GEMÜ®

Diaphragm Valve, Plastic

Construction

The GEMÜ 613 motorized plastic 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.

Features

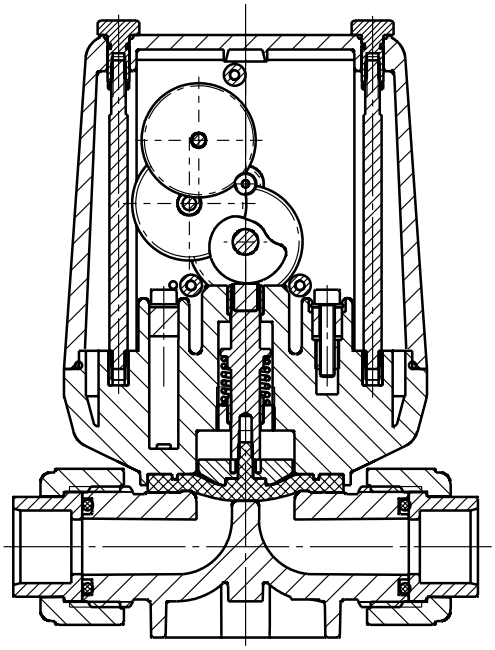
- Suitable for inert and corrosive* liquid and gaseous media
- Insensitive to particulate media
- Direct 0-10V, 0/4-20 mA signal processing using an additional module or an integrated control module
- Electrical position feedback by means of a potentiometer (additional module) or limit switches
- Consistent control system and reliable opening and closing action
- Valve in DN 15 with union ended body can be fitted to the pipeline without additional connection elements
- Optional flow direction

Advantages

- Long life synchronous motor, no danger of burn-out
- Opening and closing behaviour is independent of the operating pressure
- Good flow capability
- High efficiency

*see information on working medium on page 2

Sectional drawing



GEMÜ® 613

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.

Working medium temperature

Valve body PVC-U	10 to 60 °C
Valve body PP	5 to 80 °C
Valve body PVDF	-20 to 80 °C

The permissible operating pressure depends on the working medium temperature.

Ambient temperature

Valve body PVC-U	10 to 50 °C
Valve body PP	5 to 50 °C
Valve body PVDF	-10 to 50 °C

Electrical data

Power supply	Uv = 24 V 50/60 Hz +/- 10% Uv = 120 V 50/60 Hz +/- 10% Uv = 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 3)	approx. 17 or 45 s

O-ring material for valve bodies with union ends

Diaphragm material	O-ring material
NBR	EPDM
FPM	FPM
EPDM	EPDM
PTFE	FPM

Other combinations on request

Pressure / temperature correlation for plastic

Temperature in °C (plastic body		-20	-10	±0	5	10	20	25	30	40	50	60	70	80
Valve body material		Permissible operating pressure in bar												
PVC-U	Code 1	-	-	-	6.0	6.0	6.0	6.0	4.8	3.6	2.1	0.9	-	-
PP	Code 5	-	-	-	-	6.0	6.0	6.0	5.1	4.2	3.3	2.4	1.6	0.9
PVDF	Code 20	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.4	4.8	4.3	3.8	3.2	2.8

Data for extended temperature ranges on request. Please note that the ambient temperature and medium temperature generate a combined temperature at the valve body which must not exceed the above values.

Diaphragm size	Nominal size	Operating pressure	Kv value [m^3/h]	Weight
	[DN]	[bar]	ISO connection	[g]
10	12	0 - 6	2.8	1000
	15	0 - 6	3.5	1050

All pressures are given as gauge pressures, when applied upstream only. Kv values determined acc. to IEC 534 standard, inlet pressure 6 bar, Δp 1 bar, PVC-U valve body and soft elastomer diaphragm.

