



# Filters & Strainers Technical Information



## TECHNICAL INFORMATION WEIGHTS & DIMENSIONS



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## Irrigation Filters



### Sample Engineering Specification

All sediment filters shall be T-Style Cartridge type constructed from PVC Type I, ASTM D 1784 Cell Classification 12454 or CPVC Type IV, or ASTM D 1784 Cell Classification 23447. All O-rings shall be EPDM or FKM. All filters shall have removable Type 304 stainless steel cartridge with [specify from chart] mesh perforation or reinforced screen. All filters shall be pressure rated to 200 psi for water at 73°F, as manufactured by Spears® Manufacturing Company.

### Quick View T-Style Cartridge Filters Selection Chart

| PVC Part Numbers <sup>1</sup>      |                       |                           |
|------------------------------------|-----------------------|---------------------------|
| Cartridge Filter Mesh <sup>2</sup> | TF Series (Full Size) |                           |
|                                    | Standard              | Reverse Flow <sup>2</sup> |
|                                    | EPDM                  | EPDM                      |
| 16                                 | TF2-16                | TF2-16                    |
| 32                                 | TF2-32                | TF2-32                    |
| 50                                 | TF2-50                | TFR2-50                   |
| 76                                 | TF2-76                | TFR2-76                   |
| 100                                | TF2-100               | TFR2-100                  |
| 150                                | TF2-150               | TFR2-150                  |
| 200                                | TF2-200               | TFR2-200                  |
| MTF Series (Half-Size)             |                       |                           |
| 16                                 | MTF2-16               | MTF2-16                   |
| 32                                 | MTF2-32               | MTF2-32                   |
| 50                                 | MTF2-50               | MTFR2-50                  |
| 76                                 | MTF2-76               | MTFR2-76                  |
| 100                                | MTF2-100              | MTFR2-100                 |
| 150                                | MTF2-150              | MTFR2-150                 |
| 200                                | MTF2-200              | MTFR2-200                 |

1: For CPVC, Add the letter "C" to the part number (e.g., TF2-16C)

2: Mesh sizes 16 and 32 are perforation cartridges. Same cartridge is used for Standard or Reverse Flow filtration. Mesh sizes 50 - 200 are wire cloth screen with perforated stainless steel reinforcement.

### Features – PVC, CPVC

In-line T-Style Cartridge Filters provide high capacity filtration of suspended solids, dirt and debris with reusable Type 304 stainless steel filter cartridges in a variety of mesh sizes. Constructed from PVC or CPVC, this special T-style configuration may be easily ganged in parallel for increased flow and filtration capacity. Standard flow (internal-to-external) filter traps sediment inside cartridge while optional reverse flow (external-to-internal) filter traps sediment on outside of cartridge, according to user preference. Available in full-size TF Series or half-size MTF Series units with IPS size 2-1/2" socket - 3" spigot combination inlet/outlet connection that can be easily adapted to other sizes with use of reducer bushings or couplings.

- Provides In-line Protection of Process Equipment
- PVC Construction
- EPDM O-ring Seals
- Heavy, Reinforced Type 304 Stainless Steel Filter Cartridges in Mesh Sizes 16, 32, 50, 76, 100, 150, or 200
- Standard (Internal-to-External) or Reverse Flow (External-to-Internal) Cartridge Design Option
- Bottom Cartridge Removal with Drain Plug for Cleaning, or Bleed-Off Valve Connection
- Installed Units in Parallel for Increased Filtration Capacity
- Pressure Rated to 200 psi @ 73°F
- Assemble with Silicone-Free, Water Soluble Lubricants

### Cartridge Filtration Area

TF Series filter surface area = 214.9 in.<sup>2</sup> and MTF Series filter surface area = 107.5 in.<sup>2</sup>. Mesh sizes 16 and 32 are perforated stainless steel, 50 to 200 mesh filters are stainless steel wire cloth with perforated stainless backing and internal wire coil to prevent filter collapse or screen blow-out.

### Replacement Filter Cartridges

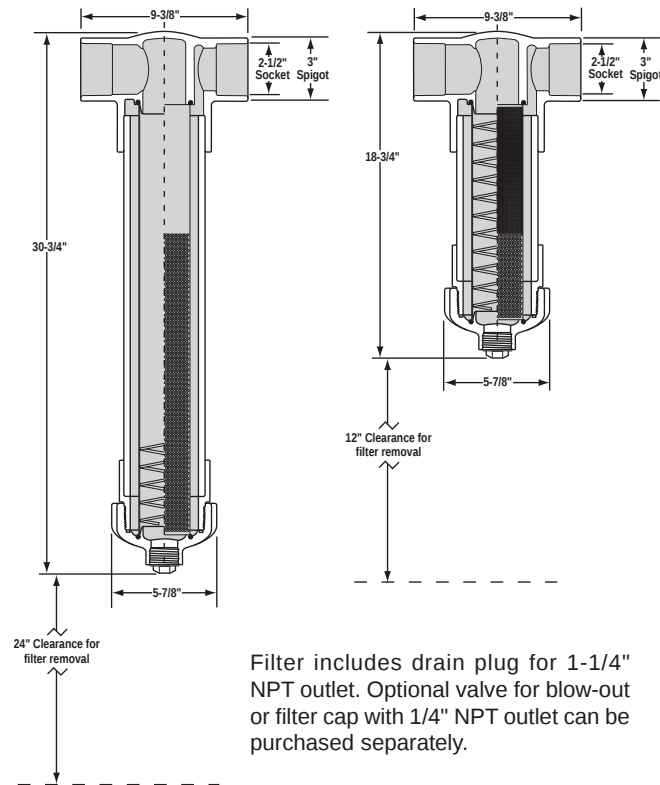
| Mesh Size | Full Size TF Filter Part No. |              | Half Size MTF Filter Part No. |              |
|-----------|------------------------------|--------------|-------------------------------|--------------|
|           | Standard Flow                | Reverse Flow | Standard Flow                 | Reverse Flow |
| 16        | FL-16-1                      | same as Std. | MFL-16-1                      | same as Std. |
| 32        | FL-32-1                      | same as Std. | MFL-32-1                      | same as Std. |
| 50        | FL-50-1                      | FLR-50-1     | MFL-50-1                      | MFLR-50-1    |
| 76        | FL-76-1                      | FLR-76-1     | MFL-76-1                      | MFLR-76-1    |
| 100       | FL-100-1                     | FLR-100-1    | MFL-100-1                     | MFLR-100-1   |
| 150       | FL-150-1                     | FLR-150-1    | MFL-150-1                     | MFLR-150-1   |
| 200       | FL-200-1                     | FLR-200-1    | MFL-200-1                     | MFLR-200-1   |

