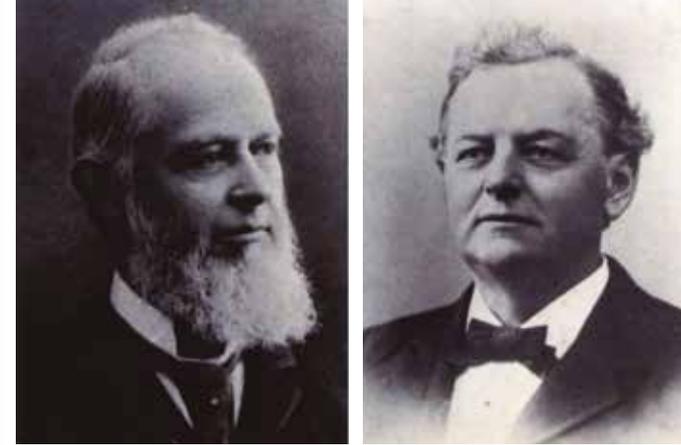


BABCOCK
VALVES

GATEVALVES
PRODUCT RANGE





Babcock Valves Heritage

In 1967, Babcock Wilcox Española -present in the Spanish market since 1918- implemented its diversification policy by setting up a valve manufacturing division, which soon became one of the leading players on the international market, thanks to its engineering efforts, developing new designs to improve product reliability in the power generation sector (nuclear and conventional), petrochemical industry, oil & gas sectors and water works.

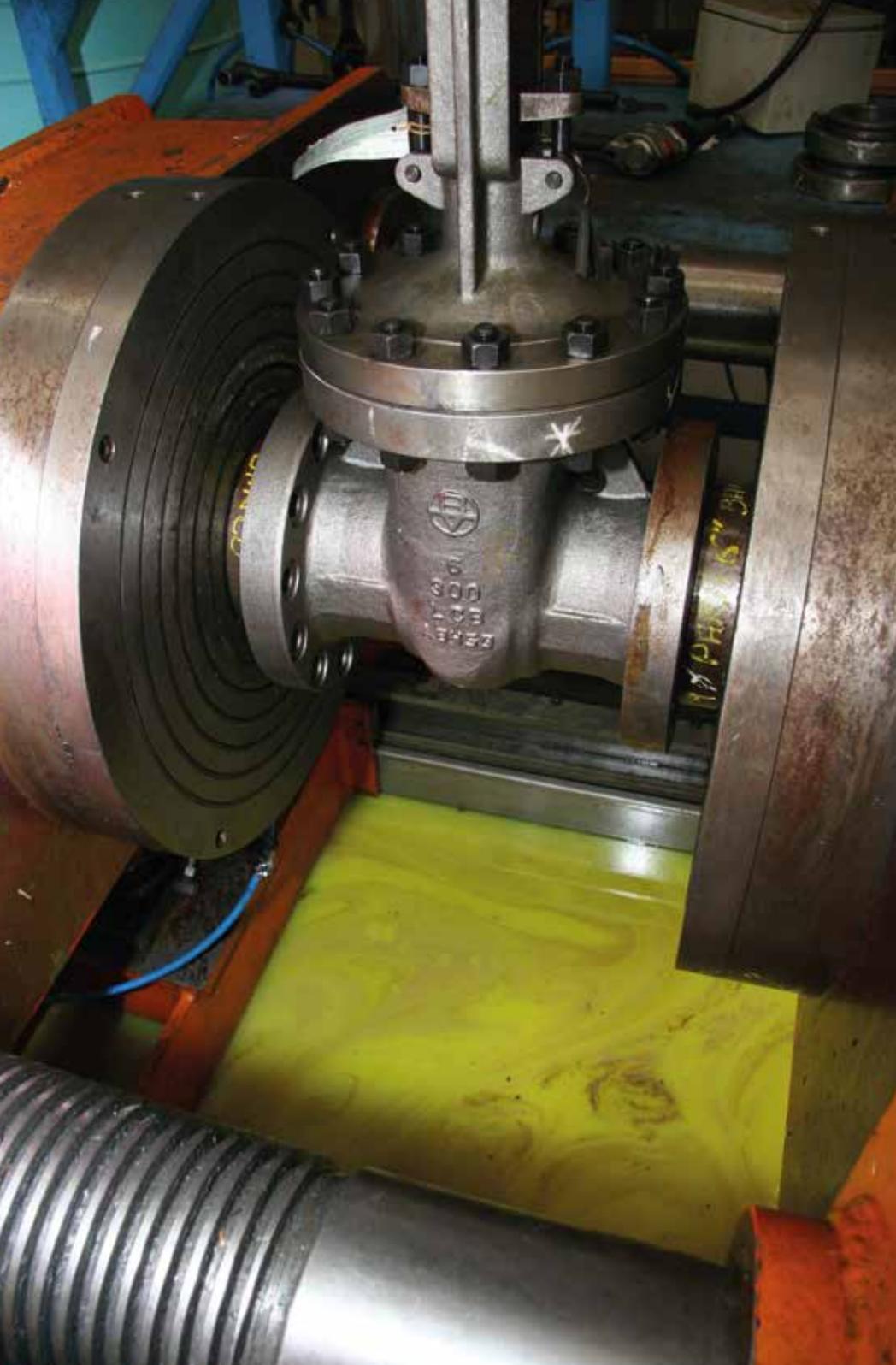
Babcock Valves has the expertise, the know-how and the industrial experience of a company with almost half a century of history behind it, and a legacy of over 1.200.000 valves installed all around the world.

At Babcock Valves our commitment to our customers is underlined by a combination of tradition and continuous innovation.

Our name is recognised around the world as a benchmark for reliability and service excellence, with hundreds of customers expressing their satisfaction with our supplies, taking advantage of the right performances of our valves for years.







Quality & Certifications

To guarantee high levels of quality for all of our products, our Quality Assurance Department implements a rigorous control and testing system throughout the manufacturing process. Moreover, Babcock Valves keeps an operational quality control and assurance manual that enables us to maintain optimum quality levels.

All of our products are tested during the design phase and after assembly, prior to shipment. Testing includes cryogenic tests, hot cycle tests, multi-axis vibration tests, aging tests, flow and pressure tests, seismic resistance tests, valve hammer-impact tests, actuator tests and others.

