



Product Application Manual

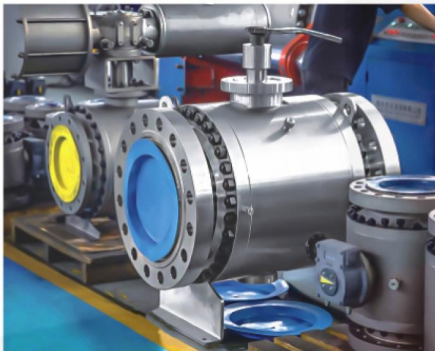
XHVAL GROUP VALVE CO., LTD.



XHVAL GROUP VALVE CO.,LTD.is located in Sangiao Industrial Zone, Wenzhou City, China. established in 1986, With API 6D, ISO, CE, API 607 etc. Certificates engaged in professional valve development, manufacture and sale of professional valve manufacturers. The enterprise is orientated towards clients' satisfaction; in this way, it adapts its valves to your requirements and delivers them in deadlines rigorously established. The technical and human staff, highly qualified, works every day in order to offer you the most innovative solutions and to strengthen the commitment with the customers



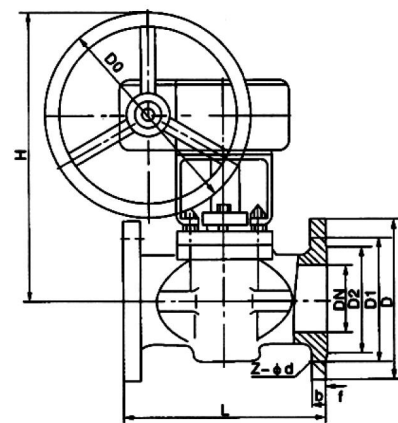
About XHVAL



Plug Valve Series



150/300Lb



Applicable Standards

- Steel plug valves: API 599/API 6D
- Steel plug valves: ISO 14313
- Fire resistant: API 607
- Anti static: API 599
- Steel valves: ASME B16.34
- Face to face: ASME B16.10
- End flanges: ASME B16.5
- Butt weld ends: ASME B16.25
- Inspection and test: API 598/API 6D

Design Description

- Rugged, heavy-duty body
- Bolted bonnet cap
- PTFE Sleeved, tapered plug
- Large port openings
- Non-lubricated
- Stem integral with-plug
- In-line adjustment
- Fire resistant construction
- Anti static device
- Stopper device
- Renewable seat ring
- Flanged or butt weld ends
- Available with manual worm gear operator

150/300Lb

List of Materials

No.	Part Name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet cap	A216-WCB	A351-CF8M	A352-LCB
3	Plug	A182-F304 ¹⁾	A182-F316	A276-420
4	Sleeve	Glass filled PTFE		
5	Bonnet gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
6	Adjusting gasket	A182-F6a	A182-F316	A182-F6a
7	Adjusting bolt	A193-B7	A193-B8	A320-L7
8	Bonnet stud	A193-B7	A193-B8	A320-L7
9	Bonnet bolt	A194-2H	A194-8	A194-4
10	Handle	Carbon steel		
11	Diaphragm	A167-304+PTFE	A167-316+PTFE	A167-304+PTFE
12	Packing	Graphite		
13	Gland flange	A216-WCB	A217-WC6	A352-LCB

Note: 1) A105+ENP Optional;
2) Jacketed construction.

Dimensions are for reference only

ANSI Class 150Lb

Size		L (RF)		L1 (BW)		H		W		WT (kg)	
in	mm	in	mm	in	mm	in	mm	in	mm	RF	BW
2	50	7.00	178	10.50	267	6.00	150	13	320	17	13
2½	65	7.50	191	12.00	305	6.50	165	14	350	20	14
3	80	8.00	203	13.00	330	7.12	180	16	410	25	17.5
4	100	9.00	229	14.00	356	15.00	380	13	320	40	29
6	150	10.50	267	18.00	457	20.50	520	13	320	70	55
8	200	11.50	292	20.50	521	22.88	580	13	320	135	110
10	250	13.00	330	22.00	559	24.50	620	14	350	220	185
12	300	14.00	356	25.00	635	26.75	680	15	380	300	247

Dimensions are for reference only

ANSI Class 300Lb

Size		L (RF)		L1 (BW)		H		W		WT (kg)	
in	mm	in	mm	in	mm	in	mm	in	mm	RF	BW
2	50	8.5	216	10.50	267	6.00	150	13	320	17	13
2½	65	9.5	241	12.00	305	6.50	165	14	350	20	14
3	80	11.0	283	13.00	330	7.12	180	16	410	25	17.5
4	100	12.0	305	14.00	356	15.00	380	13	320	40	29
6	150	16.0	403	18.00	457	20.50	520	13	320	70	55
8	200	16.5	409	20.50	521	22.88	580	13	320	135	110
10	250	18.0	457	22.00	559	24.50	620	14	350	220	185
12	300	20.0	502	25.00	635	26.75	680	15	380	300	247



PURPOSE

Double block & bleed valve is applicable for blocking the medium in pipeline such as jet fuel, crude oil, light oil, natural gas, liquidized gas, pipelined gas and chemical medium.

