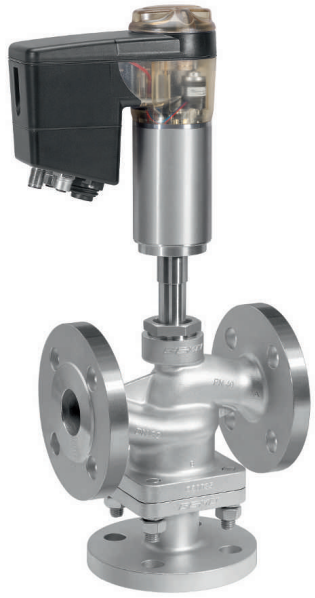
GEMÜ 343 eSyDrive

Motorized multi-port globe valve



Features

- Linear control characteristics can be implemented
- Force and speed are variably adjustable
- Extensive diagnostic facilities
- Operable via web interface eSy-Web
- Integral optical position indicator and LED high visibility display
- Suitable for vacuum up to 20 mbar (a)

Description

The GEMÜ 343 eSyDrive is a motorized 3/2-way globe valve with a hollow shaft electric actuator. The eSyDrive hollow shaft actuator can be operated as On/Off or with integrated positioner or process controller. The valve spindle is sealed by a self-adjusting gland packing providing low-maintenance and reliable valve spindle sealing even after a long service life. A wiper ring fitted in front of the gland packing protects the seal against contamination and damage. An integral optical and electrical position indicator is standard.

Technical specifications

- **Media temperature:** -10 to 180 °C
- **Ambient temperature:** -10 to 60 °C
- **Operating pressure :** 0 to 40 bar
- **Nominal sizes:** DN 15 to 100
- **Body configurations:** Multi-port body
- **Connection types:** Flange I Threaded connection
- **Connection standards:** ANSI I DIN I EN I ISO
- **Body materials:** 1.4408, investment casting material I CC499K, cast bronze material
- **Seat seal materials:** PTFE I PTFE, reinforced
- **Supply voltage:** 24 V DC
- **Actuating speed:** max. 6 mm/s
- **Protection class:** IP 65
- **Conformities:** EAC

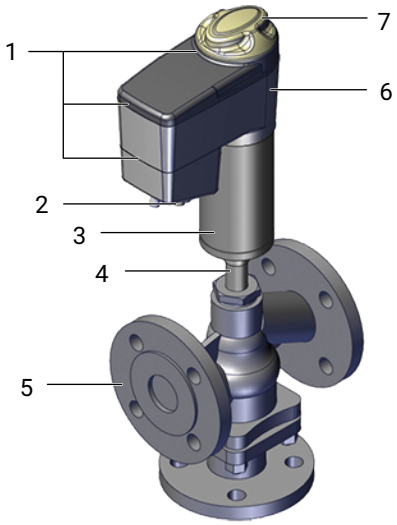
Technical data depends on the respective configuration

EAC

further information
webcode: GW-343

Product description

Construction



Item	Name	Materials
1	O-rings	EPDM
2	Electrical connections	
3	Actuator base	1.4301
4	Distance piece with leak detection hole	1.4408
5	Valve body	1.4408, cast bronze
6	Optical position indicator	PESU
7	Cover with high visibility LED, manual override and on-site control	PESU

GEMÜ CONEXO

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

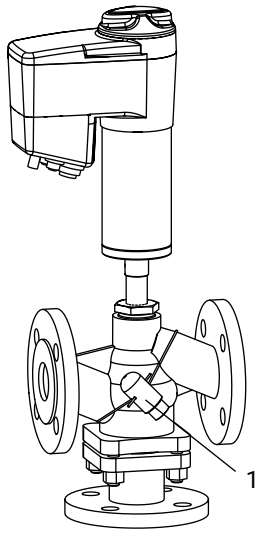
Thanks to serialization, every valve and every relevant valve component such as the body, actuator or diaphragm, and even automation components, can be clearly traced and read using the CONEXO pen RFID reader. The CONEXO app, which can be installed on mobile devices, not only facilitates and improves 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

