

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
- 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)
- Insensitive to particulate media

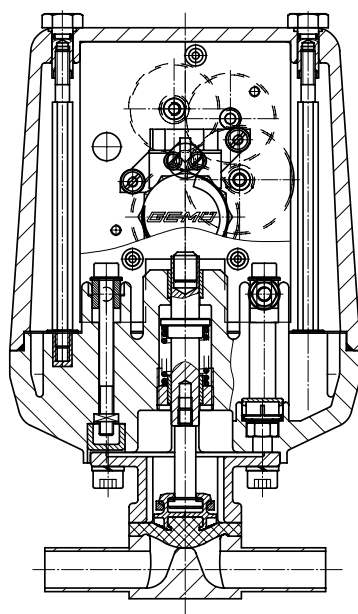
Advantages

- 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, will seal in either flow direction up to full operating pressure
- Optional mounting position

*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.

Medium temperature	
Direct mount	+ 60 °C
With distance piece	+ 130 °C

Ambient conditions

Ambient temperature	-15 to +55 °C
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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	Continuously rated
Electrical connection	2 x PG 13.5 (Versions AE, AP) 2 x round connector (Binder series 717) (Versions E1, E2, E3)

Protection class

IP 65 acc. to DIN 40050

Operating time

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

Load resistor

32 Ω

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 [m³/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

Diaphragm temperature range [°C]

Diaphragm	Liquid Media			Steam** (Sterilisation)	Code
	Min.	Max.	Max.**		
EPDM	-10	60	90	130 °C, max. 60 min	13/3A
EPDM	-10	60	90	not applicable	14
EPDM	-10	60	90	130 °C, max. 60 min	16/6A
EPDM	-10	60	90	130 °C, max. 180 min	17
PTFE	-10	60	90	Constant temperature* 150 °C	52/5A
FPM	-10	60	90	not applicable	4/4A

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

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

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 \triangleq 316L), investment casting	34
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 10	

Diaphragm material	Code
FPM	4 4A*
EPDM	13 3A*
EPDM	14
EPDM	16 6A*
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

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

For further order data see page 4

Order data

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
--	electropolished	-	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

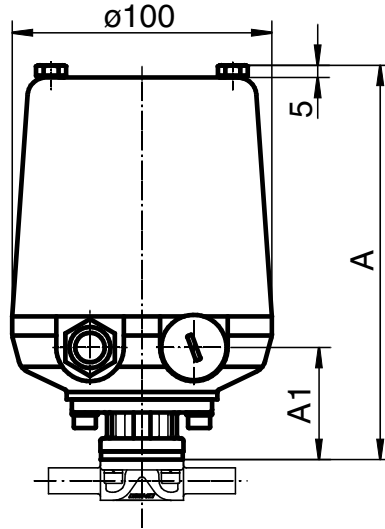
Order example	618	10	D	60	40	13	L4	AE	1516	A0
Type	618									
Nominal size*		10								
Body configuration (code)			D							
Connection (code)				60						
Valve body material (code)					40					
Diaphragm material (code)						13				
Supply voltage/mains frequency (code)							L4			
Functional module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

