GEMÜ C53 iComLine

Motorized control valve

EN **Operating instructions**

further information
webcode: GW-C53

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.

Control PD

Control plug diaphragm = control plug diaphragm

Error position

The position of the valve that is approached in the event of an error. Reaching the error position depends on the presence of the power supply.

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 in case of non-compliance ●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

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

Symbol	Meaning
	Danger of explosion!
	The equipment is subject to pressure!
	Corrosive chemicals!

Symbol	Meaning
	Hot plant components!
	Maximum permissible pressure exceeded!

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 materials

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:

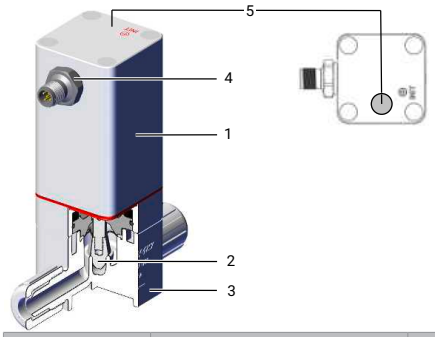
9. Keep this document available at the place of use.
10. Observe the safety information.
11. Operate the product in accordance with this document.
12. Operate the product in accordance with the specifications.
13. Maintain the product correctly.
14. Do not carry out any maintenance work and repairs not 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



No.	Name	Materials
1	Actuator	External actuator parts made of PVDF
2	Control PD	PTFE TFM™
3	Valve body	PFA, PTFE
4	Electrical connection	PPS
5*	Display of status LED	

* Status LED available from device version 01 for control modules code S0, S1, S2 (see operating instructions – Product label)

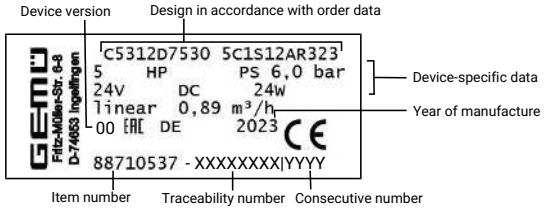
3.2 Description

The GEMÜ C53 iComLine 2/2-way diaphragm globe valve was developed for precise and demanding control applications in semiconductor production. The sealing concept of the valve is based on the tried and tested GEMÜ PD technology, whereby actuator and medium are separated by a PTFE regulating cone. As the regulating cone contour, actuator stroke and connection size can be customized, the GEMÜ C53 iComLine satisfies virtually all control and flow requirements of the semiconductor industry. The precise stepper motor, in conjunction with the ultra pure body materials, is particularly suitable for lithography, CMP, and etching processes, as well as analytical applications in semiconductor production.

3.3 Function

The product is designed for use in piping. It controls a flowing medium by being closed or opened by a motorized actuator.

3.4 Product label



The manufacturing month is coded under the traceability number and can be requested from GEMÜ. The product was manufactured in Germany.

4 Functional description

Control module code [1]	Fail-safe position	Function
S0	Hold	Actuator stays in the approached position
S1	Close	Actuator moves to CLOSED position
S2	Open	Actuator moves to OPEN position
V0	Hold	Actuator stays in the approached position
V1	Close	Actuator moves to CLOSED position

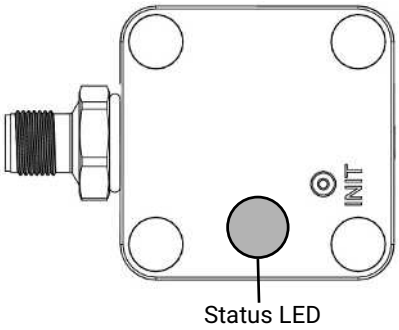
1) **Control module**
Code S0: Positioner 4–20 mA Safety position Hold
Code S1: Positioner 4–20 mA Safety position Closed
Code S2: Positioner 4–20 mA Open safety position
Code V0: Positioner 0–10 V Hold safety position
Code V1: Positioner 0–10 V Close error position

Display of status LED

NOTICE

Status LED

► Status LED only available for control modules S0, S1, S2.



No.	Function	LED 1 (green)	LED 2 (red)
1	Valve power ON	●	○
2	Initialization error timeout	○	☀
3	Pre-INIT mode active	☀ flash alternately 2 Hz	☀ flash alternately 2 Hz
4	Initialization ready	☀	○
5	Initialization active	☀ flash alternately 1 Hz	☀ flash alternately 1 Hz
6	Error	○	●

LED conditions					
●	lit (on)	☀	flashes	○	off

See also

Product label [▷ 6]

5 Correct use

⚠ DANGER

Danger of explosion!

► Risk of death or severe injury

● Do **not** use the product in potentially explosive zones.

⚠ 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.

The product is not intended for use in potentially explosive areas.

● Use the product in accordance with the technical data.