CHARACTERISTIC

1. In the valve's opening/closing process, there is no contact between the sealing surfaces of the valve body and the vane, so the sealing surfaces suffer neither friction nor wear, contributing to the valve's long service life and small opening/closing torque;
2. For the valve's maintenance, there is no need to remove the valve from the pipeline but just remove its bottom cover to replace the vane pair, thus very easy for the maintenance;
3. The valve's body and plug are full-bore so that the medium can flow through the valve without any flow resistance, and it's also possible to clean the pipeline to overcome the shortcomings of the reduced port valve;
4. The valve's cavity is plated with hard chrome and the sealing area is hard and smooth;
5. The elastic seal on the vane is made of the fluorine rubber and molded and formed in a groove of the vane surface. The fireproof metal-to-metal seal is used as the backing of the elastic seal;
6. The valve is provided with an automatic bleed device [optional] which can prevent the abnormal pressure rise of the valve cavity and check the valve's effect after the valve is completely closed;
7. The valve's opening/closing indicator is in sync with the opening/closing position and can accurately display the valve's opening/closing status.

PREPARATION OF SPECIFICATIONS

The valve is designed and manufactured as per API6D;

The flange connection size is as per ANSI B16.5, JB79, HG20592 and GB/T9113;

The valve's structural length is as per ANSI B16.10, GB12221-89 and JB/T5298;

The valve is checked and tested as per API 598 and API 6D.

压力试验 PRESSURE TEST

Pressure level	150Lb	1.6MPa	300Lb	25MPa	600Lb	40	900Lb	64
Strength test	3.0MPa	2.4MPa	7.7MPa	3.75MPa	15.4MPa	6.0MPa	23.0MPa	9.6MPa
High pressure seal test	2.2MPa	1.8MPa	5.62MPa	2.75MPa	11.23MPa	4.4MPa	16.85MPa	7.1MPa
Low pressure seal test	0.6MPa	0.6MPa	0.6MPa	0.6MPa	0.6MPa	0.6MPa	0.6MPa	0.6MPa

according to the customer's request or the

WORKING PRINCIPLE

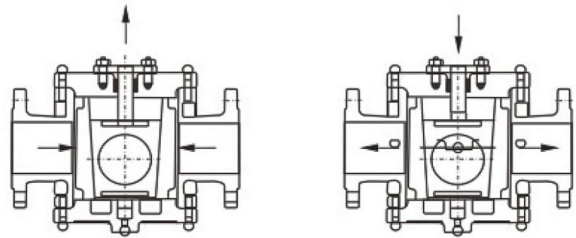
The action of two sealing vanes mounted on the cock is the key to the working principle of the double block and bleed valve.

THE VALVE CLOSE

To close the valve, first rotate the hand wheel to rotate the cock and the sealing vanes by 90°; then the cock will move downwards; the moving cock drives the sealing vanes to the sealing surfaces of the valve cavity until the elastic gasket ring is uniformly pressed to the upper and lower ends of the valve bore to achieve sealing.

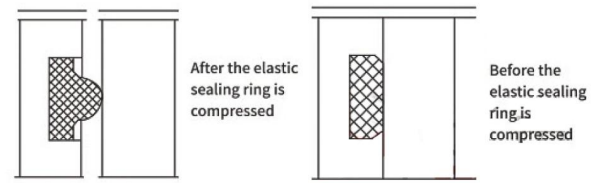
THE VALVE OPEN

To open the valve, first rotate the hand wheel to lift the cock and pull the sealing vane back from the sealing surfaces on both sides of the valve body. When the vane is completely retracted and separated from the sealing surface of the valve body, continue to turn the hand wheel to rotate the cock and the sealing vane by 90°, The valve is in the open position.



ABOUT SEALING

The elastic gasket ring is molded and formed in the groove of the vanes, and as the sealing vanes move to the valve's inlet and outlet, the gasket ring is also gradually pressed into the groove. The machined vane surface forms a secondary metal-to-metal seal with the valve cavity which can prevent the elastic gasket ring from being further pressed and also have a fireproof function.



DOUBLE BREAK AND BLEED VALVE AND RELEASE

This is a way to achieve complete containment of both ends of the pipeline with two block valves and one bleed valve in between. When the two main valves are closed, closing/opening the bleed valve can improve the system's safety. If the first valve leaks, the leaked medium can be led out by the opened bleed valve.

DOUBLE SEALING MODES

The two separate sealing vanes are compressed on upper and lower ends of the valve bore(double block), and when the valve is closed, the bleed valve will be opened to check the sealing effect(bleed).

