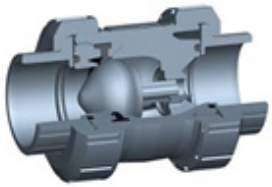
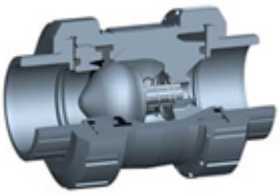
Cone Check Valve type 561/562



Type 561 (without spring)



Type 562 (with spring)

Product description

The innovative check valve design combines increased safety and efficiency with easy handling. The two cone check valves of type 561 and type 562 easily fit in all piping systems worldwide thanks to our comprehensive product range. The self-closing function and the silent operation of the valve support safety and comfort.

Function

The cone check valve is a component that allows the flow of the medium in one direction only.

Applications

- Microelectronics
- Chemical process industry
- Food and beverages
- Ship building
- Water treatment
- Cooling processes

Flow media

Media that are free of foreign particles, viscous, thick and gaseous media.

Benefits/features

Security

- Type 561 (no spring) is already 100 % leak-proof at a water column of 2 m
- The spring within the valve (type 562) guarantees 100 % leak-tightness when the valve is in idle mode, even without a water column and when installed horizontally
- The gasket is always fixed in the same position. This prevents the gasket from slipping, bending or being washed out
- Corrosion-resistant
- Autonomous self-closing mechanism without an additional energy source
- Self-cleaning design – minimizes cleaning and maintenance
- Optimized flow design
- Corrosion-resistant and high pressure rating
- Wide range of materials for optimum chemical resistance
- High degree of safety and efficiency

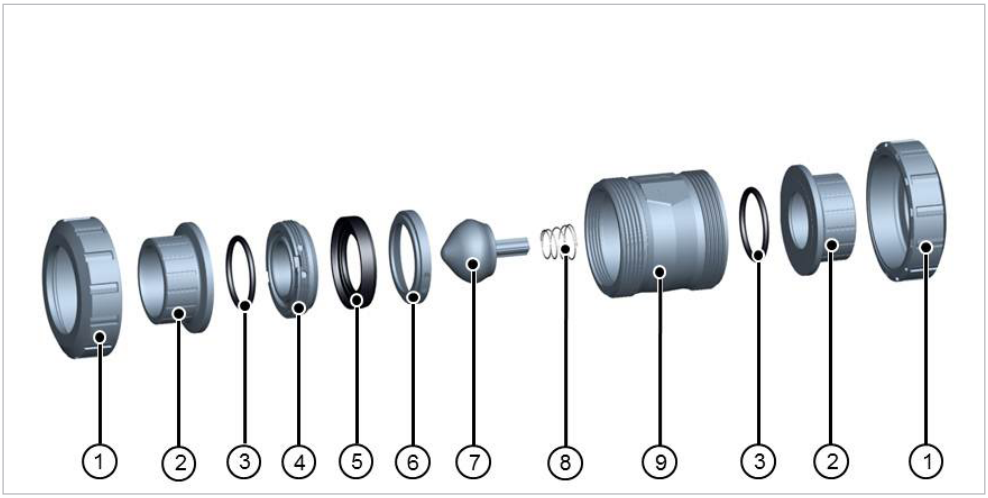
Simplicity

The cone check valves of type 561 and 562 are self-closing. This means that no other energy source is needed than the pressure in the pipe.

Efficiency

Thanks to the aerodynamic design of the check cone, the valve permits a far higher flow rate than standard check valves with a ball.

