GEMÜ J70

Electrically operated solenoid valve, PD technology

EN **Operating instructions**

further information
webcode: GW-J70

Contents

1 General information

1.1 Information

- 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

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 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!

▶ 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

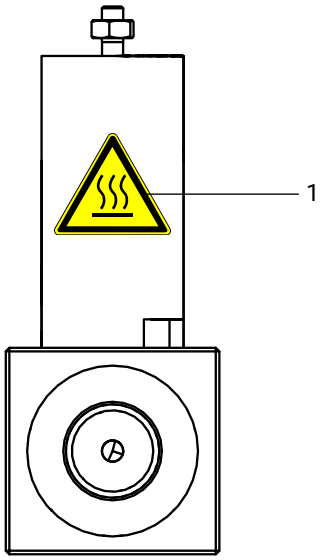
Potentially dangerous situation!

▶ Non-observance can cause damage to property.

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

Symbol	Meaning
	Danger of explosion!
	Danger of burning!
	The equipment is subject to pressure!
	Risk of fire!
	Sharp edges!
	Risk of crushing!

1.5 Safety information on the product



Item	Symbol	Meaning
1		Danger of burning for version without plastic housing! - The coil becomes very hot (approx. 155 °C) during operation and remains hot for some time after operation. There is a danger of burning when skin comes into direct contact with the coil.

Missing or illegible adhesive labels on the product must be attached or replaced.

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.

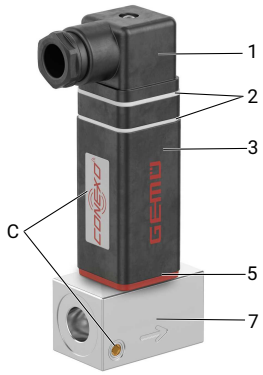
In cases of uncertainty:

15. Consult the nearest GEMÜ sales office.

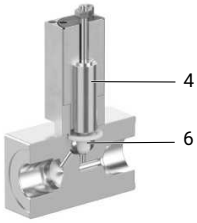
3 Product description

3.1 Construction

J70 with housing and Conexo



J70 without housing



Item	Name	Materials
1	Plug design A	PA 6 GF
2	Seal	NBR (punched)
3	Housing	PA 66 30 glass fibre reinforced (machined)
4	Solenoid	
5	Moulded seal	FKM (injected)
6	PD	PTFE
7	Valve body	1.4404
C	CONEXO tag with RFID chip	

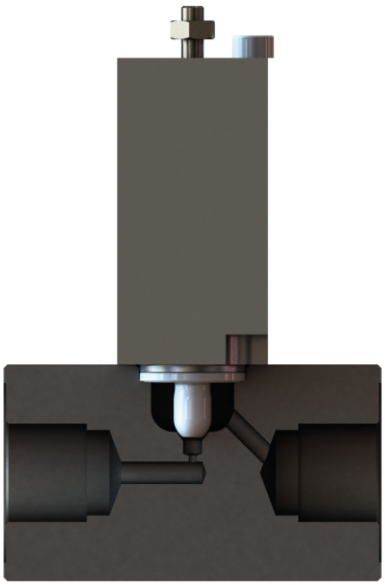
3.2 Description

The compact GEMÜ J70 2/2-way solenoid valve is electrically operated and is ideal for dosing and analysis applications. The hermetic sealing between the medium and the actuator is ensured via a highly resistant plug diaphragm (PD) made of PTFE. The metal actuator is also optionally available with a plastic housing.

3.3 Function

The valve fulfils a simple, directly controlled Open/Close function.

The installed compression spring serves to ensure safe sealing at the seat. Activating the solenoid opens the valve. When the solenoid is deactivated, the spring restores the original state and the valve closes.



⚠ CAUTION

Operating pressure too high

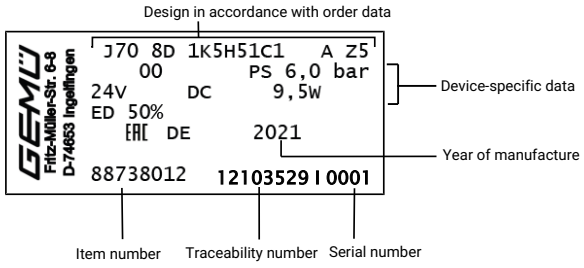
► Damage to the solenoid / destruction of the solenoid.