## Filters & Strainers Technical Information

### Irrigation Filters

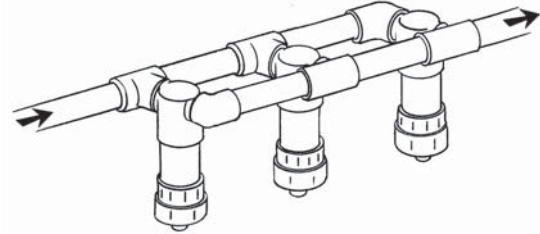


### Dimensions



### Parallel Filter Installation

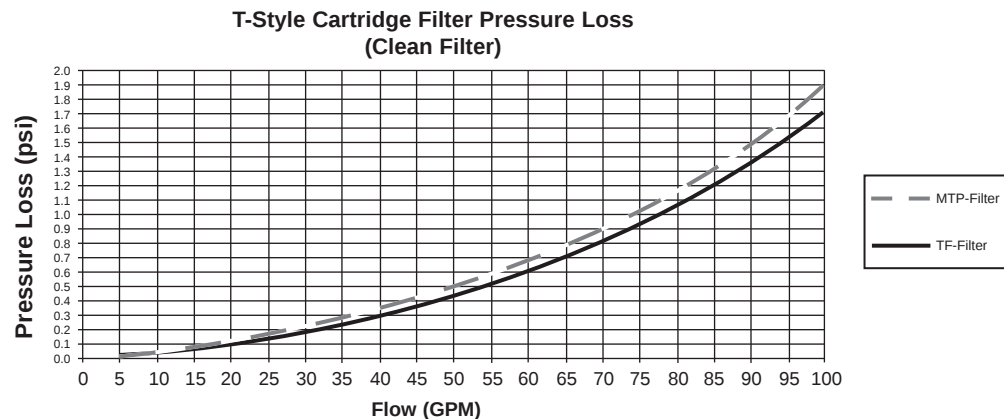
For increased flow or filtration capacity, multiple filters may be installed in parallel as illustrated.



### General Installation Information

Avoid installation in direct sun exposure. If required, a white, reflective latex paint coating may be applied to reduce heat absorption. Remove cartridge before solvent cement assembly into system to avoid possible cement contact with screen. Install with proper flow direction as indicated on top of the filter. Be sure to allow clearance in excess of specified space required for removal of cartridge (see drawing notes). Filter drainage or blow-down should be made in normal system flow direction to prevent screen damage. Do not "back flush" unit. Care should be taken in cleaning cartridges to avoid damaging filter screen.

### Pressure Loss



### Temperature Pressure Rating

| System Operating Temperature °F (°C) |     | 100 (38)   | 110 (43)  | 120 (49)  | 130 (54) | 140 (60) | 150 (66)  | 160 (71)  | 170 (77)  | 180 (82)  | 190 (88)  | 200 (93)  | 210 (99)  |
|--------------------------------------|-----|------------|-----------|-----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Filter Pressure Rating psi (MPa)     | PVC | 200 (1.38) | 135 (.93) | 120 (.83) | 75 (.52) | 50 (.34) | -0- (-0-) | -0- (-0-) | -0- (-0-) | -0- (-0-) | -0- (-0-) | -0- (-0-) | -0- (-0-) |



## Filters & Strainers Technical Information

### Industrial Strainers & Filters



### Sample Engineering Specification

All sediment strainers shall be Y-type constructed from PVC Type I, ASTM D 1784 Cell Classification 12454 or CPVC Type IV, ASTM D 1784 Cell Classification 23447. All O-rings shall be EPDM or FKM. All Y-strainers shall have replaceable PVC, CPVC or Type 316 stainless steel screens and O-ring sealed drain plugs with magnetic drain plug option. All threaded Y-Strainers shall have Special Reinforced (SR) threads. All Y-Strainers, sizes 1/2" - 2" shall be pressure rated to 150 psi, sizes 3" - 4" to 90 psi for water at 73°F, as manufactured by Spears® Manufacturing Company.

### Quick-View Y-Strainer Selection Chart

| Valve Size | O-ring Material | PVC Material <sup>1,2,3</sup> |               |             |              |                |                   | Pressure Rating                        |
|------------|-----------------|-------------------------------|---------------|-------------|--------------|----------------|-------------------|----------------------------------------|
|            |                 | Socket                        | SR Threaded   | Flanged     | Socket Union | Threaded Union | SR Threaded Union |                                        |
| 1/2        | EPDM            | YS22P__-005                   | YS21P__-005SR | YS23P__-005 | YS2AP__-005  | YS2BP__-005    | YS2BP__-005SR     | 150 psi<br>Non-Shock<br>Water<br>@73°F |
|            | FKM             | YS32P__-005                   | YS31P__-005SR | YS33P__-005 | YS3AP__-005  | YS3BP__-005    | YS3BP__-005SR     |                                        |
| 3/4        | EPDM            | YS22P__-007                   | YS21P__-007SR | YS23P__-007 | YS2AP__-007  | YS2BP__-007    | YS2BP__-007SR     |                                        |
|            | FKM             | YS32P__-007                   | YS31P__-007SR | YS33P__-007 | YS3AP__-007  | YS3BP__-007    | YS3BP__-007SR     |                                        |
| 1          | EPDM            | YS22P__-010                   | YS21P__-010SR | YS23P__-010 | YS2AP__-010  | YS2BP__-010    | YS2BP__-010SR     |                                        |
|            | FKM             | YS32P__-010                   | YS31P__-010SR | YS33P__-010 | YS3AP__-010  | YS3BP__-010    | YS3BP__-010SR     |                                        |
| 1-1/4      | EPDM            | YS22P__-012                   | YS21P__-012SR | YS23P__-012 | YS2AP__-012  | YS2BP__-012    | YS2BP__-012SR     |                                        |
|            | FKM             | YS32P__-012                   | YS31P__-012SR | YS33P__-012 | YS3AP__-012  | YS3BP__-012    | YS3BP__-012SR     |                                        |
| 1-1/2      | EPDM            | YS22P__-015                   | YS21P__-015SR | YS23P__-015 | YS2AP__-015  | YS2BP__-015    | YS2BP__-015SR     |                                        |
|            | FKM             | YS32P__-015                   | YS31P__-015SR | YS33P__-015 | YS3AP__-015  | YS3BP__-015    | YS3BP__-015SR     |                                        |
| 2          | EPDM            | YS22P__-020                   | YS21P__-020SR | YS23P__-020 | YS2AP__-020  | YS2BP__-020    | YS2BP__-020SR     |                                        |
|            | FKM             | YS32P__-020                   | YS31P__-020SR | YS33P__-020 | YS3AP__-020  | YS3BP__-020    | YS3BP__-020SR     |                                        |
| 3          | EPDM            | YS22P__-030                   | YS21P__-030SR | YS23P__-030 | YS2AP__-030  | YS2BP__-030    | YS2BP__-030SR     | 90 psi<br>Non-Shock<br>Water<br>@73°F  |
|            | FKM             | YS32P__-030                   | YS31P__-030SR | YS33P__-030 | YS3AP__-030  | YS3BP__-030    | YS3BP__-030SR     |                                        |
| 4          | EPDM            | YS22P__-040                   | YS21P__-040SR | YS23P__-040 | YS2AP__-040  | YS2BP__-040    | YS2BP__-040SR     |                                        |
|            | FKM             | YS32P__-040                   | YS31P__-040SR | YS33P__-040 | YS3AP__-040  | YS3BP__-040    | YS3BP__-040SR     |                                        |

