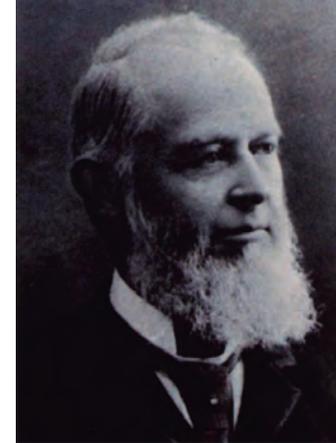


BABCOCK
VALVES

GLOBEVALVES
PRODUCT RANGE





Babcock Valves Heritage

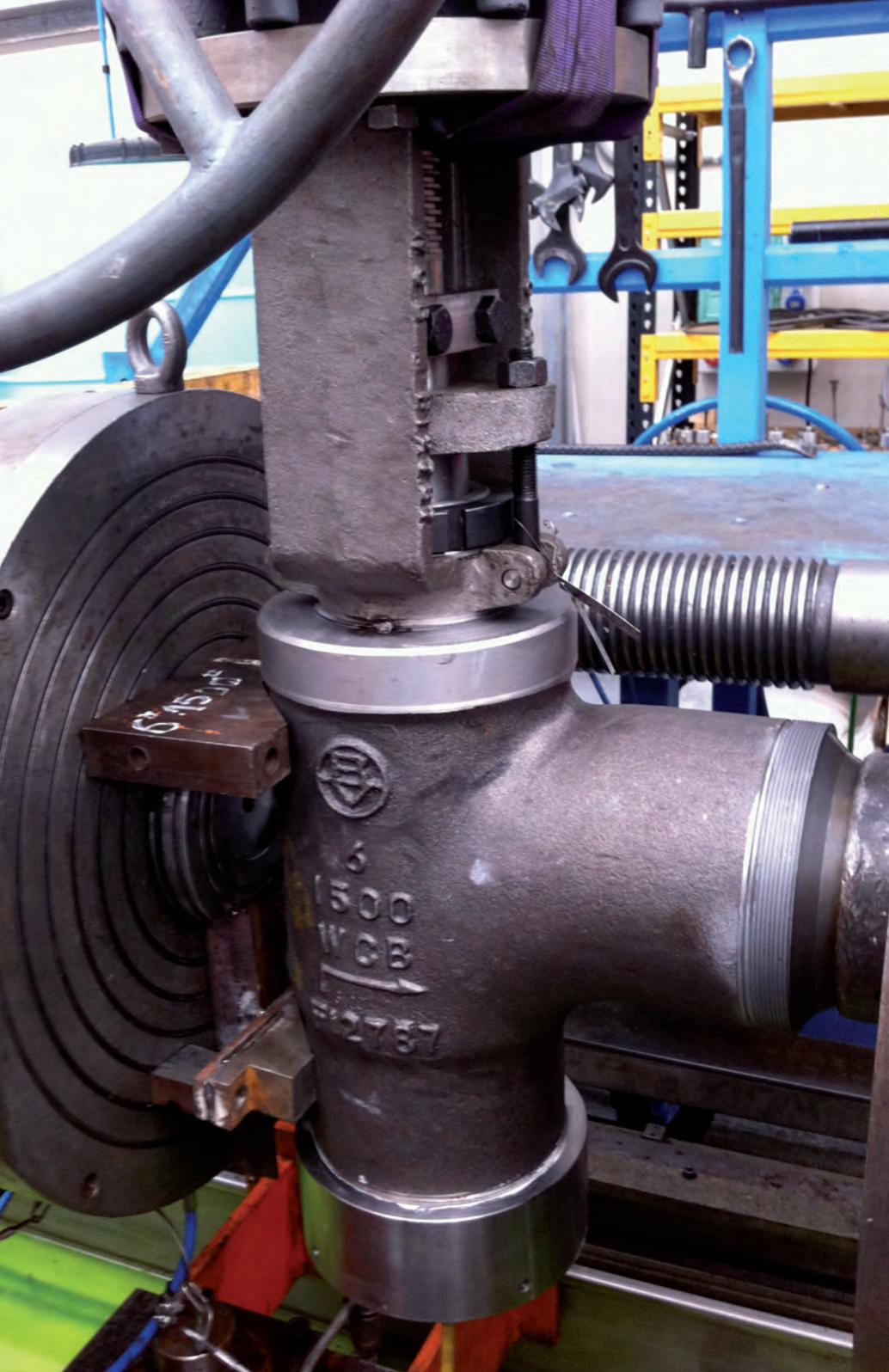
In 1967, Babcock Wilcox Española -present in the Spanish market since 1918- implemented its diversification policy by setting up a valve manufacturing division, which soon became one of the leading players on the international market, thanks to its engineering efforts, developing new designs to improve 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.