Order data

Body configuration	Code
2/2-way body	D

Connection	Code
Threaded sockets DIN ISO 228	1
Solvent cement sockets DIN	2
Union ends with DIN insert (socket)	7
Spigots for IR butt welding, BCF	28
Union ends with inch insert - BS (socket)	33
Union ends with DIN insert (for IR butt welding)	78

Valve body material	Code
PVC-U, grey	1
PP, reinforced	5
PVDF	20

Diaphragm material	Code
NBR	2
FPM	4
EPDM	14
PTFE/EPDM, PTFE laminated	52

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

Integrated mounting plate	Code
With integrated mounting plate only material code 20	M
Without mounting plate only material code 20	O
Without mounting plate material code 1 and 5	-

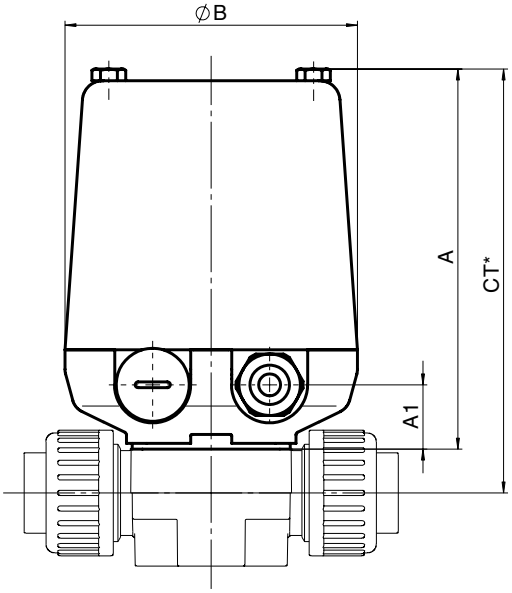
Actuator version	Code
Operating time 17 sec.	A0
Operating time 45 sec.	A1

Order example	613	15	D	7	1	14	C4	AE	M	A0
Type	613									
Nominal size		15								
Body configuration (code)			D							
Connection (code)				7						
Valve body material (code)					1					
Diaphragm material (code)						14				
Supply voltage/mains frequency (code)							C4			
Functional module (code)								AE		
Integrated mounting plate (code)									M	
Actuator version (code)										A0

Actuator dimensions [mm]

MG	DN	ø B	A	A1	Weight [kg]
10	12 + 15	100	134	25	0,9

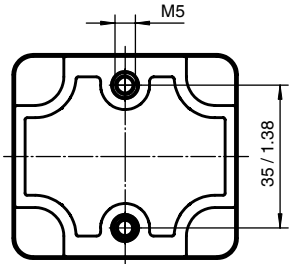
MG = diaphragm size



* CT = A + H1 (see body dimensions)

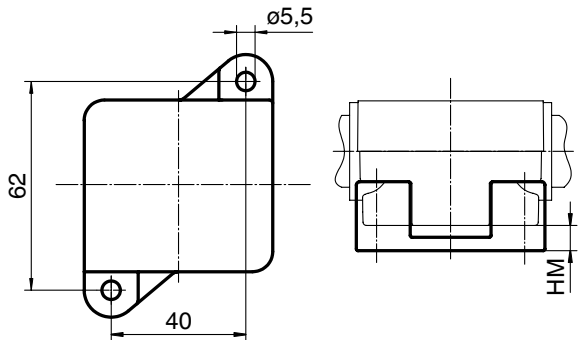
Valve body mounting dimensions [mm] (without mounting plate)

Diaphragm size	M	f
10	M5	35.0



Dimensions - Mounting plate code M [mm]

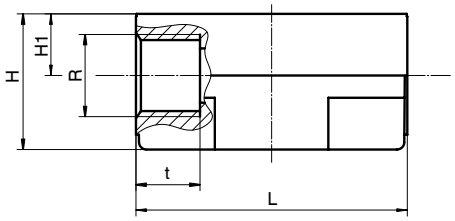
Diaphragm size	Material code 20	H
10	DN 12	5.0
	DN 15	4.5



Body dimensions [mm]

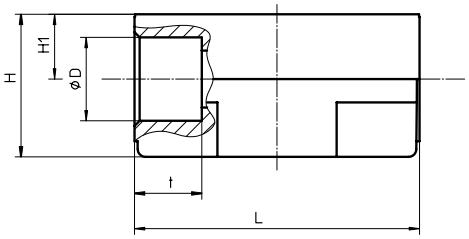
Threaded sockets, connection code 1 Valve body material: PVC-U (code 1), PP (code 5), PVDF (code 20)									
MG	DN	R	t	H		H1		L	Weight [kg]
				Material code 1, 5	Material code 20	Material code 1, 5	Material code 20		
10	12	G3/8	13	27.5	31.5	12.5	12.5	55	0.08

