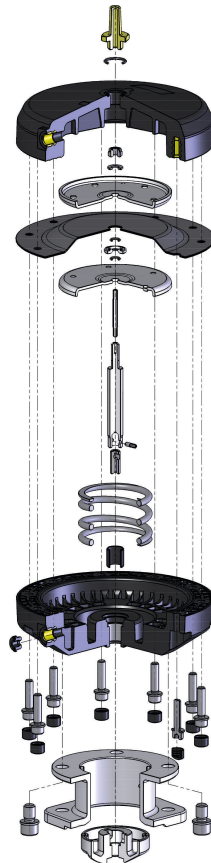


GEMÜ 687 SAK Stf 2_Stf 3

Actuator wearing parts

EN

Assembly instructions



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1 General information

1.1 Information

These assembly instructions are intended as instructions for the safe assembly and maintenance of the actuators. In the event of difficulties that cannot be solved with the help of the assembly instructions, please contact GEMÜ or your nearest GEMÜ subsidiary.

These instructions are binding for transport, storage, assembly, commissioning, operation, maintenance and repair work.

The notes and warnings must be followed and complied with.

1. Handling and all other work must be carried out by expert personnel.
2. All activities must be supervised and checked.
3. The operator is responsible for specifying the area of responsibility, the area of competence and the monitoring of personnel.
4. When decommissioning and/or carrying out maintenance and repair work, the current regional safety requirements must also be consulted and observed.

The manufacturer reserves the right to make technical alterations and improvements at any time.

These assembly instructions comply with the requirements of the EU directives.

- The descriptions and instructions apply to the standard versions. For special versions not described in this document the basic information contained herein applies in combination with any additional special documentation.
- Correct installation, operation, maintenance and repair work ensure faultless operation of the product.
- Should there be any doubts or misunderstandings, the German version is the authoritative document.
- Contact us at the address on the last page for staff training information.

1.2 Symbols used

The following symbols are used in this document:

Symbol	Meaning
●	Tasks to be performed
►	Response(s) to tasks
–	Lists

1.3 Definition of terms

Control medium

The medium whose increasing or decreasing pressure causes the GEMÜ product to be actuated and operated.

Diaphragm size

Uniform seat size of GEMÜ diaphragm valves for different nominal sizes.

1.4 Warning notes



Wherever possible, warning notes are organized according to the following scheme:



SIGNAL WORD	
Possible symbol for the specific danger	Type and source of the danger ► Possible consequences of non-observance. ● Measures for avoiding danger.


Warning notes are always labelled with a signal word and sometimes also with a symbol for the specific danger.

The following signal words and danger levels are used:

 DANGER	
	Imminent danger! ► Non-observance can cause death or severe injury.

 WARNING	
	Potentially dangerous situation! ► Non-observance can cause death or severe injury.

 CAUTION	
	Potentially dangerous situation! ► Non-observance can cause moderate to light injury.

NOTICE	
	Potentially dangerous situation! ► Non-observance can cause damage to property.

2 Safety information

The safety information in this document refers only to an individual product. Potentially dangerous conditions can arise in combination with other plant components, which need to be considered on the basis of a risk analysis. The operator is responsible for the production of the risk analysis and for compliance with the resulting precautionary measures and regional safety regulations.

The document contains fundamental safety information that must be observed during commissioning, operation and maintenance. Non-compliance with these instructions may cause:

- Personal hazard due to electrical, mechanical and chemical effects.
- Hazard to nearby equipment.
- Failure of important functions.
- Hazard to the environment due to the leakage of dangerous substances.

The safety information does not take into account:

- Unexpected incidents and events, which may occur during installation, operation and maintenance.
- Local safety regulations which must be adhered to by the operator and by any additional installation personnel.

Prior to commissioning:

1. Transport and store the product correctly.
2. Do not paint the bolts and plastic parts of the product.
3. Carry out installation and commissioning using trained personnel.
4. Provide adequate training for installation and operating personnel.
5. Ensure that the contents of the document have been fully understood by the responsible personnel.
6. Define the areas of responsibility.
7. Observe the safety data sheets.
8. Observe the safety regulations for the media used.

