GEMÜ F60 servoDrive

Motorized filling valve

EN **Operating instructions**

further information
webcode: GW-F60

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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.

PD

PD = Plug Diaphragm

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!
	Corrosive chemicals!
	Hot plant components!

Symbol	Meaning
	Danger - high voltage!

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

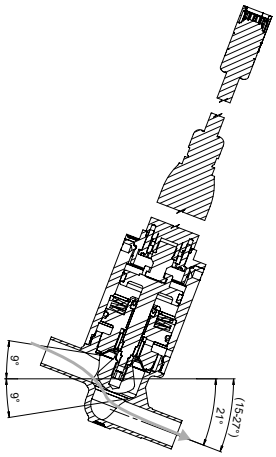
Note:

- For the configuration of the valve and accessories, please use the specification sheet “GEMÜ F60 and 567 servoDrive” (this note only in the datasheet).
- Extensive knowledge of PLC programming and actuation of servo actuators is required for installing and operating the valve and controller.
- As part of GEMÜ’s portfolio of services, we are happy to assist you with commissioning.
- GEMÜ does not provide any PLC application programmes. The customer must check the compatibility between the PLC and the controller GEMÜ 1282.

3.1 Construction

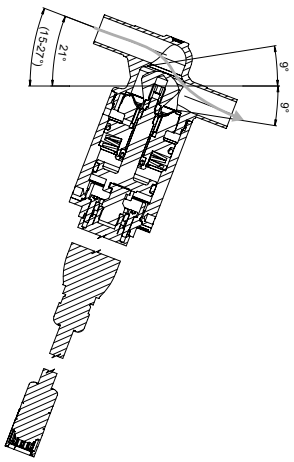
3.1.1 Flow direction

over the seat



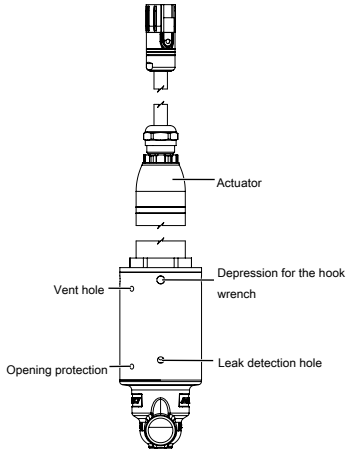
1 → 2, optimal draining and filling properties

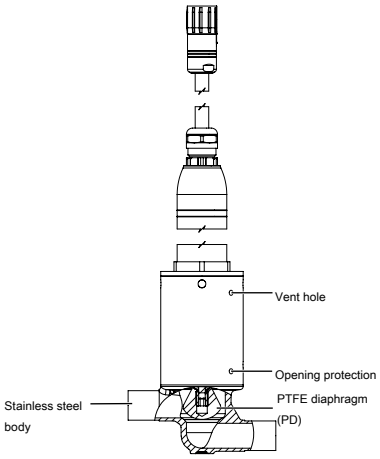
under the seat



2 → 1, better pressure stability and higher flow

3.1.2 PD seal system





3.2 Description

The GEMÜ F60 motorized 2/2-way filling valve is designed for extremely precise and fast filling processes in aseptic and hygienic areas of application. GEMÜ F60 enables activation in real time, ultra-quick load cycles and high flow rates of up to 18.500 l/h. The sealing concept of the valve is based on the GEMÜ PD design, whereby the actuator is hermetically separated from the medium. All actuator parts (except the seals) are made from stainless steel.

3.3 Function

The product is an electrically operated 2/2-way filling valve made of stainless steel. The GEMÜ F60 2/2-way filling valve is designed for use in piping systems. The product is non-self-locking and can be easily moved without force when de-energized. External leak tightness is nevertheless ensured.

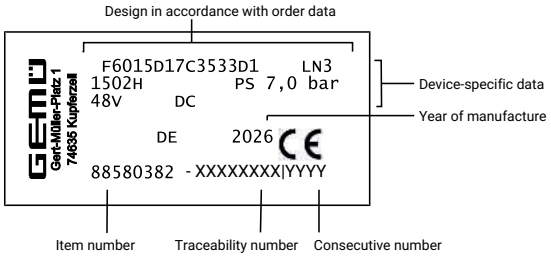
An external controller is required to operate the valve. The valve does not work without a controller.

With this external controller, the filling valve offers flexible and fast program changes thanks to freely programmable filling curves.

The external controller is not included in the scope of delivery.

3.4 Product label

The product label is located on the actuator. Product label data (example):



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

The operating pressure stated on the product label applies to a media temperature of 20 °C. The product can be used up to the maximum stated media temperature. You can find the pressure/temperature correlation in the technical data.

4 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.

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
Stainless steel PD valve, motorized	F60

2 DN	Code
DN 8	8
DN 10	10
DN 15	15
DN 20	20
DN 25	25

3 Body configuration	Code
2/2-way body	D
Angle valve body	E
Linearised body	G
Needle valve body	N
T body	T
Note: N body only available in conjunction with seal material T, adaptor for PD size 3 and seat diameter 20 mm H.	

4 Connection type, spigot 1	Code
Spigot	
Spigot EN 10357 series A (formerly DIN 11850 series 2)/DIN 11866 series A	17
Spigot ASME BPE / DIN 11866 series C	59
Clamp	
Clamp DIN 32676 series A	86
Clamp ASME BPE	88

5 Valve body material	Code
1.4435 (316L), block material	41
1.4435 (BN2), block material, Δ Fe < 0.5%	43
1.4435, investment casting	C3

6 Seal material	Code
PTFE	5
PTFE actuator seal/stainless steel adaption thread	T
Note: Seal material T only available in conjunction with body configuration N, adaptor for PD size 3 and seat diameter 20 mm H.	

