

GEMÜ 660

Pneumatically operated diaphragm valve



Features

- Easily adjustable, integrated opening stroke and closing stroke limiter
- Precise stroke scale (10 scale points per turn) on the actuator top
- High level of reproducibility of the flow rates due to distance sleeves integrated in the diaphragms
- Fast cycle duties due to minimized filling volume

Description

The GEMÜ 660 2/2-way diaphragm valve has a stainless steel piston actuator and is pneumatically operated. The valve was designed for dosing and filling a wide range of products. All actuator parts are made from stainless steel (except seals). Normally Closed (NC), Normally Open (NO) and Double Acting (DA) control functions are available. An opening stroke and closing stroke limiter and an optical position indicator are integrated as standard.

Technical specifications

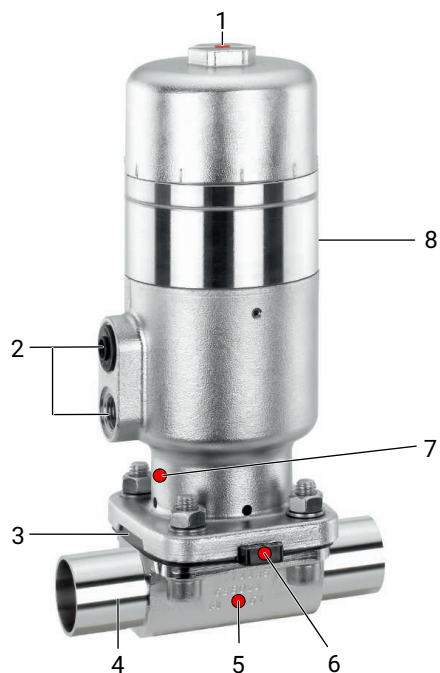
- **Media temperature :** -10 to 100 °C
- **Sterilization temperature:** Max. 150 °C
- **Ambient temperature:** 0 to 60 °C
- **Operating pressure :** 0 to 5 bar
- **Nominal sizes:** DN 4 to 25
- **Body configurations:** 2/2-way bodies | i-body | Multi-port bodies | T body | Tank valve body | Welding configuration
- **Connection types:** Clamp | Flange | Spigot | Thread
- **Connection standards:** ANSI | ASME | BS | DIN | EN | ISO | JIS | SMS
- **Body materials:** 1.4408, investment casting material | 1.4408, investment casting material, PFA lined | 1.4435 (316L), block material | 1.4435 (BN2), forged material | 1.4435 (F316L), forging material | 1.4435, investment casting material | 1.4539 (904L), forged material | 3.7035, titanium, block material
- **Diaphragm materials:** EPDM | PTFE/EPDM
- **Conformities:** 3A | BSE/TSE | CRN | EAC | EHEDG | FDA | FMEDA | Oxygen | Regulation (EC) No. 1935/2004 | Regulation (EC) No. 2023/2006 | Regulation (EU) No. 10/2011 | TA Luft (German Clean Air Act) | USP

Technical data depends on the respective configuration



Product description

Construction



Item	Name	Materials
1	Position indicator	
2	Control air connectors	
3	Diaphragm	EPDM PTFE/EPDM (one-piece)
4	Valve body	1.4408, investment casting 1.4435, investment casting 1.4435 (F316L), forged body 1.4435 (BN2), forged body, $\Delta Fe < 0.5\%$ 1.4539, forged body
5	CONEXO body RFID chip (see Conexo information)	
6	CONEXO diaphragm RFID chip (see Conexo information)	
7	CONEXO actuator RFID chip (see Conexo information)	
8	Pneumatic actuator	Stainless steel

Note:

The diaphragm valve GEMÜ 660 was specially developed for applications in the drinks filling sector. It is therefore important that the same volume of medium flows through the valve without any additional control systems for each opening procedure. To guarantee this behaviour, the diaphragm is equipped with four distance sleeves, meaning that equal compression of the diaphragm is achieved for each installation.

After a sterilization cycle, it may be necessary to retighten the diaphragm as a result of their material-related setting behaviour. However, this is not possible using distance sleeves. Experience has shown that, after a sterilization cycle in the beverages sector, the diaphragm is completely replaced during filling processes, which means that it is not necessary to retighten the diaphragm. If you want to use the valve in processes that have sterilization cycles, it can also be operated with a diaphragm that has no distance sleeves. However, this diaphragm must be ordered separately. The above-mentioned advantage to using distance sleeves does not apply in this case.

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".

Availability

Availability of grades of surface finish

Internal surface finishes for forged and block material bodies ¹⁾

Process contact surfaces	Mechanically polished ²⁾		Electropolished	
	Hygiene class DIN 11866	Code	Hygiene class DIN 11866	Code
$Ra \leq 0.80 \mu m$	H3	1502	HE3	1503
$Ra \leq 0.60 \mu m$	-	1507	-	1508
$Ra \leq 0.40 \mu m$	H4	1536	HE4	1537
$Ra^{3)} \leq 0.25 \mu m$	H5	1527	HE5	1516

Process contact surfaces in accordance with ASME BPE 2016 ⁴⁾	Mechanically polished ²⁾		Electropolished	
	ASME BPE surface designation	Code	ASME BPE surface designation	Code
$Ra \text{ Max.} = 0.76 \mu m$	SF3	SF3	-	-
$Ra \text{ Max.} = 0.64 \mu m$	SF2	SF2	SF6	SF6
$Ra \text{ Max.} = 0.51 \mu m$	SF1	SF1	SF5	SF5
$Ra \text{ Max.} = 0.38 \mu m$	-	-	SF4	SF4

Internal surface finishes for investment cast bodies

Process contact surfaces	Mechanically polished ²⁾	
	Hygiene class DIN 11866	Code
$Ra \leq 6.30 \mu m$	-	1500
$Ra \leq 0.80 \mu m$	H3	1502
$Ra^{5)} \leq 0.60 \mu m$	-	1507

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 value for pipe inside 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.
- 5) Not possible for GEMÜ connection code 59, DN 8 and GEMÜ connection code 0, DN 4.

