

### Construction

The CleanStar® C50, C51 and C57 HPW ultra pure 2/2-way plastic diaphragm globe valves have a PTFE body. All medium wetted parts are made of PTFE. The external operator parts are made of PVDF. The union nuts are available in PVDF, PFA and C-PFA. An optical position indicator is integrated as standard. For type C50 a stroke limiter is available as standard or as an option depending on the operator size. In addition to 2/2-way valve bodies customised multi-port valve block solutions can be produced (see last page).

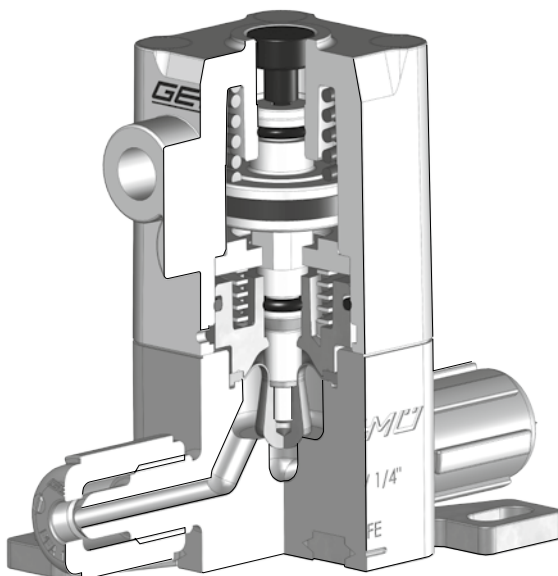
### Features

- Globe valve, small footprint
- All wetted parts PTFE
- PTFE diaphragm (one-piece, no diaphragm backing material)
- 5 million cycle duties qualified
- Standard connections and accessories
- Minimal deadleg
- Fast rinsing, minimal contamination
- High temperature application limit
- Good Kv value
- Cleanroom production (HP version), complies with SEMI F 57

### Advantages

- Compact design, low space requirement, good drainability
- Universal chemical resistance, wide range of applications
- Long service life, low operating costs
- Flexible and suitable for versatile use, also for high temperature applications
- Low pressure loss, low operating costs
- Size and cost reduction due to intermediate seat sizes
- Minimal contamination, suitable for high purity media

Sectional drawing



C50 HPW



C51 HPW



C57 HPW



## General technical data

### Working medium

Corrosive, inert, gaseous and liquid media - particularly high purity media - which have no negative impact on the physical and chemical properties of the body and diaphragm material.

### Flow direction

See arrow

### Operating pressure

Standard seat size max. 6.0 bar applied upstream

Intermediate seat size max. 4.2 bar applied upstream

Vacuum 400 mbar/abs\*

\* The life expectancy of the valve may be affected if exposed to a greater vacuum.

### Operating temperature

See temperature/pressure diagram

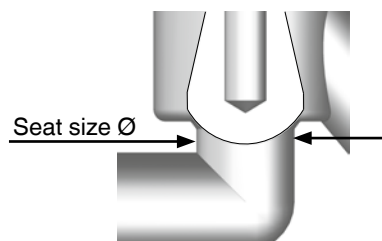
### Ambient temperature

Max. 60 °C (130 °F)

### Materials

Media wetted parts (body)	PTFE
Diaphragm	PTFE
External operator parts	PVDF

### Correlation operator/seat size/version



Operator size	1		2		3		4
Version	1A1	1B1	2A1	2B1	3A1	3B1	4A1
Ø seat size [mm]	6.38	9.20	9.55	15.30	15.80	21.00	22.25

Versions 1A1, 2A1, 3A1 and 4A1 are standard seat sizes with PN 6.