7 Valve body adaptor	Code
Adaptor for PD size 1	1
Adaptor for PD size 3	3
Adaptor for PD size 4	4

8 Electric actuator size	Code
F60 with external dia. 32.0 mm	3
F60 with external dia. 40.0 mm	4

9 Voltage/Frequency	Code
48 V DC	D1

10 Control module	Code
OPEN/CLOSE, positioner and process controller Profinet, Ethernet/IP, EtherCAT interface	LN

11 Cable length	Code
3.0 m	3

12 Surface	Code
Investment casting	
Ra ≤ 0.8 µm (30 µin.) for media wetted surfaces, in accordance with DIN 11866 H3, mechanically polished internal	1502
Ra ≤ 0.8 µm (30 µin.) for media wetted surfaces, in accordance with DIN 11866 HE3, electropolished internal/external	1503
Ra max. 0.76 µm (30 µin.) for media wetted surfaces, in accordance with ASME BPE SF3, mechanically polished internal	SF3
Block material	
Ra ≤ 0.4 µm (15 µin.) for media wetted surfaces, in accordance with DIN 11866 H4, mechanically polished internal	1536
Ra ≤ 0.4 µm (15 µin.) for media wetted surfaces, in accordance with DIN 11866 HE4, electropolished internal/external	1537

13 Seat diameter	Code
11 mm	F
20 mm	H
34 mm	M

14 Regulating cone	Code
Without	
Equal-percentage, Kv value: 1.3m³/h	F
Equal-percentage, Kv value: 4.7m³/h	H
Equal-percentage, Kv value: 12m³/h	M

15 Special version	Code
Special version for 3A	M

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

Order example

Ordering option	Code	Description
1 Type	F60	Stainless steel PD valve, motorized
2 DN	15	DN 15
3 Body configuration	D	2/2-way body
4 Connection type, spigot 1	17	Spigot EN 10357 series A (formerly DIN 11850 series 2)/DIN 11866 series A
5 Valve body material	C3	1.4435, investment casting
6 Seal material	5	PTFE
7 Valve body adaptor	3	Adaptor for PD size 3
8 Electric actuator size	3	F60 with external dia. 32.0 mm
9 Voltage/Frequency	D1	48 V DC
10 Control module	LN	OPEN/CLOSE, positioner and process controller Profinet, Ethernet/IP, EtherCAT interface
11 Cable length	3	3.0 m
12 Surface	1502	Ra ≤ 0.8 µm (30 µin.) for media wetted surfaces, in accordance with DIN 11866 H3, mechanically polished internal
13 Seat diameter	H	20 mm
14 Regulating cone		Without
15 Special version	M	Special version for 3A
16 CONEXO		Without

6 Technical data

6.1 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.

6.2 Temperature

Media temperature: -10 — 140 °C

Sterilization temperature:

Hot water	max. 4 bar at 140 °C, max. 60 min
Steam	max. 2 bar at 140 °C, max. 60 min

Ambient temperature: -10 — 60 °C

Storage temperature: 0 — 40 °C

Speed of temperature change: max. 0.5 °C/min

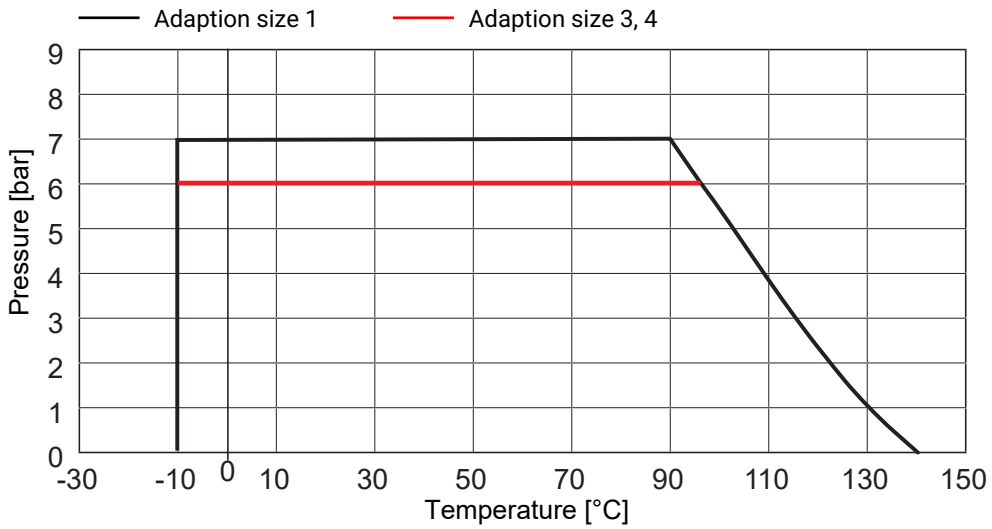
6.3 Pressure

Operating pressure:

	Adaption size 1	Adaption size 3	Adaption size 4
over the seat	max. 7 bar (1 → 2)	max. 7 bar (1 → 2)	max. 7 bar (1 → 2)
under the seat	max. 7 bar (2 → 1)	max. 6 bar (2 → 1)	max. 3.5 bar (2 → 1)