Availability of valve bodies

Spigot

MG	DN	Connection type code ¹⁾																	
		0		16	17		18	35	36	37		55	59		60		63	64	65
		Material code ²⁾																	
		C3	40, 42, 44, F4	40, 42, 44, F4	C3	40, 42, 44, F4	40, 42, 44, F4	40, 42, 44, F4	40, 42, 44, F4	C3	40, 42, 44, F4	40, 42, 44, F4	C3	40, 42, 44, F4	C3	40, 42, 44, F4	40, 42, 44, F4	40, 42, 44, F4	40, 42, 44, F4
8	4	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	X	X	-	-	X	-	-	-	-	-	-	X	X	-	X
	8	-	-	-	X	X	-	-	X	-	-	X	X	X	X	X	X	-	X
	10	-	-	X	X	X	X	-	-	-	-	X	X	X	-	-	-	-	-
	15	-	-	-	-	-	-	-	-	-	-	X	X	X	-	-	-	-	-
10	10	-	-	X	X	X	X	-	X	-	-	X	-	X	X	X	X	-	X
	15	-	X	X	X	X	X	-	X	-	-	X	-	X	X	X	X	X	X
	20	-	-	-	-	-	-	-	-	-	-	X	X	X	-	-	-	-	-
25	15	-	X	X	X	X	X	-	X	-	-	-	-	-	X	X	X	X	X
	20	-	X	X	X	X	X	-	X	-	-	X	X	X	X	X	X	X	X
	25	-	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X

MG = diaphragm size, X = standard

1) Connection type

Code 0: Spigot DIN

Code 16: Spigot DIN EN 10357 series B (2014 edition; formerly DIN 11850 series 1)

Code 17: Spigot EN 10357 series A/DIN 11866 series A, formerly DIN 11850 series 2

Code 18: Spigot DIN 11850 series 3

Code 35: Spigot JIS-G 3447

Code 36: Spigot JIS-G 3459 schedule 10s

Code 37: Spigot SMS 3008

Code 55: Spigot BS 4825, Part 1

Code 59: Spigot ASME BPE/DIN EN 10357 series C (from 2022 edition)/DIN 11866 series C

Code 60: Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/DIN 11866 series B

Code 63: Spigot ANSI/ASME B36.19M schedule 10s

Code 64: Spigot ANSI/ASME B36.19M schedule 5s

Code 65: Spigot ANSI/ASME B36.19M schedule 40s

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code C3: 1.4435, investment casting

Code F4: 1.4539 / UNS N08904, forged body

Threaded connection

MG	DN	Connection type code ¹⁾	
		1, 1L	6, 6K
		Material code ²⁾	
		37	40, 42, 44, A3, F4
8	8	X	-
	10	-	W
10	10	-	W
	12	X	-
	15	X	W
25	15	X	W
	20	X	W
	25	X	W

MG = diaphragm size, X = standard

W = welded assembly

1) Connection type

Code 1: Threaded socket DIN ISO 228

Code 1L: Threaded socket DIN ISO 228 body length (FTF): 75 mm

Code 6: Threaded spigot DIN 11851

Code 6K: Cone spigot and union nut DIN 11851

2) Valve body material

Code 37: 1.4408, investment casting

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, $\Delta \text{Fe} < 0.5\%$

Clamp

MG	DN	Connection type code ¹⁾																	
		80, 8P		82		84		86		88, 8T		8A		8E		8F		8H	
		Material code ²⁾																	
		40, 42	F4	40, 42	F4	40, 42	F4	40, 42	F4	40, 42	F4	40, 42	F4	40, 42	F4	40, 42	F4	40, 42	F4
8	6	-	-	K	K	-	-	-	-	-	-	K	K	-	-	-	-	-	-
	8	K	K	K	K	-	-	-	-	-	-	K	K	-	-	-	-	W	W
	10	K	K	-	-	-	-	W	W	-	-	W	W	-	-	-	-	-	-
	15	K	K	-	-	W	W	-	-	W	W	-	-	-	-	-	-	-	-
10	10	K	W	K	W	-	-	W	W	-	-	K	W	-	-	-	-	K	W
	15	K	W	W	W	K	W	W	W	K	W	K	W	-	-	-	-	K	W
	20	K	W	-	-	K	W	-	-	K	W	-	-	-	-	-	-	-	-
25	15	-	-	W	W	K	K	W	W	-	-	K	K	-	-	-	-	K	W
	20	K	K	K	W	K	K	W	W	K	K	K	K	-	-	-	-	-	-
	25	K	W	K	W	-	-	W	W	K	W	K	W	K	W	K	W	-	-

MG = diaphragm size

K = connections completely machined (not welded)

W = welded assembly

1) Connection type

Code 80: Clamp ASME BPE, face-to-face dimension FTF ASME BPE, length only for body configurations D & F

Code 82: Clamp DIN 32676 series B, face-to-face dimension FTF EN 558 series 7, length only for body configuration D

Code 84: Clamp for pipe BS 4825 Part 1, DN 15 and DN 20, clamp OD 25.0 mm, face-to-face dimension FTF acc. to EN 558 series 7, length only for body configuration D

Code 86: Clamp DIN 32676 series A

Code 88: Clamp ASME BPE, for pipe ASME BPE, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

Code 8A: Clamp DIN 32676 series A, face-to-face dimension FTF acc. to EN 558 series 7, length only for body configuration D

Code 8E: Clamp ISO 2852 for pipe ISO 2037, clamp SMS 3017 for pipe SMS 3008, face-to-face dimension FTF EN 558 series 7, length only for body configuration D

Code 8F: Clamp IDF/ISO for pipe JIS-G 3447, face-to-face dimension FTF EN 558 series 7, length only for body configuration D

Code 8H: Clamp IDF/ISO for pipe JIS-G 3459, face-to-face dimension FTF EN 558 series 7, length only for body configuration D

Code 8P: Clamp DIN 32676 series C, face-to-face dimension FTF ASME BPE, length only for body configurations D & F

Code 8T: Clamp DIN 32676 series C, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code F4: 1.4539 / UNS N08904, forged body

Availability of diaphragm materials

MG	Diaphragm material	
	EPDM	PTFE/EPDM
8	3A	54
10	13	54
25	13	54

MG = diaphragm size

Availability of product compliance

Food	Diaphragm material	
	PTFE/EPDM	
3A	54	

	Diaphragm material code ¹⁾	Body material code ²⁾
Drinking water		
Belgaqua (B)	28	37, C3

1) **Diaphragm material**

Code 28: EPDM

2) **Valve body material**

Code 37: 1.4408, investment casting

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
Diaphragm valve, pneumatically operated, stainless steel piston actuator, stroke limiter and seal adjuster	660