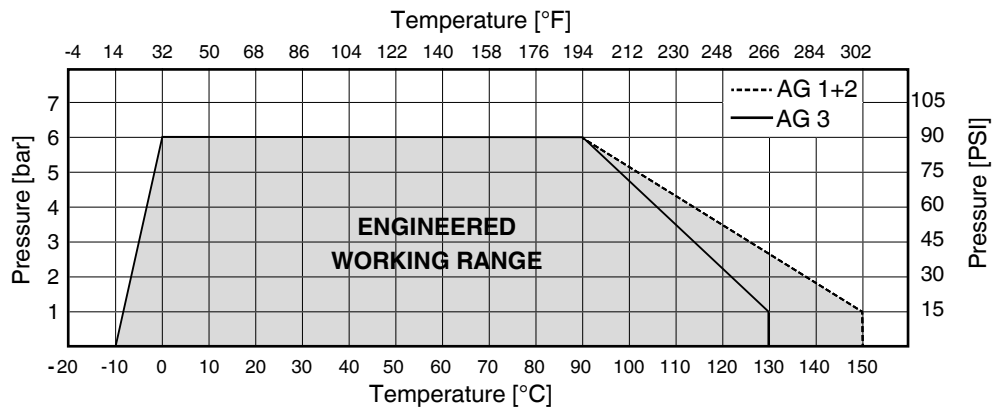
Versions 1B1, 2B1 and 3B1 are intermediate seat sizes where a smaller operator is combined with a larger seat (therefore reduced pressure - PN 4.2)

### Kv / Cv values - 2/2-way valves

Connection				Size			Max. operating pressure	Kv value	Cv value	Weight [g]		
Size		Connection	Code	Code intern.	DN	Operator version	[bar/PSI]	[l/min]	[US gal/min]	C50	C51	C57
1/4"	Tube	Flare	73, 75, 77	4	4	1A1	6.0 / 90	4.0	0.28	240	240	240
	Tube	Pillar Super 300 Type	79	4	4	1A1	6.0 / 90	4.0	0.28	240	240	240
3/8"	Tube	Flare	73, 75, 77	6	6	1A1	6.0 / 90	11.7	0.82	250	250	250
	Tube	Pillar Super 300 Type	79	6	6	1A1	6.0 / 90	11.7	0.82	250	250	250
1/2"	Tube	Flare	73, 75, 77	8	10	1B1	4.2 / 60	23.0	1.61	280	280	280
	Tube	Flare	73, 75, 77	8	10	2A1	6.0 / 90	23.7	1.66	560	598	580
	Tube	Pillar Super 300 Type	79	8	10	1B1	4.2 / 60	23.0	1.61	280	280	280
	Tube	Pillar Super 300 Type	79	8	10	2A1	6.0 / 90	23.7	1.66	560	598	580
3/4"	Tube	Flare	73, 75, 77	12	15	2B1	4.2 / 60	62.5	4.38	700	738	720
	Tube	Flare	73, 75, 77	12	15	3A1	6.0 / 90	75.0	5.25	1030	-	1040
	Tube	Pillar Super 300 Type	79	12	15	2B1	4.2 / 60	62.5	4.38	700	738	720
	Tube	Pillar Super 300 Type	79	12	15	3A1	6.0 / 90	75.0	5.25	1030	-	1040
1"	Tube	Flare	73, 75, 77	16	20	3B1	4.2 / 60	105.0	7.35	2180	-	2190
	Tube	Flare	73, 75, 77	16	20	4A1*	6.0 / 90	137.0	9.59	2740	-	-
	Tube	Pillar Super 300 Type	79	16	20	3B1	4.2 / 60	105.0	7.35	2180	-	2190
	Tube	Pillar Super 300 Type	79	16	20	4A1*	6.0 / 90	137.0	9.59	2740	-	-
1 1/4"	Tube	Flare	73, 75, 77	20	25	4A1*	6.0 / 90	145.0	10.15	2950	-	-
	Tube	Pillar Super 300 Type	79	20	25	4A1*	6.0 / 90	145.0	10.15	2950	-	-

\* on request

## Pressure / temperature diagram



### Information on the use of the temperature / pressure diagram

The temperature / pressure diagram is only an aid. The data refers to water as a working medium.

A change of operating conditions or other media may result in deviations. In case of doubt it is advisable to test the behavior of the material under the definitive operating conditions by means of a test installation.

