WP Petroleum (Shanghai) Ltd.

Valves

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Valves

Balls Valves

Gate Valves

Globe Valves

Check Valves

Butterfly Valves

Ball Valves

WPP provides all types of ball valves.

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The Types of Ball Valves

There are a few types of ball valves related to the attachment and lateral movement of the ball:

1. **Trunnion Ball Valve** has additional mechanical anchoring of the ball at the top and the bottom, suitable for larger and higher pressure valves.
2. **Floating Ball Valve** is one where the ball is not held in place by a trunnion. In normal operation, this will cause the ball to float downstream slightly. This causes the seating mechanism to compress under the ball pressing against it. Furthermore, in some types, in the event of some force causing the seat mechanism to dissipate (such as extreme heat from fire outside the valve), the ball will float all the way to metal body which is designed to seal against the ball providing a somewhat fail safe design.

Based on how the pieces of the valve - especially the casing that contains the ball itself –are manufactured and assembled, there are five general body styles of ball valves.

1. ***single body***
2. ***three piece body***
3. ***split body***
4. ***top entry***
5. ***welded***

Ball Valves

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Specifications

Size: 1/2” to 56”
Pressure rating: Class 150 to Class 2500
Materials: Cast steel, Forged steel, Carbon steel, Stainless steel, Duplex stainless steel, Low temperature steel and various alloy steel. WCB, A105 CF8, CF8M, CF3, CF3M, F304, F316, F304L F316L LCB LF2 F51.
Ball Coating: ENP, Tungsten Carbide Coat (TCC), Chrome Carbide Coat (CCC)
Test: API 6D API 598. Marking: MS SP-25
Actuation: Lever, Worm Gear, Electrical, Pheumatic, Hydraulic

Design Feature
Reliable Seat Seal
Double Block and Bleed
Anti-static Design
Blowout Proof Design
Fire Safe Design

Ball Valves

Trunnion Mounted Ball Valve

Size: 2"-40"
Pressure rating: Class 150/ Class 300/ Class 600/ Class 900/ Class 1500/ Class 2500
Materials: A105N/LF2/F316/F51/WCB/WC6/WC9/LCC
Specifications: API 6D, 2-pc/3-pc, Full/Reduced bore, Metal seat/soft seat

Design Feature：

Double Block and Bleed

The pressure actuated seats and bleed fittings allow double block and bleed operation. When used for block and bleed, this feature permits the valve to take the place of two valves. It also allows the operator to check up and downstream sealing by bleeding off the body pressure.

Anti-Static Design

The ball of the trunnion ball valve is in close contact with the trunnion, adjusting cushion, and trunnion end cap, thus providing a passage for static electricity to escape the confines of the valve.

Fire Safe Design

In case of fire, non-fireproof material for packing and seat will be burnt-out and considerable medium leakage may possibly cause the fire to spread. WPP uses metal to metal or graphite seals as an auxiliary safeguard to prevent medium leakage in cases of fire. The fire safe design confirms to the requirements of API607, API 6FA/607.

Ball Valves

Floating Mounted Ball Valve

Size: 1/2"-10"
Pressure rating: Class 150/ Class300
Materials: WCB/WC6/WC9/LCC/CF8/CF8M/CF3/CF3M/A890-4A
Specifications:
API 6D/API 608/BS 5351, 2-pc, Full/Reduced bore, Metal seat/soft seat.
Design Feature：
Reliable Seat Seal
The design element of the double-beveled sealing ring has been adopted to reduce the friction between the ball and the sealing ring achieving lower operation torque. When the medium pressure is low, the ball has less surface area contacting the sealing rings, which introduces higher sealing pressure to ensure the sealing reliability. When the medium pressure gets higher, the contacting area between ball and sealing ring increases accordingly. Larger contact area reduces the sealing pressure to avoid the deformation of sealing ring.
Fire Safe Design
In case of fire, non-fireproof material for packing and seat will be burnt-out and considerable medium leakage may possibly cause the figures.
Anti-static Design
To prevent electrostatic charges from building up within the valve, an antistatic device is placed between the ball and the stem or between the stem and the valve body.

Gate Valves

WPP provides all types of gate valves.