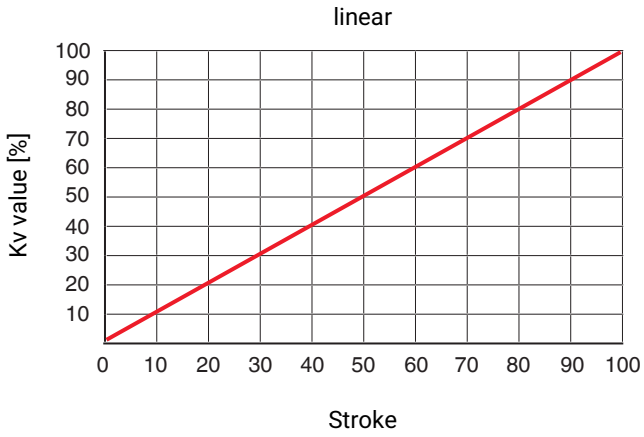
Ordering

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

In the corresponding design with CONEXO, this product has an RFID chip (1) for electronic identification purposes. The position of the RFID chip can be seen below. The CONEXO pen helps read out information stored in the RFID chips. The CONEXO app or CONEXO portal is required to view this information.

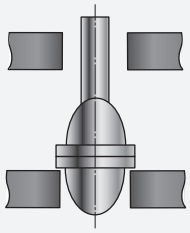
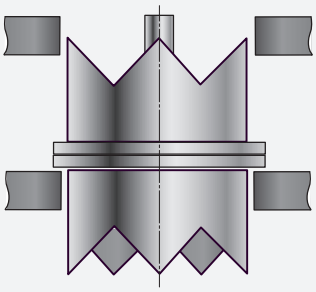


Kv value diagram

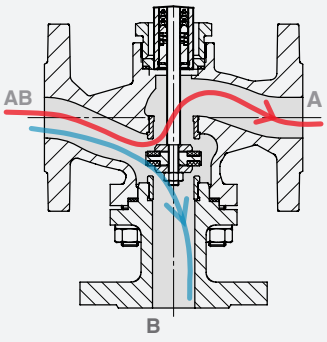
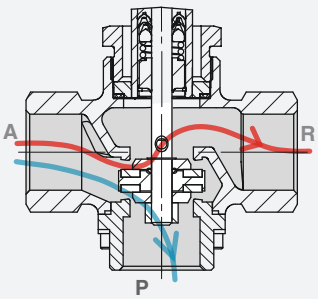
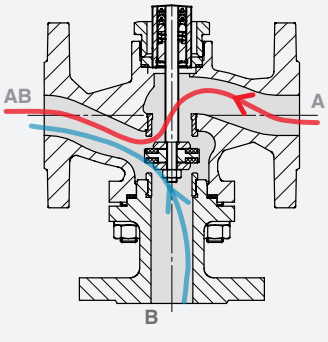
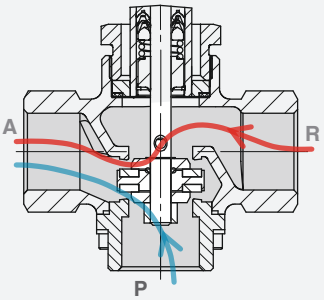


The diagram shows the approximative curve of the Kv value characteristic. The characteristic may deviate depending on valve body, nominal size, regulating cone and valve stroke.

Regulating cone/regulating cage

Regulating cone	Regulating cage
	
Regulating cone: DN 15 - 50	Regulating cage: DN 65 - 100

Functions

Flange - Distribution	Threaded socket - Distribution	Flange - Mixing	Threaded socket - Mixing
			

Availability

Availability of valve bodies

Flange

DN	Connection types code [1]				
	8		11		
	Material code 37 [2]				
	AG 1A	AG 2A	AG 0A	AG 1A	AG 2A
15	-	-	X	-	-
20	-	-	X	X	-
25	-	-	X	X	-
32	-	-	-	X	-
40	-	-	-	X	X
50	-	-	-	X	X
65	X	X	-	-	-
80	X	X	-	-	-
100	-	X	-	-	-

X = Standard
AG = actuator version

1) **Connection type**
Code 8: Flange EN 1092, PN 16, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1
Code 11: Flange EN 1092, PN 40, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1

2) **Valve body material**
Code 37: 1.4408, investment casting

Threaded connection

DN	Connection type code 1 [1]		
	Material code 9 [2]		
	AG 0A	AG 1A	AG 2A
15	X	-	-
20	X	X	-
25	X	X	-
32	-	X	-
40	-	X	X
50	-	X	X