NOTICE

Operating pressure too high

► The valve cannot close tightly if the pressure is too high.

3.4 Product label



The month of manufacture is encoded in the traceability number and can be obtained from GEMÜ. The product was manufactured in Germany.

4 GEMÜ CONEXO

The interaction of valve components that are equipped with RFID chips and an associated IT infrastructure actively increase process reliability.

Thanks to serialization, every valve and every relevant valve component such as the body, actuator or diaphragm, and even automation components, can be clearly traced and read using the CONEXO pen RFID reader. The CONEXO app, which can be installed on mobile devices, not only facilitates and improves the "installation qualification" process, but also makes the maintenance process much more transparent and easier to document. The app actively guides the maintenance technician through the maintenance schedule and directly provides him with all the information assigned to the valve, such as test reports, testing documentation and maintenance histories. The CONEXO portal acts as a central element, helping to collect, manage and process all data.

For further information on GEMÜ CONEXO please visit:
www.gemu-group.com/conexo

5 Correct use

⚠ DANGER

Danger of explosion!

- ► Risk of severe injury or death
- ● Only versions that have been approved according to their technical data may be used in potentially explosive environments.

⚠ 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. Protect the product from direct weathering.

6 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, PD technology	J70

2 DN	Code
DN 8	8

3 Body configuration	Code
2/2-way body	D

4 Connection type	Code
Threaded socket DIN ISO 228	1

5 Valve body material	Code
J70 without plastic housing	
1.4404	E4
J70 with plastic housing	
1.4404 / with black PA housing	K7

6 Seal material	Code
PTFE	5

7 Control function	Code
Normally closed (NC)	1

8 Voltage/Frequency	Code
24 V DC	C1

9 Electrical connection	Code
J70 with plastic housing	
Plug design A	00
Plug design A, with cable socket, without cable	01
M12 plug, (only NC and 24V DC version)	02
M12 plug, with cable socket, without cable, (only NC and 24V DC version)	03
Fitted with 3 m cable	03M0
J70 without plastic housing	
Fitted with 0.2 m cable	00M2

10 Through hole	Code
Through hole 1.0 mm	1

11 Type of design	Code
Without	

12 CONEXO	Code
Without	00
Integrated RFID chip for electronic identification and traceability	C

Order example

Ordering option	Code	Description
1 Type	J70	Solenoid valve, PD technology
2 DN	8	DN 8
3 Body configuration	D	2/2-way body
4 Connection type	1	Threaded socket DIN ISO 228
5 Valve body material	E4	1.4404
6 Seal material	5	PTFE
7 Control function	1	Normally closed (NC)
8 Voltage/Frequency	C1	24 V DC
9 Electrical connection	00	Plug design A
10 Through hole	1	Through hole 1.0 mm
11 Type of design		Without
12 CONEXO	00	Without

7 Technical data

7.1 Medium

Working medium: Corrosive, inert, gaseous and liquid media which have no negative impact on the physical and chemical properties of the body and seal material.