2 DN	Code
4	4
DN 6	6
DN 8	8
DN 10	10
DN 12	12
DN 15	15
DN 20	20
DN 25	25

3 Body configuration	Code
Tank bottom valve body	B
Body configuration code B: Dimensions and designs on request	
2/2-way body	D
T body	T
Body configuration code T: Dimensions on request	

4 Connection type	Code
Spigot	
Spigot DIN	0
Spigot DIN EN 10357 series B (2014 edition; formerly DIN 11850 series 1)	16
Spigot EN 10357 series A/DIN 11866 series A, formerly DIN 11850 series 2	17
Spigot DIN 11850 series 3	18
Spigot JIS-G 3447	35
Spigot JIS-G 3459 schedule 10s	36
Spigot SMS 3008	37
Spigot BS 4825, Part 1	55
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
Spigot ANSI/ASME B36.19M schedule 10s	63
Spigot ANSI/ASME B36.19M schedule 5s	64
Spigot ANSI/ASME B36.19M schedule 40s	65
Threaded connection	
Threaded socket DIN ISO 228	1
Threaded socket DIN ISO 228 body length (FTF): 75 mm	1L
Threaded spigot DIN 11851	6
Cone spigot and union nut DIN 11851	6K

4 Connection type	Code
Clamp	
Clamp ASME BPE, face-to-face dimension FTF ASME BPE, length only for body configurations D & F	80
Clamp DIN 32676 series B, face-to-face dimension FTF EN 558 series 7, length only for body configuration D	82
Clamp ASME BPE, for pipe ASME BPE, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F	88
Clamp DIN 32676 series A, face-to-face dimension FTF acc. to EN 558 series 7, length only for body configuration D	8A
Clamp ISO 2852 for pipe ISO 2037, clamp SMS 3017 for pipe SMS 3008, face-to-face dimension FTF EN 558 series 7, length only for body configuration D	8E
Clamp DIN 32676 series C, face-to-face dimension FTF ASME BPE, length only for body configurations D & F	8P
Clamp DIN 32676 series C, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F	8T

5 Valve body material	Code
Investment casting material	
1.4408, investment casting	37
1.4435, investment casting	C3
Forged material	
1.4435 (F316L), forged body	40
1.4435 (BN2), forged body, $\Delta Fe < 0.5\%$	42
1.4539 / UNS N08904, forged body	F4

6 Diaphragm material	Code
Elastomer	
EPDM	3A
EPDM	13
Note: The EPDM diaphragm (code 3A) is only available in diaphragm size 8.	
PTFE	
PTFE/EPDM one-piece	54

7 Control function	Code
Normally closed (NC)	1
Normally open (NO)	2
Double acting (DA)	3

8 Actuator version	Code
Actuator size 0R1 control air connector 90° offset to flow direction	0R1

Order data

8 Actuator version	Code	9 Surface	Code
Actuator size 0T1 control air connector in-line with flow direction	0T1	Ra ≤ 0.4 µm for media wetted surfaces, in accordance with DIN 11866 HE4, electropolished internal/external	1537
Actuator size 1T1 control air connector in-line with flow direction	1T1	Ra max. 0.51 µm (20 µin.) for media wetted surfaces, in accordance with ASME BPE SF1, mechanically polished internal	SF1
Actuator size 1R1 control air connector 90° offset to flow direction	1R1	Ra max. 0.64 µm (25 µin.) for media wetted surfaces, in accordance with ASME BPE SF2, mechanically polished internal	SF2
Actuator size 2T1 control air connector in-line with flow direction	2T1	Ra max. 0.76 µm (30 µin.) for media wetted surfaces, in accordance with ASME BPE SF3, mechanically polished internal	SF3
Actuator size 2R1 control air connector 90° offset to flow direction	2R1	Ra max. 0.38 µm (15 µin.) for media wetted surfaces, in accordance with ASME BPE SF4, electropolished internal/external	SF4
9 Surface	Code	Ra max. 0.51 µm (20 µin.) for media wetted surfaces, in accordance with ASME BPE SF5, electropolished internal/external	SF5
Ra ≤ 6.3 µm for media wetted surfaces, mechanically polished internal	1500	Ra max. 0.64 µm (25 µin.) for media wetted surfaces, in accordance with ASME BPE SF6, electropolished internal/external	SF6
Ra ≤ 0.8 µm for media wetted surfaces, in accordance with DIN 11866 H3, mechanically polished internal	1502		
Ra ≤ 0.8 µm for media wetted surfaces, in accordance with DIN 11866 HE3, electropolished internal/external	1503		
Ra ≤ 0.6 µm for media wetted surfaces, mechanically polished internal	1507		
Ra ≤ 0.6 µm for media wetted surfaces, electropolished internal/external	1508		
Ra ≤ 0.25 µm for media wetted surfaces *), in accordance with DIN 11866 HE5, electropolished internal/external, *) for inner pipe diameter < 6 mm, in spigot Ra ≤ 0.38 µm	1516		
Ra ≤ 0.25 µm for media wetted surfaces *), in accordance with DIN 11866 H5, mechanically polished internal, *) for inner pipe diameter < 6 mm, in spigots Ra ≤ 0.38 µm	1527		
Ra ≤ 0.4 µm for media wetted surfaces, in accordance with DIN 11866 H4, mechanically polished internal	1536		
10 Special version	Code		
Without			
Special version for 3A	M		
Special version for oxygen applications. Operating temperature restricted according to product label. Media wetted materials cleaned. Seals and oxygen grease used tested according to DIN EN 1797 / ISO 21010	S		
11 CONEXO	Code		
Without			
Integrated RFID chip for electronic identification and traceability	C		

Order example

Ordering option	Code	Description
1 Type	660	Diaphragm valve, pneumatically operated, stainless steel piston actuator, stroke limiter and seal adjuster
2 DN	15	DN 15
3 Body configuration	D	2/2-way body
4 Connection type	60	Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/DIN 11866 series B
5 Valve body material	40	1.4435 (F316L), forged body
6 Diaphragm material	54	PTFE/EPDM one-piece
7 Control function	1	Normally closed (NC)
8 Actuator version	2T1	Actuator size 2T1 control air connector in-line with flow direction
9 Surface	1503	Ra ≤ 0.8 µm for media wetted surfaces, in accordance with DIN 11866 HE3, electropolished internal/external
10 Special version		Without