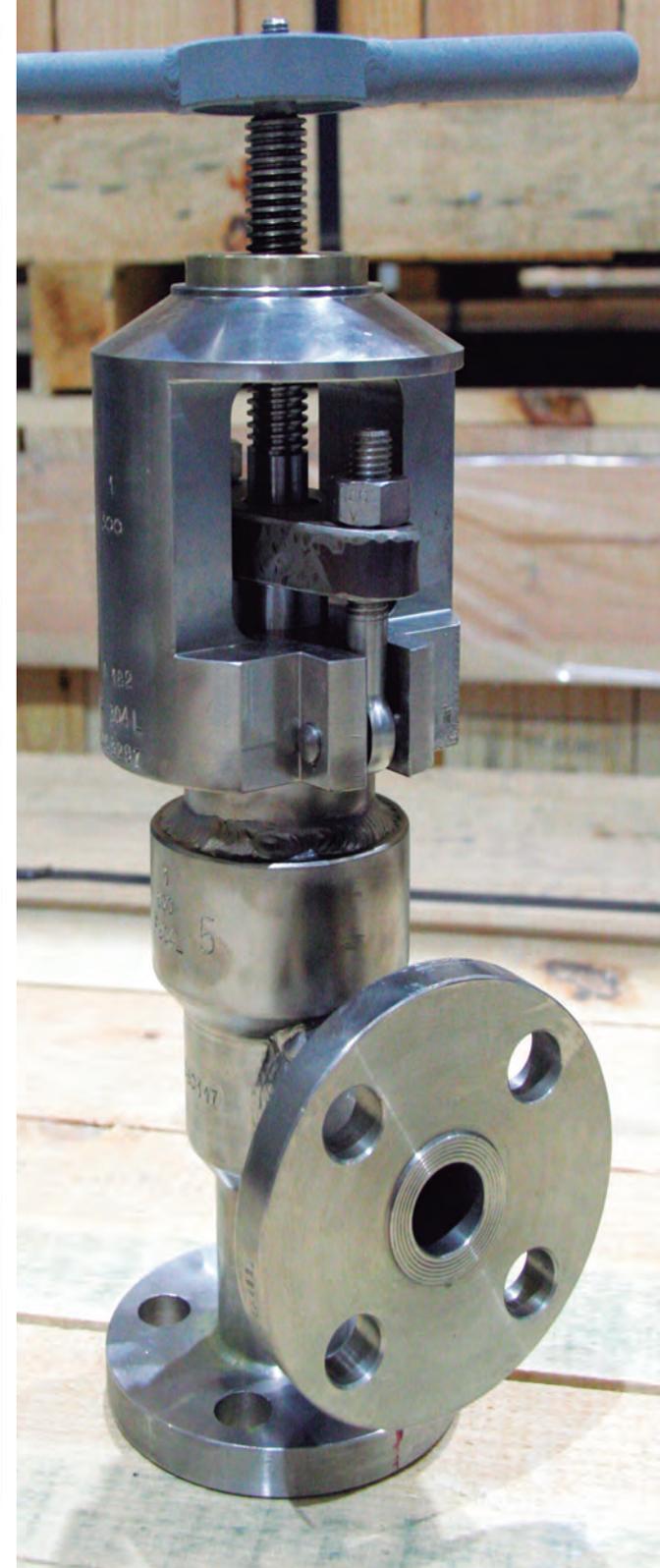
Quality & Certifications

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.