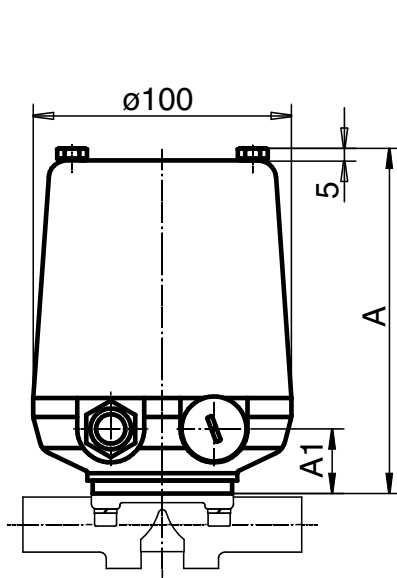
MG = Diaphragm size



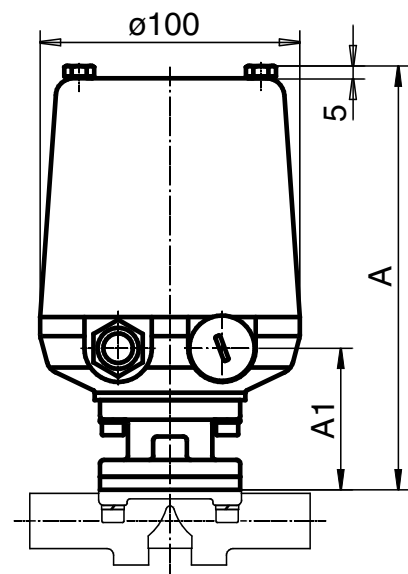
Actuator version B0, B1
with metal distance piece
for max. 130°C

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
for max. 60°C



Actuator version B0, B1
with metal distance piece
for max. 130°C

Body dimensions [mm]

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

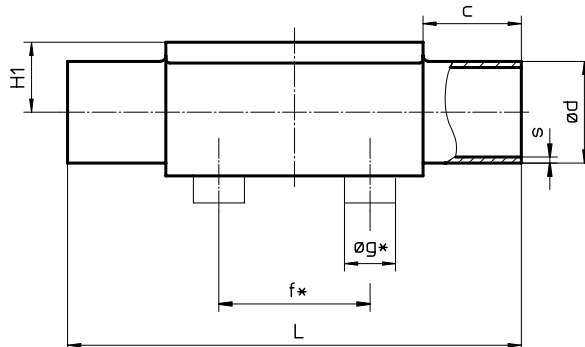
MG	DN	NPS	f*	øg*	L	c	H1	DIN Series 0 Code 0		DIN 11850 Series 1 Code 16		DIN 11850 Series 2 Code 17		DIN 11850 Series 3 Code 18		Weight [kg]
								ød	s	ød	s	ød	s	ød	s	
8	4	-	-	-	72	20	8.5	6	1.0	-	-	-	-	-	-	0.09
	6	-	-	-	72	20	8.5	8	1.0	-	-	-	-	-	-	0.09
	8	1/4"	-	-	72	20	8.5	10	1.0	-	-	-	-	-	-	0.09
	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 10

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 10



Body dimensions [mm]

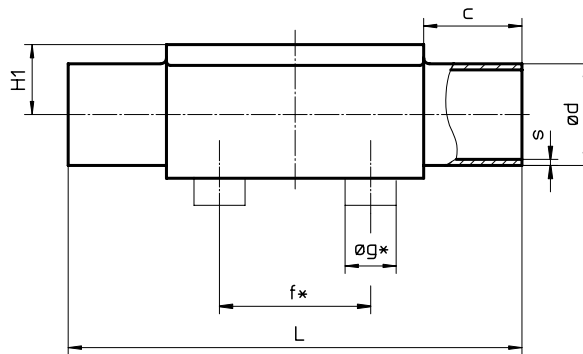
Butt weld spigots, connection code 36, 55, 59, 63, 65 Valve body material: Investment casting (code 34), forged body (code 40)

MG	DN	NPS	f*	øg*	L	c	H1	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 [kg]
								ød	s	ød	s	ød	s	ød	s	ød	s	
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 10

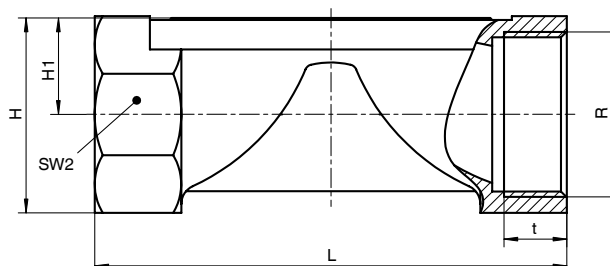


Threaded sockets, connection code 1 Valve body material: Brass (code 12), investment casting (code 34)

