GEMÜ P40

Pneumatically operated tank bottom valve



Features

- Low-maintenance thanks to PD sealing technology, so no retightening is required
- PD design with optimized draining and compact valve body design
- Converging design of the tank-side area to avoid potential sediment deposits
- Suitable for use in hygienic and aseptic applications (CIP/SIP capable and autoclavable)
- Quick, safe and easy actuator mounting
- Optical position indicator and transparent cap as standard
- Simple modular expansion possible with future-orientated automation components
- Suitable for vacuum up to 0,05 mbar (a) as standard

Description

The pneumatically operated **GEMÜ P40** PD tank bottom valve is designed for use in sterile applications. The sealing concept of the valve is based on the GEMÜ PD design comprising a radial sealing PTFE diaphragm, whereby the actuator is hermetically separated from the medium. All actuator parts (except the seals and design elements) are made from stainless steel. It is available with a “Normally closed” control function (further control functions possible on request). The valve has an optical position indicator with a transparent cap as standard.

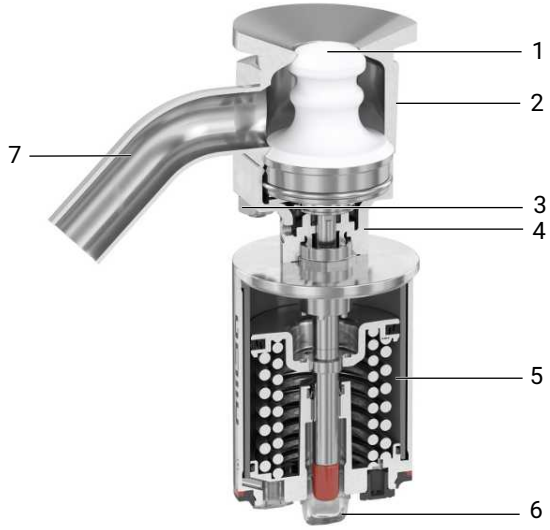
Technical specifications

- **Media temperature:** -20 to 160 °C
- **Ambient temperature:** -20 to 80 °C
- **Operating pressure:** 0 up to 6 bar
- **Nominal sizes:** DN 6 to 65
- **Body configurations:** Tank bottom valve body
- **Connection types:** Clamp I Pipe bend I Spigot
- **Connection standards:** ASME I DIN I EN I ISO I SMS
- **Body materials:** 1.4410, block material I 1.4435 (316L), block material I 1.4435 (BN2), block material I 1.4529, block material I 1.4539 (904L), block material I 1.4547 I 2.4602, block material I 2.4605, block material I 2.4819 I AL-6XN, block material
- **Seat seal materials:** PTFE

Technical data depends on the respective configuration

webcode: GW-P40

Product description



Position	Name	Materials
1	Plug diaphragm (PD)*	PTFE
2	Valve body*	1.4435 (316L), block material 1.4435 (BN2), block material, Δ Fe < 0.5% 1.4539/UNS N08904, block material 1.4547, block material 2.4602, block material alloy 22, (NiCr21Mo14W) 2.4605, block material alloy 59, (NiCr23Mo16Al) AL-6XN, block material alloy 1.4410, block material 1.4529, block material 2.4819, block material 1.4529, UNS N08367, block material
3	Screw connection kit*	
4	Distance piece with leak detection hole	1.4404/1.4408
5	Actuator*	1.4308/1.4301
6	Transparent cap	PC
7	Pipe bend/pipe section	1.4435 (316L), block material 1.4435 (BN2), block material 1.4539/UNS N08904, block material 2.4602, block material alloy 22, (NiCr21Mo14W)

*These components are available as spare parts (see the “Spare parts” chapter in the operating instructions).

GEMÜ CONEXO

The interaction of valve components that are equipped with RFID chips and an associated IT infrastructure actively increase process reliability.



Thanks to serialization, every valve and every relevant valve component such as the body, actuator or diaphragm, and even automation components, can be clearly traced and read using the CONEXO pen RFID reader. The CONEXO app, which can be installed on mobile devices, not only facilitates and improves the "installation qualification" process, but also makes the maintenance process much more transparent and easier to document. The app actively guides the maintenance technician through the maintenance schedule and directly provides him with all the information assigned to the valve, such as test reports, testing documentation and maintenance histories. The CONEXO portal acts as a central element, helping to collect, manage and process all data.