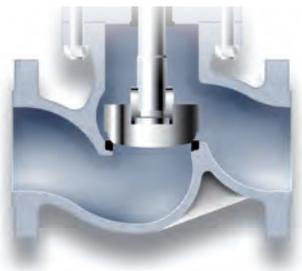
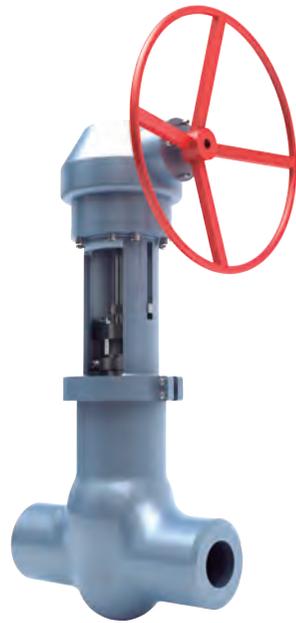
Our valves are designed, manufactured and inspected, in accordance with the most relevant international standards, such as:

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)		

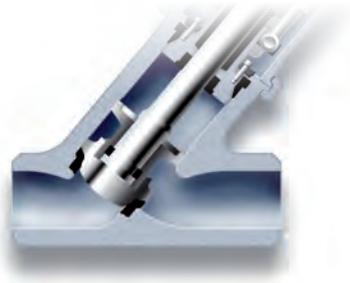


Babcock's Globe Valves

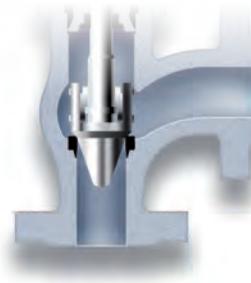
Product Range



Straight Globe Valves



Y-Globe Valves



Angle Globe Valves



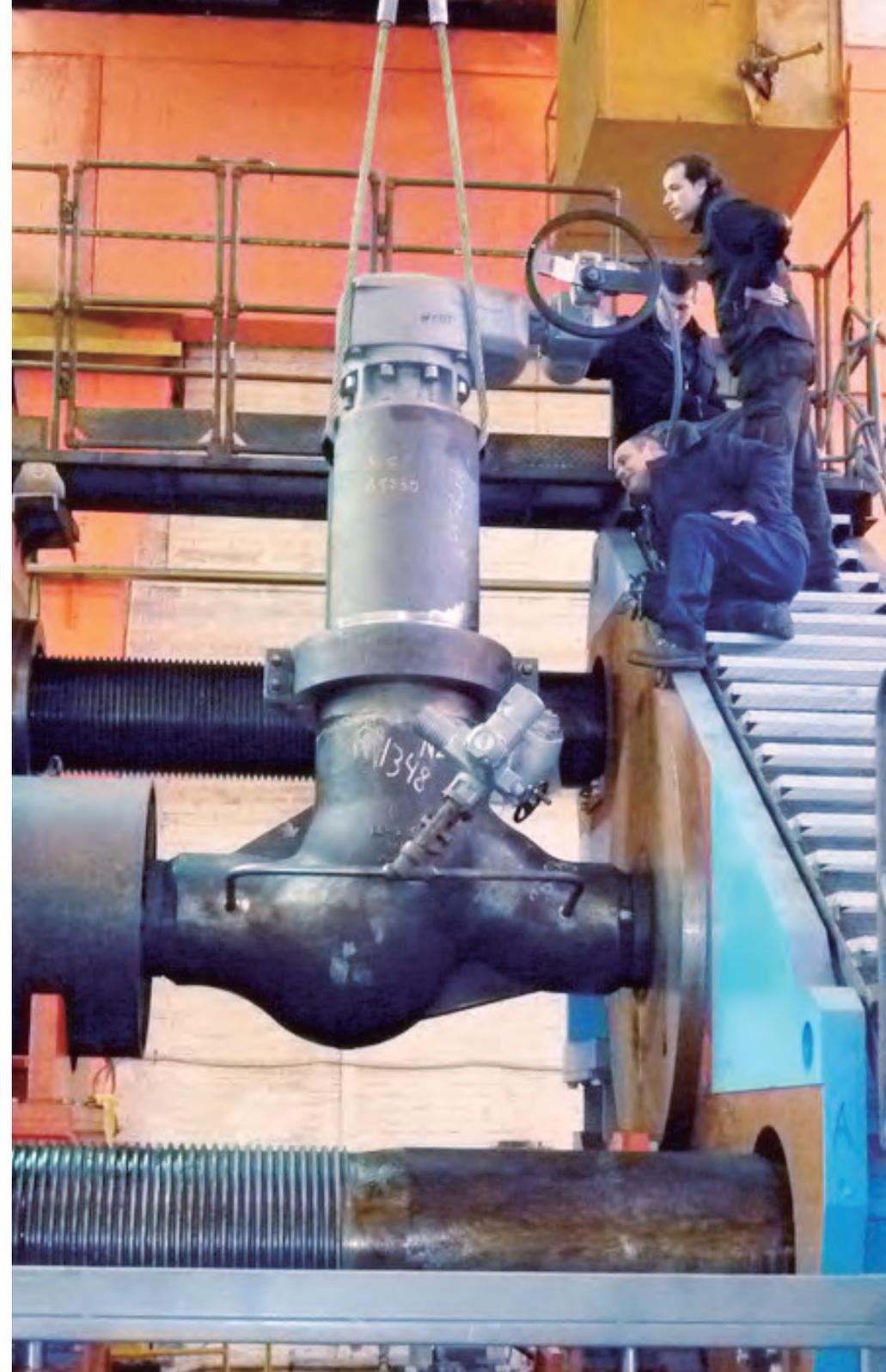
Y-Angle Valves



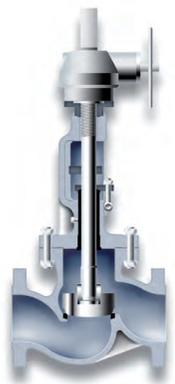
Stop-Check Valves



STRAIGHT GLOBE VALVES
PRODUCT RANGE



Straight Globe Valves

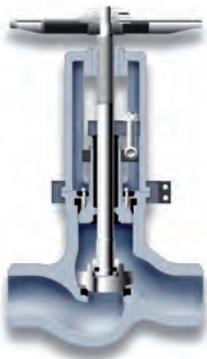


Code: 12 Globe
32 Needle

Bonnet: Bolted

Sizes: 1/2" - 48"

ANSI Class: 150-2500

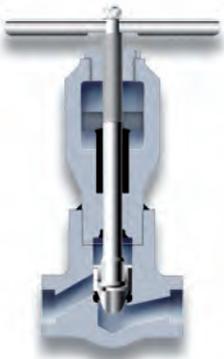


Code: 15 Globe
35 Needle

Bonnet: Pressure Seal

Sizes: 2" - 24"

ANSI Class: 600-4500

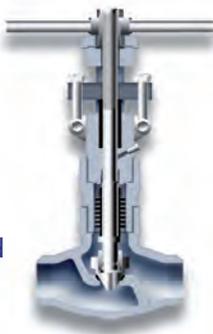


Code: 11 Globe
38 Needle

Bonnet: Threaded & Welded

Sizes: 1/2" - 3"

ANSI Class: 150-4500



Code: 17 Bellows Seal Globe
37 Bellows Seal Needle

Bonnet: Threaded & Welded

Sizes: 1/2" - 3"

ANSI Class: 150-1500



Code: 78 Bellows Seal Globe

Bonnet: Bolted

Sizes: 1/2" - 24"

ANSI Class: 150-1500



Code: 13 Cryogenic

Bonnet: Bolted

Sizes: 1/2" - 48"

ANSI Class: 150-900

Globe valves are used for regulating flows inside of a pipeline. The desired degree of control or regulation, defines the type of valve and if it should be designed with or without cage guiding.

Where the flow conditions and the regulation requirements are not very severe, this valves are supplied without cage guiding, with flat or conical disc. It is important that the disc guiding be in the body or in the seat, in order to obtain trouble free operation without valve seizing and also a good seat tightness.

