



Valves Technical
True Union 2000 Industrial 3-Way Ball Valves



Quick-View Valve Selection Chart
3-Way Vertical Ball Valve

| Valve Size | O-ring Material | PVC Part Number ^{1, 2, 3, 4} | | | | Pressure Rating | |
|------------|-----------------|---------------------------------------|--------------|------------|------------|---|---|
| | | Socket | SR Threaded | Flanged | Spigot | | |
| 1/2 | EPDM | 4722L1-005 | 4721L1-005SR | 4723L1-005 | 4727L1-005 | 235 psi Non-Shock Water @ 73°F | |
| | FKM | 4732L1-005 | 4731L1-005SR | 4733L1-005 | 4737L1-005 | | |
| 3/4 | EPDM | 4722L1-007 | 4721L1-007SR | 4723L1-007 | 4727L1-007 | | |
| | FKM | 4732L1-007 | 4731L1-007SR | 4733L1-007 | 4737L1-007 | | |
| 1 | EPDM | 4722L1-010 | 4721L1-010SR | 4723L1-010 | 4727L1-010 | | |
| | FKM | 4732L1-010 | 4731L1-010SR | 4733L1-010 | 4737L1-010 | | |
| 1-1/4 | EPDM | 4722L1-012 | 4721L1-012SR | 4723L1-012 | 4727L1-012 | | (Flanged 150 psi Non-Shock) Water @ 73°F |
| | FKM | 4732L1-012 | 4731L1-012SR | 4733L1-012 | 4737L1-012 | | |
| 1-1/2 | EPDM | 4722L1-015 | 4721L1-015SR | 4723L1-015 | 4727L1-015 | | |
| | FKM | 4732L1-015 | 4731L1-015SR | 4733L1-015 | 4737L1-015 | | |
| 2 | EPDM | 4722L1-020 | 4721L1-020SR | 4723L1-020 | 4727L1-020 | | |
| | FKM | 4732L1-020 | 4731L1-020SR | 4733L1-020 | 4737L1-020 | | |
| 2-1/2 | EPDM | 4722L1-025 | 4721L1-025SR | 4723L1-025 | 4727L1-025 | 150 psi Non-Shock Water @ 73°F | |
| | FKM | 4732L1-025 | 4731L1-025SR | 4733L1-025 | 4737L1-025 | | |
| 3 | EPDM | 4722L1-030 | 4721L1-030SR | 4723L1-030 | 4727L1-030 | | |
| | FKM | 4732L1-030 | 4731L1-030SR | 4733L1-030 | 4737L1-030 | | |
| 4 | EPDM | 4722L1-040 | 4721L1-040SR | 4723L1-040 | 4727L1-040 | | |
| | FKM | 4732L1-040 | 4731L1-040SR | 4733L1-040 | 4737L1-040 | | |

1: For CPVC valve, add the letter "C" to the part number (e.g. 4722L1-005C)
2: For Double L-Port, add the number "2" to the part number (e.g. 4722L2-005)
3: For Triple L-Port, add the number "3" to the part number (e.g. 4722L3-005)
4: For T-Port, add the letter "T1" to the part number (e.g. 4722T1-005)

Quick-View Valve Selection Chart
3-Way Horizontal Diverter Valve (no branch shutoff)

