



3Z

www.3Zvalve.com



The Solution For The Valve Problems
3Z[®] Plug Valves



Customer Satisfaction

Closely working and continuously communicating with our customers, the people at 3Z accommodate the customer's needs. Their concerns are reflected on the product design and services. Complicated valve problems have been resolved to our customers' satisfaction with the expertise of the 3Z people. For 3Z, the supreme quality, on-time delivery and competitive price are everyday targets that meet our customers' satisfaction.

Worldwide Experiences

For over 30 years and across 50 countries, the 3Z valves have supplied and contributed to the outstanding performance for the processes of companies, Whether it is for a new constructions or MRO job, 3Z valves are there for the benefits of our customers.



Advanced Manufacturing

With modern technology in manufacturing, new facilities and a directly owned alloy foundry, 3Z is able to provide high quality, yet economical manufacturing. 3Z provides our customers with the most competitive prices. As a manufacturing center for 3Z valves, the newest Korean manufacturing facility is coupled with high grade expertise and state of the art technology.



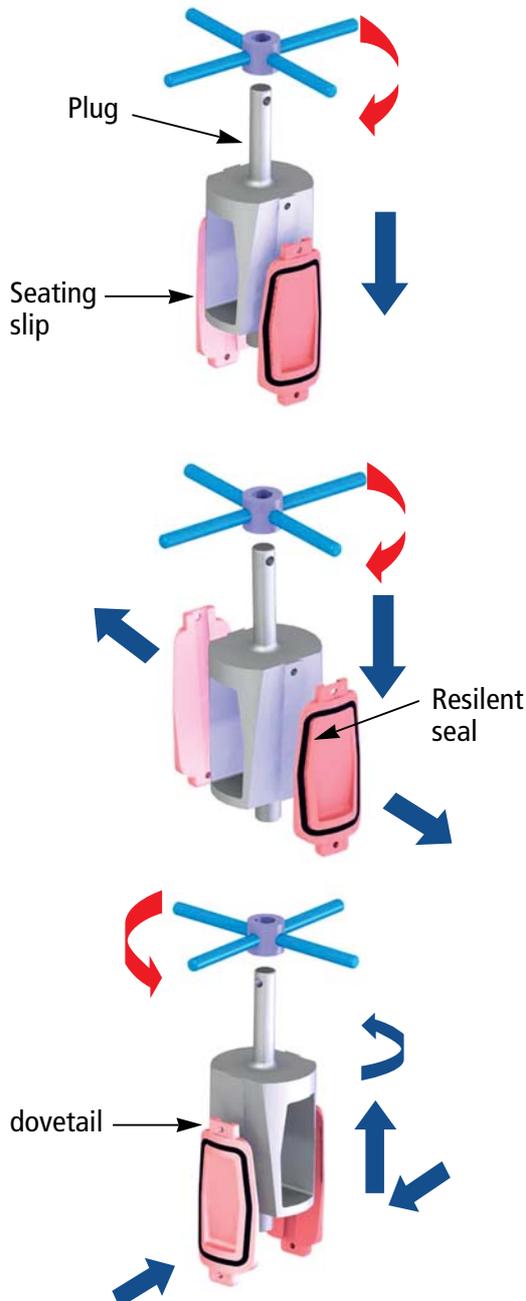
Double Block and Bleed Plug Valves



3Z Double Block & Bleed (DBB) Valve

Designed to meet Oil & Gas transmission, loading, unloading needs. Line sealing is achieved by body and wedges cut from each side of the plug with or without the assistance of soft seat rings.

The sealing is positively made on each side of the plug (double block), and the media kept in the plug port area can be bled into upstream or to the container to prevent from explosion. The Valve can be used for assuring metering accuracy and SCADA systems.



1. Closing

The small size Double Block and Bleed valves are handwheel operated and the larger sizes are equipped with waterproof of gearing but operate in the same manner, proportionately requiring more turns. Turning the handwheel rotates the wedge 90 degrees, aligning the seating slips. The elastomer seal rings are integrally bonded within the machined grooves of each slip.