For materials see overview on page 7 MG = diaphragm size



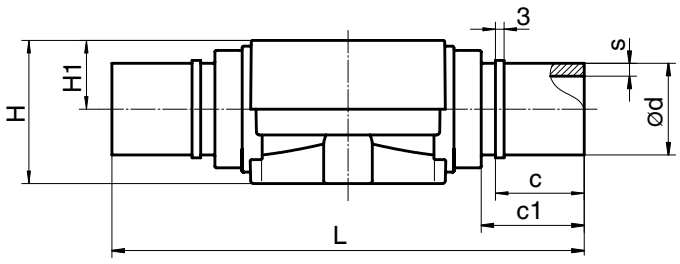
Solvent cement sockets, connection code 2 Valve body material: PVC-U (code 1)							
MG	DN	ø D	t	H	H1	L	Weight [kg]
10	12	16	13	27.5	12.5	55	0.06

MG = diaphragm size



Spigots for IR butt welding, BCF, connection code 28 Valve body material: PVDF (code 20)									
MG	DN	L	H	H1	ød	s	c	c1	Weight [kg]
10	15	134	41	16	20	1.9	31	37	0.13

MG = diaphragm size



Body dimensions [mm]

Union ends with DIN insert (socket), connection code 7
Valve body material: PVC-U (code 1), PP (code 5), PVDF (code 20)

MG	DN	L1	L2		H		H1		øD	ød	R	Weight [kg]
			Material code 1, 20	Material code 5	Material code 1, 5	Material code 20	Material code 1, 5	Material code 20				
10	15	90	128	125	30	41	15	16	43	20	G1	0.18

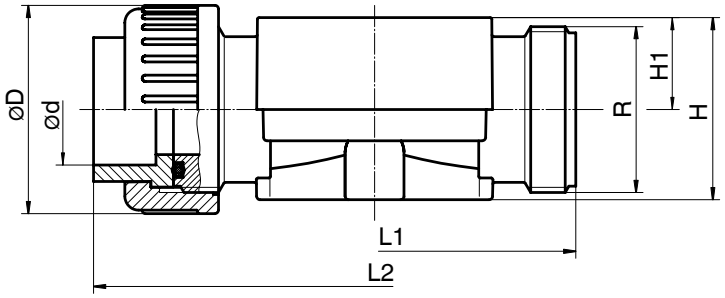
For materials see overview on page 7

MG = diaphragm size

Union ends with inch insert (socket), connection code 33
Valve body material: PVC-U (code 1)

MG	DN	NPS	L1	L2	H	H1	øD	ød	R	Weight [kg]
10	15	1/2“	90	128	30	15	43	21.4	G1	0.13

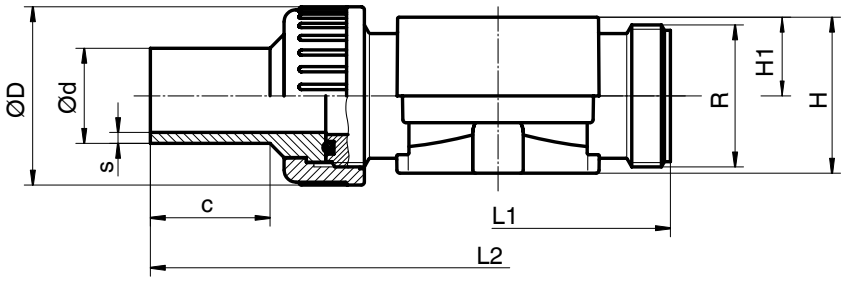
MG = diaphragm size



Union ends with DIN insert, connection code 78
Valve body material: PP (code 5), PVDF (code 20)

Diaphragm size	DN	L1	L2	H		H1		øD	R	ød	s	c	Weight [kg]
				Material code 5	Material code 20	Material code 5	Material code 20						
10	15	90	196	30	41	15	16	42	1	20	1.9	36	0.20