Enter Mesh Code in part number blank as specified in table.  
(Contact Spears® for additional strainer sizes).

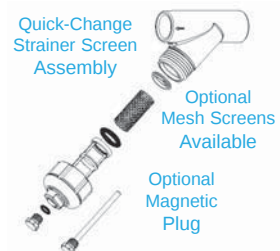
- For CPVC body & strainer screen unit, replace the letter "P" before the dash separator with the letter "C" and add the letter "C" to the part number (e.g., YS22C8-020C)
- For stainless steel strainer screens, replace the letter "P" (or "C") before the dash separator with the letter "S" (e.g., YS22S8-020; YS22S8-020C)
- For PVC Clear Y-Strainer, add the letters "CL" to the part number (e.g., YS22P8-005CL)

**Note:** End connections for PVC Clear threaded and flanged Y-strainers are PVC Gray components.

### Mesh Codes for PVC, CPVC & SS

| Mesh    | Sieve Opening Size (in.) | Mesh Code |
|---------|--------------------------|-----------|
| 8 Mesh  | 0.094                    | 8         |
| 12 Mesh | 0.062                    | 12        |
| 20 Mesh | 0.033                    | 20        |
| 30 Mesh | 0.024                    | 30        |

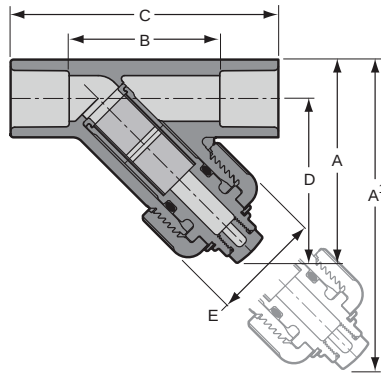
Additional Stainless Steel screens available to 320 mesh, custom ordered.



### Features - PVC Gray, PVC Clear & CPVC

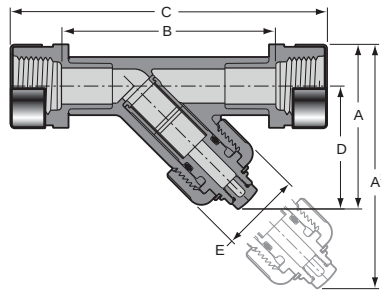
Spears® Y-type sediment strainers are the perfect choice for in-line removal of suspended solids, sediment, dirt and debris. Convenient removable strainer basket allows quick cleaning with an assortment of screen mesh sizes to meet a variety of application needs. Spears® Y-Strainers are produced from PVC Gray, PVC Clear for fluid visibility and CPVC Gray for higher temperatures. Available with socket, Special Reinforced (SR) threads, flanged, or True Union socket and SR threaded end connectors in IPS sizes 1/2" - 4".

- Provides In-line Protection of Process Equipment
- PVC, CPVC or PVC Clear Construction
- EPDM or FKM O-ring Seals
- Removable Strainer Basket with O-ring Sealed Drain Plug Allows Quick-Flushing or Bleed-Off Valve Connection
- Multiple Strainer Screen Options in PVC, CPVC, and Type 316 Stainless Steel (see Mesh Code table)
- Optional Magnetic Drain Plug for Ferrous Metal Pickup
- Suitable for Horizontal or Vertical Installation
- Sizes 1/2" - 2" Pressure Rated to 150 psi @ 73°F  
Sizes 3" - 4" to 90 psi @ 73°F
- Assembled with Silicone-Free, Water Soluble Lubricants



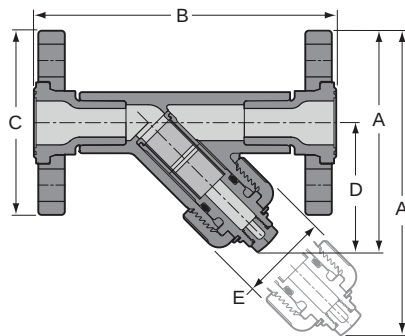
### Socket Y-Strainer Dimensions & Weights

| Nominal Size | Dimension Reference (inches, $\pm 1/16$ ) |         |        |         |        |         | Approx. Wt. (Lbs.) |       |
|--------------|-------------------------------------------|---------|--------|---------|--------|---------|--------------------|-------|
|              | A <sup>1</sup>                            | A       | B      | C       | D      | E       | Socket             |       |
|              |                                           |         |        |         |        |         | PVC                | CPVC  |
| 1/2          | 5                                         | 3-1/16  | 1-9/16 | 3-3/8   | 2-9/16 | 1-5/8   | .31                | .33   |
| 3/4          | 5-3/4                                     | 3-11/16 | 2      | 4       | 3      | 2       | .50                | .53   |
| 1            | 6-7/8                                     | 4-7/16  | 2-1/2  | 4-3/4   | 3-5/8  | 2-1/4   | .85                | .90   |
| 1-1/4        | 8-5/32                                    | 5-5/16  | 3-1/16 | 5-9/16  | 4-1/4  | 2-13/16 | 1.21               | 1.28  |
| 1-1/2        | 9-1/8                                     | 6       | 3-9/16 | 6-5/16  | 4-7/8  | 3-3/16  | 1.66               | 1.76  |
| 2            | 11-3/4                                    | 7-5/8   | 4-1/2  | 7-1/2   | 6-3/16 | 3-1/2   | 2.96               | 3.10  |
| 3            | 15                                        | 9-11/16 | 6-9/16 | 10-5/16 | 7-5/8  | 5-1/8   | 5.34               | 5.64  |
| 4            | 19-11/16                                  | 12-1/2  | 8-5/8  | 13-1/8  | 9-7/8  | 6-9/16  | 9.97               | 10.45 |