X = Standard
AG = actuator version

1) **Connection type**
Code 1: Threaded socket DIN ISO 228

2) **Valve body material**
Code 9: CC499K, cast bronze

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
Multi-port globe valve, motorized, electro-mechanical hollow shaft actuator, body with flanged connection, eSyDrive	343

2 DN	Code
DN 15	15
DN 20	20
DN 25	25
DN 32	32
DN 40	40
DN 50	50
DN 65	65
DN 80	80
DN 100	100

3 Body configuration	Code
Multi-port design	M

4 Connection type	Code
Threaded socket DIN ISO 228	1
Flange EN 1092, PN 16, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1	8
Flange EN 1092, PN 40, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1	11

5 Valve body material	Code
CC499K, cast bronze	9
1.4408, investment casting	37

6 Seat seal	Code
PTFE	5
PTFE, glass fibre reinforced	5G

7 Voltage/frequency	Code
24 V DC	C1

8 Control module	Code
OPEN/CLOSE, positioner and process controller	L0

9 Regulating cone	Code
Please find the number of the optional regulating cone (R-No.) for the linear or equal-percentage modified regulating cone in the Kv value table.	R....

10 Actuator version	Code
Actuator size 0	0A

10 Actuator version	Code
Actuator size 1	1A
Actuator size 2	2A

11 Special version	Code
Special version for oxygen, maximum medium temperature: 60 °C, media wetted seal materials and auxiliary materials with BAM testing	S

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

Order example

Ordering option	Code	Description
1 Type	343	Multi-port globe valve, motorized, electro-mechanical hollow shaft actuator, body with flanged connection, eSyDrive
2 DN	40	DN 40
3 Body configuration	M	Multi-port design
4 Connection type	11	Flange EN 1092, PN 40, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1
5 Valve body material	37	1.4408, investment casting
6 Seat seal	5	PTFE
7 Voltage/frequency	C1	24 V DC
8 Control module	L0	OPEN/CLOSE, positioner and process controller
9 Regulating cone	RS916	60 m³/h - mod.EQ
10 Actuator version	2A	Actuator size 2
11 Special version	S	Special version for oxygen, maximum medium temperature: 60 °C, media wetted seal materials and auxiliary materials with BAM testing
12 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 seal material.

Max. permissible viscosity: 600 mm²/s (cSt)
Other versions for lower/higher temperatures and higher viscosities on request.

Temperature

Media temperature: -10 — 180 °C

Ambient temperature: -10 — 60 °C

Pressure

Operating pressure:

B – AB / AB - A

DN	Actuator version					
	0A Flange	0A Threaded socket	1A Flange	1A Threaded socket	2A Flange	2A Threaded socket
15	32	16	-	-	-	-
20	20	16	40	16	-	-
25	16	-	32	16	-	-
32	-	-	20	16	-	-
40	-	-	12	12	25	16
50	-	-	8	8	16	16
65	-	-	5	-	10	-
80	-	-	4	-	6	-
100	-	-	-	-	4	-

Pressures in bar
All pressures are gauge pressures.
For max. operating pressures the pressure / temperature correlation must be observed.

Leakage rate:

Open/Close valve

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

Control valve

Seat seal	Standard	Test procedure	Leakage rate	Test medium
FKM, PTFE	DIN EN 60534-4	1	VI	Air

Pressure/temperature correlation:

Connection types code [1]	Material code [2]	Max. allowable operating pressures in bar at temperature in °C			
		RT	100	150	200
1	**9**	16.0	16.0	16.0	13.5
8	**37**	16.0	16.0	14.5	13.4
11	**37**	40.0	40.0	36.3	33.7

All pressures are gauge pressures.
The valves may be used to -10 °C
RT = room temperature

1) **Connection type**
Code 1: Threaded socket DIN ISO 228
Code 8: Flange EN 1092, PN 16, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1
Code 11: Flange EN 1092, PN 40, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1

2) **Valve body material**
Code 9: CC499K, cast bronze
Code 37: 1.4408, investment casting

Kv values:

Open/Close valve

	Flange		Threaded socket	
DN	AB - A	B - AB	A - R	P - A
15	4.1	5.4	2.5	3.6
20	7.5	11.6	3.3	5.5
25	12.0	17.6	7.3	10.6
32	18.8	27.0	10.4	18.0
40	30.7	46.7	20.9	31.0
50	42.0	67.1	33.7	47.0
65	71.9	119.9	-	-
80	107.6	174.4	-	-
100	157.1	250.7	-	-

Kv values in m³/h
Kv values determined in accordance with DIN EN 60534. The Kv value specifications refer to the largest actuator for the respective nominal size. The Kv values for other product configurations (e.g. other connections or body materials) may differ.

