



# TRUE UNION BALL VALVES (REGULAR STYLE)



## Sample Engineering Specification

All thermoplastic ball valves shall be True Union 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 valves shall have Safe-T-Shear<sup>®</sup> stem and double stop Polypropylene handle. All valve union nuts shall have Buttress threads. All seal carriers shall be Safe-T-Blocked<sup>®</sup>. All valve components shall be replaceable. All EPDM valves shall be certified by NSF<sup>®</sup> International for use in potable water service. All 1/2" - 2" valves shall be pressure rated at 235 psi and all 2-1/2" - 6" and all flanged valves shall be pressure rated at 150 psi for water at 73°F, as manufactured by Spears<sup>®</sup> Manufacturing Company.

## Features – PVC, CPVC

This versatile, quarter-turn shutoff valve is well suited for industrial and chemical processing applications. Available in IPS Sizes 1/2" - 4" with socket, threaded or flanged end connectors. 6" Venturied valve (4" valve with 4 x 6 adapter) available with either socket or flanged end connection. Also available with metric 20mm - 110mm or 1/2" - 4" BSP threaded end connectors.

- Chemical & Corrosion Resistant PVC or CPVC Construction
- Schedule 80 Full-Bore Design
- Strong, Buttress Thread Union Nuts
- Fully Serviceable, Replaceable Components
- Spears<sup>®</sup> Safe-T-Blocked<sup>®</sup> Seal Carrier
- Self Adjusting PTFE Floating Seat Design
- EPDM or FKM O-rings
- High Impact Polypropylene Handle
- Spears<sup>®</sup> Safe-T-Shear<sup>®</sup> Stem Design
- Sizes 1/2" - 2" Pressure Rated to 235 psi @ 73°F, Sizes 2-1/2" - 6" and all flanged Pressure Rated to 150 psi @ 73°F
- EPDM valves NSF<sup>®</sup> Certified for Potable Water use
- Suitable for Vacuum Service
- Assembled with Silicone-Free, Water Soluble Lubricants
- Manufactured to ASTM F 1970

## Quick-View Valve Selection Chart

| Valve Size                  | O-ring Material | PVC Part Number <sup>1</sup> |          |          | Pressure Rating                                      |
|-----------------------------|-----------------|------------------------------|----------|----------|--|
|                             |                 | Threaded                     | Socket   | Flanged  |  |
| 1/2                         | EPDM            | 2329-005                     | included | 2323-005 | 235 psi<br>Non-Shock<br>Water<br>@ 73°F              |
|                             | FKM             | 2339-005                     | included | 2333-005 |  |
| 3/4                         | EPDM            | 2329-007                     | included | 2323-007 |  |
|                             | FKM             | 2339-007                     | included | 2333-007 |  |
| 1                           | EPDM            | 2329-010                     | included | 2323-010 |  |
|                             | FKM             | 2339-010                     | included | 2333-010 |  |
| 1-1/4                       | EPDM            | 2329-012                     | included | 2323-012 | (Flanged<br>150 psi<br>Non-Shock)<br>Water<br>@ 73°F |
|                             | FKM             | 2339-012                     | included | 2333-012 |  |
| 1-1/2                       | EPDM            | 2329-015                     | included | 2323-015 |  |
|                             | FKM             | 2339-015                     | included | 2333-015 |  |
| 2                           | EPDM            | 2329-020                     | included | 2323-020 |  |
|                             | FKM             | 2339-020                     | included | 2333-020 |  |
| 2-1/2                       | EPDM            | 2321-025                     | 2322-025 | 2323-025 | 150 psi<br>Non-Shock<br>Water<br>@ 73°F              |
|                             | FKM             | 2331-025                     | 2332-025 | 2333-025 |  |
| 3                           | EPDM            | 2321-030                     | 2322-030 | 2323-030 |  |
|                             | FKM             | 2331-030                     | 2332-030 | 2333-030 |  |
| 4                           | EPDM            | 2321-040                     | 2322-040 | 2323-040 |  |
|                             | FKM             | 2331-040                     | 2332-040 | 2333-040 |  |
| 6 <sup>2</sup><br>venturied | EPDM            | ---                          | 2322-060 | 2323-060 |  |
|                             | FKM             | ---                          | 2332-060 | 2333-060 |  |