Technical data



1 Coupling nut
2 Connecting part
3 O-ring
4 Screw-in ring
5 Sealing ring
6 Back-up ring
7 Cone
8 Spring (Type 562)
9 Housing

Specification		
Dimensions	d16/DN10 - d110/DN100, ⅜“ - 4“	
Materials	Valve body	PVC-U, PVC-C, ABS, PP-H, PVDF
	Spring type 562	Standard: V2A
		Optional: Nimonic 90 Halar (ECTFE) coated
Gasket materials and O-rings	EPDM, FKM, FFKM, FEP coated	
Pressure levels	PVC-U, PVC-C, PVDF	PN16
	PP-H, ABS	PN10
Connections	Solvent cement sockets ISO, BS, ASTM/ANSI, JIS	
	Solvent cement spigots ISO	
	Threaded sockets ISO, BS, ASTM/ANSI	
	Fixed flange ISO, BS	
	Butt fusion spigots, long, PE100 SDR17 ISO	
Product standard	EN ISO 16137	
Test standard	ISO 9393-2, EN 12266-1	
Approvals	ACS, FDA, DIBt, TA-Luft, NAMSA	

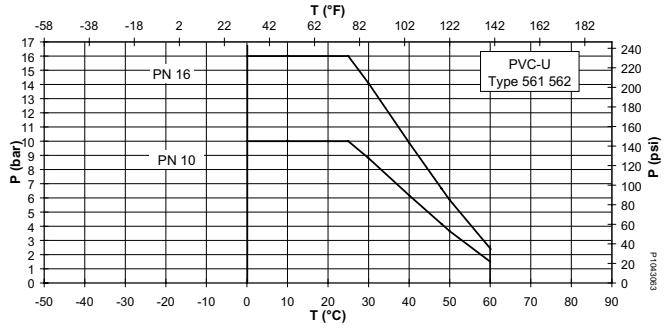
Kv 100 values

DN (mm)	Inch (inch)	d (mm)	Kv 100 (l/min)	Cv 100 (gal/min)	Kv 100 (m^3/h)
10	⅜	16	190	13	11
15	½	20	190	13	11
20	¾	25	380	26	23
25	1	32	460	32	28
32	1¼	40	850	59	51
40	1½	50	1'080	75	65
50	2	63	1'670	115	100
65	2½	75	2'950	204	177
80	3	90	3'600	248	216
100	4	110	4'150	286	249

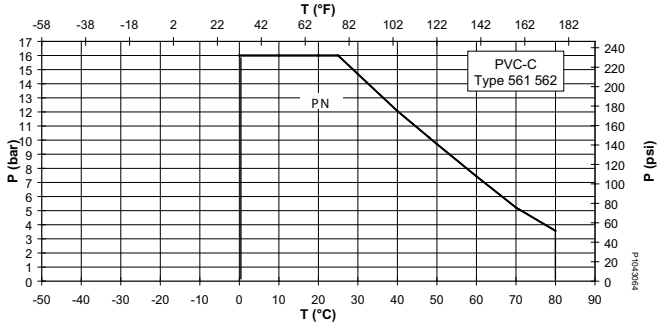
Pressure-temperature diagrams

The following pressure-temperature diagrams are based on a lifetime of 25 years and water or similar media.