Control valve - Flange

DN	Flange			
	AG 0	AG 1	AG 2	Kv value
15	RS190	-	-	4.0
20	RS191	RS193	-	6.3
25	RS192	RS194	-	10.0
32	-	RS195	-	14.0
40	-	RS196	RS200	20.0
50	-	RS197	RS231	32.0
65	-	RS198	RS232	63.0
80	-	RS199	RS233	90.0
100	-	-	RS234	140.0

Kv values in m³/h
Kv values refer to the flow direction A-AB and B-AB.

Kv values:

Control valve - Threaded socket

DN	Threaded socket			
	AG 0	AG 1	AG 2	Kv value
15	RS180	-	-	1.6
20	RS181	-	-	2.5
25	RS182	RS183	-	6.3
32	-	RS184	-	10.0
40	-	RS185	RS188	16.0
50	-	RS187	RS189	25.0

Kv values in m^3/h
Kv values refer to the flow direction A-AB and B-AB.

Product compliance

Machinery Directive: 2006/42/EC

Pressure Equipment Directive: 2014/68/EU

EMC Directive: 2014/30/EU

Technical standards used:

Interference emission
Actuator size 0, 1
DIN EN 61000-6-4
Interference emission class: Class A
Interference emission group: Group 1

Actuator size 2
DIN EN 61800-3
Category: C3

Interference resistance
DIN EN 61000-6-2 (Nov. 2019)
DIN EN 61326-1 (industry)

Mechanical data

Protection class: IP 65 acc. to EN 60529

Actuating speed:

Actuator version 0A	adjustable, max. 6 mm/s
Actuator version 1A	adjustable, max. 6 mm/s
Actuator version 2A	adjustable, max. 4 mm/s

Weight:

Actuator

Actuator version 0A	1.8 kg
Actuator version 1A	3.0 kg
Actuator version 2A	9.0 kg

Body

Weight:

DN	Flange	Threaded socket
15	3.4	0.6
20	4.9	0.7
25	5.7	1.1
32	8.5	1.8
40	9.7	2.3
50	15.8	3.4
65	19.4	-
80	24.6	-
100	32.8	-

Weights in kg

Duty cycle and service life

Service life:

Control operation - Class C acc. to EN 15714-2 (1,800,000 start-ups and 1200 start-ups per hour).

Open/Close duty – Minimum 1,000,000 switching cycles at room temperature and permissible duty cycle.

Duty cycle:

Control operation - Class C acc. to EN 15714-2.

Open/Close duty – Continuous duty

Electrical data

Supply voltage:

	Actuator size 0	Actuator size 1	Actuator size 2
Voltage	Uv = 24 V DC ± 10%		
Rating	Max. 28 W	Max. 65 W	Max. 120 W
Reverse battery protection	Yes		

Analogue input signals

Set value

Input signal: 0/4 - 20 mA; 0 – 10 V DC (selectable using software)

Input type: passive

Input resistance: 250 Ω

Accuracy/linearity: ≤ ±0.3% of full flow

Temperature drift: ≤ ±0.1% / 10°K

Resolution: 12 bit

Reverse battery protection: No

Overload proof: Yes (up to ± 24 V DC)

Process actual value

Input signal: 0/4 - 20 mA; 0 – 10 V DC (selectable using software)

Input type: passive

Input resistance: 250 Ω

Accuracy/linearity: ≤ ±0.3% of full flow

Temperature drift: ≤ ±0.1% / 10°K

Resolution: 12 bit

Reverse battery protection: No

Overload proof: Yes (up to ± 24 V DC)

Digital input signals

Digital inputs:	3
Function:	selectable using software
Voltage:	24 V DC
Logic level "1":	>14 V DC
Logic level "0":	< 8 V DC
Input current:	typ. 2.5 mA (at 24 V DC)