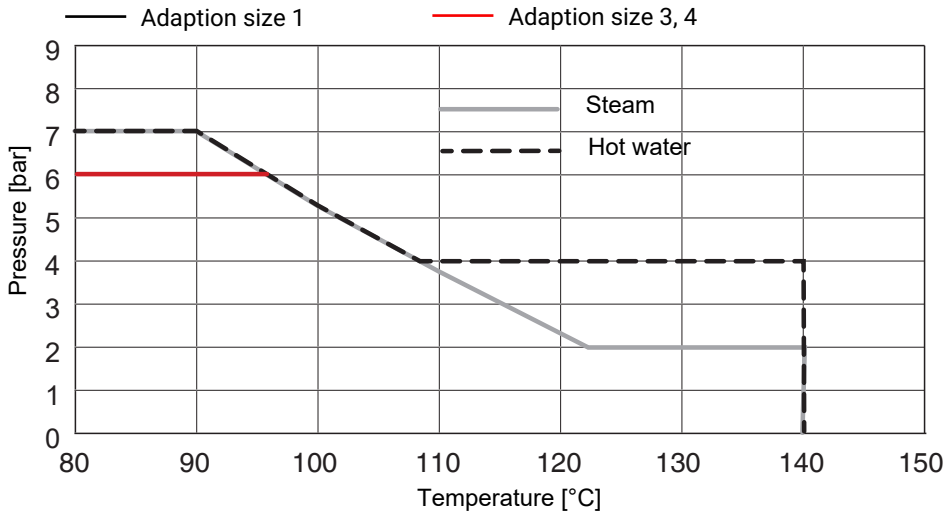
Pressure/temperature correlation:

Process:



Pressure/temperature correlation:

Hot water, steam



Hot water	max. 4 bar at 140 °C, max. 60 min
Steam	max. 2 bar at 140 °C, max. 60 min

Leakage rate:

Open/Close valve

Seat seal	Standard	Test procedure	Leakage rate	Test medium
PTFE	DIN EN 12266-1	P12	A	Air

Cv values:

Connection code 17 and 86 to DIN EN 60534

Actuator size	DN	over the seat (1→2)	under the seat (2→1)
1	8	1.5	1.5
3	10	2.7	2.8
3	15	6.0	6.8
4	20	10.0	10.4
4	25	16.3	18.5

Kv values in m³/h

Connection code 59 and 88 to DIN EN 60534

Actuator size	DN	over the seat (1→2)	under the seat (2→1)
1	10 [3/8"]	1.5	1.5
3	15 [1/2"]	2.4	2.5
3	20 [3/4"]	5.9	6.7
4	25 [1"]	11.7	12.9

Kv values in m³/h
For flow direction see product description on page 2

6.4 Product compliance

Machinery Directive: 2006/42/EC

EMC Directive: 2014/30/EU
Technical standards used:

Food: FDA
USP Class VI
Regulation (EC) No. 1935/2004
Regulation (EC) No. 10/2011
EHEDG certified

6.5 Mechanical data

Protection class:

Actuator and cable exit: IP69K acc. to EN 60529

Connector plug: IP65/IP67 acc. to EN 60529 when plugged in

Weight:

Actuator

1.3 kg

Valve body

	Adaption size 1	Adaption size 3	Adaption size 4
Spigot	0.10	0.22	0.60
Clamp	0.13	0.30	0.72

Weights in kg

Actuating speed:

adjustable, max. 200 mm/s

Humidity:

Relative humidity: 5–95%

Absolute humidity: 1–29 g/m³

6.6 Duty cycle and service life

Service life:

Class D acc. to EN 15714-2 (10,000,000 start-ups and 3600 start-ups per hour).

Duty cycle:

Continuous duty

The cycle duties and start-ups depend on the operating parameters. High pressures and media temperatures can lead to a shorter service life.

6.7 Electrical data

Humidity:	Relative humidity: 5–95% Absolute humidity: 1–29 g/m³	

6.7.1 Supply voltage

Actuator voltage:	Actuator 48 V DC ± 10 %	
Logic voltage (simco drive controller):	24 V DC ± 10%	
Maximum current:	Actuator size 3: Actuator size 4:	6.7 A 12.0 A
Extended standstill current:	Actuator size 3: Actuator size 4:	2.0 A 3.1 A
Rated current:	Actuator size 3: Actuator size 4:	1.8 A 2.5 A
Maximum power:	Actuator size 3: Actuator size 4:	150 W 300 W
Rated power:	Actuator size 3: Actuator size 4:	≤ 55 W 120 W
Reverse battery protection:	Yes	

