



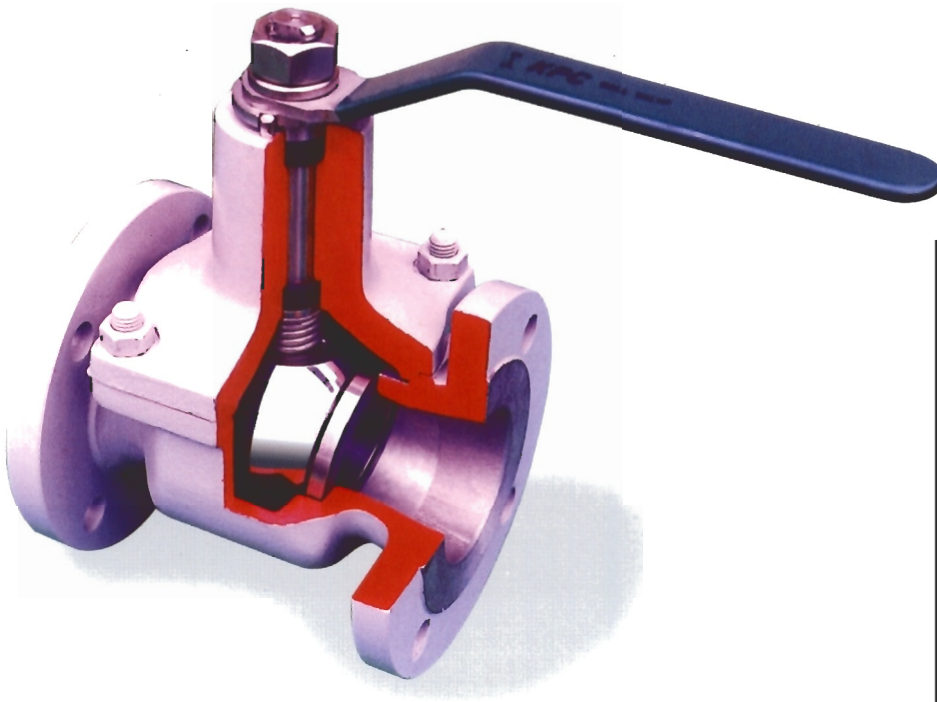
WEDGE SEAL

TOP ENTRY BALL VALVE



KPC CORPORATION
FLOW CONTROL DIVISION

Design Features



1. Long Life, Wear Compensation

The ball is spring-loaded and self-adjusting, assuring leaktight closure under all operating conditions and valve orientations.

Seats are kept in tight contact with the ball as the spring assures an even, nonbinding, elastic pre-load on the seats at all pressures, temperatures, and at all stages of seat wear.

Greater ball-to-seat bearing surface results in longer seat/ball life and positive leak-tight shutoff is assured for the full life of the seats. Seats are under compression load only and there is no flexing or bending of the seat material. The corrosion-resistant spring is non-flexing, non-torsional and has a low compression design stress.

2. KPC Wedge Seal Top Entry for fast easy in-line service that simplifies scheduled maintenance; permits emergency entry in minutes just by removing the bonnet. All working parts can be removed for servicing while the KPC Wedge Seal valve body stays fixed in the line. No special training or tools are needed and you save the cost of unnecessary backup valves in inventory. Ideal for applications where welding into a line is necessary.

3. Available in a Wide Range of Body and Seat Materials. Body materials include Carbon Steel, Stainless Steel, Nickel, Monel, Hastelloy, Alloy 20, and others. Seats are available in TFE, reinforced TFE, carbon graphite, metal, and other materials. Almost any fluid can be handled, including liquids, gases, slurries, semisolids, viscous substances and some molten materials.

4. Ball is Wiped Clean Each Time the Valve is Operated. Ball-seat contact is constantly maintained, extending seat life.

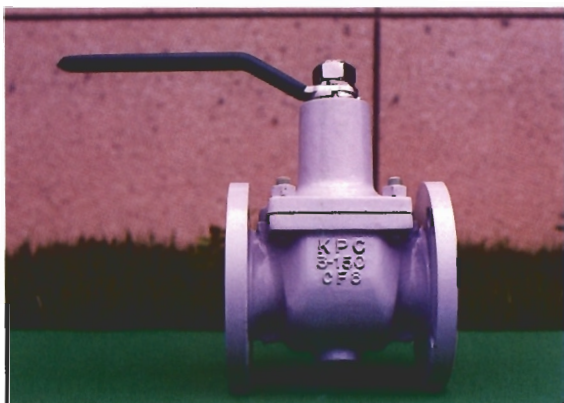
5. Backseated Stem — Conical Stem Seals. The stem shoulder design eliminates any possibility of stem blowout and increased line pressure increases stem sealing.

6. Two-way Shutoff. It doesn't matter which way the valve is installed in the line there is no leakage even if flow is reversed.

7. Quarter-turn and Low Torque make KPC Wedge Seal ball valves particularly suitable for remote operation with pneumatic or electric actuators, especially when high-cycle frequency is required.

8. Temperatures from -320°F(-196°C) to 1500°F(816°C) and pressures to 3750 psig (259 bar) are within the design range configurations of KPC Wedge Seal valves. For services handling flammable and hazardous fluids, valves are available with KPC Wedge Seal seats of metal-encased reinforced TFE or unfilled TFE which provide leakage rates within API-607 limits if the resilient seats are destroyed by excessive temperatures. High vacuums up to 1×10^{-6} mm of Hg can be successfully held by valves specially prepared for such service.

Application and Special Services



Titanium and various high alloy materials are available on request.

Abrasive & Erosive Services

"Soft Seated" valves for abrasive services feature seat inserts completely confined by metallic components. Some designs feature inner and outer seat support rings, where the inner ring helps shield the seat insert from abrasives in the service.

