

GEMÜ F60 servoDrive

Motorized filling valve



Features

- Hermetic separation between medium and actuator due to PD sealing technology
- Long service life with over 10 million cycle duties
- Flexible and fast program changes thanks to freely programmable filling curves
- Fast filling cycles (less than 400 ms) possible
- Designed according to Hygienic Design guidelines and EHEDG certified
- FDA compliant as standard and suitable for contact with food according to Regulation (EC) No. 1935/2004
- Very fast and easy maintenance thanks to quick locking system and innovative cartridge spare parts system

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.

Technical specifications

- **Media temperature:** -10 to 140 °C
- **Ambient temperature:** -10 to 60 °C
- **Operating pressure:** 0 to 7 bar
- **Nominal sizes:** DN 8 to 25
- **Body configurations:** 2/2-way body | Multi-port body
- **Connection types:** Clamp | Spigot
- **Connection standards:** ASME | DIN | EN
- **Body materials:** 1.4435, investment casting material
- **Seal materials:** PTFE
- **Supply voltage:** 48 V DC
- **Actuating speed:** Max. 200 mm/s
- **Protection class:** IP 69K
- **Conformities:** 3A | EAC | EHEDG | FDA | Reg. (EU) No. 10/2011 | Regulation (EC) No. 1935/2004 | Regulation (EC) No. 2023/2006 | USP

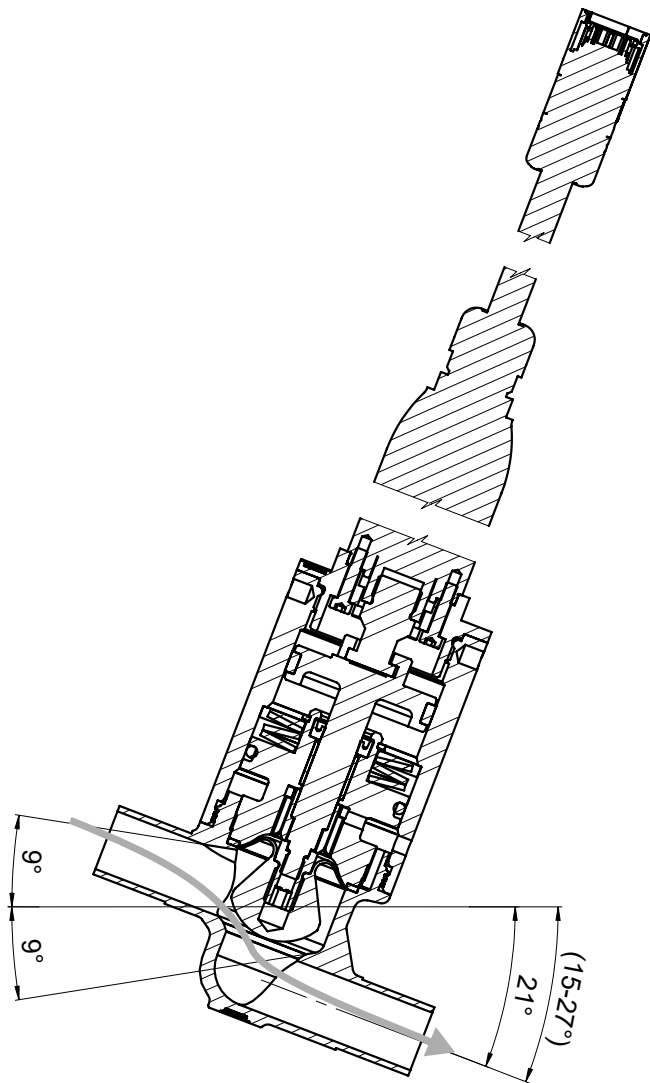
Technical data depends on the respective configuration