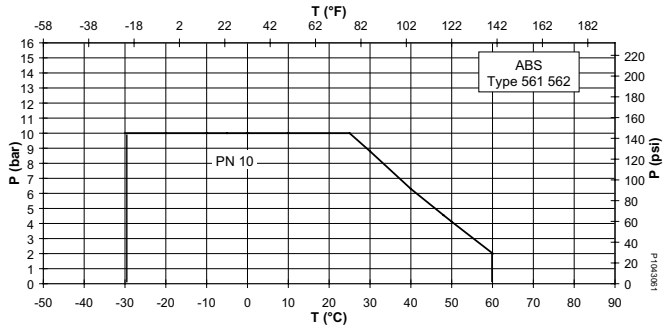
PVC-U



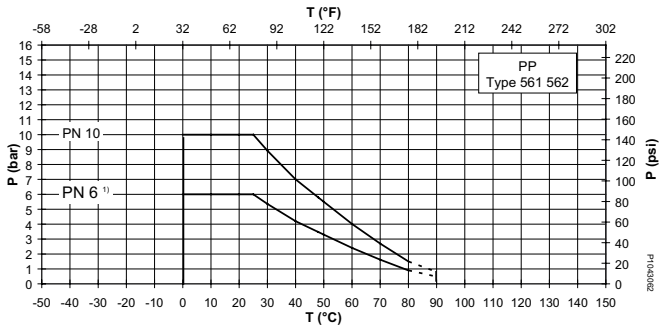
PVC-C



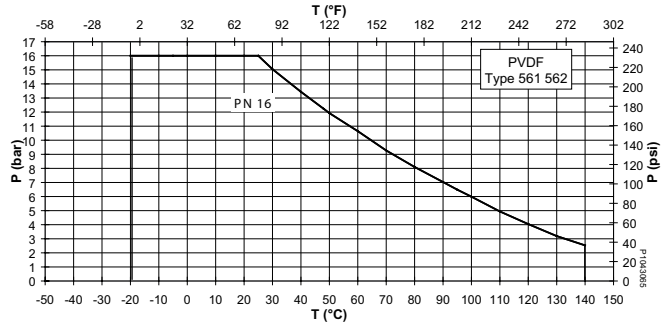
ABS



PP

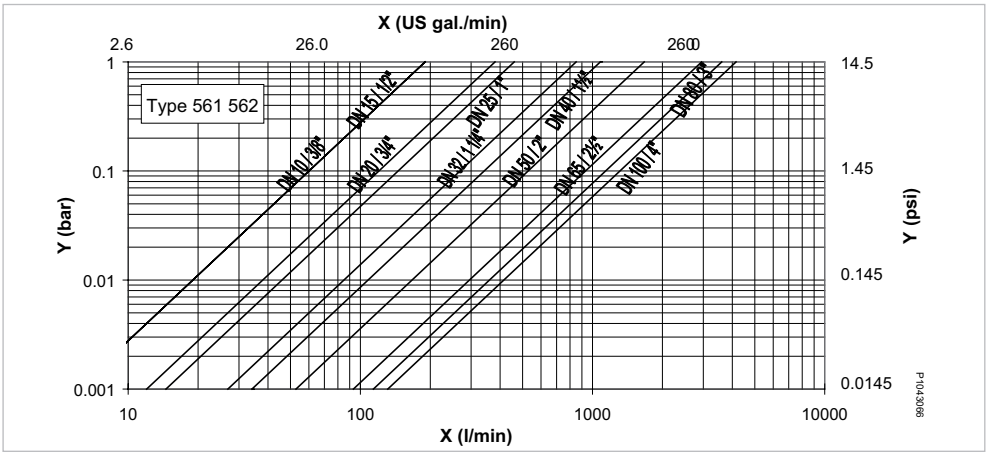


PVDF



T Temperature (°C, °F)
P Permissible pressure (bar, psi)

Pressure losses



X Flow rate (l/min, US gal/min)
Y Pressure loss Δp (bar, psi)

DN	Open (vertical installation)				Close[1)]	
(mm)	Differential pressure for lifting the cone (bar)	Differential pressure for full stroke of the cone (bar)	Flow for full stroke of the cone (l/min)	Min. flow rate for full stroke (m/sec)	Leak-tight starting at (bar)	Type 562 leak-tight starting at (bar)
10	0.006	0.01	8	0.7	0.2	0.1
15	0.006	0.01	9	0.7	0.2	0.1
20	0.006	0.01	13	0.7	0.2	0.1
25	0.01	0.01	18	0.8	0.2	0.1
32	0.01	0.01	35	0.8	0.2	0.1
40	0.015	0.01	70	0.8	0.2	0.1
50	0.015	0.01	100	0.8	0.2	0.1
65	0.02	0.01	120	0.9	0.2	0.1
80	0.02	0.01	170	0.9	0.2	0.1
100	0.025	0.08	250	1.0	0.2	0.1

[1)] Vertical and horizontal installation.

The information in the table apply to water or water-like media with a density of approximately 1g/cm^3. If media with a higher density are used, please note that, depending on the material used, the cone may float and the closing function of the cone is no longer guaranteed. This is dependent on the material used. The values for the opening conditions apply to vertical installation (recommended installation location). In the case of horizontal installation, the valve opens at much lower differential pressures.