FUNCTION AND APPLICABILITY ANALYSIS OF DOUBLE BREAK AND BLEED VALVE (FULL BORE)

Introduce a double block and bleed valve's structure and working principle. The valve is superior to common gate and ball valves in terms of its sealing performance and service life. The valve has the functions of being fireproof, on-line maintenance, double block and bleed, cavity pressure relief, internal leak detection and others. Illustrate the double block and bleed valve's functions and applications in the oil and gas storage and transportation systems in combination with examples, which has opened new development potential for process design of oil and gas storage and transportation systems and solved many problems encountered in pipeline design. It has not only optimized the pipeline design and improved the product quality but also saved the pipeline operation costs.

STRUCTURE OF DOUBLE BLOCK & BLEED VALVE

The basic structure of the double block and bleed valve mainly consists of the following two parts[see Fig.1]

VALVE BODY

The valve body includes such main parts as body, spool, discs (embedded with main gasket ring), end caps, chassis, packing, etc. The spool and the discs are the core of the body part. The spool is fixed inside the body with upper and lower trunnions, with the flow channel mouth in the middle and the wedge faces on both sides. The wedge faces are milled with dovetail guide which is connected to two discs on both sides. The discs are the main sealing element and have cylindrical surfaces. Which can reach a precision up to the B class hard seal. The cylindrical surfaces are milled with a groove circle, into which a main gasket ring (fluorinated rubber or nitrile rubber, etc.) is permanently embedded with the molding vulcanization method, contributing to hard and soft sealing when the valve is closed.

MANIPULATOR

The manipulator mainly consists of indication sign, handwheel, main shaft, bushing, ball pin, bracket and other components, and is fixed on the end cap and connected to the spool bar with a connecting pin. The manipulator part is an actuator for actions. To close the valve from the open position, turn the handwheel clockwise, and the spool will rotate by 90° first to drive the disc to turn to the position of the flow channel mouth of the valve body. Then the spool will move straight downwards to drive the disc to expand radially and get close to the inner wall of the valve body until the soft seal is pressed into the groove so that the disc surface contacts the inner wall of the valve body to complete the closing process.

To open the valve from the closed position, turn the handwheel counterclockwise, and the spool will move straight upwards first, and after it reaches to a certain position, it will rotate by 90° so that the valve can be in a conducting state.

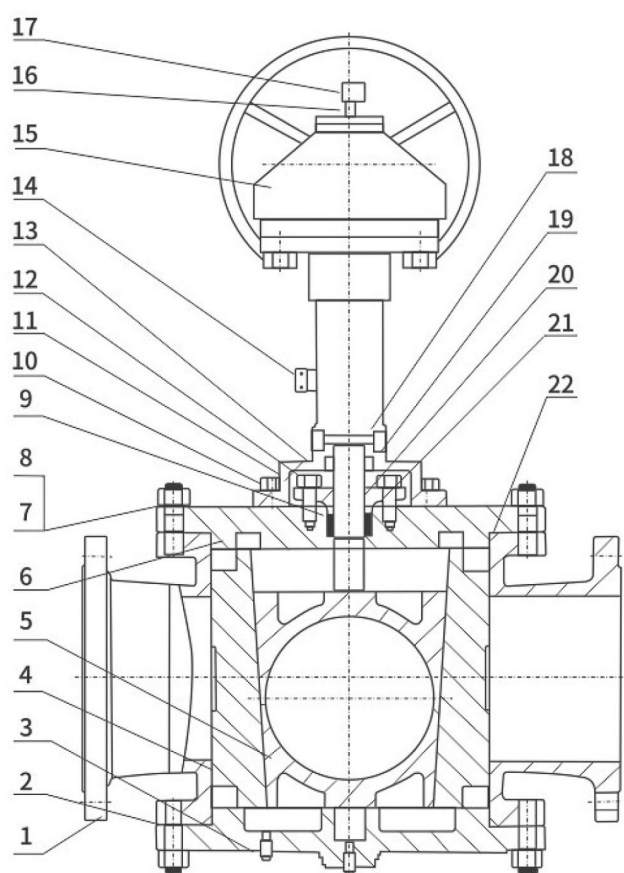


Figure 1. Structure of double sealed rail type plug valve

MAIN PARTS MATERIALS

NO.	Part name	Material
1	Body	WCB
2	Valve bottom cover	WCB
3	Plug	35#
4	Slide	QT500-7
5	Cock	WCB
6	Cover	WCB
7	Stud	35#
8	Nut	45#
9	Packing	Flexible graphite
10	Bolt	35#
11	Packing gland	WCB
12	Bolt	35#
13	Bracket	WCB
14	Bolt	35#
15	Manipulator	Component
16	Indication rod	ICr13
17	Indicator	21401
18	Pin	65Mn
19	Dustproof device	Pvc
20	O-ring	Fluororubber
21	O-ring	Fluororubber
22	O-ring	Fluororubber

When the valve is in the closed state, both upper and lower flow channel mouths of the valve body are sealed with discs, namely double seal, and meanwhile two kinds of sealing, soft and hard, can come into being on the sealing surface of each disc, thus ensuring zero leakage of the valve. When the valve disc is rotating, the soft seal does not contact the valve body, contributing to zero friction, while the hard seal can protect the soft seal and also functions for fire prevention.