Product description

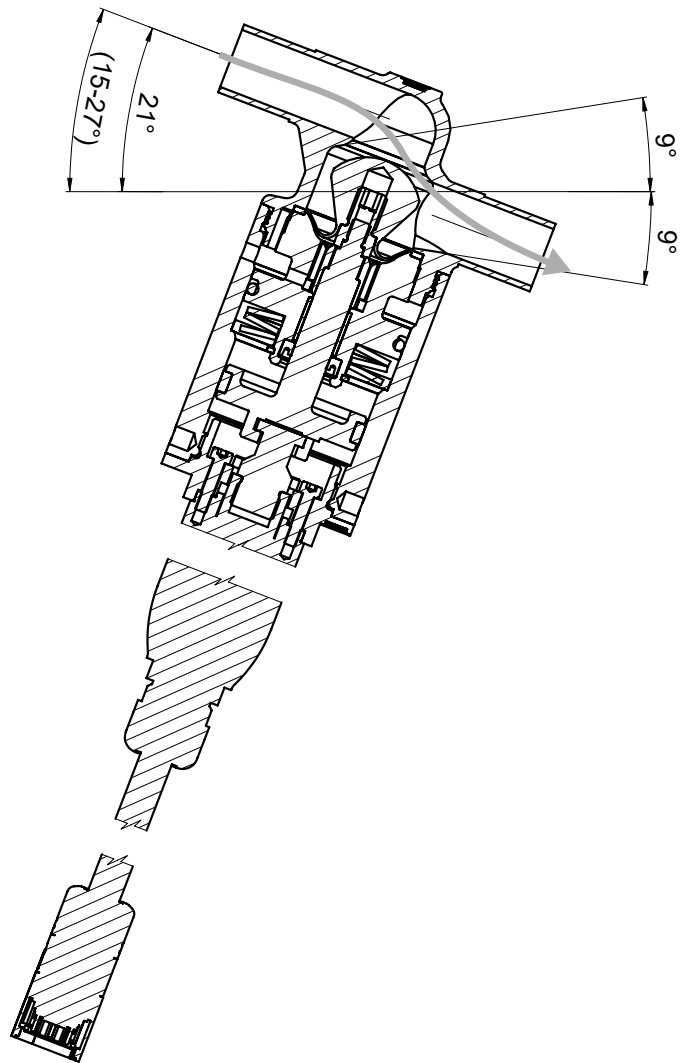
Flow direction

over the seat



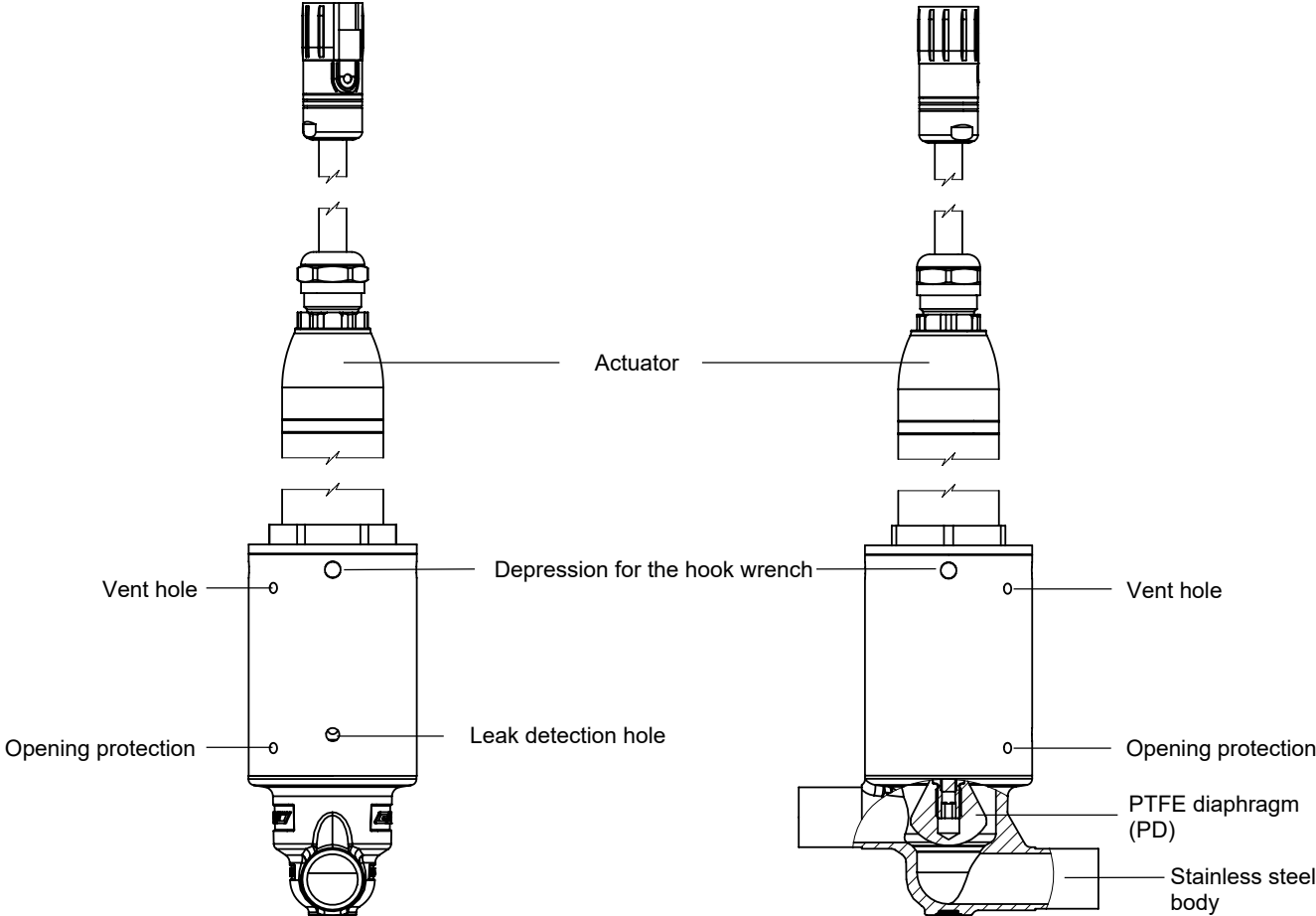
1 → 2, optimal draining and filling properties