Material	Density (g/cm^3)
ABS	1.03
PP-TV 20 (cone: PP-talk)	1.05
PVC-U	1.38
PVC-C	1.50
PVDF	1.78

Pressure for raising cone type 562

DN (mm)	Differential pressure for raising the cone (bar)
10	0.04
15	0.04
20	0.04
25	0.04
32	0.05
40	0.05
50	0.05
65	0.06
80	0.07
100	0.08

Reference values for tightening torque of screws

d (mm)	DN (mm)	inch (inch)	Total number of screws	Torque flat gasket		Torque profile flat gasket	
				(Nm)	(lb-ft)	(Nm)	(lb-ft)
20	15	½	4 x M12 x 50	10	7.4	10	7.4
25	20	¾	4 x M12 x 55	10	7.4	10	7.4
32	25	1	4 x M12 x 60	15	11	10	7.4
40	32	1¼	4 x M16 x 65	20	15	15	11
50	40	1½	4 x M16 x 70	25	18	15	11
63	50	2	4 x M16 x 75	35	26	20	15
75	65	2½	4 x M16 x 90	50	37	25	18
90	80	3	8 x M16 x 100	30	22	15	11
110	100	4	8 x M16 x 130	35	26	20	15

Technical basics

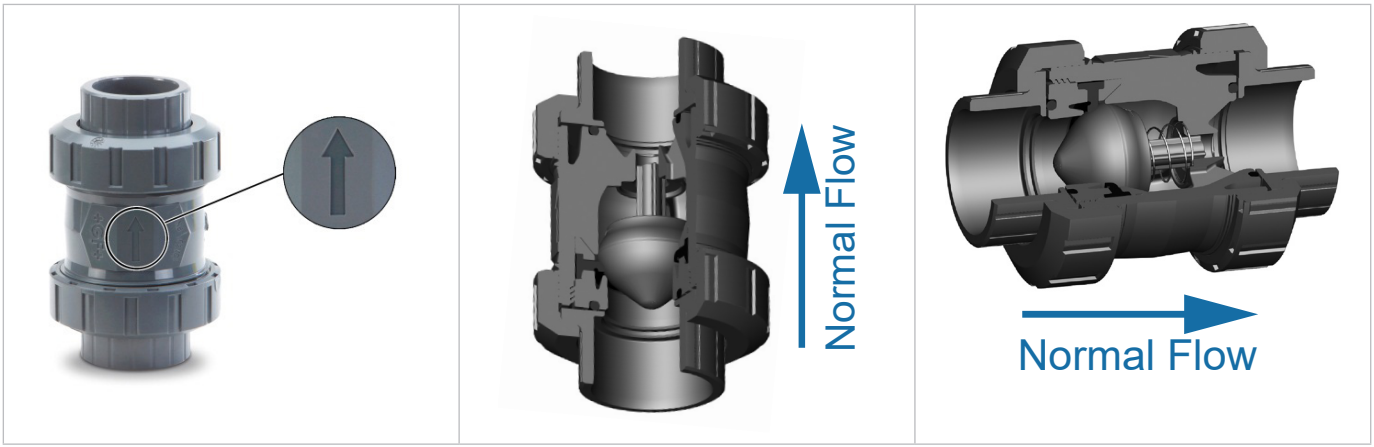
Valve handling

Installation notes

- Before or after pumps, other valves or changes of direction, a turbulence-free section of 10xDN before and 5xDN after the valve must be provided.
- Check valves are not suitable for use with media containing solids. When selecting a check valve, make sure that the density (specific weight) of the cone is greater than that of the medium (exception: bleed valve).
- When used as a bleed valve, the density of the cone must be less than the density of the medium.
- The flow of the fluid must be even across the entire cross-section of the check valve in order for it to work properly. If necessary (after pumps, changes in direction) a damping zone should be allowed for. Cavitation should be avoided.
- Threaded parts have a reverse thread in order to avoid unintended opening when connecting components with threads are removed from the pipe.
- GF Piping Systems recommends that you do not use cone check valves of type 561 and 562 as ventilating and bleed valves. Instead, use the ventilating and bleed valves of type 595 and 591 that were specially developed for this purpose.

Arrows

- The arrow on the valve housing indicates the direction of the flow. For applications with vertical flow, only an upward flow is permitted, i.e. the arrow must point upward. If installed in the opposite direction, the shut-off function is not guaranteed.