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
Plastic globe valve, electrical	C53

2 Connection size	Code
1/4", international code: 4	4
3/8", international code: 6	6
1/2", international code: 8	8
3/4", international code: 12	12

3 Body configuration	Code
2/2-way body	D

4 Connection type	Code
Flare connection with CPFA union nut	73
Flare connection with PVDF union nut	75
Flare connection with PFA union nut	77
Super 300 type Pillar connection	79
PrimeLock connection	PL

5 Valve body material	Code
PFA, perfluoroalkoxy	30
Modified PTFE, polytetrafluoroethylene	26
PTFE, polytetrafluoroethylene, white, HS11097	SP

6 Seal material	Code
PTFE	5

7 Voltage/Frequency	Code
24 V DC	C1

8 Control module	Code
Positioner 4–20 mA Safety position Hold	S0
Positioner 4–20 mA Safety position Closed	S1

8 Control module	Code
Positioner 4–20 mA Open safety position	S2
Positioner 0–10 V Hold safety position	V0
Positioner 0–10 V Close error position	V1

9 Actuator version	Code
Actuator size 2 Seat diameter 9.55 mm	2A

10 Regulating cone	Code
Version 1	
0.18 m³/h - linear	R3505
0.25 m³/h - linear	R3506
0.44 m³/h - linear	R3442
Version 2	
0.26 m³/h - mod.EQ	R3509
0.68 m³/h - mod.EQ	R3510
0.77 m³/h - mod.EQ	R3234
Version 3	
0.26 m³/h - linear	R3507
0.78 m³/h - linear	R3508
0.89 m³/h - linear	R3235
Version 4	
0.22 m³/h - linear	R3511
0.85 m³/h - linear	R3512
1.25 m³/h - linear	R3395
Version 5	
0.06 m³/h - linear	R3486

11 High Purity version	Code
High Purity	HP

Order example

Ordering option	Code	Description
1 Type	C53	Plastic globe valve, electrical
2 Connection size	12	3/4", international code: 12
3 Body configuration	D	2/2-way body
4 Connection type	75	Flare connection with PVDF union nut
5 Valve body material	30	PFA, perfluoroalkoxy
6 Seal material	5	PTFE
7 Voltage/Frequency	C1	24 V DC
8 Control module	S1	Positioner 4–20 mA Safety position Closed
9 Actuator version	2A	Actuator size 2 Seat diameter 9.55 mm

Ordering option	Code	Description
10 Regulating cone	R3235	0.89 m³/h - linear
11 High Purity version	HP	High Purity

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 diaphragm material.