| Valve Size | O-ring Material | PVC Part Number ^{1, 2} | | | | Pressure Rating | | |
|------------|-----------------|---------------------------------|--------------|------------|------------|---|---|---|
| | | Socket | SR Threaded | Flanged | Spigot | | | |
| 1/2 | EPDM | 5022L1-005 | 5021L1-005SR | 5023L1-005 | 5027L1-005 | 235 psi Non-Shock Water @ 73°F | | |
| | FKM | 5032L1-005 | 5031L1-005SR | 5033L1-005 | 5037L1-005 | | | |
| 3/4 | EPDM | 5022L1-007 | 5021L1-007SR | 5023L1-007 | 5027L1-007 | | | |
| | FKM | 5032L1-007 | 5031L1-007SR | 5033L1-007 | 5037L1-007 | | | |
| 1 | EPDM | 5022L1-010 | 5021L1-010SR | 5023L1-010 | 5027L1-010 | | (Flanged 150 psi Non-Shock) Water @ 73°F | |
| | FKM | 5032L1-010 | 5031L1-010SR | 5033L1-010 | 5037L1-010 | | | |
| 1-1/4 | EPDM | 5022L1-012 | 5021L1-012SR | 5023L1-012 | 5027L1-012 | | | |
| | FKM | 5032L1-012 | 5031L1-012SR | 5033L1-012 | 5037L1-012 | | | |
| 1-1/2 | EPDM | 5022L1-015 | 5021L1-015SR | 5023L1-015 | 5027L1-015 | | | 150 psi Non-Shock Water @ 73°F |
| | FKM | 5032L1-015 | 5031L1-015SR | 5033L1-015 | 5037L1-015 | | | |
| 2 | EPDM | 5022L1-020 | 5021L1-020SR | 5023L1-020 | 5027L1-020 | | | |
| | FKM | 5032L1-020 | 5031L1-020SR | 5033L1-020 | 5037L1-020 | | | |
| 2-1/2 | EPDM | 5022L1-025 | 5021L1-025SR | 5023L1-025 | 5027L1-025 | 150 psi Non-Shock Water @ 73°F | | |
| | FKM | 5032L1-025 | 5031L1-025SR | 5033L1-025 | 5037L1-025 | | | |
| 3 | EPDM | 5022L1-030 | 5021L1-030SR | 5023L1-030 | 5027L1-030 | | | |
| | FKM | 5032L1-030 | 5031L1-030SR | 5033L1-030 | 5037L1-030 | | | |
| 4 | EPDM | 5022L1-040 | 5021L1-040SR | 5023L1-040 | 5027L1-040 | | | |
| | FKM | 5032L1-040 | 5031L1-040SR | 5033L1-040 | 5037L1-040 | | | |

1: For CPVC valve, add the letter "C" to the part number (e.g. 5022L1-005C)
2: For T-Port, add the letter "T1" to the part number (e.g. 5022T1-005)

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True Union 2000 Industrial 3-Way Ball Valves



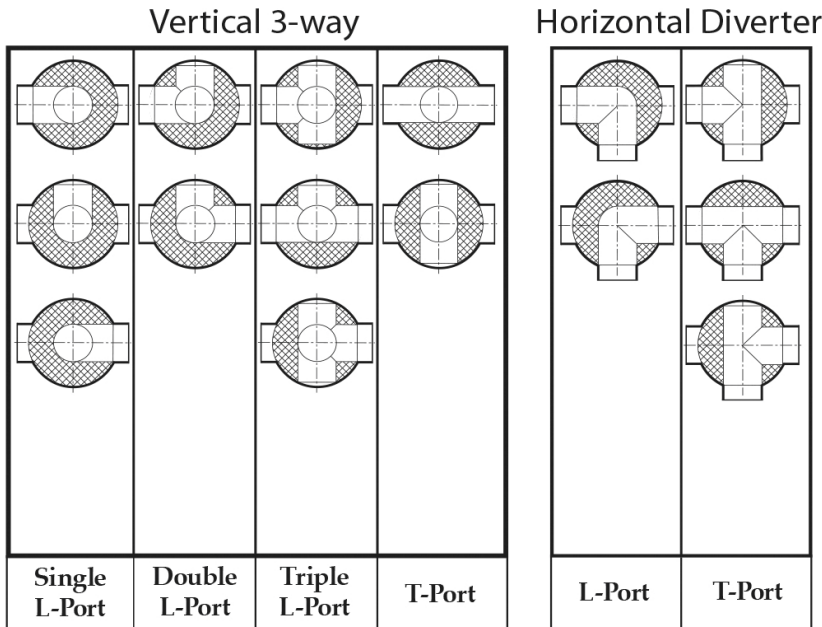
Features — PVC, CPVC

Versatile design provides multiple port and configuration options for controlling flow distribution in industrial and chemical processing applications. Choose Vertical 3-Way (L-Port Diverter, T-Port Off) or Horizontal Diverter configurations with open branch (no shutoff) design. Valves are available in IPS sizes 1/2" through 4" with socket, SR threaded (Special Reinforced), flanged or spigot end connectors. Venturied 6" (4" valves with 4 x 6 reducers) are also available with socket or flanged valve end connections.