Analogue output signals

Actual value

Output signal:	0/4 - 20 mA; 0 – 10 V DC (selectable using software)
Output type:	Active (AD5412)
Accuracy:	≤ ±1% of full flow
Temperature drift:	≤ ±0.1% / 10°K
Load resistor:	≤ 750 kΩ
Resolution:	10 bit
Overload proof:	Yes (up to ± 24 V DC)
Short-circuit proof:	Yes

Digital output signals

Switching outputs 1 and 2

Design:	2x make contact, potential-free
Switching voltage:	max. 48 V DC / 48 V AC
Switch rating:	max. 60 W / 2A
Switch points:	Adjustable 0 - 100 %

Switching output 3

Function:	Signal fault
Type of contact:	Push-Pull
Switching voltage:	Supply voltage
Switching current:	≤ 0.1 A
Drop voltage:	Max. 2.5 V DC at 0.1 A
Overload proof:	Yes (up to ± 24 V DC)
Short-circuit proof:	Yes
Pull-Down resistance:	120 kΩ

Communication eSy-Web

Interface: Ethernet

Function: Parameterisation via web browser

IP address: 192.168.2.1 alterable via web browser

Subnet screen: 255.255.252.0 alterable via web browser

The actuator and the PC must be in the same network to use the web server. The IP address of the actuator is entered in the web browser and the actuator can then be parametrised. In order to use more than one actuator, a definitive IP address must be assigned to each actuator in the same network.

Communication Modus TCP

Interface: Modbus TCP

IP address: 192.168.2.1 alterable via web browser

Subnet screen: 255.255.252.0 alterable via web browser

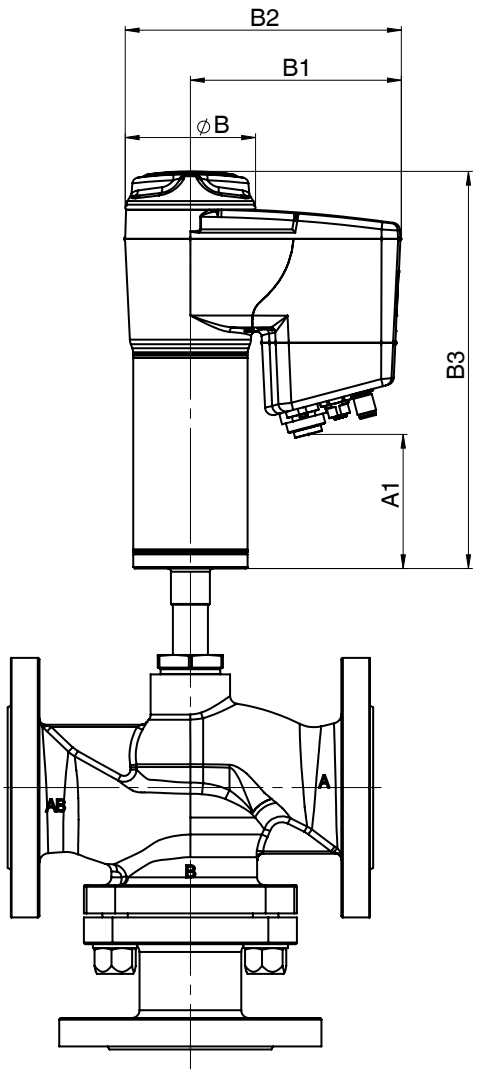
Port: 502

Supported function codes:

Code Dezimal	Code Hex	Function
3	0x03	Read Holding Registers
4	0x04	Read Input Registers
6	0x06	Write Single Register
16	0x10	Write Multiple Registers
23	0x17	Read/Write Multiple Registers

