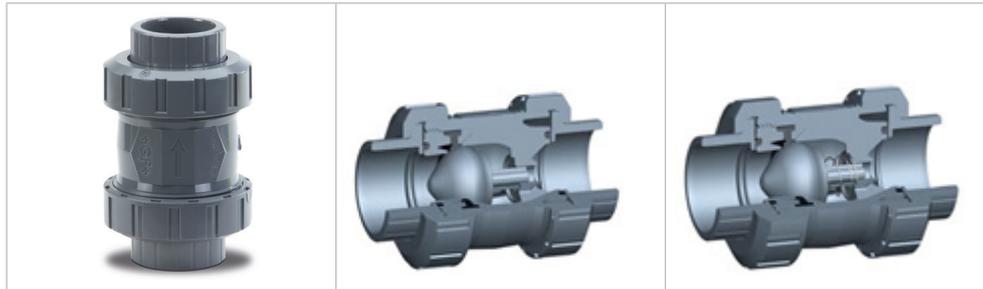


## Type 561/562 Cone Check Valve



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

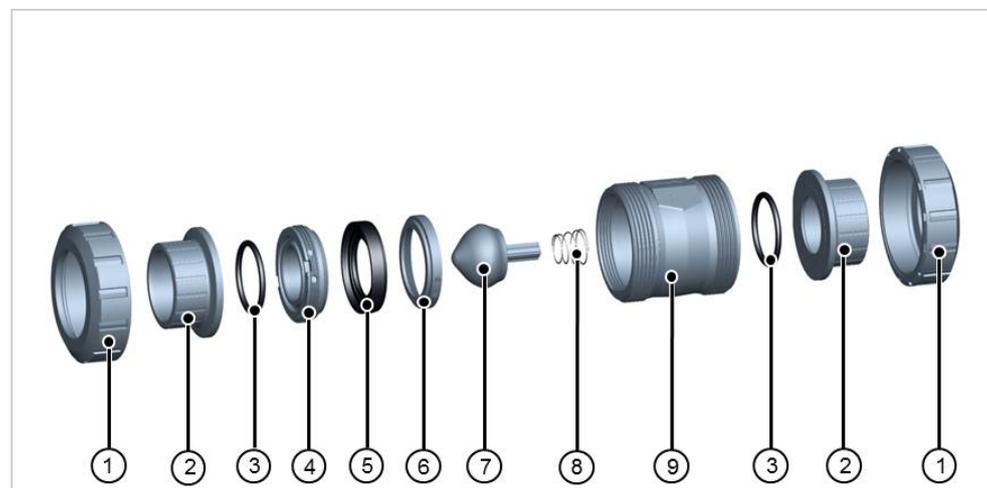
##### Simplicity

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

|                                     |  |                               |  |
|-------------------------------------|--|-------------------------------|--|
| <b>Dimensions</b>                   | d16/DN10 - d110/DN100, 3/8" - 4"               |                               |  |
| <b>Materials</b>                    | Valve body                                     | PVC-U, PVC-C, ABS, PP-H, PVDF |  |
|                                     | Spring type 562                                | Standard                      | V2A  |
|                                     |  | Optional                      | <ul style="list-style-type: none"> <li>• Nimonic 90</li> <li>• V2A with HALAR coating</li> </ul> |
| <b>Gasket materials and O-rings</b> | EPDM, FKM, FFKM, FEP coated                    |                               |  |
| <b>Pressure levels</b>              | PVC-U, PVC-C, PVDF                             | PN16                          |  |
|                                     | PP-H, ABS                                      | PN10                          |  |
| <b>Connections</b>                  | 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     |                               |  |
| <b>Product standard</b>             | EN ISO 16137                                   |                               |  |
| <b>Test standard</b>                | ISO 9393-2, EN 12266-1                         |                               |  |
| <b>Approvals</b>                    | ACS, FDA, DIBt, TA-Luft, NAMSA, KIWA*          |                               |  |

\* For dimensions up to d63/DN50/2"