- Chemical & Corrosion Resistant PVC or CPVC Construction
- Vertical 3-Way or Horizontal Diverter Design (no branch shutoff)
- L-Port, Multi L-Port & T-Port Ball Configuration Options
- Interchangeable with all True Union 2000 Valves, Mates with Union 2000 Pipe Unions
- High Impact Polypropylene Handle
- Built-in Handle Lockout
- Strong, Buttress Thread Union Nuts
- Spears® Double O-ring Safe-T-Shear® Stem Design
- EPDM or FKM O-rings
- Spears® Safe-T-Blocked® Seal Carrier
- Self Adjusting PTFE Floating Seat Design
- Fully Serviceable, Replaceable Components
- Sizes 1/2" - 2" pressure rated to 235 psi @ 73°F Sizes 2-1/2" - 4" and all Flanged to 150 psi @ 73°F
- EPDM Valves NSF® Certified for Potable Water use
- Suitable for Vacuum Service
- Assembled with Silicone-Free, Water Soluble Lubricants
- Manufactured to ASTM F 1970
- Metric Socket and BSP Thread Available

3-Way Port Options

Diverter Valves have no shut-off on branch.



Optional Accessories*

- Retro-Fit End Connector Sets for Valve Replacement
- Split-Nut Repair Kits for Union Nut Replacement
- Supplemental End Connectors
- Stem Extension Kits
- Square Operator Nuts
- Multi Mount Valve/Actuation Mounting Kits

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

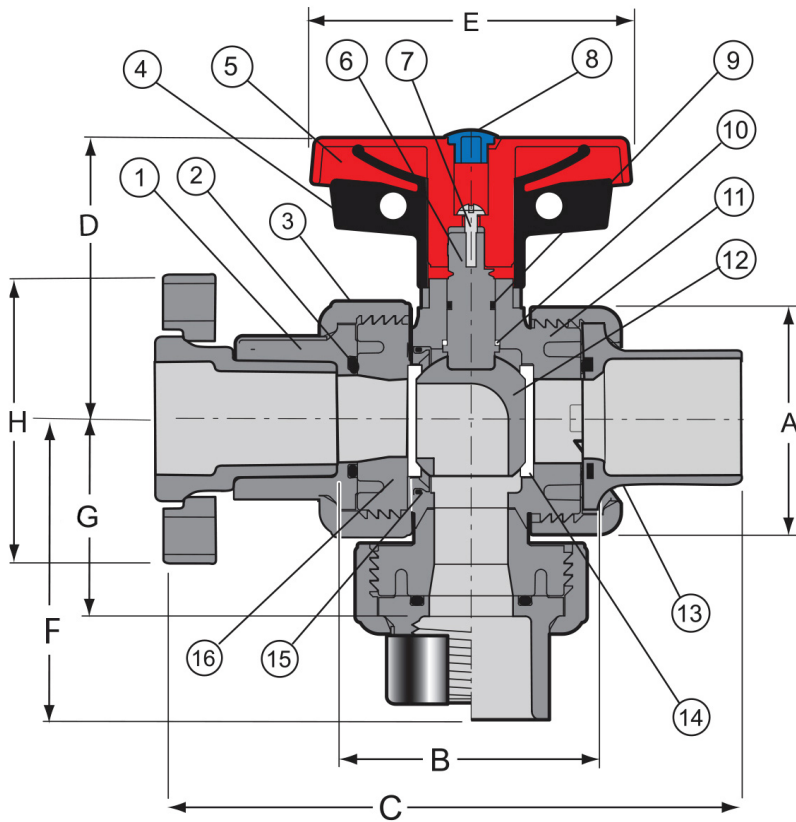
Ball Port Options viewed from top of valve.