For further information on GEMÜ CONEXO please visit:
www.gemu-group.com/conexo

Ordering

GEMÜ Conexo must be ordered separately with the ordering option "CONEXO".

Range overview

Range overview of surface finishes

Internal surface finishes for block material body [1)]

Process contact surfaces	Mechanically machined [2)]		Electropolished	
	Hygiene class DIN 11866	Code	Hygiene class DIN 11866	Code
Ra ≤ 0.40 µm	H4	1536	HE4	1537
Ra ≤ 0.25 µm [3)]	H5	1527	HE5	1516

Process contact surfaces in accordance with ASME BPE [4)]	Mechanically machined [2)]		Electropolished	
	ASME BPE surface designation	Code	ASME BPE surface designation	Code
Ra max. = 0.51 µm (20 µinch)	SF1	SF1	-	-
Ra max. = 0.38 µm (15 µinch)	-	-	SF4	SF4

Ra acc. to DIN EN ISO 4288 and ASME B46.1

1) Surface finishes of customized valve bodies may be limited in special cases.

2) Or any other finishing method that meets the Ra value (acc. to ASME BPE).

3) The smallest possible Ra finish for pipe connections with an internal pipe diameter < 6 mm is 0.38 µm.

4) When using these surfaces, the bodies are marked according to the specifications of ASME BPE.
The surfaces are only available for valve bodies which are made of materials (e.g. GEMÜ material codes 40, 41, F4, 44)) and use connections (e.g. GEMÜ connection codes 59, 80, 88) according to ASME BPE.

Range overview of valve bodies

DN	Actuator size	Seat size	Spigot, connection type (code) [1)]			
			17	37	59	60
6	**2**	**G**	X	-	X	X
8			X	-	X	X
10			X	-	X	X
15			X	-	X	-
20			-	-	X	-
15	**3**	**J**	-	-	-	X
20			X	-	-	X
25			-	X	X	-
25	**5**	**M**	X	-	-	X
32			X	X	-	X
40			X	X	X	-
40	**6**	**P**	-	-	-	X
50			X	X	X	X
65			-	X	X	-

1) **Valve body connection type, outlet connection type 1**
Code 17: Spigot EN 10357 series A/DIN 11866 series A
Code 37: Spigot SMS 3008
Code 59: Spigot ASME BPE/DIN EN 10357 series C (from 2022 issue)/DIN 11866 series C
Code 60: Spigot ISO 1127/DIN EN 10357 series C (2014 issue)/DIN 11866 series B

Order data

The order data provide an overview of standard configurations.

Please check the availability before ordering. Other configurations available on request.

Order codes

1 Type	Code
Tank valve, pneumatically operated, stainless steel piston actuator	P40

2 DN, outlet connection 1	Code
DN 6	6
DN 8	8
DN 10	10
DN 15	15
DN 20	20
DN 25	25
DN 32	32
DN 40	40
DN 50	50
DN 65	65

3 Body configuration	Code
Tank valve body	B

4 Valve body connection type, outlet connection type 1	Code
Spigot	
Spigot EN 10357 series A/DIN 11866 series A	17
Spigot SMS 3008	37
Spigot ASME BPE/DIN EN 10357 series C (from 2022 edition)/DIN 11866 series C	59
Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/ DIN 11866 series B	60
Clamp only in conjunction with "11 adaptor, pipe bend"	
Clamp DIN 32676 series B	82
Clamp DIN 32676, for pipe DIN 11866 series A	86
Clamp ASME BPE, for pipe ASME BPE	88

5 Valve body material	Code
1.4435 (316L), block material	41
1.4435 (BN2), block material, Δ Fe < 0.5%	43
1.4539/UNS N08904, block material	44
1.4547, block material	49
2.4602, block material alloy 22, (NiCr21Mo14W)	A3
2.4605, block material alloy 59, (NiCr23Mo16Al)	A5
AL-6XN, block material alloy, without CE according to PED, AL-6XN is not a material for pressure equipment in line with 2014/68/EU	A6
1.4410, block material	A7
1.4529, block material	A8