Our valves are designed, manufactured and inspected, in accordance with the most relevant international standards, such as:

API	(American Petroleum Institute)	AFNOR	(Association Française de Normalisation)
ANSI	(American National Standards Institute)	MSS	(Manufacturers Standardization Society)
AWWA	(American Water Works Association)	ISO	(International Standards Organization)
DIN	(Deutsche Norm)	UNE	(Spanish Standard)
JIS	(Japanese Industrial Standards)	EAC	Eurasian Conformity
BS	(British Standards)		

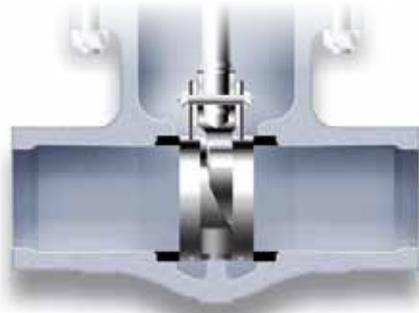


Babcock's Gate Valves

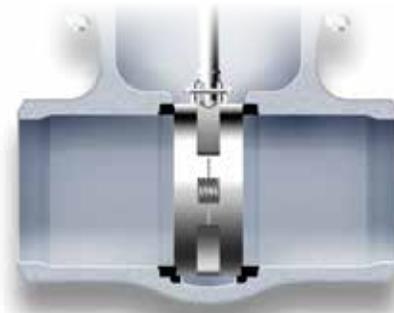
Product Range



Wedge Gate Valves



Double Disc Valves



Parallel Slide Disc Valves



Through Conduit Valves



WEDGE GATE VALVES
PRODUCT RANGE





Wedge Gate Valves

Complying with the requirements of the industrial sector.

Wedge gate valves are commonly supplied with solid wedge up to 2" size and with flexible wedge for larger sizes. The latter design consists of two independent and flexible wedge halves, that allow a relative movement to accommodate changes in the body seat angles. The result is a valve with a high pressure sealing performance, with optimum results at low differential pressures, meeting industrial valve requirements, moved toward larger sizes and higher pressures and temperatures.

Our utmost care when machining and lapping wedge and seats, and the flexible wedge design for sizes beyond 2", assure valve tightness on both sides regardless of the operating pressure.

Carbon steel, alloy steel, stainless steel and other valve materials may be selected depending on the fluid and pressure and temperature conditions following ASME B16.34 standard.

The standard wedge gate valves shall be outside screw and yoke, non-rotating stem, T-head stem-wedge connection and welded / threaded / integral seats. The valve can be manually operated or by means of an electric, pneumatic or hydraulic actuator.

The most common standards used are:

Design: ASME B16.34, API 600 for cast valves and API 602 for small size forged valves.

Testing: API 598 and ASME B16.34.



Code: 22
Type: Wedge Gate
Bonnet: Bolted
Handling: OS&Y
Sizes: 1/2" - 72"
ANSI Class: 150-2500



Code: 25
Type: Wedge Gate
Bonnet: Pressure Seal
Handling: OS&Y
Sizes: 2" - 48"
ANSI Class: 600-4500



Code: 84
Type: Wedge Gate Cryogenic
Bonnet: Bolted
Handling: OS&Y
Sizes: 2" - 48"
ANSI Class: 150-900



DOUBLE DISC GATE VALVES
PRODUCT RANGE



BABCOCK
VALVES





Double Disc Gate Valves

The most reliable shut-off valve.

The so called double disc valve incorporates a double disc, wedge and seat system which makes this design unique, being designed to assure a reliable operation under the most severe service conditions.

The two independent trunnion mounted discs which permit each disc to rotate a few degrees during closing. This rotating feature allows the discs to seat in a different position on each closing stroke which provides even wear and prevents small imperfections from growing into major leaks.

The double wedging assembly is designed to impart the stem thrust to each disc which provides bi-directional sealing at low or zero differential pressures. As the differential pressure across the valve increases, the seating load on the downstream disc increases to provide high differential pressure sealing while the upstream disc moves away from the upstream seat; and allows the valve to be used in applications with large thermal transients.

This valve is commonly used for isolation of boiler water main feed lines. It is also very useful for cryogenic applications, when the effect of the differential thermal contraction may require an extra thrust to close the valve properly (zero-leakage).

A wide range of construction materials, actuation systems and accessories are available for each case.

Design: ASME B16.34, API 600, BS 1414.

Testing: ASME B16.34, API 598, BS EN 12266-2.



Code: 82
Type: Double Disc
Bonnet: Bolted
Handling: OS&Y
Sizes: 2" - 72"
ANSI Class: 150-900

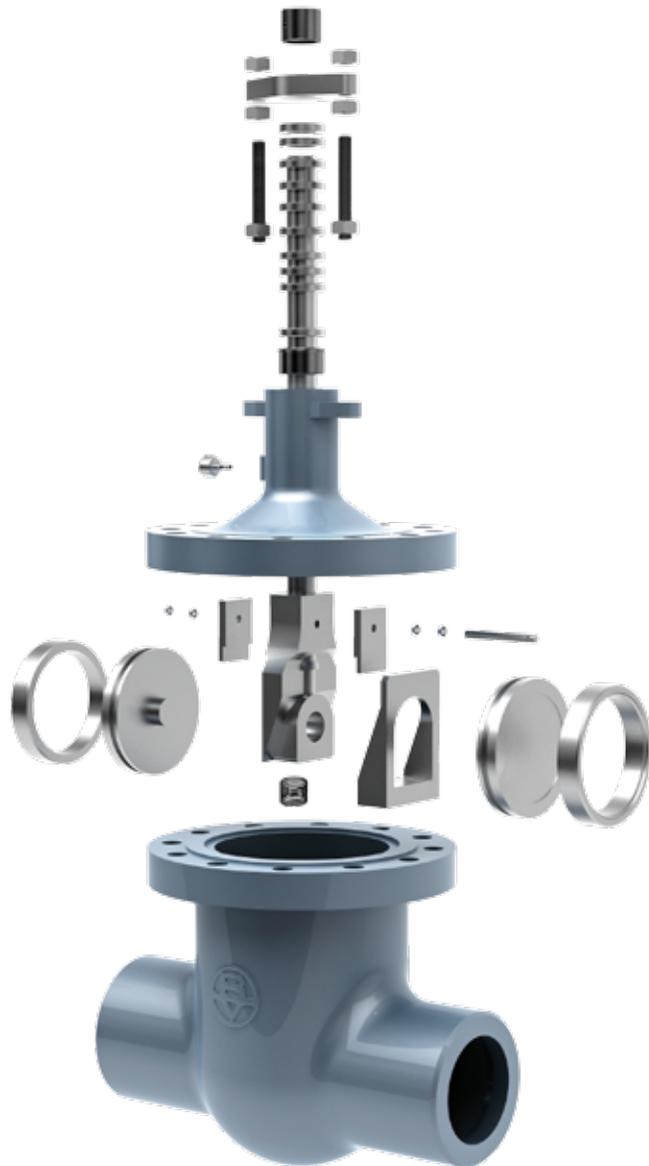


Code: 85
Type: Double Disc
Bonnet: Pressure Seal
Handling: OS&Y
Sizes: 2" - 48"
ANSI Class: 600-4500