It can be seen from Fig.1 that the spool and trunnion(stem) structure is integrated, and there are sliding bearings on fitting parts between upper and lower trunnions and the end cap and the chassis(rolling bears are used for those double block and bleed valves with DN>500). Such a structure can not only reduce the friction resistance but also facilitate precision machining to ensure the seal's rotation clearance. In addition, the integrated structure of the spool and the presence of the sliding bearings ensure to protect the disc seal from the impact of the medium pressure, that is, the pressure difference generated from both sides after the valve is closed has no impact on the valve's sealing performance, which is different from the common ball and gate valves which rely on the pressure difference for sealing.

FUNCTION OF DOUBLE OFF AND DOUBLE OFF VALVE

FIREPROOF FUNCTION AND AIRTIGHTNESS

The media in oil and gas storage and transportation systems are all flammable and explosive. Being fire-proof is a key focus in designing and selecting an oil and gas storage and transportation unit which should not only have a good sealing performance but also can have a certain sealing performance even when there is fire on the site.

The double block and bleed valve all adopts a soft-hard sealing mode, including discs, end caps, chassis and other structures. The soft seal can ensure zero leakage in the normal working state, but when there is fire on the site, the soft seal may be destroyed, thus the hard seal will function as a primary seal to prevent massive leakage of the medium. Instead, the gate valve has an unreliable sealing performance and it's difficult to ensure zero leakage during long-term service though it has a good fireproof function with its hard seal; and the ball valve, with its soft seal, has a long service life, but it's not fireproof.

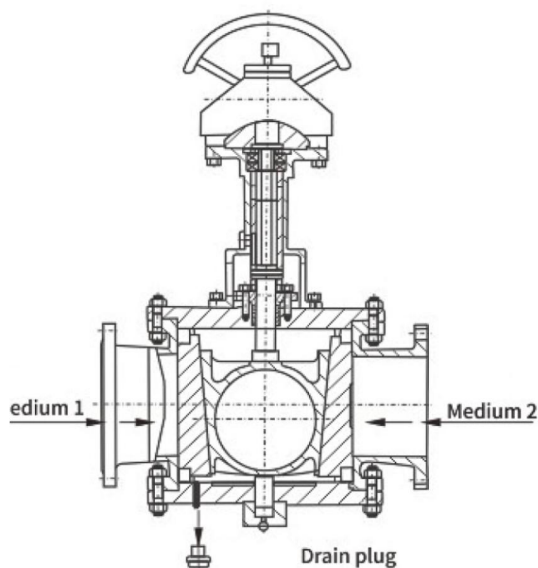
WITH ONLINE MAINTENANCE FUNCTION

When the soft seal on the disc is damaged for a certain reason, resulting in internal leakage or manipulator (actuator) malfunction, it's not necessary to remove the valve from the pipeline for replacement or maintenance; instead, the manipulator's maintenance can also be done when the pipeline pressure is not stopped. However, the gate valve or ball valve must be removed from the pipeline for maintenance or replacement and even the valve may be just scrapped.

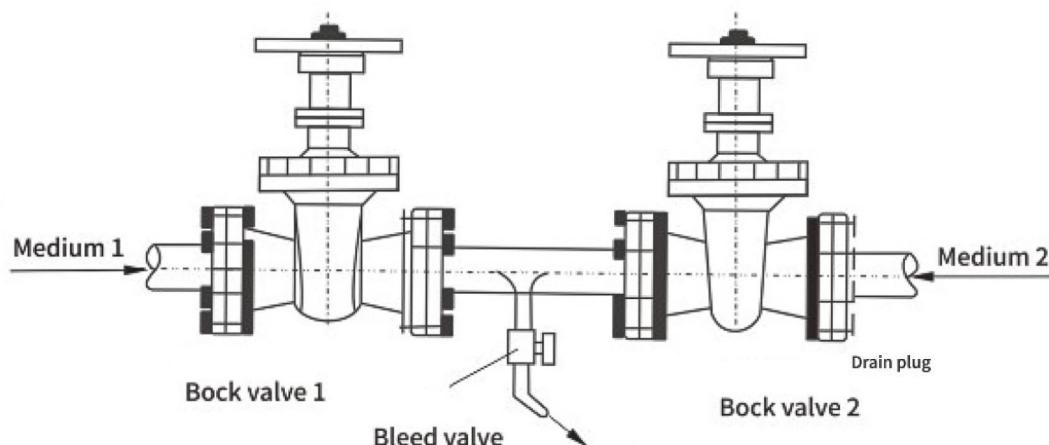
WITH THE FUNCTION OF DOUBLE BLOCK AND BLEED

As shown in Fig.2[a], two block valves [gate or ball valve] are used to block the medium, and a bleed valve is mounted between the two block valves. When the block valves have any internal leakage, the leaked medium will be bled through the bleed valve, thus the two media will not be mixed.

