

Diaphragm Valve, Metal

Construction

The GEMÜ 618 motorized metal diaphragm valve has a low maintenance electric actuator and a reversible synchronous motor. It is operated via a non-self-locking reduction gear and cam. The valve has an integrated optical position indicator as standard. GEMÜ 618 is also available without a metal distance piece for applications with lower operating temperatures (only diaphragm size 10).

Features

- Suitable for inert and corrosive* liquid and gaseous media
- Insensitive to particulate media
- The motor will withstand being stalled under full voltage
- Valve body and diaphragm available in various materials and designs
- Suitable for use as a control valve (with integrated control module)

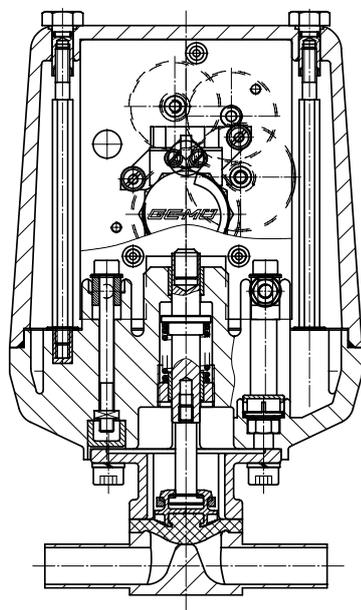
Advantages

- Direct 0/4 - 20 mA signal processing (with integrated control module)
- Opening and closing behaviour is independent of the operating pressure
- Hermetic separation between medium and actuator
- Optional flow direction
- Installation for an optimized draining is possible

*see information on working medium on page 2



Sectional drawing



Technical data

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.

Operating time

See actuator version (page 4) approx. 17 or 45 s

Protection class

IP 65 acc. to DIN 40050

Load resistor

32 Ω

Electrical data

Power supply

U_v = 24 V 50/60 Hz +/- 10%

U_v = 120 V 50/60 Hz +/- 10%

U_v = 230 V 50/60 Hz +/- 10%

Power consumption

3.5 VA

Rating

100%

Electrical connection

2 x PG 13.5 (Versions AE, AP)

2 x round connector (Binder series 717), (Versions E1, E2, E3)

Temperatures

Media temperature

Media	Mounting	Temperature range	Notes
FPM (Code 4/4A)	Direct mount	-10 ... 60 °C	With distance piece -10 ... 90 °C*
EPDM (Code 13/3A)	Direct mount	-10 ... 60 °C	With distance piece -10 ... 100 °C*
EPDM (Code 14)	Direct mount	-10 ... 60 °C	With distance piece -10 ... 90 °C*
EPDM (Code 17)	Direct mount	-10 ... 60 °C	With distance piece -10 ... 100 °C*
PTFE (Code 52/5A)	Direct mount	-10 ... 60 °C	With distance piece -10 ... 100 °C*

* only actuator version with distance piece (code B0 or B1)

Sterilisation temperature

FPM (Code 4/4A)	not applicable
EPDM (Code 13/3A)	130 °C, max. 60 min
EPDM (Code 14)	not applicable
EPDM (Code 17)	130 °C, max. 180 min
PTFE (Code 52/5A)	Constant temperature* 150 °C

The sterilisation temperature is valid for steam or superheated water

* The valves concerned must be serviced regularly if steam is applied continuously

Ambient temperature

-15 ... 55 °C

Diaphragm size	Operating pressure
	[bar]
8	0 - 6
10	0 - 6

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side of a closed valve. Sealing at the valve seat and atmospheric sealing is ensured for the given values. Information on operating pressures applied on both sides and for high purity media on request.