MG	DN	R	H	H1	t	L		SW2		Number of flats	Weight [kg]
						Material Code 12	Material Code 34	Material Code 12	Material Code 34		
8	008	G1/4	19	8.5	12	-	72	-	17	2	0.09
10	12	G3/8	23	10.5	13	55	55	22	22	2	0.17
	15	G1/2	29	13.5	15	75	68	25	24	2	0.26

MG = diaphragm size

For materials see overview on page 10



Body dimensions [mm]

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

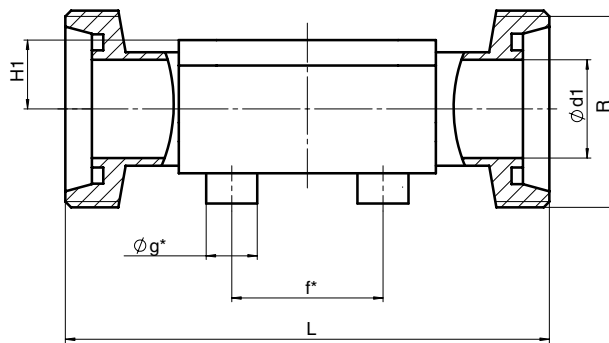
MG	DN	H1	f*	øg*	ød1	Thread to DIN 405 R	Code 6 L	Code 62 L	Weight [kg]
8	010	8.5	-	-	10.0	RD 28 x 1/8	92	90	0.21
10	10	12.5	30.0	13.5	10.0	RD 28 x 1/8	118	116	0.33
	15	12.5	30.0	13.5	16.0	RD 34 x 1/8	118	116	0.35

* only for investment cast design

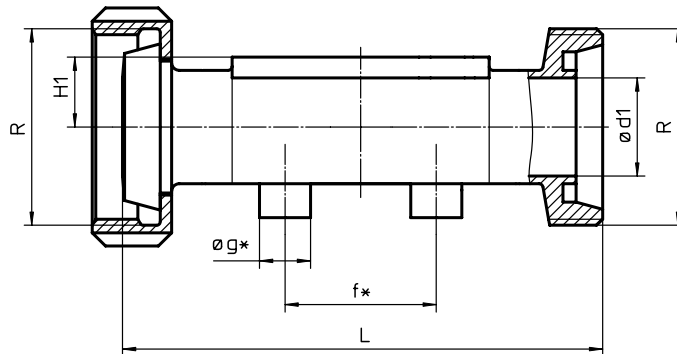
MG = diaphragm size

For materials see overview on page 10

Code 6



Code 62

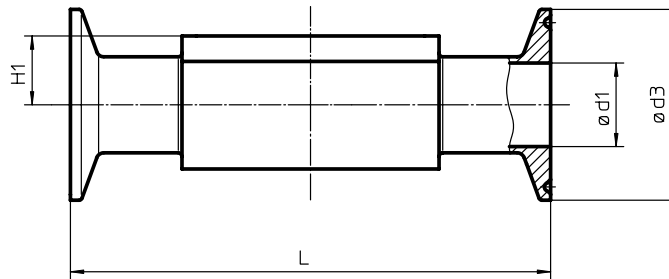


Body dimensions [mm]

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

				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
MG	DN	NPS	H1	ød1	ød3	L	ød1	ød3	L	ød1	ød3	L	ød1	ød3	L	[kg]
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

Overview of valve bodies for GEMÜ 618

		Threaded connections						Clamps			
Connection code		1		6		62		80	82	88	8A
Material code		12	34	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

