

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

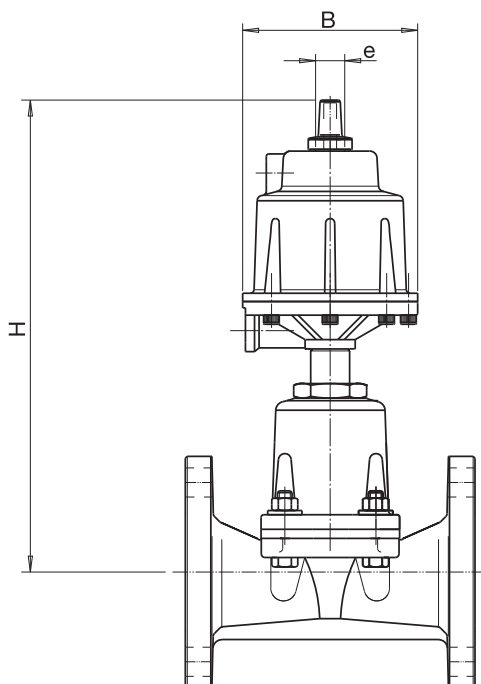
Advantages

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

Actuator dimensions [mm]

DN	NPS	B	e	H
25-40	1" - 1 1/2"	164	M 22 x 1.5	340

For DN 50 - 300 see page 5



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*

* dependent on body and diaphragm material

Max. ambient temperature 60° C

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

		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	1420
		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	2360
300	12"	-	-	-	-	6RF	3.0	max. 7.0	394.0	6RD	3.0	max. 7.0	394.0	3280

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, valve body material cast iron EN-GJL-250 and flanges EN 1092 length EN 558-1 series 1 and soft elastomer diaphragm.

*recommended max. control pressure

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

Connection	Code
Flanges EN 1092 / PN10 / form A, length EN 558, series 7, ISO 5752, basic series 7	52
Flanges EN 1092 / PN16 / form A, length EN 558, series 7, ISO 5752, basic series 7	53
Flanges ANSI class 125 FF length 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

Diaphragm material	Code
CSM Hypalon	1
NBR Perbunan	2
IIR Butyl	6
CR Neoprene	8
NR Natural rubber	15
EPDM Ethylene Propylene Diene Monomer	24

Control function/Actuator size	Code
Normally closed/Actuator size 2	1 / 2R2
Normally closed/Actuator size 3	1 / 3R1
Normally closed/Actuator size 4	1 / 4R1
Normally closed/Actuator size 5	1 / 5R2
Normally closed/Actuator size 6	1 / 6R2 + 6R3
Normally open/Actuator size 2	2 / 2RF
Normally open/Actuator size 3	2 / 3RF
Normally open/Actuator size 4	2 / 4RF
Normally open/Actuator size 5	2 / 5RF
Normally open/Actuator size 6	2 / 6RF
Double acting/Actuator size 2	3 / 2RD
Double acting/Actuator size 3	3 / 3RD
Double acting/Actuator size 4	3 / 4RD
Double acting/Actuator size 5	3 / 5RD
Double acting/Actuator size 6	3 / 6RD