5 Valve body material	Code
2.4819, block material	E1
1.4529, UNS N08367, block material	E3

6 Seat seal	Code
PTFE	5

7 Control function	Code
Normally closed (NC)	1
Further control functions on request	

8 Actuator spring set	Code
Standard spring set	1

9 Seat size	Code
15 mm	G
25 mm	J
40 mm	M
60 mm	P

10 Actuator size	Code
Actuator size 2	2
Actuator size 3	3
Actuator size 5	5
Actuator size 6	6

11 Adaptor, outlet connection 1	Code
Without	
Pipe bend	B
Pipe section	P

12 Bracket, adaptor, outlet connection 1	Code
45	45

13 Tank connection type	Code
Butt weld connection	W

14 Type of design	Code
Ra ≤ 0.25 µm for media wetted surfaces, in accordance with DIN 11866 HE5, electropolished internal/external	1516
Ra ≤ 0.25 µm for media wetted surfaces, in accordance with DIN 11866 H5, mechanically machined internal	1527
Ra ≤ 0.4 µm for media wetted surfaces, in accordance with DIN 11866 H4, mechanically machined internal	1536
Ra ≤ 0.4 µm for media wetted surfaces, in accordance with DIN 11866 HE4, electropolished internal/external	1537
Ra max. 0.51 µm (20 µin.) for media wetted surfaces, in accordance with ASME BPE SF1, mechanically machined internal	SF1

14 Type of design	Code
Ra max. 0.38 µm (15 µin.) for media wetted surfaces, in accordance with ASME BPE SF4, electropolished internal/external	SF4

15 Special function	Code
ATEX marking	X

Order example

Ordering option	Code	Description
1 Type	P40	Tank valve, pneumatically operated, stainless steel piston actuator
2 DN, outlet connection 1	25	DN 25
3 Body configuration	B	Tank valve body
4 Valve body connection type, outlet connection type 1	88	Clamp ASME BPE, for pipe ASME BPE
5 Valve body material	41	1.4435 (316L), block material
6 Seat seal	5	PTFE
7 Control function	1	Normally closed (NC)
8 Actuator spring set	1	Standard spring set
9 Seat size	J	25 mm
10 Actuator size	3	Actuator size 3
11 Adaptor, outlet connection 1	B	Pipe bend
12 Union elbow, adaptor, outlet connection 1	45	45
13 Tank connection type	W	Butt weld connection
14 Valve body surface	1536	Ra ≤ 0.4 µm for media wetted surfaces, in accordance with DIN 11866 H4, mechanically machined internal
15 Special version	X	ATEX marking

Technical data

Medium

Working medium: Corrosive, inert, gaseous and liquid media which have no negative impact on the physical and chemical properties of the respective valve body and seal material.

Control medium: Inert gases

Temperature

Media temperature: -20 — 160 °C
Valve body material 1.4539 / UNS N08904, block material (code 44): -10 to 160 °C
Clamp connections (according to standard 32676): -10 — 140 °C

Ambient temperature: -20 — 80 °C
Valve body material 1.4539 / UNS N08904, block material (code 44): -10 to 80 °C

Control medium temperature: 0 — 60 °C

Sterilization temperature: max. 160 °C

Storage temperature: -30 — 60 °C

Pressure

Operating pressure: 0 — 6 bar

Actuator size	Operating pressure
2, 3, 5, 6	0 to 6.0 bar

Suitable for vacuum up to 0.05 mbar (a) as standard
All pressures are bar – gauge pressure. 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.

Control pressure: Control function 1: 5.0 to 8.0 bar

Pressure rating: PN 16

Leakage rate: Leakage rate A to P11/P12 EN 12266-1

Filling volume:

Actuator size	Seat size	Filling volume [dm³]
		Control function 1
2	**G**	0.064
3	**J**	0.094
5	**M**	0.385
6	**P**	0.622

Control function 1 = filling volume in open position

Kv values:

Actuator size	DN	Stroke	Seat size	Connection type code			
				17, 86	37	59, 88	60, 82
2	**6**	**3**	**G**	1.13	-	-	1.51
	8			1.93	-	0.66	2.85
	10			2.74	-	1.82	4.02
	15			4.40	-	2.50	-
	20			-	-	4.39	-
3	**15**	**6**	**J**	-	-	-	8.4
	20			9.3	-	-	10.9
	25			-	10.5	10.3	-
5	**25**	**6**	**M**	17.0	-	-	19.5
	32			20.7	20.4	-	22.9
	40			22.8	22.5	22.2	-
6	**40**	**7**	**P**	-	-	-	38.0
	50			40.5	39.9	39.8	42.6
	65			-	44.2	43.5	-