7.2 Temperature

Media temperature: -10 — 90 °C

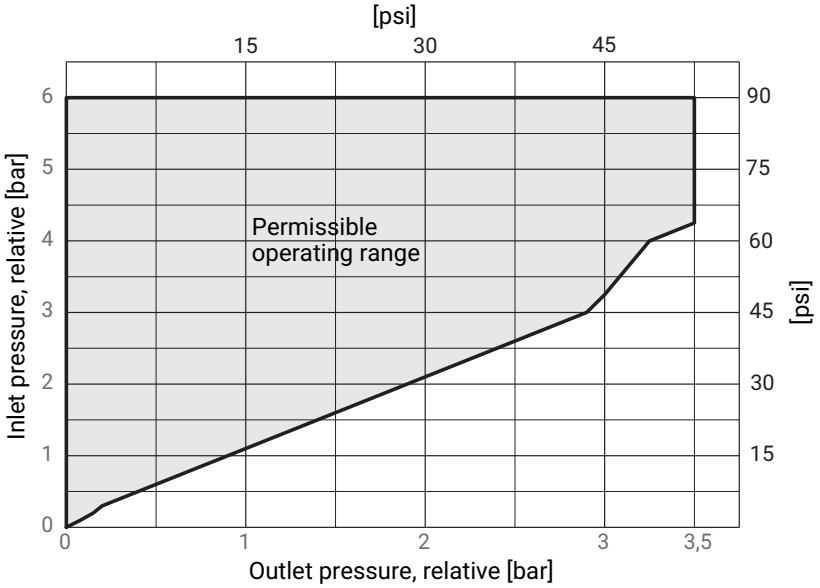
Ambient temperature: -10 — 40 °C

Storage temperature: 0 — 40 °C

7.3 Pressure

Operating pressure: max. 6 bar

The operating pressures apply at room temperature. In case of deviating temperatures, observe the pressure / temperature correlation.



Other pressure ranges on request

Vacuum: -930 mbar (relative)/83.25 mbar (absolute)

Pressure rating: PN 10

Leakage rate: A (acc. to EN 12266-1)

Kv value: 25.3 l/h

Kv values determined based on standard DIN EN 1267, medium: water

Tolerance ± 5 %

7.4 Product conformity

Machinery Directive: 2006/42/EC

7.5 Electrical data

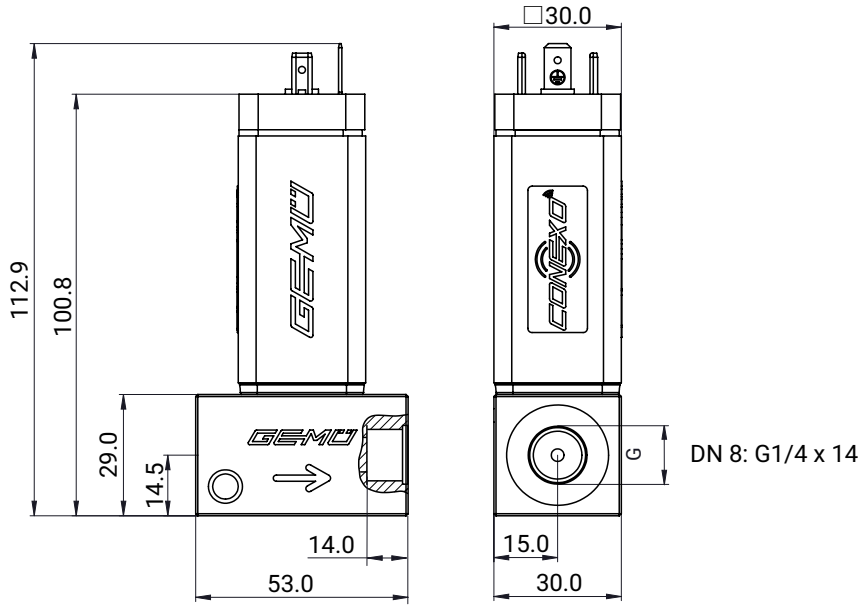
Supply voltage:	24 V DC
Electrical connection type:	M12 plug (A-coded), 3-pin Plug design A, DIN EN 175301-803 Stranded wire (0.2 m) Cable (3 m, shield IP 69K)
Power consumption:	Pull in: 9.12 W Hold in: 8.40 W
Permissible voltage tolerance:	±10 % to VDE 0580
Duty cycle:	50% duty

7.6 Mechanical data

Protection class:	J70 with plastic housing: IP 65 J70 without plastic housing: IP 20 (device), IP 00 (connection)
Weight:	J70 with plastic housing: 481 g J70 without plastic housing: 406 g
Operating time:	Closing time: 13.5 ms Opening time: 8.5 ms
Installation position:	Optional