Kv values [m ³ /h]							
MG	DN	DIN Code 0	DIN 11850 Series 1 Code 16	DIN 11850 Series 2 Code 17	DIN 11850 Series 3 Code 18	ASME BPE Code 59	EN ISO 1127 Code 60
8	004	0.5	-	-	-	-	-
	006	1.1	-	-	-	-	1.2
	008	1.3	-	-	-	0.6	2.2
	010	-	2.1	2.1	2.1	1.3	-
	015	-	-	-	-	2.0	-
10	10	-	2.4	2.4	2.4	2.2	3.3
	15	3.3	3.8	3.8	3.8	2.2	4.0
	20	-	-	-	-	3.8	-

Kv values determined acc. to IEC 534 standard, inlet pressure 6 bar, Δp 1 bar, stainless steel valve body and soft elastomer diaphragm.
MG = diaphragm size

Order data

Body configuration	Code
Tank valve body	B**
2/2-way body	D
Multi-port design	M**
T body	T*
* For dimensions see T Valves brochure	
** Dimensions and versions on request	

Valve body material	Code
CW617N (brass)	12
1.4435 - BN2 (CF3M), investment casting Fe < 0.5 %	32
1.4435 (ASTM A 351 CF3M ≅ 316L), investment casting	34
1.4408, investment casting	37
1.4435 (316L), forged body	40
1.4435 (BN2), forged body Fe < 0.5%	42

Connection	Code
Butt weld spigots	
Spigots DIN	0
Spigots DIN 11850, series 1	16
Spigots DIN 11850, series 2	17
Spigots DIN 11850, series 3	18
Spigots DIN 11866, series A	1A
Spigots DIN 11866, series B	1B
Spigots JIS-G 3459	36
Spigots BS 4825, Part 1	55
Spigots ASME BPE	59
Spigots EN ISO 1127	60
Spigots ANSI/ASME B36.19M, Schedule 10s	63
Spigots ANSI/ASME B36.19M, Schedule 40s	65
Threaded connections	
Threaded sockets DIN ISO 228	1
Threaded spigots DIN 11851	6
One side threaded spigot, other side cone spigot and union nut, DIN 11851	62
Aseptic unions on request	
Clamp connections	
Clamps ASME BPE for pipe ASME BPE, length ASME BPE	80
Clamp DIN 32676 series B for pipe EN ISO 1127, length EN 558, series 7	82
Clamps ASME BPE for pipe ASME BPE, length EN 558, series 7	88
Clamps DIN 32676 series A for pipe DIN 11850, length EN 558, series 7	8A
For overview of available valve bodies for GEMÜ 618 see page 9	

Diaphragm material	Code
FPM	4 4A*
EPDM	13 3A*
EPDM	14
EPDM	17 17*
PTFE/EPDM, PTFE laminated	52 5A*
* for diaphragm size 8	
Material complies with FDA requirements, except codes 4, 4A and 14	

Supply voltage/mains frequency	Code
24 V 50/60 Hz	C4
120 V 50/60 Hz	G4
230 V 50/60 Hz	L4

For further order data see page 4

Order data

Functional module	Code
OPEN / CLOSE control with additional end position feedback (signal voltage = supply voltage)	AE
OPEN / CLOSE control with potentiometer output	AP
Control of valve position, actual value control inside the actuator by potentiometer set value external, 0 - 10 V	E1
Control of valve position, actual value control inside the actuator by potentiometer set value external, 0/4 - 20 mA	E2
Control of process variables, actual value external, 0/4 - 20 mA, set value external, 0/4 - 20 mA	E3

Valve body surface finish, internal contour

	Forged body Code 40, 42	Investment casting Code 32, 34	Code
Ra ≤ 6.3 µm blasted internal/external	-	X	1500
Ra ≤ 6.3 µm optical electropolishing	-	X	1509
Ra ≤ 0.8 µm mechanically polished internal, blasted external	X	X	1502
Ra ≤ 0.8 µm electropolished internal/external	X	-	1503
Ra ≤ 0.6 µm mechanically polished internal, blasted external	X	X	1507
Ra ≤ 0.6 µm electropolished internal/external	X	-	1508
Ra ≤ 0.4 µm mechanically polished internal, blasted external	X	-	1536
Ra ≤ 0.4 µm electropolished internal/external	X	-	1537
Ra ≤ 0.25 µm mechanically polished internal, blasted external	X	-	1527
Ra ≤ 0.25 µm electropolished internal/external	X	-	1516

Ra acc. to DIN 4768; at defined reference points
Surface finish data refer to medium wetted surfaces