Kv values in m^3/h
Kv values determined acc.to DIN EN 60534.
Stroke in mm

Product compliance

Machinery Directive: 2006/42/EC

Pressure Equipment Directive: 2014/68/EU

Food: Regulation (EC) No. 1935/2004
Regulation (EC) No. 10/2011
FDA
USP Class VI

Explosion protection: ATEX (2014/34/EU), order code Special version X

ATEX marking: Gas: II 2 G Ex h IIC T6 ... T3 Gb X
Dust: II -/2 D Ex h -/IIIC T150 °C -/Db X

Mechanical data

Weight:

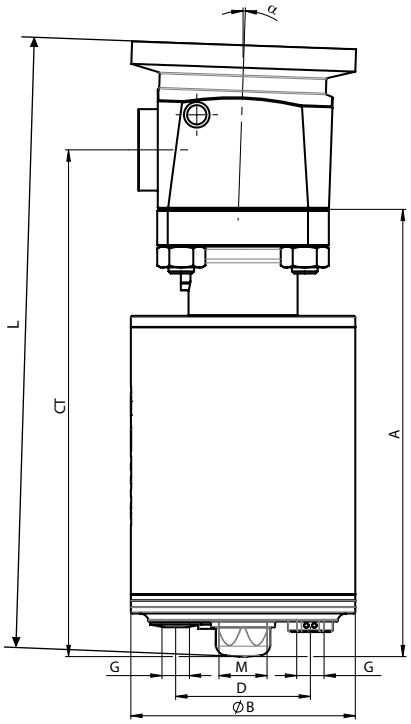
Actuator size	Actuator	Body
2	1.25	0.34
3	1.90	0.62
5	6.57	1.57
6	10.78	3.38

Weights in kg

Flow direction: from the tank

Dimensions

Overall dimensions

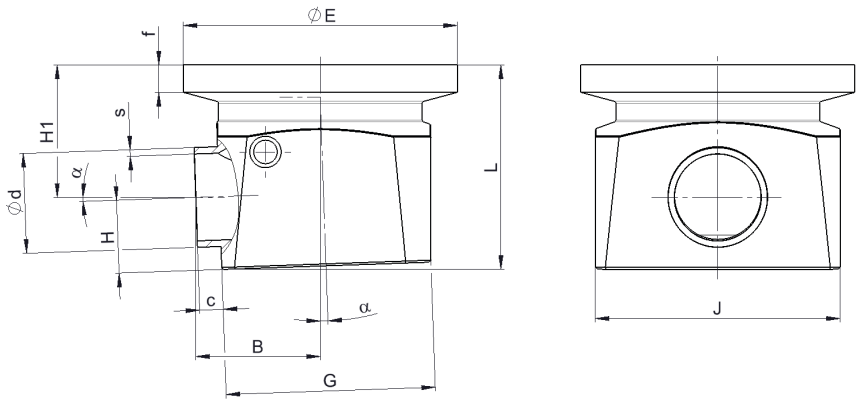


Seat size	AG	A	ØB	D	G	M	L
G	**2**	140.8	65.0	42.0	G1/8	M16x1	185.2
J	**3**	145.0	70.0	42.0	G1/8	M16x1	196.0
M	**5**	218.5	114.3	61.0	G1/4	M26x1.5	287.4
P	**6**	230.3	139.7	61.0	G1/4	M26x1.5	328.0

Dimensions in mm
AG = actuator size
* CT = A + H1 (see body dimensions)

Body dimensions

Spigot without adapter



Seat size	DN	Connection type code 59, material code 41, 43, 44, A3											
		L	G	J	ØE	f	H	H1	B	ød	s	c	α
G	6	45.2	40.3	47.0	50.9	7.0	8.5	36.9	26.5	3.18	0.56	6.0	2.0
	8	45.2	40.3	47.0	50.9	7.0	9.7	35.6	26.5	6.35	0.89	6.0	2.0
	10	45.2	40.3	47.0	50.9	7.0	11.3	34.0	26.6	9.53	0.89	6.0	2.0
	15	45.2	40.3	47.0	50.9	7.0	12.2	33.2	26.6	12.7	0.89	6.0	2.0
	20	45.2	40.3	47.0	50.9	7.0	15.3	30.0	26.7	19.05	1.65	6.0	2.0
J	25	50.2	53.3	62.5	69.9	7.0	18.5	33.7	32.7	25.4	1.65	6.0	2.0
M	40	70.4	84.0	84.0	97.9	7.0	25.4	45.3	47.8	38.1	1.65	6.0	2.0
P	50	99.7	110.0	110.0	125.9	7.0	36.7	63.2	60.4	50.8	1.65	6.0	2.0
	65	99.7	110.0	110.0	125.9	7.0	43.1	56.8	60.6	63.5	1.65	6.0	2.0