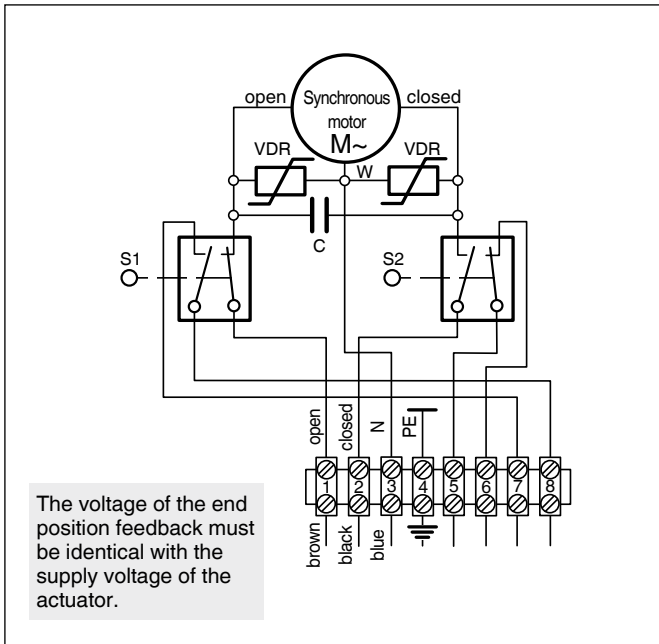
K Connections completely machined (not welded) in material code 40

W Welded construction

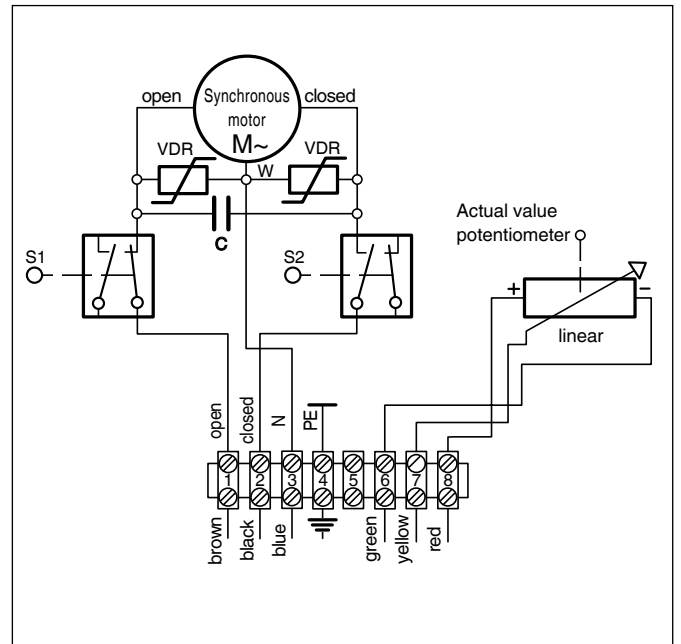
MG = diaphragm size

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

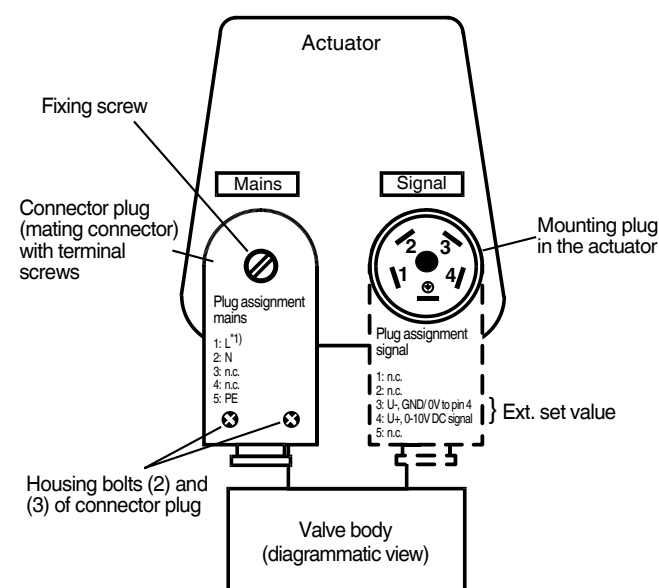
Connection diagram - Functional module code AE