Actuator version	Code
Operating time 17 sec. (not possible for diaphragm size 8)	A0
Operating time 45 sec. (not possible for diaphragm size 8)	A1
Operating time 17 sec., with distance piece	B0
Operating time 45 sec., with distance piece	B1

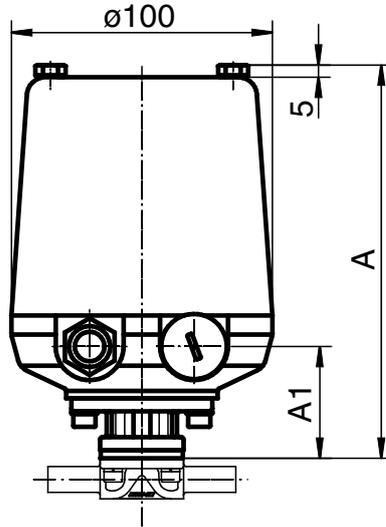
Order example	618	10	D	60	40	13	L4	AE	1516	A0
Type	618									
Nominal size*		10								
Body configuration (code)			D							
Connection (code)				60						
Valve body material (code)					40					
Diaphragm material (code)						13				
Supply voltage/mains frequency (code)							L4			
Functional module (code)								AE		
Surface finish									1516	
Actuator version										A0

* Diaphragm size 8: Always state the nominal size in the range DN 004 – 015

Actuator dimensions [mm]

MG	DN	Actuator version	A	A 1	Weight [kg]
8	004 - 015	B0, B1	152	44	0.85

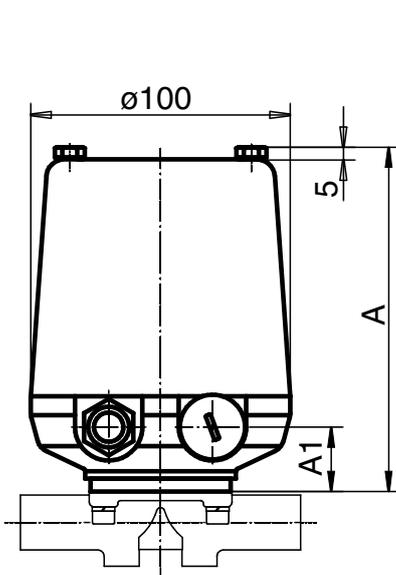
MG = Diaphragm size



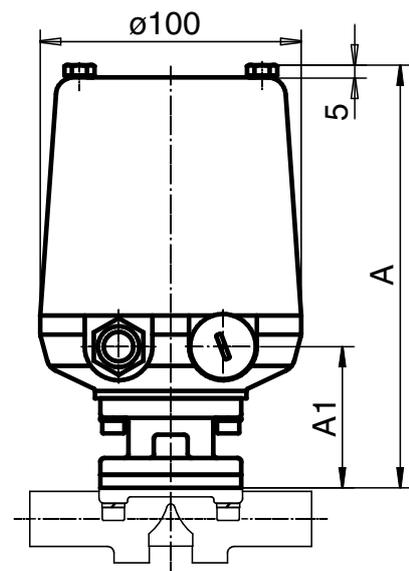
Actuator version B0, B1
with metal distance piece

MG	DN	Actuator version	A	A 1	Weight [kg]
10	10 - 20	A0, A1	134	25	0.95
	10 - 20	B0, B1	164	55	

MG = Diaphragm size



Actuator version A0, A1
Direct mount



Actuator version B0, B1
with metal distance piece

Body dimensions [mm]

Butt weld spigots, connection code 0, 16, 17, 18 Valve body material: Investment casting (code 34), forged body (code 40)