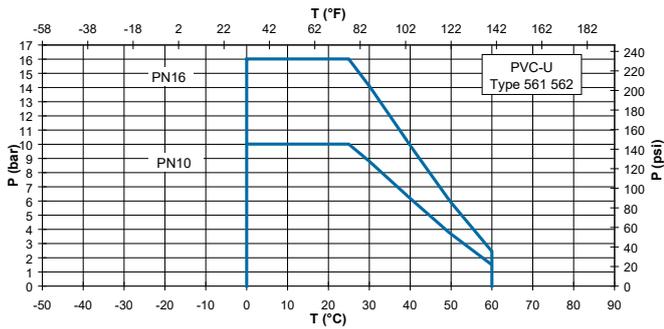
### Kv 100 values

| DN (mm) | Inch (inch) | d (mm) | Kv 100 (l/min) | Cv 100 (gal/min) | Kv 100 (m <sup>3</sup> /h) |
|---------|-------------|--------|----------------|------------------|----------------------------|
| 10      | 3/8         | 16     | 190            | 13               | 11                         |
| 15      | 1/2         | 20     | 190            | 13               | 11                         |
| 20      | 3/4         | 25     | 380            | 26               | 23                         |
| 25      | 1           | 32     | 460            | 32               | 28                         |
| 32      | 1 1/4       | 40     | 850            | 59               | 51                         |
| 40      | 1 1/2       | 50     | 1'080          | 75               | 65                         |
| 50      | 2           | 63     | 1'670          | 115              | 100                        |
| 65      | 2 1/2       | 75     | 2'950          | 204              | 177                        |
| 80      | 3           | 90     | 3'600          | 248              | 216                        |
| 100     | 4           | 110    | 4'150          | 286              | 249                        |