## Technical data - GEMÜ C50 HPW

### Control pressure

Normally closed (NC)	4 - 7 bar
Normally open (NO)	4 - 7 bar*

\* A control pressure of 6-7 bar may reduce the life expectancy

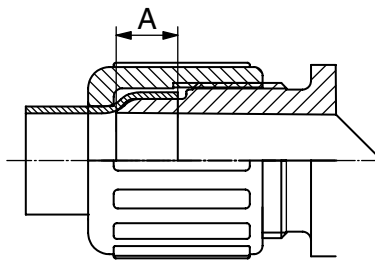
### Control medium connection

Connection size	G 1/8
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### Filling volume - C50 [cm<sup>3</sup>]

Operator size		Control function	Filling volume
1	1	Normally closed (NC)	5.30
	2	Normally open (NO)	4.80
2	1	Normally closed (NC)	18.39
	2	Normally open (NO)	25.10
3	1	Normally closed (NC)	25.34
	2	Normally open (NO)	37.71
4	1	Normally closed (NC)	83.52
	2	Normally open (NO)	105.68

## Dimensions / Tolerances



### Overlap dimensions and thread sizes of flare connections

Tube size	Thread designation	Standard	A mm [inch]
1/4"	1/2"-20-UNF	ANSI B 1.1	7.0 [0.27"]
3/8"	5/8"-20-UN	ANSI B 1.1	10.0 [0.39"]
1/2"	3/4"-20-UNEF	ANSI B 1.1	12.0 [0.47"]
3/4"	1"-20-UNEF	ANSI B 1.1	14.0 [0.55"]
1"	1 7/16"-12-UN	ANSI B 1.1	14.0 [0.55"]
1 1/4"	1 3/4"-8-UN	ANSI B 1.1	18.0 [0.71"]

### Tolerances

The **CleanStar®** plastic parts are manufactured to DIN 16901-140.

## Order data

Type	Code
Valve with pneumatic operator	C50
Manually operated - Toggle (Quarter Turn)	C51
Manually operated - Handwheel (Multi Turn)	C57

Nominal size	Code
1/4" DN 4	4
3/8" DN 6	6
1/2" DN 10	8
3/4" DN 15 (only C50/C57)	12
1" DN 20 (only C50/C57)	16
1 1/4" DN 25 (only C50/C57)	20

Body configuration	Code
2/2-way body	D

Valve body connection	Code
Flare connection with C-PFA union nut	73
Flare connection with PVDF union nut	75
Flare connection with PFA union nut	77
Pillar Super 300 type with PFA nut	79

Valve body material	Code
PTFE. polytetrafluoroethylene	26

Seal material	Code
PTFE	5

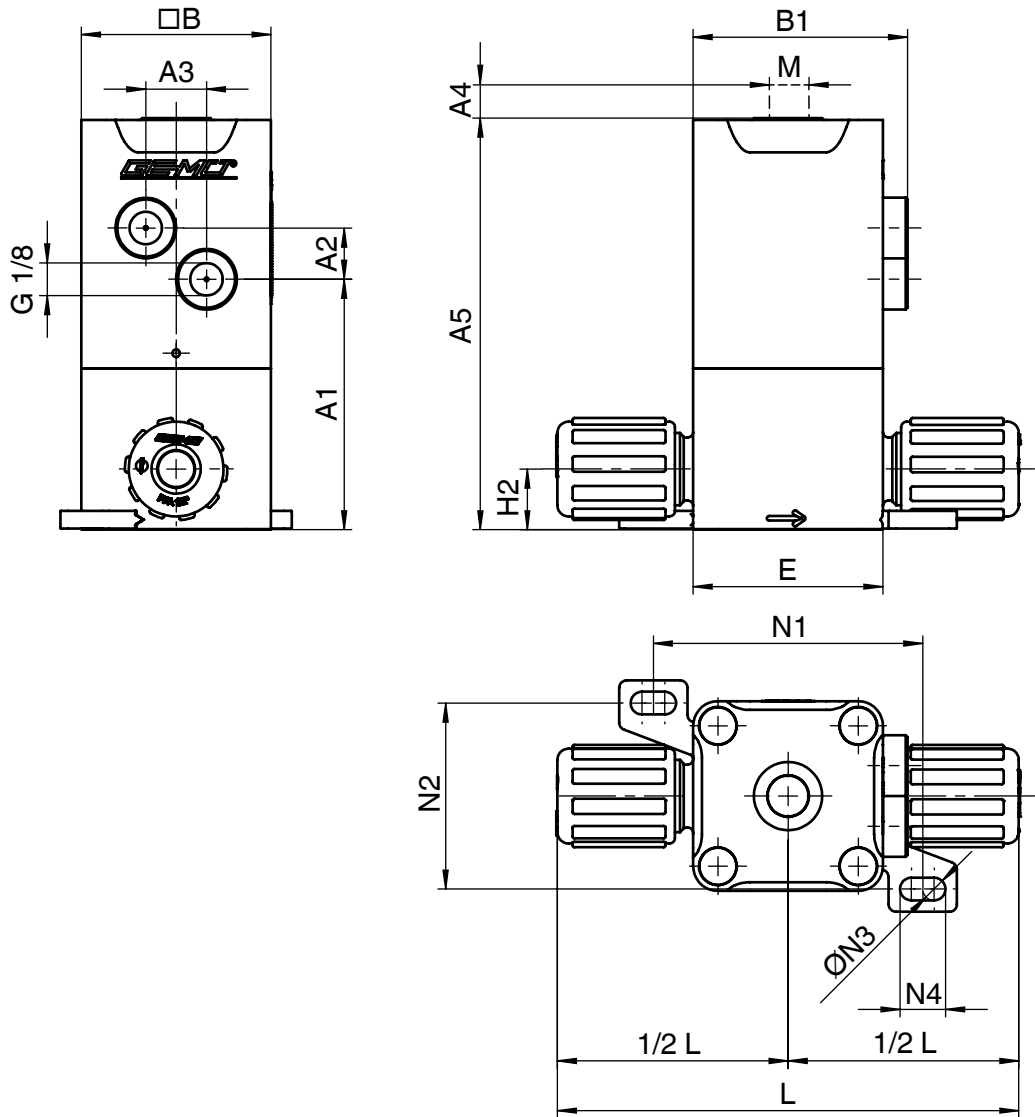
Control function	Code
Manually operated (only C51/C57)	0
Normally closed (only C50)	1
Normally open (only C50)	2