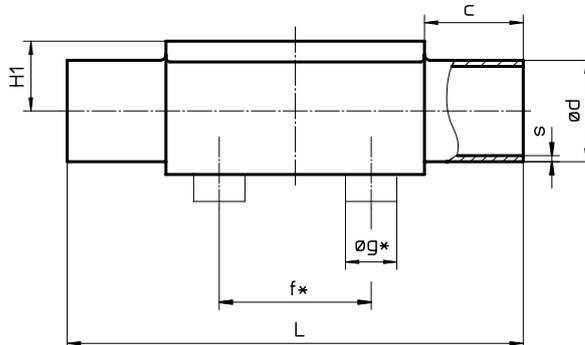
MG	DN	NPS	f*	øg*	L	c	H1	DIN Series 0 Code 0		DIN 11850 Series 1 Code 16		DIN 11850 Series 2 Code 17		DIN 11850 Series 3 Code 18		Weight [kg]
								ød	s	ød	s	ød	s	ød	s	
8	4	-	-	-	72	20	8.5	6	1.0	-	-	-	-	-	-	0.09
	6	-	-	-	72	20	8.5	8	1.0	-	-	-	-	-	-	0.09
	8	1/4"	-	-	72	20	8.5	10	1.0	-	-	-	-	-	-	0.09
	10	3/8"	-	-	72	20	8.5	-	-	12	1.0	13	1.5	14	2.0	0.09
	15	1/2"	-	-	72	20	8.5	-	-	-	-	-	-	-	-	0.09
10	10	3/8"	30	13.5	108	25	12.5	-	-	12	1.0	13	1.5	14	2.0	0.30
	15	1/2"	30	13.5	108	25	12.5	18	1.5	18	1.0	19	1.5	20	2.0	0.30
	20	3/4"	30	13.5	108	25	12.5	-	-	-	-	-	-	-	-	0.30

* only for investment cast design MG = diaphragm size For materials see overview on page 9

Butt weld spigots, connection code 1A, 1B, 60 Valve body material: Investment casting (code 34), forged body (code 40)

MG	DN	NPS	f*	øg*	L	c	H1	DIN 11866 Series A Code 1A		DIN 11866 Series B Code 1B		EN ISO 1127 Code 60		Weight [kg]
								ød	s	ød	s	ød	s	
8	4	-	-	-	72	20	8.5	-	-	-	-	-	-	0.09
	6	-	-	-	72	20	8.5	8	1.0	10.2	1.6	10.2	1.6	0.09
	8	1/4"	-	-	72	20	8.5	10	1.0	13.5	1.6	13.5	1.6	0.09
	10	3/8"	-	-	72	20	8.5	13	1.5	-	-	-	-	0.09
	15	1/2"	-	-	72	20	8.5	-	-	-	-	-	-	0.09
10	10	3/8"	30	13.5	108	25	12.5	13	1.5	17.2	1.6	17.2	1.6	0.30
	15	1/2"	30	13.5	108	25	12.5	19	1.5	21.3	1.6	21.3	1.6	0.30
	20	3/4"	30	13.5	108	25	12.5	-	-	-	-	-	-	0.30

* only for investment cast design MG = diaphragm size For materials see overview on page 9



Body dimensions [mm]

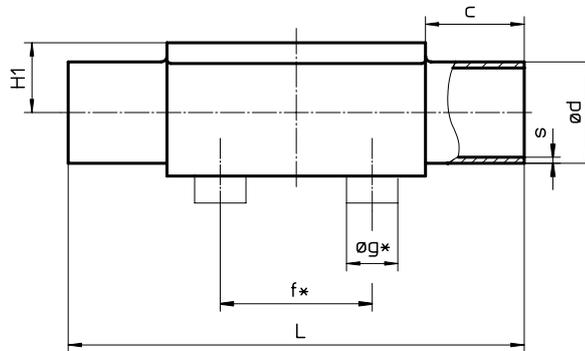
Butt weld spigots, connection code 36, 55, 59, 63, 65
Valve body material: Investment casting (code 34), forged body (code 40)