## Optional Accessories\*

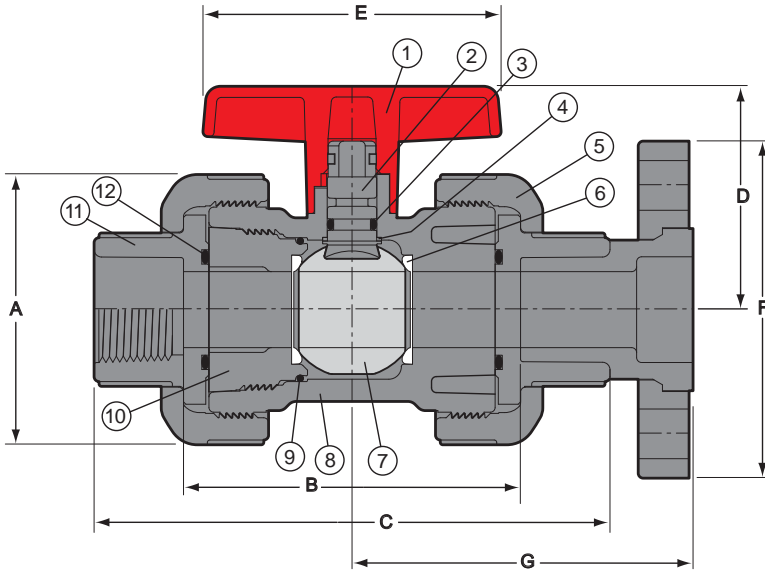
- Round Safety Handle
- Stem Extension Kit
- 2" Square / T-Style Operator Nut

\* See "BALL VALVE ACCESSORIES" section for details of individual products.

1: For CPVC valves, add the letter "C" to part numbers listed (e.g., 2339-005C).

2: Consists of 4" True Union Ball Valve with two 4" x 6" Adapters.

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## Replacement Parts

| No. | Component            | Qty. | Material |
|-----|----------------------|------|----------|
| 1   | Handle               | 1    | PP       |
| 2   | Stem                 | 1    | PVC/CPVC |
| 3   | Stem O-ring          | 1    | EPDM/FKM |
| 4   | Stem Bearing*        | 1    | PP       |
| 5   | Union Nut            | 2    | PVC/CPVC |
| 6   | Seat**               | 2    | PTFE     |
| 7   | Ball                 | 1    | PVC/CPVC |
| 8   | Body                 | 1    | PVC/CPVC |
| 9   | Carrier O-ring       | 1    | EPDM/FKM |
| 10  | Seal Carrier         | 1    | PVC/CPVC |
| 11  | End Connector        | 2    | PVC/CPVC |
| 12  | End Connector O-ring | 2    | EPDM/FKM |

\* Sizes 1-1/4" and larger.

\*\* Seat O-ring (not shown) on sizes 2-1/2" and larger.

