

# GEMÜ F60 servoDrive

## Motorized filling valve



### Features

- Designed for extremely fast, precise and flexible filling processes with the highest requirements
- Hermetic separation of the actuator from the medium thanks to excellent GEMÜ PD sealing technology for filling applications in the pharmaceutical and food industries
- Durable and very fast maintenance thanks to quick locking and innovative cartridge spare parts system
- FDA compliant as standard and suitable for contact with food according to Regulation (EC) No. 1935/2004
- Optionally available with oxygen and ATEX versionIntegrable in P500 M multi-ports

### Description

The GEMÜ F60 motorized 2/2-way filling valve is designed for extremely precise and fast filling processes in aseptic and hygienic applications. 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 Up to 60 °C
- **Operating pressure :** 0 Up to 7 bar
- **Nominal sizes:** DN 8 to 25
- **Body configurations:** Multi-port body | Straight through 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



further information  
webcode: GW-F60



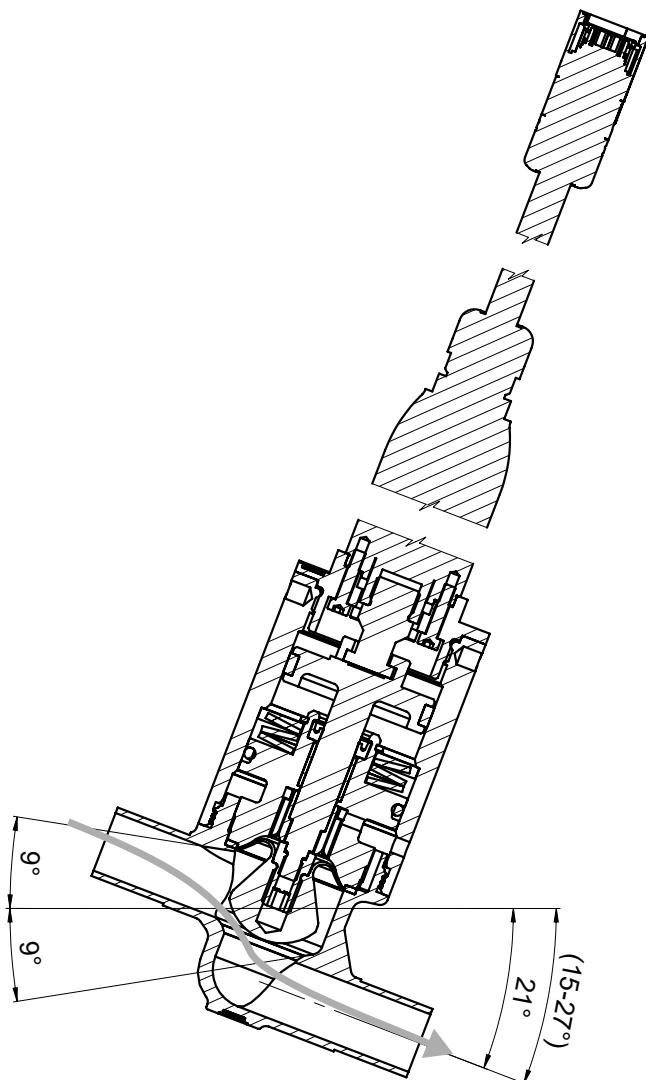
## Product description

### Note:

- The GEMÜ 1282 controller is necessary for the operation of the valve.
- For the design of the valve and accessories, please refer to the specification sheet "GEMÜ F60 and 567 servoDrive".
- For the installation and operation of the valve and controller, extensive knowledge of PLC programming and the actuation of servo drives is required.
- Within the scope of the GEMÜ Service services, we will be happy to support you during commissioning.
- GEMÜ does not provide PLC application programs. Compatibility between PLC and the GEMÜ 1282 controller must be checked by the customer.