								JIS-G 3459 Code 36		BS 4825 Code 55		ASME BPE Code 59		ANSI/ASME B36.19M 10s Code 63		ANSI/ASME B36.19M 40s Code 65		Weight
MG	DN	NPS	f*	øg*	L	c	H1	ød	s	ød	s	ød	s	ød	s	ød	s	[kg]
8	4	-	-	-	72	20	8.5	-	-	-	-	-	-	-	-	-	-	0.09
	6	-	-	-	72	20	8.5	10.5	1.20	-	-	-	-	10.3	1.24	10.3	1.73	0.09
	8	1/4"	-	-	72	20	8.5	13.8	1.65	6.35	1.2	6.35	0.89	13.7	1.65	13.7	2.24	0.09
	10	3/8"	-	-	72	20	8.5	-	-	9.53	1.2	9.53	0.89	-	-	-	-	0.09
	15	1/2"	-	-	72	20	8.5	-	-	12.70	1.2	12.70	1.65	-	-	-	-	0.09
10	10	3/8"	30	13.5	108	25	12.5	17.3	1.65	9.53	1.2	9.53	0.89	17.1	1.65	17.1	2.31	0.30
	15	1/2"	30	13.5	108	25	12.5	21.7	2.10	12.70	1.2	12.70	1.65	21.3	2.11	21.3	2.77	0.30
	20	3/4"	30	13.5	108	25	12.5	-	-	19.05	1.2	19.05	1.65	-	-	-	-	0.30

* only for investment cast design

MG = diaphragm size

For materials see overview on page 9

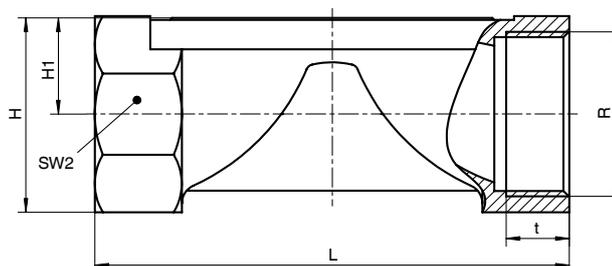


Threaded sockets, connection code 1
Valve body material: Brass (code 12), investment casting (code 37)

MG	DN	R	Material code 12						Material code 37						Weight [kg]
			L	H	H1	t	SW2	Number of flats	L	H	H1	t	SW2	Number of flats	
8	008	G 1/4	-	-	-	-	-	-	72	19	9	11	18	6	0.09
10	12	G 3/8	55	23	11	13	22	2	55	25	13	12	22	2	0.17
	15	G 1/2	75	29	14	15	25	2	68	30	15	15	27	2	0.26

MG = diaphragm size

For materials see overview on page 9

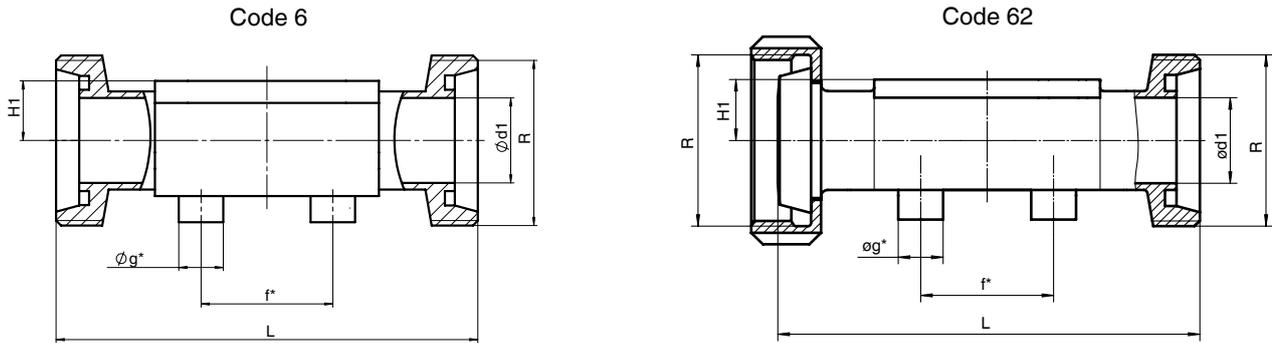


Body dimensions [mm]

Threaded connections, connection code 6, 62 Valve body material: Investment casting (code 34), forged body (code 40)

