembly of the butterfly valve is performed in accordance with the assembly instructions.
- ➔ perform a rotary movement of the valve disc that opens and/or closes the valve passage when activating the actuator.
- ➔ the power supply has been disconnected.
- ➔ the butterfly valve is removed from the pipeline section, if possible.

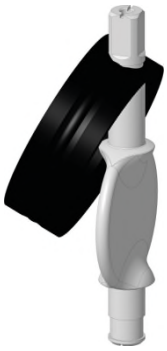
Information/Note

⇒ Cordon off assembly area.
⇒ Ensure that the assembly area remains cordoned off while work is being carried out.

6.2. Spare parts

Information/Note
Only use original spare parts. ⇒ For original spare parts, see the list of spare parts for each butterfly valve. ⇒ Perfect function of the butterfly valve is only guaranteed when using original spare parts.

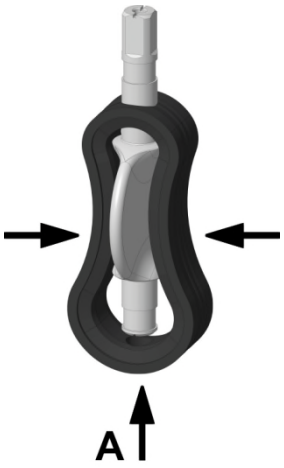
6.3. Valve seal assembly

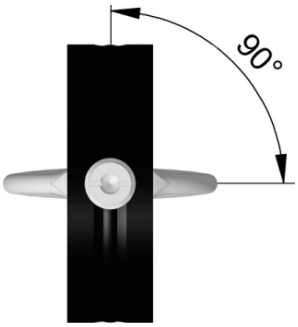


⇒ Insert the long shaft of the valve disk into the hole of the seal.

⇒ Bend seal and wind on the shaft in the direction of arrow **A**.

Information/Note
⇒ Act carefully. ⇒ Avoid damaging the seal.

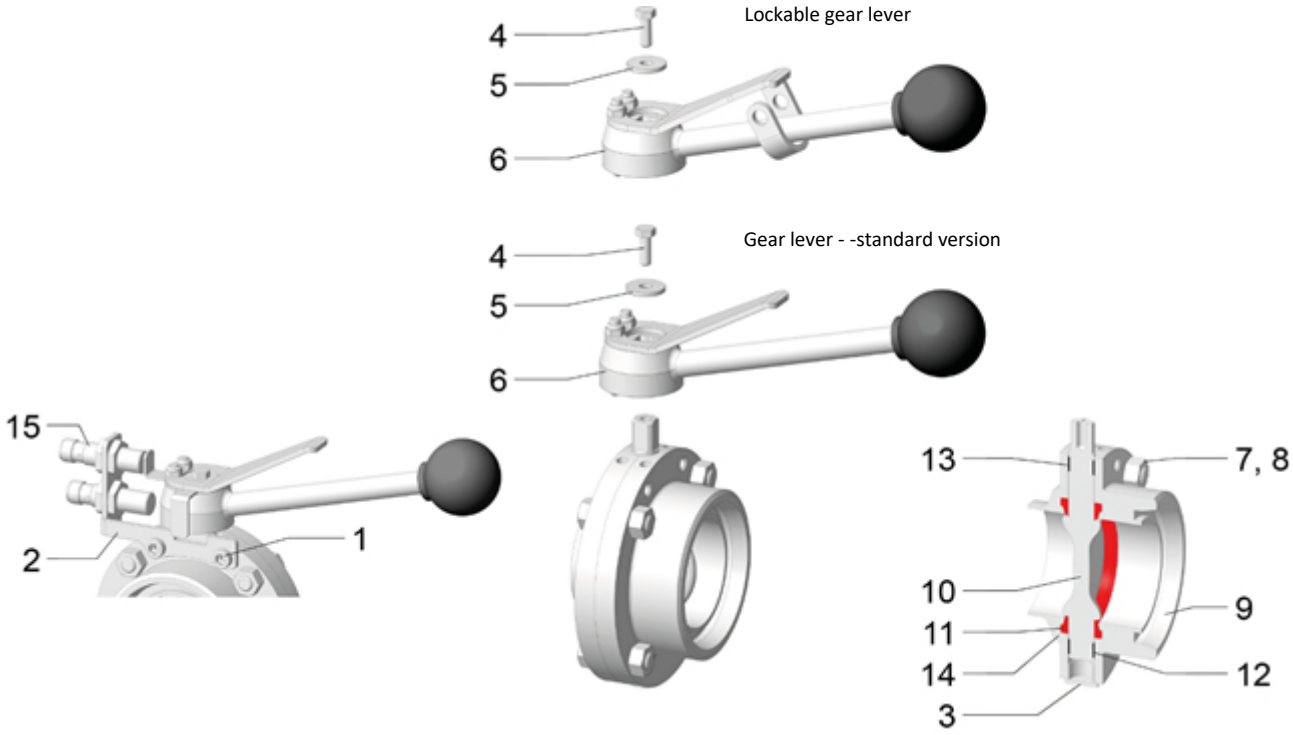




⇒ Position valve disc in "Open" position in the seal in accordance with the diagram.
⇒ Assemble valve disk.
⇒ Move the valve disk to the corresponding position in the working method before assembling the hand lever or actuator

6.4. Disassembling and assembling manual butterfly valve (type K580 – K585, K588)

Information/Note
⇒ Avoid damage to the metal valve surfaces and the seal.



Disassembling the valve

I.1. Disconnect electrical supply line.
I.2. Disassemble feedback units (15) - only required for butterfly valve with feedback.
I.3. Disassemble feedback unit holder (2) by loosening the cylinder screws (1) - only required for butterfly valve with feedback.
I.4. Loosen pipe connections and remove butterfly valve from line system - the following assembly steps in the line system are for butterfly valves with housing flanges with welding ends.
I.5. Disassemble plastic plugs (3).
I.6. Disassemble hexagonal screw (4) and washer (5).
I.7. Remove gear lever (6).
I.8. Disassemble hexagonal nuts (8) and remove hexagonal screws (7).
I.9. Remove housing flange (9).
I.10. Remove valve plate (10) with seal (11).
I.11. Disassemble friction bearing (12, 13).
I.12. Remove seal (11) from valve disk (10) - first unwind from the short shaft of the valve disk.

Valve assembly

I.13. Prior to assembly, clean and grease the shafts and sliding surfaces.

Sealing materials	Grease type
EPDM / FKM / HNBR / EPDM/PTFE-laminated	PARALIQ GTE 703
VMQ	BARRIERTA L55/3

Information/Note

⇒ If a different grease is used
→ Tackle seal elements.
⇒ Do not use mineral greases and animal fats.
⇒ Do not use petroleum-based grease.

I.14. Mount seal (11) on valve disk (10) - see chapter "Mounting the seal on the valve disk".
I.15. Mount friction bearing (12, 13) on valve disc (10).
I.16. Insert valve disc (10) with seal (11) into housing flange (14).

Information/Note

⇒ The valve disk (10) must be in the Open position during insertion.

I.17. Mount housing flange (9) with hexagonal screws (7) and hexagonal nuts (8) on housing flange (14).

Information/Note

⇒ Tighten hexagonal nuts (8) in a crosswise sequence!

I.18. Mount plastic plugs (3).
I.19. Mount gear lever (6) on valve disc (10).

Information/Note

⇒ Pay attention to position of gear lever (6)
→ Position display.

I.20. Mount hexagonal screw (4) and washer (5).
I.21. Mount butterfly valve by connecting the pipe connections in the line system.
I.22. Mount feedback unit holder (2) with cylinder screws (1) on butterfly valve - only required for butterfly valve with feedback.
I.23. Assemble feedback unit (15) - only required for butterfly valve with feedback.

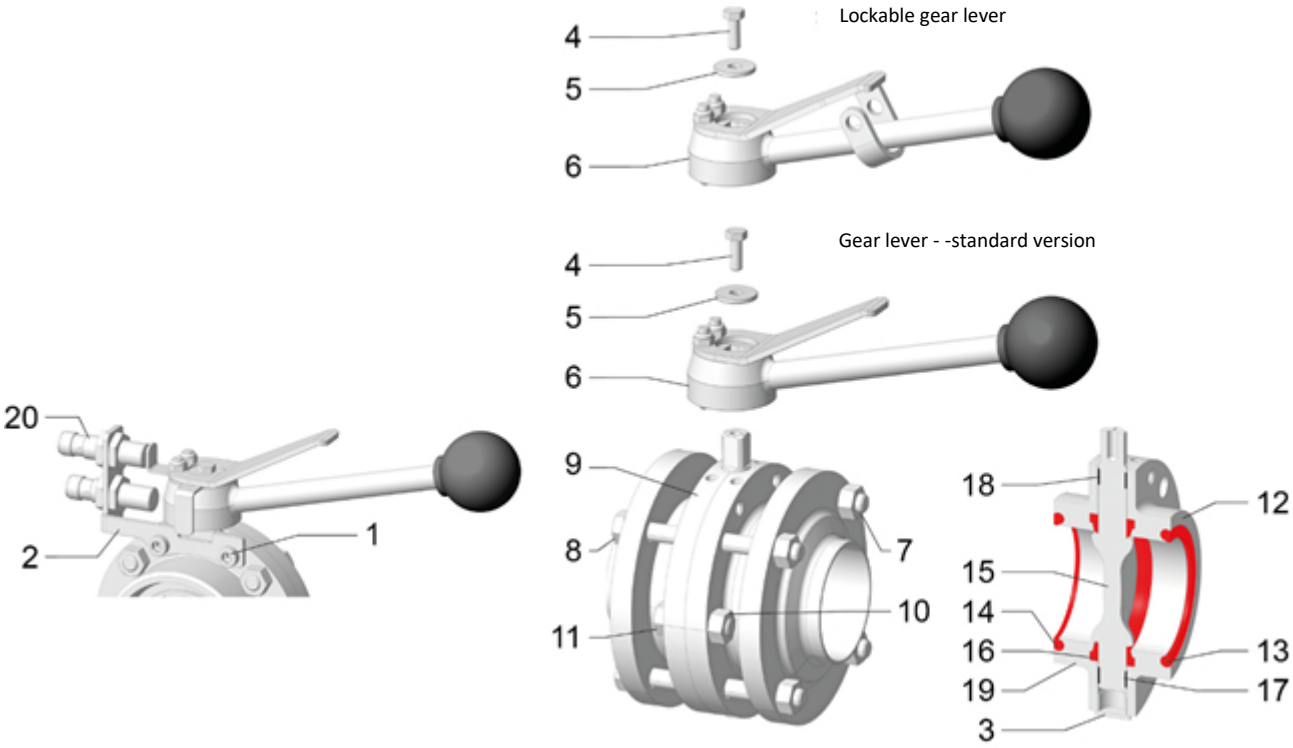
Information/Note

⇒ Set switching distance of the feedback unit(s) (15) after assembly.
→ see feedback unit data sheet.