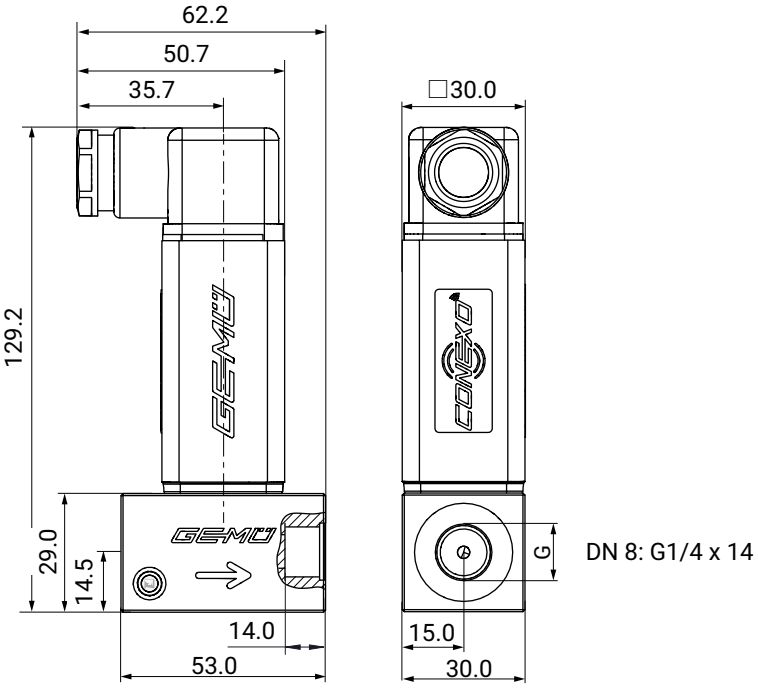
8 Dimensions

8.1 Solenoid valve with housing without plug (electrical connection code 00)



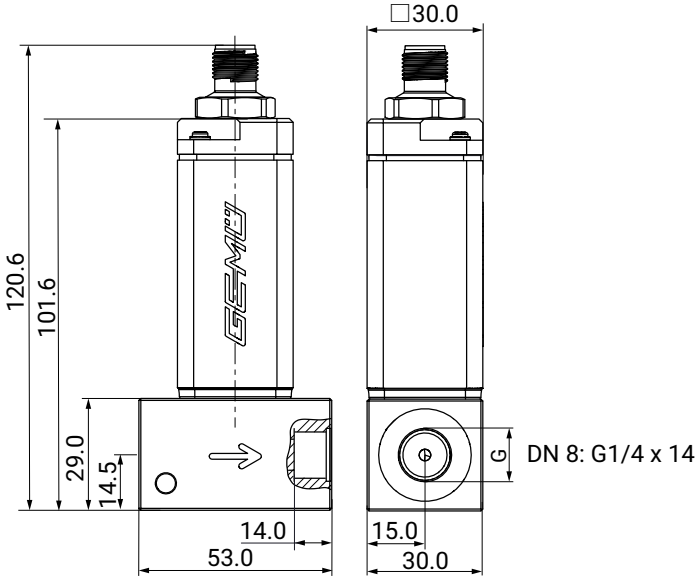
Dimensions in mm

8.2 Solenoid valve with housing and plug (electrical connection code 01)



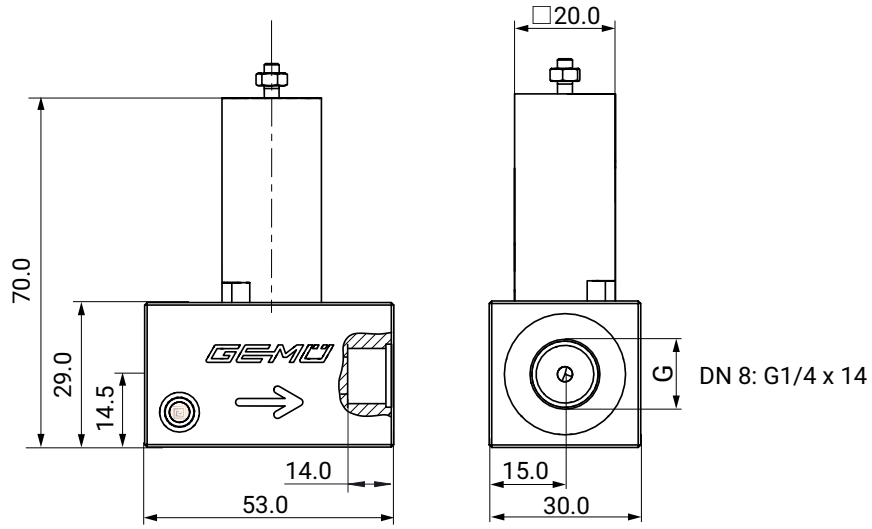
Dimensions in mm

8.3 Solenoid valve with housing and M12 plug (electrical connection code 02)



Dimensions in mm

8.4 Solenoid valve without housing (electrical connection code 00M2)



Dimensions in mm

9 Manufacturer's information

9.1 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.