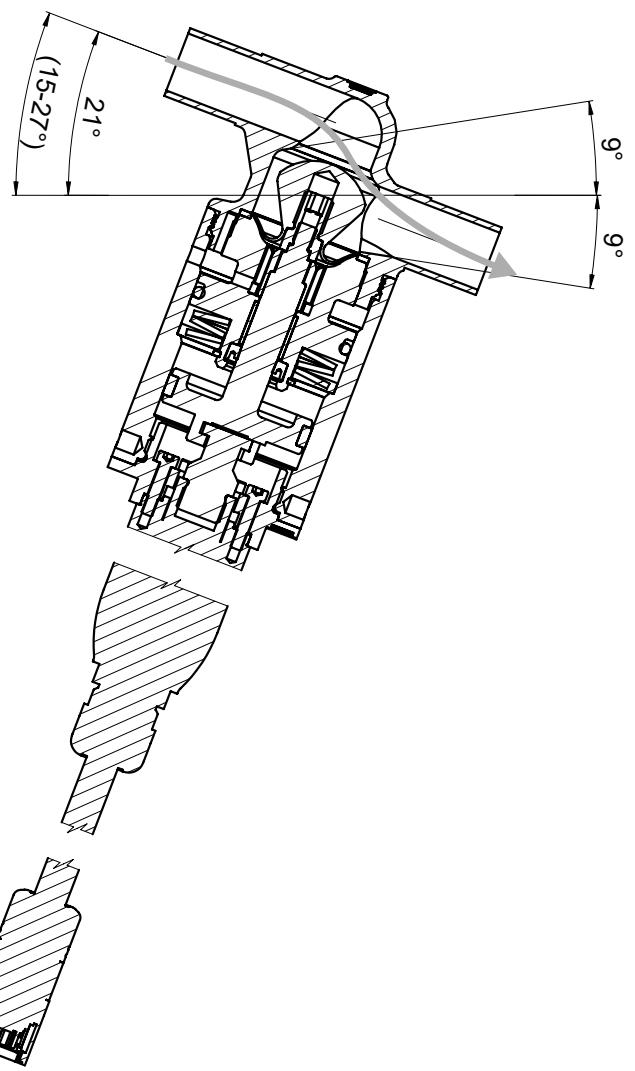
## Flow direction

over the seat

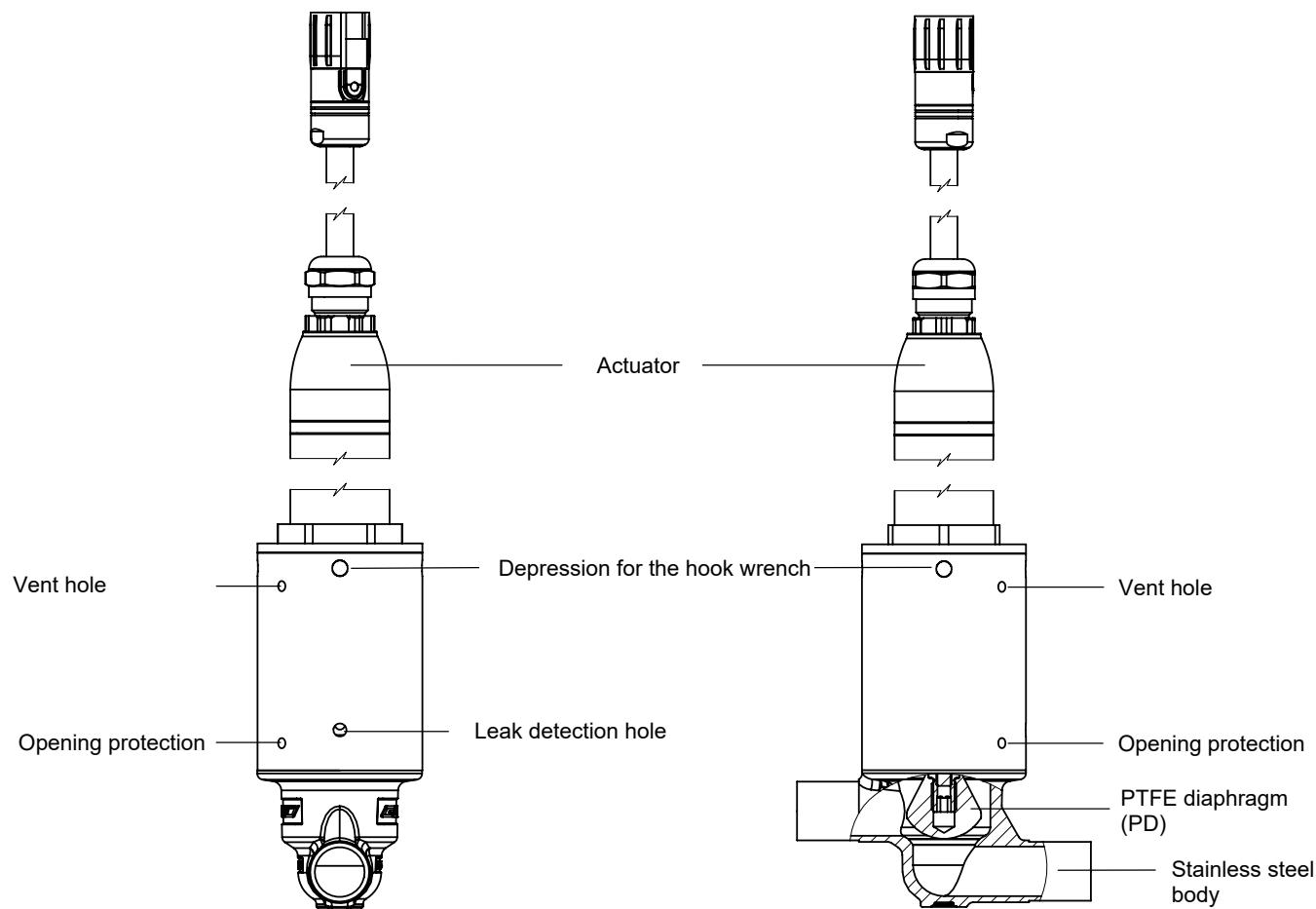


1 → 2, optimal draining and filling properties

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](http://www.gemu-group.com/conexo)

### Ordering

GEMÜ Conexo must be ordered separately with the ordering option "CONEXO".

## Availability

### Availability of grades of surface finish

Internal surface finishes for block material bodies<sup>1)</sup>

Readings for Process Contact Surfaces	Mechanically polished <sup>2)</sup>		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 <sup>2)</sup>		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 <sup>3)</sup>	Mechanically polished <sup>2)</sup>	
	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 <sup>1)</sup>	
		17	59
		Material code 41, 43, C3 <sup>2)</sup>	
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,  $\Delta$  Fe < 0.5%

Code C3: 1.4435, investment casting

### Clamp

DN	AG	Connection types code <sup>1)</sup>	
		86	88
		Material code 41, 43, C3 <sup>2)</sup>	
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,  $\Delta$  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