7.2 Temperature

Media temperature: 10 — 150 °C

Observe pressure/temperature diagram

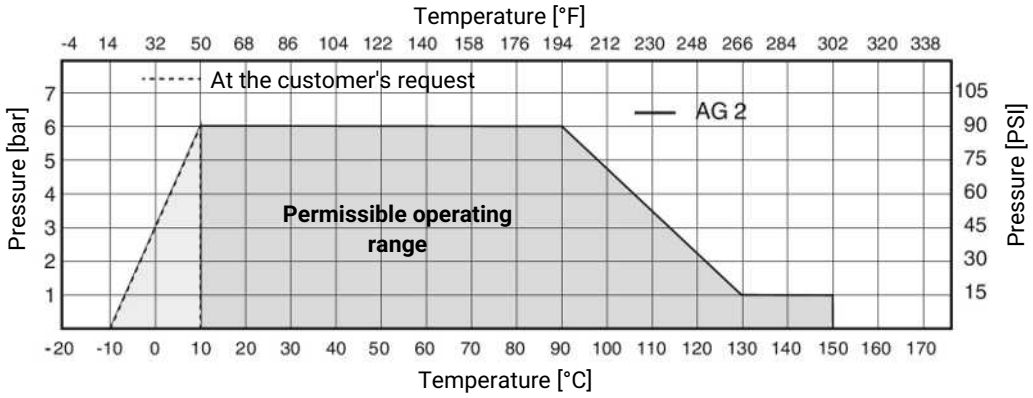
Ambient temperature: 0 — 40 °C

Storage temperature: -10 — 40 °C

7.3 Pressure

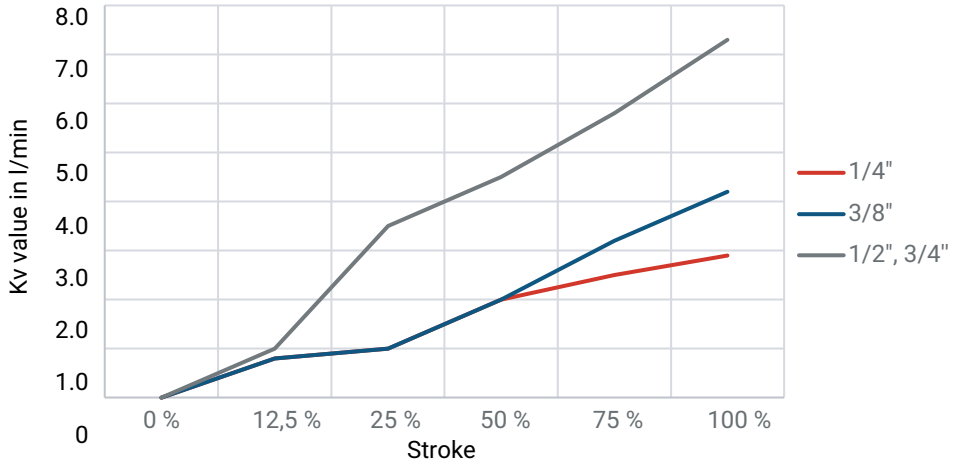
Operating pressure: 0 — 6 bar

Pressure/temperature diagram:



Kv values:

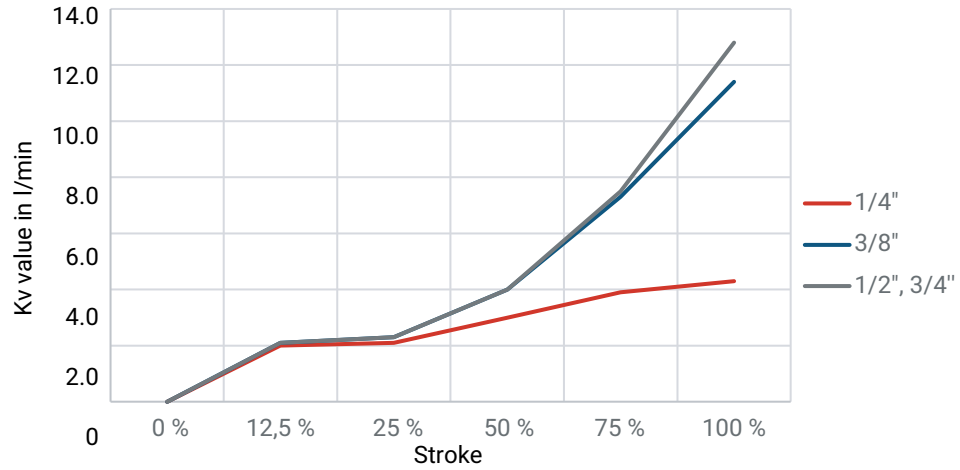
Version 1 – flow range: 0.8–7.3 l/min (linear)



Stroke in %	R3505	R3506	R3442
	1/4"	3/8"	1/2", 3/4"
0.0	0.0	0.0	0.0
12.5	0.8	0.8	1.0
25.0	1.0	1.0	3.5
50.0	2.0	2.0	4.5
75.0	2.5	3.2	5.8
100.0	2.9	4.2	7.3

Kv values in l/min

Version 2 – flow range: 2.0–12.8 l/min (equal-percentage)

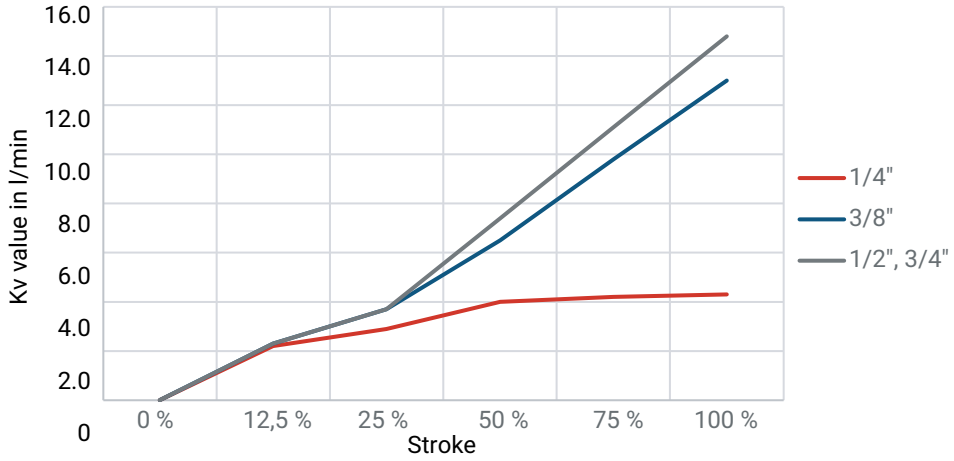


Stroke in %	R3509	R3510	R3234
	1/4"	3/8"	1/2", 3/4"
0.0	0.0	0.0	0.0
12.5	2.0	2.1	2.1
25.0	2.1	2.3	2.3
50.0	3.0	4.0	4.0
75.0	3.9	7.3	7.5
100.0	4.3	11.4	12.8

Kv values in l/min

Kv values:

