

GEMÜ 8257

Electrically operated solenoid valve

EN

Operating instructions



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1 Allgemeines

1.1 Hinweise

- 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 Begriffsbestimmungen

Working medium

The medium that flows through the GEMÜ product.


1.4 Warning notes



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



SIGNAL WORD	
Possible symbol for the specific danger	Type and source of the danger <ul style="list-style-type: none"> ► Possible consequences of non-observance. ● Measures for avoiding danger.


Warning notes are always marked 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! <ul style="list-style-type: none"> ► Non-observance can cause death or severe injury.

 WARNING	
	Potentially dangerous situation! <ul style="list-style-type: none"> ► Non-observance can cause death or severe injury.

 CAUTION	
	Potentially dangerous situation! <ul style="list-style-type: none"> ► Non-observance can cause moderate to light injury.

NOTICE	
	Potentially dangerous situation! <ul style="list-style-type: none"> ► Non-observance can cause damage to property.

The following symbols for the specific dangers can be used within a warning note:

Symbol	Meaning
	Danger – high voltage
	Danger - hot surfaces

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.

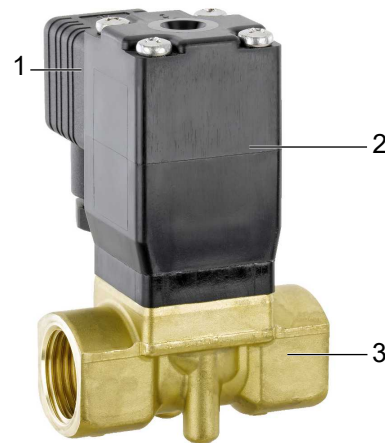
During operation:

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



Item	Name	Materials
1	Plug	PA
2	Coil	Duresco NU 463 V
3	Valve body	
	Seal material	/HNBR

3.1 Function

Normally closed

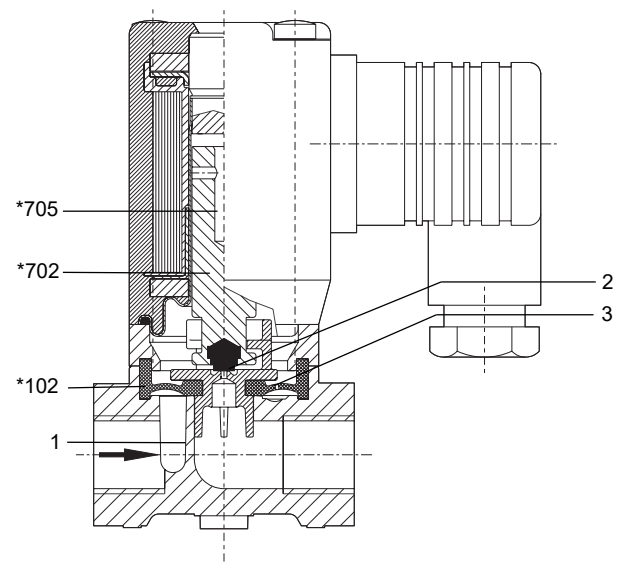


Fig. 1: Functional description (NC)

Normally closed

The pilot seat 2 is closed by the compression spring *705 in the armature *702. The diaphragm *102 is pressed onto the main valve seat 1 thanks to its design. The medium flows through the control aperture 3 in the diaphragm into the control chamber above the diaphragm and increases the closing force.

Switch position open

When voltage is applied, the armature *702 is pulled against the pole surface of the bush. The medium pressure from the control chamber to the valve outlet is reduced thanks to the open pilot seat 2. More medium runs off from the control chamber via the pilot seat than can pass through via the con-

trol aperture **3** in the diaphragm ***102**. The generated pressure differential lifts the diaphragm, and the main valve seat **1** is opened.

All the parts marked * are included in the respective wearing parts kit. When ordering spare parts, please state the complete valve order number.

4 Correct use



DANGER



Danger of explosion!

- ▶ Risk of severe injury or death.
- Do not use the product in potentially explosive zones.
- Only use the product in potentially explosive zones confirmed in the declaration of conformity.



WARNING

Improper use of the product!

- ▶ Risk of severe injury or death
- ▶ Manufacturer liability and guarantee will be void
- Only use the product in accordance with the operating conditions specified in the contract documentation and in this document.

The product is designed for installation in piping systems and for controlling a working medium.

1. Use the product in accordance with the technical data.
2. Note the supplement acc. to ATEX
3. Please note the flow direction on the valve body.

5 Order data

The order data provide an overview of standard configurations.