Other designs feature one piece seat holders which completely confine the seat insert and provide the same function in protecting the soft seat from abrasive particles in the flow stream. In addition to the seat configuration options and resilient material choices, two rigid seat configurations are available. The rigid seat choices include both carbon-graphite and ceramic options.

The seats and the ball are both produced from ceramic in the one case. Either of these seats provide improved resistance to abrasion and erosion and additionally extend the potential service range to 1000°F.

High Temperature Service

For any applications above 500°F, utilizing either the carbon graphite seats or the ceramic ball and seats combination, a ball stop must be incorporated into the valve design. This becomes necessary to prevent the ball and seat from sliding down the wedge when expansion caused by the temperature increase widens the wedge. If the ball were permitted to slide down the wedge, the valve would be locked tight when cooling caused the wedge to close.

Fire-Safe Requirements - Two seat and several seal arrangements are available to address valves in applications where performance during and immediately after a fire are a concern.

Flexible graphite in the form of die-cut, die-formed or spiral wound gaskets are available for bonnet seals. Die-formed Grafoil in various configurations provide the stem seals.

Thermal Fluid Service - Extended bonnets permit the valve to be insulated with no contact between the insulation and the moving stem. Longer packing life results as the critical rings operate at a lower temperature. An accessible packing nut provides for visual leak detection and easy adjustment.



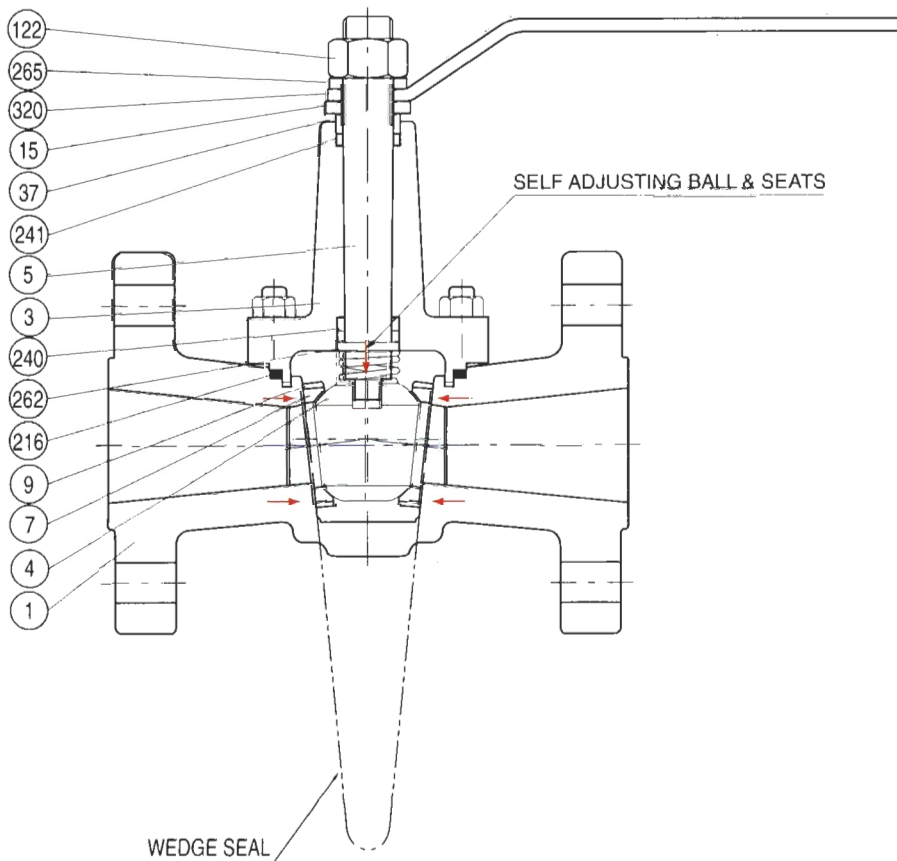
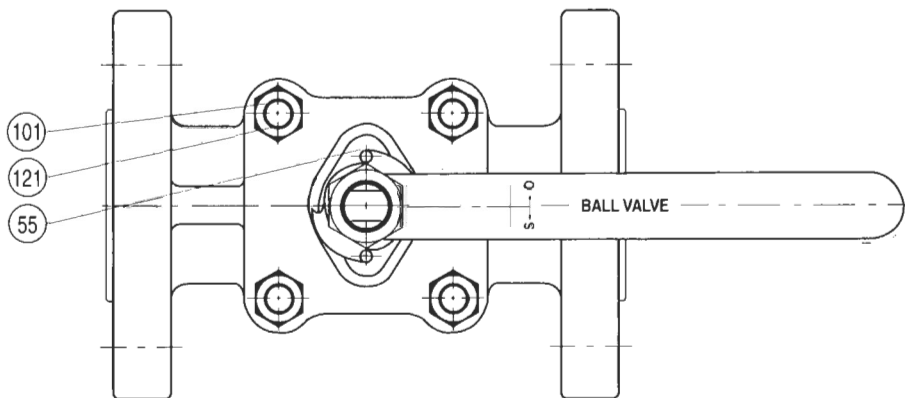
Valves in bigger sizes are also available on request.

