

Full Bore Diaphragm Valve, Metal

Construction

The GEMÜ 656 pneumatically operated 2/2 way full bore diaphragm valve has a low maintenance membrane actuator. Normally Closed, Normally Open and Double Acting control functions are available.

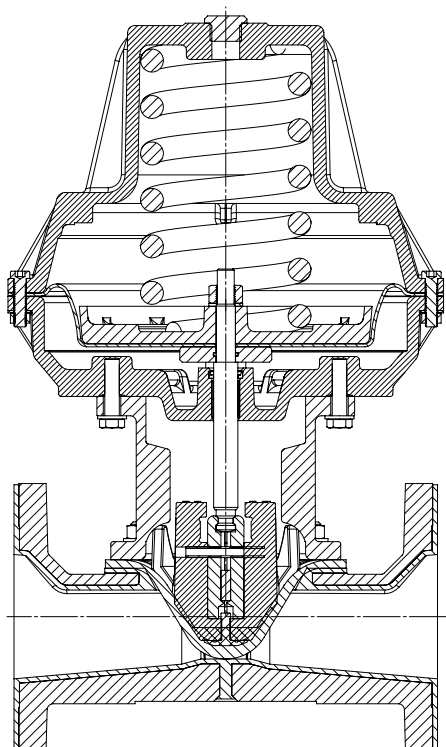
Features

- Optional rubber lining suitable for applications involving particulate media, e.g.:
 - Mining
 - Paper and woodpulp industry
 - Water treatment
 - Ceramics industry
 - Chemical and dyestuff industry
- Valve body and diaphragm available in various materials and designs

Advantages

- High mechanical stability
- High flow rate due to straight through flow
- Optional flow direction, will seal in either flow direction up to full operating pressure
- Valve can be cleaned without disassembly of actuator

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.

Max. perm. temperature of working medium 100 °C
(depending on medium, diaphragm and valve body material)

Control medium

Inert gases

Max. perm. temperature of control medium 40 °C

Filling volume - Control functions 1 - 3:

Actuator size 2R2, 2RF, 2RD 0.625 dm³

Actuator size 3R1, 3RF, 3RD 2.5 dm³

Actuator size 4R1, 4RF, 4RD 6.8 dm³

Actuator size 5R2, 5RF, 5RD 9.0 dm³

Actuator size 6R2/6R3, 6RF, 6RD 19.0 dm³

Ambient temperature

Ambient temperature max. 60 °C

		Control function 1				Control function 2				Control function 3				Kv value
		Actuator size	Operating pressure	Control pressure	Weight	Actuator size	Operating pressure	Control pressure*	Weight	Actuator size	Operating pressure	Control pressure	Weight	
DN	NPS	Code	[bar]	[bar]	[kg]	Code	[bar]	[bar]	[kg]	Code	[bar]	[bar]	[kg]	[m ³ /h]
25	1"	2R2	7.0	3.8-7.0	7.8	2RF	7.0	max. 3.0	6.8	2RD	7.0	max. 3.0	6.8	35
40	1 1/2"	2R2	7.0	3.8-7.0	9.8	2RF	7.0	max. 3.0	8.3	2RD	7.0	max. 3.0	8.3	38
50	2"	3R1	7.0	3.0-7.0	36.0	3RF	7.0	max. 3.0	34.0	3RD	7.0	max. 3.0	34.0	108
65	2 1/2"	3R1	7.0	3.0-7.0	37.0	3RF	7.0	max. 3.0	35.0	3RD	7.0	max. 3.0	35.0	114
80	3"	4R1	6.0	5.5-7.0	61.0	4RF	7.0	max. 3.0	57.0	4RD	7.0	max. 3.0	57.0	284
100	4"	4R1	6.0	5.5-7.0	70.0	4RF	7.0	max. 3.0	66.0	4RD	7.0	max. 3.0	66.0	298
125	5"	5R2	4.0	4.5-7.0	130.0	5RF	5.5	max. 7.0	86.0	5RD	5.5	max. 7.0	86.0	650
150	6"	5R2	4.0	4.5-7.0	138.0	5RF	5.5	max. 7.0	94.0	5RD	5.5	max. 7.0	94.0	680
200	8"	6R2	3.0	5.5-7.0	229.0	6RF	3.5	max. 7.0	201.0	6RD	3.5	max. 7.0	201.0	1790
		6R3	3.5	5.5-7.0	247.0									
250	10"	-	-	-	-	6RF	3.5	max. 7.0	280.0	6RD	3.5	max. 7.0	280.0	2920

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 determined acc. to DIN EN 60534, inlet pressure 5 bar, Δp 1 bar, valve body material cast iron EN-GJL-250 and flanges EN 1092 length EN 558 series 7 and soft elastomer diaphragm.