During operation:

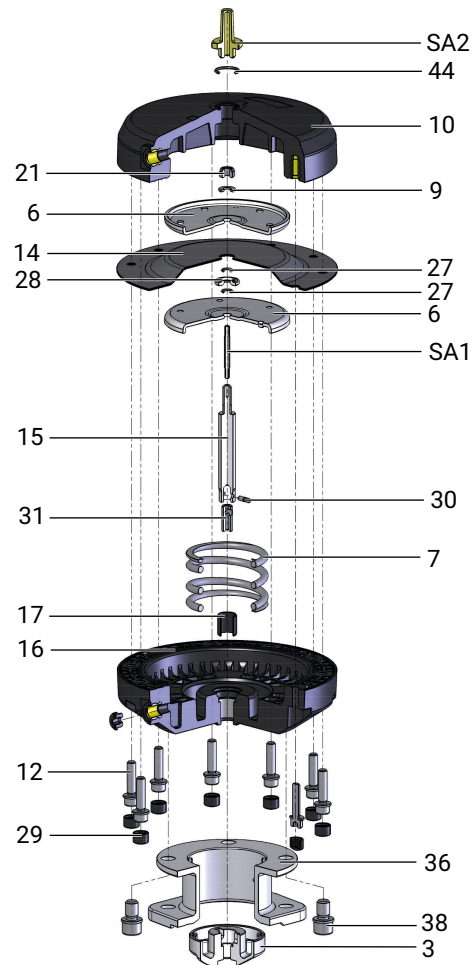
9. Keep this document available at the place of use.
10. Observe the safety information.
11. Operate the product in accordance with this document.
12. Operate the product in accordance with the specifications.
13. Maintain the product correctly.
14. Do not carry out any maintenance work and repairs not described in this document without consulting the manufacturer first.

In cases of uncertainty:

15. Consult the nearest GEMÜ sales office.

3 Product description

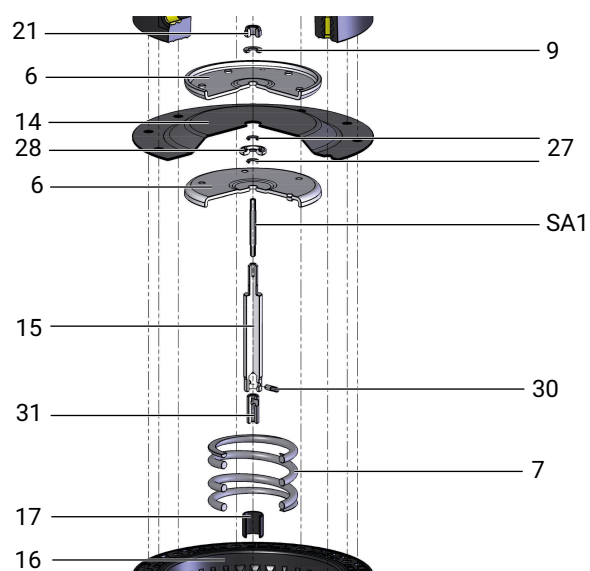
3.1 Exploded diagram – diagrammatic view



Key page 6

NOTICE

- Depending on the actuator size, sealing washers or O-rings are used in the actuator membrane assembly. For control function 2 and control function 3, the indicator spindle does not necessarily need to be removed from the actuator spindle.
- With MG 25, two sealing washers **27** are used, one above and one below the actuator membrane.
- With MG 40 and MG 50, two O-rings **27** and one distance piece **28** are used.



3.2 SAK spare parts kit

Item	Piece(s)	Components
4	1	Lip ring (control function 3 only)
5	1	Lock washer (control function 3 only)
14	1	Actuator membrane
17	1	Guide bush
21	1	Hexagon nut
27	2	Sealing washer or O-ring
44	1	O-ring

Use items 4 and 5; see chapter 5.2 "Replacing the spare parts", page 9, point 18.

Key

Item	Components
3	Compressor
6	Membrane plate
7	Spring (only with control function 2)
9	Washer
10	Actuator top
12	Bolt and washer assembly
14	Actuator membrane
15	Actuator spindle
16	Actuator base
17	Guide bush
21	Hexagon nut
27	Sealing washer or O-ring
28	Distance piece (only for NW 40 and NW 50)
29	Protective cap
30	Dowel pin
31	Adapter
36	Distance piece
38	Bolt and washer assembly
44	O-ring
SA1	Optical position indicator
SA2	Transparent cap