6.7.2 Electrical connection

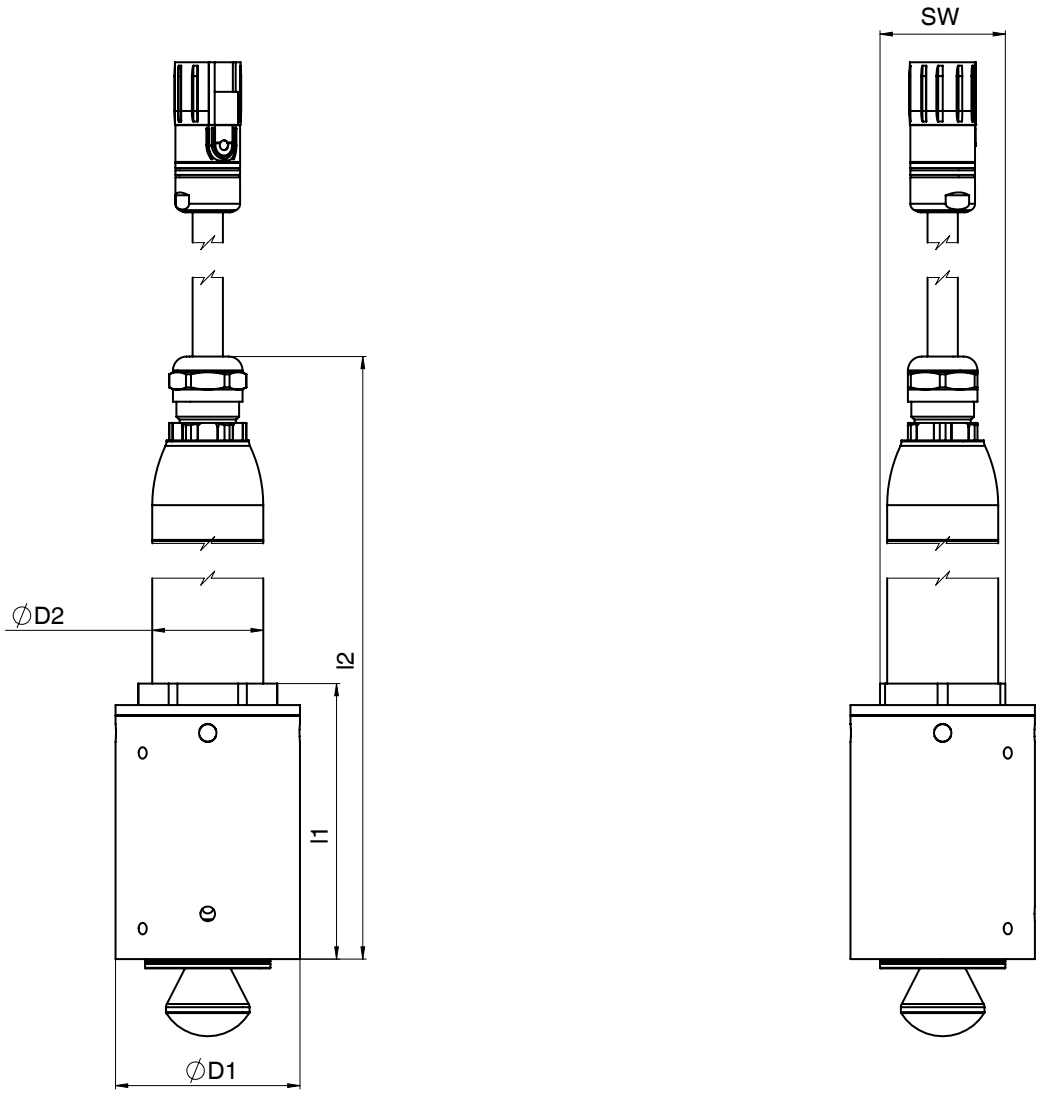
Connection:	Connection cable with connector
Connector plug:	Intercontec series 915 12 + 3-pin
Plug cycles:	<500

6.7.3 Connection cable

Cable length:	3 m (extension cable 5 m)	
Cable material:	PUR	
Shield:	Twofold shield	
Cable colour:	Black	
Bend radius:	Single movement Moving	≥ 3 x D ≥ 10 x D
Drag chain data:	Acceleration Bend cycles Speed	2 m/s² 1,000,000 3 m/s
Resistance:	Oil resistance in accordance with EN 60811-404	
Torsion applications:	Not suitable	
Approval:	UL AWM Style 20233, 80 °C, 300 V	

7 Dimensions

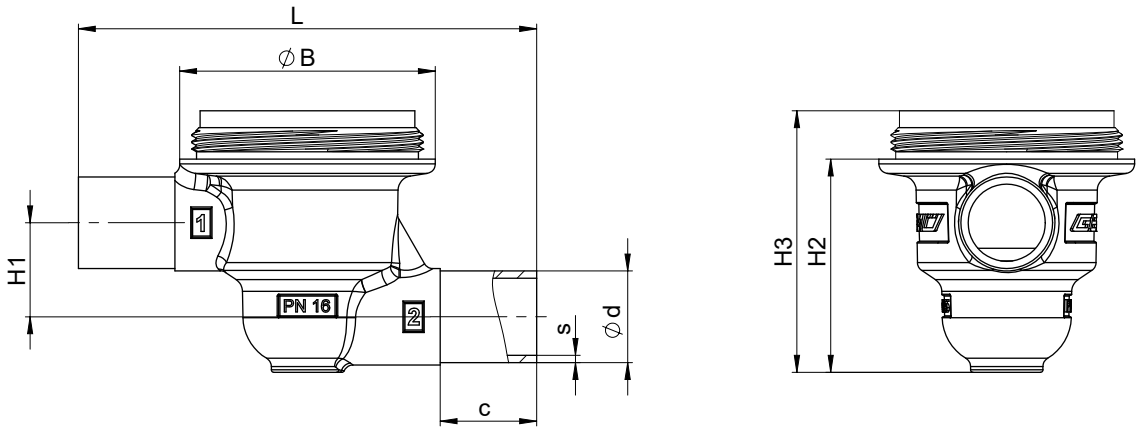
7.1 Actuator dimensions



Adaption size	Actuator size	l1	l2	SW	D1	D2
1	3	69.2	297.7	36.0	41.0	32.0
3	3	79.2	307.9	36.0	53.0	32.0
4	4	111.8	379.1	46.0	76.0	40.0