If the double block and bleed valve is used, only one valve can achieve the above functions[see Fig.2[b]]. There is a drain plug hole at the bottom of the double block and bleed valve. After the valve is closed, this plug can be removed. If internal leakage occurs on one disc side, the leaked medium can be bled through the plug hole, thus avoiding mixing of the two media. When the working medium is dirty, the sediment can be bled through the drain plug on a regular basis; when the pipeline needs to be overhauled, the medium residual in the lower part can be bled with the drain plug. In winter the accumulated water in the cavity can be bled with the drain plug to prevent the valve from being frozen and destroyed.



(B) Double block and bleed valve



(a) Traditional block method

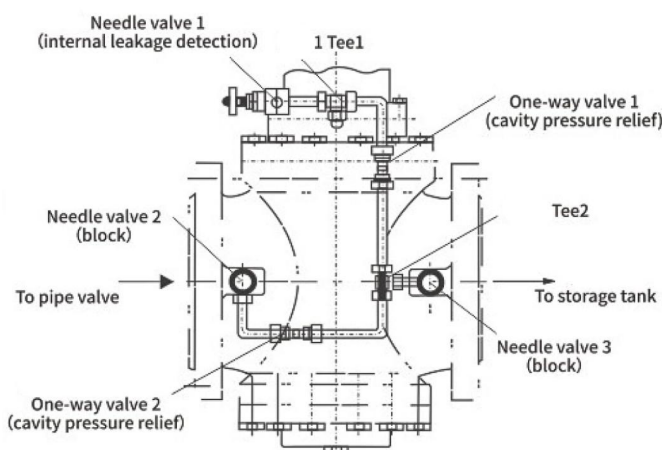
IT HAS THE FUNCTION OF MIDDLE CAVITY PRESSURE RELIEF

It's stipulated in API 6D: "All valves with double seal must have a pressure difference relief function when used in a liquid medium". The relief pressure difference is generated from the changes in the ambient temperature. In the normally-closed state, the cavity pressure of the valve with double seal can increase rapidly due to the temperature rise, and if such a pressure difference is not bled promptly, it can have a serious impact on the valve's operation.

Generally, the double block and bleed valve with manual operation has the following two pressure relief systems.

(1) Manual pressure relief system: The manual pressure relief system is generally a needle valve mounted on the end cap. When the medium is a liquid which can be slightly bled into the atmosphere, it can be equipped with such a pressure relief system.

(2) Differential thermal pressure relief system: The differential thermal pressure relief system is a pipeline system with a one-way valve (see Fig.3). In Fig.3, the needle valve 1, the tee 1, the one-way valve 1, the tee 2 and the needle valve 3 make up the differential thermal pressure relief system. In the system, the needle valve 1 is normally-closed and the needle valve 3 is normally-open. When the medium is a liquid which cannot be bled into the atmosphere, it shall be equipped with such a pressure relief system [generally pressure relief to the upstream pipeline].



Comprehensive drawing of differential heat pressure relief and pipeline pressure reduction

IT HAS THE FUNCTION OF DETECTING INTERNAL LEAKAGE

When a common valve is closed, it's difficult to detect its sealing effect, while it's easy to detect the double block and bleed valve, just by means of opening the needle valve connecting the pressure relief system to the end cap in the closed state. If the disc has any internal leakage, the medium will flow through the needle valve. If it's not convenient to discharge the medium into the atmosphere, a pressure gauge can be mounted on the needle valve to judge whether there is any internal leakage by means of observing the gauge pressure changes.

FIREPROOF FUNCTION AND AIRTIGHTNESS

Pipeline pressure reduction is a key consideration in the design of manifolds in the storage tank area, that is, the pipe network is still full of the medium even after the valve before the tank is closed; as the ambient temperature rises, the pressure of the medium in the pipe network will increase rapidly; when the temperature difference fluctuations are substantial, the increased pressure will exceed the pipe's withstanding ability, which may easily lead to pipeline leakage. Therefore, the pipeline should be equipped with a pressure reduction device.

The pipeline pressure reduction design is as shown in Fig.4(a): a pipeline pressure reduction system is connected between upper and lower reaches of the main block valve, and this system consists of two block valves (gate, ball or globe valve) and a pressure reduction valve between the two block valves. The system is costly and takes up too much room, not easy for site management.

The main block valve adopts the pipeline design principle of the double block and bleed valve, as shown in Fig.4(b), and the pressure reduction system is attached to the main block valve, with a simple design structure and being space-effective and low-cost.