I.24. Connect electrical supply line.

6.5. Disassembling and assembling manual butterfly valve (type 587) - sandwich style

Information/Note
⇒ Avoid damage to the metal valve surfaces and the seal.



Disassembling the valve

II.1. Disconnect electrical supply line.
II.2. Disassemble feedback units (20) - only required for butterfly valve with feedback.
II.3. Disassemble hexagonal nuts (7) and hexagonal screws (8) and remove butterfly valve (9) from line system.
II.4. Disassemble feedback unit holder (2) by loosening the cylinder screws (1) - only required for butterfly valve with feedback.
II.5. Disassemble plastic plugs (3).
II.6. Disassemble hexagonal screw (4) and washer (5)
II.7. Remove gear lever (6).
II.8. Disassemble O-rings (13, 14).
II.9. Disassemble hexagonal nuts (10) and remove hexagonal screws (11).
II.10. Remove housing flange (12).
II.11. Remove valve plate (15) with seal (16).
II.12. Disassemble friction bearing (17, 18).
II.13. Remove seal (16) from valve disk (15) - first unwind from the short shaft of the valve disk.

Valve assembly

II.14. Prior to assembly, clean and grease the shafts and sliding surfaces.

Sealing materials	Grease type
EPDM / FKM / HNBR / EPDM/PTFE-laminated	PARALIQ GTE 703
VMQ	BARRIERTA L55/3

Information/Note

⇒ If a different grease is used
→ Tackle seal elements.
⇒ Do not use mineral greases and animal fats.
⇒ Do not use petroleum-based grease.

II.15. Mount seal (16) on valve disk (15) - see chapter "Mounting the seal on the valve disk".

II.16. Mount friction bearing (17, 18) on valve disc (15).

II.17. Insert valve disc (15) with seal (16) into housing flange (19).

Information/Note

⇒ The valve disk (15) must be in the Open position during insertion.

II.18. Screw on housing flange (12) with hexagonal screws (11) and hexagonal nuts (10) with housing flange (19).

Information/Note

⇒ Tighten hexagonal nuts (10) in a crosswise sequence!

II.19. Mount plastic plugs (3).

II.20. Mount gear lever (6) on valve disc (15).

Information/Note

⇒ Pay attention to position of gear lever (6)
→ Position display.

II.21. Mount cylinder screw (7) and spring washer (8).

II.22. Mount O-rings (13, 14).

II.23. Mount feedback unit holder (2) with cylinder screws (1) on butterfly valve (9) - only required for butterfly valve with feedback.

II.24. Mount butterfly valve (9) with hexagonal screws (8) and hexagonal nuts (7) in line system.

Information/Note	
	⇒ Tighten hexagonal nuts (7) in a crosswise sequence!

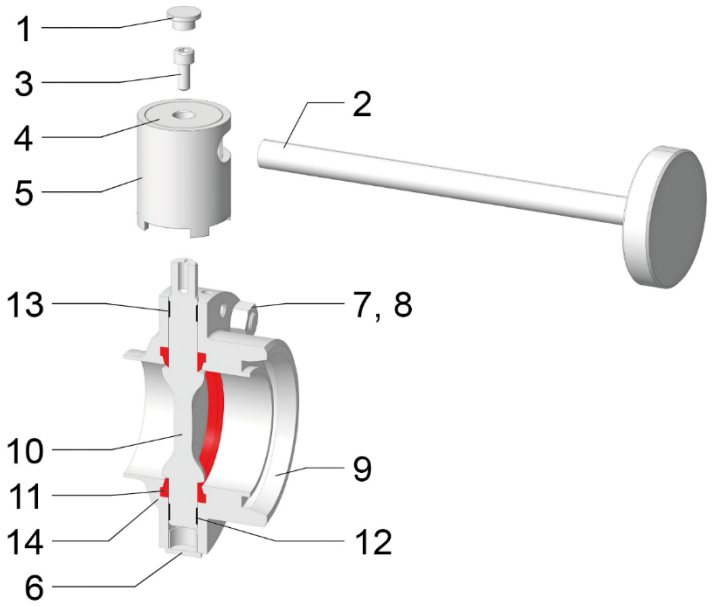
II.25. Assemble feedback unit (20) - only required for butterfly valves with feedback.

Information/Note	
	⇒ Set switching distance of the feedback unit(s) (20) after assembly. → see feedback unit data sheet.

II.26. Connect electrical supply line.

6.6. Disassembling and assembling manual butterfly valve with continuous locking

Information/Note
⇒ Avoid damage to the metal valve surfaces and the seal.



Disassembling the valve

III.1. Loosen pipe connections and remove butterfly valve from line system - the following assembly steps in the line system are for butterfly valves with housing flanges with welding ends.
III.2. Disassemble sealing plugs (1).
III.3. Disassemble gear lever (2).
III.4. Disassemble cylinder screw (3).
III.5. Remove sleeve (5) with coupling (4).
III.6. Disassemble plastic plugs (6).
III.7. Disassemble hexagonal nuts (7) and remove hexagonal screws (8).
III.8. Remove housing flange (9).
III.9. Remove valve plate (10) with seal (11).
III.10. Disassemble friction bearing (12, 13).
III.11. Remove seal (11) from valve disk (10) - first unwind from the short shaft of the valve disk.

Valve assembly

III.12. Prior to assembly, clean and grease the shafts and sliding surfaces.

Sealing materials	Grease type
EPDM / FKM / HNBR / EPDM/PTFE-laminated	PARALIQ GTE 703
VMQ	BARRIERTA L55/3

Information/Note
⇒ If a different grease is used → Tackle seal elements. ⇒ Do not use mineral greases and animal fats. ⇒ Do not use petroleum-based grease.

III.13. Mount seal (11) on valve disk (10) - see chapter "Mounting the seal on the valve disk".

III.14. Mount friction bearing (12, 13) on valve disc (10).

III.15. Insert valve disc (10) with seal (11) into housing flange (14).

Information/Note
⇒ The valve disk (10) must be in the Open position during insertion.

III.16. Mount housing flange (9) with hexagonal screws (8) and hexagonal nuts (7) on housing flange (14).

Information/Note
⇒ Tighten hexagonal nuts (7) in a crosswise sequence!

III.17. Mount plastic plugs (6).

III.18. Mount sleeve (5) with coupling (4) on butterfly valve.

III.19. Mount cylinder screw (3).

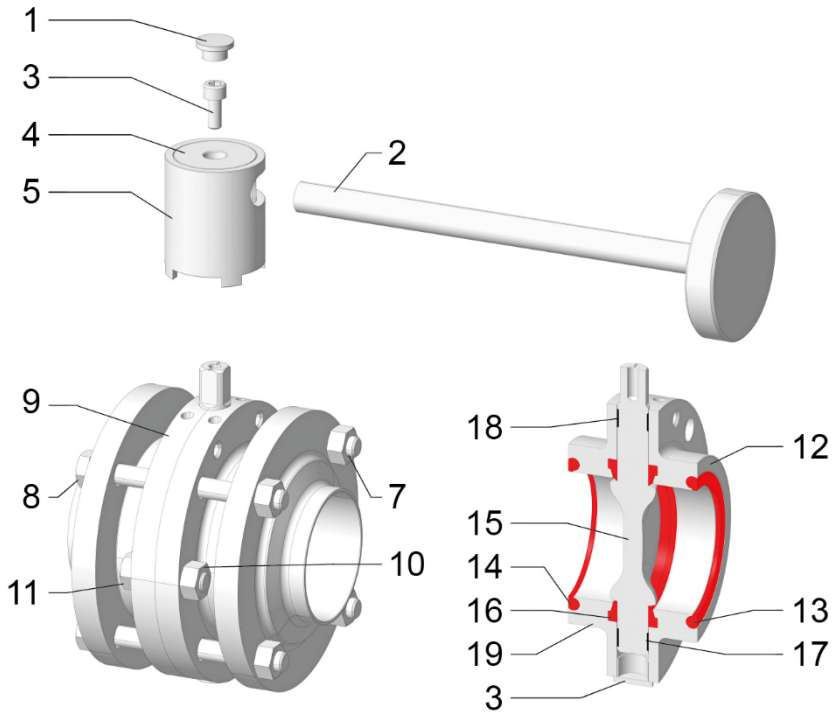
III.20. Mount hand lever (2) in coupling (4).

III.21. Mount sealing plugs (1).

III.22. Mount butterfly valve by connecting the pipe connections in the line system.

6.7. Disassembling and assembling manual butterfly valve with continuous locking - sandwich style

Information/Note
⇒ Avoid damage to the metal valve surfaces and the seal.



Disassembling the valve

IV.1. Disassemble hexagonal nuts (7) and hexagonal screws (8) and remove butterfly valve (9) from line system.
IV.2. Disassemble sealing plugs (1).
IV.3. Disassemble gear lever (2).
IV.4. Disassemble cylinder screw (3).
IV.5. Remove sleeve (5) with coupling (4).
IV.6. Disassemble plastic plugs (6).
IV.7. Disassemble O-rings (13, 14).
IV.8. Disassemble hexagonal nuts (10) and remove hexagonal screws (11).
IV.9. Remove housing flange (12).
IV.10. Remove valve plate (15) with seal (16).
IV.11. Disassemble friction bearing (17, 18).
IV.12. Remove seal (16) from valve disk (15) - first unwind from the short shaft of the valve disk.

Valve assembly

IV.13. Prior to assembly, clean and grease the shafts and sliding surfaces.

Sealing materials	Grease type
EPDM / FKM / HNBR / EPDM/PTFE-laminated	PARALIQ GTE 703
VMQ	BARRIERTA L55/3

Information/Note

⇒ If a different grease is used
→ Tackle seal elements.
⇒ Do not use mineral greases and animal fats.
⇒ Do not use petroleum-based grease.