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Introduction & Specifications

A gate valve, also known as a sluice valve, is a valve that opens by lifting a round or rectangular gate/wedge out of the path of the fluid. The distinct feature of a gate valve is the sealing surfaces between the gate and seats are planar. The gate faces can form a wedge shape or they can be parallel. Typical gate valves should never be used for regulating flow, unless they are specifically designed for that purpose. On opening the gate valve, the flow path is enlarged in a highly nonlinear manner with respect to percent of opening. This means that flow rate does not change evenly with stem travel. Also, a partially open gate disk tends to vibrate from the fluid flow. Most of the flow change occurs near shutoff with a relatively high fluid velocity causing disk and seat wear and eventual leakage if used to regulate flow. Typical gate valves are designed to be fully opened or closed. When fully open, the typical gate valve has no obstruction in the flow path, resulting in very low friction loss.

Size: 2"-56"

Pressure rating: Class 150/ Class 300/ Class 600/ Class 900/ Class 1500/ Class 2500

Materials:

WCB/LCB/LCC/WC6/WC9/C5/CF8M/CF8/CF3M/CF3/CN7M

Specifications: API 600, ASME/ANSI B16.34, BS 1414

End connection: RF/RTJ/BW

Disc Design

Solid and Flexible Wedge

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Design Features of Gate Valves

Stem

Gate valves are characterized as having either a rising or a non-rising stem. Rising stems provide a visual indication of valve position. Non-rising stems are used where vertical space is limited or underground.

Bonnet

Bonnets provide a leak proof closure for the valve body. Gate valves may have a screw-in, union, or bolted bonnet. Screw-in bonnets are the simplest design, offering a durable, pressure-tight seal. Union bonnets are suitable for applications requiring frequent inspection and cleaning. They also give the body added strength. Bolted bonnets are used for larger valves and higher pressure applications.

Another type of bonnet construction in a gate valve is a pressure seal bonnet. This construction is adopted for valves for high pressure service, typically in excess of 15 MPa (2250 psi). The unique feature about the pressure seal bonnet is that the body bonnet joint seals improve as the internal pressure in the valve increases, compared to other constructions where the increase in internal pressure tends to create leaks in the body-bonnet joint.

Body-Bonnet Gasket

Carbon steel or stainless steel + flexible graphite combined gasket is used for Class150 gate valve; stainless steel + flexible graphite spiral wound gasket for Class 300 gate valve; stainless steel + flexible graphite spiral wound gasket for Class 600 gate valve, and ring type joint gasket is optional for Class 600 gate valve; ring type joint gasket is used for Class 900 gate valve; pressurized seal design is used for Class1500 to Class 2500 gate valve.

Operation

Hand wheel or gearbox operator is usually applied, if required, chain wheel is available. Top flange dimension according to ISO 5211 is available for valves to be actuated.

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Cast Steel Wedge Gate Valve

Feature:
API 6D/API 600 Gate Valve
Bolted Bonnet/Pressure Seal Bonnet Full Bore
Wedge Gate/Through Conduit Slab Gate
Flexible/Solid Disc
Renewable Seat Ring
Outside Screw &Yoke (OS&Y)
Rising Stem & Non Rising Hand wheel
Forged T-Head Stem
Extension Body Optional
By-Pass Valve Available for High Pressure
Specification:
Design: API 6D API 600 API 602 ASME B16.34
Size: 1/2”-48”
Pressure Rating:
150Lb-2500Lb
Face to Face:
API 6D ANSI B16.10 MFR STD (<2”)
End Connection:
RF/RTJ/ANSIB16.5&ANSI B16.47 BW (ANSI B16.25) SW(ASME B16.11), NPT(ASMEB1.20.1)
Body Material:
WCB, A105 CF8, CF8M, CF3, CF3M, F304, F316, F304L F316L LCB LF2 WC6 WC9
Test: API 6D API 598
Marking: MS SP-25
Actuation: Lever, Bevel Gear, Electrical, Pneumatic

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Forged Steel Gate Valve

WPP Forged Steel Gate Valves are manufactured as per API 602/BS-5352 Standard and Tested to API-598/BS-5146 Standard. Bolted Bonnet, Outside Screw and Yoke type, Rising Spindle Construction Body and Bonnet are made from high quality forgings.
Accurately machined gate and seat rings with mirror finished seating surfaces to assure leak tightness Wedge accurately guided throughout its travel in machined guide ways in body.