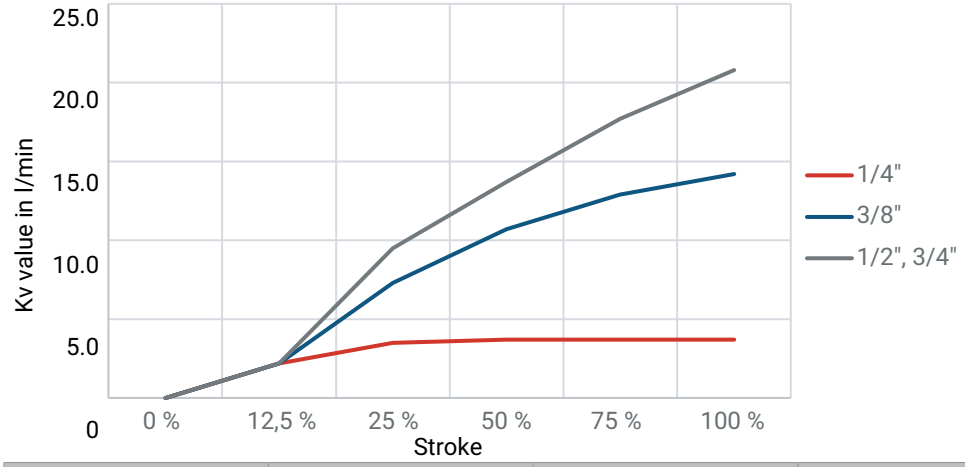
Version 3 – flow range: 2.2–14.8 l/min (linear)



Stroke in %	R3507	R3508	R3235
	1/4"	3/8"	1/2", 3/4"
0.0	0.0	0.0	0.0
12.5	2.2	2.3	2.3
25.0	2.9	3.7	3.7
50.0	4.0	6.5	7.4
75.0	4.2	9.8	11.1
100.0	4.3	13.0	14.8

Kv values in l/min

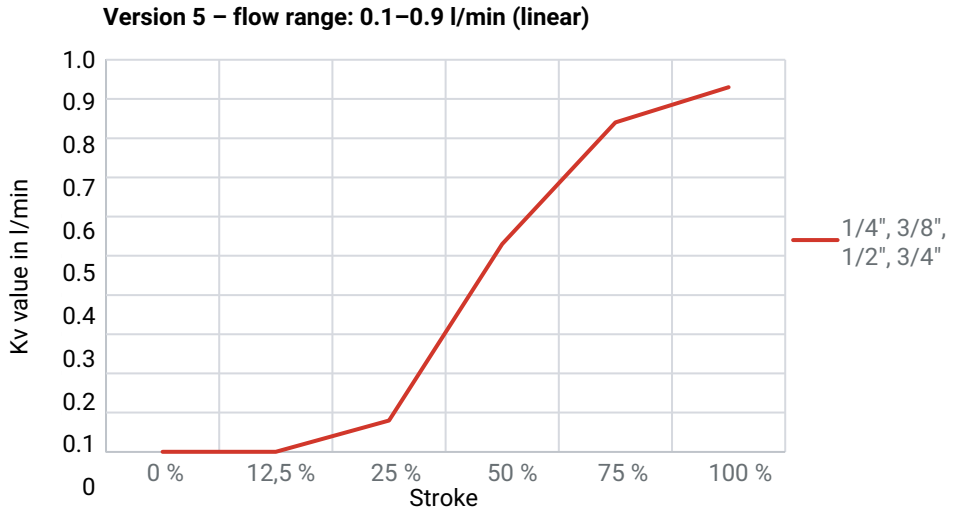
Version 4 – flow range: 2.2–20.8 l/min (linear)



Stroke in %	R3511	R3512	R3395
	1/4"	3/8"	1/2", 3/4"
0.0	0.0	0.0	0.0
12.5	2.2	2.2	2.2
25.0	3.5	7.3	9.5
50.0	3.7	10.7	13.7
75.0	3.7	12.9	17.7
100.0	3.7	14.2	20.8

Kv values in l/min

Kv values:



Stroke in %	R3486
	1/4", 3/8", 1/2", 3/4"
0.0	0.0
12.5	0.0
25.0	0.08
50.0	0.53
75.0	0.84
100.0	0.93

Kv values in l/min

Vacuum: 400 mbar absolute

7.4 Product conformities

Machinery Directive: 2006/42/EC

EMC Directive: 2014/30/EU

Interference resistance: DIN EN 61000-6-2 (Nov. 2019)

Interference emission: DIN EN 61000-6-4

7.5 Mechanical data

Protection class: IP 65 acc. to EN 60529

Weight:

Connection size	Weight
1/4"	660 g
3/8"	660 g
1/2"	600 g
3/4"	600 g

7.6 Duty cycle and service life

Service life: **Open / Close duty** - Minimum 1,000,000 switching cycles at room temperature and permissible duty cycle.

Control operation – Class C acc. to EN 15714-2 (≙ 1,800,000 start-ups).