The Kv values for other product configurations (e.g. other diaphragm or body materials) may differ. In general, all diaphragms are subject to the influences of pressure, temperature, the process and their tightening torques. Therefore the Kv values may exceed the tolerance limits of the standard.

* recommended max. control pressure

Valve not suitable for vacuum applications.

For control function 2 and 3, high control pressures create high downforces on diaphragms when closed, which can potentially reduce diaphragm life. GEMÜ fit pressure reducers (article no. 88275629) to these types as standard for customer utilisation.

Order data

Body configuration	Code
2/2-way	D

Control function	Code
Normally closed	1
Normally open	2
Double acting	3

Connection	Code
Flanges EN 1092 / PN10 / form A, length FTF EN 558, series 7, ISO 5752, basic series 7	52
Flanges EN 1092 / PN16 / form A, length FTF EN 558, series 7, ISO 5752, basic series 7	53
Flanges ANSI Class 125/150 FF length FTF EN 558, series 7, ISO 5752, basic series 7	58
For overview of available valve bodies for GEMÜ 656 see last page	

Valve body material	Code
EN-GJL-250 (GG 25 cast iron)	8
EN-GJL-250 (GG 25 cast iron), hard rubber lined	13
EN-GJL-250 (GG 25 cast iron), soft rubber lined	52

Actuator version	Code
Normally closed (Code 1)	
Actuator version 2	2R2
Actuator version 3	3R1
Actuator version 4	4R1
Actuator version 5	5R2
Actuator version 6	6R2 + 6R3
Normally open (Code 2)	
Actuator version 2	2RF
Actuator version 3	3RF
Actuator version 4	4RF
Actuator version 5	5RF
Actuator version 6	6RF
Double acting (Code 3)	
Actuator version 2	2RD
Actuator version 3	3RD
Actuator version 4	4RD
Actuator version 5	5RD
Actuator version 6	6RD

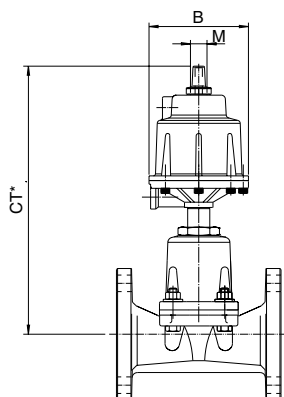
Diaphragm material	Code
NBR	2
IIR	6
CR	8
EPDM	14
NR	15

Order example	656	50	D	53	8	14	1	3R1
Type	656							
Nominal size		50						
Body configuration (code)			D					
Connection (code)				53				
Valve body material (code)					8			
Diaphragm material (code)						14		
Control function (code)							1	
Actuator size (code)								3R1

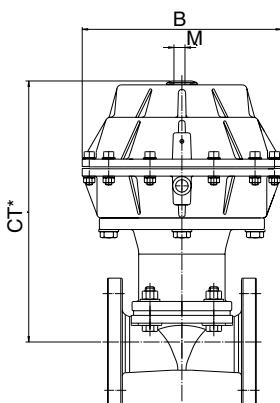
Valve dimensions [mm]

DN	NPS	Actuator size 2 see drawing 1			Actuator size 3 see drawing 2				Actuator size 4 see drawing 3					Actuator size 5 see drawing 4		Actuator size 6 see drawing 4		
		B	M	CT	B	M	CT Ctr.f 1	CT Ctr.f 2,3	B	M Ctr.f 1	M Ctr.f 2,3	CT Ctr.f 1	CT Ctr.f 2,3	B	CT	B	CT Ctr.f 1	CT Ctr.f 2,3
25	1"	164	M22x1.5	340	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	1 1/2"	164	M22x1.5	340	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50	2"	-	-	-	256	M22x1.5	337	313	-	-	-	-	-	-	-	-	-	-
65	2 1/2"	-	-	-	256	M22x1.5	337	313	-	-	-	-	-	-	-	-	-	-
80	3"	-	-	-	-	-	-	-	360	M26x1.5	M22x1.5	497	379	-	-	-	-	-
100	4"	-	-	-	-	-	-	-	360	M26x1.5	M22x1.5	497	379	-	-	-	-	-
125	5"	-	-	-	-	-	-	-	-	-	-	-	-	388	1140	-	-	-
150	6"	-	-	-	-	-	-	-	-	-	-	-	-	388	1140	-	-	-
200	8"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	440	1380	965
250	10"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	440	-	1115