Seat size	DN	Connection type code 17, material code 41, 43, 44, A3											
		L	G	J	ØE	f	H	H1	B	ød	s	c	α
G	6	45.2	40.3	47.0	50.9	7.0	10.5	34.9	26.5	8.0	1.0	6.0	2.0
	8	45.2	40.3	47.0	50.9	7.0	11.5	33.9	26.6	10.0	1.0	6.0	2.0
	10	45.2	40.3	47.0	50.9	7.0	12.5	32.9	26.6	13.0	1.5	6.0	2.0
	15	45.2	40.3	47.0	50.9	7.0	15.5	29.9	26.7	19.0	1.5	6.0	2.0
J	20	50.2	53.3	62.5	69.9	7.0	17.5	34.8	32.7	23.0	1.5	6.0	2.0
M	25	70.4	84.0	84.0	97.9	7.0	21.0	49.7	47.7	29.0	1.5	6.0	2.0
	32	70.4	84.0	84.0	97.9	7.0	24.0	46.7	47.8	35.0	1.5	6.0	2.0
	40	70.4	84.0	84.0	97.9	7.0	27.0	43.7	47.9	41.0	1.5	6.0	2.0
P	50	99.7	110.0	110.0	125.9	7.0	38.0	61.9	60.4	53.0	1.5	6.0	2.0

Dimensions in mm

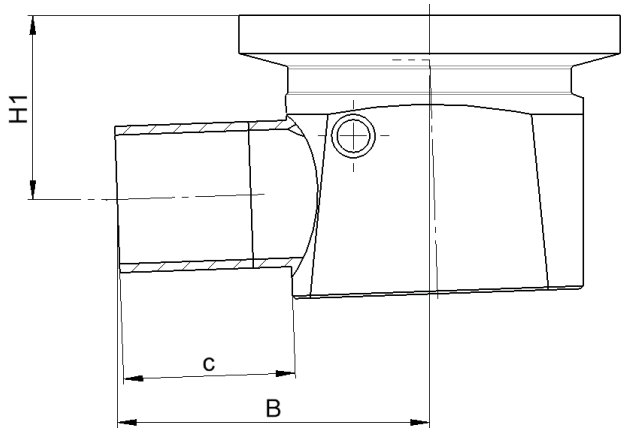
Dimensions

Seat size	DN	Connection type code 60, material code 41, 43, 44, A3											
		L	G	J	ØE	f	H	H1	B	ød	s	c	α
G	6	45.2	40.3	47.0	50.9	7.0	11.0	34.4	26.5	10.2	1.6	6.0	2.0
	8	45.2	40.3	47.0	50.9	7.0	12.6	32.8	24.6	13.5	1.6	6.0	2.0
	10	45.2	40.3	47.0	50.9	7.0	14.5	30.9	26.7	17.2	1.6	6.0	2.0
J	15	50.2	53.3	62.5	69.9	7.0	16.5	35.7	32.7	21.3	1.6	6.0	2.0
	20	50.2	53.3	62.5	69.9	7.0	19.3	32.9	32.8	26.9	1.6	6.0	2.0
M	25	70.4	84.0	84.0	97.9	7.0	22.8	47.7	47.7	33.7	2.0	6.0	2.0
	32	70.4	84.0	84.0	97.9	7.0	27.2	47.9	47.9	42.4	2.0	6.0	2.0
P	40	99.7	110.0	110.0	125.9	7.0	35.1	64.8	60.3	48.3	2.0	6.0	2.0
	50	99.7	110.0	110.0	125.9	7.0	41.1	58.8	60.5	60.3	2.0	6.0	2.0