Sample Engineering Specification

All thermoplastic ball valves shall be True Union 2000 3-Way [specify horizontal or vertical] type with [specify port option] manufactured to ASTM F 1970 and 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® stem with double O-ring stem seals. All valve handles shall be polypropylene with built-in lockout mechanism. All valve union nuts shall have Buttress threads. All seal carriers shall be Safe-T-Blocked®. All valve components shall be replaceable. All EPDM valves shall be certified by NSF International for use in potable water service. All PVC and CPVC 1/2" through 2" valves shall be pressure rated to 235 psi, all 2-1/2" through 4" and all flanged valves shall be pressure rated to 150 psi for water at 73°F as manufactured by Spears® Manufacturing Company.



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Replacement Parts

| No. | Component | Qty. | Material |
|-----|----------------------|------|-----------------|
| 1 | End Connector | 3 | PVC/CPVC |
| 2 | End Connector O-ring | 3 | EPDM/FKM |
| 3 | Union Nut | 3 | PVC/CPVC |
| 4 | Handle Lock | 1 | PP |
| 5 | Handle | 1 | PP |
| 6 | Stem | 1 | PVC/CPVC |
| 7 | Screw | 1 | Stainless Steel |
| 8 | Handle Cover | 1 | PP |
| 9 | Stem O-ring | 2 | EPDM/FKM |
| 10 | Stem Bearing* | 1 | PTFE |
| 11 | Body | 1 | PVC/CPVC |
| 12 | Ball | 1 | PVC/CPVC |
| 13 | End Connector Collar | 3 | Stainless Steel |
| 14 | Seat | 2 | PTFE |
| 15 | Carrier O-ring | 1 | EPDM/FKM |
| 16 | Seal Carrier | 1 | PVC/CPVC |

Note: Applies to both Vertical and Horizontal configurations.
 * For sizes 2-1/2, 3 & 4 only.

NOTE: Diverter style valve has no shutoff on branch.

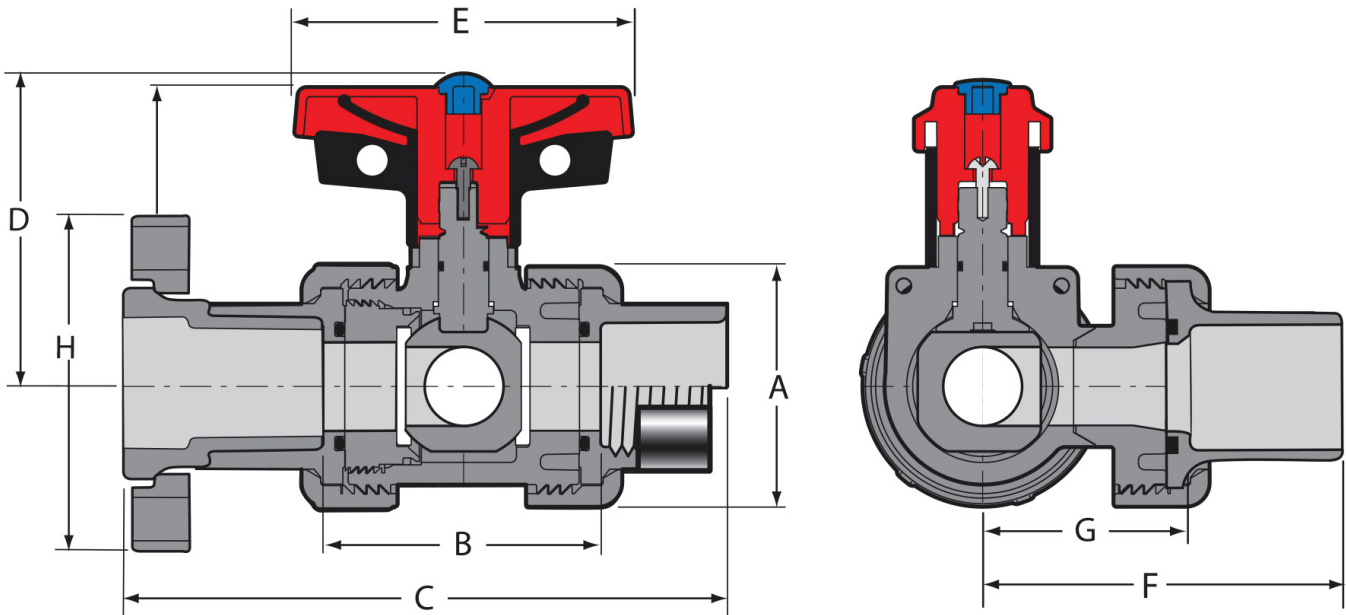
Vertical 3-Way Ball Valves — Dimensions & Operating Torque