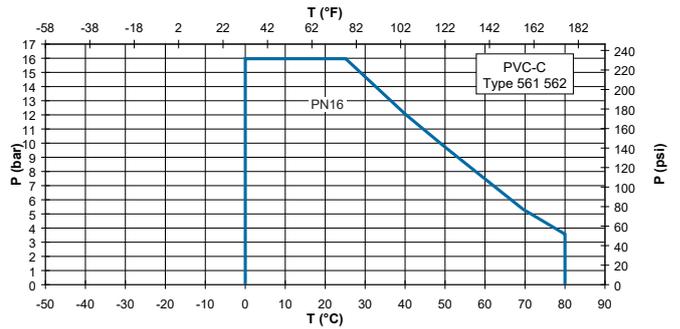
## Pressure-temperature diagrams

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

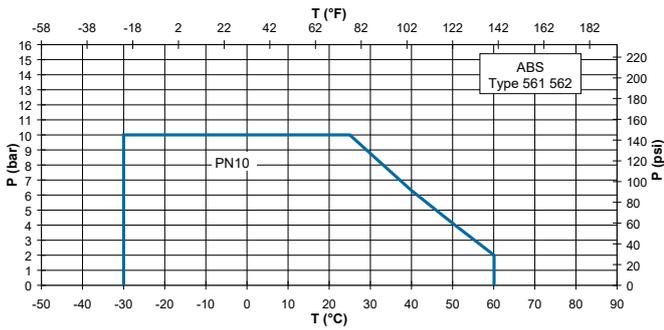
### PVC-U



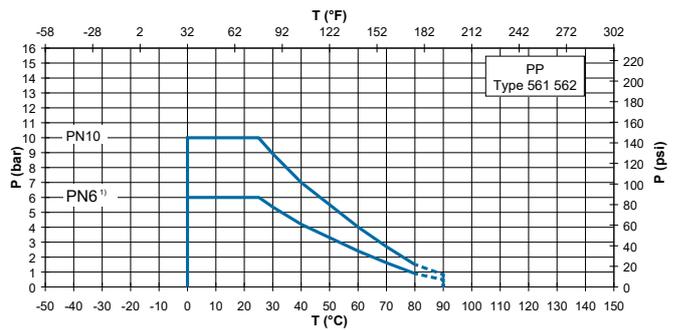
### PVC-C



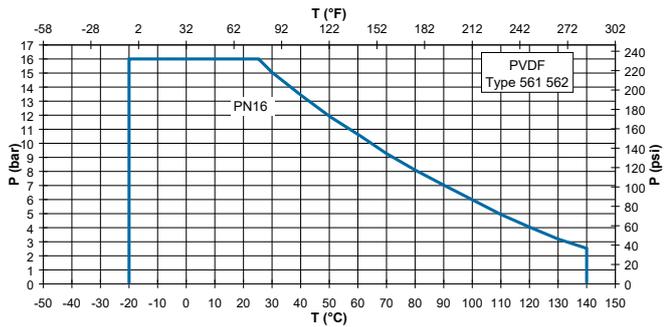
### ABS



### PP

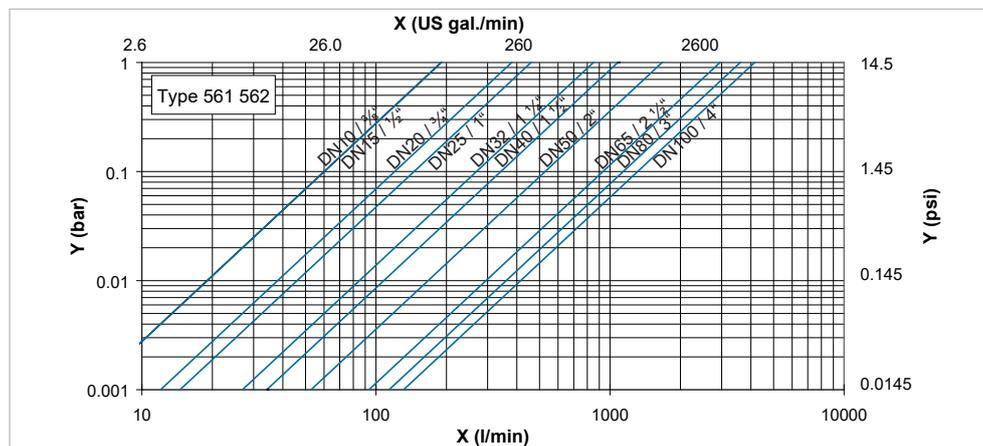


### PVDF



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

## Pressure losses



X Flow rate  
(l/min, US gal./min)  
Y Pressure loss  $\Delta p$  (bar, psi)

| DN<br>(mm) | Open (vertical installation)                     |   |  |  | Close <sup>1)</sup>          |                                       |
|------------|--|---|--|--|------------------------------|---------------------------------------|
|            | 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                                   |

<sup>1)</sup> Vertical and horizontal installation.

The information in the table apply to water or water-like media with a density of approximately 1g/cm<sup>3</sup>. 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 <sup>3</sup> ) |
|--------------------------|------------------------------|
| 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

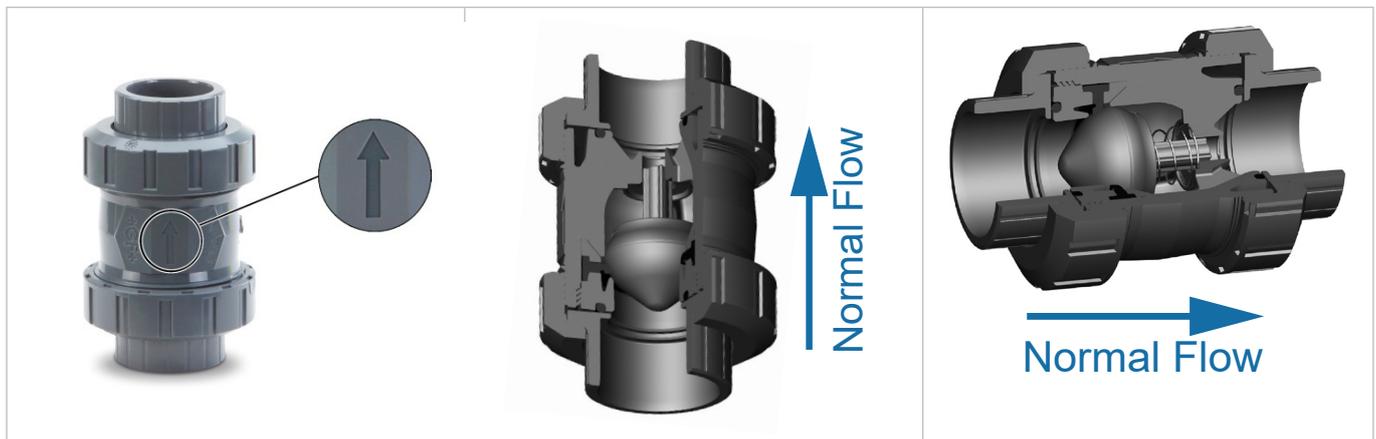
### Valve handling

#### 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

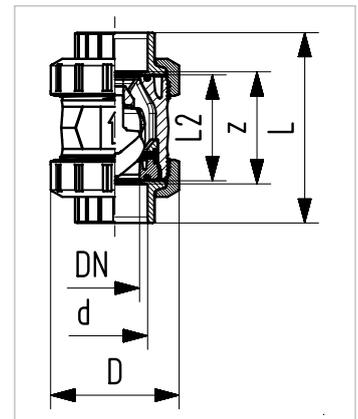
Check valves require no maintenance under normal operating conditions. It is sufficient to check periodically that there is no leakage. Should leakage or other malfunctions occur, follow the instructions under "Safety information". We recommend performing a function test for check valves that are kept 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](http://www.gfps.com)