## Dimensions, Weights, Operating Torque & Cv Values

| Nominal Size           | Dimension Reference (inches, ± 1/16) |                |          |         |          |        |          | Approx. Wt. (Lbs.) |         |         |         | Oper. <sup>2</sup> Torque (in.-lb.) | C <sub>v</sub> <sup>4</sup> Values |         |
|------------------------|--------------------------------------|----------------|----------|---------|----------|--------|----------|--------------------|---------|---------|---------|-------------------------------------|------------------------------------|---------|
|                        | A                                    | B <sup>1</sup> | C        | D       | E        | F      | G        | PVC                |         | CPVC    |         |                                     | Soc/Thd                            | Flanged |
|                        |                                      |                |          |         |          |        |          | Soc/Thd            | Flanged | Soc/Thd | Flanged |                                     |                                    |         |
| 1/2                    | 2-9/16                               | 3-7/16         | 5-3/16   | 2-13/32 | 2-23/32  | 3-1/2  | 3-15/32  | 1.05               | 1.23    | .95     | 1.14    | 20                                  | 25                                 | 18      |
| 3/4                    | 3-1/32                               | 4-1/16         | 6-3/16   | 2-5/8   | 3-3/16   | 3-7/8  | 4        | 1.44               | 1.64    | 1.50    | 1.73    | 30                                  | 51                                 | 36      |
| 1                      | 3-13/32                              | 4-5/16         | 6-9/16   | 2-13/16 | 3-23/32  | 4-1/4  | 4-5/16   | 1.91               | 2.22    | 2.08    | 2.43    | 40                                  | 97                                 | 67      |
| 1-1/4                  | 3-11/16                              | 4-1/2          | 7-1/16   | 2-31/32 | 4-1/8    | 4-5/8  | 4-19/32  | 2.38               | 2.78    | 2.52    | 2.91    | 60                                  | 204                                | 142     |
| 1-1/2                  | 4-3/8                                | 5-5/16         | 8-1/32   | 3-9/32  | 4-15/32  | 5      | 5-9/32   | 3.63               | 4.00    | 3.82    | 4.26    | 80                                  | 285                                | 201     |
| 2                      | 5-3/16                               | 5-13/16        | 8-13/16  | 4-13/32 | 5-1/4    | 6      | 5-23/32  | 5.40               | 6.14    | 5.70    | 6.54    | 90                                  | 540                                | 381     |
| 2-1/2                  | 7-7/16                               | 8-3/8          | 11-7/8   | 4-29/32 | 9-7/8    | 7      | 7-3/16   | 12.87              | 14.26   | 13.44   | 15.85   | 300                                 | 712                                | 512     |
| 3                      | 7-7/16                               | 8-3/16         | 11-15/16 | 4-29/32 | 9-7/8    | 7-1/2  | 7-11/32  | 13.24              | 15.67   | 13.85   | 16.96   | 300                                 | 1294                               | 925     |
| 4                      | 8-15/16                              | 8-11/16        | 13-3/16  | 5-19/32 | 10-13/16 | 9-1/16 | 8-5/32   | 19.58              | 24.32   | 20.49   | 25.83   | 400                                 | 2629                               | 1868    |
| 6 Socket <sup>3</sup>  | 8-15/16                              | 19-5/8         | 26-1/16  | 6-3/4   | 10-13/16 | 11-1/4 | 14-11/16 | 22.66              | 30.98   | 26.11   | 34.78   | 400                                 | N/A                                | N/A     |
| 6 Flanged <sup>3</sup> | 11-3/16                              | 29-3/8         | N/A      | 6-3/4   | 10-13/16 | 11-1/4 | 14-11/16 | N/A                | N/A     | N/A     | N/A     | 400                                 | N/A                                | N/A     |

1: Valve Lay Lengths.

2: Torque required at valve maximum internal pressure rating, 5 ft./sec. flow velocity.

3: Consists of 4" True Union Ball Valve with two 4" x 6" Adapters.

4: Gallons per minute at 1 psi pressure drop. Values calculated from valve laying length, based on derivative of Hazen-Williams equation with surface roughness factor of C=150.

C<sub>v</sub> Valves for 6" venturied flange and socket valves are not available.

## 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<br>psi (MPa)   | 1/2" - 2"   | PVC      | 235 (1.62) | 211 (1.45) | 150 (1.03) | 75 (.52)   | 50 (.34)  | -0- (-0-) | -0- (-0-) | -0- (-0-) | -0- (-0-) | -0- (-0-) | -0- (-0-) |           |
|                                      |             | CPVC     | 235 (1.62) | 219 (1.51) | 170 (1.17) | 145 (1.00) | 130 (.90) | 110 (.76) | 90 (.62)  | 80 (.55)  | 70 (.48)  | 60 (.41)  | 50 (.34)  | -0- (-0-) |
|                                      | 2-1/2" - 6" | PVC      | 150 (1.03) | 135 (.93)  | 110 (.76)  | 75 (.52)   | 50 (.34)  | -0- (-0-) | -0- (-0-) | -0- (-0-) | -0- (-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- (-0-) |

NOTE: Flanged Valves have a base pressure rating of 150 psi.

**NOT FOR DISTRIBUTION OF COMPRESSED AIR OR GASES**