| Nominal Size | Vertical 3 Way Ball Valve | | | | | | | | | | | | | | Oper. ² Torque (in. lbs.) |
|--------------|---------------------------|----------------|---------|----------|---------|----------|--------|---------|---------|-----------|---------|------------|---------|-------|--------------------------------------|
| | A | B ¹ | | C | | | D | E | F | | | G | | H | |
| | | Soc/SR Thd | Spigot | Socket | SR Thd | Spigot | | | Socket | SR Thread | Spigot | Soc/SR Thd | Spigot | | |
| 1/2 | 1-7/8 | 2-7/16 | 2-15/16 | 4-1/4 | 3-27/32 | 4-3/4 | 2-9/16 | 2-13/16 | 2-3/4 | 2-9/16 | 2-13/16 | 1-11/16 | 2 | 3-1/2 | 12 |
| 3/4 | 2-1/4 | 2-3/4 | 3-5/16 | 4-3/4 | 4-1/4 | 5-3/8 | 2-7/8 | 3-5/16 | 3 | 2-3/4 | 3-5/16 | 2 | 2-5/16 | 3-7/8 | 12 |
| 1 | 2-1/2 | 2-7/8 | 3-1/2 | 5-1/8 | 4-11/16 | 5-3/4 | 3-1/8 | 3-7/16 | 3-1/4 | 3 | 3-9/16 | 2-1/8 | 2-7/16 | 4-1/4 | 20 |
| 1-1/4 | 3-1/16 | 3-1/4 | 3-13/16 | 5-3/4 | 5-3/16 | 6-5/16 | 3-5/8 | 3-13/16 | 3-3/4 | 3-3/8 | 4-1/16 | 2-3/8 | 2-13/16 | 4-5/8 | 25 |
| 1-1/2 | 3-1/2 | 3-1/2 | 4 | 6-1/4 | 5-7/16 | 6-3/4 | 4 | 4-3/16 | 4-3/16 | 3-13/16 | 4-1/2 | 2-3/16 | 3-1/8 | 5 | 40 |
| 2 | 4-1/4 | 4-3/4 | 5-3/16 | 7-3/4 | 6-3/4 | 8-1/4 | 4-1/2 | 5-1/8 | 5 | 4-1/2 | 5-5/16 | 3-1/2 | 3-3/4 | 6 | 67 |
| 2-1/2 | 5-3/8 | 5-7/8 | 7-13/16 | 9-5/16 | 8-1/2 | 11-3/8 | 5-1/8 | 6-1/4 | 5-7/8 | 5-1/2 | 6-7/16 | 4-1/8 | 5-5/16 | 7-1/2 | 120 |
| 3 | 6-3/16 | 6-7/8 | 7-13/16 | 10-11/16 | 9-3/4 | 11-9/16 | 5-7/8 | 7-5/8 | 6-11/16 | 6-3/16 | 7-3/16 | 4-3/4 | 5-5/16 | 7-1/2 | 120 |
| 4 | 7-1/2 | 7-1/4 | 8-1/4 | 11-13/16 | 10-1/4 | 12-13/16 | 6-3/4 | 9-3/16 | 7-1/8 | 6-3/4 | 8-3/4 | 5-7/8 | 6-1/2 | 9 | 336 |

1: Valve Lay Length

2: Torque required at valve maximum internal pressure rating, 5ft/sec. Flow velocity; due to adjustment differences during installation, actual values may vary.