9.2 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.

9.3 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.
5. Close the compressed air connections with protection caps or sealing plugs.

9.4 Scope of delivery

The following is included in the scope of delivery:

- Solenoid valve with solenoid coil
- Plug
- Installation, operating and maintenance instructions

10 Installation in piping

⚠ WARNING

Danger of burning!

► The coil becomes very hot (approx. 155 °C) during operation and remains hot for some time after operation. There is a danger of burning when skin comes into direct contact with the coil.

● If it should become necessary to touch the coil, suitable fire-proof protective gloves must be worn.

⚠ WARNING

The equipment is subject to pressure!

► Risk of severe injury or death

● Depressurize the plant or plant component.

● Completely drain the plant or plant component.

⚠ CAUTION

Risk of fire!

● As the coil heats up, the surface can become very hot. In order to prevent the risk of fire, no easily flammable materials must be installed, positioned or stored in the direct vicinity of the mounted solenoid in use.

⚠ CAUTION

Sharp edges!

► The thread on the armature axis and the inner edge on any existing fork ends may have sharp edges. Caution: Risk of cutting injuries on fingers, hands and arms.

● Wear protective gloves before working on or near the armature axis.

⚠ CAUTION

Risk of crushing!

► Risk of crushing to fingers/hands due to armature movements during installation.

● The electrical connection must take place after the mechanical installation to prevent accidental linear movements.

⚠ CAUTION

Operating pressure too high or working medium temperature too high

► Damage to the valve body

● Only install the solenoid valve in aligned pipes in order to avoid stresses in the valve body.

● Do not exceed the permissible operating pressure.

● Do not exceed the permissible temperature of the working medium.

10.1 Installation with threaded sockets

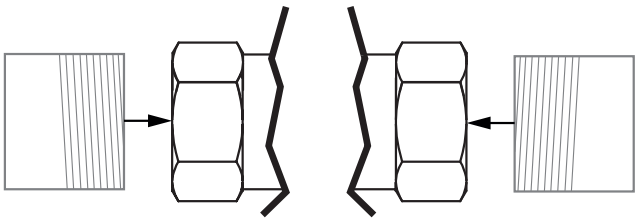
NOTICE

Thread sealant!

► The thread sealant is not included in the scope of delivery.

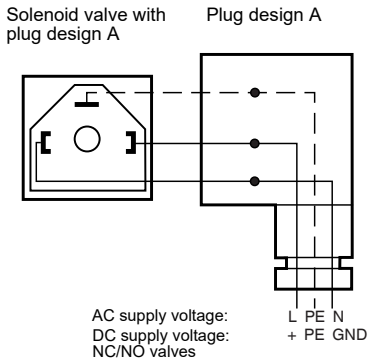
● Only use appropriate thread sealant.

● Screw the threaded connections into the piping in accordance with valid standards.

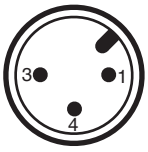


11 Electrical connection

11.1 Solenoid valve with housing and plug (electrical connection code 01)



11.2 Solenoid valve with housing and M12 plug (electrical connection code 03)



3-pin M12 plug, A-coded

Pin	Signal name
1	n.c.
2	-
3	Uv, GND
4	Uv, 24 V DC supply voltage
5	-

12 Commissioning

⚠ WARNING

Danger of burning!

► The coil becomes very hot (approx. 155 °C) during operation and remains hot for some time after operation. There is a danger of burning when skin comes into direct contact with the coil.

● If it should become necessary to touch the coil, suitable fire-proof protective gloves must be worn.