KPC Wedge Seal Top Entry Ball Valve

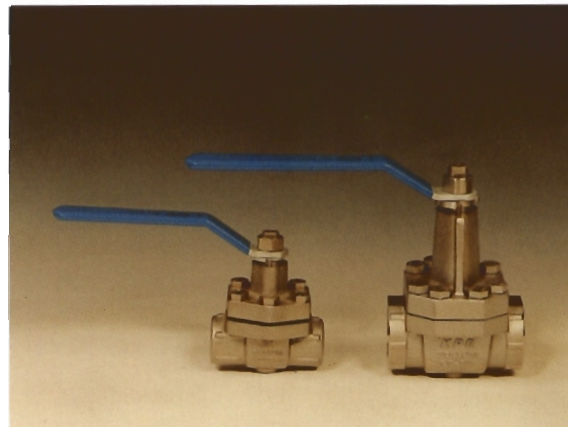
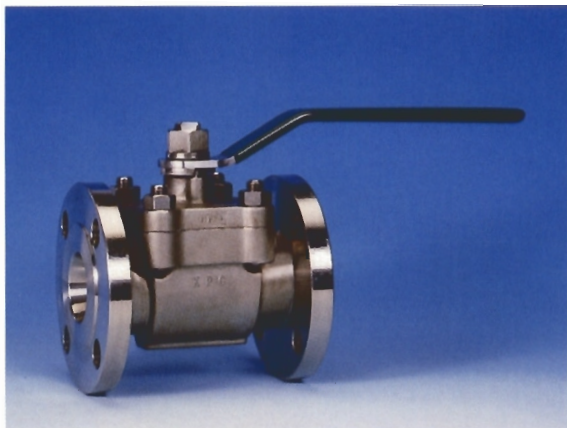
End Connection: Flanged-NPT-Socket Weld-Butt Weld.

Temperature : -196°C ~ 816°C (-320°F ~ 1500°F)

- Advantages:
- Self-Adjusting Seats; Compensate Wear & Temperature Fluctuations.
 - Spring Loaded Low Pressure Seals
 - Pressure Activated Seating
 - Extended Blow-out proof Stem, Bottom Loaded
 - Double Stem Packing (Bottom and Top)
 - Simplified Inline Service
 - Minimal Potential Leak Paths
 - Wide Selection of Materials & Options



| | |
|-----------|------------------|
| 320 | HANDLE |
| 265 | SPRING WASHER |
| 262 | STEM SPRING |
| 241 | GLAND PACKING |
| 240 | STEM PACKING |
| 216 | BONNET GASKET |
| 122 | STEM NUT |
| 121 | BONNET NUT |
| 101 | BONNET STUD BOLT |
| 55 | STOPPER PIN |
| 37 | GLAND BUSH |
| 15 | STOPPER |
| 9 | RETAINER RING |
| 7 | SEAT |
| 5 | STEM |
| 4 | BALL |
| 3 | BONNET |
| 1 | BODY |
| NO | PART NAME |



Flanged

Raised face flange per ANSI B 16.5 (125-250 Micro-Inches Ra).

Flat faced flange per ANSI B 16.5

Ring type joint per ANSI B 16.5

Large or small tongue & groove per ANSI B 16.5

Available sizes:
1/2" - 12",
ANSI Class 150,
300, 600 & 900.

Threaded and Socket End

Per ANSI B 16.11

Available sizes:
1/2" - 2",
ANSI Class 150, 300, 600 & 900.

Materials of Construction:

Body materials

- Stainless Steel 304
- Stainless Steel 304L
- Stainless Steel 316
- Stainless Steel 316L
- Titanium
- Stainless Steel 904L
- Alloy 20
- Carbon Steel
- LCB
- Duplex S.S.
- Hastelloy "B"
- Hastelloy "C"
- Monel

Trim materials

- Stainless Steel 304
- Stainless Steel 304L
- Stainless Steel 316L
- Stainless Steel 316
- Titanium
- Stainless Steel 904L
- Alloy 20
- Hastelloy "B"
- Hastelloy "C"
- Monel
- Nickel
- Duplex S. S

| SEAT MATERIAL | STEM SEAL | BONNET GASKET |
|--|-----------|-------------------------|
| PTFE | PTFE | PTFE |
| RTFE | RTFE | RTFE |
| CARBON GRAPHITE PEEK METAL LAMINATED | GRAFOIL | GRAFOIL/SPIRAL WOUND |
| METAL | GRAFOIL | DITTO |
| UHMWPE | GRAFOIL | DITTO |

■ PLEASE CONSULT THE FACTORY FOR OTHER OPTIONS.

IMPORTANT
ILLUSTRATIONS ARE ACTUAL REPRESENTATION OF A CERTAIN SIZE OF EACH LINE OF PRODUCTS BUT DO NOT NECESSARILY REPRESENT ALL SIZES IN ALL DETAILS.
THE DESIGNS, MATERIALS AND/OR SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
DUE TO KPC'S CONTINUING PROGRAMS OF PRODUCT IMPROVEMENT.