Seat size	DN	Connection type code 37, material code 41, 43, 44, A3											
		L	G	J	ØE	f	H	H1	B	ød	s	c	α
J	25	50.2	53.3	62.5	69.9	7.0	18.8	33.5	25.0	25.0	1.2	6.0	2.0
M	32	70.4	84.0	84.0	97.9	7.0	23.6	47.0	33.7	33.7	1.2	6.0	2.0
	40	70.4	84.0	84.0	97.9	7.0	25.8	44.9	38.0	38.0	1.2	6.0	2.0
P	50	99.7	110.0	110.0	125.9	7.0	37.3	62.6	51.0	51.0	1.2	6.0	2.0
	65	99.7	110.0	110.0	125.9	7.0	43.1	56.8	63.5	63.5	1.6	6.0	2.0

Dimensions in mm

Spigot with pipe section



Seat size	DN	Connection type code 59, material code 41, 43, 44, A3			
		H1	B	c	Pipe
G	6	-	-	-	-
	8	36.3	46.0	25.6	20.0
	10	34.7	46.0	25.6	20.0
	15	33.2	26.6	25.6	20.0
	20	30.9	51.2	30.4	25.0
J	25	34.6	57.2	30.4	25.0
M	40	46.1	72.3	30.4	25.0
P	50	64.2	89.9	35.4	30.0
	65	57.9	90.1	35.4	30.0

Seat size	DN	Connection type code 17, material code 41, 43, 44, A3			
		H1	B	c	Pipe
G	6	35.6	46.0	25.6	20.0
	8	34.6	46.1	25.6	20.0
	10	33.6	46.1	25.6	20.0
	15	30.6	46.2	25.6	20.0
J	20	35.6	57.2	30.5	25.0
M	25	50.5	72.2	30.5	25.0
	32	47.5	72.3	30.5	25.0
	40	44.5	72.4	30.5	25.0
P	50	63.0	89.9	35.5	30.0

Dimensions in mm

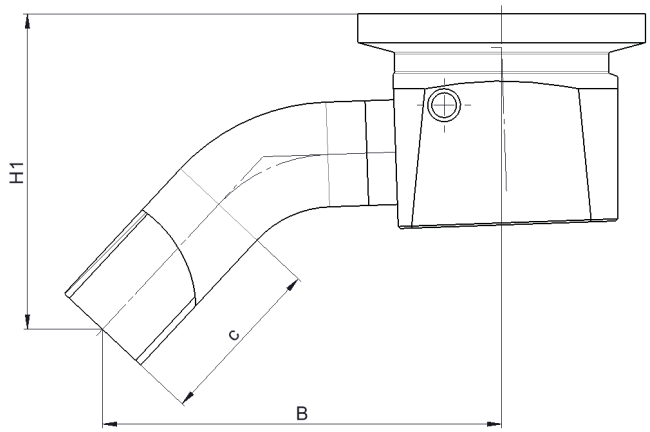
Dimensions

Seat size	DN	Connection type code 60, material code 41, 43, 44			
		H1	B	c	Pipe
G	6	35.1	46.0	25.4	20.0
	8	33.5	46.1	25.4	20.0
	10	31.6	46.2	25.4	20.0
J	15	36.4	52.2	25.4	20.0
	20	33.8	57.2	30.4	25.0
M	25	48.7	72.2	30.4	25.0
	32	44.3	72.4	30.4	25.0
P	40	65.8	84.8	30.4	25.0
	50	59.8	90.0	35.4	30.0

Seat size	DN	Connection type code 37, material code 41, 43, 44, A3			
		H1	B	c	Pipe
J	25	34.3	57.2	30.5	25.0
M	32	47.9	72.2	30.5	25.0
	40	45.7	72.3	30.5	25.0
P	50	63.7	89.9	35.5	30.0
	65	57.8	90.1	35.4	30.0

Dimensions in mm

Spigot with pipe bend



Seat size	DN	Connection type code 59, material code 41, 43, 44, A3		
		H1	B	c
G	6	-	-	-
	8	73.3	76.6	44.9
	10	72.0	82.6	39.0
	15	75.8	87.0	45.4
	20	72.6	87.1	45.4
J	25	76.5	97.1	41.4
M	40	92.9	124.4	39.8
P	50	120.3	152.4	46.6
	65	121.2	166.2	47.1

Seat size	DN	Connection type code 17, material code 41, 43, 44, A3		
		H1	B	c
G	6	59.1	67.9	22.2
	8	59.0	68.8	23.4
	10	59.8	71.3	25.0
	15	59.7	77.7	25.0
J	20	66.1	87.2	25.0
M	25	95.1	119.3	40.0
	32	93.7	122.9	40.0
	40	92.3	126.5	40.0
P	50	113.7	145.0	40.0