Dimensions

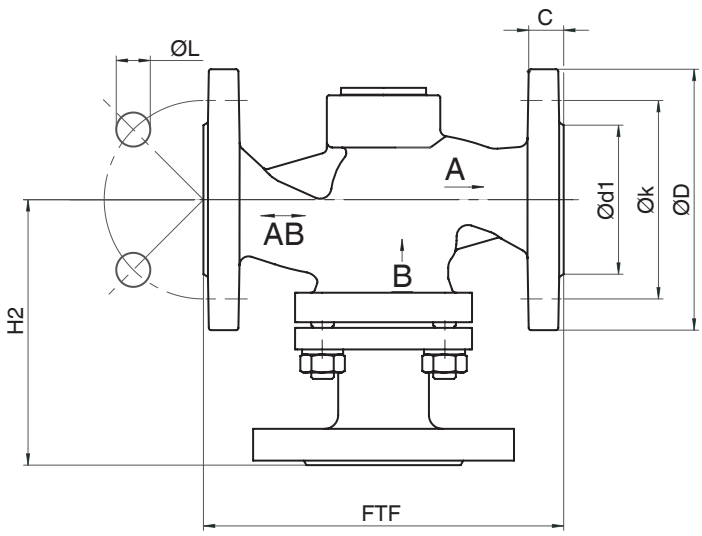
Actuator dimensions



Actuator version	A1	B	B1	B2	B3
0A	45.0	68.0	126.0	160.0	193.0
1A	86.0	82.0	132.0	172.0	252.0
2A	121.0	129.0	157.0	224.0	304.0

Body dimensions

Flange, connection code 8, 11



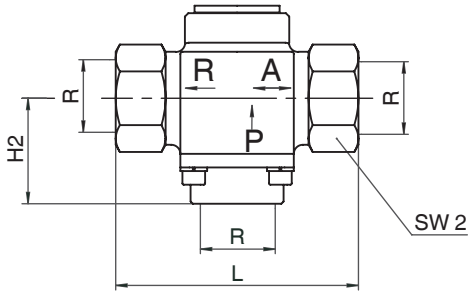
DN	Connection types code [1]													
	8							11						
	Material code 37 [2]													
	FTF	H2	ø D	ø L	c	ø K	n	FTF	H2	ø D	ø L	c	ø K	n
15	-	-	-	-	-	-	-	130.0	97.0	95.0	14.0	16.0	65.0	4
20	-	-	-	-	-	-	-	150.0	112.0	105.0	14.0	18.0	75.0	4
25	-	-	-	-	-	-	-	160.0	118.0	115.0	14.0	18.0	85.0	4
32	-	-	-	-	-	-	-	180.0	143.0	140.0	18.0	18.0	100.0	4
40	-	-	-	-	-	-	-	200.0	147.0	150.0	18.0	18.0	110.0	4
50	230.0	-	165.0	18.0	-	125.0	-	230.0	167.0	165.0	18.0	20.0	125.0	4
65	290.0	183.0	185.0	18.0	20.0	145.0	4	-	-	-	-	-	-	-
80	310.0	204.0	200.0	18.0	22.0	160.0	8	-	-	-	-	-	-	-
100	350.0	236.0	220.0	18.0	24.0	180.0	8	-	-	-	-	-	-	-

Dimensions in mm, n = number of bolts

1) **Connection type**
Code 8: Flange EN 1092, PN 16, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1
Code 11: Flange EN 1092, PN 40, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1

2) **Valve body material**
Code 37: 1.4408, investment casting

Threaded socket



DN	Connection types code 1 [1]								
	Material code 9 [2]								
	R	L	SW1	SW2	H2	CT Actuator 1	CT1 Actuator 1	CT Actuator 2	CT1 Actuator 2
15	G 1/2	75	36	27	41	192	88	-	-
20	G 3/4	87	36	32	46	196	92	-	-
25	G 1	107	41	41	47	196	92	-	-
32	G 1¼	123	55	50	66	200	96	277	125
40	G 1½	147	55	58	68	200	96	277	125
50	G 2	171	55	70	74	204	100	281	125

Dimensions in mm

1) **Connection type**
Code 1: Threaded socket DIN ISO 228

2) **Valve body material**
Code 9: CC499K, cast bronze

Electrical connections

NOTICE

Appropriate cable socket/appropriate mating connector!

The appropriate cable socket and/or appropriate mating connector is included for X1, X3 and X4.

The appropriate cable socket and/or appropriate mating connector is **not** included for X2.

Unused plugs must be covered with the enclosed caps to ensure IP protection.