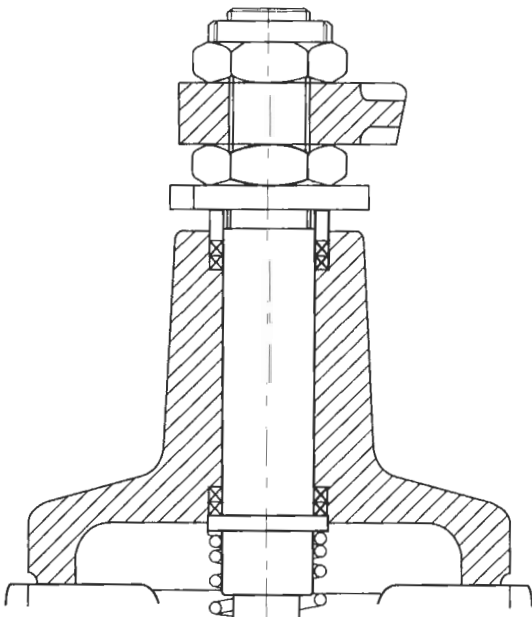
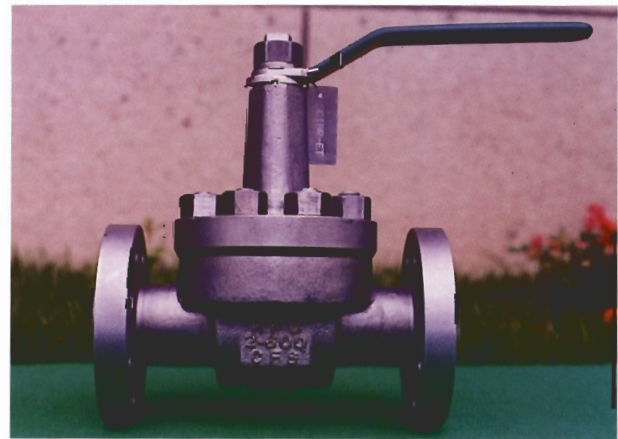
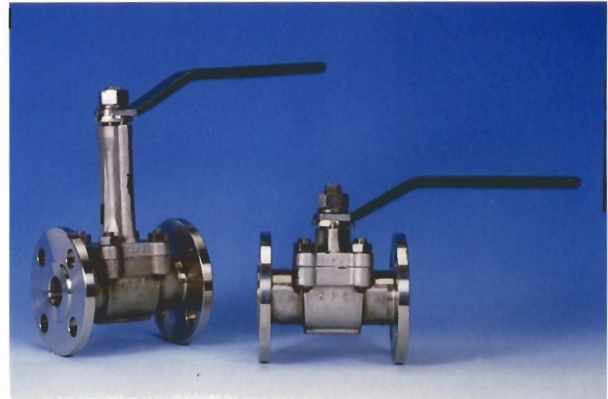
Bonnets and Extended Bonnets

Bonnets

KPC Wedge Seal valves are available in a wide variety of bonnet adaptations. In addition to standard, lever-operated, top-entry bonnets, KPC Wedge Seal valves are offered with extended bonnets for high-temperature and cryogenic services.

Insulation can be securely packed up to the top of the extended bonnet with no danger of undetected stem leakage, since any stem seal leakage is immediately visible.

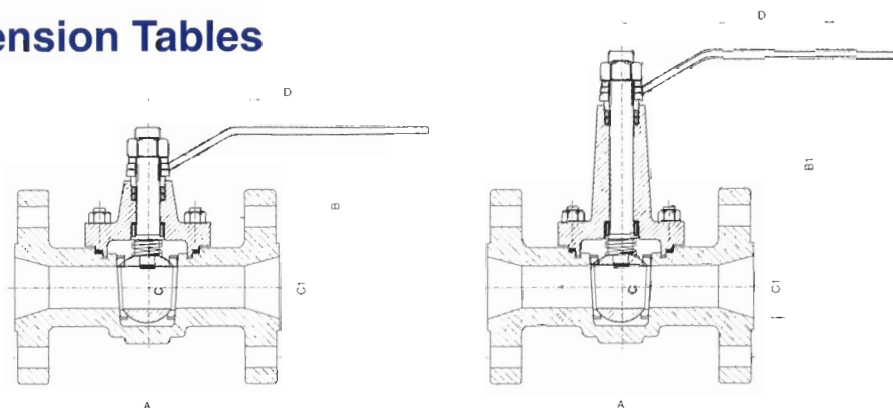
The KPC Wedge Seal extended bonnet assembly is interchangeable with standard KPC Wedge Seal bonnet assemblies. This flexibility in bonnet selection is accomplished without disturbing existing piping due to the top-entry feature of the KPC Wedge Seal valve.



Extended Bonnets

| K P C Valve Size-in/mm | Amount of Extension Above Standard | Max. Insulation Thickness |
|---------------------------|---------------------------------------|------------------------------|
| 1/2, 3/4 & 1 | 3 80 | 2-1/2 63 |
| 1-1/2 | 3 80 | 3 75 |
| 2 | 3 80 | 3-1/2 88 |
| 3 | 3 80 | 3-3/4 95 |
| 4 | 3 80 | 4-1/2 114 |
| 6 | 3 80 | 5 125 |
| 8 | 3 80 | 5-3/4 145 |
| 10 | 3 80 | 6 150 |

Valve Dimension Tables



Class 150 - Flanged Ends

| SIZE | A | B | B' | C | C' | D | Weight(kg) |
|-------|-----|-----|-----|------|------|------|------------|
| 1/2 | 108 | 100 | 180 | 12.7 | 12.7 | 210 | 3.0 |
| 3/4 | 117 | 100 | 180 | 12.7 | 20 | 210 | 3.2 |
| 1 | 127 | 100 | 180 | 20 | 25 | 210 | 4.0 |
| 1-1/2 | 165 | 128 | 208 | 25 | 38 | 270 | 9.1 |
| 2 | 178 | 128 | 208 | 38 | 51 | 270 | 11.0 |
| 3 | 203 | 173 | 235 | 62 | 76 | 272 | 21.0 |
| 4 | 229 | 188 | 250 | 76 | 102 | 460 | 35.0 |
| 6 | 394 | 250 | 308 | 115 | 145 | 1000 | 87.0 |
| 8 | 457 | 383 | 433 | 152 | 203 | N/A | 140 |
| 10 | 533 | 394 | 550 | 190 | 254 | N/A | 330 |

Class 300 - Flanged Ends

| SIZE | A | B | B' | C | C' | D | Weight(kg) |
|-------|-----|-----|-----|------|------|-----|------------|
| 1/2 | 142 | 100 | 180 | 12.7 | 12.7 | 210 | 4.0 |
| 3/4 | 152 | 100 | 180 | 17.7 | 20 | 210 | 4.5 |
| 1 | 165 | 100 | 180 | 19 | 25 | 210 | 5.5 |
| 1-1/2 | 190 | 128 | 208 | 25 | 38 | 270 | 12.3 |
| 2 | 216 | 128 | 208 | 38 | 51 | 270 | 14.0 |
| 3 | 283 | 173 | 235 | 62 | 76 | 272 | 34.0 |
| 4 | 305 | 188 | 250 | 76 | 102 | 460 | 45.0 |
| 6 | 403 | 250 | 308 | 115 | 145 | N/A | 90.0 |
| 8 | 502 | 383 | 433 | 152 | 203 | N/A | 165 |
| 10 | 568 | 394 | 550 | 190 | 254 | N/A | 350 |