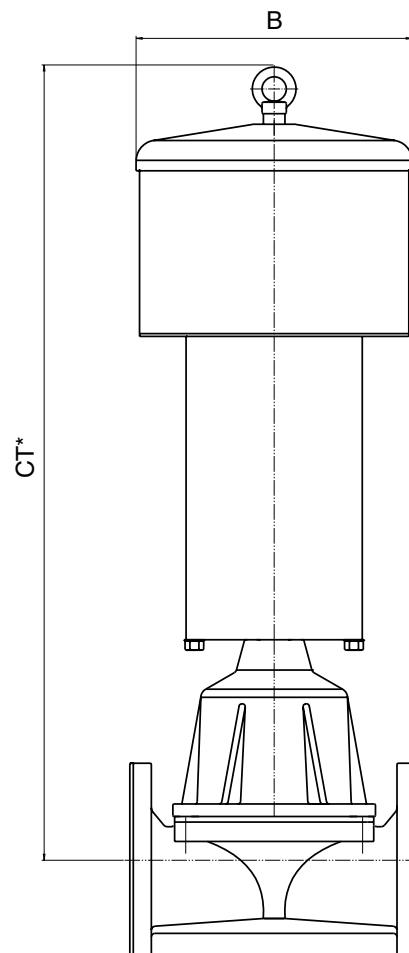
Drawing 1



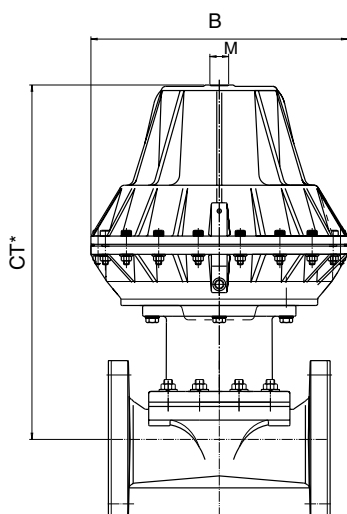
Drawing 2



Drawing 4



Drawing 3

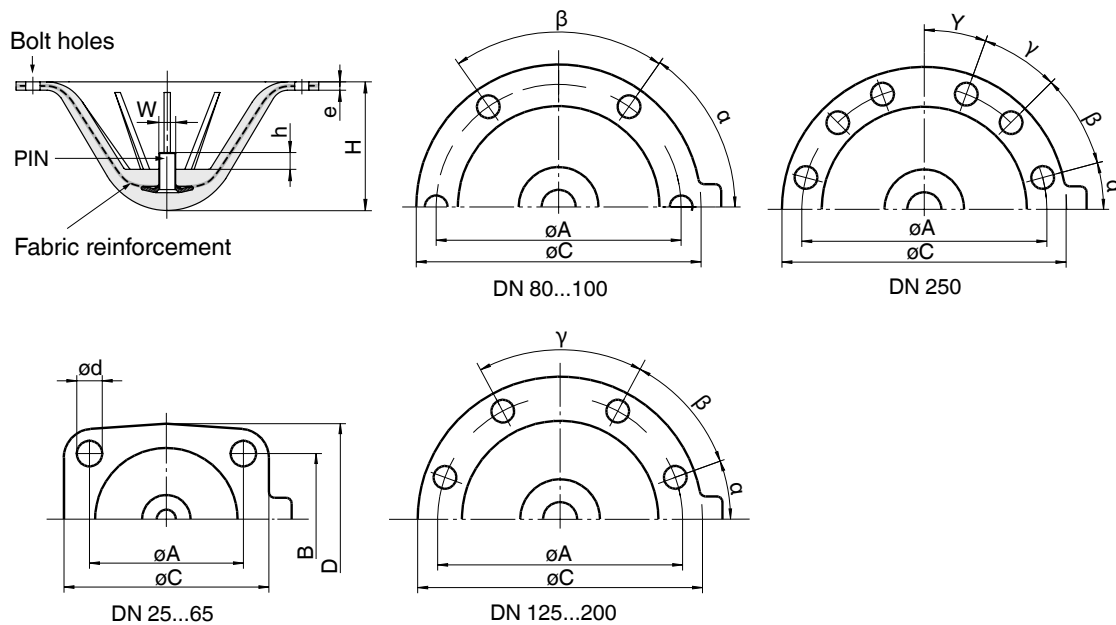


* CT = A + H1 (see body dimensions)