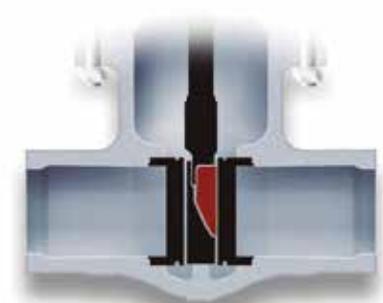
Code: 83
Type: Double Disc Cryogenic
Bonnet: Bolted
Handling: OS&Y
Sizes: 2" - 48"
ANSI Class: 150-900

Technical Advantages of the Double Disc Wedge Assembly



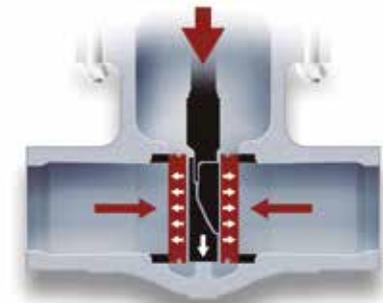
RELIABLE OPERATION

The double disc gate valve has been designed to assure reliable operation under the most severe service conditions. Due to the special configuration and geometry of the upper wedge inclined face, any possibility of locking the disc in closed position is eliminated, even when closed quickly or subjected to severe thermal transients.



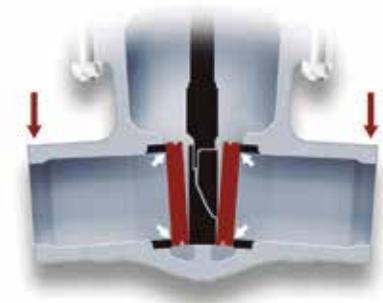
LOW PRESSURE SEALING

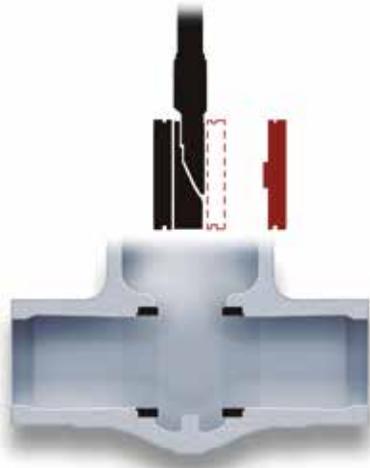
The wedge assembly is designed to impart sufficient thrust to each disc to maintain low pressure sealing. As the differential pressure across the disc increases, the seating load also increases, thus providing a tight seal throughout the entire range of operating differential pressures. Since the discs are independent of each other and the design is symmetrical, positive sealing can be maintained in either direction.



UNIFORM DISTRIBUTION OF SEALING PRESSURE

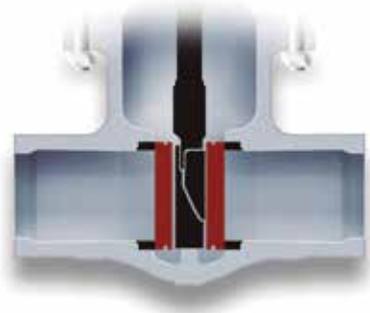
The tight seal is guaranteed even when the valve seats have become out of parallel due to body distortion, due to the uniform distribution of the sealing pressures allowed by the exclusive wedge design.





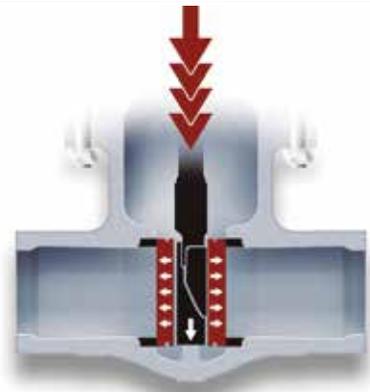
EASY MAINTENANCE

The four piece double disc wedge assembly can neither be incorrectly assembled nor become disengaged while in service. No special fitting at site is required for maintenance. The repair of minor seat or disc damage is greatly simplified because the seats and discs can be lapped independently of each other. Disassembly and maintenance can be accomplished without special tools or elaborate rigging.



UNIFORM SEAT WEAR

The incorporation of a unique revolving disc feature assures maximum seat life. The two independent discs, during each closing stroke and immediately prior to the disc seating, rotate a few degrees in the plane of the seats. This rotating action forces the disc to seat in a different position on each stroke, equalizing wear on the seats and the discs. This movement of the discs creates a lapping effect whenever the valve is operated, removing particles from the sealing surfaces before they can become wedged between the seats and the disc and cause damage.



RAPID CLOSURE

Babcock's double disc wedge system permits rapid closure without seat distortion. Internal moving parts decelerate independently of each other with the result that inertial forces are dissipated in a series of impacts over a period of time. The largest force is transmitted directly to the bottom of the valve body on a non-sealing surface. Forces transmitted directly to the seats are a small percentage of the total inertial forces. This is a distinct advantage over valve designs in which the total inertial force is absorbed directly by the seating surface.





PARALLELSLIDEGATEVALVES
PRODUCT RANGE





Parallel Slide Gate Valves

Reliability with low operating forces

The parallel slide gate valve is an alternative to double disc valves, having two discs but only one wedge instead of two. The discs are in permanent contact with the seat rings, getting a tight seal due to the horizontal inconel spring located in between and without the wedging system help.

The complete guiding system is precisely machined for ensuring a smooth open and close operations and eliminating vibrations.

The parallel slide gate valve is recommended to be used for clean fluids and steam applications and for medium or high pressure service.

A wide range of construction materials, actuation systems and accessories are available for each case.



Code: 87
Type: Parallel Slide
Bonnet: Bolted
Handling: OS&Y
Sizes: 2" - 48"
ANSI Class: 150-900



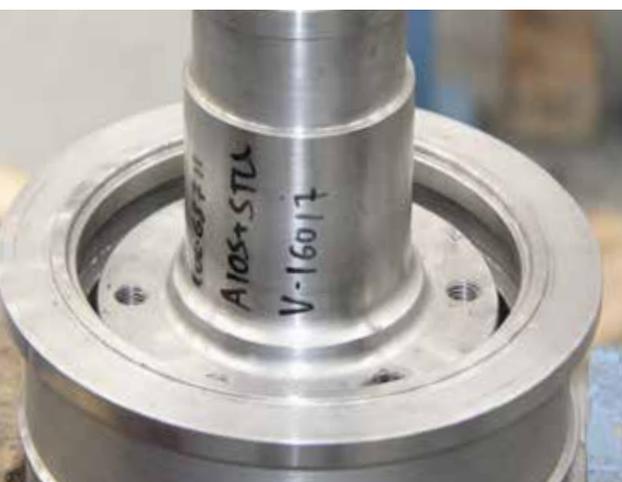
Code: 89
Type: Parallel Slide
Bonnet: Pressure Seal
Handling: OS&Y
Sizes: 2" - 48"
ANSI Class: 600-4500



Code: 88
Type: Parallel Slide with follower eye
Bonnet: Bolted
Handling: OS&Y
Sizes: 2" - 60"
ANSI Class: 150-900



Code: 86
Type: Parallel Slide with follower eye
Bonnet: Pressure Seal
Handling: OS&Y
Sizes: 2" - 48"
ANSI Class: 600-4500



Exploded view of the parallel slide system, showing all the parts involved in this assembly.