4 Order data

Order codes

1 Type	Code
Diaphragm valve, pneumatically operated, plastic actuator, stainless steel distance piece	687

2 Diaphragm size	Code
Diaphragm size 25	25
Diaphragm size 40	40
Diaphragm size 50	50

3 Kit designation	Code
Wearing parts actuator	SAK

4 Control function	Code
Normally open (NO)	2
Double acting (DA)	3

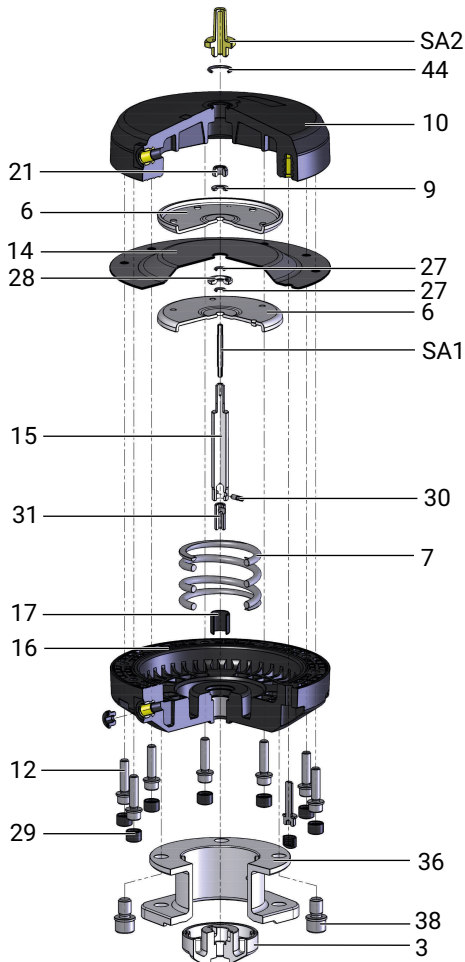
5 Actuator version	Code
Actuator size F/N control air connector 90° offset to flow direction	F/N
Actuator size H/N control air connector 90° offset to flow direction	H/N
Actuator size J/N control air connector 90° offset to flow direction	J/N

The standard SAK kit is suitable for all actuator versions in the respective diaphragm sizes.

Order example

Ordering option	Code	Description
1 Type	687	Diaphragm valve, pneumatically operated, plastic actuator, stainless steel distance piece
2 Diaphragm size	25	Diaphragm size 25
3 Kit designation	SAK	Wearing parts actuator
4 Control function	2	Normally open (NO)
5 Actuator version	F/N	Actuator size F/N control air connector 90° offset to flow direction

5 Replacing the spare parts



5.1 Actuator disassembly

1. Disconnect the actuator from the control medium.
2. Remove transparent cap **SA2**.
3. Remove O-ring **44**.
4. Remove protective caps **29**.
5. Undo and remove bolt and washer assemblies **12** between actuator top **10** and actuator base **16**.
6. Remove actuator top **10**.
7. Pull actuator membrane assembly out of actuator base **16**.
8. Only with control function 2: Remove spring **7** from actuator base **16**.

NOTICE

- After disassembly, clean all parts of contamination (do not damage the parts during cleaning). Check parts for potential damage, replace if necessary (only use genuine parts from GEMÜ).

5.2 Replacing the spare parts

1. Remove the actuator as described in chapter 5.1, points 1–8.
2. The actuator membrane assembly comprises actuator spindle **15** (including dowel pin **30** and adapter **31**), hexagon nut **21**, washer **9**, membrane plate **6**, actuator membrane **14**, distance piece **28** and sealing washers or O-rings **27** with indicator spindle **SA1**.
3. Fix actuator spindle **15** in place.

CAUTION

Damage to actuator spindle **15** when using unsuitable tools.

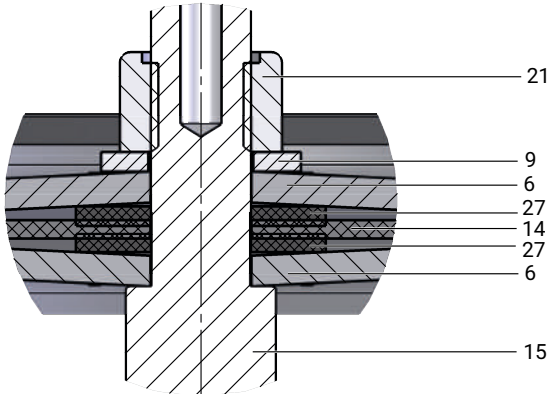
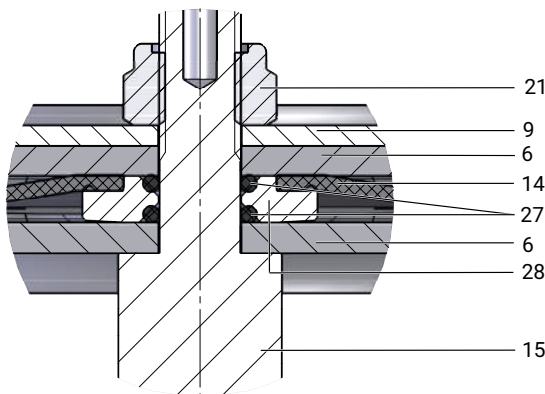
- Damaged actuator spindle **15** can no longer fulfil its function.
- Clamp actuator spindle **15** in a bench vice with soft clamping jaws or hold in place with an appropriate tool that does not damage the spindle surfaces.