MG	DN	H1	f*	øg*	ød1	Thread to DIN 405 R	Code 6 L	Code 62 L	Weight [kg]
8	010	8.5	-	-	10.0	RD 28 x 1/8	92	90	0.21
10	10	12.5	30.0	13.5	10.0	RD 28 x 1/8	118	116	0.33
	15	12.5	30.0	13.5	16.0	RD 34 x 1/8	118	116	0.35

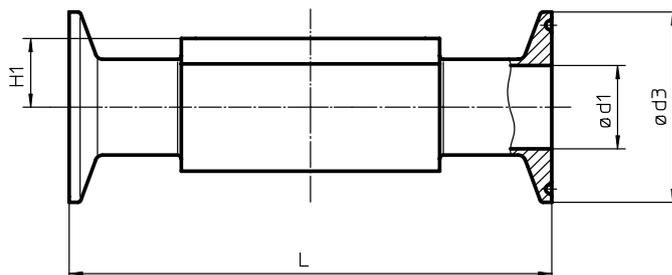
* only for investment cast design MG = diaphragm size For materials see overview on page 9



Clamp connections, connection code 80, 82, 88, 8A Valve body material: Forged body (code 40)

MG	DN	NPS	H1	for pipe ASME BPE code 80			for pipe EN ISO 1127 Code 82			for pipe ASME BPE code 88			for pipe DIN 11850 Code 8A			Weight [kg]
				ød1	ød3	L	ød1	ød3	L	ød1	ød3	L	ød1	ød3	L	
8	006	1/8"	8.5	-	-	-	7.0	25.0	63.5	-	-	-	6	25.0	63.5	-
	008	1/4"	8.5	4.57	25	63.5	10.3	25.0	63.5	-	-	-	8	25.0	63.5	0.15
	010	3/8"	8.5	7.75	25	63.5	-	-	-	-	-	-	10	34.0	88.9	0.18
	015	1/2"	8.5	9.40	25	63.5	-	-	-	9.40	25.0	108	-	-	-	0.18
10	10	3/8"	12.5	-	-	-	14.0	25.0	108.0	-	-	-	10	34.0	108.0	0.30
	15	1/2"	12.5	9.40	25	88.9	18.1	50.5	108.0	9.40	25.0	108	16	34.0	108.0	0.43
	20	3/4"	12.5	15.75	25	101.6	-	-	-	15.75	25.0	117	-	-	-	0.43

MG = diaphragm size



Overview of valve bodies for GEMÜ 618

		Spigots																		
Connection code		0		16		17		18		1A	1B	36	55		59		60		63	65
Material code		34	40	34	40	34	40	34	40	40	40	40	34	40	34	40	34	40	40	40
MG	DN																			
8	004	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	006	X	X	-	-	-	-	-	-	X	X	X	-	-	-	-	-	X	X	X
	008	X	X	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X
	010	-	-	X	X	X	X	X	X	X	-	-	X	X	X	X	-	-	-	-
	015	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-
10	10	-	-	X	X	X	X	X	X	X	X	X	-	X	-	X	X	X	X	X
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	15	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X
	20	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-	-

MG = diaphragm size

Availability of material code 32 same as code 34; code 42 same as code 40

		Threaded connections						Clamps			
Connection code		1		6		62		80	82	88	8A
Material code		12	37	34	40	34	40	40	40	40	40
MG	DN										
8	004	-	-	-	-	-	-	-	-	-	-
	006	-	-	-	-	-	-	-	K	-	K
	008	-	X	-	-	-	-	K	K	-	K
	010	-	-	W	W	W	W	K	-	-	W
	015	-	-	-	-	-	-	K	-	W	-
10	10	-	-	W	W	W	W	-	K	-	K
	12	X	X	-	-	-	-	-	-	-	-
	15	X	X	W	W	W	W	K	W	K	K
	20	-	-	-	-	-	-	K	-	K	-

X Standard

K Connections completely machined (not welded)