Please check the availability before ordering. Other configurations available on request.

Order codes

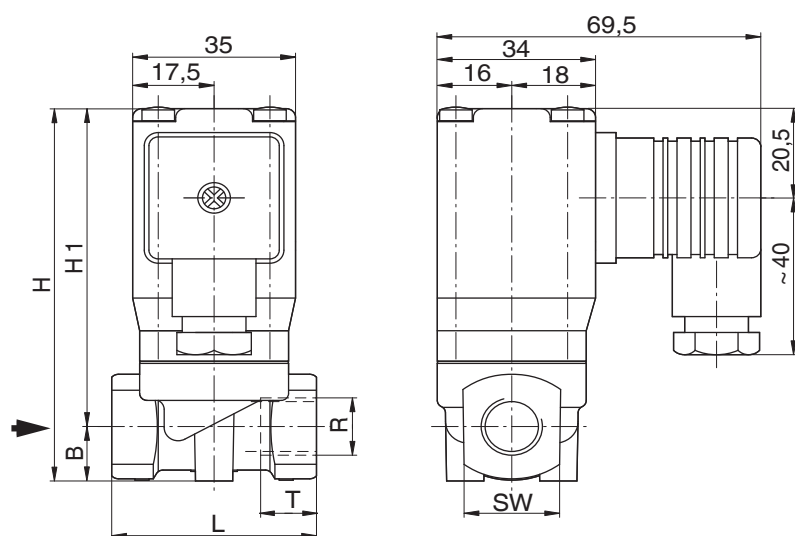
1 Type	Code
Solenoid valve, with positive lift diaphragm	8257
2 DN	Code
DN 10	10
3 Body configuration	Code
2/2-way body	D
4 Connection type	Code
G 1/4, threaded socket DIN ISO 228	G2
G 3/8, threaded socket DIN ISO 228	G3
G 1/2, threaded socket DIN ISO 228	G4
1/4 NPT, threaded socket	N2
3/8 NPT, threaded socket	N3
1/2 NPT, threaded socket	N4
5 Valve body material	Code
CW617N (brass)	12
1.4408, stainless steel	37

6 Seal material	Code
EPDM	14
NBR	2
FKM	4
HNBR	7
7 Control function	Code
Normally closed (NC)	1
8 Voltage	Code
24 V	24
110 V	110
230 V	230
9 Frequency	Code
DC	DC
50 Hz	50
60 Hz	60
10 Special specification	Code
Without	
ATEX version	X

Order example

Ordering option	Code	Description
1 Type	8257	Solenoid valve, with positive lift diaphragm
2 DN	10	DN 10
3 Body configuration	D	2/2-way body
4 Connection type	G3	G 3/8, threaded socket DIN ISO 228
5 Valve body material	12	CW617N (brass)
6 Seal material	2	NBR
7 Control function	1	Normally closed (NC)
8 Voltage	230	230 V
9 Frequency	50	50 Hz
10 Special specification		Without

6 Dimensions



DN	Connection type code ¹⁾								
	G2, G3, G4, N2, N3, N4					G2, G3, G4		N2, N3, N4	
	B	H	H1	L	SW	R	T	R	T
DN 10	14.0	87.0	73.5	44.0	21.0	G 1/4	12.0	1/4" NPT	10.0
	14.0	87.0	73.5	44.0	21.0	G 3/8	12.0	3/8" NPT	10.0
	14.0	90.0	74.5	60.0	27.0	G 1/2	15.0	1/2" NPT	13.0

Dimensions in mm

1) Connection type

Code G2: G 1/4, threaded socket DIN ISO 228

Code G3: G 3/8, threaded socket DIN ISO 228

Code G4: G 1/2, threaded socket DIN ISO 228

Code N2: 1/4 NPT, threaded socket

Code N3: 3/8 NPT, threaded socket

Code N4: 1/2 NPT, threaded socket

7 Manufacturer's information

7.1 Delivery

- Check that all parts are present and check for any damage immediately upon receipt.

The product's performance is tested at the factory. The scope of delivery is apparent from the dispatch documents and the design from the order number.

7.2 Transport

1. Only transport the product by suitable means. Do not drop. Handle carefully.
2. After the installation dispose of transport packaging material according to relevant local or national disposal regulations / environmental protection laws.

7.3 Storage

1. Store the product free from dust and moisture in its original packaging.
2. Avoid UV rays and direct sunlight.
3. Do not exceed the maximum storage temperature (see chapter "Technical data").
4. Do not store solvents, chemicals, acids, fuels or similar fluids in the same room as GEMÜ products and their spare parts.