under the seat



2 → 1, better pressure stability and higher flow

PD seal system



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

Ordering

GEMÜ Conexo must be ordered separately with the ordering option "CONEXO" (see order data).

Availability

Availability of grades of surface finish

Internal surface finishes for block material bodies ¹⁾

Readings for Process Contact Surfaces	Mechanically polished ²⁾		Electropolished	
	Hygienic class DIN 11866	Code	Hygienic class DIN 11866	Code
Ra ≤ 0.40 µm	H4	1536	HE4	1537

Internal surface finishes for investment cast bodies

Readings for Process Contact Surfaces	Mechanically polished ²⁾		Electropolished	
	Hygienic class DIN 11866	Code	Hygienic class DIN 11866	Code
Ra ≤ 0.80 µm	H3	1502	-	-
Ra ≤ 0.80 µm	-	-	H3	1503

Readings for Process Contact Surfaces according to ASME BPE 2016 ³⁾	Mechanically polished ²⁾	
	ASME BPE surface designation	Code
Ra Max. = 0.76 µm (30 µinch)	SF3	SF3

Ra acc. to DIN EN ISO 4288 and ASME B46.1

- 1) Surface finishes of customized valve bodies may be limited in special cases.
- 2) Or any other finishing method that meets the Ra value (acc. to ASME BPE).
- 3) When using these surfaces, the bodies are marked according to the specifications of ASME BPE. The surfaces are only available for valve bodies which are made of materials (e.g. GEMÜ material codes 40, 41, F4, 44)) and use connections (e.g. GEMÜ connection codes 59, 80, 88) according to ASME BPE.

Availability of valve bodies

Spigot

DN	AG	Connection types code ¹⁾	
		17	59
		Material code 41, 43, C3 ²⁾	
8	1	X	-
10	1	-	X
	3	X	-
15	3	X	X
20	3	-	X
	4	X	-
25	4	X	X

AG = actuator size

X = Standard

1) **Connection type, spigot 1**

Code 17: Spigot EN 10357 series A (formerly DIN 11850 series 2)/DIN 11866 series A

Code 59: Spigot ASME BPE / DIN 11866 series C

2) **Valve body material**

Code 41: 1.4435 (316L), block material

Code 43: 1.4435 (BN2), block material, Δ Fe < 0.5%

Code C3: 1.4435, investment casting

Clamp

DN	AG	Connection types code ¹⁾	
		86	88
		Material code 41, 43, C3 ²⁾	
8	1	X	-
10	1	-	X
	3	X	-
15	3	X	X
20	3	-	X
	4	X	-
25	4	X	X