<b>1 Type</b>	<b>Code</b>	<b>9 Voltage/Frequency</b>	<b>Code</b>
Stainless steel PD valve, motorized	F60	48 V DC	D1
<b>2 DN</b>	<b>Code</b>	<b>10 Control module</b>	<b>Code</b>
DN 8	8	OPEN/CLOSE, positioner and process controller Profinet, Ethernet/IP, EtherCAT interface	LN
DN 10	10		
DN 15	15		
DN 20	20		
DN 25	25		
<b>3 Body configuration</b>	<b>Code</b>	<b>11 Cable length</b>	<b>Code</b>
2/2-way body	D	3.0 m	3
Angle valve body	E		
Linearised body	G		
Needle valve body	N		
T body	T		
<b>Note:</b> N body only available in conjunction with seal material T, adaptor for PD size 3 and seat diameter 20 mm H.			
<b>4 Connection type, spigot 1</b>	<b>Code</b>	<b>12 Surface</b>	<b>Code</b>
Spigot		<b>Investment casting</b>	
Spigot EN 10357 series A (formerly DIN 11850 series 2)/DIN 11866 series A	17	Ra ≤ 0.8 µm (30 µin.) for media wetted surfaces, in accordance with DIN 11866 H3, mechanically polished internal	1502
Spigot ASME BPE / DIN 11866 series C	59	Ra ≤ 0.8 µm (30 µin.) for media wetted surfaces, in accordance with DIN 11866 HE3, electropolished internal/external	1503
Clamp		Ra max. 0.76 µm (30 µin.) for media wetted surfaces, in accordance with ASME BPE SF3, mechanically polished internal	SF3
Clamp DIN 32676 series A	86		
Clamp ASME BPE	88		
<b>5 Valve body material</b>	<b>Code</b>	<b>Block material</b>	
1.4435 (316L), block material	41	Ra ≤ 0.4 µm (15 µin.) for media wetted surfaces, in accordance with DIN 11866 H4, mechanically polished internal	1536
1.4435 (BN2), block material, Δ Fe < 0.5%	43	Ra ≤ 0.4 µm (15 µin.) for media wetted surfaces, in accordance with DIN 11866 HE4, electropolished internal/external	1537
1.4435, investment casting	C3		
<b>6 Seal material</b>	<b>Code</b>	<b>13 Seat diameter</b>	<b>Code</b>
PTFE	5	11 mm	F
PTFE actuator seal/stainless steel adaption thread	T	20 mm	H
<b>Note:</b> Seal material T only available in conjunction with body configuration N, adaptor for PD size 3 and seat diameter 20 mm H.		34 mm	M
<b>7 Valve body adaptor</b>	<b>Code</b>	<b>14 Regulating cone</b>	<b>Code</b>
Adaptor for PD size 1	1	Without	
Adaptor for PD size 3	3	Equal-percentage, Kv value: 1.3m³/h	F
Adaptor for PD size 4	4	Equal-percentage, Kv value: 4.7m³/h	H
		Equal-percentage, Kv value: 12m³/h	M
<b>8 Electric actuator size</b>	<b>Code</b>	<b>15 Special version</b>	<b>Code</b>
F60 with external dia. 32.0 mm	3	Special version for 3A	M
F60 with external dia. 40.0 mm	4		
<b>16 CONEXO</b>	<b>Code</b>		
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