Ordering option	Code	Description
11 CONEXO		Without

Technical data

Medium

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.
The valve will seal in both flow directions up to full operating pressure (gauge pressure).
For special oxygen version (code S): only gaseous oxygen

Control medium: Inert gases

Temperature

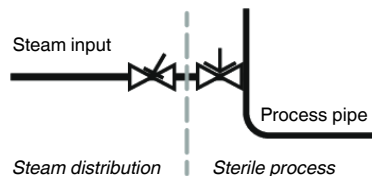
Media temperature: Drinks filling -10 – 85 °C
Other applications -10 – 100 °C

Diaphragm material	Standard	Special version for oxygen
EPDM (code 3A/13)	-10 – 100 °C	0 – 60 °C
PTFE/EPDM (code 54)	-10 – 100 °C	0 – 60 °C

Sterilization temperature: EPDM (code 3A/13) max. 150 °C, max. 60 min per cycle
PTFE/EPDM (code 54) max. 150 °C, constant temperature per cycle

The sterilization temperature is only valid for steam (saturated steam) or superheated water.
If the sterilization temperatures listed above are applied to the EPDM diaphragms for longer periods of time, the service life of the diaphragms will be reduced. In these cases, maintenance cycles must be adapted accordingly.

PTFE diaphragms can also be used as steam barriers; however, this will reduce their service life. This also applies to PTFE diaphragms exposed to high temperature fluctuations. The maintenance cycles must be adapted accordingly. GEMÜ 555 and 505 globe valves are particularly suitable for use in the area of steam generation and distribution. The following valve arrangement for interfaces between steam pipes and process pipes has proven itself over time: A globe valve for shutting off steam pipes and a diaphragm valve as an interface to the process pipes.



Ambient temperature: 0 – 60 °C

Control medium temperature: 0 – 60 °C

Storage temperature: 0 – 40 °C

Pressure

Operating pressure:

MG	DN	Actuator version (code)	Diaphragm material	
			EPDM	PTFE
8	4 - 15	0T1, 0R1	0 - 5	0 - 5
10	10 - 20	1T1, 1R1	0 - 5	0 - 5
25	15 - 25	2T1, 2R1	0 - 5	0 - 5

MG = diaphragm size

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.

Observe control pressure / operating pressure diagram

Pressure rating:

PN 16

Leakage rate:

Leakage rate A to P11/P12 EN 12266-1

Control pressure:

MG	DN	Actuator version (code)	Control function	
			1	2 + 3
8	4 - 15	0T1, 0R1	5.0 - 7.0	max. 5.5
10	10 - 20	1T1, 1R1	5.0 - 7.0	max. 7.0
25	15 - 25	2T1, 2R1	4.0 - 7.0	max. 7.0

MG = diaphragm size

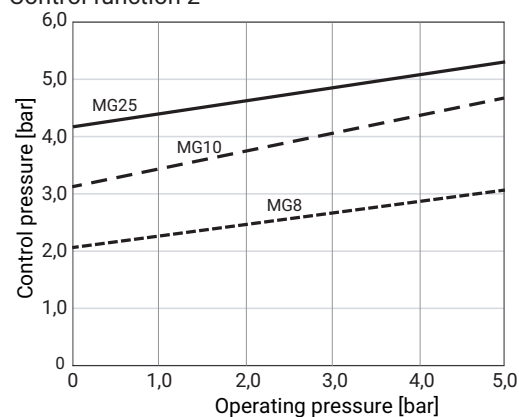
All pressures are bar – gauge pressure. Operating pressure values were determined with static operating pressure applied on one side of a closed valve. Sealing at the valve seat and atmospheric sealing is ensured for the given values.

Information on operating pressures applied on both sides and for high purity media on request.

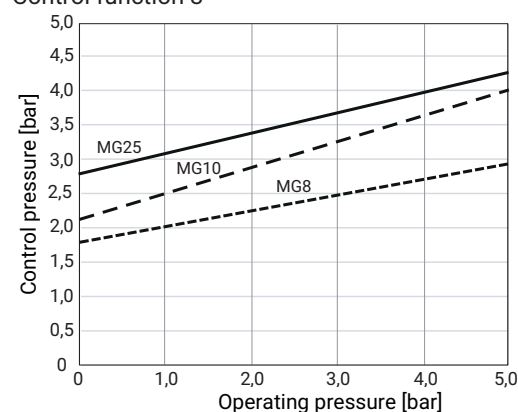
Control pressure/operating pressure diagram:

GEMÜ 660: Control pressure/operating pressure diagram – Control function 2 and 3

Control function 2



Control function 3



The control pressure depending on the prevailing operating pressure, as shown in the diagram, is intended as a guide for operating the system with low wear on the diaphragm.

Filling volume:

Actuator version (code)	Control function 1	Control function 2 + 3
0T1, 0R1	0.007	0.006
1T2, 1R1	0.021	0.010
2T1, 2R1	0.060	0.038

Filling volume in dm³

Kv values:

MG	DN	Connection type (code)							
		0	16	17	18	37	59	60	1, 1L
8	4	0.5	-	-	-	-	-	-	-
	6	-	-	1.1	-	-	-	1.2	-
	8	-	-	1.3	-	-	0.6	2.2	1.4
	10	-	2.1	2.1	2.1	-	1.3	-	-
	15	-	-	-	-	-	2.0	-	-
10	10	-	2.4	2.4	2.4	-	2.2	3.3	-
	12	-	-	-	-	-	-	-	3.2
	15	3.3	3.8	3.8	3.8	-	2.2	4.0	3.4
	20	-	-	-	-	-	3.8	-	-
25	15	4.1	4.7	4.7	4.7	-	-	7.4	6.5
	20	6.3	7.0	7.0	7.0	-	4.4	13.2	10.0
	25	13.9	15.0	15.0	15.0	12.6	12.2	16.2	14.0

MG = diaphragm size, Kv values in m³/h

Kv values determined in accordance with DIN EN 60534 standard, inlet pressure 5 bar, Δp 1 bar, stainless steel valve body 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.

The Kv value curve (Kv value dependent on valve stroke) can vary depending on the diaphragm material and term of use.