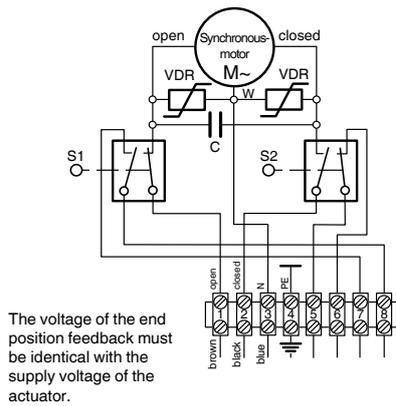
W Welded construction

MG = diaphragm size

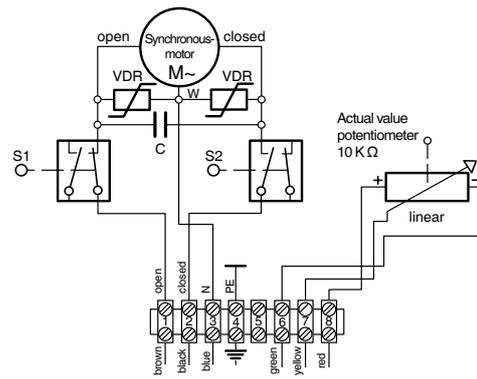
Availability of material code 32 same as code 34; code 42 same as code 40

Connection diagram

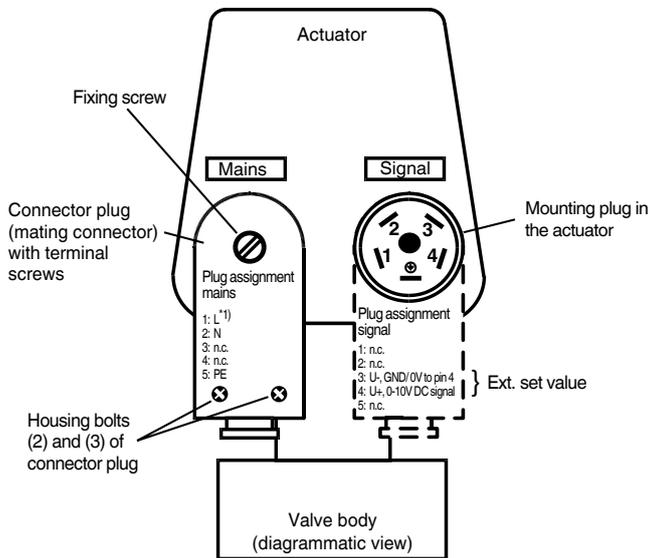
Connection diagram - Functional module code AE



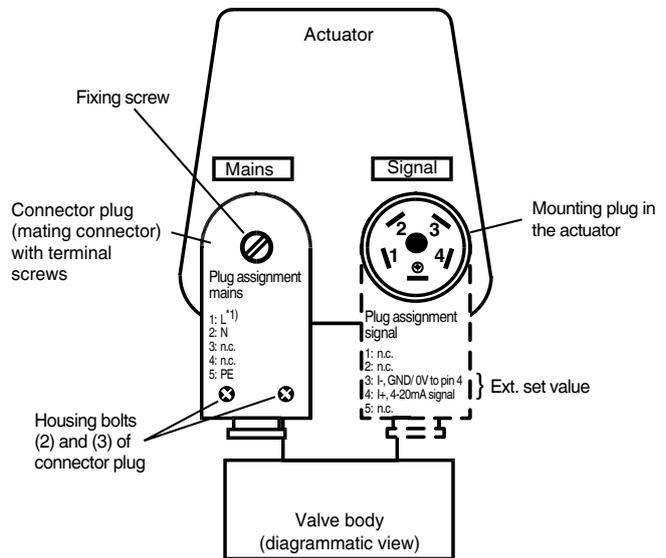
Connection diagram - Functional module code AP