Valves Technical
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NOTE: Diverter style valve has no shutoff on branch

Horizontal Diverter 3-Way Ball Valves Dimensions & Operating Torque

| Nominal Size | A | B ¹ | | C | | | D | E | F | | | G | | H | Oper. ² Torque (in. lbs.) |
|--------------|--------|----------------|---------|----------|-----------|----------|--------|---------|---------|-----------|---------|---------------|---------|-------|--------------------------------------|
| | | Soc/SR Thread | Spigot | Socket | SR Thread | Spigot | | | Socket | SR Thread | Spigot | Soc/SR Thread | Spigot | | |
| 1/2 | 1-3/16 | 2-7/16 | 2-15/16 | 4-3/16 | 3-13/16 | 4-3/4 | 2-9/16 | 2-13/16 | 2-9/16 | 2-3/8 | 2-13/16 | 1-11/16 | 2 | 3-1/2 | 12 |
| 3/4 | 2-1/4 | 2-3/4 | 3-15/16 | 4-3/4 | 4-1/4 | 5-3/8 | 2-7/8 | 3-5/16 | 3 | 2-3/4 | 3-5/16 | 2 | 2-5/16 | 3-7/8 | 12 |
| 1 | 2-1/2 | 2-7/8 | 3-1/2 | 5-1/8 | 4-11/16 | 5-3/4 | 3-1/8 | 3-7/16 | 3-1/4 | 3 | 3-9/16 | 2-1/8 | 2-7/16 | 4-1/4 | 20 |
| 1-1/4 | 3-1/16 | 3-1/4 | 3-13/16 | 5-3/4 | 5-3/16 | 6-5/16 | 3-5/8 | 3-13/16 | 3-3/4 | 3-3/8 | 4-1/16 | 2-3/8 | 2-13/16 | 4-5/8 | 25 |
| 1-1/2 | 3-1/2 | 3-1/2 | 4 | 6-1/4 | 5-7/16 | 6-3/4 | 4 | 4-3/16 | 4-3/16 | 3-13/16 | 4-1/2 | 2-3/16 | 3-1/8 | 5 | 40 |
| 2 | 4-1/4 | 4-3/4 | 5-3/16 | 7-3/4 | 6-3/4 | 8-1/4 | 4-1/2 | 5-1/8 | 5 | 4-1/2 | 5-5/16 | 3-1/2 | 3-3/4 | 6 | 67 |
| 2-1/2 | 5-3/8 | 5-7/8 | 7-13/16 | 9-5/16 | 8-1/2 | 11-3/8 | 5-1/8 | 6-1/4 | 5-7/8 | 5-1/2 | 6-7/16 | 4-1/8 | 5-5/16 | 7-1/2 | 120 |
| 3 | 6-3/16 | 6-7/8 | 7-13/16 | 10-11/16 | 9-3/4 | 11-9/16 | 5-7/8 | 7-5/8 | 6-11/16 | 6-3/16 | 7-3/16 | 4-3/4 | 5-5/16 | 7-1/2 | 120 |
| 4 | 7-1/2 | 7-1/4 | 8-1/4 | 11-13/16 | 10-1/4 | 12-13/16 | 6-3/4 | 9-3/16 | 7-1/8 | 6-3/4 | 8-3/4 | 5-7/8 | 6-1/2 | 9 | 336 |

1: Valve Lay Length

2: Torque required at valve maximum internal pressure rating, 5ft/sec. Flow velocity; due to adjustment differences during installation, actual values may vary.

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" - 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-) | -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" - 4" | 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.