For materials see overview on page 7

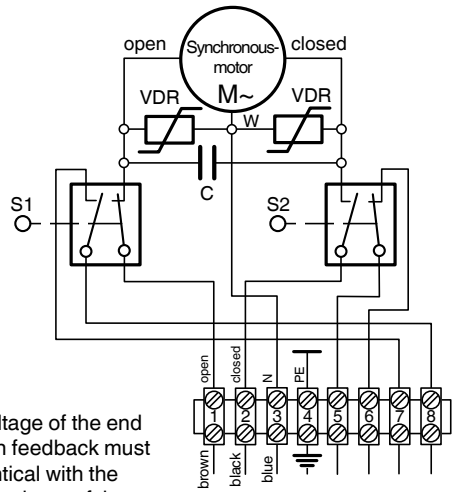


Overview of valve bodies for GEMÜ 613												
Connection code		**1**			**2**	**7**			**28**	**33**	**78**	
Material code		**1**	**5**	**20**	**1**	**1**	**5**	**20**	**20**	**1**	**5**	**20**
MG	**DN**											
10	12	X	X	X	X	-	-	-	-	-	-	-
	15	-	-	-	-	X	X	X	X	X	X	X

MG = diaphragm size

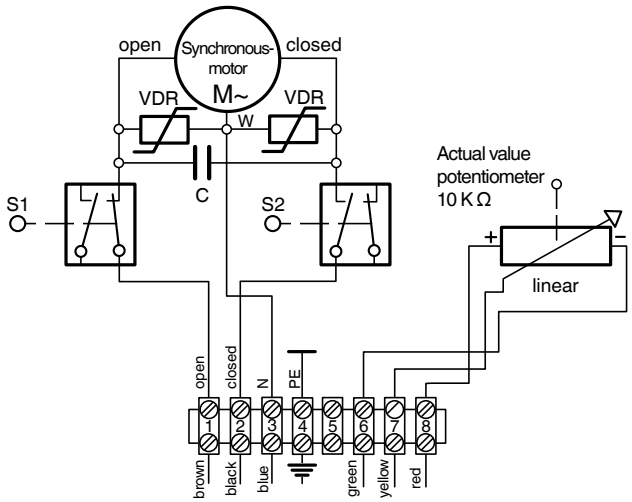
Connection diagramm

Connection diagram - Functional module code AE

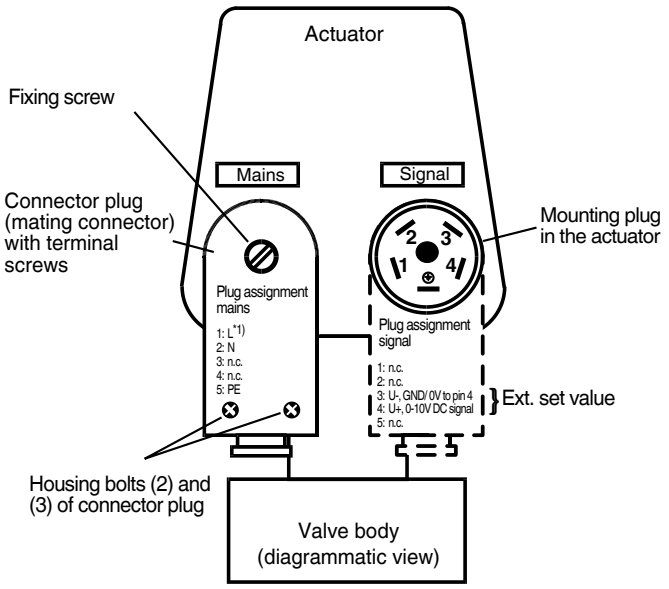


The voltage of the end position feedback must be identical with the supply voltage of the actuator.

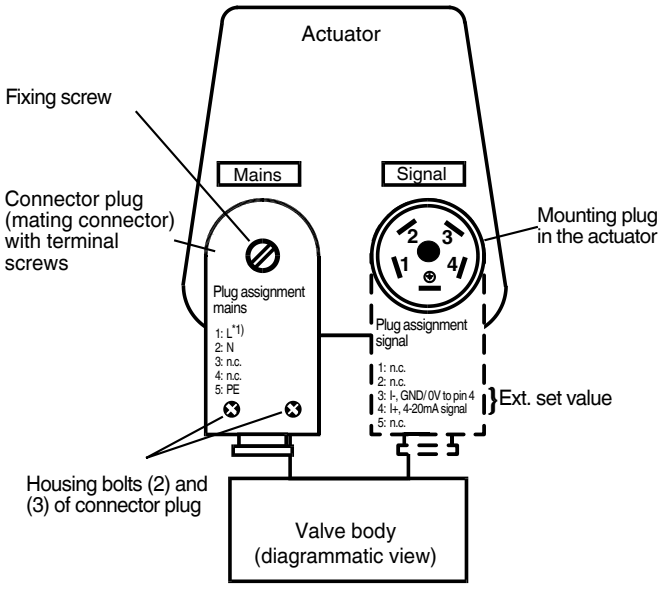
Connection diagram - Functional module code AP