Jointing technology

Only identical materials may be joined together via fusion or adhesive joints. Sections of pipework with adhesive joints must be rinsed with non-pressurized water as soon as possible after completion of the joints. Hand-tighten the coupling nuts on the valve.

Opening and closing conditions

The values for the opening conditions apply to vertical installation (recommended mounting position). In the case of horizontal installation, the valve opens at much lower differential pressures.

Maintenance notes

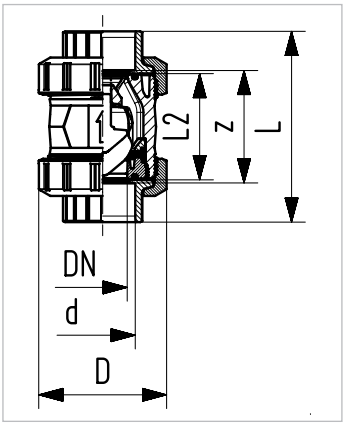
Check valves require no maintenance under normal operating conditions. It is sufficient to check periodically that there is no leakage. Should leakage or other malfunctions occur, follow the instructions under “Safety information”. We recommend performing a function test for check valves that are kept permanently in the same position 1 or 2 times per year to check their function.

⚠ Installation and maintenance must be performed in accordance with the corresponding installation manual. The installation manual is provided with the product, see also the online product catalogue at www.gfps.com

Dimensions

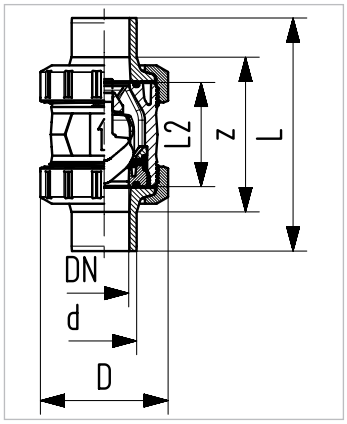
Type 561/562 with solvent cement sockets, metric

d (mm)	DN (mm)	D (mm)	L (mm)	l2 (mm)	z (mm)	closest (inch)
16	10	50	92	56	64	⅜
20	15	50	95	56	64	½
25	20	58	110	65	72	¾
32	25	68	123	71	79	1
40	32	84	146	85	94	1 ¼
50	40	97	157	89	95	1 ½
63	50	124	183	101	107	2
75	65	166	233	136	144	2 ½
90	80	200	254	141	151	3
110	100	238	301	164	174	4



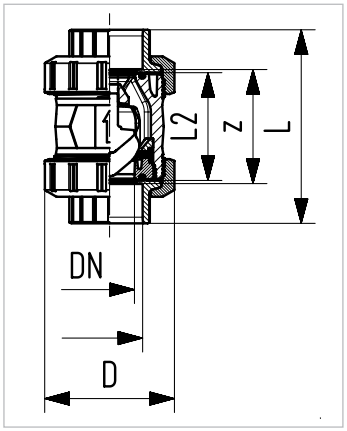
Type 561/562 with solvent cement spigots, metric

d (mm)	DN (mm)	D (mm)	L (mm)	l2 (mm)	z (mm)	closest (inch)
16	10	50	114	56	56	⅜
20	15	50	124	56	56	½
25	20	58	144	65	65	¾
32	25	68	154	71	71	1
40	32	84	174	85	85	1 ¼
50	40	97	194	89	89	1 ½
63	50	124	224	101	101	2
75	65	166	284	136	136	2 ½
90	80	200	300	141	141	3
110	100	238	340	164	164	4