AG = actuator size

X = Standard

1) **Connection type, spigot 1**

Code 86: Clamp DIN 32676 series A

Code 88: Clamp ASME BPE

2) **Valve body material**

Code 41: 1.4435 (316L), block material

Code 43: 1.4435 (BN2), block material, Δ Fe < 0.5%

Code C3: 1.4435, investment casting

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
Linearized body	G
T body	T

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

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 CANopen, Profinet, Ethernet IP, EtherCAT interface	LN

11 Cable length	Code
3.0 m	3

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

13 Seat diameter	Code
20 mm	H

14 Special version	Code
Special version for 3A	M

15 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 CANopen, 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 Special version	M	Special version for 3A
15 CONEXO		Without

Technical data

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.

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

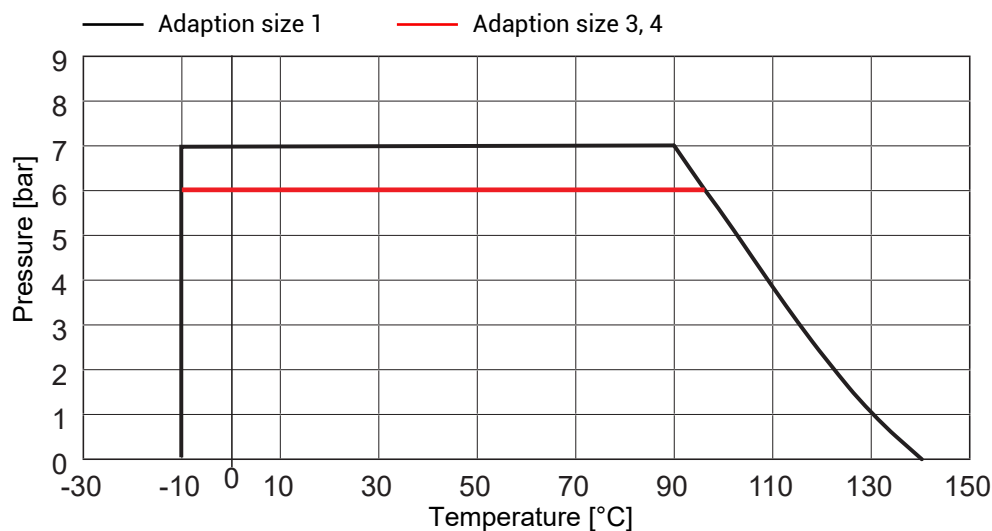
Pressure

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)

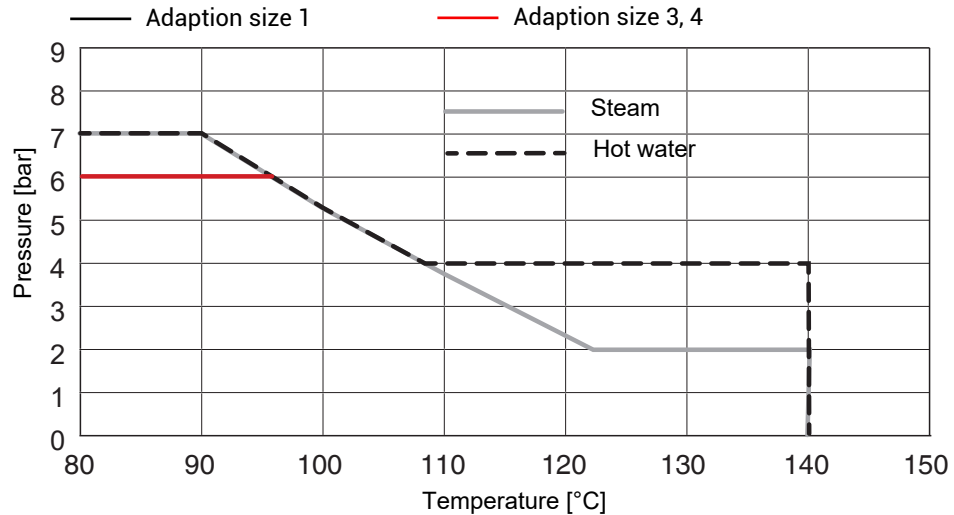
Pressure/temperature correlation:

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

Kv 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

Product compliance

Machinery Directive: 2006/42/EC

EMC Directive: 2014/30/EU

Technical standards used:

Interference resistance DIN EN 61000-6-2

Interference emission EN 61800-3

Category C3

The product is intended for operation in industrial environments.