Operator version	Code
Operator size 1. seat Ø 6.38 mm	1A1
Operator size 1. seat Ø 9.20 mm	1B1
Operator size 2. seat Ø 9.55 mm	2A1
Operator size 2. seat Ø 15.30 mm	2B1
Operator size 3. seat Ø 15.80 mm (only C50/C57)	3A1
Operator size 3. seat Ø 21.00 mm (only C50/C57)	3B1
Operator size 4. seat Ø 22.25 mm (only C50/C57)	4A1*
For defining the operator version/size please refer to the table on page 2	
* on request	

Version	Code
High Purity white	HPW

Order example	C51	8	D	75	26	5	0	2A1	HPW
Type (code)	C51								
Nominal size (code)		8							
Body configuration (code)			D						
Valve body connection (code)				75					
Valve body material (code)					26				
Seal material (code)						5			
Control function (code)							0		
Operator version (code)								2A1	
Version (code)									HPW

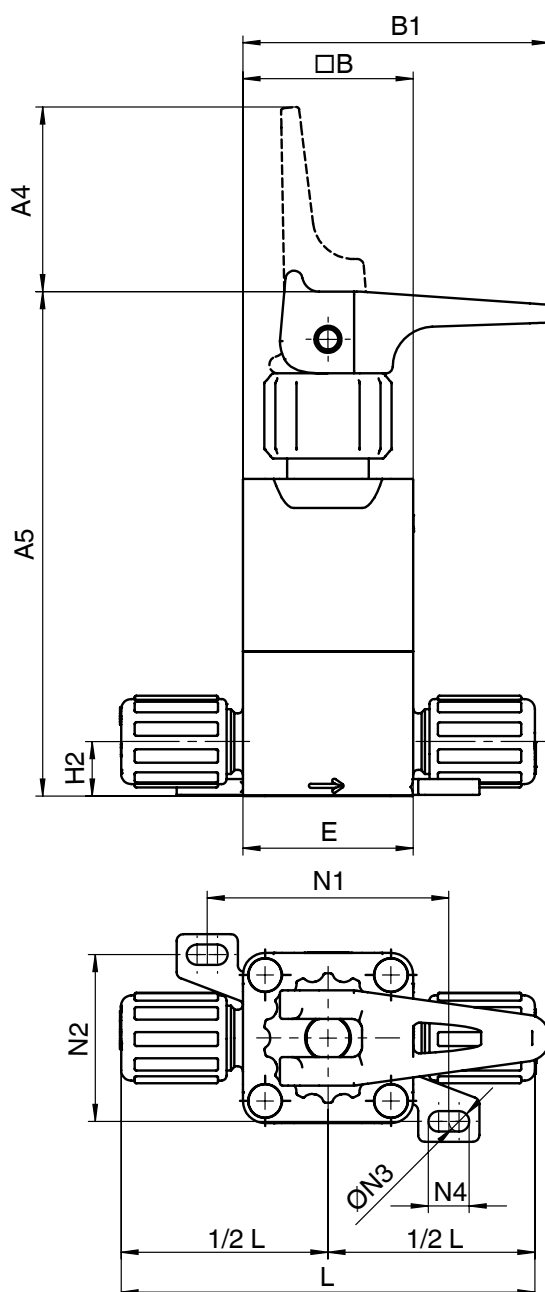
# Dimensions - C50 HPW [mm]