### SR Threaded Y-Strainer Dimensions & Weights

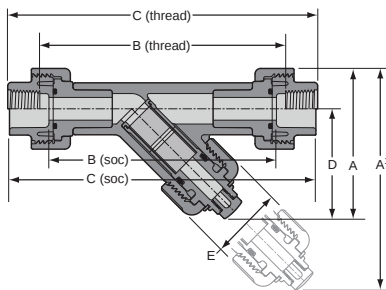
| Nominal Size | Dimension Reference (inches, $\pm 1/16$ ) |          |         |         |         |         | Approx. Wt. (Lbs.) |       |
|--------------|-------------------------------------------|----------|---------|---------|---------|---------|--------------------|-------|
|              | A <sup>1</sup>                            | A        | B       | C       | D       | E       | SR Threaded        |       |
|              |                                           |          |         |         |         |         | PVC                | CPVC  |
| 1/2          | 6-1/2                                     | 4-11/16  | 3-5/8   | 5-1/16  | 4       | 2-3/8   | .31                | .33   |
| 3/4          | 7-5/8                                     | 5-7/16   | 4-3/8   | 5-13/16 | 4-9/16  | 2-3/8   | .50                | .53   |
| 1            | 8-5/8                                     | 6-1/8    | 5-3/16  | 7       | 5-1/8   | 2-3/8   | .85                | .90   |
| 1-1/4        | 11-1/8                                    | 7-3/4    | 6       | 7-15/16 | 6-1/2   | 3-1/2   | 1.21               | 1.28  |
| 1-1/2        | 12-1/4                                    | 8-7/8    | 6-15/16 | 8-13/16 | 7-1/2   | 3-1/2   | 1.66               | 1.76  |
| 2            | 14-1/16                                   | 10-3/16  | 8-1/8   | 10-1/8  | 8-1/2   | 3-1/2   | 2.96               | 3.10  |
| 3            | 20                                        | 14-13/16 | 11      | 14-1/4  | 12-7/16 | 6-5/8   | 5.34               | 5.64  |
| 4            | 25-13/16                                  | 18-1/2   | 14      | 14-3/4  | 15-5/8  | 7-15/16 | 9.97               | 10.45 |



### Flanged Y-Strainer Dimensions & Weights

| Nominal Size | Dimension Reference (inches, $\pm 1/16$ ) |         |         |        |        |         | Approx. Wt. (Lbs.) |       |
|--------------|-------------------------------------------|---------|---------|--------|--------|---------|--------------------|-------|
|              | A <sup>1</sup>                            | A       | B       | C      | D      | E       | Flanged            |       |
|              |                                           |         |         |        |        |         | PVC                | CPVC  |
| 1/2          | 5-13/16                                   | 4-3/16  | 5-11/16 | 3-1/2  | 2-1/2  | 1-5/8   | .82                | .85   |
| 3/4          | 7-1/8                                     | 5       | 6-7/16  | 3-7/8  | 3-1/8  | 2       | 1.23               | 1.28  |
| 1            | 8-3/16                                    | 5-3/4   | 7-1/4   | 4-1/4  | 3-5/8  | 2-1/4   | 1.70               | 1.81  |
| 1-1/4        | 9-7/16                                    | 6-9/16  | 8-1/8   | 4-5/8  | 4-9/32 | 2-13/16 | 2.40               | 2.52  |
| 1-1/2        | 10-7/16                                   | 7-3/8   | 9-3/16  | 5      | 4-7/8  | 3-3/16  | 3.07               | 3.25  |
| 2            | 13-1/4                                    | 9-1/8   | 10-3/8  | 6      | 6-3/16 | 3-1/2   | 5.20               | 5.42  |
| 3            | 16-21/32                                  | 11-3/8  | 12-1/32 | 7-1/2  | 7-5/8  | 5-1/8   | 9.44               | 10.07 |
| 4            | 21-19/32                                  | 14-5/16 | 14-9/16 | 9-1/16 | 9-7/8  | 6-9/16  | 14.87              | 16.15 |

Note: 4" flanged Y-strainer uses split flange ring



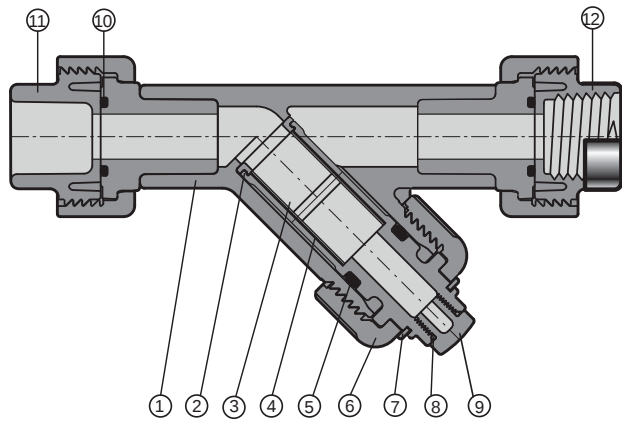
### True Union Y-Strainer Dimensions & Weights

| Nominal<br>Size | Dimension Reference (inches, ± 1/16) |         |         |           |          |           |        |         | Approx. Wt. (Lbs.) |       |
|-----------------|--------------------------------------|---------|---------|-----------|----------|-----------|--------|---------|--------------------|-------|
|                 | A <sup>1</sup>                       | A       | B       |           | C        |           | D      | E       | Union              |       |
|                 |                                      |         | Socket  | SR Thread | Socket   | SR Thread |        |         | PVC                | CPVC  |
|                 |                                      |         |         |           |          |           |        |         |                    |       |
| 1/2             | 5                                    | 3-7/16  | 5-1/8   | 5-1/2     | 6-7/8    | 7         | 2-1/2  | 1-5/8   | .49                | .53   |
| 3/4             | 6-3/16                               | 4-1/8   | 5-7/8   | 6-7/16    | 7-7/8    | 7-7/8     | 3      | 2       | .80                | .85   |
| 1               | 7-5/16                               | 4-7/8   | 6-1/2   | 7-3/8     | 8-3/4    | 9         | 3-5/8  | 2-1/4   | 1.13               | 1.20  |
| 1-1/4           | 8-5/8                                | 5-13/16 | 7-7/16  | 6-3/16    | 9-15/16  | 10-1/8    | 4-1/4  | 2-13/16 | 1.84               | 1.90  |
| 1-1/2           | 9-3/4                                | 6-5/8   | 8-3/16  | 9         | 10-15/16 | 10-15/16  | 4-7/8  | 3-3/16  | 2.44               | 2.52  |
| 2               | 12-7/16                              | 8-15/16 | 9-7/16  | 10-13/16  | 12-7/16  | 12-13/16  | 6-3/16 | 3-1/2   | 4.33               | 4.45  |
| 3               | 16-1/6                               | 10-3/4  | 12-3/16 | 13-15/16  | 16       | 16-3/4    | 7-5/8  | 5-1/8   | 10.35              | 10.55 |
| 4               | 20-15/16                             | 13-3/4  | 15-5/16 | 17-1/2    | 19-13/16 | 20-1/2    | 9-7/8  | 6-9/16  | 18.51              | 18.80 |