Food: FDA
 USP Class VI

Food: Regulation (EC) No. 1935/2004
 Regulation (EC) No. 10/2011
 EHEDG certified

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

Operating time: adjustable, max. 200 mm/s

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.

Electrical data

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

Supply voltage

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

Electrical connection

Connection: Connection cable with connector

Connector plug: Intercontec series 915 12 + 3-pin

Plug cycles: <500

Connection cable

Cable length: 3 m (extension cable 5 m)

Cable material: PUR

Shield: Twofold shield

Cable colour: Black

Bend radius: Single movement ≥ 3 x D
Moving ≥ 10 x D

Drag chain data: Acceleration 2 m/s²
Bend cycles 1,000,000
Speed 3 m/s

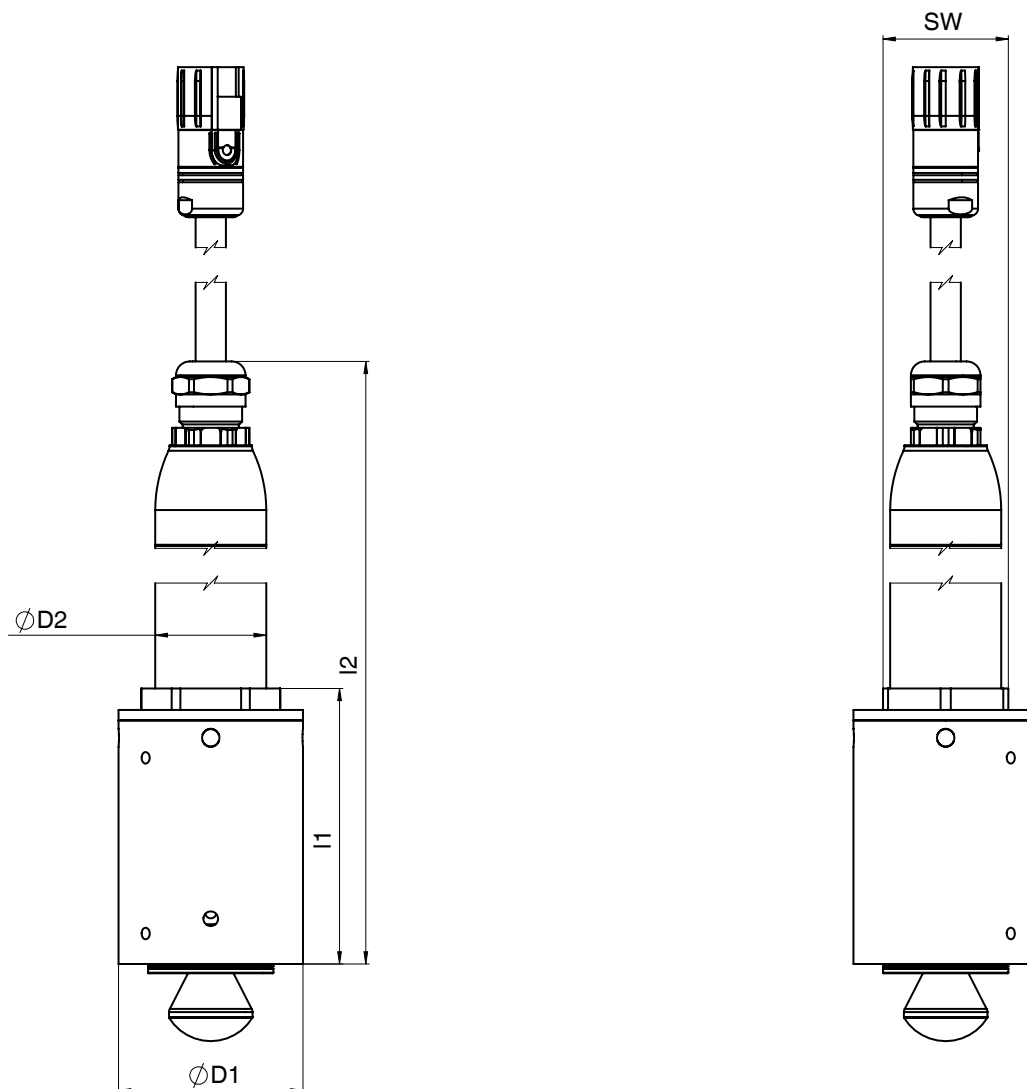
Resistance: Oil resistance in accordance with EN 60811-404