Size	Connection	Operator version	A1	A2	A3	A4	A5	$\square B$	B1	E	H2	L	M	N1	N2	$\varnothing N3$	N4
1/4"	Flare	1A1	54.5	11.0	12	3.0	85.0	37	45.5	37.0	13.5	98.4	M12x1	58.0	39	6	12
	Pillar Super 300 Type	1A1	54.5	11.0	12	3.0	85.0	37	45.5	37.0	13.5	75.0	M12x1	58.0	39	6	12
3/8"	Flare	1A1	54.5	11.0	12	3.0	85.0	37	45.5	37.0	13.5	104.8	M12x1	58.0	39	6	12
	Pillar Super 300 Type	1A1	56.5	11.0	12	3.0	87.0	37	45.5	37.0	15.5	87.0	M12x1	58.0	39	6	12
1/2"	Flare	1B1	64.0	11.0	12	3.0	94.5	37	45.5	41.0	16.0	111.6	M12x1	62.0	39	6	12
	Flare	2A1	66.0	13.5	16	4.5	108.5	50	57.0	50.0	16.0	121.6	M12x1	71.0	49	6	12
	Pillar Super 300 Type	1B1	66.0	11.0	12	3.0	96.5	37	45.5	41.0	18.0	99.0	M12x1	62.0	39	6	12
	Pillar Super 300 Type	2A1	66.0	13.5	16	4.5	108.5	50	57.0	50.0	16.0	108.0	M12x1	71.0	49	6	12
3/4"	Flare	2B1	85.5	13.5	16	4.5	128.0	50	57.0	60.0	19.0	136.4	M12x1	81.0	49	6	12
	Flare	3A1	91.5	17.0	24	5.5	143.5	58	62.0	65.0	19.0	141.4	M16x1	89.0	60	7	13
	Pillar Super 300 Type	2B1	87.0	13.5	16	4.5	129.5	50	57.0	60.0	20.5	132.0	M12x1	81.0	49	6	12
	Pillar Super 300 Type	3A1	93.0	17.0	24	5.5	145.0	58	62.0	65.0	20.5	137.0	M16x1	89.0	60	7	13
1"	Flare	3B1	99.5	17.0	24	5.5	151.5	58	62.0	67.5	25.0	164.7	M16x1	91.5	60	7	13
	Flare	4A1*	119.5	18.5	37	7.5	184.0	85	86.0	93.0	25.0	190.2	M16x1	118.0	74	9	15
	Pillar Super 300 Type	3B1	100.5	17.0	24	5.5	152.5	58	62.0	67.5	26.0	153.5	M16x1	91.5	60	7	13
	Pillar Super 300 Type	4A1*	120.5	18.5	37	7.5	185.0	85	86.0	93.0	26.0	179.0	M16x1	118.0	74	9	15
1 1/4"	Flare	4A1*	127.0	18.5	37	7.5	191.5	85	86.0	93.0	32.5	206.3	M16x1	118.0	74	9	15
	Pillar Super 300 Type	4A1*	128.0	18.5	37	7.5	192.5	85	86.0	93.0	33.5	217.0	M16x1	118.0	74	9	15