## 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

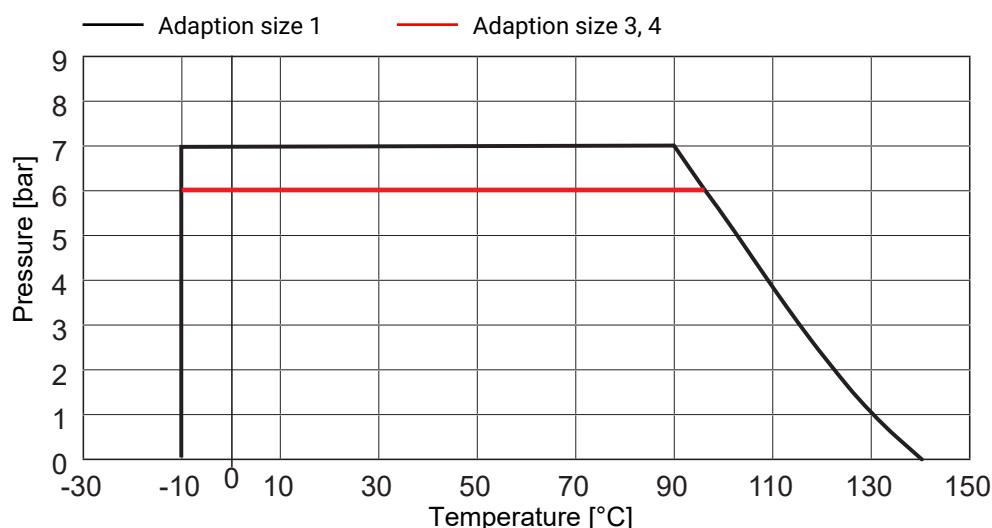
### Pressure

**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)

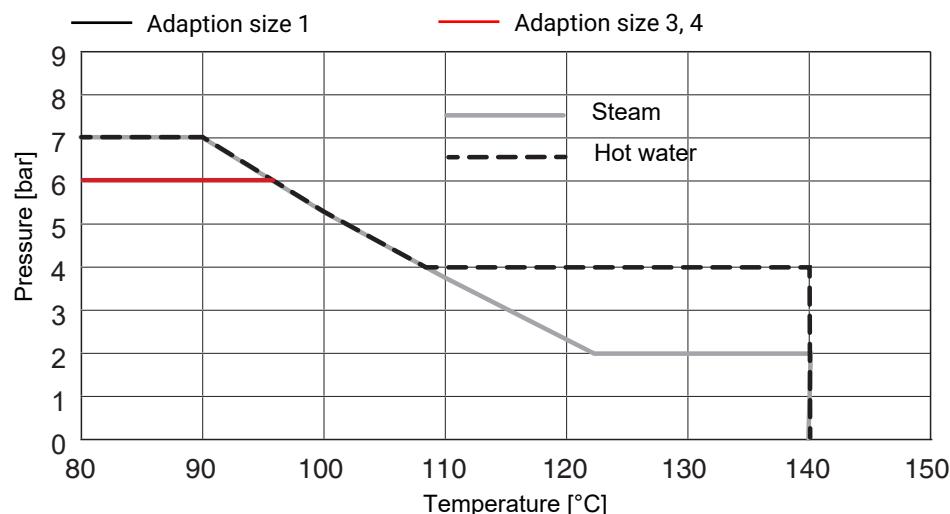
**Pressure/temperature correlation:**

**Process:**



**Pressure/temperature correlation:**

Hot water, steam



Hot water  
Steam

max. 4 bar at 140 °C, max. 60 min  
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 m<sup>3</sup>/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 m<sup>3</sup>/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:

**Food:** FDA

USP Class VI

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

**Actuating speed:** adjustable, max. 200 mm/s

**Humidity:** Relative humidity: 5–95%  
Absolute humidity: 1–29 g/m<sup>3</sup>

## 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

<b>Humidity:</b>	Relative humidity: 5–95%
	Absolute humidity: 1–29 g/m <sup>3</sup>