Class 600 - Flanged Ends

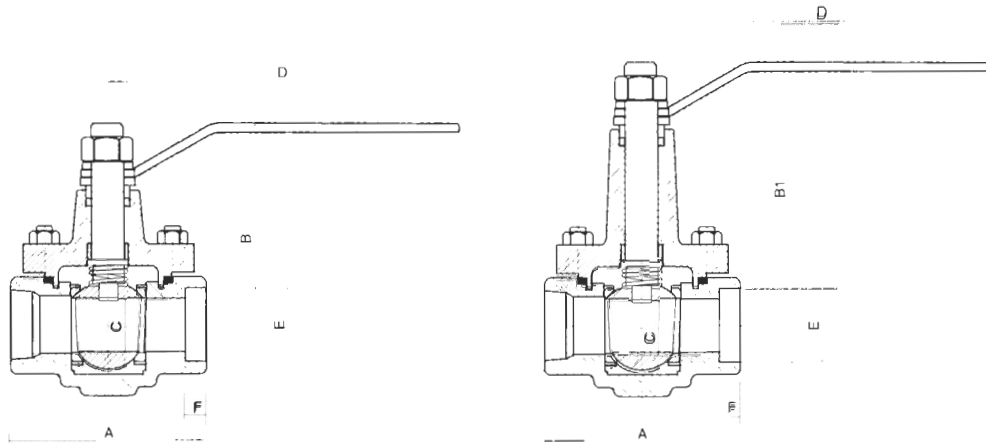
| SIZE | A | B | B' | C | C' | D | Weight(kg) |
|-------|-----|-----|-----|------|------|-----|------------|
| 1/2 | 165 | 100 | 180 | 12.7 | 12.7 | 210 | 4.8 |
| 3/4 | 191 | 100 | 180 | 12.7 | 20 | 210 | 5.0 |
| 1 | 216 | 100 | 180 | 20 | 25 | 210 | 7.2 |
| 1-1/2 | 241 | 128 | 208 | 25 | 38 | 270 | 14.0 |
| 2 | 292 | 128 | 208 | 38 | 51 | 270 | 18.0 |
| 3 | 355 | 173 | 235 | 62 | 76 | 272 | 35.0 |
| 4 | 432 | 188 | 250 | 76 | 102 | N/A | 69.0 |
| 6 | 559 | 250 | 308 | 115 | 145 | N/A | 145 |
| 8 | 660 | 382 | 433 | 152 | 203 | N/A | 234 |
| 10 | 787 | 394 | 550 | 190 | 254 | N/A | 450 |

Dimensions in mm

Weights in kg

※ Valves in other sizes & class ratings are also available on request.

Valve Dimension Tables



Class 150 & 300 - Threaded and Socket End

| Size | A | A' | B | B' | C | D | E | F | Weight (kg) |
|-------|-----|-----|-----|-----|------|-----|----|----|-------------|
| 1/2 | 105 | 105 | 100 | 180 | 12.7 | 210 | 22 | 10 | 1.8 |
| 3/4 | 105 | 105 | 100 | 180 | 12.7 | 210 | 27 | 13 | 1.8 |
| 1 | 105 | 105 | 100 | 180 | 20 | 210 | 34 | 13 | 2.3 |
| 1-1/2 | 120 | 120 | 114 | 194 | 30 | 216 | 49 | 13 | 6.7 |
| 2 | 143 | 140 | 123 | 203 | 38 | 309 | 61 | 16 | 8.5 |

Class 600 - Threaded and Socket End - Extended Bonnet

| Size | A | A' | B | B' | C | D | E | F | Weight (kg) |
|-------|-----|-----|-----|-----|------|-----|----|----|-------------|
| 1/2 | 120 | 120 | 100 | 180 | 12.7 | 210 | 22 | 10 | 5.5 |
| 3/4 | 110 | 110 | 100 | 180 | 12.7 | 210 | 27 | 13 | 4.5 |
| 1 | 110 | 110 | 100 | 180 | 20 | 210 | 34 | 13 | 5.0 |
| 1-1/2 | 130 | 130 | 114 | 194 | 30 | 216 | 48 | 13 | 11.0 |
| 2 | 149 | 146 | 123 | 203 | 38 | 309 | 61 | 16 | 15.5 |