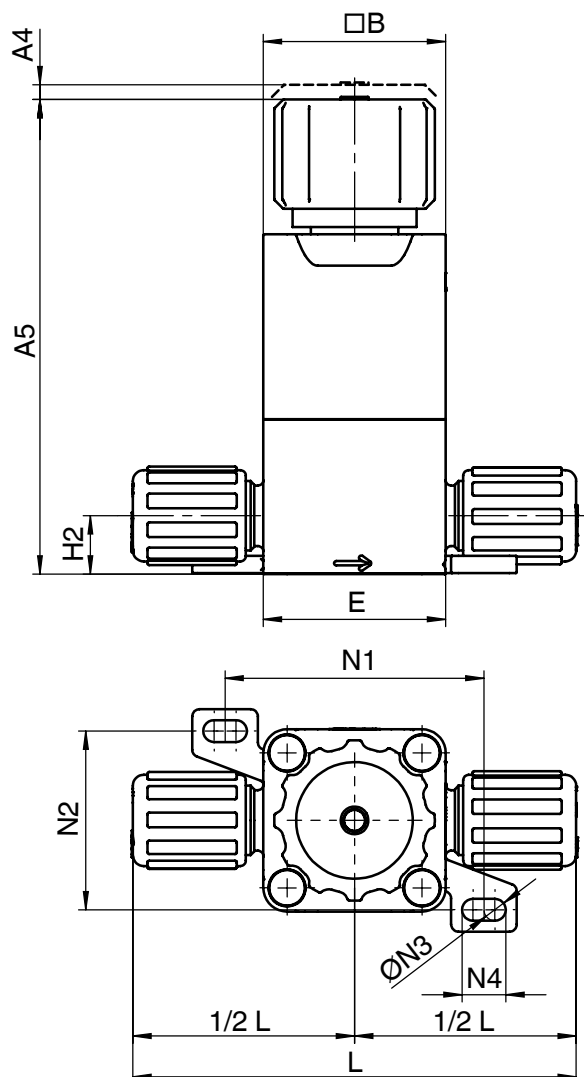
\* on request

## Dimensions - C51 HPW [mm]



Size	Connection	Operator version	A4	A5	□B	B1	E	H2	L	N1	N2	ØN3	N4
1/4"	Flare	1A1	29.7	113.9	37	57	37.0	13.5	98.4	58.0	39	6	12
	Pillar Super 300 Type	1A1	29.7	113.9	37	57	37.0	13.5	75.0	58.0	39	6	12
3/8"	Flare	1A1	29.7	113.9	37	57	37.0	13.5	104.8	58.0	39	6	12
	Pillar Super 300 Type	1A1	29.7	115.9	37	57	37.0	15.5	87.0	58.0	39	6	12
1/2"	Flare	1B1	29.7	123.4	37	57	41.0	16.0	111.6	62.0	39	6	12
	Flare	2A1	39.3	162.9	50	90	50.0	16.0	121.6	71.0	49	6	12
	Pillar Super 300 Type	1B1	29.7	125.4	37	57	41.0	18.0	99.0	62.0	39	6	12
	Pillar Super 300 Type	2A1	39.3	162.9	50	90	50.0	16.0	108.0	71.0	49	6	12
3/4"	Flare	2B1	39.3	182.4	50	90	60.0	19.0	136.4	81.0	49	6	12
	Pillar Super 300 Type	2B1	39.3	183.9	50	90	60.0	20.5	132.0	81.0	49	6	12