## Supply voltage

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

## Electrical connection

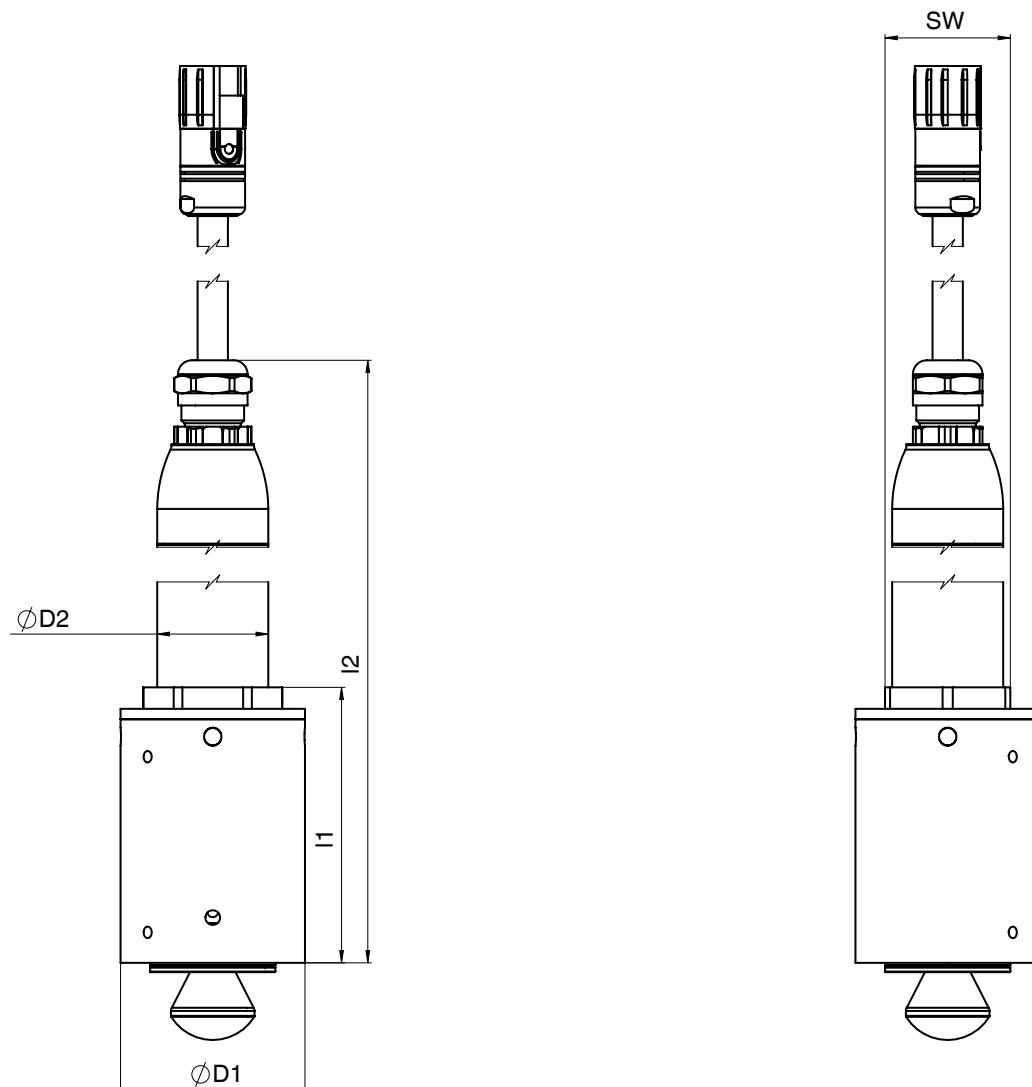
<b>Connection:</b>	Connection cable with connector
<b>Connector plug:</b>	Intercontec series 915 12 + 3-pin
<b>Plug cycles:</b>	<500

## Connection cable

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

## Dimensions

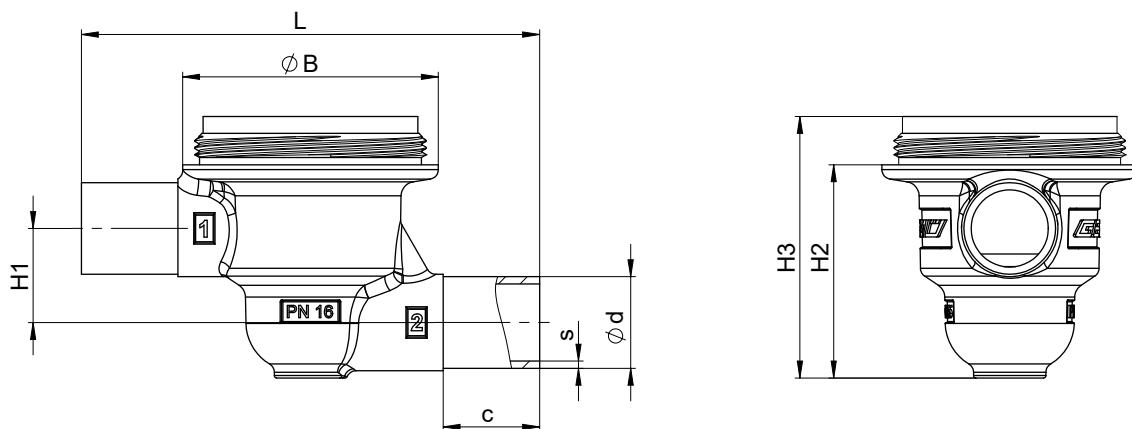
### Actuator dimensions



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

## Body dimensions

### Spigot



### Connection type code 17

DN	AG	Connection type code 17 <sup>1)</sup>						
		Material code 41, 43, C3 <sup>2)</sup>						
		L	B	c	H1	H2	H3	d
8	1	82.0	40.8	20.0	14.5	30.5	39.7	10.0
10	3	95.0	53.0	20.0	21.5	41.2	51.2	13.0
15	3	95.0	53.0	20.0	19.5	44.2	54.2	19.0
20	4	131.0	76.0	25.0	31.5	61.0	71.0	23.0
25	4	131.0	76.0	25.0	31.5	67.0	77.0	29.0