Duty cycle: 60% duty

7.7 Electrical data

7.7.1 Supply voltage

Voltage: 24 V DC ± 10%

Rating: ≤ 24 W (24 V DC)

Reverse battery protection: Yes

7.7.2 Analogue input signals

7.7.2.1 Set value as current signal, control module code S0 / S1 / S2

Input signal: 4–20 mA

Input type: passive

Input resistance: 50 Ω

Control accuracy: ±1%

7.7.2.2 Set value as voltage signal, control module code V0 / V1

Input signal: 0–10 V

Input type: passive

Input resistance: 110 KΩ

Control accuracy: ±1%

7.7.3 Digital input signals

Function: Initialization of the positioner

Voltage: 24 V DC

Logic level "1": > 15 V DC

Logic level "0": ≤ 5 V DC

7.7.4 Analogue output signals

7.7.4.1 Actual value as current signal, control module code S0 / S1 / S2

Output signal: 4–20 mA

Output type: Active

Load resistor: 650 Ω

Short-circuit proof: Yes

7.7.4.2 Actual value as voltage signal, control module code V0 / V1

Output signal: 0–10 V

Output type: Active

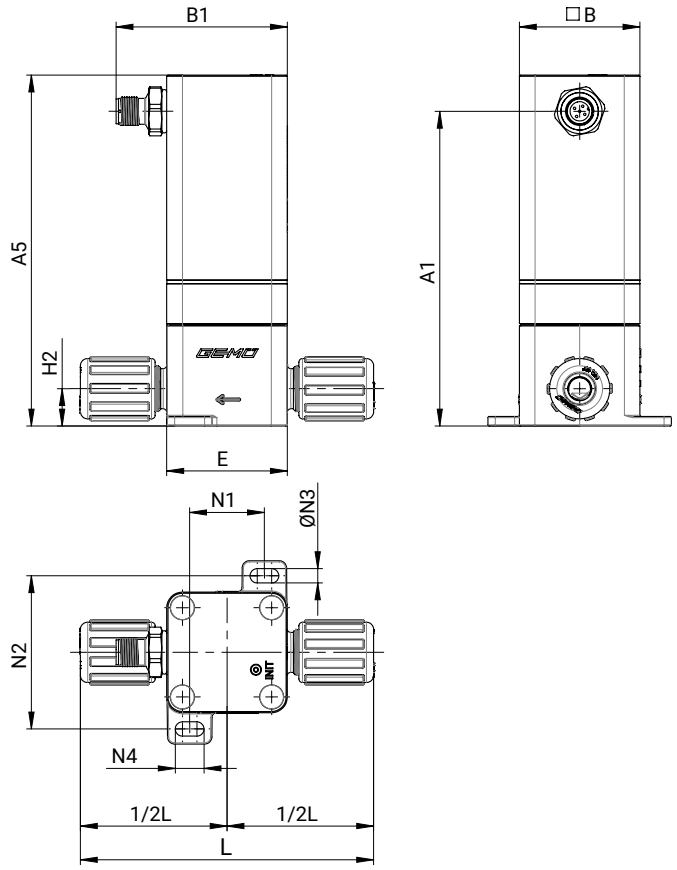
Short-circuit proof: Yes

7.7.5 Behaviour in the event of an error

Function: In the event of an error the valve moves to the error position.

Function:	Notes: Moving to the error position is only possible with full power supply. This behaviour is not a safety position. The valve must be operated with a GEMÜ 1571 emergency power supply module (see accessories) to ensure the function in case of voltage loss.
Error position:	Hold - Actuator stays in the approached position (control module S0 and V0) Close - Actuator moves to the Closed position (control module S1 and V1) Open - Actuator moves to the Open position (control module S2)

8 Dimensions



Connection size	Actuator version	Connection	A1	A5	□B	B1	E	H2	L	N1	N2	ØN3	N4
1/4"	**2A**	**Flare**	131.0	146.0	50.0	71.0	50.0	16.0	111.0	71.0	49.0	6.0	12.0
		Prime-Lock	131.0	146.0	50.0	71.0	50.0	16.0	109.0	71.0	49.0	6.0	12.0
		Pillar	131.0	146.0	50.0	71.0	50.0	16.0	88.0	71.0	49.0	6.0	12.0
3/8"	**2A**	**Flare**	131.0	146.0	50.0	71.0	50.0	16.0	117.8	71.0	49.0	6.0	12.0
		Prime-Lock	131.0	146.0	50.0	71.0	50.0	16.0	113.0	71.0	49.0	6.0	12.0
		Pillar	131.0	146.0	50.0	71.0	50.0	16.0	100.0	71.0	49.0	6.0	12.0
1/2"	**2A**	**Flare**	131.0	146.0	50.0	71.0	50.0	16.0	121.6	31.0	63.5	6.0	12.0
		Prime-Lock	131.0	146.0	50.0	71.0	50.0	16.0	120.0	31.0	63.5	6.0	12.0
		Pillar	131.0	146.0	50.0	71.0	50.0	16.0	108.0	71.0	49.0	6.0	12.0
3/4"	**2A**	**Flare**	131.0	146.0	50.0	71.0	50.0	16.0	128.0	31.0	63.5	6.0	12.0
		Prime-Lock	131.0	146.0	50.0	71.0	50.0	16.0	128.0	31.0	63.5	6.0	12.0
		Pillar	131.0	146.0	50.0	71.0	50.0	16.0	108.0	71.0	49.0	6.0	12.0