Torsion applications: Not suitable

Approval: UL AWM Style 20233, 80 °C, 300 V

Dimensions

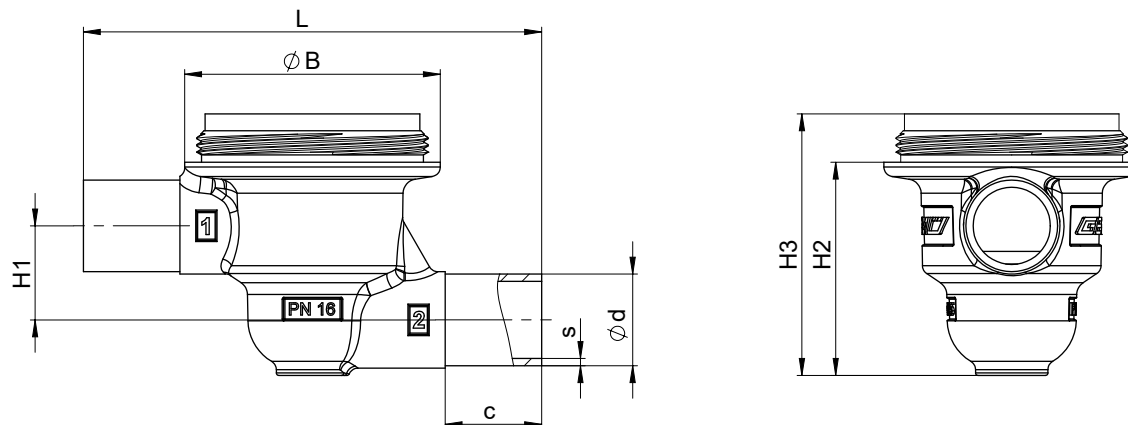
Actuator dimensions



Adaption size	Actuator size	I1	I2	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

Body dimensions

Spigot



Connection type code 17

DN	AG	Connection type code 17 ¹⁾							
		Material code 41, 43, C3 ²⁾							
		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 ²⁾							
		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 (formerly DIN 11850 series 2)/DIN 11866 series A

Code 59: Spigot ASME BPE / DIN 11866 series C

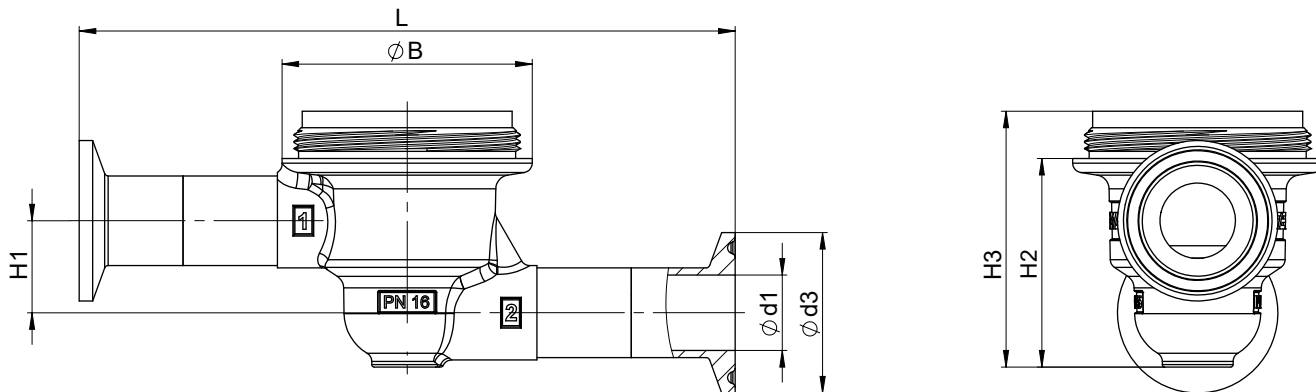
2) Valve body material

Code 41: 1.4435 (316L), block material

Code 43: 1.4435 (BN2), block material, Δ Fe < 0.5%

Code C3: 1.4435, investment casting

Clamp



Connection type code 86

DN	AG	Connection type code 86 ¹⁾							
		Material code 41, 43, C3 ²⁾							
		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 ²⁾							
		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