### Connection type code 59

DN	AG	Connection type code 59 <sup>1)</sup>						
		Material code 41, 43, C3 <sup>2)</sup>						
		L	B	c	H1	H2	H3	d
10	1	82.0	40.8	20.0	14.5	30.5	39.7	9.53
15	3	95.0	53.0	20.0	21.5	41.2	51.2	12.70
20	3	95.0	53.0	20.0	19.5	44.2	54.2	19.05
25	4	131.0	76.0	25.0	31.5	65.0	75.0	25.40

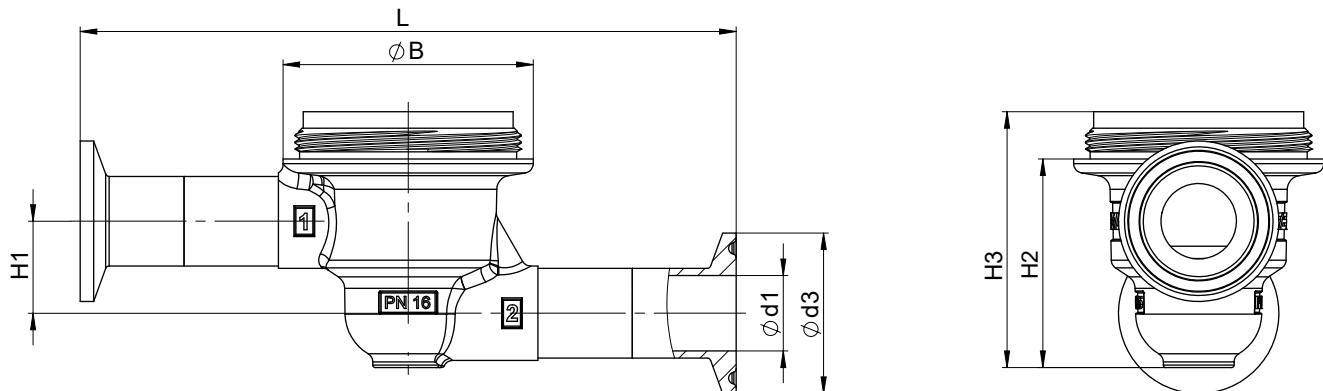
Dimensions in mm

#### 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

#### 2) Valve body material

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

**Clamp****Connection type code 86**

DN	AG	Connection type code 86 <sup>1)</sup>						
		Material code 41, 43, C3 <sup>2)</sup>						
		L	B	H1	H2	H3	d1	d3
8	1	108.0	40.8	14.5	30.5	39.7	8.0	25.0
10	3	121.0	53.0	21.5	41.2	51.2	10.0	34.0
15	3	121.0	53.0	19.5	44.2	54.2	16.0	34.0
20	4	157.0	76.0	31.5	61.0	71.0	20.0	34.0
25	4	157.0	76.0	31.5	67.0	77.0	26.0	50.5

**Connection type code 88**

DN	AG	Connection type code 88 <sup>1)</sup>						
		Material code 41, 43, C3 <sup>2)</sup>						
		L	B	H1	H2	H3	d1	d3
10	1	108.0	40.8	14.5	30.5	39.7	7.75	25.0
15	3	121.0	53.0	19.5	41.2	51.2	9.40	25.0
20	3	121.0	53.0	19.5	44.2	54.2	15.75	25.0
25	4	157.0	76.0	31.5	65.0	75.0	22.10	50.5