8 Assembly and operation

CAUTION

Functional impairment of the solenoid valve by contaminated media!

- The solenoid valve will cease to open or close if the control apertures are blocked or if the armature is blocked by dirt.
- The piping system should be cleaned before installing the solenoid valve.
- Fit a strainer with a mesh size of ≤ 0.25 mm in front of the valve inlet if the media are contaminated.
- Switch the solenoid valve at least once a month.

CAUTION

Destruction of the solenoid valve by freezable medium!

- The solenoid valve is not frost-protected.
- Solenoid valves using freezable media should only be operated above freezing point.

CAUTION

Danger from flow contrary to flow direction!

- Damage to the solenoid valve.
- Only operate the solenoid valve in flow direction.
- Take precautionary measures in case of expected reverse flow (e.g. check valve).

8.1 Assembly

CAUTION

Do not use the solenoid coil as a lever

- If the solenoid coil is used as a lever, the solenoid coil and bush could be destroyed.
- Use only the spanner flats provided to screw the solenoid valve to the piping.

CAUTION

Damage to the valve body

- The solenoid valve may only be installed in aligned pipes in order to avoid stresses in the valve body.

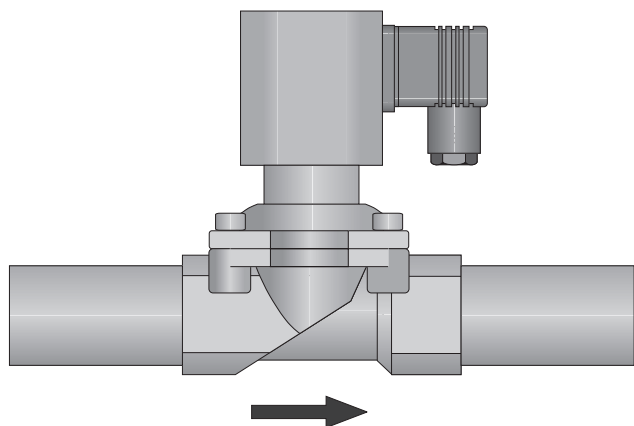


Fig. 2: Installing the solenoid valve

1. Clean the piping system before installing the valve.
2. If necessary, mount a strainer in front of the valve inlet.
3. Remove the protection caps from the valve inlet and valve outlet.
4. Unscrew the solenoid valve according to the flow direction on the piping, and seal with appropriate sealing material.
5. Use the flat to unscrew.

9 Electrical connection

DANGER



Risk of electric shock

- ▶ Risk of injury or death (if operating voltage is higher than safe extra low voltage).
- ▶ Electric shock can cause severe burns and fatal injury.
- Work on electrical connections only by qualified trained personnel.
- Disconnect the cable from the power supply before making the electrical connection.
- Connect the protective earth conductor.

Inserting the cable

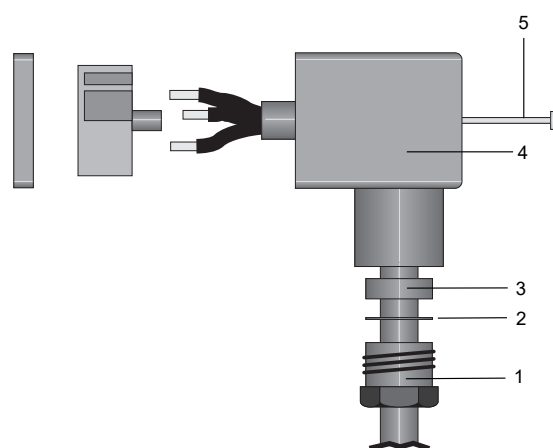


Fig. 3: Inserting the cable

1. Remove the cable gland **1** and fixing screw **5**.
2. Guide the cable through the cable gland **1**, washer **2**, rubber sleeve **3** and then through the plug housing **4**.
3. Connect the cable.

Connecting the cable

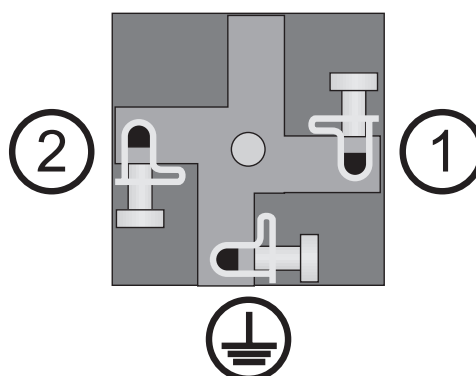



Fig. 4: Connection to the terminal block

Item	Connection
1	Supply voltage
2	Supply voltage

Item	Connection
	Protective earth conductor

4. Connect the cable to the relevant terminals on the terminal block.
5. Push the terminal block into the housing of the plug until it audibly clicks in position.
6. Tighten the locking screw on the plug.