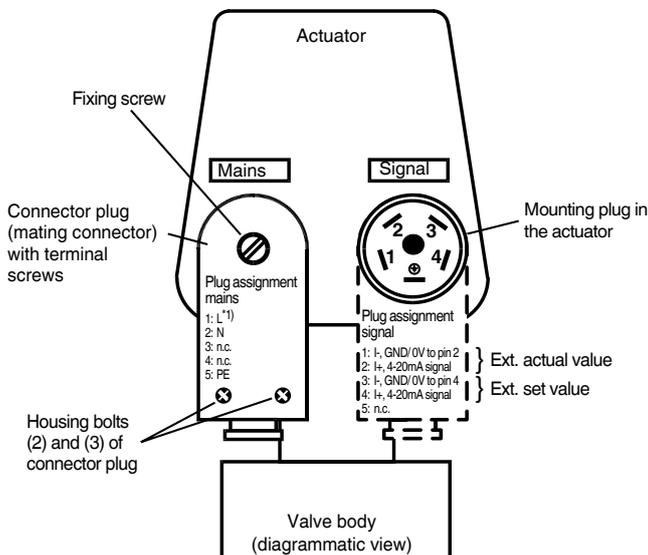
Connection diagram - Functional module code E1



Connection diagram - Functional module code E2

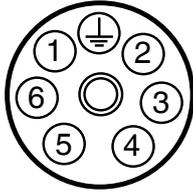


Connection diagram - Functional module code E3



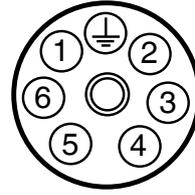
*1) For the supply voltage (mains) check the details on the product label (24, 120, or 230 VAC).
N.C. = (not connected)

Functional module AE OPEN / CLOSE control with 2 additional end position feedback signals and Hirschmann plug N 6 R AM2 (design: 6027)



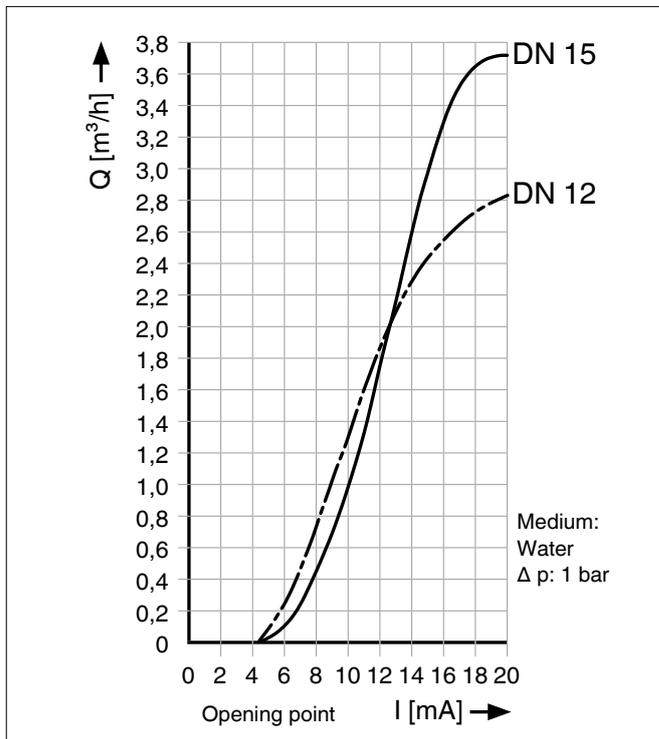
Pin	Designation
1	L1, motor voltage for direction of travel OPEN
2	L1, motor voltage for direction of travel CLOSED
3	N, reference voltage
4	L1, S1/S2 (23) limit switch
5	Us, S2 (24) CLOSED end position [Us=Ub]
6	Us, S1 (24) OPEN end position [Us=Ub]
7	⏏, PE

Functional module AP OPEN / CLOSE control with potentiometer output and Hirschmann plug N 6 R AM2 (design: 6027)



Pin	Designation
1	L1, motor voltage for direction of travel OPEN
2	L1, motor voltage for direction of travel CLOSED
3	N, reference voltage
4	Us +, actual value potentiometer, signal voltage
5	Us -, actual value potentiometer, signal output
6	Us ⏏, actual value potentiometer, signal voltage
7	⏏, PE

Characteristic progress with functional module E2 or 3-point controller GEMÜ 1283



For further metal diaphragm valves, accessories and other products, please see our Product Range catalogue and Price List. Contact GEMÜ.

GEMÜ® VALVES, MEASUREMENT AND CONTROL SYSTEMS