Forged Steel Gate Valves
·M.O.C. ASTM A 105
ASTM A 182 F 304 / 304L
ASTM A 182 F 316 / 316L
ASTM A 182 F 11 / F 22
·Trims AISI 410 / 304 / 316 / 304L / 316L
·Pressure Rating： Up To Class 1500
·Size Range ： 1/2“-2”
·End Connection： Screwed End, Socket Weld End, Butt Weld End
·Operation Manual Hand Wheel Operated / Electrical Actuator Operated

FEATURES:
·Stronger Heavy Duty Construction for High Pressure & Temperature Service
·Leak Proof Body-Bonnet Joint With Spiral Wound Gasket
·Precision Stem Packing Chamber
·Deep Stuffing Box
·Live Loading (Optional)
·Self Aligning Two Piece Gland
·Ground Finish Stem
·Stellited Trims ensures low friction and long service life (Optional)
·Extended Bonnet Valves for Cryogenic Service (Optional)
·Pneumatic Cylinder Actuator / Electrical Actuator Operated (Optional)

Globe Valves

WPP provides all types of globe valves.

Introduction & Specifications

Globe Valves are a type of valve used for regulating flow in a pipeline, consisting of a movable disk-type element and a stationary ring seat in a generally spherical body.
Globe Valves are named for their spherical body shape with the two halves of the body being separated by an internal baffle. This has an opening that forms a seat onto which a movable plug can be screwed in to close (or shut) the valve. The plug is also called a disc. In globe valves, the plug is connected to a stem which is operated by screw action in manual valves. Typically, automated valves use sliding stems. Automated globe valves have a smooth stem rather than threaded and are opened and closed by an actuator assembly. When a globe valve is manually operated, the stem is turned by a hand wheel.

Size: 2"-20"

Pressure Rating: Class 150/ Class 300/ Class 600/ Class 900/ Class 1500/ Class 2500

Materials:
WCB/LCB/LCC/WC6/WC9/C5/CF8M/CF8/CF3M/CF3/CN7M

Specifications: API 600, ASME/ANSI B16.34, BS 1873

End connection: RF/RTJ/BW

Globe Valves

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Cast Steel Globe Valve

Globe Valve
Size: 2"-20"
Pressure rating: Class 150/ Class 300/ Class 600/ Class 900/ Class 1500/ Class 2500
Materials: WCB/LCB/LCC/WC6/WC9/C5/CF8M/CF8/CF3M/CF3/CN7M
Specifications: API 600, ASME/ANSI B16.34, BS 1873
End connection: RF/RTJ/BW

Pressure Seal Globe Valve
Size: 2"-8"
Pressure rating: Class 600/ Class 900/ Class 1500/ Class 2500
Materials: WCB/LCB/LCC/WC6/WC9/C5/CF8M/CF8/CF3M/CF3/CN7M
Specifications: API 600, ASME/ANSI B16.34, BS 1873
End connection: RF/RTJ/BW

Globe Valves

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Forged steel Globe Valve

Forged Globe Valve
Size: 1/2"-2"
Pressure rating: Class 150/ Class 300/ Class 600/ Class 800/ Class 900/ Class 1500/ Class 2500
Materials: A105N/LF2/F304/F316/F51/ALLOY 20/F11/F22
Specifications: API 602/BS 5352 MSS SP-118
End connection: RF/RTJ/SW/BW/NPT

Pressure Seal Forged Gate Valve
Size: 1/2"-2"
Pressure rating: Class 600/ Class 800/ Class 900/ Class 1500/ Class 2500
Materials: A105N/LF2/F304/F316/F51/ALLOY 20/F11/F22
Specifications: API 602/BS 5352 MSS SP-118
End connection: RF/RTJ/SW/BW/NPT

Check Valves

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Introduction & Specifications

A check valve allows fluid to flow through it in only one direction. Check valves are two-port valves, meaning they have two openings in the body, one for fluid to enter and the other for fluid to leave. There are various types of check valves used in a wide variety of applications. Check valves work automatically and most are not controlled by a person or any external control; accordingly, most do not have any valve handle or stem.

Size: 2"-42"
Pressure Rating: Class 150/ Class 300/ Class 600/ Class 900/ Class 1500/ Class 2500
Material: WCB/LCB/LCC/WC6/WC9/C5/CF8M/CF8/CF3M/CF3/CN7M
Specifications: API 600, ASME/ANSI B16.34, BS 1868
End connection: RF/RTJ/BW

Design Features

Seat

For carbon steel check valves, the seat material is usually forged steel. The sealing surface of the seats is spray welded with hard alloy specified by the customer. Renewable threaded seats are used for NPS≤10 check valves, and welded-on seats are optional. Welded-on seats are used for NPS≥12 carbon steel gate valves. For stainless steel check valves, an integral seat is usually utilized. Threaded-in or welded-on seats are also optional for stainless steel check valves, if required.