2. Compressing

As the wedge lowers, it force the seating slips outwards, pushing the seals against the body and compressing them with in the grooves. With the slips solidly against the body, a secondary metal-to metal seat is formed on both sides of each seal, providing double protection. The wedging forces the seating slips outwards against the valve body and is perpendicular to the seats and the body. This eliminates all scraping and rubbing forces on the seals.

3. Opening

When opening, the wedge moves upwards and the dove-tailed (slips) are pulled away from the body. The wedge is guided by an upper and lower trunnion, and the wedge is rotated 90 degrees, aligning the seating slips. In the open position, the seals are completely out of the flow. Again, This action eliminates all scraping and rubbing forces on the seals.



3Z Standards Twin Slip Double Block and Bleed Valve

Figure # 124, 324, 624, 924, 1524

- Rating : ANSI Class 150/300/600/900/1500
- Size : 2" ~ 24"
- Temperature Range : -20°F(-29°C) TO + 350°F(+176.7°C)
- Connections : Flanged, Screwed, Welded (Butt, Socket)
- Wrench, enclosed gear operated or actuated

3Z Full Bore Twin Slip Double Block and Bleed Valves

- Rating : ANSI Class 150/300/600/900/1500
- Size : 2" ~ 24"
- Temperature Range : -20°F(-29°C) TO + 350°F(+176.7°C)
- Connections : Flanged, Screwed, Welded (Butt, Socket)
- Hand wheel, enclosed gear operated or actuated

3Z 4-Way Twin Slip Double Block and Bleed Valves

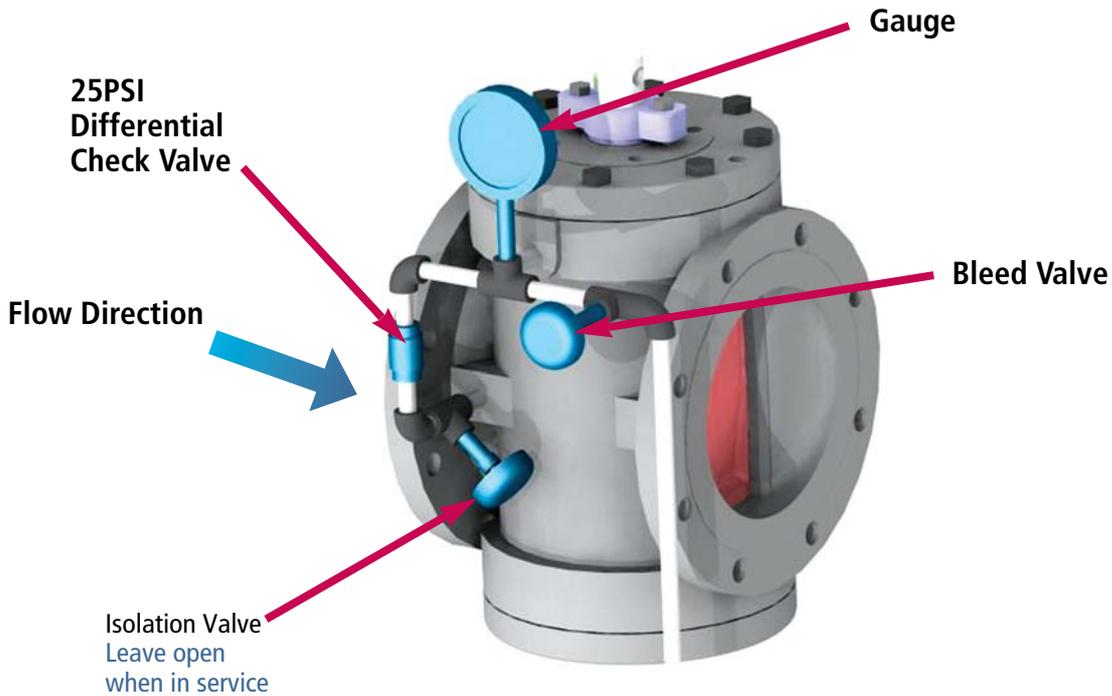
- Rating : ANSI Class 150/300/600/900/1500
- Size : 2" ~ 24"
- Temperature Range : -20°F(-29°C) TO + 350°F(+176.7°C)
- Connections : Flanged, Screwed, Welded (Butt, Socket)
- Hand wheel, enclosed gear operated or actuated