For applications that require regulation under severe conditions and where cavitations or flashing may occur, different type of discs (flat, parabolic, needle, ball) and seats are available to guarantee the right performances of the valve under each operating conditions.

Our globe valves are typically constructed from cast carbon steel, stainless steel, alloy steels, and forged steels, under our customer requirements. They are served in a wide range of different designs, that vary from bolted bonnet to pressure seal bonnet, that can be made with threaded in or welded seat.

Apart from straight body design, others as "Y" pattern and angle are also available.



Y-GLOBEVALVES
PRODUCT RANGE





Y-Globe Valves

Babcock Valves' Y-body globe valves are designed with the most advanced technologies obtained from direct experience in boilers fabrication.

Among the different functions of this type of valve, most relevant application is as feed water stop valve, used to protect the water piping between the economizer and the feed water heaters during the hydrostatic boiler test.

These valves are also applicable wherever large volumes of fluid have to be handled at high pressure and/or high temperatures, handling steam and water at acceptable velocities and pressure drops.

DESIGN FEATURES

- Low pressure drop.
- Excellent resistance to thermal changes.
- Quick and easy repair in the line.
- Seat integrally stellited.
- Disc fully guided.
- Renewable disc guide bushing.
- Drop-tight shut-off.
- Pressure seal design with clamp, easy to disassemble.



Code: 72 Y-Globe

Bonnet: Bolted
Sizes: 1/2" - 24"
ANSI Class: 150-900



Code: 75 Y-Globe
 16 Y-Needle

Bonnet: Pressure Seal
Sizes: 2" - 24"
ANSI Class: 600-4500



Code: 71 Y-Globe
 31 Y-Needle
 34 Option Ø Leakage

Bonnet: Threaded & Welded
Sizes: 1/2" - 3"
ANSI Class: 150-4500



Code: 77 Bellows Seal Y-Globe

Bonnet: Threaded & Welded
Sizes: 1/2" - 3"
ANSI Class: 150-600



ANGLEGLOBEVALVES
PRODUCT RANGE





Angle Globe Valves

Babcock Valves' angle globe valves are used for many different applications where stop or regulating of fluid is required under high pressure and/or temperature conditions.

DESIGN FEATURES

- Allows installation in any position.
- Positive shut-off.
- Disc guiding.
- Stellite disc, seat and backseat.
- Welded or integral seat and/or backseat construction.
- Streamlined body flow areas.
- Stem guide collar to prevent stem rotation and serve as indicator for open and close position.
- Pressure seal design with clamp, easy to disassemble.



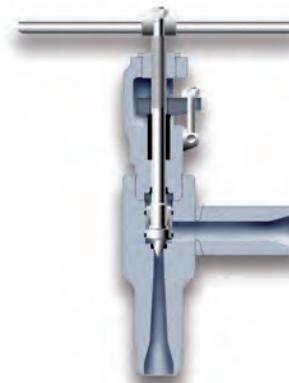
Code: 92 Angle
98 Needle

Bonnet: Bolted
Sizes: 2" - 48"
ANSI Class: 150-900



Code: 95 Angle
96 Needle

Bonnet: Pressure Seal
Sizes: 2" - 48"
ANSI Class: 600-4500



Code: 91 Angle
93 Angle Needle
Intermittent/Continuous
Blow Down Valve

Bonnet: Threaded & Welded
Sizes: 1/2" - 3"
ANSI Class: 150-4500



Y-ANGLE GLOBE VALVES
PRODUCT RANGE





Y-Angle Globe Valves

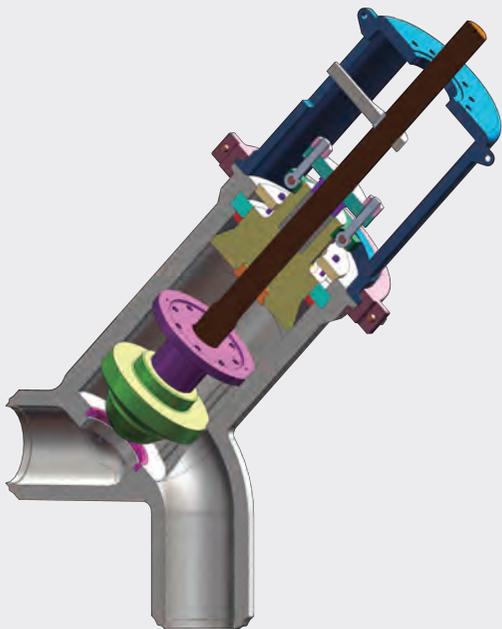
Babcock Valves' Y-Angle globe valve (also called elbow-down) is used at the discharge of circulating pumps on controlled circulation boilers.