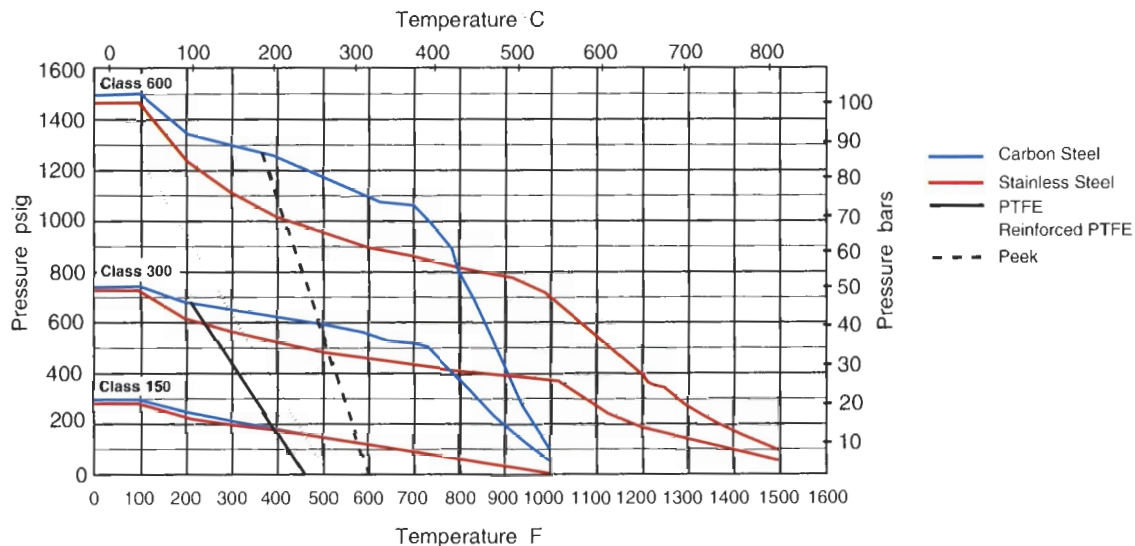
Dimensions in mm

Weights in kg

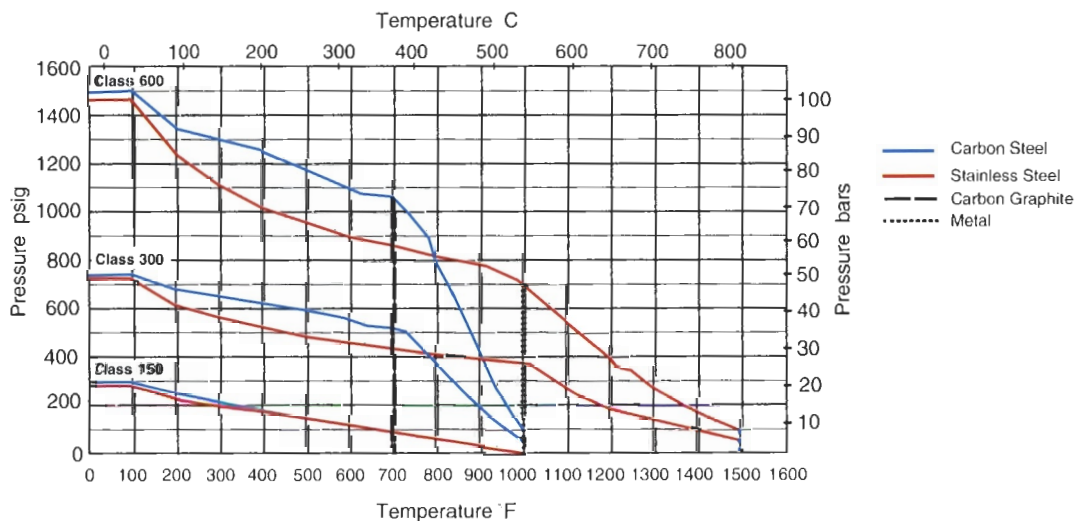
※ Valves in other sizes & class ratings are also available on request.

Pressure-Temperature Ratings

SOFT SEATS



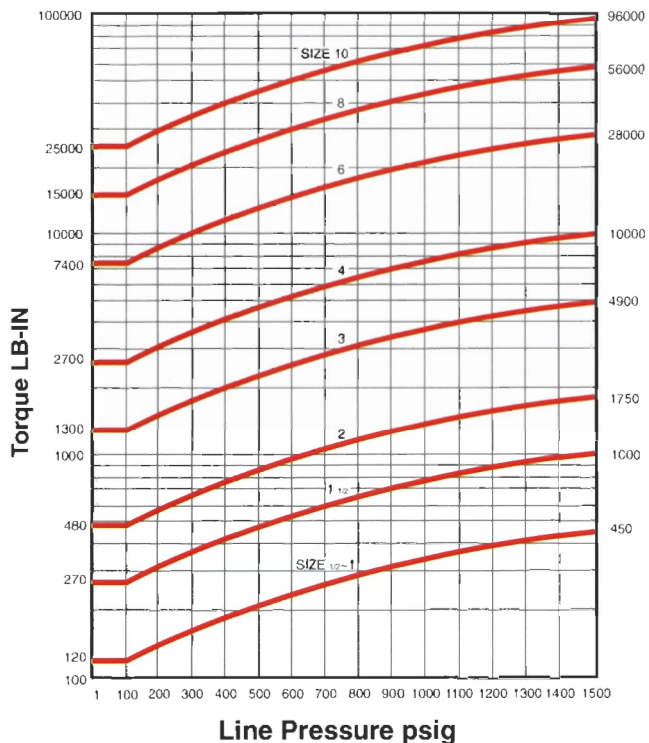
HARD SEATS



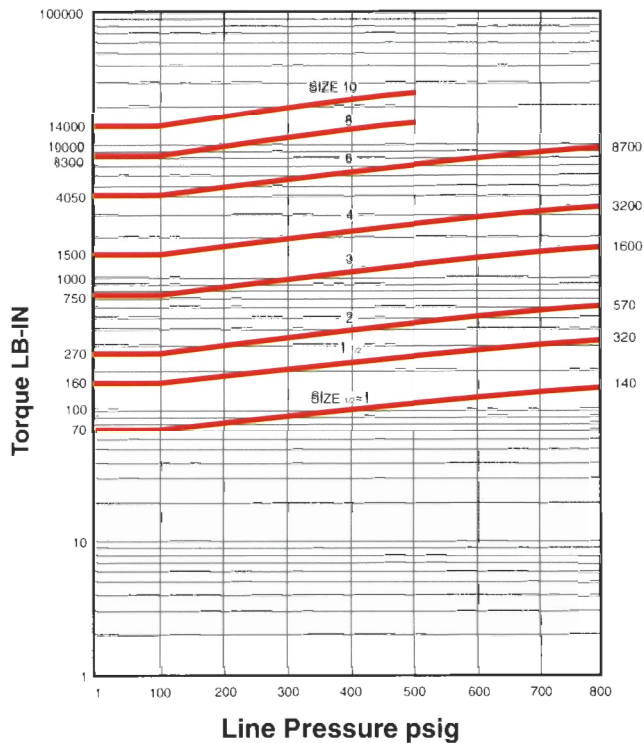
CLASSES 900 - 1500 PRESSURE-TEMPERATURE RATINGS :
PLEASE CONSULT THE FACTORY.