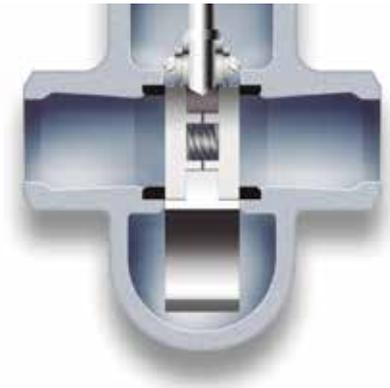
Parallel Slide Design Main Features



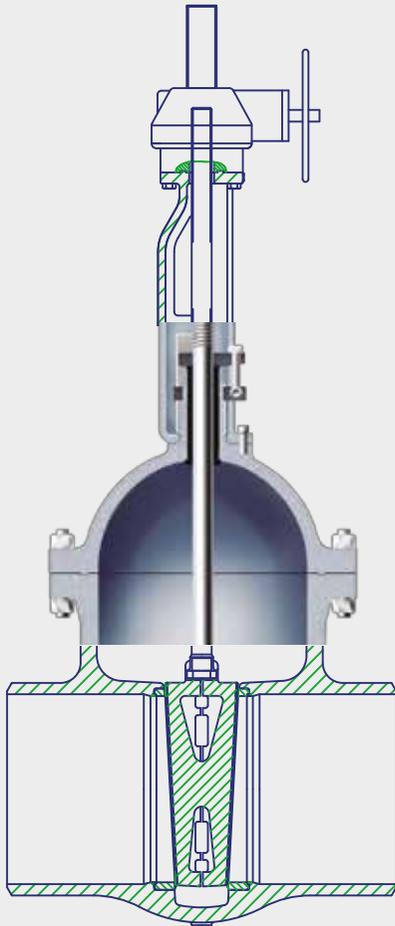
- Two discs and just one wedge design gate valve.
- Parallel slide gate valve provides a smooth flow path between seats.
- This design of gate valve is commonly used for clean fluids and steam applications.
- System pressure is used to provide isolation. The closing is only made over one of the seats. The higher pressure in the system, the better closing tightness.
- The discs have a certain movement to assure its right alignment with the seats contact faces when closing (seal is established on outlet seat face only), avoiding any mechanical stress.
- The inconel spring located between both discs, provides initial seating force. Once the discs are in the right position, no additional torque is necessary to achieve a positive seal.
- Torque requirement is lower than other gate valves as wedge type because needs lower operative forces.
- The wiping action of the discs over seats while the valve is operating removes debris and prevents premature wear of the components. A long life service is guaranteed by means of hardening seats and discs with an extra hard material as Stellite 6, Tribaloy or others.
- Parallel slide system avoids jamming related to cooling down of the pipeline.
- A wide range of construction materials, actuation systems and accessories are available for each case.

CODE 86 - 88:

Follower eye for very laminar flow is available on request. It avoids any turbulences and minimizes the pressure drop.



BOLTED BONNET



The most common connection between valve body and bonnet for ASME ratings up to 600 is with bolts and is usually called Bolted Bonnet. Under demand, it can be also used for high pressure applications up to class 2500.

The Babcock's strong designs and a precision machining of bodies and bonnets shall guarantee the best performances of the valves during operation.

The right sealing between body and bonnet is made by designing a more than sufficient type and number of bolts, and selecting the best gasket for each service.

There are different joint / gasket designs for each applicable ASME rating. A flat oval gasket is normally used for low pressure (class 150) and a spiral wound gasket for intermediate pressures (class 300) and high pressure (class 600). Other type of joints as corrugated or ring type are also available under demand.

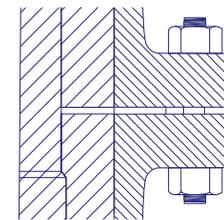
NOTE:

For Class 900 and superior, the Bolted Bonnet gasket used is RTJ.