4. Remove hexagon nut **21** with open-end wrench of WAF 22.
5. Remove washer **9**.
6. Remove upper membrane plate **6**.
MG 25 only:
Remove first sealing washer **27**.
7. Remove actuator membrane **14**.
8. MG 25 only:
Remove second sealing washer **27**.
9. MG 40 and MG 50 only:
Remove distance piece **28** and both O-rings **27**.
10. Lower membrane plate **6** remains on actuator spindle **15**.
11. MG 25 only:
Mount new sealing washers **27**
(see figure on page 6).
12. MG 40 and MG 50 only:
Insert new O-rings **27** into distance piece **28** and mount on actuator spindle **15** (see figure on page 6).

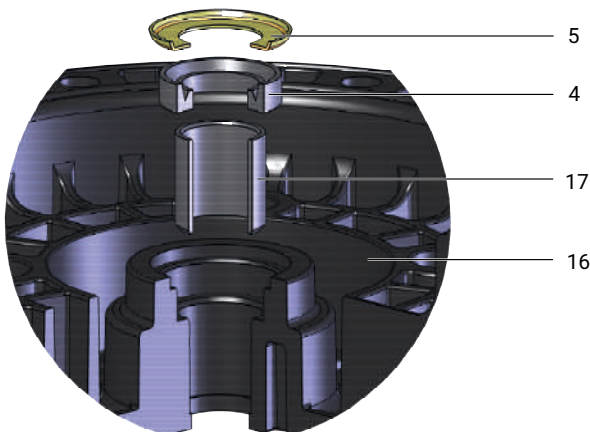
NOTICE

- Take care that distance piece **28** is installed in the correct installation position!

13. Insert the new actuator membrane **14** onto the lower membrane plate **6** with the bulge facing downwards.
14. MG 25 only:
Place new sealing washer **27** on actuator membrane **14**.
15. Place upper membrane plate **6** on actuator spindle **15**.
16. Insert washer **9**.
17. Tighten the new hexagon nut **21** with an open-end wrench of WAF 22 (see table of tightening torques on page 10).

MG25**MG40_50**

18. For control function 2: Remove guide bush **17**.
For control function 3: Remove guide bush **17** with lip ring **4** and lock washer **5**.

**CAUTION****Damage to the bush guide in actuator base 16 when using unsuitable tools.**

- ▶ Damaged bush guide can no longer fulfil its function.
- Press out guide bush **17** from actuator base **16** upwards with an appropriate tool that will not damage the bush guide.

Installation:

19. Press new guide bush **17** into actuator base **16**.

Only with control function 3

20. Lubricate locating hole in actuator base **16** for lip ring **4**.
21. Mount new lip ring **4** in actuator base **16** and lubricate.
22. Press new lock washer **5** into actuator base **16**.

CAUTION**Damage to guide bush 17 when using unsuitable tools.**

- ▶ Damaged guide bush **17** can no longer fulfil its function.
- Press guide bush **17** into actuator base **16** from above with an appropriate tool, ensuring that guide bush **17** is not damaged.

Only with control function 2

23. Insert spring **7** in actuator base **16**.
24. Lubricate actuator spindle **15** (GEMÜ recommends MOLY-COTE 111 COMPOUND).
25. Insert actuator membrane assembly by hand into actuator base **16** from above through guide bush **17**, and push downwards until
 - membrane plate **6** comes into contact with spring **7** (for control function 2)
 - actuator membrane **14** comes into contact with actuator base **16** (for control function 3).
26. Take care that the hole patterns of actuator membrane **14** and actuator base **16** are aligned.
27. Mount the actuator as described in chapter 5.3, points 1–6.

5.3 Mounting the actuator

1. Position actuator top **10** so that the hole patterns of actuator top **10**, actuator membrane **14** and actuator base **16** are aligned.
2. For control function 2: Press down actuator top **10** gently by hand and bolt together with actuator base **16**

Tightening torques	
Diaphragm size	Tightening torque
MG 25	8 Nm
MG 40	16 Nm
MG 50	16 Nm

NOTICE

Important:

- Bolts **12** between actuator top **10** and actuator base **16** must always be inserted from below.

3. Place protective caps **29** on bolts **12**.
4. Mount transparent cap **SA2** with new O-ring **44**. Lightly lubricate O-ring **44**.
5. Reconnect the control medium.
6. Check the tightness and the function of the product (close and reopen the product).

5.4 After the installation

1. Flush the piping system for new plants and after repair work (the product must be fully open).
 - ⇒ Harmful foreign matter has been removed.
 - ⇒ The product is ready for use.
2. Commission the product.
3. Commission the actuators in accordance with the operating instructions.



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Subject to alteration

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