7.2 Body dimensions

7.2.1 Spigot



Connection type code 17

DN	AG	Connection type code 17 [1]							
		Material code 41, 43, C3							
		L	B	c	H1	H2	H3	d	s
8	**1**	82.0	40.8	20.0	14.5	30.5	39.7	10.0	1.0
10	**3**	95.0	53.0	20.0	21.5	41.2	51.2	13.0	1.5
15	**3**	95.0	53.0	20.0	19.5	44.2	54.2	19.0	1.5
20	**4**	131.0	76.0	25.0	31.5	61.0	71.0	23.0	1.5
25	**4**	131.0	76.0	25.0	31.5	67.0	77.0	29.0	1.5

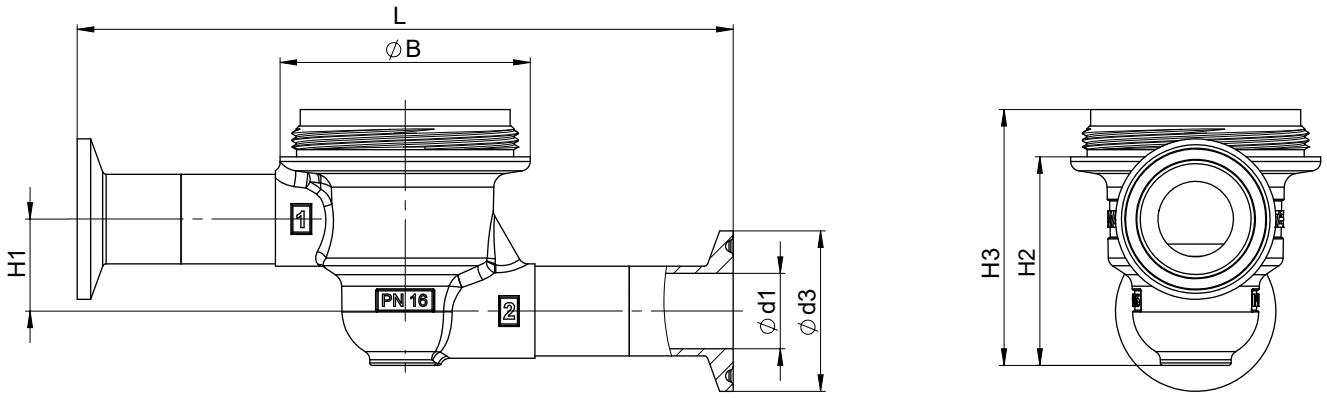
Connection type code 59

DN	AG	Connection type code 59 [1]							
		Material code 41, 43, C3							
		L	B	c	H1	H2	H3	d	s
10	**1**	82.0	40.8	20.0	14.5	30.5	39.7	9.53	0.89
15	**3**	95.0	53.0	20.0	21.5	41.2	51.2	12.70	1.65
20	**3**	95.0	53.0	20.0	19.5	44.2	54.2	19.05	1.65
25	**4**	131.0	76.0	25.0	31.5	65.0	75.0	25.40	1.65

Dimensions in mm

1) **Connection type, spigot 1**
Code 17: Spigot EN 10357 series A/DIN 11866 series A, formerly DIN 11850 series 2
Code 59: Spigot ASME BPE/DIN EN 10357 series C (from 2022 edition)/DIN 11866 series C

7.2.2 Clamp



Connection type code 86

DN	AG	Connection type code 86 [1]							
		Material code 41, 43, C3							
		L	B	H1	H2	H3	d1	d3	s
8	**1**	108.0	40.8	14.5	30.5	39.7	8.0	25.0	1.0
10	**3**	121.0	53.0	21.5	41.2	51.2	10.0	34.0	1.5
15	**3**	121.0	53.0	19.5	44,2	54.2	16.0	34.0	1.5
20	**4**	157.0	76.0	31.5	61.0	71.0	20.0	34.0	1.5
25	**4**	157.0	76.0	31.5	67.0	77.0	26.0	50.5	1.5

Connection type code 88

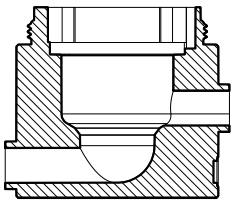
DN	AG	Connection type code 88 [1]							
		Material code 41, 43, C3							
		L	B	H1	H2	H3	d1	d3	s
10	**1**	108.0	40.8	14.5	30.5	39.7	7.75	25.0	0.89
15	**3**	121.0	53.0	19.5	41.2	51.2	9.40	25.0	1.65
20	**3**	121.0	53.0	19.5	44.2	54.2	15.75	25.0	1.65
25	**4**	157.0	76.0	31.5	65.0	75.0	22.10	50.5	1.65

Dimensions in mm

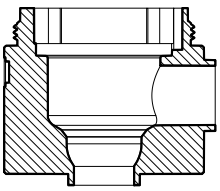
1) **Connection type, spigot 1**
Code 86: Clamp DIN 32676 series A
Code 88: Clamp ASME BPE, for pipe ASME BPE

7.3 Special body

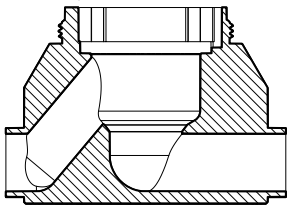
Body configuration D



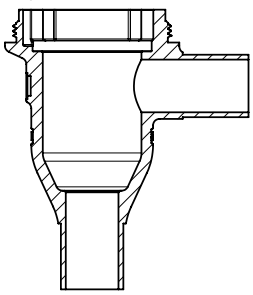
Body configuration E



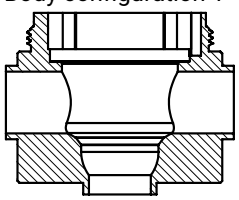
Body configuration G



Body configuration N



Body configuration T



Dimensions and installation dimensions of the special bodies on request

8 Manufacturer's information

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

8.1 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.