Torque Data-for Actuator Selection

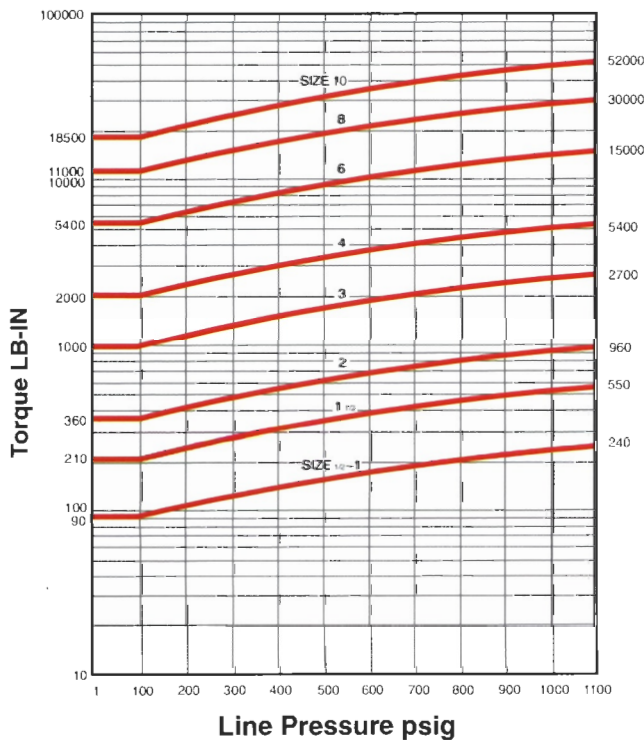
Graphite & Peek seats



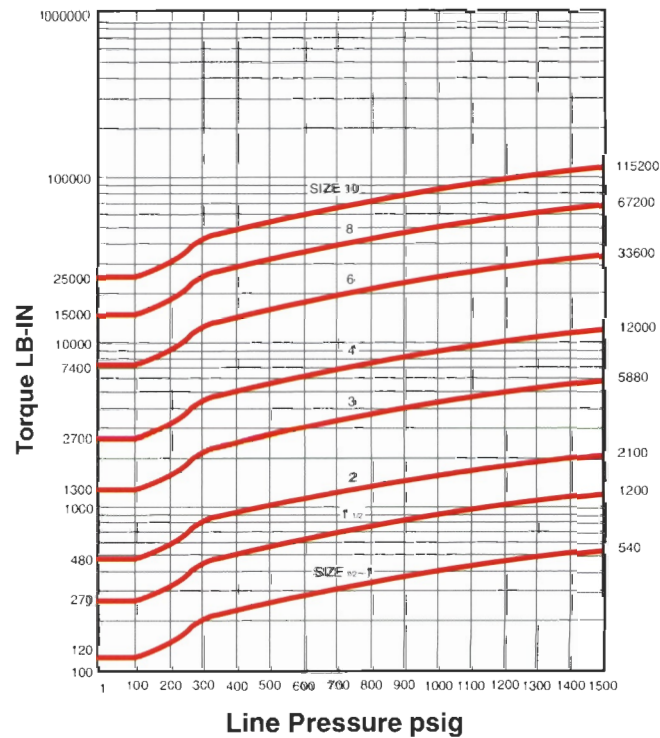
PTFE seats



Reinforced PTFE seats



Metal seats



HOW TO SPECIFY KPC BALL VALVES

① ① - ② ② ③ - ④ ⑤ ⑥ - ⑦ ⑧ - ⑨ ⑨
W T - 0 1 2 - S S 2 - R 1 - G A

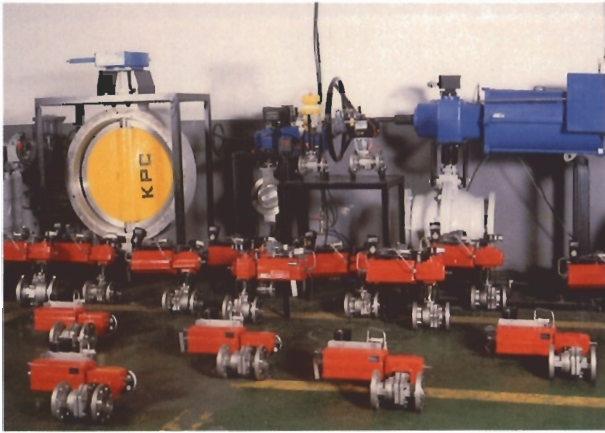
(WEDGE SEAL TOP ENTRY, 1", ANSI 150#, REDUCED BORE, STAINLESS STEEL BODY, STAINLESS STEEL TRIM, GLASS REINFORCED PTFE SEAT, RAISED FACE, WRENCH HANDLE, FIRE SAFE, ANTISTATIC)