Materials of construction

Body	Carbon Steel	ASTM A216 WCB Chrome Plated
Top Cover	Carbon Steel	ASTM A216 WCB or ASTM A283D Plated
Bottom Cover	Carbon Steel	ASTM A216 WCB or ASTM A283D Plated
Wedge	Carbon Steel	ASTM A216 WCB Electroless Nickel Plated
Slips	Ductile Iron	ASTM A536-65-45-12
Gland	Stainless Steel	ASTM A276 410SS
Packing	Graphite Type	-
O-Ring & Slip	Viton	-
Studs / Nuts	Carbon Steel	ASTM A193 B7 / ASTM A194 2H

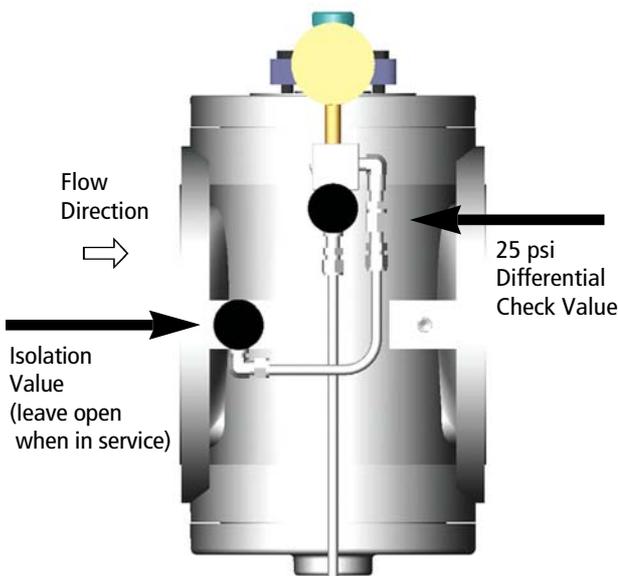


DBB Plug Valves (Bleeding Systems)



The above system is designed to relieve any excess rise in pressure, within the body cavity, due to terminal expansion of the liquid within the cavity, when the valve is in the closed position. The relief valve is set to open at 25PSI or above and bleeds excess pressure to the upstream side.

Note : System will only function when valve is closed and the isolation valve is open.



Automatic Body Bleed Valve to Atmosphere or Upstream (Customer Option)

The check valve is operated by a plunger that opens the bleed valve by a coupling cam, during the closing of the valve. The valve may be operated by hand or an actuator.

This system incorporates a complete automatic system by removing the need for human intervention. An isolation valve is fixed in the open position to prevent the need for checking the seal.



3Z Metal Seated Plug Valves, Lubricated

Designed for Crude oil, Oil, Natural gas handling and transmission lines. Line sealing is achieved basically by metal to metal contact between body and plug with assistance of sealant injected in between body and plug, which serves both sealing and lubricating during operation.

Uniqueness of dynamically and pressure balanced design together with inverted plug design, assure prevention of locking, which has been the problems of conventional design at higher pressure application.



3Z Lubricated plug valves have been installed around the world for its price, quality and on time delivery Benefits. The important locations where 3Z Lubricated plug valves are installed are : USA, Mexico, Venezuela India, Pakistan, Taiwan, Kazakstan, Uzbekistan, UK, Italy, Iran, Kuwait, Egypt, South Africa, Zambia, France, Germany , Turkey and Australia etc. The class covered from #150 upto #3000. Furthermore variety of Material is available as well as different configurations. Whenever and wherever the demands for Lubricated Plug valves exist, please contact 3Z and/or our sales network around the world.