IV.14. Mount seal (16) on valve disk (15) - see chapter "Mounting the seal on the valve disk".
IV.15. Mount friction bearing (17, 18) on valve disc (15).
IV.16. Insert valve disc (15) with seal (16) into housing flange (19).

Information/Note

⇒ The valve disk (15) must be in the Open position during insertion.

IV.17. Mount housing flange (12) with hexagonal screws (11) and hexagonal nuts (10) on housing flange (19).

Information/Note

⇒ Tighten hexagonal nuts (10) in a crosswise sequence!

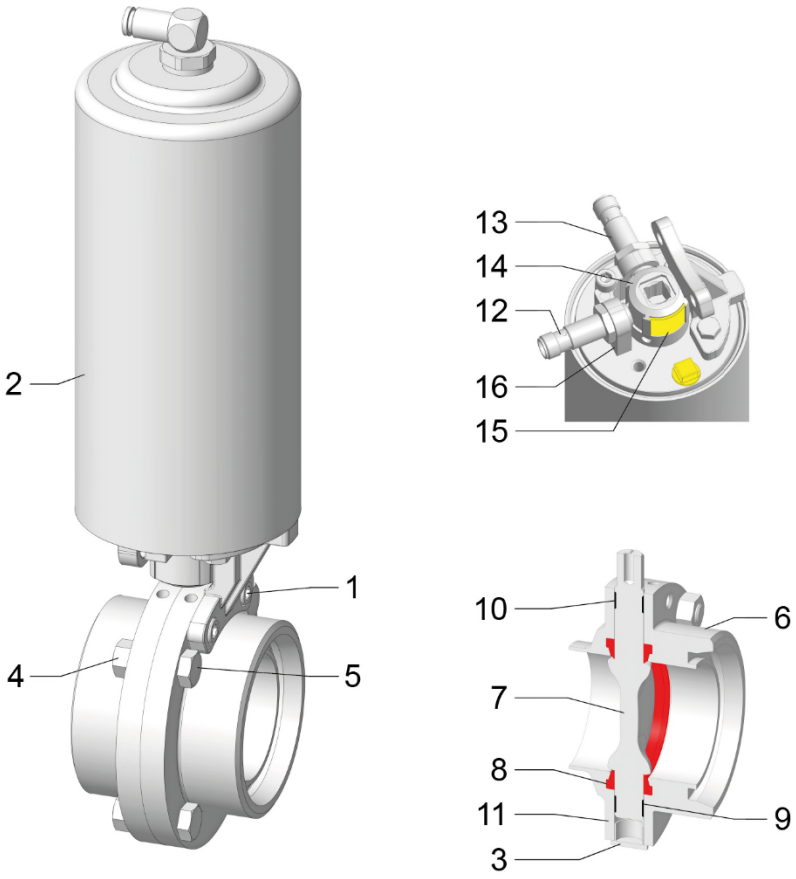
IV.18. Mount plastic plugs (6).
IV.19. Mount O-rings (13, 14).
IV.20. Mount plastic plugs (6).
IV.21. Mount sleeve (5) with coupling (4) on butterfly valve (9).
IV.22. Mount cylinder screw (3).
IV.23. Mount hand lever (2) in coupling (4).
IV.24. Mount sealing plugs (1).
IV.25. Mount butterfly valve (9) with hexagonal screws (8) and hexagonal nuts (7) in line system.

Information/Note

⇒ Tighten hexagonal nuts (7) in a crosswise sequence!

6.8. Disassembling and assembling pneumatic butterfly valve (type K660 - 665,668; K670 - 675,678 and K680 - 685,688)

Information/Note
⇒ Avoid damage to the metal valve surfaces and the seal.



Disassembling the valve

V.1. Disconnect the pneumatic and electrical supply lines.
V.2. Disassemble feedback unit (12, 13) – only required if feedback unit is defective.
V.3. Loosen pipe connections and remove butterfly valve from line system - the following assembly steps in the line system are for butterfly valves with housing flanges with welding ends.
V.4. Mount plastic plugs (3).
V.5. Disassemble cylinder screws (1).
V.6. Remove pneumatic rotary actuator (2).
V.7. Disassemble hexagonal nuts (4) and remove hexagonal screws (5).
V.8. Remove housing flange (6).
V.9. Remove valve plate (7) with seal (8).
V.10. Disassemble friction bearing (9, 10).
V.11. Remove seal (8) from valve disk (7) - first unwind from the short shaft of the valve disk.

Valve assembly

V.12. Prior to assembly, clean and grease the shafts and sliding surfaces.

Sealing materials	Grease type
EPDM / FKM / HNBR / EPDM/PTFE-laminated	PARALIQ GTE 703
VMQ	BARRIERTA L55/3

Information/Note

⇒ If a different grease is used
→ Tackle seal elements.
⇒ Do not use mineral greases and animal fats.
⇒ Do not use petroleum-based grease.

V.13. Mount seal (8) on valve disk (7) - see chapter "Mounting the seal on the valve disk".

V.14. Mount friction bearing (9, 10) on valve disc (7).

V.15. Insert valve disc (7) with seal (8) into housing flange (11).

Information/Note

⇒ The valve disk (6) must be in the Open position during insertion.

V.16. Mount housing flange (6) with hexagonal screws (5) and hexagonal nuts (4) on housing flange (6).

Information/Note

⇒ Tighten hexagonal nuts (4) in a crosswise sequence!

V.17. Mount plastic plugs (3).

V.18. Set valve disc (7) to the following position:

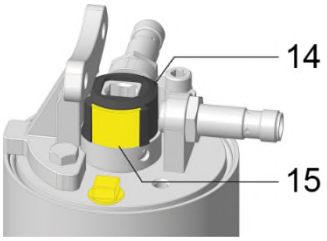
Working method	Valve disc position
air opening - spring closing	Closed
spring opening – air closing	Open
air opening – air closing	Closed

V.19. Pneumatic. Mount rotary actuator (2) on valve disc (7).

Information/Note

⇒ Pay attention to position of coupling (14)
⇒ Position display

⇒ Yellow position display (15) always points in the direction of the valve disc.
In the diagram, valve disc would be in the Closed position.



V.20. Mount cylinder screws (1).

V.21. Mount butterfly valve by connecting the pipe connections in the line system.

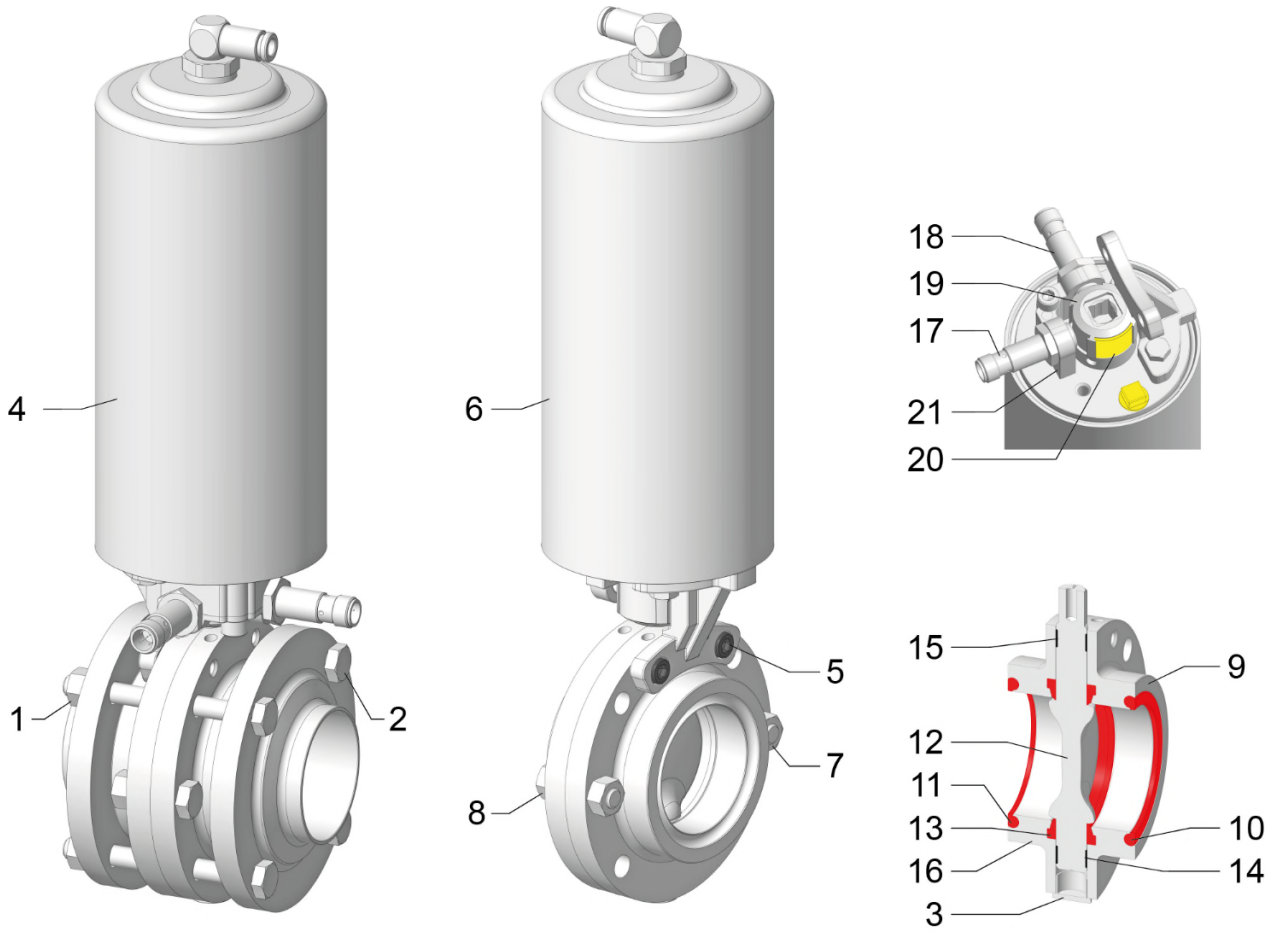
V.22. Mount feedback unit (12, 13) flush in sensor holder (15).

Information/Note	
	⇒ Set switching distance of the feedback unit(s) (12, 13) after assembly.