## Dimensions

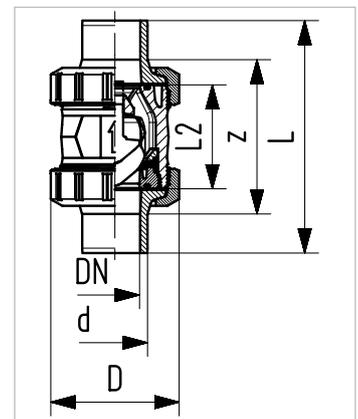
### Type 561/562 with solvent cement sockets, metric

| d<br>(mm) | DN<br>(mm) | D<br>(mm) | L<br>(mm) | l2<br>(mm) | z<br>(mm) | closest<br>(inch) |
|-----------|------------|-----------|-----------|------------|-----------|-------------------|
| 16        | 10         | 50        | 92        | 56         | 64        | 3/8               |
| 20        | 15         | 50        | 95        | 56         | 64        | 1/2               |
| 25        | 20         | 58        | 110       | 65         | 72        | 3/4               |
| 32        | 25         | 68        | 123       | 71         | 79        | 1                 |
| 40        | 32         | 84        | 146       | 85         | 94        | 1 1/4             |
| 50        | 40         | 97        | 157       | 89         | 95        | 1 1/2             |
| 63        | 50         | 124       | 183       | 101        | 107       | 2                 |
| 75        | 65         | 166       | 233       | 136        | 144       | 2 1/2             |
| 90        | 80         | 200       | 254       | 141        | 151       | 3                 |
| 110       | 100        | 238       | 301       | 164        | 174       | 4                 |



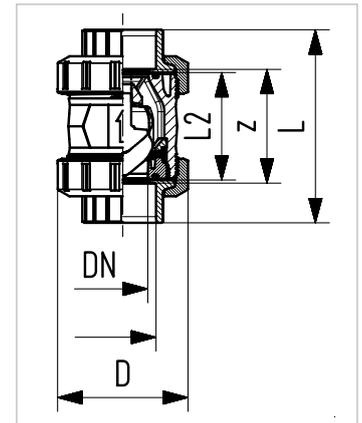
### Type 561/562 with solvent cement spigots, metric

| d<br>(mm) | DN<br>(mm) | D<br>(mm) | L<br>(mm) | l2<br>(mm) | z<br>(mm) | closest<br>(inch) |
|-----------|------------|-----------|-----------|------------|-----------|-------------------|
| 16        | 10         | 50        | 114       | 56         | 56        | 3/8               |
| 20        | 15         | 50        | 124       | 56         | 56        | 1/2               |
| 25        | 20         | 58        | 144       | 65         | 65        | 3/4               |
| 32        | 25         | 68        | 154       | 71         | 71        | 1                 |
| 40        | 32         | 84        | 174       | 85         | 85        | 1 1/4             |
| 50        | 40         | 97        | 194       | 89         | 89        | 1 1/2             |
| 63        | 50         | 124       | 224       | 101        | 101       | 2                 |
| 75        | 65         | 166       | 284       | 136        | 136       | 2 1/2             |
| 90        | 80         | 200       | 300       | 141        | 141       | 3                 |
| 110       | 100        | 238       | 340       | 164        | 164       | 4                 |