Dimensions in mm

9 Manufacturer's information

The controller required for valve operation is not included in the scope of delivery.

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 Packaging

The product is packaged in a cardboard box which can be recycled as paper.

9.3 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.

9.4 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.

10 Installation in piping

⚠ CAUTION

Fixing with suitable media resistant plastic bolts (not included in the scope of delivery)

► Corrosion and contamination when using metal bolts.

10.1 Preparing for installation

⚠ 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.

⚠ WARNING

Corrosive chemicals!

► Risk of caustic burns
- Wear appropriate protective gear.
- Completely drain the plant.

⚠ CAUTION

Hot plant components!

► Risk of burns
- Only work on plant that has cooled down.

⚠ CAUTION

Maximum permissible pressure exceeded!

► Damage to the product!
- Provide for precautionary measures against exceeding the maximum permissible pressure that may be caused by pressure surges (water hammer).

⚠ CAUTION

Use as step!

► Damage to the product
► Risk of slipping-off
- Choose the installation location so that the product cannot be used as a foothold.
- Do not use the product as a step or a foothold.

NOTICE

Suitability of the product!

► The product must be appropriate for the piping system operating conditions (medium, medium concentration, temperature and pressure) and the prevailing ambient conditions.

NOTICE

Tools!

► The tools required for installation and assembly are not included in the scope of delivery.
● Use appropriate, functional and safe tools.

1. Ensure the product is suitable for the relevant application.
2. Check the technical data of the product and the materials.
3. Keep appropriate tools ready.
4. Wear appropriate protective gear, as specified in the plant operator's guidelines.
5. Observe appropriate regulations for connections.
6. Have installation work carried out by trained personnel.
7. Shut off plant or plant component.
8. Secure plant or plant component against recommissioning.
9. Depressurize the plant or plant component.
10. Completely drain the plant (or plant component) and let it cool down until the temperature is below the media vaporization temperature and cannot cause scalding.
11. Correctly decontaminate, rinse and ventilate the plant or plant component.
12. Lay piping so that the product is protected against transverse and bending forces, and also from vibrations and tension.
13. Only install the product between matching aligned pipes (see chapters below).
14. Please note the flow direction.
15. Please note the installation position.

10.2 Installation with flare connections

- For preparation and connection of the flare connections, please refer to operating instructions and assembly instructions for FlareStar.
- Depending on the ambient conditions, use resistant and suitable connection fittings.

10.3 Installation with Pillar Super 300 Type

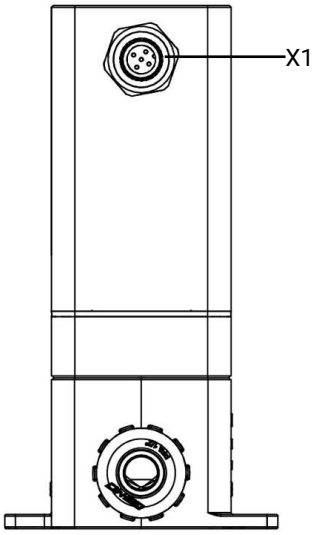
1. Tubing preparation by sleeve installation (observe the manufacturer's instructions: www.nipponpillar.com/Download/Fittings/S-300 Instruction manual).
2. Assemble Pillar Super 300 Type connection with prepared tube.
3. Tighten Pillar Super 300 Type union nut.

10.4 Installation with PrimeLock® connection

1. Carry out installation preparation work (see chapter "Preparing for installation").
2. Prepare the tube by installing the sleeve (follow the manufacturer's instructions: www.entegrisfluidhandling.com/Product.aspx?G=1905).
3. Assemble the PrimeLock® connection with prepared tube.
4. Tighten the PrimeLock® union nut.