⚠ CAUTION

Risk of crushing and impact!

► Due to linear movements of the armature during operation.

● Do not reach into the coil's operating range (stroke range)!

● Appropriate protection should otherwise be fitted here.

⚠ CAUTION

Medium flowing out

► Danger from medium flowing out.

● Before commissioning make sure that there is no danger from medium flowing out.

● Before commissioning check the tightness of the media connections.

NOTICE

Operating pressure too high

► The valve cannot close tightly if the pressure is too high.

⚠ 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. Make sure that the operating voltage corresponds with the permissible valve voltage.
2. Make sure that the unit is installed properly.
3. Check the function of the solenoid valve.
4. Check the tightness of the media connections and the solenoid valve itself.

13 Operation

During normal operation there is no need for adjustments at the valve.

14 Troubleshooting

Error	Error cause	Troubleshooting
No function	No power supply	Check power supply and connection with product label
	Solenoid coil faulty	Replace solenoid valve
	Plug wrongly connected	Check connection of plug and correct if necessary
	Armature blocked	Replace solenoid valve
Solenoid valve leaking	Valve seat leaking	Replace solenoid valve
	Operating pressure too high	Reduce the pressure in line with specifications

15 Inspection and maintenance

⚠ WARNING

Danger of burning!

► The coil becomes very hot (approx. 155 °C) during operation and remains hot for some time after operation. There is a danger of burning when skin comes into direct contact with the coil.

● If it should become necessary to touch the coil, suitable fire-proof protective gloves must be worn.

⚠ WARNING

The equipment is subject to pressure!

► Risk of severe injury or death

● Depressurize the plant or plant component.

● Completely drain the plant or plant component.

NOTICE

Use of incorrect spare parts!

► Damage to the GEMÜ product

► The manufacturer liability and guarantee will be void.

● Use only genuine parts from GEMÜ.

NOTICE

Exceptional maintenance work!

► Damage to the GEMÜ product

● Any maintenance work and repairs not described in these operating instructions must not be performed without consulting the manufacturer first.

The operator must carry out regular visual examination of the GEMÜ products dependent on the operating conditions and the potential danger in order to prevent leakage and damage.

The product also must be disassembled and checked for wear in the corresponding intervals.

1. Have servicing and maintenance work performed by trained personnel.
2. Wear appropriate protective gear as specified in plant operator's guidelines.
3. Shut off plant or plant component.
4. Secure the plant or plant component against recommissioning.
5. Depressurize the plant or plant component.
6. Actuate GEMÜ products which are always in the same position four times a year.

15.1 Cleaning the product

⚠ CAUTION

Foreign matter

► Damage to the valves.

● If the plant is new and after repairs, rinse the piping system with the valves fully open.

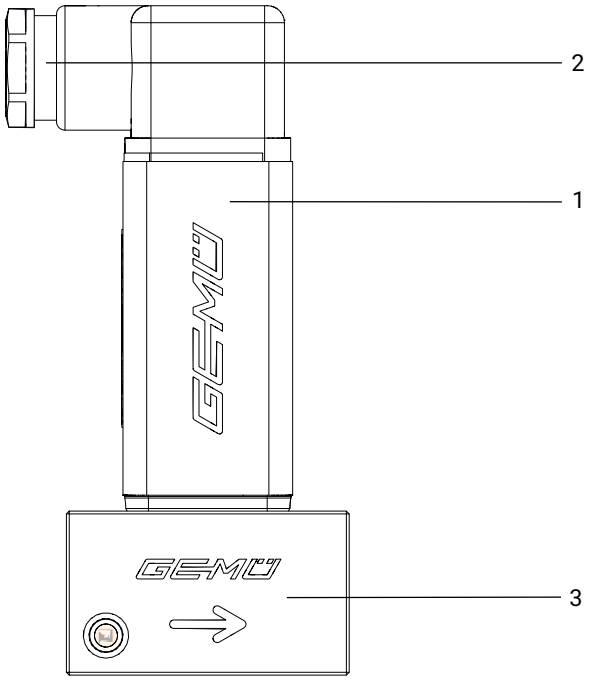
⇨ The plant operator is responsible for selecting the cleaning material and performing the procedure.