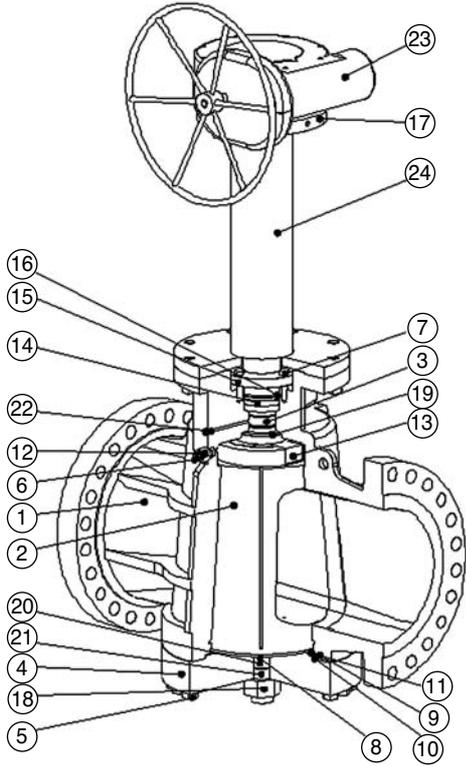
3Z Lubricated plug valves offers fire safe tested valves

This valve was successfully tested in accordance with the fire safe testing procedure suggested by API (API 6FA)

Lubricated Plug Valves

Extended stems are made to be installed on Wrench Operated standard stems, in case of buried installation of the Plug Valve or in case of installation of the valve in plant where a normal access of manover is not possible.

Valve extension for underground service include piping for lubrication and are supplied with water tight seals. Extension length should be advised by customer.



NO	PART NAME	Q'TY	MATERIAL	SPECIFICATIONS
1	BODY	1	CARBON STEEL	ASTM A216 WCB
2	PLUG	1	CARBON STEEL	ASTM A216 WCB
3	STEM	1	STAINLESS STEEL	410SS
4	COVER	1	CARBON STEEL	ASTM A283 D
5	COVER BOLT	1S	CARBON STEEL	ASTM A193 B7
6	SEALANT INJECTOR	1	STAINLESS STEEL	303SS
7	GLAND BOLT	1S	CARBON STEEL	ASTM A193 B7
8	PRESS. BUTTON	1	STAINLESS STEEL	410SS
9	METAL DIAPHR'M(I)	1	CARBON STEEL	1020
10	METAL DIAPHR'M(II)	1	STAINLESS STEEL	304SS
11	GASKET	1	GRAFOIL	-
12	CHECK VALVE	1	STAINLESS STEEL	303SS
13	COMPENSATOR	1	CARBON STEEL	1045
14	GLAND PACKING	2	GRAFOIL	-
15	GLAND	1	CARBON STEEL	1045 + Zn PASTED
16	O-RING	2	VITON	-
17	ADAPTER	1	STEEL	-
18	LOCK NUT	1	CARBON STEEL	ASTM A194 2H
19	THRUST BEARING	1	CARBON STEEL	1045, PTFE COATED
20	ADJUSTING BOLT	1	CARBON STEEL	ASTM A193 B7
21	LOCK BOLT	1	CARBON STEEL	ASTM A193 B7
22	STEM PACKING INJECTOR	1	CARBON STEEL	1045 + Zn PLATED
23	GEAR OPERATOR	1S	STEEL	-
24	LONG STEM HOUSING	1	STEEL	-



Full Bore Valves

The plug port is approximately rectangular in section and have an area corresponding to the round end connection of the valve, furthermore they have an extremely low pressure drop. The transaction from the round body end ports to the rectangular seat ports to rectangular seat port is smooth and entails no sudden alteration in shape or section which might cause excessive changes in velocity or direction of the fluid flowing in the pipeline.