Located at the inlet of the vertical discharge line, the valve shall work as a shut-off globe valve.

This design includes all advantages of a Y-body permitting at the same time the elbow outlet connection to the vertical line.

DESIGN FEATURES

- Low pressure drop.
- Excellent resistance to thermal changes.
- Quick and easy repair in the line.
- Equalizer increases disc lift.
- Seat integrally stellite.
- Disc fully guided.
- Renewable disc guide bushing.
- Drop-tight shut-off.
- Pressure seal desing with clamp, easy to disassemble.
- Narrow tapered cone seat faces.
- Stem guide collar to prevent stem rotation.
- Impact gear operator with heavy weight construction.
- A portable air wrench operating from 90 psi plant compressed air supply turns the valve stem.
- Combined radial and thrust berings transmit heavy opening and closing loads.



Code: 14 Y-Angle

Bonnet: Pressure Seal

Sizes: 2" - 24"

ANSI Class: 600-4500



STOP-CHECK GLOBE VALVES
PRODUCT RANGE



Stop-Check Globe Valves



Code: 65 Stop-Check

Bonnet: Pressure Seal
Sizes: 2" - 24"
ANSI Class: 600-4500



Code: 94 Angle Stop-Check

Bonnet: Pressure Seal
Sizes: 2" - 24"
ANSI Class: 600-900



Code: 73 Y-Globe Stop-Check

Bonnet: Pressure Seal
Sizes: 2" - 24"
ANSI Class: 600-4500



Code: 90 Y-Angle Stop-Check

Bonnet: Pressure Seal
Sizes: 2" - 48"
ANSI Class: 600-4500

The stop-check valve is normally used in power plants for safe operation of a boiler. It combines the performances of a globe and a non return valve and can be supplied in straight, Y-type, angle or Y-angle designs.

It is a globe valve with its stem disconnected from the disc. Therefore, when it is in open position, the valve works as a lift check valve with freely movement disc preventing backflow automatically; and when it is close, it will also provide a tight seal. Intermediate stem positions are available limiting the disc travel and controlling the flow rate.

The stop-check valve can then be used for isolation, regulation and prevention of backflow.

OTHER MODELS AVAILABLE



Code: 62
Type: Globe Stopcheck
Bonnet: Bolted
Handling: OS&Y
Sizes: 1/2" - 24"
ANSI Class: 150-2500



Code: 61
Type: Globe Stopcheck
Bonnet: Threaded & Welded
Handling: OS&Y
Sizes: 1/2" - 12"
ANSI Class: 150-4500



Code: 97
Type: Angle Stopcheck
Bonnet: Bolted
Handling: OS&Y
Sizes: 2" - 24"
ANSI Class: 150-900



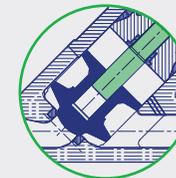
Code: 76
Type: Globe Stopcheck
Bonnet: Threaded and Welded
Handling: OS&Y
Sizes: 1/2" - 12"
ANSI Class: 150-4500

STOP-CHECK PERFORMANCES

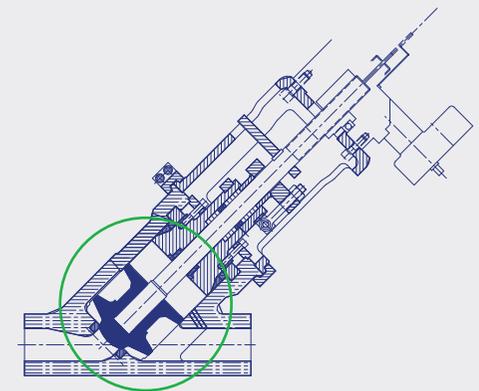


Valve in close position. Fluid cannot not pass through the valve.