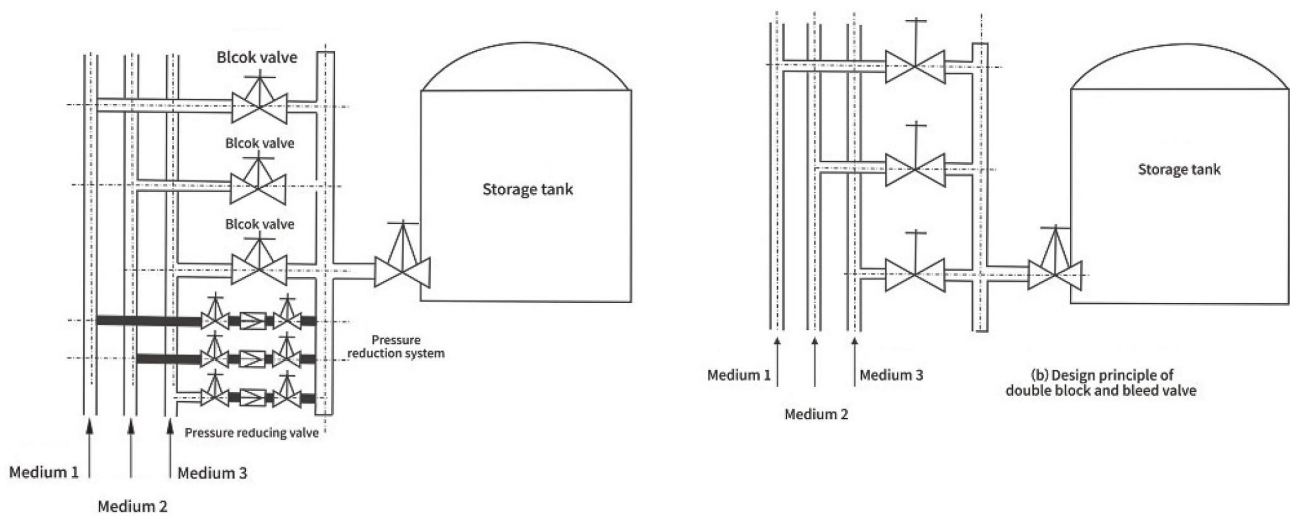


Fig. 4 Schematic diagram of pipeline decompression



PURPOSE

The double seal rail valve is applicable as an ideal device for cutting off media in pipelines of aviation kerosene, crude oil, light oil, natural gases, liquefied petroleum gases, pipeline coal gases, chemical media, etc.

CHARACTERISTIC

1. In the valve's opening/closing process, there is no contact between the sealing surfaces of the valve body and the vane, so the sealing surfaces suffer neither friction nor wear, contributing to the valve's long service life and small opening/closing torque;
2. For the valve's maintenance, there is no need to remove the valve from the pipe line but just remove its bottom cover to replace the vane pair, thus very easy for the maintenance;
3. The valve's body and plug are full-bore so that the medium can flow through the valve without any flow resistance, and it's also possible to clean the pipeline to overcome the shortcomings of the reduced bore valve;
4. The valve's cavity is plated with hard chrome and the sealing area is hard and smooth;
5. The elastic seal on the vane is made of the fluorine rubber and molded and formed in a groove of the vane surface. The fireproof metal-to-metal seal is used as the backing of the elastic seal;
6. The valve is provided with an automatic bleed device [optional] which can prevent the abnormal pressure rise of the valve cavity and check the valve's effect after the valve is completely closed;
7. The valve's opening/closing indicator is in sync with the opening/closing position and can accurately display the valve's opening/closing status.

PREPARATION OF SPECIFICATIONS

The valve is designed and manufactured as per API6D;
 The flange connection size is as per ANSI B16.5, JB79, HG20592 and GB/T9113;
 The valve's structural length is as per ANSI B16.10, GB12221-89 and JB/T5298;
 The valve is checked and tested as per API 598 and API 6D.

PRESSURE TEST

Pressure level	150Lb	1.6MPa	300Lb	25MPa	600Lb	40	900Lb	64
Strength test	3.0MPa	2.4MPa	7.7MPa	3.75MPa	15.4MPa	6.0MPa	23.0MPa	9.6MPa
High pressure seal test	2.2MPa	1.8MPa	5.62MPa	2.75MPa	11.23MPa	4.4MPa	16.85MPa	7.1MPa
Low pressure seal test	0.6MPa	0.6MPa	0.6MPa	0.6MPa	0.6MPa	0.6MPa	0.6MPa	0.6MPa

FUNCTION AND APPLICABILITY ANALYSIS OF DOUBLE SEALED GUIDE VALVE (REDUCING SIZE)

WORKING PRINCIPLE

The action of two sealing vanes mounted on the cock is the key to the working principle of the double block and bleed valve.

THE VALVE CLOSE

To close the valve, first rotate the handwheel to rotate the cock and the sealing vanes by 90°; then the cock will move downwards; the moving cock drives the sealing vanes to the sealing surfaces of the valve cavity until the elastic gasket ring is uniformly pressed to the upper and lower ends of the valve bore to achieve sealing.

THE VALVE OPEN

To open the valve, first rotate the hand wheel to lift the cock and pull the sealing vane back from the sealing surfaces on both sides of the valve body. When the vane is completely retracted and separated from the sealing surface of the valve body, continue to turn the hand wheel to rotate the cock and the sealing vane by 90°, The valve is in the open position.