Mounting the plug

7. Push the rubber sleeve 3 and washer 2 into the plug housing 4.
 8. Tighten the cable gland 1.
 9. Push the plug onto the mount.
 10. Fix the plug with the fixing screw 5.
- ⇒ The plug is mounted.

10 Commissioning

CAUTION

Foreign matter

- Damage to the valves.
 - If the plant is new and after repairs, rinse the piping system with the valves fully open.
- ⇒ The plant operator is responsible for selecting the cleaning material and performing the procedure.

1. Ensure correct installation.
2. Test the function of the solenoid valve.
3. Check the tightness of the media connections and the solenoid valve.
4. Slowly fill the solenoid valve with medium.

11 Inspection and maintenance

WARNING



Danger of burning from hot surfaces!

- Solenoid coil heats up during operation.
- Allow the solenoid coil and piping to cool down before servicing work.

Preventive maintenance/cleaning is recommended depending on the operating conditions and in the event of noticeable change to the switching times or switching noise.

All the parts marked * are included in the respective wearing parts kit. When ordering spare parts, please state the complete valve order number.

11.1 Inspection

Check the solenoid coil at regular intervals, depending upon the ambient conditions, for cracks and deposits of dirt and check the plug for secure location and good sealing.

The operator is responsible for determining appropriate inspection intervals.

11.2 Cleaning

CAUTION

Foreign matter

- Damage to the valves.
 - If the plant is new and after repairs, rinse the piping system with the valves fully open.
- ⇒ The plant operator is responsible for selecting the cleaning material and performing the procedure.

11.3 Solenoid coil replacement

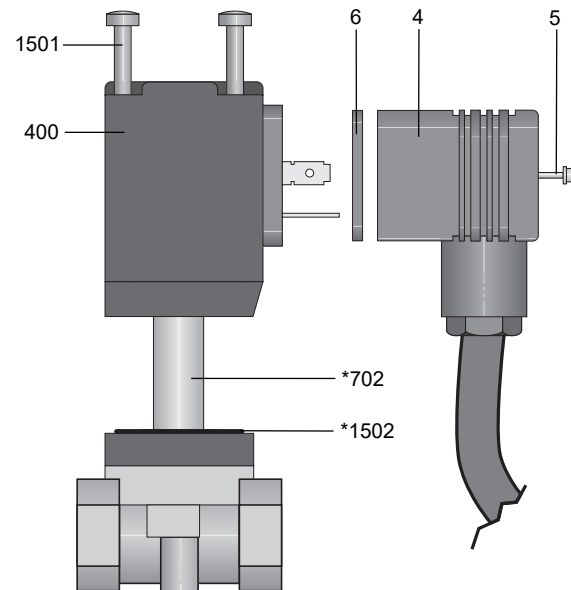



Fig. 5: Solenoid coil replacement

1. Disconnect the plug 4 from power supply.
2. Undo the fixing screw 5.
3. Pull the plug 4 and gasket 6 off the solenoid coil 400.
4. Undo the oval headed screws 1501.
5. Pull the solenoid coil 400 off the armature *702.
6. Examine the O-ring *1502 on the armature for hardening, replace if necessary.
7. Place a new solenoid coil on the armature.
8. Tighten the oval headed screws 1501 diagonally (2.5 Ncm).
9. Push the plug and gasket onto the solenoid coil and tighten with the fixing screw (60 Ncm).

11.4 Armature replacement

⚠ WARNING	
	<p>Danger from medium spurting out!</p> <ul style="list-style-type: none"> ▶ Danger of injury. ● Servicing work on the solenoid valve should only be carried out after the piping has been depressurized and drained!