V.23. Connect pneumatic and electrical supply lines.

6.9. Disassembling and assembling pneumatic butterfly valve (type K667, K677, K687) - sandwich style

Information/Note
⇒ Avoid damage to the metal valve surfaces and the seal.



Disassembling the valve

VI.1. Disconnect the pneumatic and electrical supply lines.
VI.2. Disassemble feedback unit (17, 18) – only required if feedback unit is defective.
VI.3. Disassemble hexagonal nuts (1) and hexagonal screws (2) and remove butterfly valve from line system.
VI.4. Disassemble plastic plugs (3).
VI.5. Disassemble cylinder screws (5) and remove pneumatic rotary actuator (6).
VI.6. Disassemble hexagonal nuts (7) and remove hexagonal screws (8).
VI.7. Remove housing flange (9).
VI.8. Disassemble O-rings (10, 11).
VI.9. Remove valve plate (12) with seal (13).
VI.10. Disassemble friction bearing (14, 15).

VI.11. Remove seal (13) from valve disk (12) - first unwind from the short shaft of the valve disk.

Valve assembly

VI.12. Prior to assembly, clean and grease the shafts and sliding surfaces.

Sealing materials	Grease type
EPDM / FKM / HNBR / EPDM/PTFE-laminated	PARALIQ GTE 703
VMQ	BARRIERTA L55/3

Information/Note

⇒ If a different grease is used
→ Tackle seal elements.
⇒ Do not use mineral greases and animal fats.
⇒ Do not use petroleum-based grease.

VI.13. Mount friction bearing (14, 15) on valve disc (12).
VI.14. Mount seal (13) on valve disk (12) - see chapter "Mounting the seal on the valve disk".
VI.15. Insert valve disc (12) with seal (13) into housing flange (16).

Information/Note

⇒ The valve disk (12) must be in the Open position during insertion.

VI.16. Mount housing flange (9) with hexagonal screws (8) and hexagonal nuts (7) on housing flange (9).

Information/Note

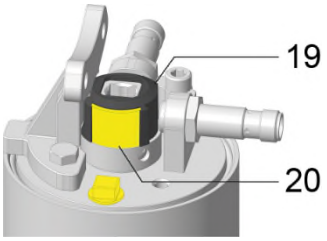
⇒ Tighten hexagonal nuts (7) in a crosswise sequence!

V.24. Mount plastic plugs (3).
V.25. Set valve disc (12) to the following position:

Working method	Valve disc position
air opening - spring closing	Closed
spring opening – air closing	Open
air opening – air closing	Closed

IV.26. Mount pneumatic rotary actuator (4) on valve disc (12).

Information/Note
⇒ Pay attention to position of coupling (19) ⇒ Position display ⇒ Yellow position display (20) always points in the direction of the valve disc. In the diagram, valve disc would be in the Closed position.



IV.27. Mount cylinder screws (5).

IV.28. Mount O-rings (10, 11).

IV.29. Mount butterfly valve with hexagonal screws (2) and hexagonal nuts (1) in line system.

Information/Note
⇒ Tighten hexagonal nuts (1) in a crosswise sequence!

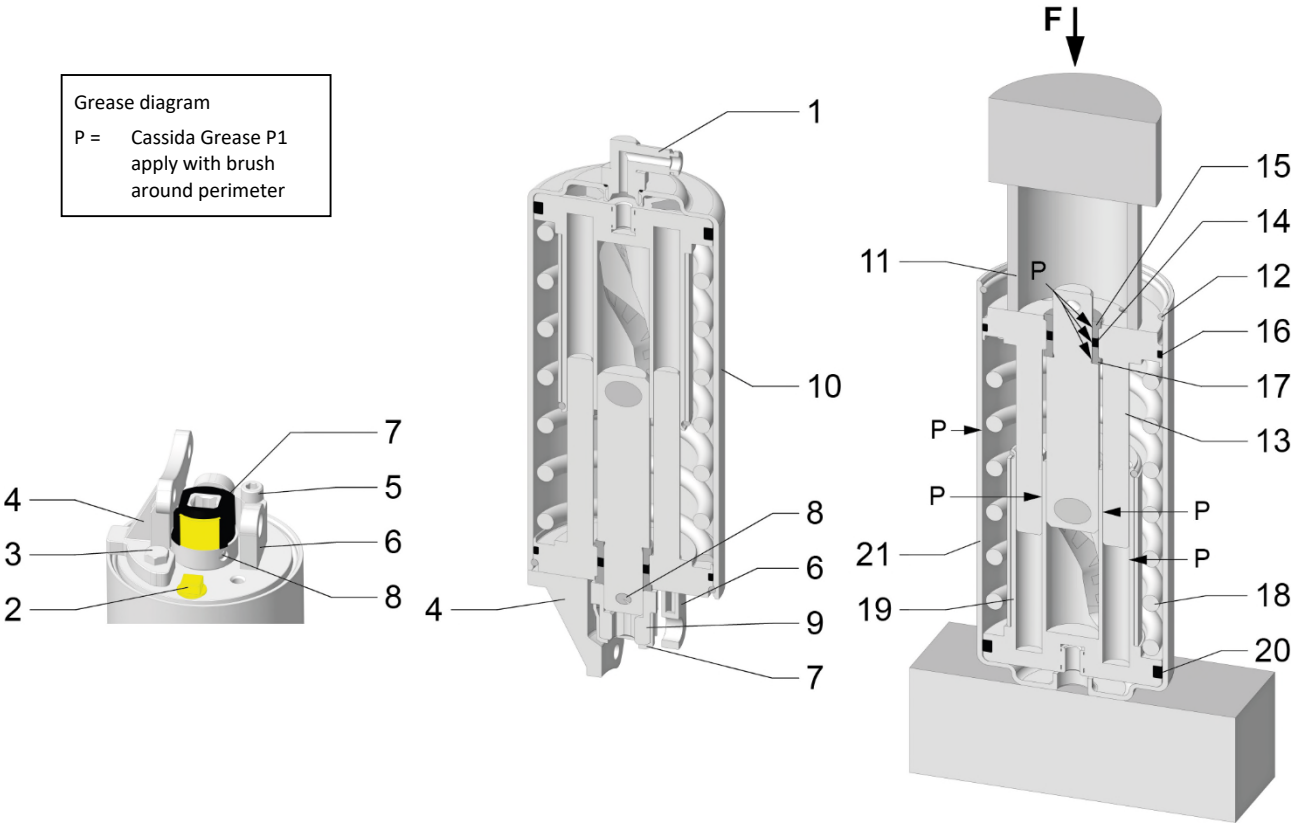
VI.17. Mount feedback unit (17, 18) flush in sensor holder (21).

Information/Note
⇒ Set switching distance of the feedback unit(s) (17, 18) after assembly.

VI.18. Connect pneumatic and electrical supply lines.

6.10. Disassembling and assembling pneumatic rotary actuator

6.10.1. Air opening – spring closing, spring opening - air closing working method



Actuator disassembly

VII.1. Disassemble air connection (1) and threaded plugs (2).
VII.2. Disassemble cylinder screw (5) and remove sensor holder (6).
VII.3. Disassemble hexagonal screws (3) and remove bracket (4).
VII.4. Remove sensor activation (7).
VII.5. Disassemble notched taper pin (8) and remove coupling (9).
VII.6. Position pneumatic rotary actuator (10) centrally in lifting device.
VII.7. Position spacer sleeve (11).
VII.8. Mount the stamp of the lifting device on the spacer sleeve (11) by lifting slowly. Move spacer sleeve (11) and cylinder base (13) approx. 10 mm in direction of force with force F.
VII.9. Disassemble spring washer (12).
VII.10.

DANGER

Release spring force.

⇒ Release spring completely.
⇒ Provide lifting distance of min. 120 mm.

VII.11. Remove spacer sleeve (11).
VII.12. Remove cylinder base (13) and disassemble O-rings (14, 16) and bearings (15, 17).
VII.13. Remove pressure springs (18).
VII.14. Remove piston package (19) and disassemble O-ring (20).

Actuator assembly

VII.15. Prior to assembly, clean and grease the shafts and sliding surfaces.

Sealing materials	Grease type
NBR	Cassida Grease P1

Information/Note

⇒ If a different grease is used
→ Tackle seal elements.
⇒ Do not use mineral greases and animal fats.
⇒ Do not use petroleum-based grease.

VII.16. Mount O-ring (20) in the piston package (19).
VII.17. Mount O-rings (14, 16) and bearings (15, 17) in the cylinder base (13).
VII.18. Insert piston package (19) into actuator cylinder (21).
VII.19. Insert pressure spring (18) into actuator cylinder (21).
VII.20. Position actuator cylinder (21) in lifting device.
VII.21. Mount cylinder base (13) on pressure spring (18) and piston package (19).

Information/Note

⇒ Align piston package (19) and cylinder base (13).

VII.22. Position spacer sleeve (11).
VII.23. Mount the stamp of the lifting device on the spacer sleeve (11) by lifting slowly. Move spacer sleeve (11) and cylinder base (13) approx. 10 mm in direction of force with force F.
VII.24. Mount spring washer (12).
VII.25.

DANGER

Release spring force.

VII.26. Remove spacer sleeve (11).
VII.27. Pre-load actuator spring

DANGER

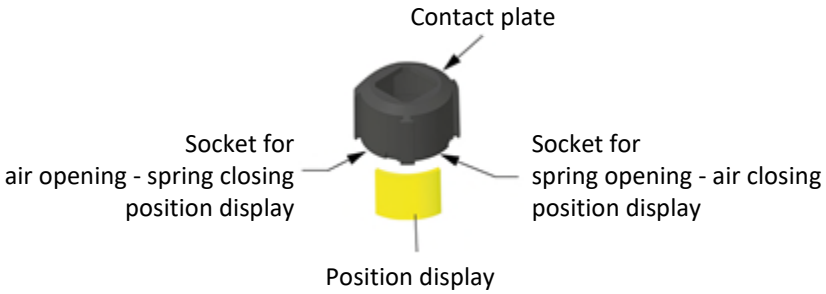
⇒ Control air pressure min. 5 bar (auxiliary assembly air) at connection A_1.

VII.28. Plug in coupling (9).

VII.29. Mount sensor activation (7) on coupling (9).