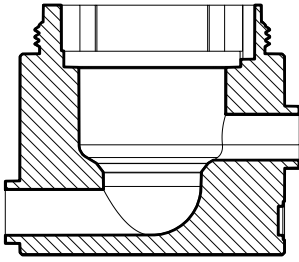
1) **Connection type, spigot 1**

Code 86: Clamp DIN 32676 series A
Code 88: Clamp ASME BPE

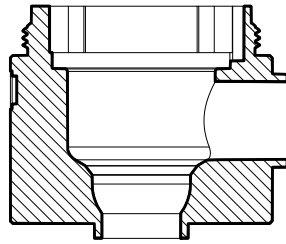
2) **Valve body material**

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

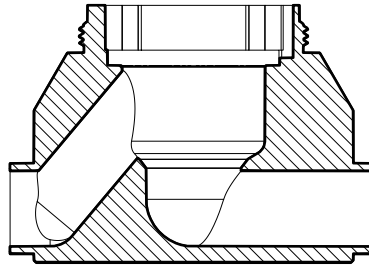
Special body



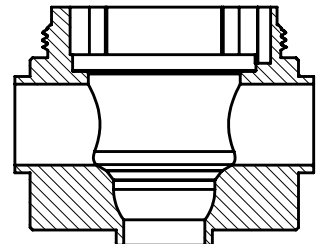
Body configuration D



Body configuration E



Body configuration G



Body configuration T

Dimensions and installation dimensions of the special bodies on request

servoDrive accessories



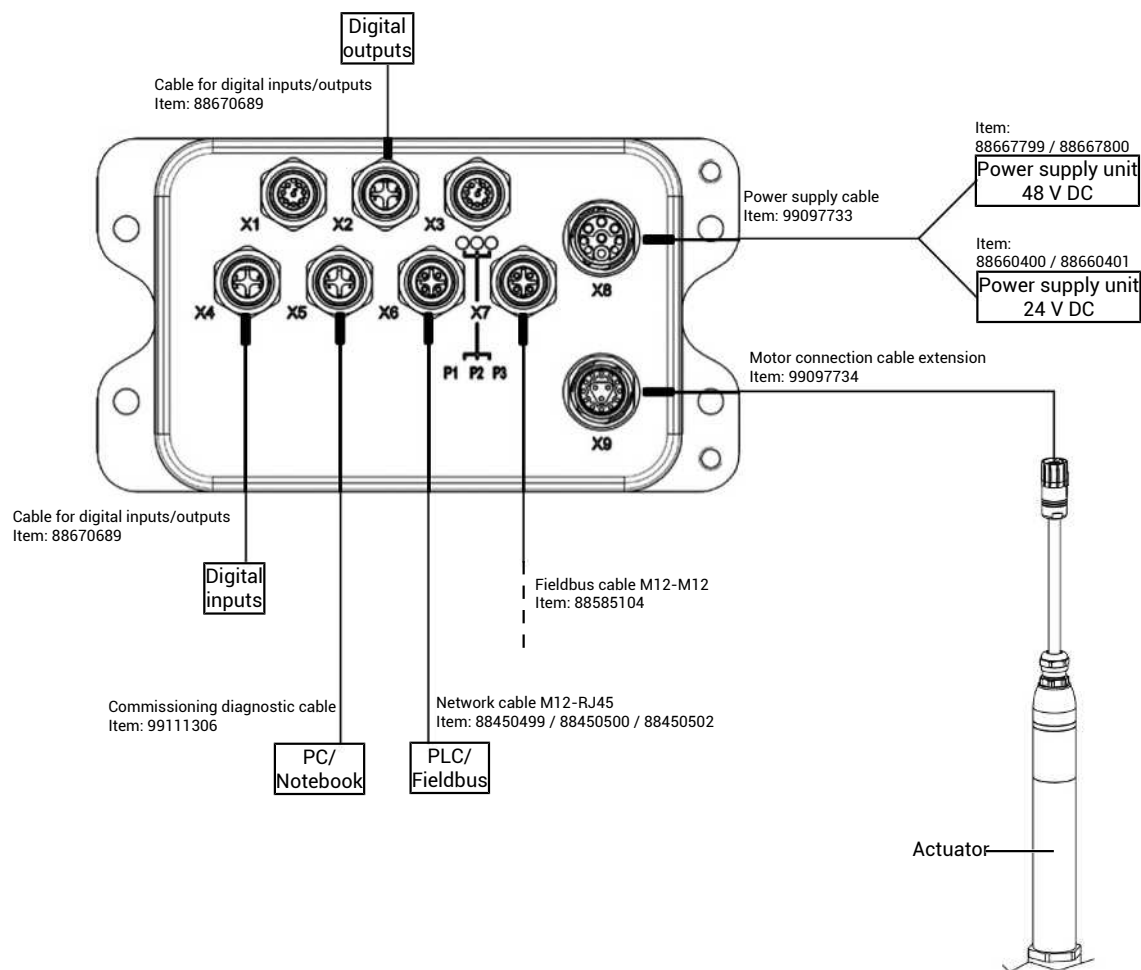
GEMÜ 1282

Controller for GEMÜ servoDrive actuators

The GEMÜ 1282 controller is an intelligent actuator amplifier for the control of valves with a motorized GEMÜ servoDrive actuator. It is available in various designs for local installation in the plant (IP 65), as well as for central installation in the control cabinet (IP 20). The CANopen, EtherCAT, PROFINET and Ethernet/IP communication modes are available for integration into the plant control system. The controller is available for the GEMÜ F60 servoDrive and GEMÜ 567 BioStar control valves with a motorized GEMÜ servoDrive actuator.

Special information

Bus system	Item number IP 20	Item number IP 65
ProfiNet	88585364	88585368
EtherNet/IP	88585365	88585369
EtherCAT	88585366	88585370





GEMÜ 1219

Connection cables

The GEMÜ 1219 connection cables connect the simco® drive to the F60 controller, the power supply or the PC.

Special information

Connection cables for the IP65 version of the F60 controller				
Description	Length	Connector 1	Connector 2	Item number