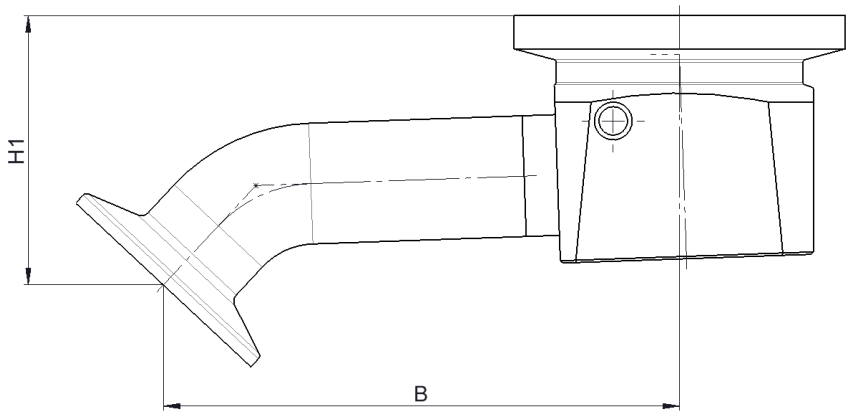
Dimensions in mm

Dimensions

Seat size	DN	Connection type code 60, material code 41, 43, 44, A3		
		H1	B	c
G	6	59.4	67.1	25.0
	8	57.8	67.1	25.0
	10	58.4	72.8	25.0
J	15	63.9	80.1	25.0
	20	71.6	89.4	40.0
M	25	88.0	111.0	40.0
	32	88.2	117.8	40.0
P	40	112.4	135.8	40.0
	50	112.5	149.3	40.0

Dimensions in mm

Clamp with pipe bend



Seat size	DN	Connection type code 59/88, material code 41, 43, 44, A3	
		H1	B
G	6	-	-
	8	56.0	94.1
	10	54.4	94.2
	15	53.8	100.6
	20	50.6	100.7
J	25	56.6	108.8
M	40	74.2	135.7
P	50	98.4	166.4
	65	98.1	181.5

Seat size	DN	Connection type code 17/86, material code 41, 43, 44, A3	
		H1	B
G	6	60.1	80.6
	8	59.1	81.8
	10	58.8	85.0
	15	58.6	91.4
J	20	56.2	100.9
M	25	83.8	137.8
	32	82.4	141.4
	40	81.0	145.0
P	50	102.4	163.5

Dimensions in mm

Dimensions

Seat size	DN	Connection type code 60/82, material code 41, 43, 44, A3	
		H1	B
G	6	58.4	80.6
	8	56.7	80.8
	10	57.4	86.5
J	15	63.0	93.8
	20	60.2	107.9
M	25	78.2	129.4
	32	76.8	136.3
P	40	101.1	154.3
	50	101.2	167.8

Dimensions in mm

Accessories



GEMÜ 12A0

Intelligent electrical position indicator

Independent of the actuator size and control function, the GEMÜ 12A0 electrical position indicator, as an automation module, is compatible with all pneumatically operated process valves of the new valve generation and with quarter turn valves. Contactless position detection determines the valve position precisely, reliably and without being subject to wear. The current valve position is displayed via high visibility LEDs, and fed back via electrical signals. In addition to this, there is an integrated mechanical position indicator. Modern communication interfaces, an integrated sensor system and the GEMÜ app operating option are all features that characterize the innovative electrical position indicator.



GEMÜ 44A0

Multi-functional valve actuation

Independent of the actuator size, the GEMÜ 44A0 multi-functional valve actuation, as an automation module, is compatible with all pneumatically operated process valves with single acting linear actuator of the new valve generation. Depending on the order variant and the set device functions, the connected process valves can be controlled conventionally open/closed (combi switchbox) or the valve position can be precisely controlled (positioner). Contactless position detection determines the valve position precisely, reliably and without being subject to wear. The current valve position is displayed via high visibility LEDs, and fed back via electrical signals. In addition to this, there is an integrated mechanical position indicator. Modern communication interfaces, an integrated sensor system and the GEMÜ app operating option are all features that characterize this innovative product.



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GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
Gert-Müller-Platz 1, 74635 Kupferzell, Germany
Phone +49 (0) 7940 1230 · info@gemue.de
www.gemu-group.com