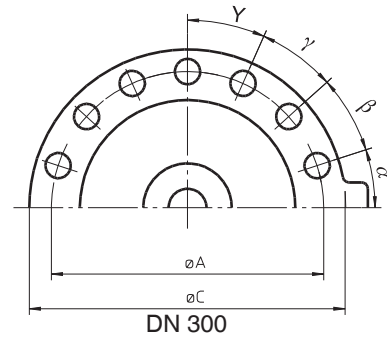
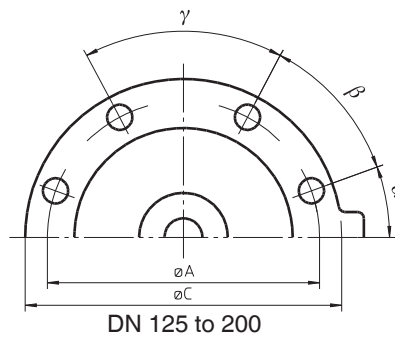
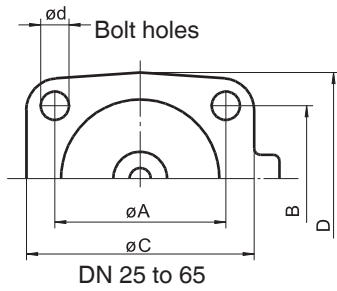
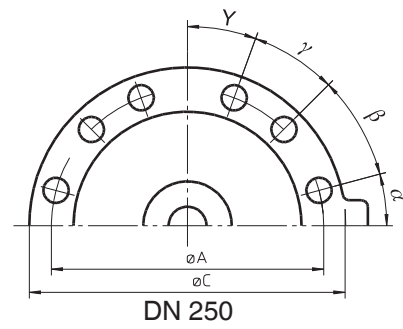
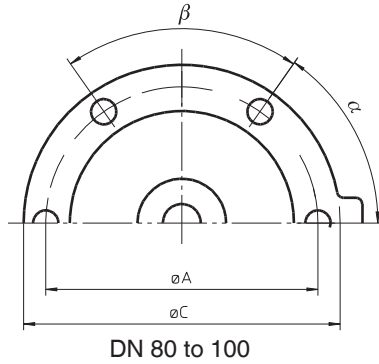
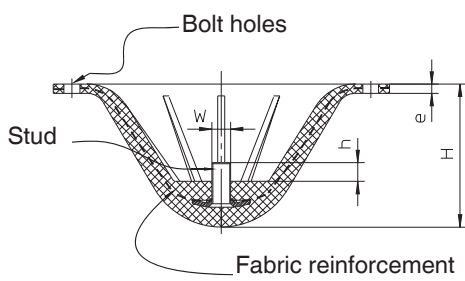
Order example	656	50	D	53	8	24	1	3R1
Type	656							
Nominal size		50						
Body configuration (code)			D					
Connection (code)				53				
Valve body material (code)					8			
Diaphragm material (code)						24		
Control function (code)							1	
Actuator size (code)								3R1

Other connections, valve body materials, linings and diaphragm materials on request.

Diaphragm dimensions

	$\varnothing A$	B	$\varnothing C$	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
300	12"	528	-	576	-	22.0	12	25	1"	280	18°	24°	24°	24°	14

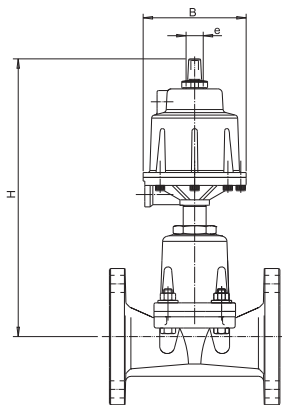
The thread of the diaphragm stud corresponds to Whitworth standard.



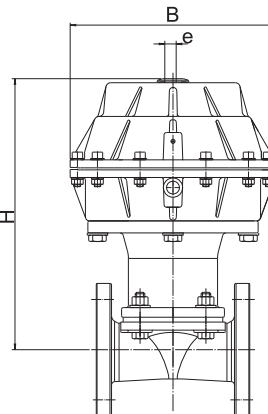
Valve dimensions [mm]

		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			
DN	NPS	B	e	H	B	e	H C.f. 1	H C.f.2,3	B	e C.f.1	e C.f.2,3	H C.f.1	H C.f.2,3	B	H	B	H C.f.1	H C.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
300	12"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	440	-	1300