STANDARD BOLTED BONNET GASKETS

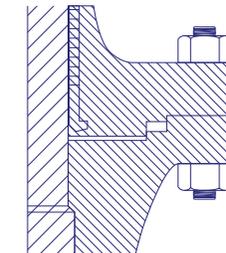
Class 150

Detail for
FLAT GASKET



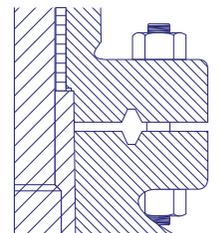
Class 300

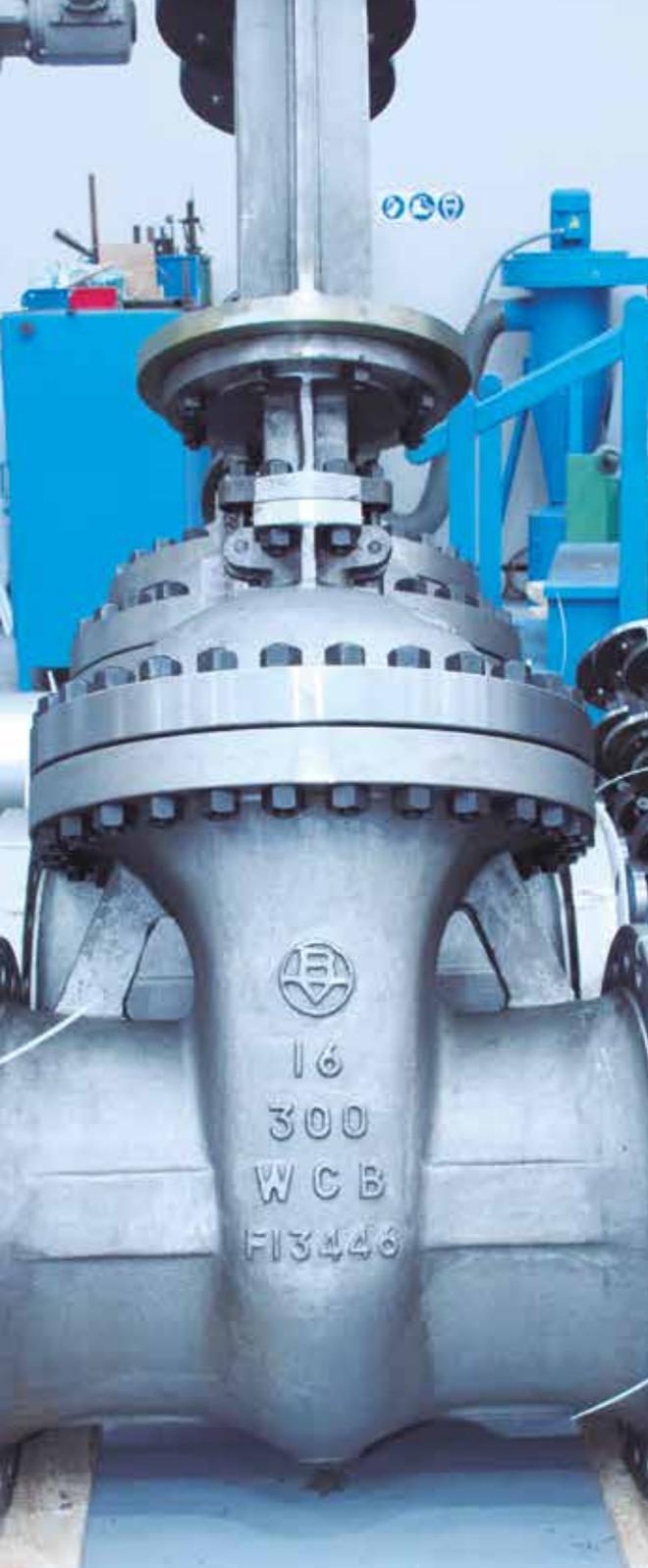
Detail for
SPIRAL WOUND GASKET



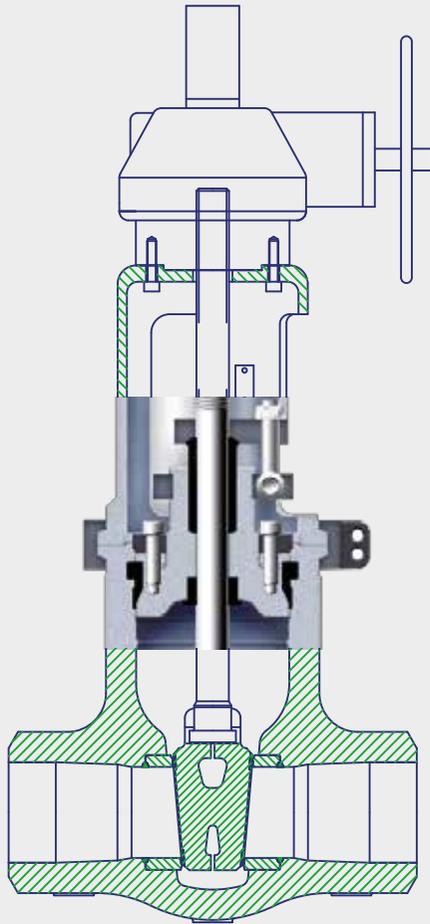
Class 600

Detail
for RTJ GASKET





PRESSURE SEAL BONNET



Our Valves can adopt pressure seal bonnets to allow high pressure service, typically in excess of 15 Mpa (2250 psi).

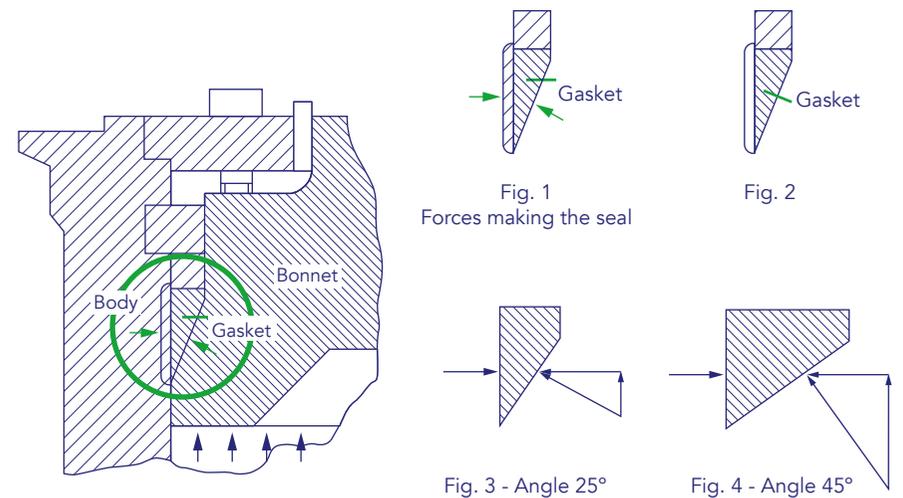
The main feature about the pressure seal bonnet is that the body-bonnet joints seals improves as the internal pressure in the valve increases, compared to other constructions where the increase in internal pressure tends to create leaks in the body-bonnet joint.

The basic operation of this kind of valve, where the seal is achieved from the pressure exerted by the fluid flowing trough the valve, is as follows:

Internal pressure forces the bonnet upwards against the gasket, creating forces in the contact areas between the gasket and the bonnet and between the gasket and the body.

Leaks most commonly arise at the contact surface between the gasket and the body. The area where the body is in contact with the joint is covered by stainless steel, improving surface's quality and avoiding corrosion issues.

Gaskets are carefully designed to produce a tight seal regardless of the line conditions, that can be easily dismantled for maintenance operations.



GENERAL DESCRIPTION

The basic operation of this kind of valve, where the seal is achieved from the pressure exerted by the fluid flowing through the valve, is as follows.

Internal pressure forces the bonnet upwards against the gasket creating forces in the areas of contact between the gasket and the bonnet (wedge shaped area) and between the gasket and the body (valve passage area). See (Fig. 1). The quality of the seal between the surfaces depends upon two basic considerations, these being the surface quality of the areas in contact, and the degree of force (load per unit area) which holds them together.

It is easier to achieve the seal from the two gasket surfaces where a seal is made (gasket-bonnet and gasket-body) in the gasket bonnet contact area, in comparison to the larger component of the force exerted by the pressure inside, and it is more than sufficient to provide a tight seal.

Leaks most commonly arise at the contact surface between the gasket and the body. The area where the body is in contact with the joint (Fig. 2) is covered with stainless steel, and this improves surface quality and avoids corrosion problems. The force actuating between the contact joint body surfaces is the horizontal component of force perpendicular to the contact surfaces between the bevelled surfaces of the joint and bonnet. The efficiency of the seal between the gasket and body is determined basically by the gasket angle, which in turn determines the horizontal force component that will act upon them. The smaller the gasket angle, the greater the horizontal component is, and hence, the harper the angle on the bevelled surface, the greater the horizontal component, and the better the seal.

A gasket designed with a 25° angle (Fig. 3) will turn into radial force, a greater component of the force exerted by the pressure from the line on the bonnet, than a gasket designed with an angle of 30° 45° (Fig.4). Moreover, in order to achieve large unitary loads, the surface upon which the force is exerted may be reduced, with checks being performed to ensure that the surface is sufficient to support the load without cracking.