## Filters & Strainers Technical Information

### Industrial Strainers & Filters



### Replacement Parts

| NO. | COMPONENT                               | QTY. | MATERIAL           |
|-----|-----------------------------------------|------|--------------------|
| 1   | Body <sup>1</sup> (SOC/SR/FLANGE/UNION) | 1    | PVC/PVC CLEAR/CPVC |
| 2   | Screen Support Ring                     | 1    | PVC/CPVC           |
| 3   | Screen                                  | 1    | PVC/CPVC/SS 316    |
| 4   | Screen Support Housing                  | 1    | PVC/CPVC           |
| 5   | Housing O-ring                          | 1    | EPDM/FKM           |
| 6   | Bonnet Nut                              | 1    | PVC/CPVC           |
| 7   | Retaining Clip                          | 1    | PP                 |
| 8   | Plug O-ring                             | 1    | EPDM/FKM           |
| 9   | Plug                                    | 1    | PVC/CPVC           |
| 10  | Union O-ring                            | 2    | EPDM/FKM           |
| 11  | Union Socket End                        | 2    | PVC/CPVC           |
| 12  | Union SR Threaded End                   | 2    | PVC/CPVC           |

- 1 - Body Includes: Body (1), Spigot Adapters (2), SS Collars (2)  
 - Flange Body Includes: Body (1), Spigot Hubs (2), Flange Rings (2)  
 - Union Body Includes: Body (1), Spigot Ends (2), Nuts (2)

### Temperature Pressure Rating

| System Operating Temperature °F (°C) |           |      | 100 (38)   | 110 (43)  | 120 (49)  | 130 (54)  | 140 (60)  | 150 (66)  | 160 (71) | 170 (77) | 180 (82) | 190 (88) | 200 (93) | 210 (99) |
|--------------------------------------|-----------|------|------------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|----------|----------|
| Strainer Pressure Rating psi (MPa)   | 1/2" - 2" | PVC  | 150 (1.03) | 135 (.93) | 110 (.76) | 75 (.52)  | 50 (.34)  | -0-       | -0-      | -0-      | -0-      | -0-      | -0-      | -0-      |
|                                      |           | CPVC | 150 (1.03) | 140 (.97) | 130 (.90) | 120 (.83) | 110 (.76) | 100 (.70) | 90 (.62) | 80 (.55) | 70 (.48) | 60 (.41) | 50 (.34) | -0-      |
|                                      | 3" - 4"   | PVC  | 90 (.70)   | 85 (.62)  | 75 (.52)  | 60 (.41)  | 40 (.30)  | -0-       | -0-      | -0-      | -0-      | -0-      | -0-      | -0-      |
|                                      |           | CPVC | 90 (.70)   | 85 (.62)  | 80 (.55)  | 75 (.52)  | 70 (.48)  | 60 (.41)  | 50 (.34) | 45 (.31) | 40 (.30) | 35 (.24) | 30 (.21) | -0-      |



### Drain Plug Tap Size

| Y-Strainer Size | Tap Size (NPT) |
|-----------------|----------------|
| 1/2             | 1/4 - 18       |
| 3/4             | 1/4 - 18       |
| 1               | 3/8 - 18       |
| 1-1/4           | 1/2 - 14       |
| 1-1/2           | 1 - 11 - 1/2   |
| 2               | 1 - 11 - 1/2   |
| 3               | 1 - 11 - 1/2   |
| 4               | 1 - 11 - 1/2   |

### Y-Strainer Cv

| Nominal Size | Plastic Strainer Mesh |       |       |       |
|--------------|-----------------------|-------|-------|-------|
|              | 8                     | 12    | 20    | 30    |
| 1/2          | 5.5                   | 5.4   | 5.3   | 5.2   |
| 3/4          | 8.2                   | 7.8   | 7.5   | 7.2   |
| 1            | 14.3                  | 13.9  | 13.6  | 13.3  |
| 1-1/4        | 33.6                  | 32.9  | 29.4  | 25.4  |
| 1-1/2        | 43.8                  | 41.6  | 33.0  | 32.1  |
| 2            | 50.6                  | 50.0  | 49.6  | 48.8  |
| 3            | 75.2                  | 74.6  | 74.0  | 73.4  |
| 4            | 169.5                 | 169.0 | 168.8 | 168.0 |

Gallons per minute at 1 psi pressure drop.  
 Plastic Strainers are perforated PVC or CPVC screens.  
 Standard is mesh.



## Sample Engineering Specification

All thermoplastic Basket Strainers shall be fabricated from PVC Type I, ASTM D 1784 Cell Classification 12454 or CPVC Type IV, ASTM D 1784 Cell Classification 23447 material. All O-rings shall be EPDM or FKM. Strainer baskets shall be perforated PVC, CPVC, or type 316 stainless steel, or type 316 stainless steel wire mesh. Standard strainer perforations shall be 1/8" or 3/32" with a minimum open area ratio of 6:1, or specified perforation/mesh opening. Basket strainer sizes 1/2" - 8" shall have quick

release clamp retained bonnet, sizes 10" - 12" shall have bolt-on bonnet. Sizes 1-1/4" and larger Basket Strainers shall have pressure release valve and safety pressure gauge. Unit shall be equipped with O-ring sealed drain plug at lower end. Basket Strainer sizes 1/2" - 8" shall be pressure rated at 150 psi, sizes 10" - 12" to 50 psi for water at 73°F, as manufactured by Spears® Manufacturing Company.

## Features – PVC, CPVC

Spears® fabricated Basket Strainers are constructed of heavy bodied PVC or CPVC. Available in IPS sizes 1/2" through 12" with choice of socket, spigot or flanged ends and EPDM, FKM or PTFE encapsulated O-ring seals. A convenient quick release clamp cap is equipped with safety pressure gauge and pressure release ball valve for safer system operation and strainer cleaning. Additional drain plug allows complete drain and flush of unit. Designed to remove unwanted solids from plastic or metal piping systems, Spears® Basket Strainers are ideal for protecting valves, filters, pumps, nozzles or other liquid control devices in corrosive or non-corrosive fluid systems.