Connection X1

7-pin plug, Binder, type 693

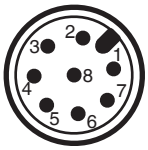
Pin	Signal name
Pin 1	Uv, 24 V DC supply voltage
Pin 2	Uv GND
Pin 3	Relay output K1, common
Pin 4	Relay output K1, make contact
Pin 5	Relay output K2, common
Pin 6	Relay output K2, make contact
Pin PE	Function earth

Connection X2

5-pin M12 built-in socket, D-coded

Pin	Signal name
Pin 1	Tx + (Ethernet)
Pin 2	Rx + (Ethernet)
Pin 3	Tx - (Ethernet)
Pin 4	Rx - (Ethernet)
Pin 5	Shield

Connection X3



8-pin M12 plug, A-coded

Pin	Signal name
Pin 1	W+ set value input
Pin 2	W – set value input
Pin 3	X + actual value output
Pin 4	GND (actual value output, digital input 1 – 3, error message output)
Pin 5	Error message output 24 V DC
Pin 6	Digital input 3
Pin 7	Digital input 1
Pin 8	Digital input 2

Connection X4

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

Pin	Signal name
Pin 1	UV, 24 V DC actual value supply
Pin 2	n.c.
Pin 3	GND (actual value supply, actual value input)
Pin 4	X+, process actual value input
Pin 5	n.c.

Accessories

GEMÜ 1218

Connector

The GEMÜ 1218 is a connector (cable socket / cable plug), 7-pin. Straight and/or 90° angled plug type.

Ordering information

GEMÜ 1218 Binder connector			
Connection X1 – supply voltage, relay outputs			
Binder plug	468/eSy series mating connector	Terminal compartment/ screws, 7-pin	88220649 [1]
		Terminal compartment/ screws, 7-pin, 90°	88377714
		Terminal compartment/ screws, 7-pin, 90°, fitted with a 2 metre cable set	88770522

1) provided in the scope of delivery

GEMÜ 1219

Cable socket / cable plug M12

The GEMÜ 1219 is a connector (cable socket / cable plug) M12, 5-pin. Straight and/or 90° angled plug type. Defined cable length or with threaded connection without cable. Various materials available for the threaded ring.

Ordering information

GEMÜ 1219 Ethernet/M12 cable			
Connection X2 - network connection			
M12 cable plug, straight, 4-pin	Fitted with a 1 metre cable set	Ethernet RJ45	88450499
	Fitted with a 4 metre cable set		88450500
	Fitted with a 15 metre cable set		88450502
M12 cable plug, angled, 4-pin	Fitted with a 4 metre cable set		88715615
Connection X3 – analogue/digital inputs and outputs			
M12 cable socket, straight, 8-pin	Without cable, for cable dia. 6-8 mm		88304829 [1)]
	Fitted with a 5 metre cable set, PUR black cable		88758155
M12 cable socket, angled, 8-pin	Without cable, for cable dia. 6-8 mm		88422823
	Fitted with a 5 metre cable set, PUR black cable		88374574
Connection X4 – actual value supply, actual value input			
M12 cable plug, straight, 5-pin	Without cable PG7	Nickel-plated brass	88208641 [1)]
	Fitted with a 2 metre cable set, PUR black cable	5 x 0.34, nickel-plated brass	88208643
	Fitted with a 5 metre cable set, PUR black cable	5 x 0.34, nickel-plated brass	88208644
M12 cable plug, angled, 5-pin	Without cable, for cable dia. 6-8 mm	Nickel-plated brass	88208645
	Fitted with a 2 metre cable set, PUR black cable	5 x 0.34, nickel-plated brass	88208649
	Fitted with a 5 metre cable set, PUR black cable	5 x 0.34, nickel-plated brass	88208650

1) provided in the scope of delivery

GEMÜ 1571

Emergency power supply module

The GEMÜ 1571 capacitive emergency power supply module is suitable for valves with motorized actuators such as GEMÜ eSyStep and eSyDrive as well as the GEMÜ C53 iComLine control valve. In the event of a power failure, the product provides an uninterrupted power supply so that the valve can be moved to the safety position. The emergency power supply module is available individually or with an expansion module and can supply several valves. The input and output voltage is 24 V.

Ordering information

GEMÜ 1571 emergency power supply module			
Input voltage	Output voltage	Capacity	Item number
24 V	24 V	1700 Ws	88660398
24 V	24 V	13200 Ws	88751062

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.

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

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