When a pressure seal joint is required to seal over a large range of pressures, there may be difficulties. A gasket which is sufficiently small so as to seal under a pressure of 500 psi. may not support 2.500 psi. A way to overcome this problem is to design the gasket bonnet contact surfaces to have a difference of one degree between them (Fig. 5). Before the gasket is tightened, only its edge is in contact with the bonnet (Fig. 6). Under pressure, one part of the gasket will deform and enter into contact with the bonnet (Fig. 7).

A careful design of the gasket pressure seal angle will prevent those more serious difficulties found with large angle gaskets (30°-45°). With a narrow gasket angle (25°), a tight seal can be achieved by applying little pressure, and once the seal has been made, it will stay tight regardless of line conditions. Certain tests performed with narrower gaskets (15°-20°), showed that the seal became so tight that it was impossible to remove the gasket. A gasket of approximately 25° is found to produce a seal that can be easily dismantled.

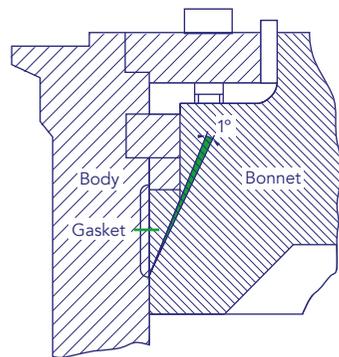
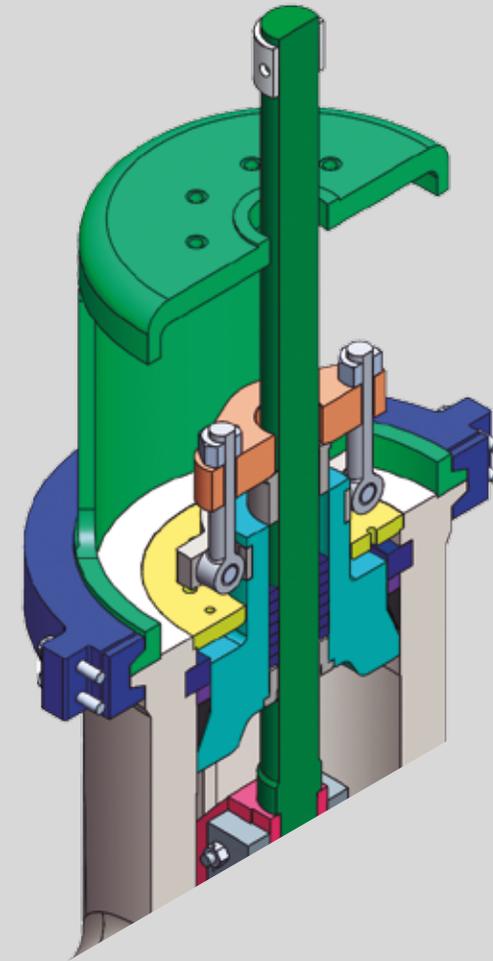


Fig. 5

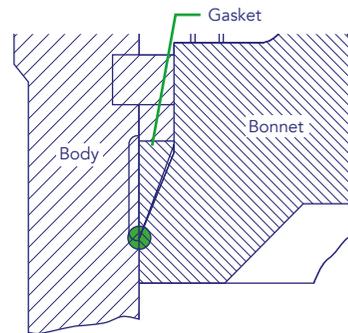


Fig. 6

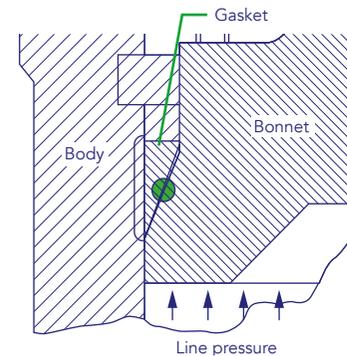
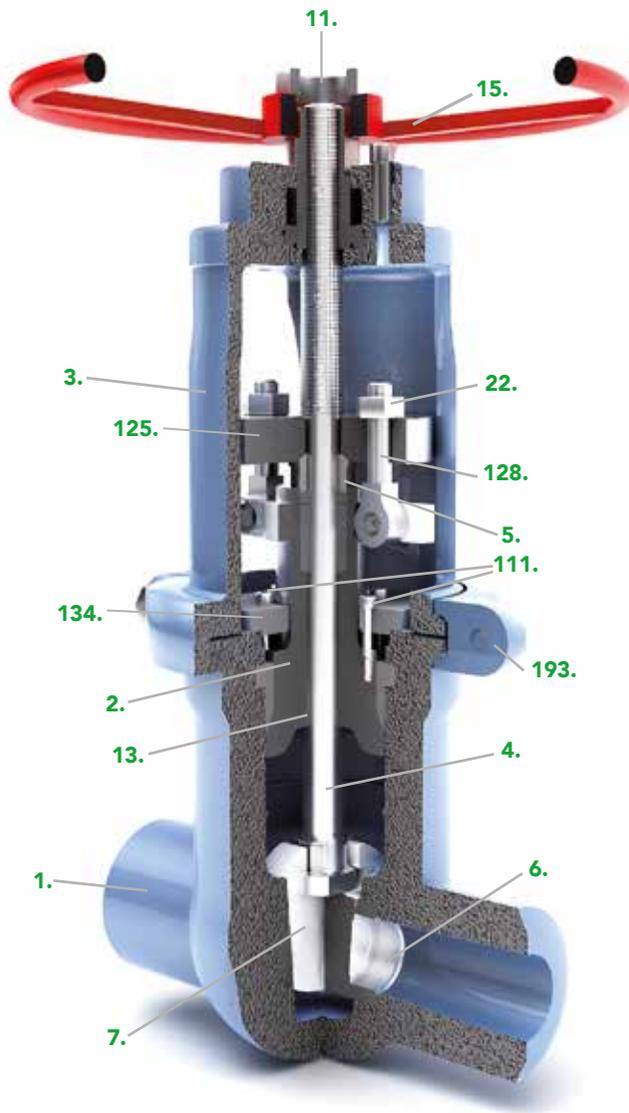


Fig. 7



Gate Pressure Seal Valve Main Parts



1. BODY

Available both in cast and forged steel, it has been designed to meet all the requirements of ASME, API and British Standards.

The body-bonnet connection is made by a pressure seal gasket. Its pre-stress condition is achieved by means of bolts screwed to the bonnet flange.

Ends are normally buttwelding although they can be also flanged on request.

All bodies are provided with integrally cast bosses, located and sized in accordance with ASME B16.34, which allow the provision of drain and by-pass connections, supplied on request.

Double Disc

Four internal guides keep the discs assembly in place, enabling operation of the valve with stem in both vertical and horizontal positions.

Two internal bosses in the lower part of the body are machined to create the mechanical stop of the lower wedge.

2. BONNET

Usually constructed in the same materials as the body, being designed so that the wall thickness always exceeds the requirement of API 600.

A back seat bush (13.) is fitted inside the bonnet lower cavity, to provide a closure when the valve is fully opened. This permits the valve to be repacked while in service.