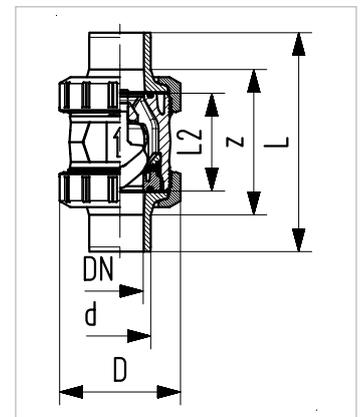
## Type 561/562 with threaded socket, Rp

| DN (mm) | D (mm) | L (mm) | l2 (mm) | z (mm) | Rp (inch) |
|---------|--------|--------|---------|--------|-----------|
| 10      | 50     | 95     | 56      | 69     | 3/8       |
| 15      | 50     | 100    | 56      | 67     | 1/2       |
| 20      | 58     | 114    | 65      | 78     | 3/4       |
| 25      | 68     | 127    | 71      | 85     | 1         |
| 32      | 84     | 146    | 85      | 100    | 1 1/4     |
| 40      | 97     | 152    | 89      | 106    | 1 1/2     |
| 50      | 124    | 177    | 101     | 121    | 2         |
| 65      | 166    | 233    | 136     | 144    | 2 1/2     |
| 80      | 200    | 254    | 141     | 151    | 3         |
| 100     | 238    | 301    | 164     | 174    | 4         |



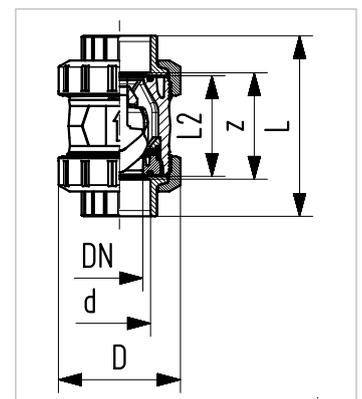
## Type 561/562 with socket fusion spigot, metric

| d (mm) | DN (mm) | D (mm) | L (mm) | l2 (mm) | closest (inch) |
|--------|---------|--------|--------|---------|----------------|
| 16     | 10      | 50     | 110    | 56      | 3/8            |
| 20     | 15      | 50     | 120    | 56      | 1/2            |
| 25     | 20      | 58     | 139    | 65      | 3/4            |
| 32     | 25      | 68     | 150    | 71      | 1              |
| 40     | 32      | 84     | 170    | 85      | 1 1/4          |
| 50     | 40      | 97     | 190    | 89      | 1 1/2          |
| 63     | 50      | 124    | 220    | 101     | 2              |
| 75     | 65      | 166    | 280    | 136     | 2 1/2          |
| 90     | 80      | 200    | 296    | 141     | 3              |
| 110    | 100     | 238    | 336    | 164     | 4              |



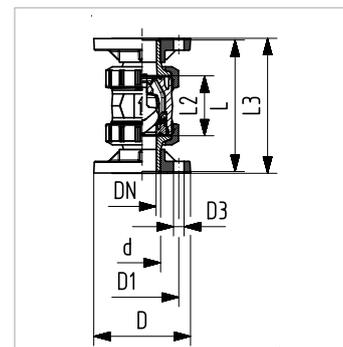
## Type 561/562 with fusion sockets, metric

| d (mm) | DN (mm) | D (mm) | L (mm) | l2 (mm) | z (mm) | closest (inch) |
|--------|---------|--------|--------|---------|--------|----------------|
| 16     | 10      | 50     | 93     | 56      | 67     | 3/8            |
| 20     | 15      | 50     | 95     | 56      | 66     | 1/2            |
| 25     | 20      | 58     | 109    | 65      | 77     | 3/4            |
| 32     | 25      | 68     | 119    | 71      | 83     | 1              |
| 40     | 32      | 84     | 135    | 85      | 99     | 1 1/4          |
| 50     | 40      | 97     | 147    | 89      | 105    | 1 1/2          |
| 63     | 50      | 124    | 168    | 101     | 117    | 2              |
| 75     | 65      | 166    | 233    | 136     | 167    | 2 1/2          |
| 90     | 80      | 200    | 254    | 141     | 180    | 3              |
| 110    | 100     | 238    | 301    | 164     | 215    | 4              |



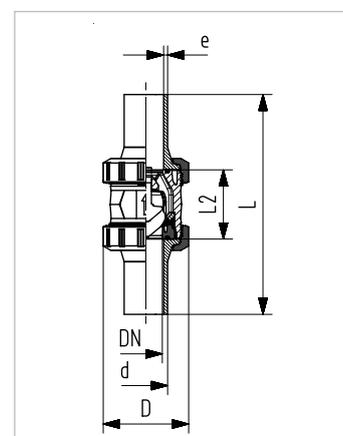
## Type 561/562 with fixed flange, metric

| 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

**i** For further information on accessories, refer to the online product catalogue at [www.gfps.com](http://www.gfps.com)