8.2 Packaging

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

8.3 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.

8.4 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.

9 Installation in piping

9.1 Preparing for installation

⚠ WARNING

The equipment is subject to pressure!

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

⚠ WARNING

Corrosive chemicals!

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

⚠ CAUTION

Hot plant components!

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

⚠ CAUTION

Exceeding the maximum permissible pressure.

- ► Damage to the product.
- ● Provide precautionary measures against exceeding the maximum permitted pressures 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

EHEDG certified valves

- ● EHEDG certified valves must be installed so that they can be easily cleaned and drained.
- ● For valves with weld ends, the weld seams must be made in accordance with EHEDG Guideline 9 and 35.
- ● For valves with removable connections, the "Position Paper" of the EHEDG must be taken into account and, if necessary, special seals must be used.

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 the plant or plant component.
8. Secure the 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. Protect the piping against the total weight of the valve, vibrations during operation, as well as torques generated during assembly and disassembly.
14. Only install the product between matching aligned pipes (see chapters below).
15. Please note the flow direction (see chapter "Flow direction").
16. Please note the installation position (see chapter "Installation position").

9.2 Installation with clamp connections

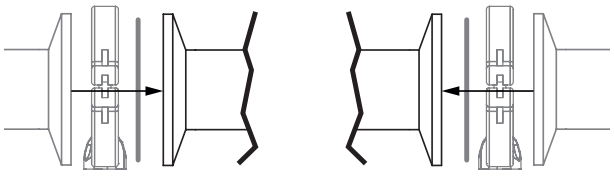


Fig. 1: Clamp connection

NOTICE

Gasket and clamp!

► The gasket and clamps for clamp connections are not included in the scope of delivery.

1. Keep ready gasket and clamp.
2. Carry out preparation for installation (see chapter "Preparing for installation").
3. Insert the corresponding gasket between the body of the product and the pipe connection.
4. Connect the gasket between the body of the product and the pipe connection using clamps.
5. Re-attach or reactivate all safety and protective devices.

9.3 Installation with butt weld spigots

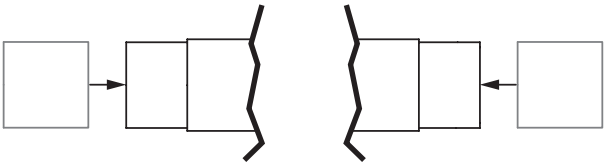


Fig. 2: Butt weld spigots

1. Carry out preparation for installation (see chapter "Preparing for installation").
2. Remove the actuator before welding the valve into the plant (see chapter "Removing the actuator").
3. Adhere to good welding practices!
4. Weld the body of the product in the piping.
5. Allow butt weld spigots to cool down.
6. Mount the actuator on the valve body (see chapter "Mounting the actuator").
7. Re-attach or reactivate all safety and protective devices.
8. Flush the system.

10 Electrical connection

Establish the electrical connection as described in the controller manufacturer's information.

11 Commissioning

✓ The product is installed in piping.

✓ The product is connected electrically and the control unit configured accordingly.

1. Check the leak-tightness and the functioning of the product (close the product and open it again).
2. Flush the piping system of new plant and following repair work (the product must be fully open).

   ⇨ Harmful foreign matter has been removed.

   ⇨ The product is ready for use.
3. Commission the product.

12 Troubleshooting

Error	Error cause	Troubleshooting
Working medium escaping from leak detection hole	Plug diaphragm faulty	Check plug diaphragm for potential damage, replace plug diaphragm if necessary
The product does not open or does not open fully	Actuator faulty	Replace actuator cartridge, replace actuator if necessary
	Plug diaphragm incorrectly mounted	Remove actuator, check plug diaphragm mounting, replace plug diaphragm if necessary
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
	Plug diaphragm incorrectly mounted	Remove actuator, check plug diaphragm mounting, correct if necessary
	Foreign matter between plug diaphragm and valve seat	Remove actuator, remove foreign matter, check plug diaphragm and valve body for damage and replace if necessary
	Valve body leaking or damaged	Check valve body for potential damage, replace valve body if necessary
	Plug diaphragm faulty	Check plug diaphragm for potential damage, replace plug diaphragm if necessary
The product is leaking between actuator and valve body	Plug diaphragm incorrectly mounted	Remove actuator, check plug diaphragm mounting, correct if necessary
	Bolting between valve body and actuator loose	Tighten bolting between valve body and actuator
	Plug diaphragm faulty	Check plug diaphragm for potential damage, replace plug diaphragm if necessary
	Actuator/valve body damaged	Replace actuator/valve body
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 body 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

13 Inspection and maintenance

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.

13.1 Replacing the actuator

13.1.1 Removing the actuator

⚠ CAUTION

Danger - high voltage!

► Electric shock.

● Before performing any work on the GEMÜ product switch off power and protect circuit from being switched on again.

⚠ WARNING

The equipment is subject to pressure!