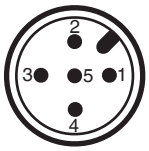
11 Electrical connection

11.1 Position of the connectors



11.2 Electrical connection

Connection X1



Five-pin M12 built-in socket, A-coded

Pin	Signal name
1	24 V supply voltage
2	I+/U+, set value input
3	GND
4	I+/U+, actual value output
5	Digital input 1 / tube replacement function

12 Qualification of the valve

Bursting pressure at room temperature

Valve	Component	Test conditions	Required criteria
C53	Valve body	Maintain defined water pressure for 10 minutes, if OK, increase water pressure until leakage is detected.	No leakage externally. Bursting pressure = 5.8 x P max. (35.0 bar)

Service life at room temperature

Valve	Component	Test conditions	Required criteria
C53	Valve	Valves switched at room temperature, medium pressure 6 bar, water, full stroke	No leakage externally or via the seat for up to **1 million switching cycles***
C53	Valve	Valves switched at room temperature, medium pressure 6 bar, water, 20% control stroke	No leakage externally or via the seat for up to **1 million switching cycles***

Hot oil inspection

Valve	Component	Test conditions	Required criteria
C53	Valve	Valves switched at 150 °C hot oil, medium pressure 2 bar, full stroke, seals tightly	No leakage externally or via the seat **300,000 switching cycles*** every 2 weeks

Hot water test

Valve	Component	Test conditions	Required criteria
C53	Valve	Valves switched at 90 °C hot water, medium pressure 2.1 bar, full stroke, seals tightly	No leakage externally or via the seat **200,000 switching cycles*** every 2 weeks

Temperature change test

Valve	Component	Test conditions	Required criteria
C53	Valve	Valves not switched at -15 °C/+70 °C in temperature changes, no medium, no pressure, cycle time 4 hours	Protection class inspection IP 65 passed, no penetration of humidity into the actuator can be detected

Vacuum test

Valve	Component	Test conditions	Required criteria
C53	Valve	Closed for 2 weeks	Valve fully open at -930 mbar (relative)

Positioner inspection

Valve	Component	Test conditions	Required criteria
C53	Control actuator	Modulation test 10% stroke, 20% force, at room temperature	1.8 million start-ups

Shock and vibration

Valve	Component	Test conditions	Required criteria
C53	Valve	Vibration test acc. to EN 60068-2-6 test Fc Shock test acc. to EN 60068-2-27 test Ea	Function OK before and after test

* All concluding tests were carried out at testing pressure at room temperature.
Seat leak tightness: PSx1.1 =(6.6 bar). External leak tightness: PSx1.5 =(9 bar).

13 Commissioning

13.1 Initialization

Initialization is already carried out for the process valve which was fully assembled at the factory.

Initialization must be carried out in the following situations:

- Replacement of the control PD

Initialization can be carried out using the following procedures:

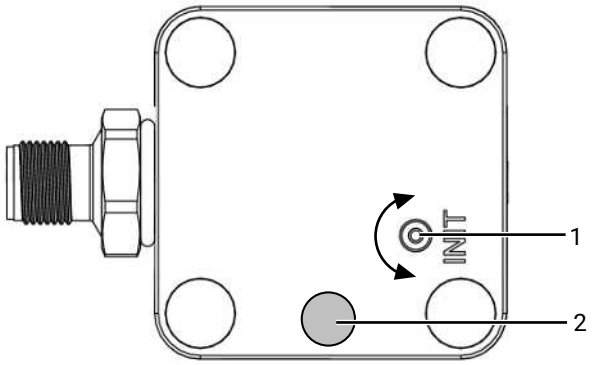
- On-site initialization
- Initialization via digital input

13.1.1 On-site initialization of the end positions

NOTICE

Omission of the supply voltage during the initialization!

- In the case of omission of the supply voltage during the initialization, all values that have already been determined are lost. Initialization must be carried out again after restoration of the supply voltage.



1. Connect supply voltage

Device version 00 (see “Product label“, page 6):

2. Connect the magnet at the point on the housing cover labelled with INIT **1** and rotate by 180° to start initialization.

Device version 01 (see “Product label“, page 6):

Note: The associated flash codes can be found in the "Functional description" chapter (see “Functional description“, page 7).

3. Connect the magnet at the point on the housing cover labelled with INIT **1** until **flash code 3** starts on LED **2**.
4. Hold the magnet until **flash code 4** is activated on LED **2**.
5. Remove the magnet within five seconds → indicated by **flash code 5** on LED **2**.
   - ⇨ Valve automatically moves into the CLOSED position.
   - ⇨ Valve automatically moves into the OPEN position.
   - ⇨ Initialization mode is automatically ended.
   - ⇨ Valve moves towards the specified set value.

⇨ The end positions are set.

13.1.2 Initialization via digital input

NOTICE

Omission of the supply voltage during the initialization!

- In the case of omission of the supply voltage during the initialization, all values that have already been determined are lost. Initialization must be carried out again after restoration of the supply voltage.

1. Connect supply voltage
2. Set digital input to logic level 1 (>100 ms, 24 V DC).
   - ⇨ Valve automatically moves into the CLOSED position.
   - ⇨ Valve automatically moves into the OPEN position.
   - ⇨ Initialization mode is automatically ended.
   - ⇨ Valve moves towards the specified set value.

⇨ The end positions are set.

14 Inspection and maintenance

⚠ 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.