- Clean the product with a damp cloth.
- Do **not** clean the product with a high pressure cleaning device.

15.2 Spare parts

Spare parts	
Plug	GEMÜ 2026

Order number on request



Item	Name	Order designation
1	Actuator	PJ70 ...
2	Plug	GEMÜ 2026
3	Valve body	M500 ...

16 Removal from piping

⚠ WARNING

Danger of burning!

- ► The coil becomes very hot (approx. 155 °C) during operation and remains hot for some time after operation. There is a danger of burning when skin comes into direct contact with the coil.
- ● If it should become necessary to touch the coil, suitable fire-proof protective gloves must be worn.

⚠ WARNING

The equipment is subject to pressure!

- ► Risk of severe injury or death
- ● Depressurize the plant or plant component.
- ● Completely drain the plant or plant component.

1. Allow the plant to cool down.
2. Allow the plant to run empty.
3. Unscrew the electrical wiring.
4. Remove the product from the piping with appropriate measures

17 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.

18 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 product, GEMÜ cannot process credits or repair work but will dispose of the goods at the operator's expense.

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

19 EU Declaration of Incorporation according to the EC Machinery Directive 2006_42_EC

EU Declaration of Incorporation

according to the EC Machinery Directive 2006/42/EC, Annex II B

We, the company

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

hereby declare under our sole responsibility that the below-mentioned product complies with the relevant essential health and safety requirements in accordance with Annex I of the above-mentioned Directive.

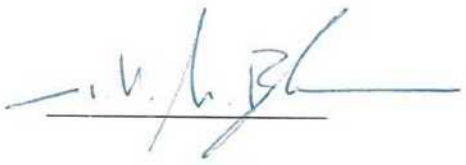
Product:	GEMÜ J70
Product name:	Electrically operated solenoid valve, PD technology
The following essential health and safety requirements of the EC Machinery Directive 2006/42/EC, Annex I have been applied or adhered to:	1.1.2.; 1.1.3.; 1.1.5.; 1.3.2.; 1.3.4.; 1.5.1.; 1.5.5.; 1.5.6.; 1.6.1.; 1.7.1.; 1.7.1.1.; 1.7.2.; 1.7.3.; 1.7.4.; 1.7.4.1.; 1.7.4.2.; 1.7.4.3.
The following harmonized standards (or parts thereof) have been applied:	EN ISO 12100:2010

We also declare that the specific technical documents have been created in accordance with part B of Annex VII.

The manufacturer undertakes to transmit relevant technical documents on the partly completed machinery to the national authorities in response to a reasoned request. This communication takes place electronically.

This does not affect the industrial property rights.

The partly completed machinery may be commissioned only if it has been determined, if necessary, that the machinery into which the partly completed machinery is to be installed meets the provisions of the Machinery Directive 2006/42/EC.



M. Barghoorn
Head of Global Technics

Ingelfingen, 24/11/2022

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www.gemu-group.com
info@gemue.de

20 Manufacturer's declaration according to the Pressure Equipment Directive 2014_68_EU

Manufacturer's declaration

according to the Pressure Equipment Directive 2014/68/EU

We, the company

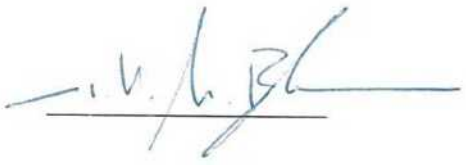
GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
Fritz-Müller-Strasse 6–8
74653 Ingelfingen-Criesbach, Germany

declare that the below-mentioned product is designed and manufactured in compliance with sound engineering practice according to Article 4, Paragraph 3 of the Pressure Equipment Directive 2014/68/EU.

Product: GEMÜ J70

Product name: Electrically operated solenoid valve, PD technology

The product has been developed and produced according to GEMÜ's in-house process instructions and standards of quality which comply with the requirements of ISO 9001 and ISO 14001. According to Article 4, Paragraph 3 of the Pressure Equipment Directive 2014/68/EU, this product must not be identified by a CE-marking.



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Ingelfingen, 24/11/2022

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