ABOUT SEALING

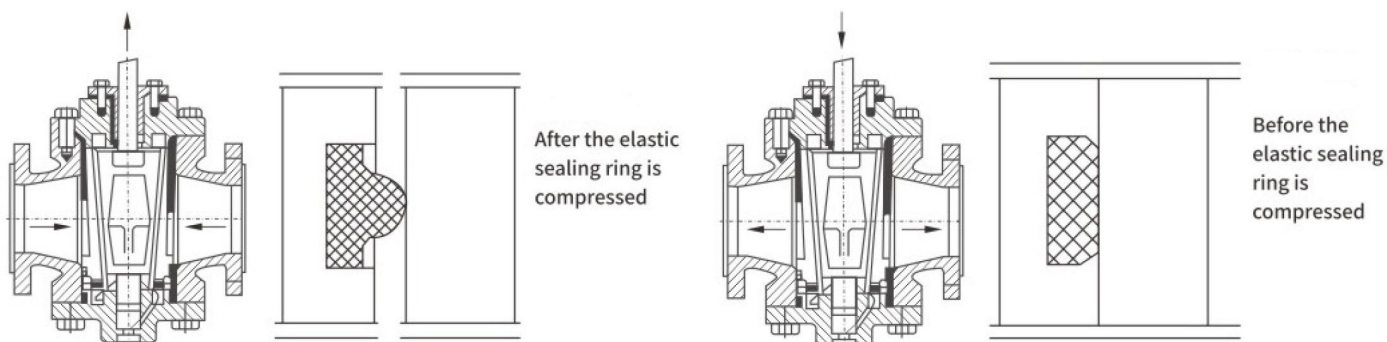
The elastic gasket ring is molded and formed in the groove of the vanes, and as the sealing vanes move to the valve's inlet and outlet, the gasket ring is also gradually pressed into the groove. The machined vane surface forms a secondary metal-to-metal seal with the valve cavity which can prevent the elastic gasket ring from being further pressed and also have a fireproof function.

DOUBLE BREAK AND BLEED VALVE AND RELEASE

This is a way to achieve complete containment of both ends of the pipeline with two block valves and one bleed valve in between. When the two main valves are closed, closing / opening the bleed valve can improve the system's safety. If the first valve leaks, the leaked medium can be led out by the opened bleed valve.

DOUBLE SEALING MODES

The two separate sealing vanes are compressed on upper and lower ends of the valve bore (double block), and when the valve is closed, the bleed valve will be opened to check the sealing effect (bleed).



STRUCTURE OF DOUBLE SEAL GUIDE VALVE

The basic structure of the double seal rail valve mainly consists of the following two parts[see Fig.1]

Introduce a double seal rail valve's structure and working principle. The valve is superior to common gate and ball valves in terms of its sealing performance and service life. The valve has the functions of being fireproof, on-line maintenance, double block and bleed, cavity pressure relief, internal leak detection and others. Illustrate the double seal rail valve's functions and applications in the oil and gas storage and transportation systems in combination with examples, which has opened new development potential for process design of oil and gas storage and transportation systems and solved many problems encountered in pipeline design. It has not only optimized the pipeline design and improved the product quality but also saved the pipeline operation costs.

VALVE BODY

The valve body includes such main parts as body, spool, discs [embedded with main gasket ring], end caps, chassis, packing, etc. The spool and the discs are the core of the body part. The spool is fixed inside the body with upper and lower trunnions, with the flow channel mouth in the middle and the wedge faces on both sides. The wedge faces are milled with dovetail guide which is connected to two discs on both sides. The discs are the main sealing element and have cylindrical surfaces. Which can reach a precision up to the B class hard seal. The cylindrical surfaces are milled with a prismatic groove, into which a main gasket ring [fluorinated rubber or nitrile rubber, etc.] is permanently embedded with the molding vulcanization method, contributing to hard and soft sealing when the valve is closed.

MANIPULATOR

The manipulator mainly consists of indication sign, handwheel, main shaft, bushing, ball pin, bracket and other components, and is fixed on the end cap and connected to the spool bar with a connecting pin. The manipulator part is an actuator for actions. To close the valve from the open position, turn the handwheel clockwise, and the spool will rotate by 90° first to drive the disc to turn to the position of the flow channel mouth of the valve body. Then the spool will move straight downwards to drive the disc to expand radially and get close to the inner wall of the valve body until the soft seal is pressed into the groove so that the disc surface contacts the inner wall of the valve body to complete the closing process.