The bonnet has a deep stuffing box in which packing rings are placed.

Stuffing box is designed with sufficient space to allow lantern ring to be fitted.

3. YOKE

Separate rigid yoke provided to withstand the thrust of the actuator. Large windows allow easy access and ventilation of the packing area. The yoke is connected to the body by a two piece clamping ring (193.) and four clamp bolts. This connection is very solid and enables easy maintenance at site.

The upper part of the yoke is suitably machined to house the yoke sleeve (11.).

The yoke is usually made of cast carbon steel regardless the type of body material, unless otherwise required by the client.

4. STEM

Constructed in stainless steel, machined from solid bar stock. The single piece stem in connected to the wedge by a tee connection.

A conical shoulder is also provided to ensure effective and tight seal backseat which allows the stuffing box to be replaced with the valve in service. The stem dimensions conform to API 600. Connection stem-wedge also meets the requirements of API 600. Pull test has been carried out to verify the design. Special care is taken in the machining of the stem, including the final polishing of the travelling area (contact with the stuffing box). This allows a low-friction surface and a superior corrosion resistance.

Double Disc

Constructed in stainless steel, machined from solid bar stock. The simple piece stem in threaded in the upper wedge.

22. / 128. GLAND BOLTS AND NUTS

The gland studs are of the eyebolt type, which can be swing outwards for ease of gland repacking.

5. / 125. GLAND BUSHING AND GLAND FLANGE

They are supplied in two separate self aligning pieces, to ensure uniform pressure is effected during tightening of the packing.

The upper part of the gland, which comes in contact with the gland flange, is spherical in shape.

The gland flange is made of carbon steel but, upon request, other materials can be supplied.

6. SEAT RINGS

They are supplied in forged stainless steel, hardfaced with Stellite-6 (2 mm of minimum thickness). Seat rings are renewable, normally welded to the body.

Sealing contact surfaces, are lapped for a perfect tight seal. Controlled hardness differentials are maintained between the wedge discs and the seat rings, as required by API 600 Std.

7. WEDGE

The wedge is normally constructed in forged stainless steel for diameters up to 3", and in cast steel for larger sizes.

Wedge is commonly flexible, though it can be also solid. Guides are carefully machined for a smooth sliding in the body cast-in guides.

Contact faces are overlaid with stellite-6 (2 mm of. minimum. thickness).

193. YOKE CLAMP

The connection between body and yoke is created by means of a bipartite clamping ring. The internal connection between the clamp, body and yoke is conical, assuring a perfect tightening.

11. YOKE SLEEVE

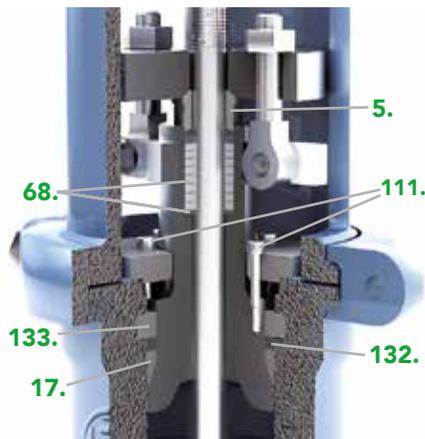
Designed to permit removal from the bonnet or yoke while the valve is in service.

The yoke bushing assembly is mounted in ball bearings. It is normally made of cast aluminium bronze, having high resistance to wear and high melting point. Other materials such as Ni-resist can be supplied on request.

13. BACK SEAT

The back seat can be supplied as a threaded stainless steel bush, welded to the bonnet or of integral type. It can be hardfaced with Stellite-6 or other materials as required.

This seat allows the valve to be repacked under pressure.



15. HANDWHEEL

The handwheel can be supplied either in cast construction or fabricated from steel tube.

The handwheel is designed to allow easy operation of the valve. Other types of control are available and, in some cases, are indispensable for a good operation, for instance:

- Chain wheel
- Gear operator
- Hammer handwheel
- Geared hammer handwheel
- Electric actuator
- Electro-hydraulic actuator
- Pneumatic actuator

17. PRESSURE SEAL GASKET

The pressure seal gaskets are usually supplied of compressed graphite, bordered on the upper and lower edges with braided filaments of graphite and Inconel.

Gaskets can also be made in stainless steel.

68. PACKING

Packing is made of an adequate number of preformed rings.

For general applications high grade graphite material is supplied, using compressed rings in the center and braided anti-extrusion rings on top and bottom. Graphite is selected of an approved quality.

Other types of packing are also available for particular services.

132. SPACER RING

Made of a single piece covering the upper part of the pressure seal gasket. It is normally manufactured in the same material as the body.

133. GASKET RETAINER

It is made normally of the same material as the body, and constructed in four pieces, called segments. The segments are sized to minimize the gap among them.

The segmental ring supports all the forces transmitted from the bonnet through the spacer ring. It is calculated to withstand all the force without cracking.

134. BONNET RETAINER

Designed sufficiently resistant to withstand the forces transmitted by the bonnet screws (111).

The bonnet retainer is normally made of the same material as the body, but it can be constructed in any other material on request. It is machined to match exactly with the body, what guarantees a perfect alignment of the unit.

Double Disc

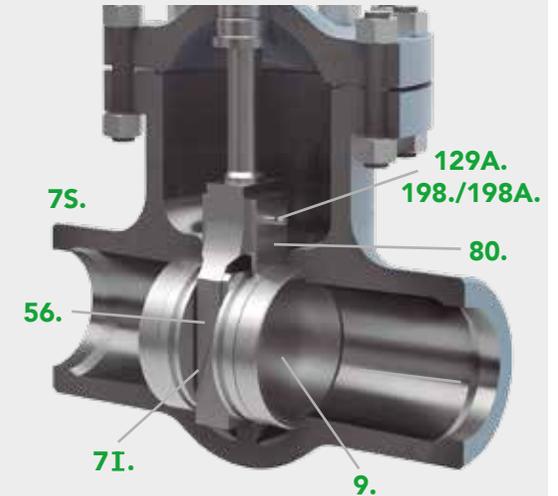
7S. / 7I. UPPER & LOWER WEDGES

The wedges are constructed in forged or cast steel of the same material than the body. The contact surfaces are hardfaced with Stellite-6. The special geometry of these wedges has been designed so that they cannot become disengaged while they are sliding. The wedges impart thrust to the discs which move towards the seat rings (6) assuring a tight seal.

Two wedge springs (56) are located in the cavities between the upper and lower wedges, in order to absorb the inertial forces and permit a soft contact of the sliding inclined part of the wedges.

9. DISCS

The two forged discs are made of the same material than the body, and the seating areas are hardfaced with 2 mm minimum thickness of Stellite-6.



80. DISC RETAINERS

The disc retainers are made of the same material than the body. They are firmly connected to the upper wedge and keep the discs in place while allowing their revolving feature.