- Chemical & Corrosion Resistant PVC or CPVC Construction
- Convenient Quick-Release Clamp For easy Bonnet Removal (Bolt-on Bonnet on Sizes 10" & 12")
- Includes Pressure Release Valve and 0-160 psi Safety Pressure Gauge on sizes 1-1/4" & larger<sup>1</sup> (O-ring sealed plugs provided if valve/gauge not used)
- O-ring Sealed Drain Plug
- EPDM or FKM O-ring Seals
- Perforated PVC & CPVC Strainer Baskets in a Variety of Sizes. Stainless Steel Available in perforation and Multiple Mesh Sizes
- High Volume 6:1 Open Area Ratio
- Sizes 1/2" - 8" Pressure Rated to 150 psi @ 73°F
- Sizes 10" - 12" Pressure Rated to 50 psi @ 73°F
- Assembled with Silicone-Free Seal Lubricants.

1: Commercial bronze bourdon-tube type pressure gauge w/brass NPT inlet. Check for any chemical compatibility issues. Contact Spears® for PVC, CPVC or PP Gauge Guard isolation devices available.



## Quick-View Basket Strainer Selection Chart

| Valve Size | O-ring Material | PVC Part Numbers <sup>1,2,3</sup> |            |            | Pressure Rating                         |
|------------|-----------------|-----------------------------------|------------|------------|-----------------------------------------|
|            |                 | Socket                            | Spigot     | Flanged    |                                         |
| 1/2        | EPDM            | BS22P_-005                        | BS27P_-005 | BS23P_-005 | 150 psi<br>Non-Shock<br>Water @<br>73°F |
|            | FKM             | BS32P_-005                        | BS37P_-005 | BS33P_-005 |                                         |
| 3/4        | EPDM            | BS22P_-007                        | BS27P_-007 | BS23P_-007 |                                         |
|            | FKM             | BS32P_-007                        | BS37P_-007 | BS33P_-007 |                                         |
| 1          | EPDM            | BS22P_-010                        | BS27P_-010 | BS23P_-010 |                                         |
|            | FKM             | BS32P_-010                        | BS37P_-010 | BS33P_-010 |                                         |
| 1-1/4      | EPDM            | BS22P_-012                        | BS27P_-012 | BS23P_-012 |                                         |
|            | FKM             | BS32P_-012                        | BS37P_-012 | BS33P_-012 |                                         |
| 1-1/2      | EPDM            | BS22P_-015                        | BS27P_-015 | BS23P_-015 |                                         |
|            | FKM             | BS32P_-015                        | BS37P_-015 | BS33P_-015 |                                         |
| 2          | EPDM            | BS22P_-020                        | BS27P_-020 | BS23P_-020 |                                         |
|            | FKM             | BS32P_-020                        | BS37P_-020 | BS33P_-020 |                                         |
| 2-1/2      | EPDM            | BS22P_-025                        | BS27P_-025 | BS23P_-025 |                                         |
|            | FKM             | BS32P_-025                        | BS37P_-025 | BS33P_-025 |                                         |
| 3          | EPDM            | BS22P_-030                        | BS27P_-030 | BS23P_-030 |                                         |
|            | FKM             | BS32P_-030                        | BS37P_-030 | BS33P_-030 |                                         |
| 4          | EPDM            | BS22P_-040                        | BS27P_-040 | BS23P_-040 |                                         |
|            | FKM             | BS32P_-040                        | BS37P_-040 | BS33P_-040 |                                         |
| 6          | EPDM            | BS22P_-060                        | BS27P_-060 | BS23P_-060 |                                         |
|            | FKM             | BS32P_-060                        | BS37P_-060 | BS33P_-060 |                                         |
| 8          | EPDM            | BS22P_-080                        | BS27P_-080 | BS23P_-080 |                                         |
|            | FKM             | BS32P_-080                        | BS37P_-080 | BS33P_-080 |                                         |
| 10         | EPDM            | BS22P_-100                        | BS27P_-100 | BS23P_-100 | 50 psi<br>Non-Shock<br>Water @<br>73°F  |
|            | FKM             | BS32P_-100                        | BS37P_-100 | BS33P_-100 |                                         |
| 12         | EPDM            | BS22P_-120                        | BS27P_-120 | BS23P_-120 |                                         |
|            | FKM             | BS32P_-120                        | BS37P_-120 | BS33P_-120 |                                         |

Enter Mesh Code in part number blank as specified in table.

(Contact Spears® for additional strainer sizes).

- 1: For CPVC body & strainer screen unit, replace the letter "P" before the dash separator with the letter "C" and add the letter "C" to the part number (e.g., BS22C8-020C)
- 2: For stainless steel strainer screens, replace the letter "P" (or "C") before the dash separator with the letter "S" (e.g., BS22S8-020; BS22S8-020C)
- 3: For Basket Strainers with PTFE O-rings replace the number 2 with the number 5 (e.g. BS53P-010)

## Special Options

- PTFE Encapsulated O-ring Seals
- Bonnet Sight Glass

## Perforation Mesh Codes

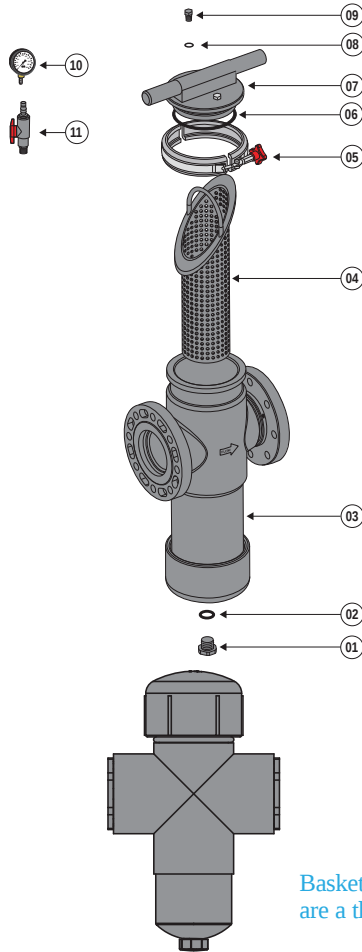
| Perforation Size (in.) | Mesh Code |
|------------------------|-----------|
| 1/16                   | 12        |
| 3/32                   | 8         |
| 1/8                    | 6         |
| 3/16                   | 4         |
| 1/4                    | 3         |
| 3/8                    | 2         |

Example: BS22P6-020  
Additional perforation and mesh sizes available upon request.