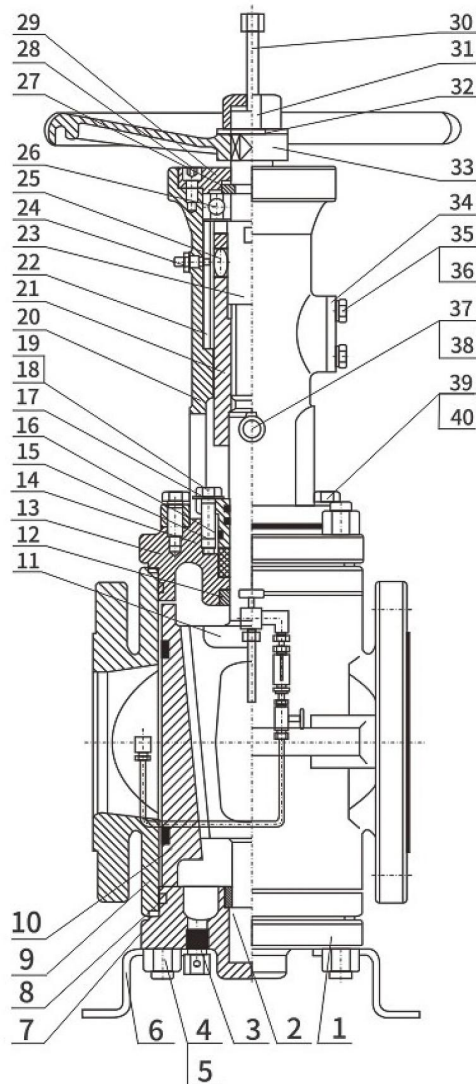
To open the valve from the closed position, turn the handwheel counterclockwise, and the spool will move straight upwards first, and after it reaches to a certain position, it will rotate by 90° so that the valve can be in a conducting state.

When the valve is in the closed state, both upper and lower flow channel mouths of the valve body are sealed with discs, namely double seal, and meanwhile two kinds of sealing, soft and hard, can come into being on the sealing surface of each disc, thus ensuring zero leakage of the valve. When the valve disc is rotating, the soft seal does not contact the valve body, contributing to zero friction, while the hard seal can protect the soft seal and also functions for fire prevention.

It can be seen from Fig.1 that the spool and trunnion (stem) structure is integrated, and there are sliding bearings on fitting parts between upper and lower trunnions and the end cap and the chassis [rolling bears are used for those double seal rail valves with $Dn \geq 500$].

Such a structure can not only reduce the friction resistance but also facilitate precision machining to ensure the soft seal's rotation clearance. In addition, the integrated structure of the spool and the presence of the sliding bearings ensure to protect the disc seal from the impact of the medium pressure, that is, the pressure difference generated from both sides after the valve is closed has no impact on the valve's sealing performance, which is different from the common ball and gate valves which rely on the pressure difference for sealing.

TWIN SEAL ORBIT PLUG VALVE, DOUBLE SEAL PLUG VALVE, GENERAL VALVE(REduced HORE)



MAIN PARTS MATERIALS

NO.	Part name	Material
1	Bottom cover	A216 WCB
2	Shaft sleeve	C28000
3	Blowdown valve	SS304
4	Stud	A193 B7
5	Nut	A194 2H
6	Columns	Q235A
7	Winding gasket	SS304+Graphite
8	O-rings	Viton
9	Body	A216 WCB
10	Slide	QT500-7+Viton
11	Cock	A216 WCB
12	Shaft sleeve	C28000
13	Bonnet	A216 WCB
14	Packing	Flexible graphite
15	Packing gland	A216 WCB
16	O-rings	Viton
17	O-rings	Viton
18	Outer hexagon bolt	8.8
19	Flat washer	A3
20	Holder	A216 WCB
21	Drive sleeve	QT500-7
22	Locating sleeve	1045
23	Transmission shaft	A182 F6a
24	Oil cup	M10X1
25	Rolling pin	T10
26	Deep groove ball bearings	GCr15
27	Split ring	A276 410
28	Hexagon socket screw	8.8
29	Bearing gland	Q235A
30	Indicator rod	Q235A
31	Pressing sleeve nut	1035
32	Butterfly spring	65Mn
33	Handwheel	QT400-18
34	Guide pin	A276 410
35	Outer hexagon bolt	8.8
36	Spring washers	65Mn
37	Pin shaft	A276 410
38	Retaining ring	65Mn
39	Outer hexagon bolt	8.8
40	Spring washers	65Mn

FUNCTION OF DOUBLE SEAL GUIDE VALVE

FIREPROOF FUNCTION AND AIRTIGHTNESS

The media in oil and gas storage and transportation systems are all flammable and explosive. Being fire-proof is a key focus in designing and selecting an oil and gas storage and transportation unit which should not only have a good sealing performance but also can have a certain sealing performance even when there is fire on the site.

The double seal rail valve all adopts a soft-hard sealing mode, including discs, end caps, chassis and other structures. The soft seal can ensure zero leakage in the normal working state, but when there is fire on the site, the soft seal may be destroyed, thus the hard seal will function as a primary seal to prevent massive leakage of the medium. Instead, the gate valve has an unreliable sealing performance and it's difficult to ensure zero leakage during long-term service though it has a good fireproof function with its hard seal; and, the ball valve, with its soft seal, has a long service life, but it's not fireproof.