Control air connections = G1/4

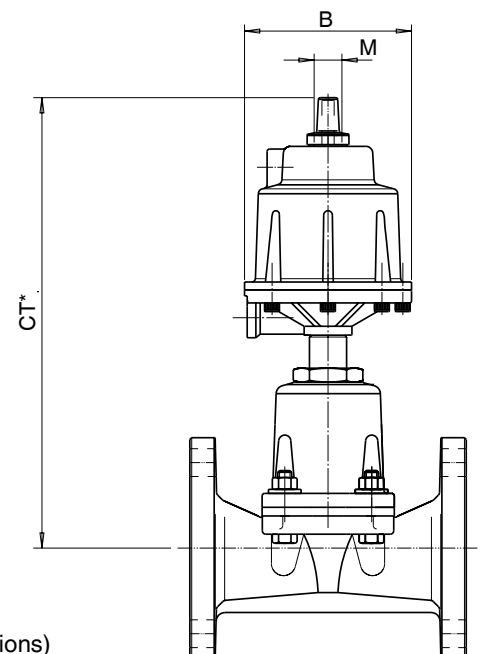
Diaphragm dimensions [mm]															
		øA	B	øC	D	d	e	h	W	H	α	β	γ	Y	Number of bolt holes
DN	NPS														
25	1"	64	51	90	70	9.0	5	8	1/4"	36	-	-	-	-	4
40	1 1/2"	64	51	90	70	9.0	5	8	1/4"	36	-	-	-	-	4
50	2"	101	82	159	128	13.5	6	10	5/16"	64	-	-	-	-	4
65	2 1/2"	101	82	159	128	13.5	6	10	5/16"	64	-	-	-	-	4
80	3"	175	-	223	-	13.5	6	12	5/16"	80	56°	34°	-	-	6
100	4"	175	-	223	-	13.5	6	12	5/16"	80	56°	34°	-	-	6
125	5"	255	-	287	-	13.5	8	16	5/8"	115	20°	40°	60°	-	8
150	6"	255	-	287	-	13.5	8	16	5/8"	115	20°	40°	60°	-	8
200	8"	305	-	341	-	18.5	8	20	5/8"	145	30°	40°	40°	-	8
250	10"	381	-	410	-	17.0	10	20	5/8"	178	15°	30°	25°	20°	12

The thread of the diaphragm stud corresponds to Whitworth standard.



Actuator dimensions [mm]				
DN	NPS	B	M	CT
25 - 40	1" - 1 1/2"	164	M 22 x 1.5	340

For DN 50 - 250 see page 5

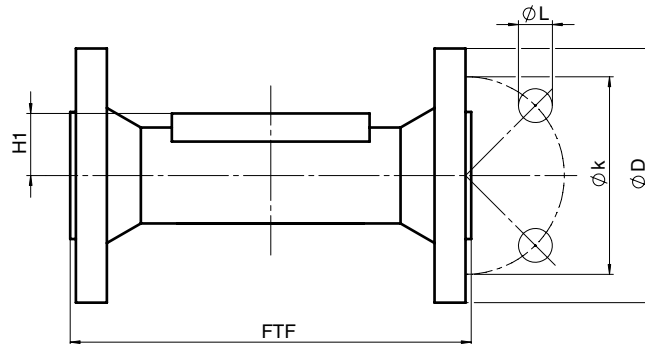


* $CT = A + H1$ (see body dimensions)

Body dimensions [mm]

Flanges, connection code 52, 53, 58

DN	NPS	Number of bolt	Connection code 52, 53						Connection code 58					
			FTF		ØD	ØK	ØL	H1	FTF		ØD	ØK	ØL	H1
			Body material						Body material					
			Code 8	Code 13, 52					Code 8	Code 13, 52				
25	1"	4	127	127	115	85	14	19.0	127	127	110	79.4	15.9	21.0
40	1 1/2"	4	159	159	150	110	18	28.0	159	159	125	98.4	15.9	30.0
50	2"	4	191	191	165	125	18	35.0	191	191	150	120.7	19.0	37.0
65	2 1/2"	4	216	216	185	145	18	27.5	216	216	180	139.7	19.0	29.5
80	3"	8	254	254	200	160	18	33.0	254	254	190	152.4	19.0	35.0
100	4"	8	305	305	220	180	18	43.0	305	305	230	190.5	19.0	45.0
125	5"	8	356	366	250	210	18	65.0	356	366	255	215.9	22.2	65.0
150	6"	8	406	416	285	240	22	58.0	406	416	280	241.3	22.2	60.0
200	8"	8	521	531	340	295	22	88.0	521	531	345	298.5	22.2	90.0
250	10"	12	635	647	395	350	22	120.5	635	647	405	362.0	22.2	122.5



Overview of valve bodies for GEMÜ 656

Connection code	52			53			58		
Material code	8	13	52	8	13	52	8	13	52
DN									
25	-	-	-	X	X	X	X	X	X
40	-	-	-	X	X	X	X	X	X
50	-	-	-	X	X	X	X	X	X
65	-	-	-	X	X	X	X	X	X
80	-	-	-	X	X	X	X	X	X
100	-	-	-	X	X	X	X	X	X
125	-	-	-	X	X	X	X	X	X
150	-	-	-	X	X	X	X	X	X
200	X	X	X	-	-	-	X	X	X
250	X	X	X	-	-	-	X	X	X