Dimensions in mm

1) **Connection type, spigot 1**

Code 86: Clamp DIN 32676 series A

Code 88: Clamp ASME BPE, for pipe ASME BPE

2) **Valve body material**

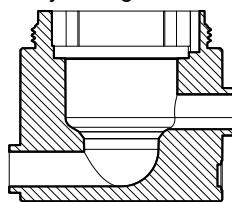
Code 41: 1.4435 (316L), block material

Code 43: 1.4435 (BN2), block material,  $\Delta$  Fe < 0.5%

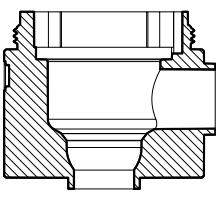
Code C3: 1.4435, investment casting

## Special body

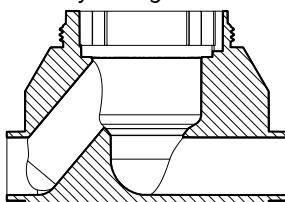
Body configuration D



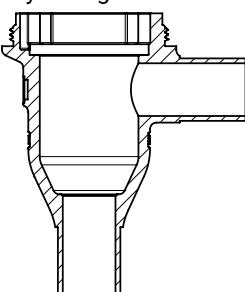
Body configuration E



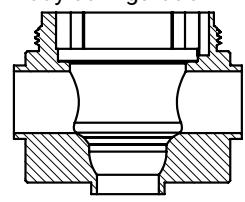
Body configuration G



Body configuration N



Body configuration T



Dimensions and installation dimensions of the special bodies on request

## 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 system, as well as for central installation in the control cabinet. The controller is absolutely essential to operating the GEMÜ F60 servoDrive and GEMÜ 567 servoDrive valves.

GEMÜ 1282 controller - IP20 version		
Description	Order code	Item number
Controller with Multi-Ethernet interface	1282 MEZ20 C1	88742953

GEMÜ 1282 controller - IP65 version		
Description	Order code	Item number
Controller with Multi-Ethernet interface	1282 MEZ65 C1	88742959

#### Overview 1282 IP20



#### Overview 1282 IP65



### GEMÜ 1219

#### Connection cables

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

Connection cables for the GEMÜ 1282 controller - IP20 version				
Description	Order code	Length	Necessity	Item number
Motor connection cable	1219000Z0300D G05M0IC15	5 m	required	88756499
Motor connection cable extension	1219000Z03DGS-G05M0IC15	5 m	optional	88756498



### GEMÜ 1219

#### Connection cables

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

Connection cables for the GEMÜ 1282 controller - IP65 version				
Description	Order code	Length	Necessity	Item number
Power supply cable	1219000Z0300D G05M0IC09	5 m	required	88756497
Motor connection cable extension	1219000Z0300D G05M0IC09	5 m	optional	88756498
Network cable M12-RJ45	1219000Z00RJS- G01M0M124D	1 m	optional	88450499
Network cable M12-RJ45	1219000Z00RJS- G04M0M124D	4 m	required	88450500
Network cable M12-RJ45	1219000Z00RJS- G15M0M124D	15 m	optional	88450502
Fieldbus cable M12-M12	1219000Z00SGS- G02M0M124D	2 m	optional	88783860
Fieldbus cable M12-M12	1219000Z00SGS- G05M0M124D	5 m	optional	88585104
Commissioning diagnostic cable USB	1219000Z03UAS- G03M0M125A	3 m	required	88756500
Cable for digital inputs/outputs M12-8pin	1219000Z0000D G05M0M128A	5 m	required	88758155



### 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. GEMÜ eSyLite, eSyStep und 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.

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

### GEMÜ HSK

#### Hook wrench with pin to DIN 1810 B

The GEMÜ HSK hook wrench serves to mount the actuator.



Mounting size	Diameter [mm]		Item number
	Actuator	Pin	
AG1	40.8	4.1	99152735

**GEMÜ HSK****Hook wrench with pin to DIN 1810 B**

The GEMÜ HSK hook wrench serves to mount the actuator.

Mounting size	Diameter [mm]		Item number
	Actuator	Pin	
<b>AG3</b>	53.0	5.0	99152738
<b>AG4</b>	76.0	6.2	99152740