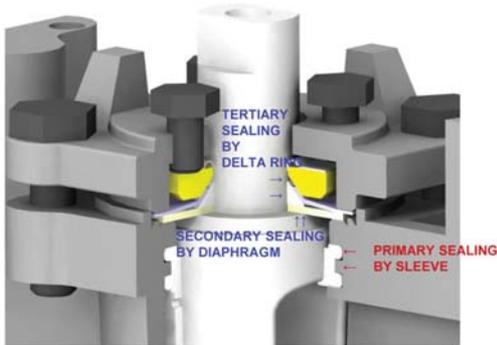
Hard Faced Plug Valves

Sometimes in the case of abrasive flow media Hard Faced Plug Valves are demanded. 3Z's special technology can meet this requirement with fully and/or partially **stellite overlay** on the surface of sealing area.



3Z Teflon sleeved Plug Valves

Designed for chemical, petrochemical, pulp & power, mining, power generation industries and such. Line sealing is achieved by soft sleeve seat located in between metal body and plug using engineering plastics, such as PTFE, PFA, UHMPE or high temperature plastics. Stem sealing is achieved by 3-fold sealing system. Body and plug material are supplied in various high alloy materials



Threefold Sealing System

The zero leakage stem sealing is achieved by threefold sealing system. The primary seal is provided by the sleeve. The sealing is so tight that no leakage can be observed even without a valve cover. The secondary and tertiary seal (top seal package) are provided by a PTFE Teflon delta ring and a diaphragm. The sealing is also so tight that no leakage can be observed even without a sleeve. A test report is available at request

Material Available

MAT'L	ASTM
WCB	ASTM A216 WCB
LCB	ASTM A352 LCB
304	ASTM A351 CF8
304L	ASTMA351 CF3
316	ASTM A351 CF8M
316L	ASTM A351 CF3M
A20	ASTM A351 CN7M
CD4M	ASTM A351 CD4MCU
HB	ASTM A494 N-12MV
HC	ASTM A494 CW-12MW
MO	ASTM A494 M-30C
NI	ASTM A494 CZ-100
INCONEL	ASTM A494 CY-40
TI	ASTM B367
ZR	ASTM B752
DI	ASTM B395

Various Features Available



Severe Service



Various End Connection



Multi Ports



Full Bore Type



HF Line Service



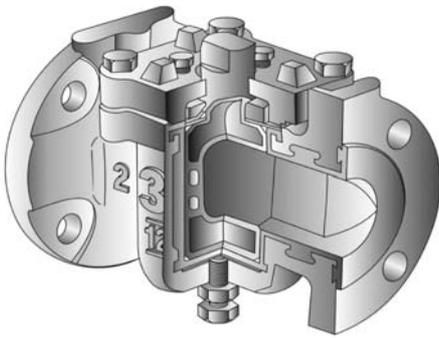
Jacketed
(Full or Partial)

Lined Plug Valves



3Z Teflon Lined Plug Valves & Lined Piping Accessories

Designed for excessively corrosive materials handling economically avoiding use of expensive exotic metals. Designed for the same processes for the 3Z sleeved plug valves. The whole wet area is lined with melt-processible PFA, or FEP materials backed by carbon steel or ductile iron in body and plug. Lined materials are universally thick and held tight in the locking cavities to prevent from warping and changing in its dimensions.



Fully-lined, quarter turn non-lubricated plug valve

Ideally suited for corrosive application. Locking of liner to body and molding technique permit use on many chemical services with higher pressures and vacuums without fear of liner collapse, shrinkage, stress cracking and blowout. Excellent sealing capability

Materials of construction

Handle	Steel
Truarc ring	Steel, zinc plated
Static eliminator	Stainless steel
Cover nuts	Stainless steel
Adjusting screws plated	Stainless steel, silver
Top cover :	
121	Malleable iron
321	Carbon steel
130	Malleable iron
Thrust collar	Stainless steel
Formed diaphragm	PTFE
Delta ring	PTFE
Flat diaphragm	PTFE
Plug :	
121	FEP or PFA lined ductile iron
321	PFA lined ductile iron
130	FEP or PFA lined ductile iron