⚠ CAUTION

Hot plant components!

- ► Risk of burns
- Only work on plant that has cooled down.

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 Behaviour in the event of an error

In the event of an error the valve moves to the error position (see Technical data).

The behaviour cannot be changed.

Moving to the error position is only possible with full power supply. This behaviour is not a safety position. The valve must be operated with a GEMÜ 1571 emergency power supply module (see accessories) to ensure the function in case of voltage loss.

16 Troubleshooting

Error	Possible cause	Troubleshooting
Working medium escaping from leak detection hole	Control PD faulty	Replace valve
The product does not open or does not open fully	Actuator defective	Replace valve
	Control PD incorrectly mounted	Replace valve
The product is leaking downstream (does not close or does not close fully)	Operating pressure too high	Operate the product with operating pressure specified in datasheet
	Control PD incorrectly mounted	Replace valve
	Foreign matter between control PD and valve seat	Replace valve
	Valve body leaking or damaged	Check valve body for damage, replace valve if necessary
	Control PD faulty	Replace valve
The product is leaking between actuator and valve body	Control PD incorrectly mounted	Replace valve
	Bolting between valve body and actuator loose	Replace valve
	Control PD faulty	Replace valve
	Actuator/valve body damaged	Replace valve
Connection between valve body and piping leaking	Incorrect installation	Check installation of valve body in piping
	Sealing material faulty	Replace sealing material
Valve body leaking	Valve body leaking or corroded	Check valve body for damage, replace valve if necessary
Valve does not open/close or does not open/close fully	Voltage is not connected	Connect voltage
	Cable ends incorrectly wired	Wire cable ends correctly
	Initialization has not been carried out fully	Carry out initialization again
Valve moves to error position	Set value signal < 3.5 mA	Check set value

17 Removal from piping

1. Remove the clamp or screw connections in reverse order to installation.
2. Remove welded or solvent cemented connections using a suitable cutting tool.
3. Observe the safety information and accident prevention regulations.

18 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.

19 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.

20 EU Declaration of Incorporation according to the EC Machinery Directive 2006/42/EC, Annex II B

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.

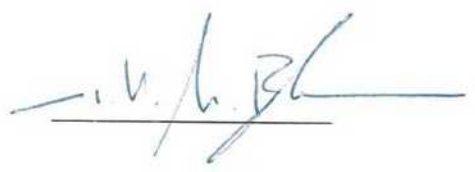
Product:	GEMÜ C53
Product name:	Motorized control valve
The following essential health and safety requirements of the EC Machinery Directive 2006/42/EC, Annex I have been applied or adhered to:	1.1.2.; 1.1.3.; 1.1.5.; 1.3.2.; 1.3.7.; 1.5.1.; 1.5.15.; 1.5.4.; 1.5.5.; 1.5.6.; 1.6.1.; 1.6.3.; 1.7.1.; 1.7.2.; 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, 28/07/2023

21 EU Declaration of Conformity in accordance with 2014/30/EU (EMC Directive)

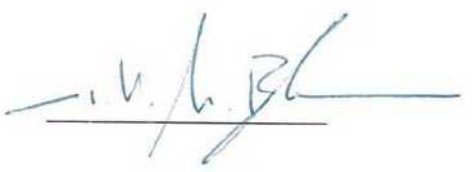
EU Declaration of Conformity

in accordance with 2014/30/EU (EMC Directive)

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 regulations of the above-mentioned Directive.

Product:	GEMÜ C53
Product name:	Motorized control valve
The following harmonized standards (or parts thereof) have been applied:	EN 61000-6-4:2007/A1:2011; EN 61000-6-2:2005/AC:2005



M. Barghoorn
Head of Global Technics

Ingelfingen, 28/07/2023

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
Fritz-Müller-Straße 6-8 D-74653 Ingelfingen-Criesbach
www.gemu-group.com
info@gemue.de

22 EU Declaration of Conformity In accordance with 2011/65/EU (RoHS Directive)

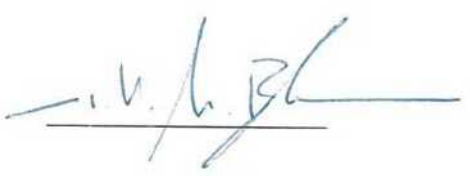
EU Declaration of Conformity

In accordance with 2011/65/EU (RoHS Directive)

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 regulations of the above-mentioned Directive.

Product:	GEMÜ C53
Product name:	Motorized control valve
The following harmonized standards (or parts thereof) have been applied:	EN IEC 63000:2018



M. Barghoorn
Head of Global Technics

Ingelfingen, 28/07/2023

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
Fritz-Müller-Straße 6-8, 74653 Ingelfingen-Criesbach, Germany
Phone +49 (0) 7940 1230 · info@gemue.de
www.gemu-group.com

07.2025 | 88715240