Information/Note

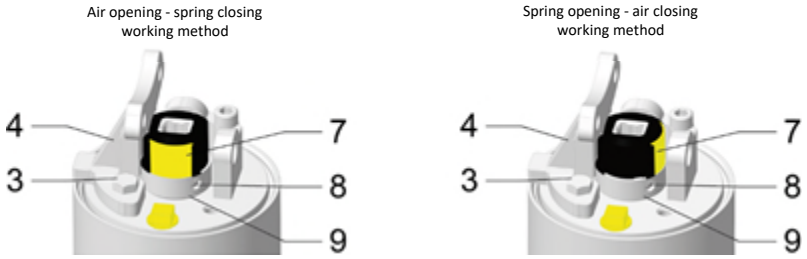
⇒ Plug position display into sensor activation (7), depending on the working method of the rotary actuator.

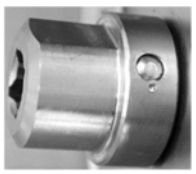


VII.30. Mount coupling (9) on pneumatic rotary actuator with notched taper pin (8).

Information/Note

⇒ Pay attention to installation position of coupling (9) and sensor activation (7).





⇒ During disassembly of the notched taper pin, the connection elements may become deformed, which may cause the connection to loosen when used again.

⇒ To avoid loosening, we recommend:
→ replacing the removed notched taper pin with a new one during assembly.

⇒ As an option, a centre mark offers additional safety before loosening the new notched taper pin.

VII.31. Release actuator spring

DANGER

⇒ Control air pressure 0 bar (auxiliary assembly air) at connection A_1.

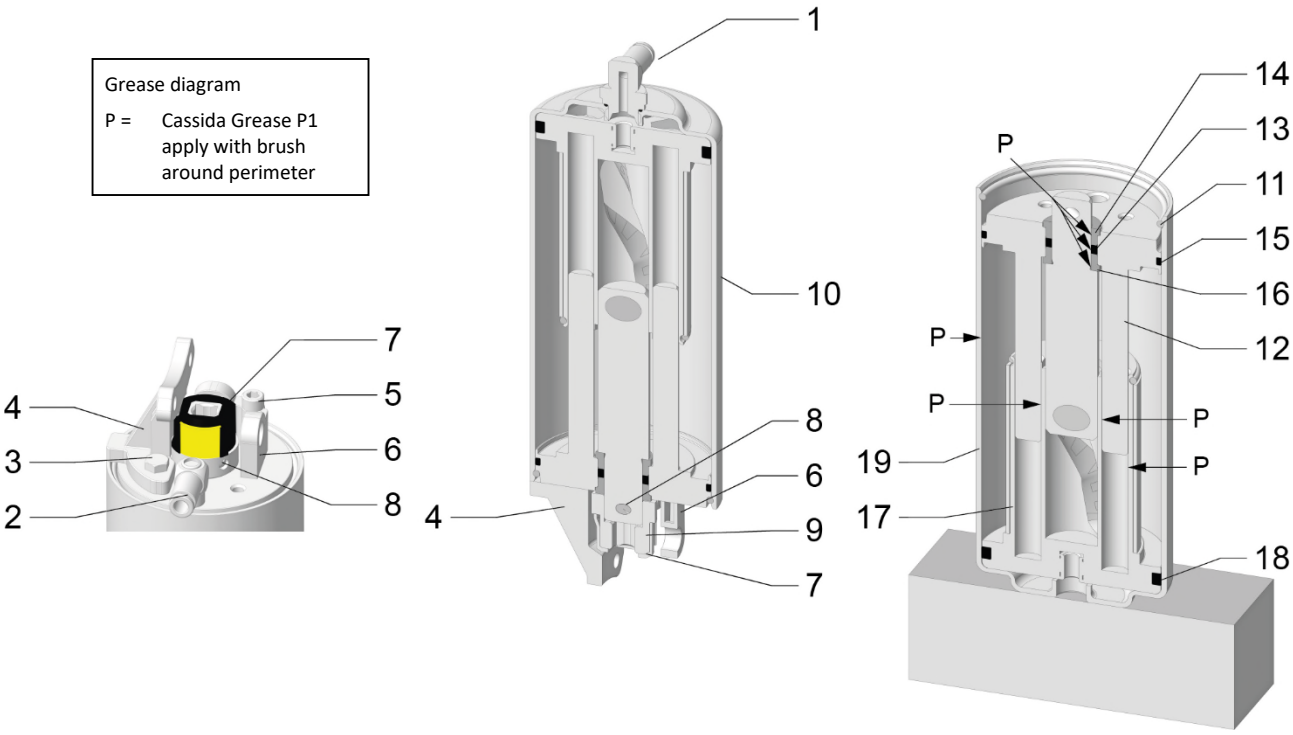
⇒ Disconnect compressed air line.

VII.32. Mount bracket (4) with hexagonal screws (3) on cylinder base (13).

VIII.1. Mount sensor holder (6) with cylinder screw (5) on cylinder base (13) – tightening torque max. 4.0 Nm.

VII.33. Assemble air connection (1) and threaded plugs (2).

6.10.2. Air opening – air closing working method



Actuator disassembly

VIII.2. Disassemble air connections (1, 2).
VIII.3. Disassemble cylinder screw (5) and remove sensor holder (6).
VIII.4. Disassemble hexagonal screws (3) and remove bracket (4).
VIII.5. Remove sensor activation (7).
VIII.6. Disassemble notched taper pin (8) and remove coupling (9).
VIII.7. Disassemble spring washer (11).
VIII.8. Remove cylinder base (12) and disassemble O-rings (13, 15) and bearings (14, 16).
VIII.9. Remove piston package (17) and disassemble O-ring (18).

Actuator assembly

VIII.10. Prior to assembly, clean and grease the shafts and sliding surfaces.

Sealing materials	Grease type
NBR	Cassida Grease P1

Information/Note

⇒ If a different grease is used
→ Tackle seal elements.
⇒ Do not use mineral greases and animal fats.
⇒ Do not use petroleum-based grease.

VIII.11. Mount O-ring (18) in the piston package (17).
VIII.12. Mount O-rings (13, 15) and bearings (14, 16) in the cylinder base (12).

VIII.13. Insert piston package (17) into actuator cylinder (19).

VIII.14. Insert cylinder base (12) into actuator cylinder (19).

Information/Note
⇒ Align piston package (17) and cylinder base (12).

VIII.15. Mount spring washer (11).

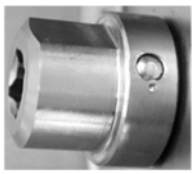
VIII.16. Plug in coupling (9).

VIII.17. Mount sensor activation (7) on coupling (9).

VIII.18. Mount coupling (9) on pneumatic rotary actuator with notched taper pin (8).

Information/Note
⇒ Pay attention to installation position of coupling (9) and sensor activation (7).

Air opening - air closing
working method



⇒ During disassembly of the notched taper pin, the connection elements may become deformed, which may cause the connection to loosen when used again.

⇒ To avoid loosening, we recommend:

→ replacing the removed notched taper pin with a new one during assembly.

⇒ As an option, a centre mark offers additional safety before loosening the new notched taper pin.

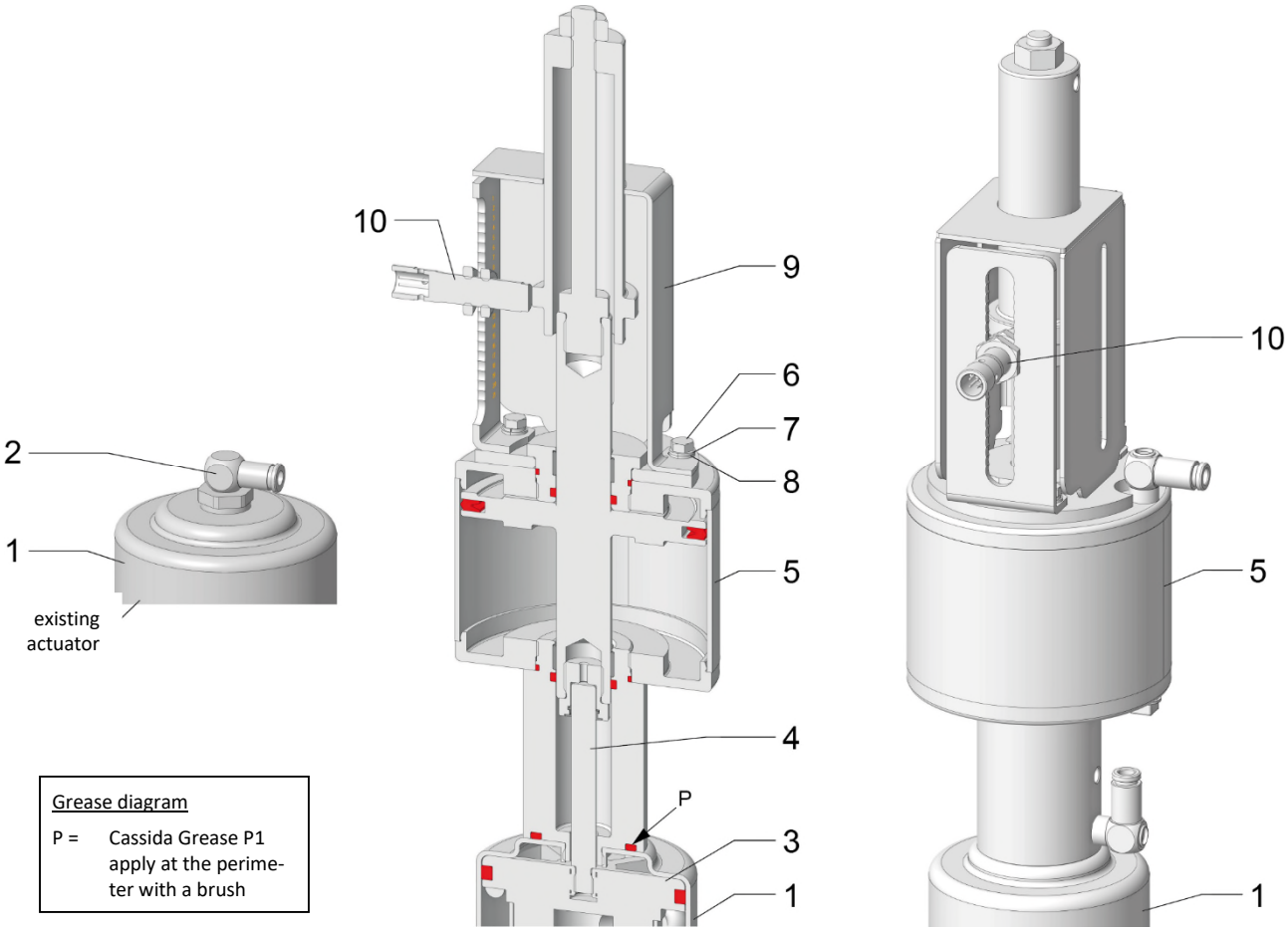
VIII.19. Mount bracket (4) with hexagonal screws (3).