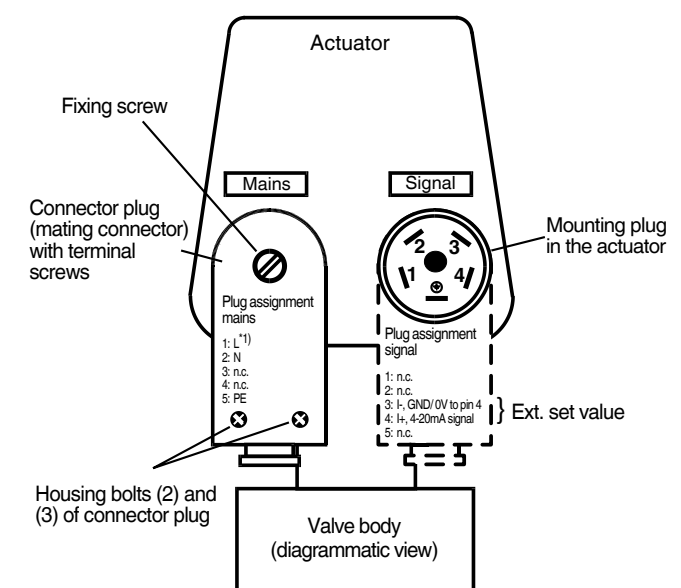
Connection diagram - Functional module code AP



Connection diagram - Functional module code E1

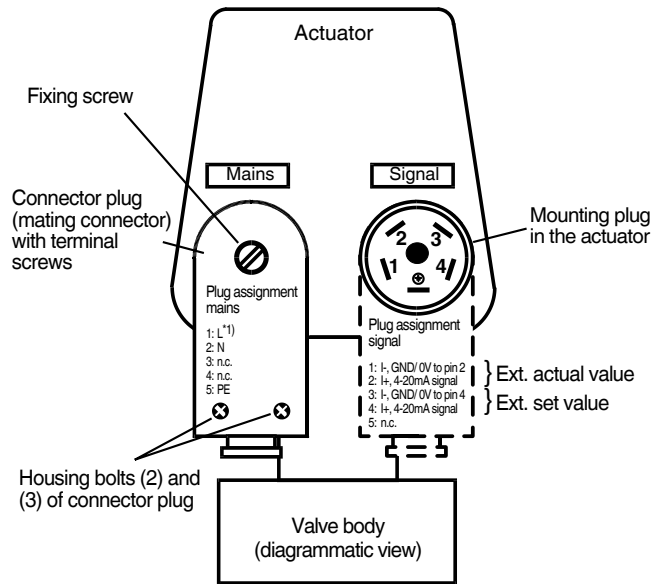


Connection diagram - Functional module code E2



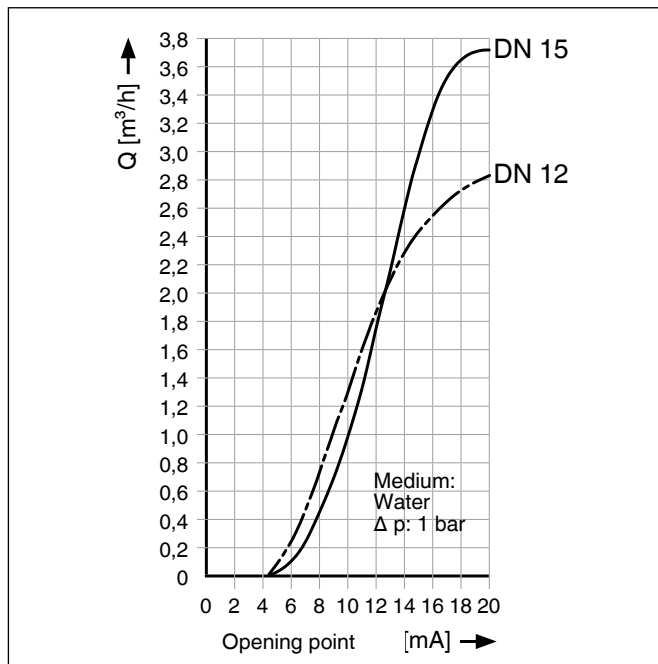
*1) For the supply voltage (mains) check the details on the product label (24, 120, or 230 VAC). N.C. = (not connected)

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)

Characteristic progress with functional module E2 or 3-point controller 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