Product compliance

Machinery Directive: 2006/42/EC

Pressure Equipment Directive: 2014/68/EU

Food: Regulation (EC) No. 1935/2006
Regulation (EC) No. 10/2011*
FDA*
USP* Class VI

TA Luft (German Clean Air Act): The product meets the following requirements under the maximum permissible operating conditions:

- Tightness or compliance with the specific leak rate as defined in TA Luft (German Clean Air Act) and VDI 2440 and VDI 2290
- Compliance with the requirements in accordance with DIN EN ISO 15848-1, Table C.2, Class BH

* depending on version and/or operating parameters

Mechanical data

Weight:

Actuator

MG	DN	Weight
8	4 – 15	0.65
10	10 – 20	1.30
25	15 – 25	3.60

Weights in kg
MG = diaphragm size

Body

MG	DN	Spigot	Threaded socket	Threaded spigot, cone spigot	Clamp
		Connection type code			
		0, 16, 17, 18, 35, 36, 37, 55, 59, 60, 63, 64, 65	1, 1L	6, 6K	80, 82, 84, 86, 88, 8A, 8E, 8F, 8H, 8P, 8T
8	4	0.09	-	-	-
	6	0.09	-	-	-
	8	0.09	0.09	-	0.15
	10	0.09	-	0.21	0.18
	15	0.09	-	-	0.18
10	10	0.30	-	0.33	0.30
	12	-	0.17	-	-
	15	0.30	0.26	0.35	0.43
	20	-	-	-	0.43
25	15	0.62	0.32	0.71	0.75
	20	0.58	0.34	0.78	0.71
	25	0.55	0.39	0.79	0.63

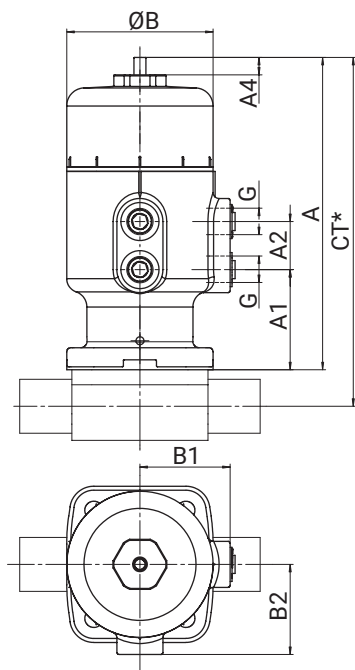
Weights in kg
MG = diaphragm size

Installation position: Optional

Installation position: Observe the angle of rotation for optimized draining when it comes to installation.
See separate document, "Angle of rotation technical information".

Dimensions

Actuator dimensions



MG	Control function	Actuator version	A	A1	A2	A4	B	B1	B2	G
8	1	T	109.0	50.0	21.0	4.5	38.0	28.0	28.0	M5
		R								
	2 + 3	T	92.0	50.0	21.0	4.5	38.0	28.0	28.0	
		R								
10	1	T	139.0	37.0	27.0	6.5	50.0	34.0	26.0	G 1/8
		R							37.0	
	2 + 3	T	120.0	37.0	27.0	6.5	50.0	34.0	26.0	
		R							37.0	
25	1	T	183.0	50.0	24.0	9.0	73.0	45.0	39.0	G 1/4
		R							51.0	
	2 + 3	T	148.0	50.0	24.0	9.0	73.0	45.0	39.0	
		R							51.0	

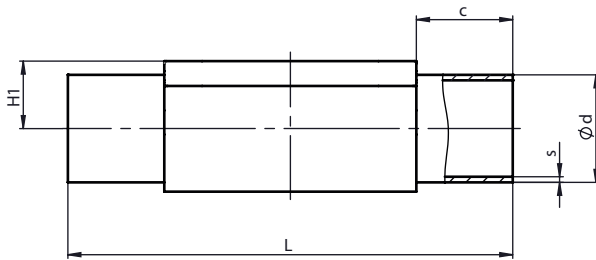
Dimensions in mm

MG = diaphragm size

* CT = A + H1 (see body dimensions)

Body dimensions

Spigot DIN/EN/ISO (code 0, 16, 17, 18, 60)



Connection type spigot DIN/EN/ISO (code 0, 16, 17, 18, 60)¹⁾, forged material (code 40, 42, F4)²⁾

MG	DN	NPS	c (min)	ød					H1	L	s				
				Connection type							Connection type				
				0	16	17	18	60			0	16	17	18	60
8	4	-	20.0	6.0	-	-	-	-	8.5	72.0	1.0	-	-	-	-
	6	-	20.0	-	-	8.0	-	10.2	8.5	72.0	-	-	1.0	-	1.6
	8	1/4"	20.0	-	-	10.0	-	13.5	8.5	72.0	-	-	1.0	-	1.6
	10	3/8"	20.0	-	12.0	13.0	14.0	-	8.5	72.0	-	1.0	1.5	2.0	-
10	10	3/8"	25.0	-	12.0	13.0	14.0	17.2	12.5	108.0	-	1.0	1.5	2.0	1.6
	15	1/2"	25.0	18.0	18.0	19.0	20.0	21.3	12.5	108.0	1.5	1.0	1.5	2.0	1.6
25	15	1/2"	25.0	18.0	18.0	19.0	20.0	21.3	19.0	120.0	1.5	1.0	1.5	2.0	1.6
	20	3/4"	25.0	22.0	22.0	23.0	24.0	26.9	19.0	120.0	1.5	1.0	1.5	2.0	1.6
	25	1"	25.0	28.0	28.0	29.0	30.0	33.7	19.0	120.0	1.5	1.0	1.5	2.0	2.0

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 0: Spigot DIN

Code 16: Spigot DIN EN 10357 series B (2014 edition; formerly DIN 11850 series 1)

Code 17: Spigot EN 10357 series A/DIN 11866 series A, formerly DIN 11850 series 2

Code 18: Spigot DIN 11850 series 3

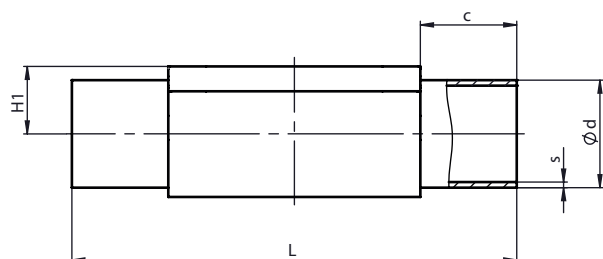
Code 60: Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/DIN 11866 series B

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code F4: 1.4539 / UNS N08904, forged body