VIII.20. Mount sensor holder (6) with cylinder screw (5) on cylinder base (12) – tightening torque max. 4.0 Nm.

VIII.21. Mount air connections (1, 2).

6.11. Assembly of the three-position drive

6.11.1. Subsequent assembly of the three-position drive



Grease diagram

P = Cassida Grease P1 apply at the perimeter with a brush

IX.1. Disassemble air connection (2).

IX.2. Remove spindle (4) from three-position drive (5)

IX.3. Prior to assembly, clean and grease the shafts and sliding surfaces. Grease sealing elements prior to installation.

IX.4. Screw spindle (4) onto rotary actuator piston (3).

IX.5. Mount three-position drive (5) on rotary drive (1).

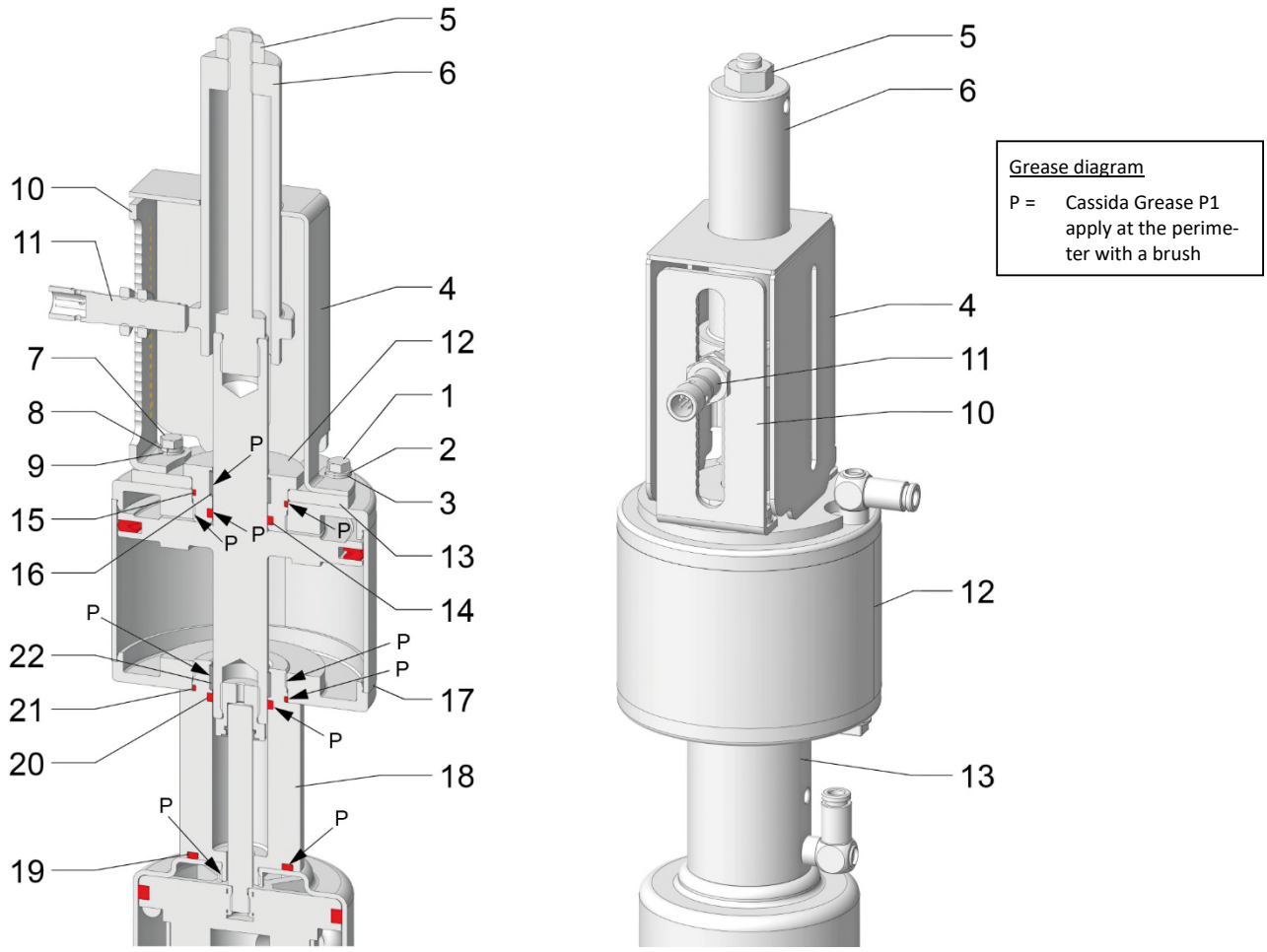
IX.6. Remove hex screws (6), spring rings (7) and washers (8) and remove cover (9) .

IX.7. Mount the feedback unit (10).

Information/Note
⇒ Set switching distance of the feedback unit (10) after assembly.

IX.8. Mount cover (9) using hex screws (6), spring rings (7) and washers (8) on three-position drive (5).

6.11.2. Assembly – Disassembling the three-position drive



Three-position drive disassembly

X.1. Disassemble pneumatic and electrical lines.
X.2. Disassemble complete three-position drive (17).
X.3. Disassemble hex screws (1), spring rings (2) and washers (3) and remove cover (4).
X.4. Disassemble hexagon nut (5) and stop sleeve (6).
X.5. Disassemble hex screws (7), spring rings (8) and washers (9) and remove sensor holder (10) with feedback sensor (11) .
X.6. Disassemble retaining screw (12).
X.7. Remove adapter disc (13).
X.8. Disassemble O-rings (14, 15) and friction bearing (16).
X.9. Disconnect the adapter (18).
X.10. Disassemble O-rings (19, 20, 21) and friction bearing (22).

Three-position drive assembly

X.11. Prior to assembly, clean and grease the shafts and sliding surfaces. Grease sealing elements prior to installation.
X.12. Mount O-rings (19, 20, 21) and friction bearing (22) in adapter (18).
X.13. Mount adapter (18) on three-position drive (17).

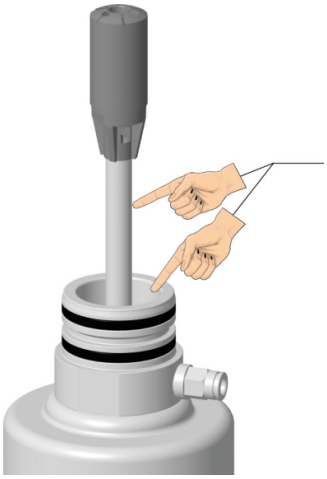
X.14. Mount O-rings (14, 15) and friction bearing (16) in retaining screw (12).
X.15. Mount adapter disc (13).
X.16. Mount locking screw (12) on three-position drive (17).
X.17. Mount hexagon nut (5) and stop sleeve (6).
X.18. Mount sensor holder (10) with feedback unit (11) using X.5. hex screws (7), spring rings (8) and discs (9) on three-position drive (17).

Information/Note
⇒ Set switching distance of feedback unit (11) after assembly.

X.19. Mount cover (4) using hex screws (1), spring rings (2) and washers (3) on three-position drive (17).
X.20. Mount three-position drive (17) on rotary drive.
X.21. Mount pneumatic and electrical lines.

6.12. SensoTop assembly

6.12.1. General information



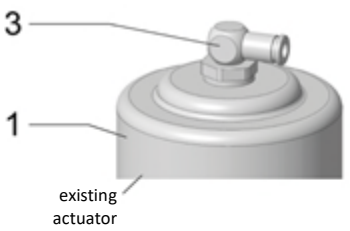
WARNING

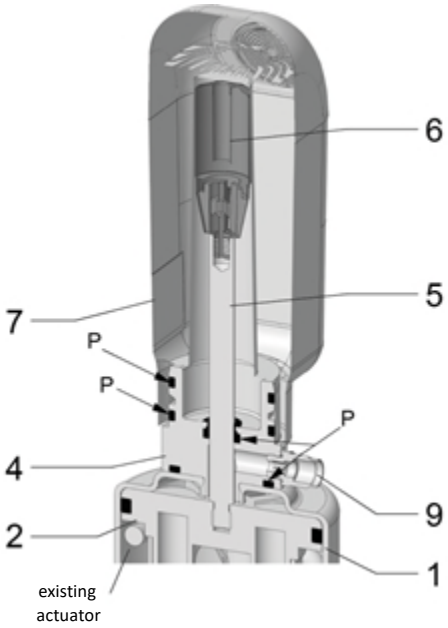
Do not reach towards and/or into moving parts.

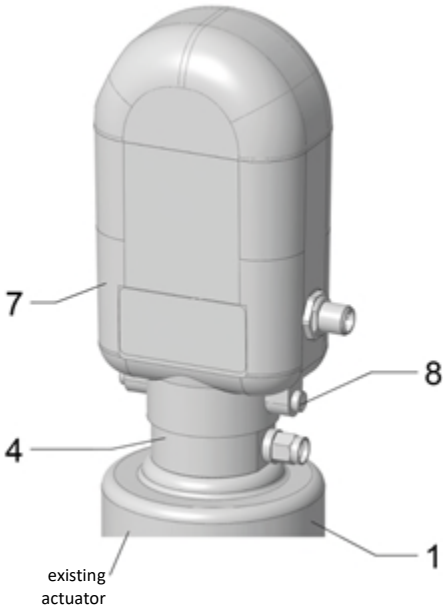
Danger of accident.

Limbs may be crushed.