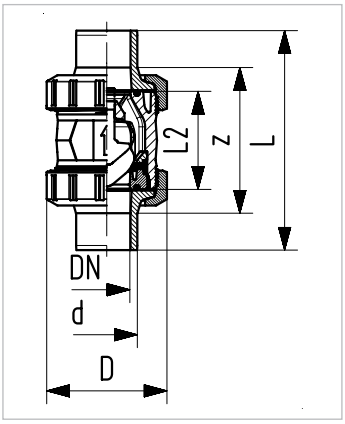
Type 561/562 with threaded socket, Rp

DN (mm)	D (mm)	L (mm)	l2 (mm)	z (mm)	Rp (inch)
10	50	95	56	69	⅜
15	50	100	56	67	½
20	58	114	65	78	¾
25	68	127	71	85	1
32	84	146	85	100	1 ¼
40	97	152	89	106	1 ½
50	124	177	101	121	2
65	166	233	136	144	2 ½
80	200	254	141	151	3
100	238	301	164	174	4



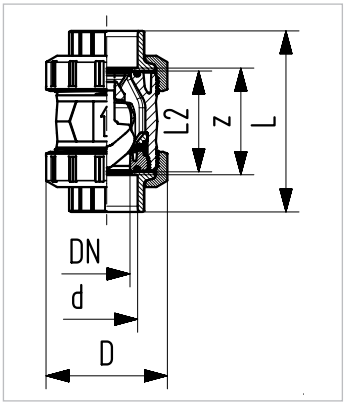
Type 561/562 with socket fusion spigot, metric

d (mm)	DN (mm)	D (mm)	L (mm)	l2 (mm)	closest (inch)
16	10	50	110	56	⅜
20	15	50	120	56	½
25	20	58	139	65	¾
32	25	68	150	71	1
40	32	84	170	85	1 ¼
50	40	97	190	89	1 ½
63	50	124	220	101	2
75	65	166	280	136	2 ½
90	80	200	296	141	3
110	100	238	336	164	4



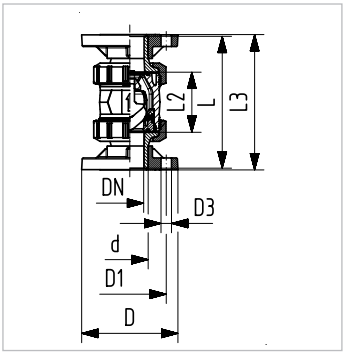
Type 561/562 with fusion sockets, metric

d (mm)	DN (mm)	D (mm)	L (mm)	l2 (mm)	z (mm)	closest (inch)
16	10	50	93	56	67	⅜
20	15	50	95	56	66	½
25	20	58	109	65	77	¾
32	25	68	119	71	83	1
40	32	84	135	85	99	1 ¼
50	40	97	147	89	105	1 ½
63	50	124	168	101	117	2
75	65	166	233	136	167	2 ½
90	80	200	254	141	180	3
110	100	238	301	164	215	4



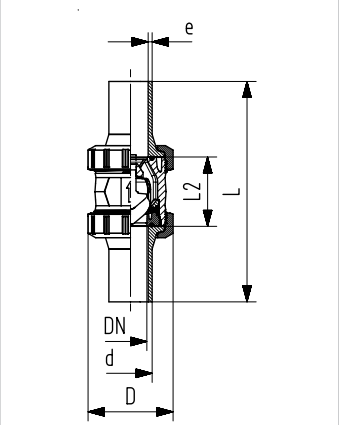
Type 561/562 with fixed flange, metric

d (mm)	DN (mm)	D (mm)	D1 (mm)	D3 (mm)	L (mm)	l2 (mm)	l3 (mm)	closest (inch)
20	15	95	65	14	124	56	130	½
25	20	105	75	14	144	65	150	¾
32	25	115	85	14	154	71	160	1
40	32	140	100	18	174	85	180	1 ¼
50	40	150	110	18	194	89	200	1 ½
63	50	165	125	18	224	101	230	2



Type 561/562 with butt fusion spigot, long, metric

d (mm)	DN (mm)	D (mm)	L (mm)	l2 (mm)	e (mm)	closest (inch)
20	15	50	193	56	2.3	½
25	20	58	216	65	2.3	¾
32	25	68	223	71	3	1
40	32	84	249	85	3.7	1 ¼
50	40	97	271	89	4.6	1 ½
63	50	124	321	101	5.8	2



Accessories

- Foot valve with suction basket as protection against contamination

For further information on accessories, refer to the online product catalogue at www.gfps.com

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