► Risk of severe injury or death

● Depressurize the plant.

● Completely drain the plant.

⚠ CAUTION

Hot plant components!

► Risk of burns.

● Only work on plant that has cooled down.

⚠ WARNING

Corrosive chemicals!

► Risk of caustic burns.

● Wear suitable protective gear.

● Completely drain the plant.

⚠ CAUTION

Use of incorrect spare parts!

► Damage to the GEMÜ product

► Manufacturer liability and guarantee will be void

● Use only genuine parts from GEMÜ.

⚠ CAUTION

Risk of cartridge falling out

► This will damage the cartridge.

● Take care removing the cover, because the cartridge can come loose in the cover.

1. De-energize the motorized actuator (unplug it from the controller).
2. Undo the grub screw in the opening protection.
3. Unscrew the motorized actuator from the valve body.
   ⇨ If the product is firmly welded into the plant, the motorized actuator can be removed with a hook wrench by turning it anticlockwise.
   ⇨ If the product is not installed, the cover must be clamped in a vice with aluminium jaws.
4. Carefully remove the motorized actuator from the valve body.
5. Remove the motorized actuator and dispose of it correctly as necessary.

NOTICE

Important:

► After disassembly, clean all parts of contamination. Take care not to damage the parts in the process. Afterwards, check parts for potential damage. If parts are damaged, replace them.

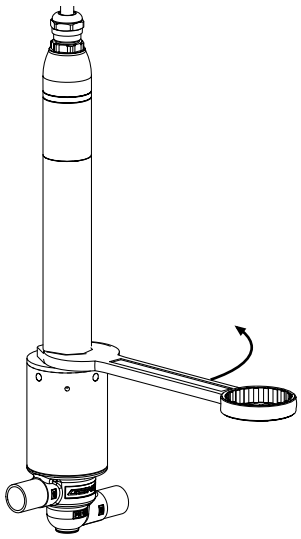
13.1.2 Mounting the actuator

1. Mount the motorized actuator on the valve body.
   ⇨ If the valve is firmly welded into the plant, the cover can be tightened with a hook wrench.
   ⇨ If the valve is not installed, the valve body must be clamped in a vice with aluminium jaws.
2. Tighten the grub screw in the opening protection.
3. Connect the controller.
4. The valve can be commissioned.

13.2 Replacing the cartridge

13.2.1 Removing the cartridge

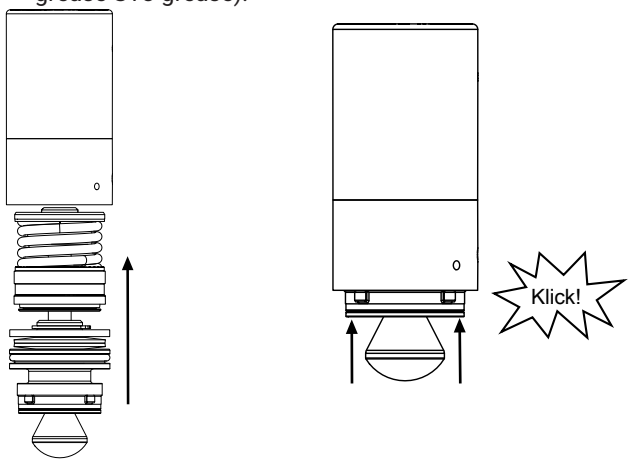
1. De-energize the motorized actuator (unplug it from the controller).
2. Undo the grub screw in the opening protection.
3. Remove the motor from the cover by turning it anticlockwise (wrench with wrench size 36). If required, secure the cover with a hook wrench.
   ⇨ If the valve is firmly welded into the plant, the motor can be unscrewed with the wrench.
   ⇨ If it is not installed, the valve must be clamped in a vice (with aluminium jaws) before the motor can be unscrewed.



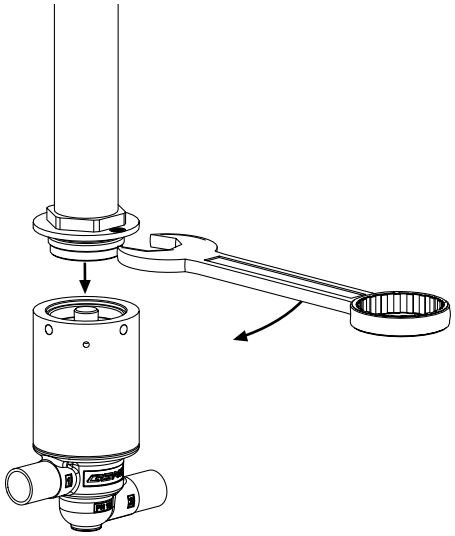
4. Pull the motor upwards and release the radial slot.
   ⇨ The motor can be removed.
5. Remove the cover.
   ⇨ If the valve is firmly welded into the plant, the cover can be unscrewed with a hook wrench.
   ⇨ If it is not installed, the valve must be clamped in a vice (with aluminium jaws) before the cover can be unscrewed.
6. Carefully remove the cover.
   ⇨ The cartridge can either be on the valve body or loose in the cover
7. Remove the cartridge and dispose of it correctly.

13.2.2 Fitting the cartridge

1. Grease the cartridge with a suitable lubricant (e.g. Tunap Tungrease ST3 grease).
2. Grease the cover with a suitable lubricant (e.g. Tunap Tungrease ST3 grease).