Motor connection cable extension	5 m	Intercontec, tec 915, 15-pin, plug	Intercontec, tec 915, 15-pin, socket	99097734
Power supply cable IP65-controller	5 m	Intercontec, tec 915, 9-pin, socket	Free wire ends	99097733
Network cable M12-RJ45	1 m	M12, D-coded, plug	RJ45	88450499
Network cable M12-RJ45	4 m	M12, D-coded, plug	RJ45	88450500
Network cable M12-RJ45	15 m	M12, D-coded, plug	RJ45	88450502
Fieldbus cable M12-M12	1 m	M12, D-coded, plug	M12, D-coded, plug	88585104
Commissioning diagnostic cable RS232 IP65-controller	3 m	M12, A-coded, plug	SUB-D, 9-pin, socket	99111306
Cable for digital inputs/outputs M12B	5 m	M12, B-coded, plug	Free wire ends	88670689

Connection cables for the IP20 version of the F60 controller				
Description	Length	Connector 1	Connector 2	Item number
Motor connection cable IP20-controller	5 m	Intercontec, tec 915, 15-pin, socket	SUB-D, 15-pin, plug; free wire ends	99098649
Commissioning diagnostic cable RS232 IP20-controller	3 m	RJ12	SUB-D, 9-pin, plug	99098650

GEMÜ 1573

Switching power supply unit

The GEMÜ 1573 switching power supply unit converts unstable input voltages from 100 to 240 V AC into a continuous DC voltage. It can be used as an accessory for valves with motorized actuators, e.g. eSyLite, GEMÜ eSyStep and eSyDrive, and for additional devices with a 24 V DC power supply. Different power levels, output currents and a 48 V DC version for servoDrive actuators are available.



Ordering information

GEMÜ 1573 switching power supply unit			
Input voltage	Output voltage	Output current	Item number
100 - 240 V AC	24 V DC	5 A	88660400
		10 A	88660401
	48 V DC	5 A	88667799
		10 A	88667801



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