6.12.2. SensoTop subsequent assembly





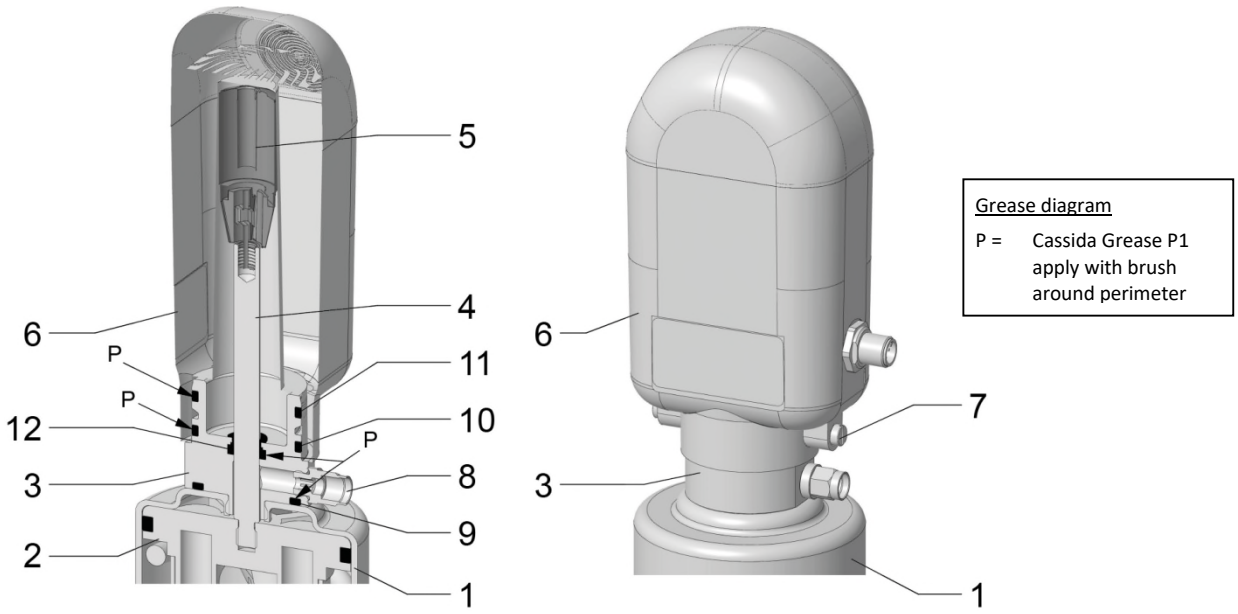


Grease diagram

P = Cassida Grease P1 apply with brush around perimeter

XI.1. Disassemble air connection (3).
XI.2. Prior to assembly, clean and grease the shafts and sliding surfaces. Grease sealing elements prior to installation.
XI.3. Mount adapter (4) on pneumatic rotary actuator (1).
XI.4. Screw spindle (5) onto rotary actuator piston (2).
XI.5. Mount target (6) on spindle (5) - tightening torque of max. 1.0 Nm (correct assembly is guaranteed with the aid of a spanner on both key areas).
XI.6. Plug SensoTop (7) into adapter (4).
XI.7. Mount cylinder screws (8) - tightening torque max. 3.2 Nm.
XI.8. Mount air connection (9).

6.12.3. SensoTop assembly – disassembly



Dismounting the control head

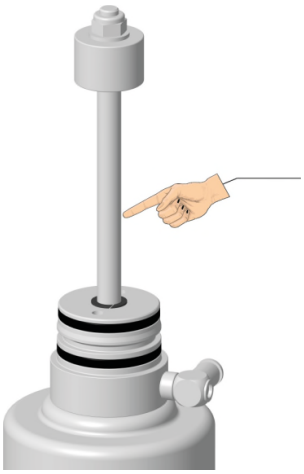
XII.1. Disconnect pneumatic supply line.
XII.2. Unscrew the cylinder screws (7) until the entire screw head is visible.
XII.3. Unplug SensoTop (6) from adapter (3).
XII.4. Unscrew spindle (4) with target (5).
XII.5. Disconnect the adapter (3).
XII.6. Disassemble O-rings (9, 10, 11) and seal (12).

Control head assembly

XII.7. Prior to assembly, clean and grease the shafts and sliding surfaces. Grease sealing elements prior to installation.
XII.8. Mount O-rings (9, 10, 11) and seal (12) in adapter (3).
XII.9. Mount adapter (3) on pneumatic rotary actuator (1).
XII.10. Mount spindle (4) with target (5) on rotary actuator piston (2).
XII.11. Plug SensoTop (6) into adapter (3).
XII.12. Mount cylinder screws (7) - tightening torque max. 3.2 Nm.

6.13. IntelliTop® 2.0 process control head assembly

6.13.1. General information



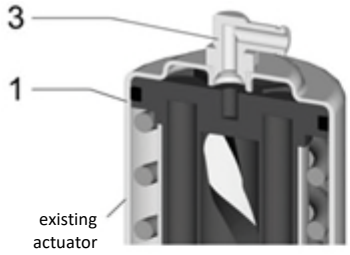
WARNING

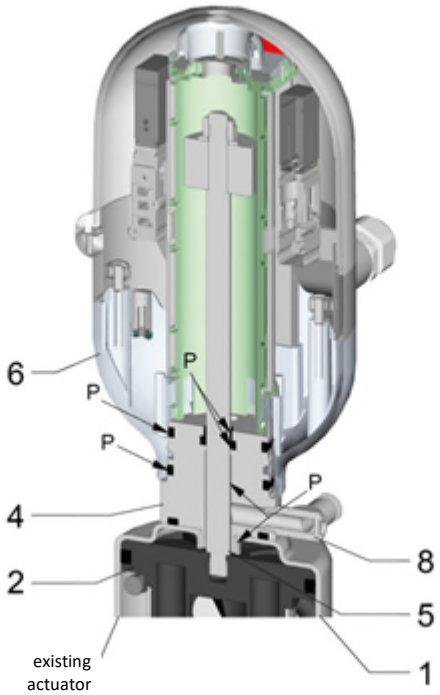
Do not reach towards and/or into moving parts.

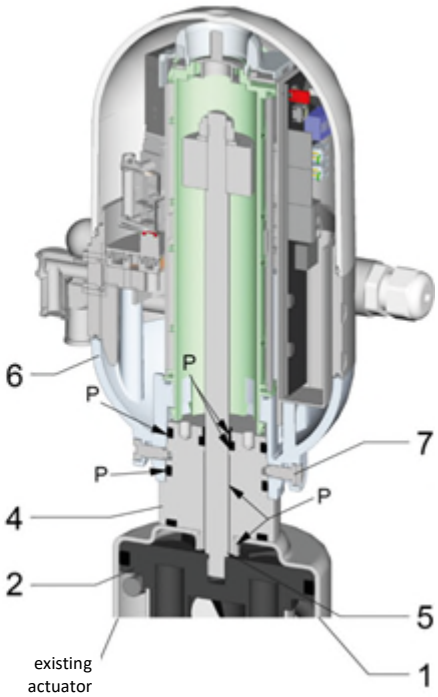
Danger of accident.

Limbs may be crushed.

6.13.2. IntelliTop® 2.0 process control head subsequent assembly





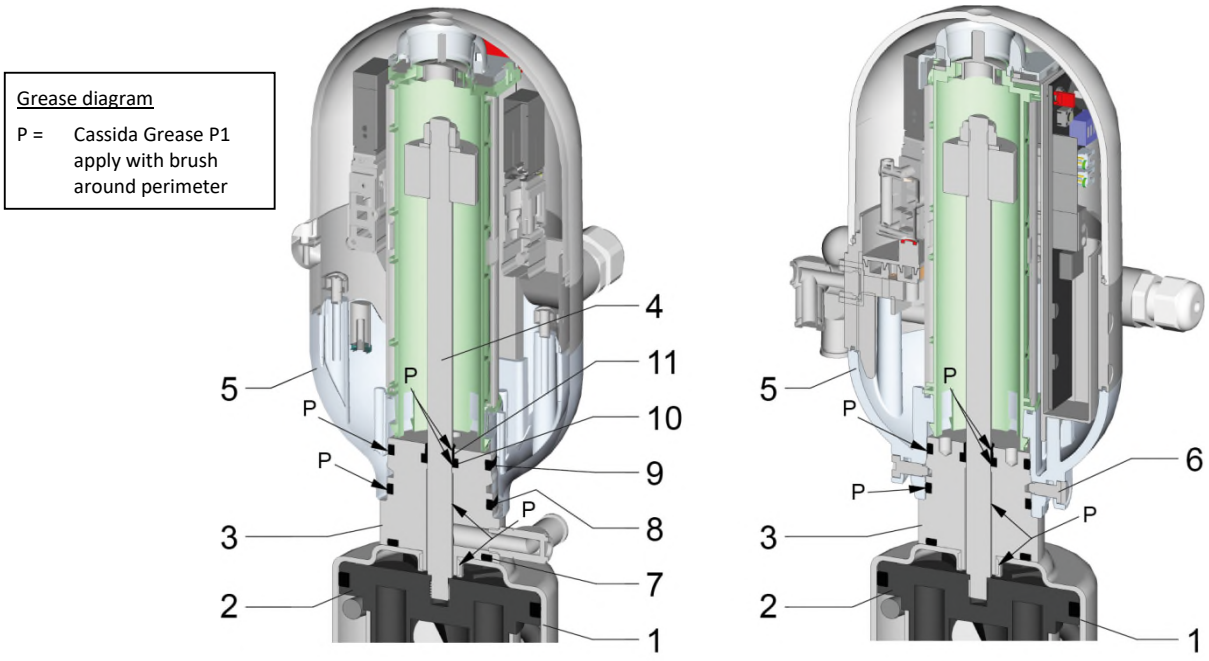


Grease diagram

P = Cassida Grease P1 apply with brush around perimeter

XIII.1. Disassemble air connection (3).
XIII.2. Prior to assembly, clean and grease the shafts and sliding surfaces. Grease sealing elements prior to installation.
XIII.3. Mount adapter (4) on pneumatic rotary actuator (1).
XIII.4. Screw target (5) onto rotary actuator piston (2).
XIII.5. Mount the process control head (6) on the adapter (4).
XIII.6. Mount cylinder screws (7) - tightening torque max. 3.2 Nm.
XIII.7. Mount air connection (8).