Various Features Available



Swing Check Valve



Y-Strainer



Ball Check Valve

Metal Seated Wedge Plug Valves

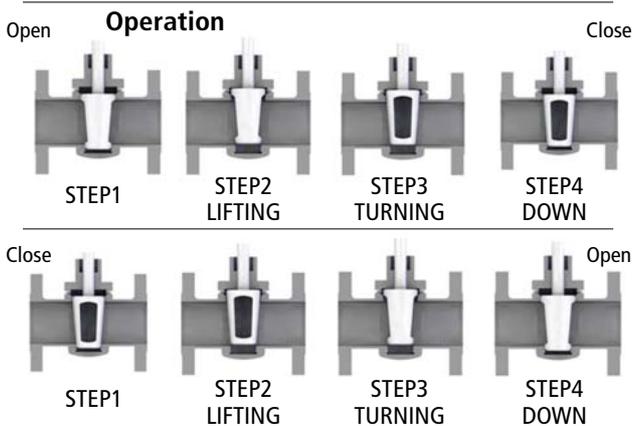


3Z Metal Seated plug Valves, Non-Lubricated

Designed to cope with higher temperature applications of the 3Z sleeved and lined products. Line sealing is achieved by metal to metal contact between body and plug.

To avoid damage on the sealing surfaces, during opening and closing, the plug is lifted first, and rotated 90 degrees, and then, set to its desired position. The whole opening and closing operation is achieved by one action assuring full proof operation using specially designed and patented operating mechanism by 3Z.

Principle of 3Z Wedge Plug valve operation



The body and plug contacts directly metal-to-metal. To prevent the surfaces from galling or abrading the valve is designed to operate as following steps;

- STEP1 - Lowered & Seated position;** The plug is lowered and seats at fully open or closed position.
- STEP 2 - Lifted position;** The plug is lifted slightly to avoid galling or abrasion during this step.
- STEP 3 - 90° Rotated position;** The plug is rotated 90° to allow line media to flow or stop by positioning the plug at open or closed position. No contact between body and plug during this step. No rubbing. No friction.
- STEP 4 - Lowered & Seated position;** The plug is lowered and reseated at fully open or closed position.

Port Opening Available



75% Opening

100% Opening

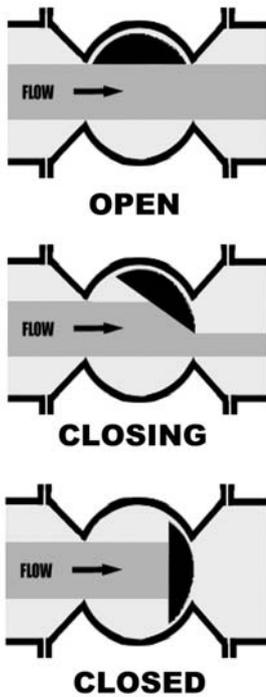
Eccentric Plug Valves



3Z Eccentric Plug Valve

Designed to meet higher CV requirements and excessive sludge handling in such as sewage treatment plant or waste water treatment plant. Line seal is achieved by an eccentric plug and metal body. The plug is designed in half shape of concentric plug, and centered eccentrically to seat smoothly on the seat sealing surface in pressing motion.

The plugs can be supplied with or without elastomer coated.



Eccentric Action

Eccentric action and resilient plug facings assure lasting dead-tight shutoff. As the eccentric plug rotates 90° from open to closed, it moves into a raised eccentric seat.

In the open position, the segmented plug is out of the flow path. Flow is straight through, flow capacity is high.

As the plug closes, it moves toward the seat without scraping the seat or body walls so there is no plug binding or wear.

Flow is still straight through making the throttling characteristic of this valve ideal for gases, liquids and slurries.

In the closed position, the plug makes contact with the seat. When furnished with resilient facing, the plug is pressed firmly into the seat for dead-tight shutoff. Eccentric plug and seat design assures lasting shutoff because the plug continues to be pressed against the seat until firm contact is made.

Plug Options Available



Plug for Metal Seated Type



Plug for Rubber Coated Type

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SPECIALISTS**

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