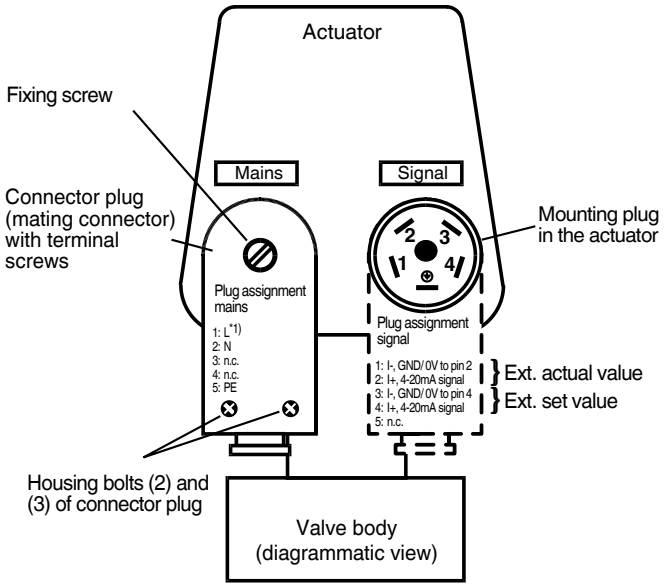
Connection diagram - Functional module code E1



Connection diagram - Functional module code E2

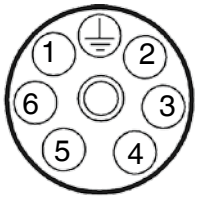


Connection diagram - Functional module code E3



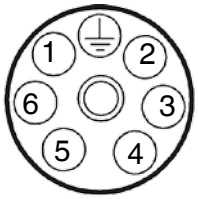
*1) For the supply voltage (mains) check the details on the product label (24, 120, or 230 VAC). N.C. = (not connected)

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



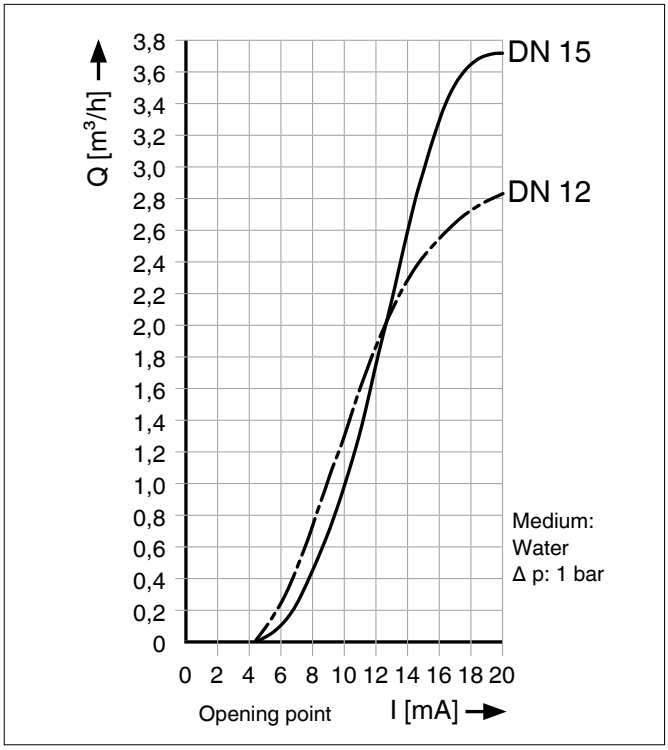
Pin	Designation
1	L1, motor voltage for direction of travel OPEN
2	L1, motor voltage for direction of travel CLOSED
3	N, reference voltage
4	L1, S1/S2 (23) limit switch
5	Us, S2 (24) CLOSED end position [Us=Ub]
6	Us, S1 (24) OPEN end position [Us=Ub]
7	⏚, PE

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

GEMÜ® VALVES, MEASUREMENT AND CONTROL SYSTEMS

TÜVRheinland® CERT ISO 9001

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