3. Insert the lubricated cartridge into the cover.
4. Press it into the collar of the plug diaphragm until you hear it click into place.
5. Mount the cover.
   ⇨ If the valve is firmly welded into the plant, the cover can be tightened with a hook wrench.
   ⇨ If it is not installed, the valve must be clamped in a vice (with aluminium jaws) before the cover can be tightened.



6. Hook the motor adaptor back into the radial slot on the cartridge and press the motor onto the cover.
   ⇨ The actuator spindle of the motor retracts.

7. Tighten the motor on the cover with a wrench.
   ⇨ If the valve is firmly welded into the plant, the motor can be tightened with the wrench.
   ⇨ If it is not installed, the valve must be clamped in a vice (with aluminium jaws) before the motor can be tightened.
8. Tighten the grub screw in the opening protection.
9. Connect the controller.
10. The valve can be commissioned.

13.3 Replacing the plug diaphragm

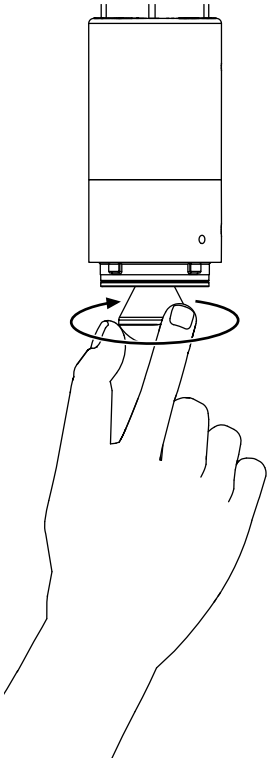
13.3.1 Removing the plug diaphragm

⚠ CAUTION

Use of incorrect spare parts!

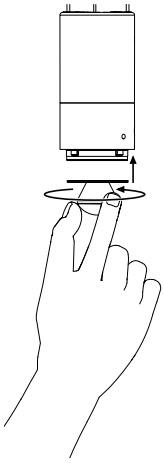
► Damage to the GEMÜ product
► Manufacturer liability and guarantee will be void
● Use only genuine parts from GEMÜ.

1. De-energize the actuator (unplug it from the controller).
2. Remove the actuator from the valve body.
   ⇨ If the valve is firmly welded into the plant, the actuator can be unscrewed with a hook wrench.
   ⇨ If it is not installed, the valve must be clamped in a vice (with aluminium jaws) before the actuator can be unscrewed.
3. Carefully remove the unscrewed actuator from the valve body.



4. Unscrew the plug diaphragm from the cartridge by hand by turning it anticlockwise and dispose of it in line with regulations.

13.3.2 Mounting the plug diaphragm

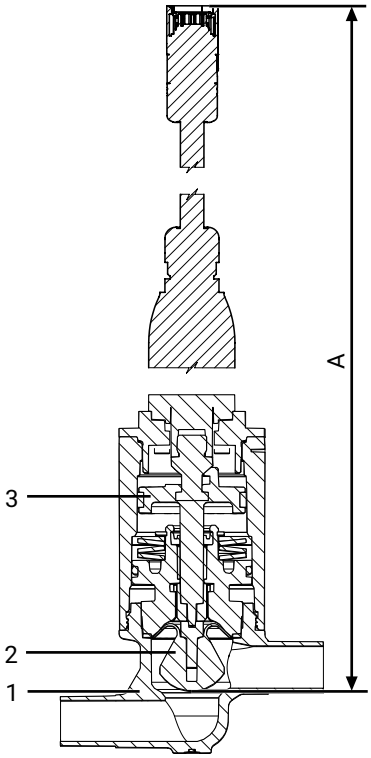


1. Screw the plug diaphragm onto the male thread of the cartridge by turning it clockwise and tighten it until it is hand tight.
2. Mount the actuator on the valve body.
   ⇨ If the valve is firmly welded into the plant, tighten the actuator with a hook wrench.
   ⇨ If it is not installed, the valve must be clamped in a vice (with aluminium jaws) before the actuator can be tightened.
3. Connect the controller.
4. The valve can be commissioned.

13.4 Cleaning the product

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

13.5 Spare parts



Item	Name	Order description
A	Actuator	AF60...
1	Valve body	BF00...
2	Plug diaphragm	DF00...
3	Cartridge	SF60...

14 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.

15 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.

16 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.

17 Declaration of Incorporation according to 2006/42/EC (Machinery Directive)

Declaration of Incorporation

according to the EC Machinery Directive 2006/42/EC, Annex II, 1.B for partly completed machinery

We, the company

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

declare that the following product

Make: GEMÜ Motorized control valve

Commercial name: GEMÜ F60

meets the following essential requirements of the Machinery Directive 2006/42/EC:

1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.3, 1.3.4, 1.5.1, 1.5.2

We also declare that the specific technical documentation has been compiled in accordance with part B of Annex VII.

The manufacturer or his authorised representative undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery. This transmission takes place:

Electronically

Authorised documentation officer

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

This does not affect the industrial property rights!

Important note! The partly completed machinery may be put into service only if it was determined, where appropriate, that the machinery into which the partly completed machinery is to be installed meets the provisions of this Directive.

2023-06-07

Joachim Brien
Head of Technical Department

18 Declaration of conformity according to 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

declare that the product listed below complies with the safety requirements of the EMC Directive 2014/30/EU.

Description of the product:	GEMÜ F60
Applied technical standards:	
Interference resistance:	EN 61800-3:2012

2022-11-03

Joachim Brien
Head of Technical Department

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Subject to alteration

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