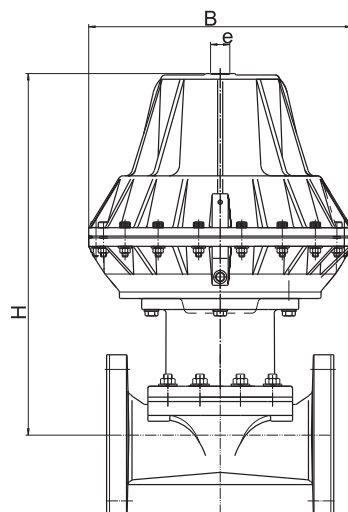
Drawing 1



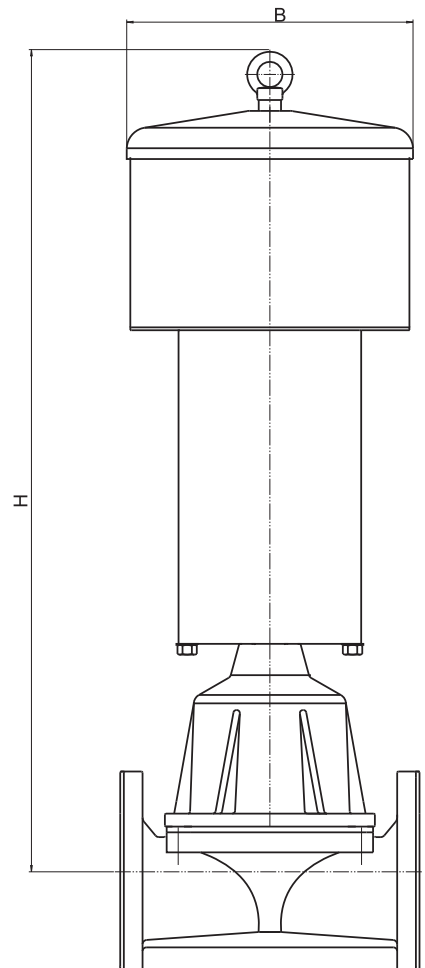
Drawing 2



Drawing 3



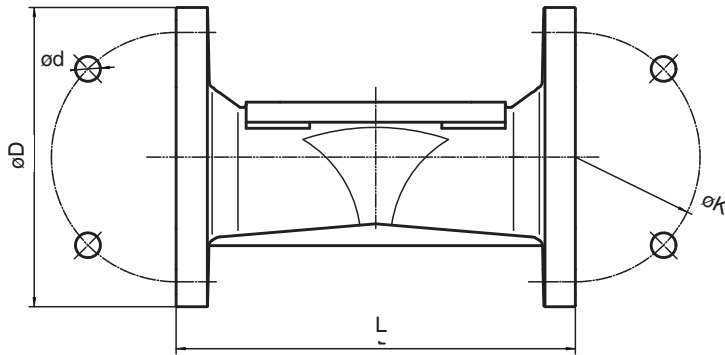
Drawing 4



Control air connections = G1/4

Body dimensions - Flanges, connection code 52, 53, 58 [mm]

		Connection code 52, 53						Connection code 58				
		Number of bolt holes	L		$\varnothing D$	$\varnothing K$	$\varnothing d$	L		$\varnothing D$	$\varnothing K$	$\varnothing d$
DN	NPS		Code 8	Code 13, 52				Code 8	Code 13, 52			
25	1"	4	127	127	115	85	14	127	127	108.0	79.2	16.0
40	1 1/2"	4	159	159	150	110	18	159	159	127.0	98.6	16.0
50	2"	4	191	191	165	125	18	191	191	152.4	120.7	19.0
65	2 1/2"	4	216	216	185	145	18	216	216	177.8	139.7	19.0
80	3"	8	254	254	200	160	18	254	254	190.5	152.4	19.0
100	4"	8	305	305	220	180	18	305	305	228.6	190.5	19.0
125	5"	8	356	366	250	210	18	356	366	254.0	215.9	22.0
150	6"	8	406	416	285	240	22	406	416	279.0	241.3	22.0
200	8"	8	521	531	340	295	22	521	531	342.9	298.5	22.0
250	10"	12	635	647	395	350	22	635	647	406.4	362.0	25.4
300	12"	12	749	761	445	400	22	749	761	482.6	431.8	25.4



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
300	X	X	X	-	-	-	X	X	X

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



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