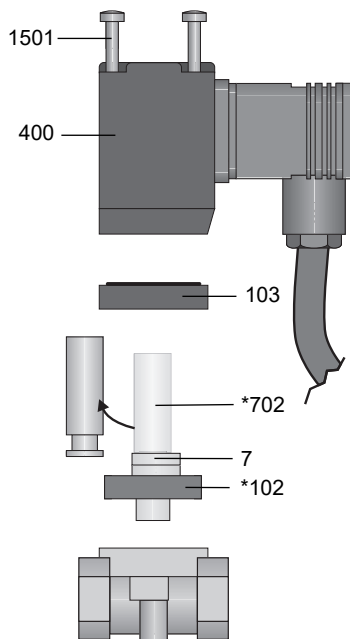



Fig. 6: Armature replacement

1. Depressurize and drain the solenoid valve and piping.
2. Disconnect the solenoid coil from power supply.
3. Undo the oval headed screws **1501**.
4. Pull the solenoid coil **400** off the armature ***702**.
5. Remove the distance piece **103**.
6. Take the armature ***702** with diaphragm ***102** out of the valve body.
7. Take the armature ***702** out of the seal retainer **7**.
8. Insert a new armature in the seal retainer **7**.
9. Insert the seal retainer with armature in the valve body.
10. Put on the distance piece.
11. Put on the solenoid coil.
12. Tighten the oval headed screws diagonally (hand tight).

11.5 Diaphragm replacement

⚠ WARNING	
	<p>Danger from medium spurting out!</p> <ul style="list-style-type: none"> ▶ Danger of injury. ● Servicing work on the solenoid valve should only be carried out after the piping has been depressurized and drained!

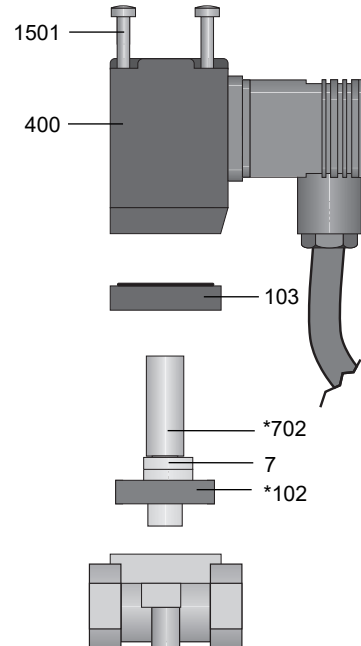


Fig. 7: Diaphragm replacement

1. Depressurize and drain the solenoid valve and piping.
2. Disconnect the solenoid coil from power supply.
3. Undo the oval headed screws **1501**.
4. Pull the solenoid coil **400** off the armature ***702**.
5. Remove the distance piece **103**.
6. Take the armature ***702** with diaphragm ***102** out of the valve body.
7. Replace the diaphragm.
8. Insert the seal retainer **7** with armature in the valve body.
9. Put on the distance piece.
10. Put on the solenoid coil.
11. Tighten the oval headed screws diagonally (hand tight).

12 Troubleshooting

Error	Error cause	Troubleshooting
No function	No power supply	Check power supply and connection with product label
	Solenoid coil faulty	Replace solenoid valve
	Operating pressure too high	Check operating pressure, reduce if necessary
	Diaphragm faulty	Replace diaphragm
	Control aperture contaminated	Clean solenoid valve, fit strainer in front if necessary
	Armature blocked	Clean the armature and bush, replace the armature if necessary
Solenoid valve leaking	Main valve seat leaking	Clean main valve seat, replace diaphragm if necessary

13 Disposal

1. Pay attention to adhered residual material and gas diffusion from penetrated media.
2. Dispose of all parts in accordance with the disposal regulations/environmental protection laws.

Parts	Disposal
Valve bodies, valve covers	in accordance with material identification
Screws, armatures, bushes, compression springs	as metallic core scrap
O-rings, diaphragms, sealing and plastic parts	as domestic waste type commercial waste
Solenoid coil	as electrical scrap

14 Returns

Legal regulations for the protection of the environment and personnel require that the completed and signed return delivery note is included with the dispatch documents. Returned goods can be processed only when this note is completed. If no return delivery note is included with the GEMÜ product, GEMÜ cannot process credits or repair work but will dispose of the goods at the operator's expense.

1. Clean the GEMÜ 8257 .
2. Request a return delivery note from GEMÜ.
3. Complete the return delivery note.
4. Send the GEMÜ 8257 with a completed return delivery note to GEMÜ.

15 EU Declaration of Conformity

We, the company

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
Fritz-Müller-Strasse 6-8
74653 Ingelfingen-Criesbach, Germany

declare that the product listed below complies with the following directives:

- Low Voltage Directive 2014/35/EU
- EMC Directive 2014/30/EU

Product:

GEMÜ 8257

Ensure compliance with the limiting values of the harmonised standards EN 61000-6-3 and EN 61000-6-2 and thus meeting the requirements of the Electromagnetic compatibility directive 2014/30/EU (2004/108/EC) by suitable electrical wiring of the solenoid valves.



Joachim Brien
Head of Technical Department
Ingelfingen-Criesbach



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Subject to alteration

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