6.13.3. IntelliTop® 2.0 process control head assembly – disassembly



Dismounting the control head

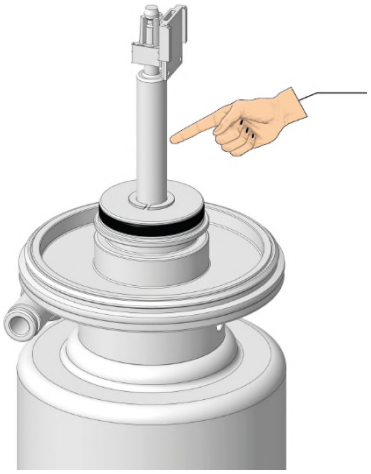
XIV.1. Disconnect pneumatic supply line.
XIV.2. Unscrew the cylinder screws (6) until the entire screw head is visible.
XIV.3. Detach process control head (5) from the adapter (3).
XIV.4. Unscrew target (4).
XIV.5. Disconnect the adapter (3).
XIV.6. Dismount O-rings (7, 8, 9, 10) and friction bearing (11).

Control head assembly

XIV.7. Prior to assembly, clean and grease the shafts and sliding surfaces. Grease sealing elements prior to installation.
XIV.8. Mount O-rings (7, 8, 9, 10) and friction bearing (11) in adapter (3).
XIV.9. Mount adapter (3) on pneumatic rotary actuator (1).
XIV.10. Mount target (4) on rotary actuator piston (2).
XIV.11. Mount the process control head (5) on the adapter (3).
XIV.12. Mount cylinder screws (6) – tightening torque max. 3.2 Nm.

6.14. Process controller type 8692 assembly

6.14.1. General information



WARNING

Do not reach towards and/or into moving parts.

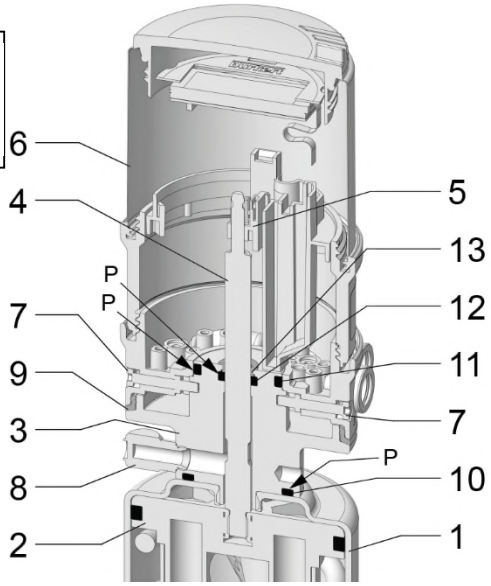
Danger of accident.

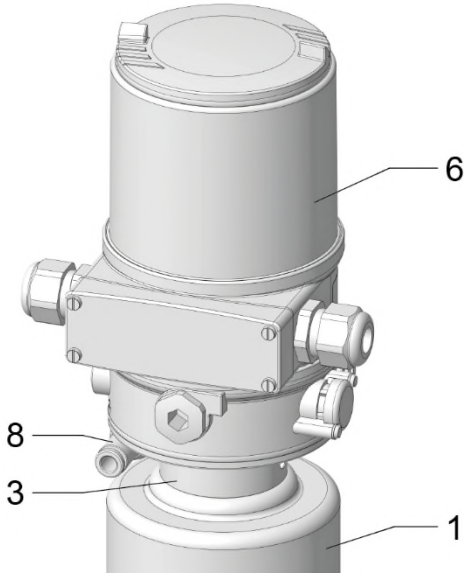
Limbs may be crushed.

6.14.2. Process controller type 8692 assembly – disassembly

Grease diagram

P = Cassida Grease P1 apply with brush around perimeter





Process controller disassembly

XV.1. Disassemble pneumatic and electrical lines.
XV.2. Unscrew the cylinder screws (7) until the entire screw head is visible.
XV.3. Detach process controller (6) from the adapter (3).
XV.4. Remove tappet (5).
XV.5. Unscrew target (4).
XV.6. Disconnect the adapter (3).
XV.7. Disassemble profile seal (9).

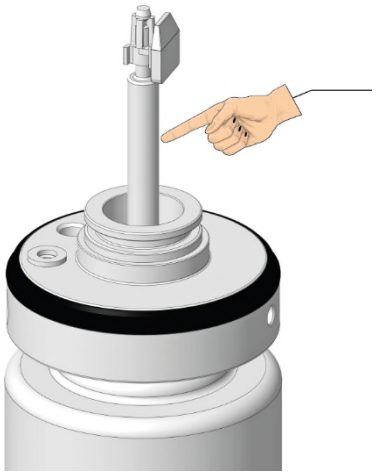
XV.8. Disassemble O-rings (10, 11, 12) and friction bearing (13).

Process controller assembly

XV.9. Prior to assembly, clean and grease the shafts and sliding surfaces. Grease sealing elements prior to installation.
XV.10. Mount O-rings (10, 11, 12) and friction bearing (13) in adapter (3).
XV.11. Plug profile seal (9) into adapter (3).
XV.12. Mount adapter (3) on pneumatic rotary actuator (1).
XV.13. Mount target (4) on rotary actuator piston (2).
XV.14. Mount tappet (5) on target (4).
XV.15. Plug process controller (6) into adapter (3).
XV.16. Mount cylinder screws (7) - tightening torque max. 3.2 Nm.
XV.17. Assemble pneumatic and electrical lines.

6.15. Process controller type 8694 assembly

6.15.1. General information



WARNING

Do not reach towards and/or into moving parts.

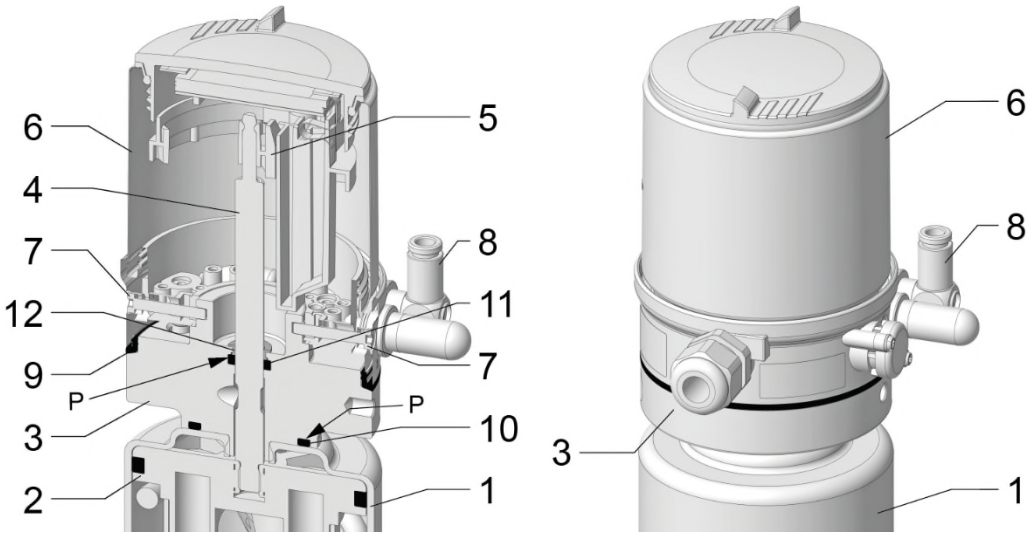
Danger of accident.

Limbs may be crushed.

6.15.2. Process controller type 8694 assembly – disassembly

Grease diagram

P = Cassida Grease P1 apply with brush around perimeter



Process controller disassembly

XVI.1 Disassemble pneumatic and electrical lines.
XVI.2 Unscrew the cylinder screws (7) until the entire screw head is visible.
XVI.3 Detach process controller (6) from the adapter (3).
XVI.4 Remove tappet (5).
XVI.5 Unscrew target (4).
XVI.6 Disconnect the adapter (3).
XVI.7 Disassemble profile seal (9).
XVI.8 Dismount O-rings (10, 11) and friction bearing (12).

Process controller assembly

XVI.9 Prior to assembly, clean and grease the shafts and sliding surfaces. Grease sealing elements prior to installation.

XVI.10 Mount O-rings (10, 11) and friction bearing (12) in adapter (3).

XVI.11 Plug profile seal (9) into adapter (3).

XVI.12 Mount adapter (3) on pneumatic rotary actuator (1).

XVI.13 Mount target (4) on rotary actuator piston (2).

XVI.14 Mount tappet (5) on contact button (4).

XVI.15 Plug process controller (6) into adapter (3).

XVI.16 Mount cylinder screws (7) - tightening torque max. 3.2 Nm.

XVI.17 Assemble pneumatic and electrical lines.

7. Malfunctions - Troubleshooting

WARNING

⇒ Never touch the valve or pipelines of hot media are processed or if the sterilization process is running.
⇒ Always follow the operating parameters exactly (see chapter "Permitted operating media, pressures and temperatures").

CAUTION

⇒ In case of malfunctions, shut off the valve immediately and secure it against restarting.
⇒ Malfunctions must only be eliminated by qualified and trained personnel while observing the safety regulations.

Malfunctions	Cause	Troubleshooting
Switching function malfunctioning	⇒ Fault in the control system	⇒ Check the system configuration
	⇒ No compressed air ⇒ Compressed air level is too low	⇒ Check compressed air supply ⇒ Check the air hoses for clean passageway and tightness
	⇒ Fault in the electrical system	⇒ Check activation / process control head and electrical wiring
	⇒ Pilot valve is defective	⇒ Replace pilot valve
Air escapes from the actuator	⇒ Seals faulty in actuator	⇒ Replace faulty seals
Valve does not close	⇒ Dirt/foreign bodies between valve disc and seal	⇒ Clean the valve housing and sealing area of the valve disc/seal
	⇒ Seal swollen	⇒ Replace the seal
	⇒ Valve disc bent by outside impact	⇒ Change the valve disc
Valve closes too slowly	⇒ Seals in the rotary actuator are dry (friction losses)	⇒ Grease seals
Valve not tight	⇒ Seals worn out	⇒ Replace the seals
	⇒ Seal cut off	⇒ Inspect system parameters, e.g. - pressure surges - pump is switched off at right time - flow parameters - retrofit exhaust throttle

8. Service address

Pentair Südmo GmbH

Industriestraße 7
73469 Riesbürg - Germany

T **++49 (0) 9081-803-0**
F **++49 (0) 9081-803-158**

E **info.suedmo@pentair.com**
I **www.suedmo.de**