Connection type spigot DIN/EN/ISO (code 0, 17, 60)¹⁾, investment casting material (code C3)²⁾

MG	DN	NPS	c (min)	ød			H1	L	s		
				Connection type					Connection type		
				0	17	60			0	17	60
8	4	-	20.0	6.0	-	-	8.5	72.0	1.0	-	-
	6	-	20.0	-	8.0	-	8.5	72.0	-	1.0	-
	8	1/4"	20.0	-	10.0	13.5	8.5	72.0	-	1.0	1.6
	10	3/8"	20.0	-	13.0	-	8.5	72.0	-	1.5	-
10	10	3/8"	25.0	-	13.0	17.2	12.5	108.0	-	1.5	1.6
	15	1/2"	25.0	-	19.0	21.3	12.5	108.0	-	1.5	1.6
25	15	1/2"	25.0	-	19.0	21.3	13.0	120.0	-	1.5	1.6
	20	3/4"	25.0	-	23.0	26.9	16.0	120.0	-	1.5	1.6
	25	1"	25.0	-	29.0	33.7	19.0	120.0	-	1.5	2.0

Dimensions in mm

MG = diaphragm size

1) **Connection type**

Code 0: Spigot DIN

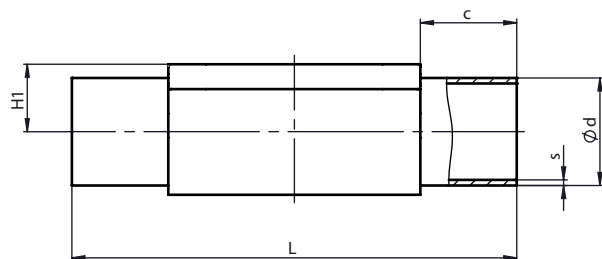
Code 17: Spigot EN 10357 series A/DIN 11866 series A, formerly DIN 11850 series 2

Code 60: Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/DIN 11866 series B

2) **Valve body material**

Code C3: 1.4435, investment casting

Spigot ASME/BS (code 55, 59, 63, 64, 65)



Connection type spigot ASME/BS (code 55, 59, 63, 64, 65)¹⁾, forged material (code 40, 42, F4)²⁾

Connection type: upset A&M2 L (code 55, 59, 63, 64, 65) ; forged material (code 10, 12, 14)															
MG	DN	NPS	c (min)	ød					H1	L	s				
				Connection type							Connection type				
				55	59	63	64	65			55	59	63	64	65
8	6	-	20.0	-	-	10.3	-	10.3	8.5	72.0	-	-	1.24	-	1.73
	8	1/4"	20.0	6.35	6.35	13.7	-	13.7	8.5	72.0	1.2	0.89	1.65	-	2.24
	10	3/8"	20.0	9.53	9.53	-	-	-	8.5	72.0	1.2	0.89	-	-	-
	15	1/2"	20.0	12.70	12.70	-	-	-	8.5	72.0	1.2	1.65	-	-	-
10	10	3/8"	25.0	9.53	9.53	17.1	-	17.1	12.5	108.0	1.2	0.89	1.65	-	2.31
	15	1/2"	25.0	12.70	12.70	21.3	21.3	21.3	12.5	108.0	1.2	1.65	2.11	1.65	2.77
	20	3/4"	25.0	19.05	19.05	-	-	-	12.5	108.0	1.2	1.65	-	-	-
25	15	1/2"	25.0	-	-	21.3	21.3	21.3	19.0	120.0	-	-	2.11	1.65	2.77
	20	3/4"	25.0	19.05	19.05	26.7	26.7	26.7	19.0	120.0	1.2	1.65	2.11	1.65	2.87
	25	1"	25.0	-	25.40	33.4	33.4	33.4	19.0	120.0	-	1.65	2.77	1.65	3.38

Connection type spigot ASME BPE (code 59)¹⁾, investment casting material (code C3)²⁾

MG	DN	NPS	c (min)	Ød	H1	L	s
8	8	1/4"	20.0	6.35	8.5	72.0	0.89
	10	3/8"	20.0	9.53	8.5	72.0	0.89
	15	1/2"	20.0	12.70	8.5	72.0	1.65
10	20	3/4"	25.0	19.05	12.5	108.0	1.65
25	20	3/4"	25.0	19.05	16.0	120.0	1.65
	25	1"	25.0	25.40	19.0	120.0	1.65

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 55: Spigot BS 4825, Part 1

Code 59: Spigot ASME BPE/DIN EN 10357 series C (from 2022 edition)/DIN 11866 series C

Code 63: Spigot ANSI/ASME B36.19M schedule 10s

Code 64: Spigot ANSI/ASME B36.19M schedule 5s

Code 65: Spigot ANSI/ASME B36.19M schedule 40s

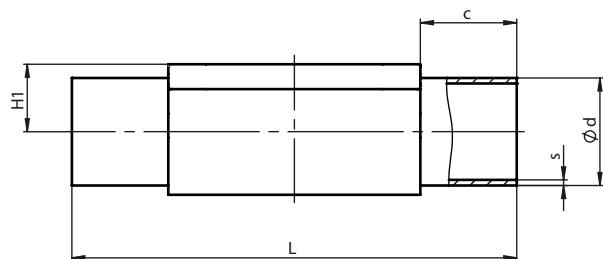
2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code C3: 1.4435, investment casting

Code F4: 1.4539 / UNS N08904, forged body

Spigot JIS/SMS (code 35, 36, 37)**Connection type spigot JIS/SMS (code 35, 36, 37)¹⁾, forged material (code 40, 42, F4)²⁾**

Connection type: Spigot (10, 11), c/w (code 35, 36, 37) , forged material (code 10, 12, 14)											
MG	DN	NPS	c (min)	ød			H1	L	s		
				Connection type					Connection type		
				35	36	37			35	36	37
8	6	-	20.0	-	10.5	-	8.5	72.0	-	1.20	-
	8	1/4"	20.0	-	13.8	-	8.5	72.0	-	1.65	-
10	10	3/8"	25.0	-	17.3	-	12.5	108.0	-	1.65	-
	15	1/2"	25.0	-	21.7	-	12.5	108.0	-	2.10	-
25	15	1/2"	25.0	-	21.7	-	19.0	120.0	-	2.10	-
	20	3/4"	25.0	-	27.2	-	19.0	120.0	-	2.10	-
	25	1"	25.0	25.4	34.0	25.0	19.0	120.0	1.2	2.80	1.2