The system of Stem, Discs, Upper Wedge and Disc retainers are crossed by a Wedge Pin (198) of Stainless Steel, connected by two nuts (129 A) and cotter pins (198 A).



THROUGH-CONDUIT GATE VALVES
PRODUCT RANGE





Through-Conduit Gate Valves

For oil and gas transportation

Through conduit is a type of gate valve designed as per API 6D for transmission pipelines service. The valve is full port design, with same inside diameter than the upstream / downstream pipe to allow the cleaning equipment to travel through. The double block and bleed design permits a complete flushing, and drainage and venting of the valve cavity through the drain valve located at the bottom of the body.

The wedge is a slab type gate with parallel faces, and the seats are floating, spring-loaded, with PTFE inserts. Valve seats float against the disc by means of the springs located behind, ensuring a constant contact between seats and disc regardless of operating pressure.

The standard material for the valve body is carbon steel, although a wide range of construction materials are available either for the body/bonnet and for the internals.

The parallel expanding valves have two parts, wedge and segment, which expand against the seats when getting in contact. The standard sealing is made by means of the elastomer surface on the seats although metal-to-metal design is also available.



Code: 10
Type: Through-Conduit
Bonnet: Pressure Seal
Handling: OS&Y
Sizes: 2" - 48"
ANSI Class: 600-4500



Code: 83
Type: Parallel Expanding
Bonnet: Pressure Seal
Handling: OS&Y
Sizes: 2" - 48"
ANSI Class: 600-4500



Code: 00
Type: Through-conduit
Bonnet: Bolted
Handling: OS&Y
Sizes: 2" - 60"
ANSI Class: 150-900



Code: 81
Type: Parallel Expanding
Bonnet: Bolted
Handling: OS&Y
Sizes: 2" - 60"
ANSI Class: 150-900

Accessories and Special Equipment

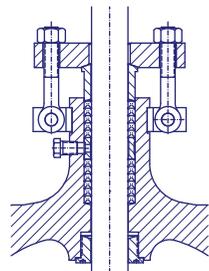
Babcock Valves can supply gate valves with any kind of actuator system:

- Electric
- Pneumatic
- Manual with bevel or spur gear
- Hydraulic
- Others

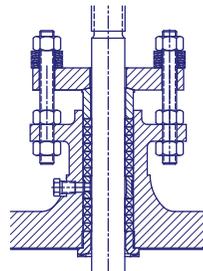
We are also able to supply our gate valves with any kind of accessory, from stem extensions and chain wheels to position indicators, locking devices, pressure relieving systems, lantern ring device, by-passes, limit switches, etc.

For further information, contact our sales team at info@babcockvalves.com.

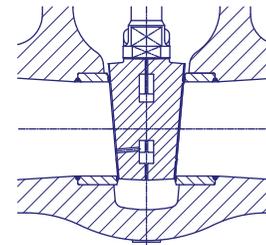




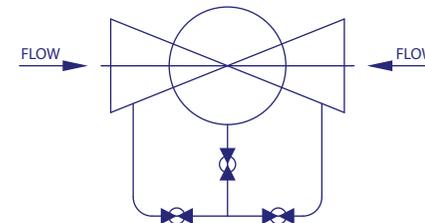
Lantern ring



Live loading packing



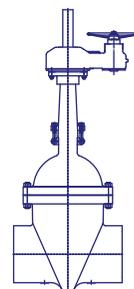
Balance hole



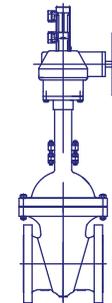
Bypass



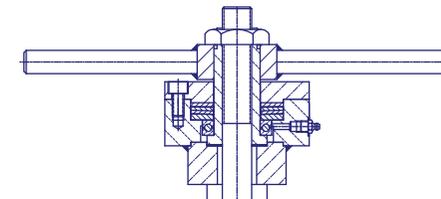
Stem extension with floor stand and universal joint



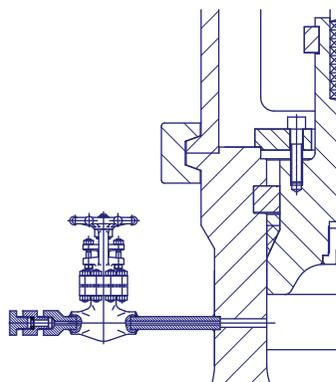
Horizontal spur gearing



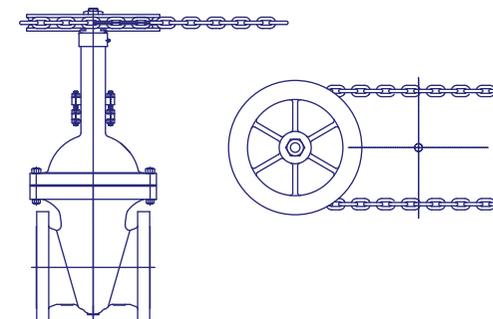
Limit micro switches



Dilatation compensating device



Overpressure protection device



Handwheel with chain

1.200.000 different valves. A single philosophy.

Each day, an army of Babcock valves works silently and tirelessly for many of the industries that really move our world.



www.babcockvalves.com

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nearest seaport: Bilbao 6 Km.

Reliability. One world. A meaningful philosophy.

We have had this concept in mind since our inception in 1967, as the valve division of Babcock Wilcox Española. We have always understood that the world's leading industries cannot stop operating due to a failed element in their production systems.

That's why we design our valves to last longer, and to be problem-free: so you can forget about them. Because we can imagine the consequences should it be necessary to take a water plant offline, or a gas pipe, due to a technical fault. Or the consequences of any downtime for the power generation industry.

This is why we believe we are still trusted by so many of our initial customers, and the reason why we have over 1.200.000 valves installed in leading companies

around the world. We are mainly present in the following sectors: Power Generation (Nuclear and Conventional), Petrochemical Industry, Oil & Gas, Chemical, Fertilizer, at water treatment plants, etc. Our constant focus on quality is the foundation of our work. Our position as leaders in our sector is backed up by our Design Department that, together with the R+D+I centre, provides solutions to all of our customers' requirements. Our highly qualified workforce constantly strives for improvement and maintains a service ethos in meeting our customers' needs.

This brochure contains the most representative items in our range of valves. However, modern techniques and customer requirements continuously impose material and design challenges, and we can therefore work to any specifications not covered in this catalogue.

Our valves are designed, manufactured and inspected, in accordance with the most relevant international standards, such as:

API (American Petroleum Institute)
ANSI (American National Standards Institute)
AWWA (American Water Works Association)
DIN (Deutsche Norm)
JIS (Japanese Industrial Standards)
BS (British Standards)
AFNOR (Association Française de Normalisation)
MSS (Manufacturers Standardization Society)
ISO (International Standards Organization)
UNE (Una Normativa Española)