## Dimensions - C57 HPW [mm]



Size	Connection	Operator version	A4	A5	□B	E	H2	L	N1	N2	ØN3	N4
1/4"	Flare	1A1	2.5	106.0	37	37.0	13.5	98.4	58.0	39	6	12
	Pillar Super 300 Type	1A1	2.5	106.0	37	37.0	13.5	75.0	58.0	39	6	12
3/8"	Flare	1A1	2.5	106.0	37	37.0	13.5	104.8	58.0	39	6	12
	Pillar Super 300 Type	1A1	2.5	108.0	37	37.0	15.5	87.0	58.0	39	6	12
1/2"	Flare	1B1	2.5	116.0	37	41.0	16.0	111.6	62.0	39	6	12
	Flare	2A1	4.0	130.0	50	50.0	16.0	121.6	71.0	49	6	12
	Pillar Super 300 Type	1B1	2.5	118.0	37	41.0	18.0	99.0	62.0	39	6	12
	Pillar Super 300 Type	2A1	4.0	130.0	50	50.0	16.0	108.0	71.0	49	6	12
3/4"	Flare	2B1	4.0	150.0	50	60.0	19.0	136.4	81.0	49	6	12
	Flare	3A1	5.5	156.5	58	65.0	19.0	141.4	89.0	60	7	13
	Pillar Super 300 Type	2B1	4.0	151.5	50	60.0	20.5	132.0	81.0	49	6	12
	Pillar Super 300 Type	3A1	5.5	158.0	58	65.0	20.5	137.0	89.0	60	7	13
1"	Flare	3B1	5.5	164.5	58	67.5	25.0	164.7	91.5	60	7	13
	Flare	4A1*	8.5	178.5	85	93.0	25.0	190.2	118.0	74	9	15
	Pillar Super 300 Type	3B1	5.5	165.5	58	67.5	26.0	153.5	91.5	60	7	13
	Pillar Super 300 Type	4A1*	8.5	179.5	85	93.0	26.0	179.0	118.0	74	9	15
1 1/4"	Flare	4A1*	8.5	178.5	85	93.0	25.0	206.3	118.0	74	9	15
	Pillar Super 300 Type	4A1*	8.5	179.5	85	93.0	26.0	217.0	118.0	74	9	15

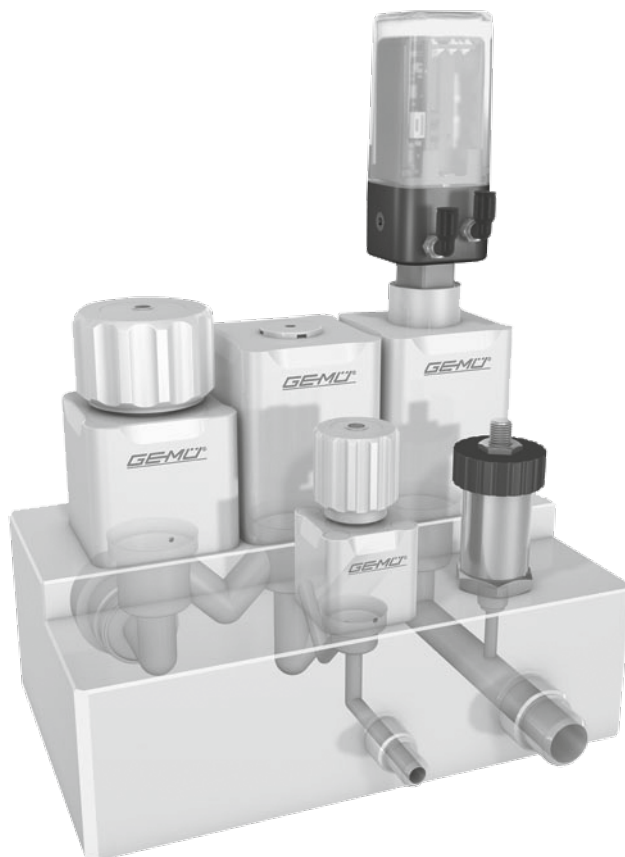
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## Multi-port valve block systems

### Customised solutions

Based on the GEMÜ C50, C51 and C57 valve types. GEMÜ implements customised multi-port valve solutions which can be used for many different applications through selection of the suitable body/block material.

Thanks to the mechanical manufacturing of the valve bodies, multi-port valve block solutions with a very wide variety of connection types are also possible in combinations depending on the requirements.



Features	Main advantages / customer benefits
Fully-integrated system solutions (valve functions, fittings, sensor system, check valves, tank/ housing walls)	Compact design, low space requirement, logistical advantage, reduction of installation time, few connection points, low maintenance, cost-effective
HP version (cleanroom production), HPS and standard	Suitable for many application areas
Bodies made of all machinable materials (PTFE, PVDF, PP, PVC, if necessary stainless steel)	Materials are media-specific, matched to requirements and cost-effective

For further valves, high purity products, accessories and other products .  
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Contact GEMÜ.

**GEMÜ®** VALVES, MEASUREMENT  
AND CONTROL SYSTEMS