## Filters & Strainers Technical Information

### Industrial Strainers & Filters

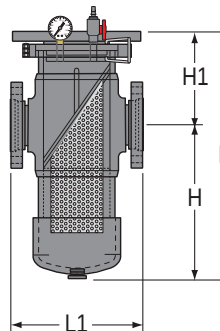


### Replacement Parts

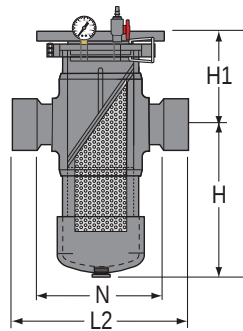
| No. | Component             | Quantity | Material                      |
|-----|-----------------------|----------|-------------------------------|
| 1   | Drain Plug            | 1        | PVC/CPVC                      |
| 2   | Drain Plug O-ring     | 1        | EPDM/FKM/PTFE                 |
| 3   | Body                  | 1        | PVC/CPVC                      |
| 4   | Strainer Basket       | 1        | PVC/CPVC /316 Stainless Steel |
| 5   | Bonnet Clamp          | 1        | SS 316                        |
| 6   | Bonnet O-ring         | 1        | EPDM/FKM/PTFE                 |
| 7   | Bonnet                | 1        | PVC/CPVC                      |
| 8   | Plug O-ring           | 2        | EPDM/FKM/PTFE                 |
| 9   | Gauge Port Plug       | 2        | PVC/CPVC                      |
| 10  | Pressure Gauge        | 1        | 0-160 psi (1-1/4" & up)       |
| 11  | Pressure Relief Valve | 1        | PVC/CPVC (1-1/4" & up)        |

**Notes:** 1) Port plugs for use when pressure gauge and relief valve are not installed.  
2) Valve O-rings correspond to Strainer Basket Specification.

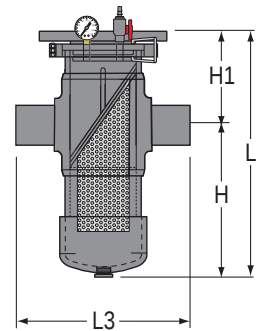
#### Flanged Style



#### Socket Style



#### Spigot Style



Basket Strainer sizes 1/2" through 1" bonnets are a threaded cap with O-ring seal.

### Dimensions, Weights & Cv Values

| Size  | H        | H <sup>1</sup> | L       | L <sup>1</sup> | L <sup>2</sup> | L <sup>3</sup> | N       | Approx. Wt. (Lbs.) |         | Cv   |
|-------|----------|----------------|---------|----------------|----------------|----------------|---------|--------------------|---------|------|
|       |          |                |         |                |                |                |         | Socket/ Spigot     | Flanged |      |
| 1/2   | 5-7/8    | 4-9/16         | 10-7/16 | 9-1/4          | 6-13/16        | 9-9/16         | 5-1/8   | 2.97               | 3.35    | 4.5  |
| 3/4   | 5-7/8    | 4-9/16         | 10-7/16 | 9-1/4          | 6-7/16         | 9-7/16         | 4-7/16  | 2.99               | 3.44    | 10   |
| 1     | 5-7/8    | 4-9/16         | 10-7/16 | 10-3/8         | 6-13/16        | 10-1/16        | 4-1/2   | 3.02               | 3.50    | 15   |
| 1-1/4 | 10-1/4   | 8              | 18-1/4  | 8-9/16         | 10-1/16        | 10-1/4         | 7-9/16  | 3.20               | 3.60    | 30   |
| 1-1/2 | 10-1/4   | 8              | 18-1/4  | 8-3/4          | 11-1/8         | 11             | 8-1/8   | 3.50               | 3.75    | 46   |
| 2     | 10-1/4   | 8              | 18-1/4  | 8-3/4          | 12-1/8         | 11             | 8-5/8   | 11.00              | 11.40   | 72   |
| 2-1/2 | 10-1/4   | 8              | 18-1/4  | 8-3/4          | 12-3/8         | 12-7/8         | 8-3/8   | 12.30              | 12.60   | 110  |
| 3     | 13-13/16 | 8-3/4          | 22-9/16 | 11-5/8         | 16-1/8         | 15             | 11-5/8  | 25.00              | 25.40   | 172  |
| 4     | 17-5/16  | 8-3/4          | 26-1/16 | 12             | 18             | 17-1/2         | 13-1/2  | 25.70              | 26.80   | 270  |
| 6     | 18-7/8   | 10-9/16        | 29-7/16 | 17-1/8         | 24-3/8         | 23-5/16        | 17-7/8  | 58.40              | 60.80   | 630  |
| 8     | 24-1/2   | 11-9/16        | 36-1/16 | 20-1/2         | 30-1/2         | 27-1/2         | 22      | 93.60              | 96.00   | 750  |
| 10    | 27-1/8   | 16-5/8         | 43-3/4  | 26             | 34-9/16        | 34-1/2         | 24-1/16 | 200.20             | 210.30  | 893  |
| 12    | 34-7/8   | 17-3/16        | 52-1/16 | 28-1/8         | 38-3/4         | 36-1/4         | 26-1/4  | 229.30             | 239.80  | 1063 |

Cv = Gallons per minute at 1 psi pressure drop.

### Temperature Pressure Rating

| System Operating Temperature °F (°C) |           |      | 100 (38)   | 110 (43)  | 120 (49)  | 130 (54)  | 140 (60)  | 150 (66)  | 160 (71) | 170 (77) | 180 (82) | 190 (88) | 200 (93) | 210 (99) |
|--------------------------------------|-----------|------|------------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|----------|----------|
| Valve Pressure Rating psi (MPa)      | 1/2" - 8" | PVC  | 150 (1.03) | 135 (.93) | 110 (.76) | 75 (.52)  | 50 (.34)  | -0-       | -0-      | -0-      | -0-      | -0-      | -0-      | -0-      |
|                                      |           | CPVC | 150 (1.03) | 140 (.97) | 130 (.90) | 120 (.83) | 110 (.76) | 100 (.70) | 90 (.62) | 80 (.55) | 70 (.48) | 60 (.41) | 50 (.34) | -0-      |
|                                      | 10" - 12" | PVC  | 50 (.34)   | 45 (.31)  | 40 (.30)  | 35 (.24)  | 30 (.21)  | -0-       | -0-      | -0-      | -0-      | -0-      | -0-      | -0-      |
|                                      |           | CPVC | 50 (.34)   | 47 (.32)  | 45 (.31)  | 42 (.83)  | 40 (.30)  | 37 (.26)  | 35 (.24) | 30 (.21) | 25 (.17) | 20 (.14) | 15 (.10) | -0-      |



## Features – PVC

The Suction Strainer is a special Basket Strainer design that reduces pressure drop, a critical element in suction line applications. While same-size (inlet/outlet) units are available, the enlarged inlet performs best in suction-line applications.