| ① VALVE MODEL | | ② SIZE | | | | ③ ANSI CLASS & PORT | | ④ BODY & TRIM MAT'L | |
|---------------|-------------------------|--------|--------|----|------|---------------------|----------|---------------------|-------------|
| CD | DESCRIPTION | CD | SIZE | CD | SIZE | CD | CLASS | CD | DESCRIPTION |
| FM | FLO-MAX | 0A | 1/4" | 10 | 10" | 1 | 150# FB | C | C/ STEEL |
| 3T | 3PC TRUNNION SIDE ENTRY | 0B | 1/2" | 12 | 12" | 2 | 150# RB | S | S/ STEEL |
| T2 | TWIN SEAL 2PC TRUNNION | 0C | 3/4" | 14 | 14" | 3 | 300# FB | A | ALLOY 20 |
| WT | WEDGE SEAL TOP ENTRY | 01 | 1" | 16 | 16" | 4 | 300# RB | H | HASTELLOY |
| WS | WEDGE SEAL SIDE ENTRY | 1A | 1 1/4" | 18 | 18" | 5 | 600# FB | D | DUPLEX SS. |
| TT | TOP ENTRY TRUNNION | 1B | 1 1/2" | 20 | 20" | 6 | 600# RB | M | MONEL |
| 2F | 2PC FLOATING | 02 | 2" | 24 | 24" | 7 | 900# FB | T | TITANIUM |
| 3F | 3PC FLOATING | 2B | 2 1/2" | 26 | 26" | 8 | 900# RB | X | SPECIAL |
| SP | SPECIAL | 03 | 3" | 28 | 28" | 9 | 1500# FB | | |
| | | 04 | 4" | 30 | 30" | 0 | 1500# RF | | |
| | | 05 | 4" | 32 | 32" | A | 2500# FB | | |
| | | 06 | 6" | 36 | 36" | B | 2500# RB | | |
| | | 08 | 8" | 42 | 42" | | | | |

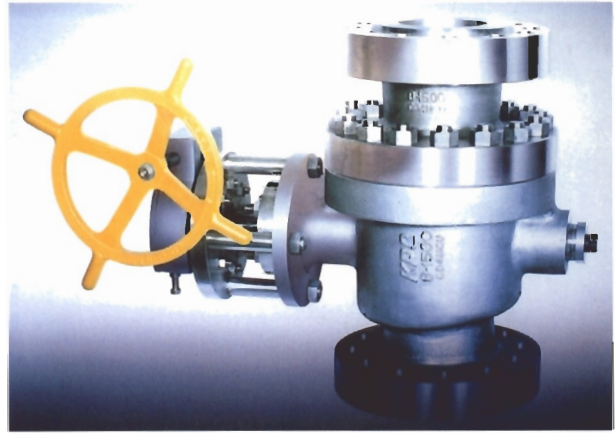
| ⑥ SEAT MATERIAL | | ⑦ END CONFIGURATION | | ⑧ ACTUATOR | | ⑨ OPTIONAL FEATURES | |
|-----------------|----------------------|---------------------|-----------------|------------|-----------------------|---------------------|---|
| CD | DESCRIPTION | CD | DESCRIPTION | CD | DESCRIPTION | CD | DESCRIPTION |
| 1 | VIRGIN PTFE | F | FLAT FACE | 0 | BARE STEM | S | STANDARD |
| 2 | GLASS RPTFE | R | RAISED FACE | 1 | WRENCH HANDLE | G | GRAFOIL PACKING/GASKET (API-607/ 6FA FIRE SAFE) |
| 3 | CARBON RPTFE | J | RING TYPE JOINT | 2 | ENCLOSED GEAR | L | DOUBLE LIVE LOADED RTFE CHEVRON PACKING |
| 4 | UHMWPE | B | BUTT WELD | 3 | PNEUMATIC OR ELECTRIC | E | EXTENDED STEM |
| 5 | PEEK | S | SOCKET WELD | 4 | OVAL HANDLE | C | CHLORINE SERVICE CLEANING/(CL2 CLEANING) |
| 6 | METAL SEAT | C | SCREWED | X | SPECIAL | N | NACE CERTIFIED TRIM |
| 7 | LAMINATED METAL SEAT | X | SPECIAL | | | V | VENTED BALL |
| 8 | CARBON GRAPHITE | | | | | A | ANTISTATIC STEM |
| 9 | CERAMIC | | | | | X | SPECIAL |
| 0 | NYLON | | | | | | |
| X | SPECIAL | | | | | | |

* This is limited list of the available options, contact the factory for specific requirements and availability.

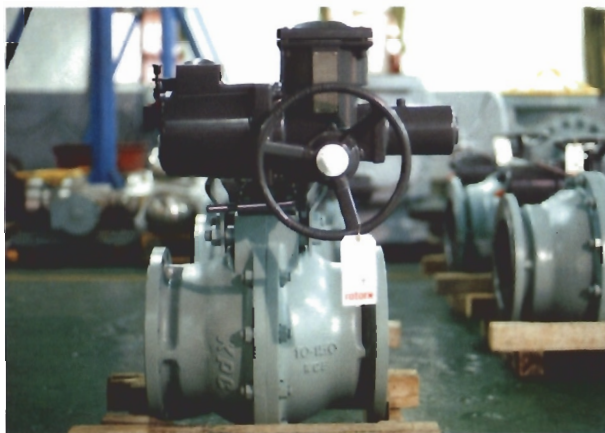
OTHER KPC PRODUCTS



KPC FLO-MAX BALL VALVES, SIZE 1/2" UPTO 12", CLASS 150 & 300.



WEDGE SEAL SIDE ENTRY BALL VALVE, SIZE 2" UPTO 12", CLASS 300 UPTO 1500.



TWIN SEAL 2 PIECE TRUNNION MOUNTED BALL VALVE, SIZE 3" UPTO 30", CLASS 150 UPTO 600.



TRUNNION MOUNTED TOP ENTRY BALL VALVES, SIZE 2" UPTO 30", CLASS 150 UPTO 2500.



3 PIECE TRUNNION MOUNTED BALL VALVES, SIZE 2" UPTO 42", CLASS 150 UPTO 1500.



SPECIAL ANGLE VALVES, SIZE 1" UPTO 30", CLASS 150 UPTO 1500.

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