Connection type spigot SMS (code 37)¹⁾, investment casting material (code C3)²⁾

MG	DN	NPS	c (min)	ød	H1	L	s
25	25	1"	25.0	25.0	19.0	120.0	1.2

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 35: Spigot JIS-G 3447

Code 36: Spigot JIS-G 3459 schedule 10s

Code 37: Spigot SMS 3008

2) Valve body material

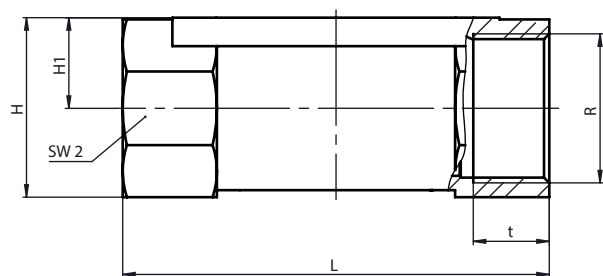
Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code C3: 1.4435, investment casting

Code F4: 1.4539 / UNS N08904, forged body

Threaded socket DIN (code 1)



Connection type threaded socket (code 1)¹⁾, investment casting material (code 37)²⁾

MG	DN	NPS	H	H1	L	n	R	SW 2	t
8	8	1/4"	19.0	9.0	72.0	6	G 1/4	18.0	11.0
10	15	1/2"	30.0	15.0	68.0	2	G 1/2	27.0	15.0
25	15	1/2"	28.3	14.8	85.0	6	G 1/2	27.0	15.0
	20	3/4"	33.3	17.3	85.0	6	G 3/4	32.0	16.0
	25	1"	42.3	21.8	110.0	6	G 1	41.0	19.0

Dimensions in mm

MG = diaphragm size

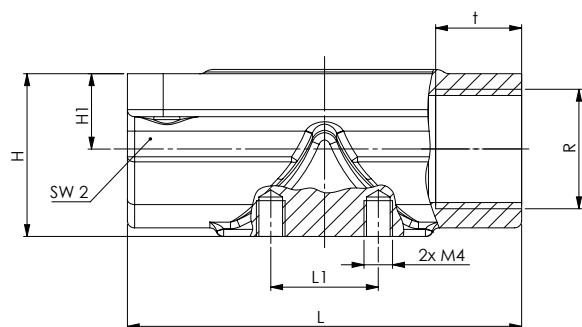
n = number of flats

1) **Connection type**

Code 1: Threaded socket DIN ISO 228

2) **Valve body material**

Code 37: 1.4408, investment casting

Threaded socket DIN (code 1, 1L)**Connection type threaded socket (code 1)¹⁾, investment casting material (code 37)²⁾**

MG	DN	NPS	H	H1	L	n	R	WAF 2	t	L1
10	12	3/8	22.7	10.5	55	2	G3/8	28	12	15

Connection type threaded socket (code 1L)¹⁾, investment casting material (code 37)²⁾

MG	DN	NPS	H	H1	L	n	R	WAF 2	t	L1
10	15	1/2	28.1	13	75	2	G1/2	32	15	15

Dimensions in mm

MG = diaphragm size

n = number of flats

1) Connection type

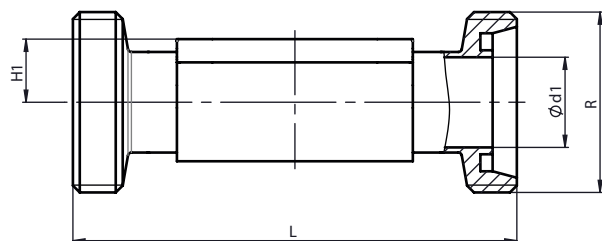
Code 1: Threaded socket DIN ISO 228

Code 1L: Threaded socket DIN ISO 228 body length (FTF): 75 mm

2) Valve body material

Code 37: 1.4408, investment casting

Threaded spigot DIN (code 6)



Connection type threaded spigot DIN (code 6)¹⁾, forged material (code 40, 42)²⁾

MG	DN	NPS	Ød1	H1	L	R
8	10	3/8"	10.0	8.5	92.0	Rd 28 x 1/8
10	10	3/8"	10.0	12.5	118.0	Rd 28 x 1/8
	15	1/2"	16.0	12.5	118.0	Rd 34 x 1/8
25	15	1/2"	16.0	19.0	118.0	Rd 34 x 1/8
	20	3/4"	20.0	19.0	118.0	Rd 44 x 1/6
	25	1"	26.0	19.0	128.0	Rd 52 x 1/6

Dimensions in mm

MG = diaphragm size

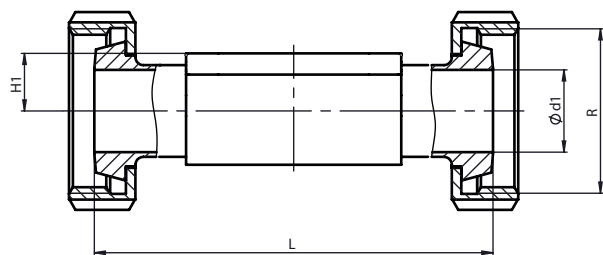
1) **Connection type**

Code 6: Threaded spigot DIN 11851

2) **Valve body material**

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Cone spigot DIN (code 6K)**Connection type cone spigot DIN (code 6K)¹⁾, forged material (code 40, 42)²⁾**

MG	DN	NPS	Ød1	H1	L	R
8	10	3/8"	10.0	8.5	90.0	Rd 28 x 1/8
10	10	3/8"	10.0	12.5	116.0	Rd 28 x 1/8
	15	1/2"	16.0	12.5	116.0	Rd 34 x 1/8
25	15	1/2"	16.0	19.0	116.0	Rd 34 x 1/8
	20	3/4"	20.0	19.0	114.0	Rd 44 x 1/6
	25	1"	26.0	19.0	127.0	Rd 52 x 1/6

Dimensions in mm

MG = diaphragm size

1) Connection type

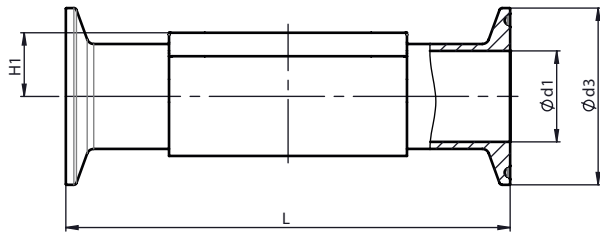
Code 6K: Cone spigot and union nut DIN 11851