- Chemical & Corrosion Resistant PVC Construction
- Bolt-on Bonnet with Top Sight Glass, Standard
- Stainless Steel Strainer Basket with 3/16" Perforation, Standard
- Bottom-Drained Internal Strainer Basket for Direct Flushing
- 360° Adjustable Side Mounted Flush-Discharge Valve Assembly
- EPDM Seals Standard
- Pressure rated to 50 psi @ 73°F

Contact Spears® for additional Basket Mesh/Perforation, Elastomer seal options, or other custom requirements desired.

## Sample Engineering Specification

All thermoplastic Suction Strainers shall be fabricated from PVC Type I Cell Classification 12454 material. All O-rings shall be EPDM. Strainer basket shall be type 316 stainless steel. Standard strainer perforations shall be 3/16" with a minimum open area ratio of 6:1. Basket shall have bottom-drained direct discharge with 360° adjustable side discharge assembly, including Ball Valve at terminal end. Unit shall have bolt-on bonnet with built-in sight glass. Suction strainer shall be pressure rated at 50 psi for water at 73°F, as manufactured by Spears® Manufacturing Company.

## Suction Strainer Stainless Steel Baskets 3/16" Perforation

| Size | Part Number |
|------|-------------|
| 4    | SSS4-040    |
| 6    | SSS4-060    |
| 8    | SSS4-080    |
| 10   | SSS4-100    |
| 12   | SSS4-120    |

## Quick-View Suction Strainer Selection Chart

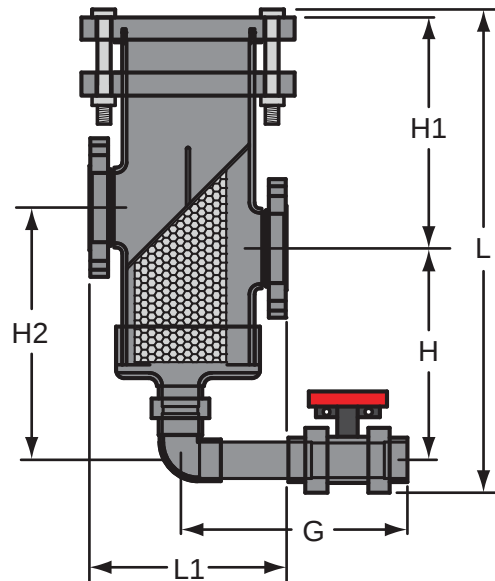
| Valve Size | O-ring Material | Part Numbers  | Pressure Rating                       |
|------------|-----------------|---------------|---------------------------------------|
|            |                 | Flanged       |                                       |
| 4          | EPDM            | SS23BS4SG-040 | 50 psi<br>Non-Shock<br>Water<br>@73°F |
| 4 x 2      | EPDM            | SS23BS4SG-420 |                                       |
| 4 x 2-1/2  | EPDM            | SS23BS4SG-421 |                                       |
| 4 x 3      | EPDM            | SS23BS4SG-422 |                                       |
| 6          | EPDM            | SS23BS4SG-060 |                                       |
| 6 x 4      | EPDM            | SS23BS4SG-532 |                                       |
| 8          | EPDM            | SS23BS4SG-080 |                                       |
| 8 x 4      | EPDM            | SS23BS4SG-582 |                                       |
| 8 x 6      | EPDM            | SS23BS4SG-585 |                                       |
| 10         | EPDM            | SS23BS4SG-100 |                                       |
| 10 x 6     | EPDM            | SS23BS4SG-626 |                                       |
| 10 x 8     | EPDM            | SS23BS4SG-628 |                                       |
| 12         | EPDM            | SS23BS4SG-120 |                                       |
| 12 x 8     | EPDM            | SS23BS4SG-668 |                                       |
| 12 x 10    | EPDM            | SS23BS4SG-670 |                                       |





## Filters & Strainers Technical Information

### Industrial Strainers & Filters



### Dimensions

| Size      | G        | H        | H1       | H2       | L        | L1       |
|-----------|----------|----------|----------|----------|----------|----------|
| 4         | 14-13/16 | 13-13/16 | 15-9/16  | 16-7/16  | 31-1/2   | 12-7/8   |
| 4 x 2     | 14-13/16 | 13-13/16 | 15-9/16  | 16-7/16  | 31-1/2   | 13-1/2   |
| 4 x 2-1/2 | 14-13/16 | 13-13/16 | 15-9/16  | 16-7/16  | 31-1/2   | 12-1/2   |
| 4 x 3     | 14-13/16 | 13-13/16 | 15-9/16  | 16-7/16  | 31-1/2   | 12-9/16  |
| 6         | 14-13/16 | 16-7/8   | 16-7/8   | 19-15/16 | 35-7/8   | 15-7/8   |
| 6 x 4     | 14-13/16 | 17-15/16 | 15-13/16 | 19-15/16 | 35-7/8   | 15-7/8   |
| 8         | 17-15/16 | 22-1/4   | 21-13/16 | 27-7/8   | 46-1/4   | 18       |
| 8 x 4     | 17-15/16 | 24-5/16  | 19-3/4   | 27-7/8   | 46-1/4   | 18       |
| 8 x 6     | 17-15/16 | 23-1/4   | 20-13/16 | 27-7/8   | 46-1/4   | 18-1/8   |
| 10        | 17-15/16 | 27-13/16 | 19-11/16 | 31-11/16 | 49-11/16 | 23-15/16 |
| 10 x 6    | 17-15/16 | 27-13/16 | 19-11/16 | 31-11/16 | 49-11/16 | 23       |
| 10 x 8    | 17-15/16 | 27-13/16 | 19-11/16 | 31-11/16 | 49-11/16 | 22-7/8   |
| 12        | 20-3/16  | 27-3/16  | 21-5/8   | 31-3/16  | 50-13/16 | 30       |
| 12 x 8    | 20-3/16  | 29-1/8   | 19-9/16  | 31-3/16  | 50-13/16 | 29       |
| 12 x 10   | 20-3/16  | 28-1/16  | 20-5/8   | 31-3/16  | 50-13/16 | 29-3/4   |

### Temperature Pressure Rating

| System Operating Temperature °F (°C) |          |     | 100<br>(38) | 110<br>(43) | 120<br>(49) | 130<br>(54) | 140<br>(60) | 150<br>(66) | 160<br>(71) | 170<br>(77) | 180<br>(82) | 190<br>(88) | 200<br>(93) | 210<br>(99) |
|--------------------------------------|----------|-----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Valve Pressure Rating<br>psi (MPa)   | 4" - 12" | PVC | 50<br>(.34) | 45<br>(.31) | 40<br>(.30) | 35<br>(.24) | 30<br>(.21) | -0-         | -0-         | -0-         | -0-         | -0-         | -0-         | -0-         |