Body-Cover Gasket

Stainless steel + flexible graphite wounded gaskets are used for Class 150 and Class 300 check valves; stainless steel flexible graphite wounded gaskets are used for Class 600 check valves, a ring type joint gasket is used for Class 900 check valves; a pressure seal design is used for Class 1500 and Class 2500 check valves

Body-Cover Connection

The body and bonnet of Class150 to Class 900 check valves are usually connected by with studs and nuts. And the body and bonnet of Class 1500 to Class 2500 check valves usually utilize a pressure seal design.

Check Valves

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Cast Steel Check Valve

Cast Steel Check Valve
Size: 2"-42"
Pressure rating: Class 150/ Class 300/ Class 600/ Class 900/ Class 1500/ Class 2500
Materials: WCB/LCB/LCC/WC6/WC9/C5/CF8M/CF8/CF3M/CF3/CN7M
Specifications: API 600, ASME/ANSI B16.34, BS 1868
End connection: RF/RTJ/BW

Pressure Seal Check Valve
Size: 2"-16"
Pressure rating: Class 600/ Class 900/ Class 1500/ Class 2500
Materials: WCB/LCB/LCC/WC6/WC9/C5/CF8M/CF8/CF3M/CF3/CN7M
Specifications: API 600, ASME/ANSI B16.34, BS 1868
End connection: RF/RTJ/BW

Check Valves

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Forged Steel Check Valve

Forged Check Valve
Size: 1/2"-2"
Pressure rating: Class 150/ Class 300/ Class 600/ Class 800/ Class 900/ Class 1500/ Class 2500
Material: A105N/LF2/F304/F316/F51/ALLOY20/F11/F22
Specifications: API 602/BS 5352 MSS SP-118
End connection: RF/RTJ/SW/BW/NPT

Pressure Seal Forged Check Valve
Size: 1/2"-2"
Pressure rating: Class 600/ Class 800/ Class 900/ Class 1500/ Class 2500
Material: A105N/LF2/F304/F316/F51/ALLOY 20/F11/F22
Specifications: API 602/BS 5352 MSS SP-118
End connection: RF/RTJ/SW/BW/NPT

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Wafer Check Valve

Dual Plate, Wafer Check Valve has One Piece cast heavy stronger Body configuration provides reduced weight and size compare to a swing check valve or lift check valve. , which saves the Initial cost, space and simplifies installation procedure.
The Dual Plate, Wafer Check Valve employs two-spring-loaded plates hinged on a central hinge pin. When the flow decreases, the plates close by the action of torsion spring before flow reversal takes place. All features put together make the Dual Plate Check Valve as the most efficient & versatile design. It is also referred to as SILENT CHECK VALVE
It is much easier to install between standard gaskets and line flanges, and therefore is more cost effective to install and to maintain.
Its design complies with API 594 and API 6D, testing with API 598.

Features:
Light Weight, Versatile Design, and 80 to 90% lighter then conventional full body check valve.
Reduces pipe supports, simplifies piping, easier, less costly installation.
Spring Loaded double door design has low cracking pressure.
Disc open 80% to ensure positive closing
Materials and trims available for all services within temperature range.
Rubber To Metal or Metal To Metal Seat available
Neoprene, Buna-N, EPDM, Viton Silicon etc.
Size: 2"-48"
Pressure rating: Class 150/ Class 300/ Class 600/ Class 900/ Class 1500/ Class 2500
Material: WCB/LCB/LCC/WC6/WC9/C5/CF8M/CF8/CF3M/CF3/CN7M
Specifications: API 594, API 6D

Butterfly Valves

Size: 2"-48"
Pressure Rating: Class 150/ Class 300
Material: WCB/CF8M/304/316
Specifications: MSS SP 68, API 609, ANSI B16.34
End Connection: RF, Wafer, Lug
Type: Metal Seal/Rubber Lined/Seal/Double Eccentric/ Triple Eccentric
Design Features:
Full Port Design
Flanged End
Wafer End
Bw, Butt Welding Ends

Introduction & Specifications

A butterfly valve is a valve which can be used for isolating or regulating flow. The closing mechanism takes the form of a disk. Operation is similar to that of a ball valve, which allows for quick shut off. Butterfly valves are generally favored because they are lower in cost to other valve designs as well as being lighter in weight, meaning less support is required. The disc is positioned in the center of the pipe, passing through the disc is a rod connected to an actuator on the outside of the valve. Rotating the actuator turns the disc either parallel or perpendicular to the flow. Unlike a ball valve, the disc is always present within the flow. Therefore a pressure drop is always induced in the flow, regardless of valve position.

There are three types of butterfly valves as follows,

Type LT Wafer Butterfly Valve

Metal Seated Butterfly Valve

Rubber Lined Butterfly Valve

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