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Clamp (code 80, 82, 88, 8A, 8E, 8P, 8T)



Connection type clamp DIN/ASME (code 80, 88, 8P, 8T)¹⁾, forged material (code 40, 42, F4)²⁾

MG	DN	NPS	ød1		ød3		H1	L	
			Connection type		Connection type			Connection type	
			80, 8P	88, 8T	80, 8P	88, 8T		80, 8P	88, 8T
8	8	1/4"	4.57	-	25.0	-	8.5	63.5	-
	10	3/8"	7.75	-	25.0	-	8.5	63.5	-
	15	1/2"	9.40	9.40	25.0	25.0	8.5	63.5	108.0
10	10	3/8"	7.75	-	25.0	-	12.5	88.9	-
	15	1/2"	9.40	9.40	25.0	25.0	12.5	88.9	108.0
	20	3/4"	15.75	15.75	25.0	25.0	12.5	101.6	117.0
25	20	3/4"	15.75	15.75	25.0	25.0	19.0	101.6	117.0
	25	1"	22.10	22.10	50.5	50.5	19.0	114.3	127.0

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 80: Clamp ASME BPE, face-to-face dimension FTF ASME BPE, length only for body configurations D & F

Code 88: Clamp ASME BPE, for pipe ASME BPE, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

Code 8P: Clamp DIN 32676 series C, face-to-face dimension FTF ASME BPE, length only for body configurations D & F

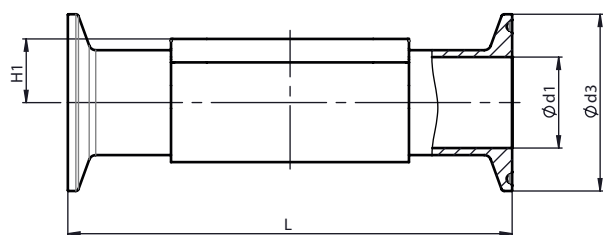
Code 8T: Clamp DIN 32676 series C, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code F4: 1.4539 / UNS N08904, forged body



Connection type clamp DIN/ISO (code 82, 86, 8A, 8E)¹⁾, forged material (code 40, 42, F4)²⁾

MG	DN	NPS	ød1				ød3				H1	L			
			Connection type				Connection type					Connection type			
			82	86	8A	8E	82	86	8A	8E		82	86	8A	8E
8	6	1/8"	7.0	-	6.0	-	25.0	-	25.0	-	8.5	63.5	-	63.5	-
	8	1/4"	10.3	-	8.0	-	25.0	-	25.0	-	8.5	63.5	-	63.5	-
	10	3/8"	-	10.0	10.0	-	-	34.0	34.0	-	8.5	-	115.0	88.9	-
10	10	3/8"	14.0	10.0	10.0	-	25.0	34.0	34.0	-	12.5	108.0	151.0	108.0	-
	15	1/2"	18.1	16.0	16.0	-	50.5	34.0	34.0	-	12.5	108.0	151.0	108.0	-
25	15	1/2"	18.1	16.0	16.0	-	50.5	34.0	34.0	-	19.0	108.0	165.0	108.0	-
	20	3/4"	23.7	20.0	20.0	-	50.5	34.0	34.0	-	19.0	117.0	165.0	117.0	-
	25	1"	29.7	26.0	26.0	22.6	50.5	50.5	50.5	50.5	19.0	127.0	165.0	127.0	127.0

Dimensions in mm

MG = diaphragm size

1) **Connection type**

Code 82: Clamp DIN 32676 series B, face-to-face dimension FTF EN 558 series 7, length only for body configuration D

Code 86: Clamp DIN 32676 series A

Code 8A: Clamp DIN 32676 series A, face-to-face dimension FTF acc. to EN 558 series 7, length only for body configuration D

Code 8E: Clamp ISO 2852 for pipe ISO 2037, clamp SMS 3017 for pipe SMS 3008, face-to-face dimension FTF EN 558 series 7, length only for body configuration D

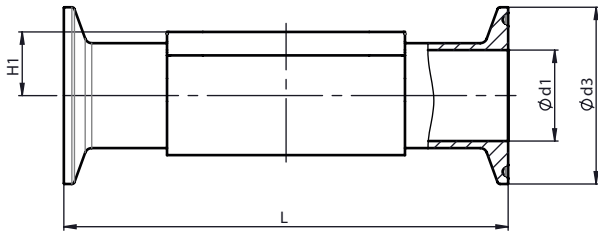
2) **Valve body material**

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code F4: 1.4539 / UNS N08904, forged body

Dimensions



Connection type clamp BS/JIS (code 84, 8F, 8H) ¹⁾, forged material (code 40, 42, F4) ²⁾

MG	DN	NPS	ød1			ød3			H1	L		
			Connection type							Connection type		
			84	8F	8H	84	8F	8H		84	8F	8H
8	8	1/4"	-	-	10.5	-	-	34.0	8.5	-	-	88.9
	10	3/4"	-	-	-	-	-	-	-	-	-	-
	15	1/2"	10.3	-	-	25.0	-	-	8.5	108.0	-	-
10	10	3/8"	-	-	14.0	-	-	34.0	12.5	-	-	108.0
	15	1/2"	10.3	-	17.5	25.0	-	34.0	12.5	108.0	-	108.0
	20	3/4"	16.7	-	-	25.0	-	-	12.5	117.0	-	-
25	15	1/2"	10.3	-	17.5	25.0	-	34.0	19.0	108.0	-	108.0
	20	3/4"	16.7	-	-	25.0	-	-	19.0	117.0	-	-
	25	1"	-	23.0	-	-	50.5	-	19.0	-	127.0	-

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 84: Clamp for pipe BS 4825 Part 1, DN 15 and DN 20, clamp OD 25.0 mm, face-to-face dimension FTF acc. to EN 558 series 7, length only for body configuration D

Code 8F: Clamp IDF/ISO for pipe JIS-G 3447, face-to-face dimension FTF EN 558 series 7, length only for body configuration D

Code 8H: Clamp IDF/ISO for pipe JIS-G 3459, face-to-face dimension FTF EN 558 series 7, length only for body configuration D

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code F4: 1.4539 / UNS N08904, forged body



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