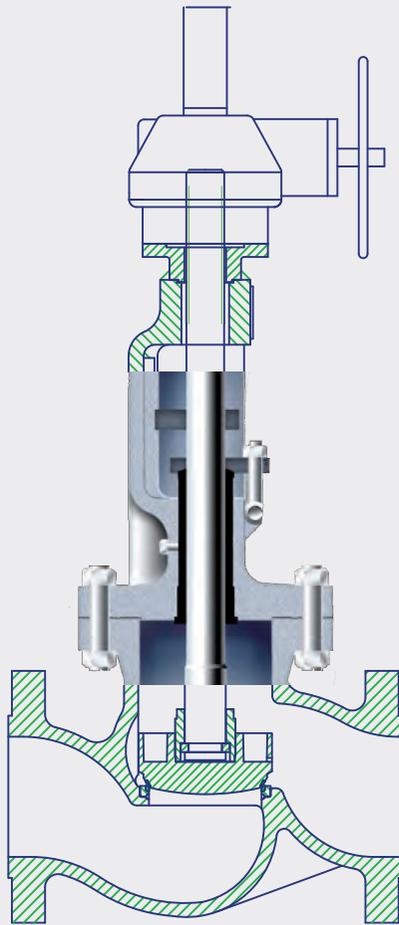
Valve in open position. The valve works as a check valve.



Valve in intermediate position. Fluid can circulate although restricted by the intermediate position of the stem. The valve works as a check valve but only to a certain point.



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.

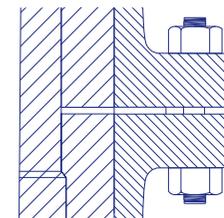
NOTE:

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

STANDARD BOLTED BONNET GASKETS

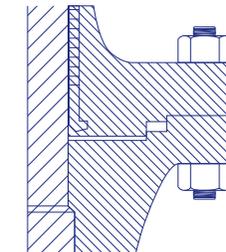
Class 150

Detail for
FLAT GASKET



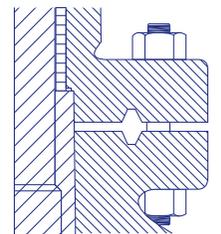
Class 300

Detail for
SPIRAL WOUND GASKET



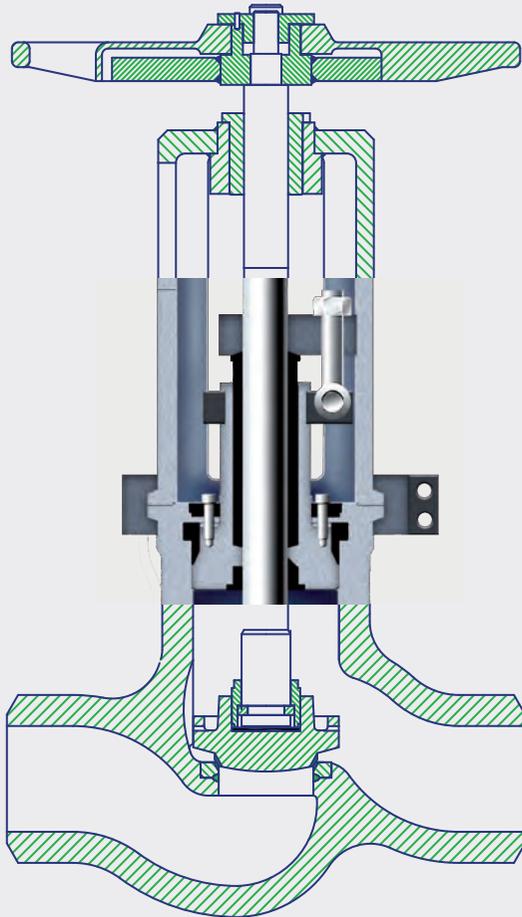
Class 600

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).

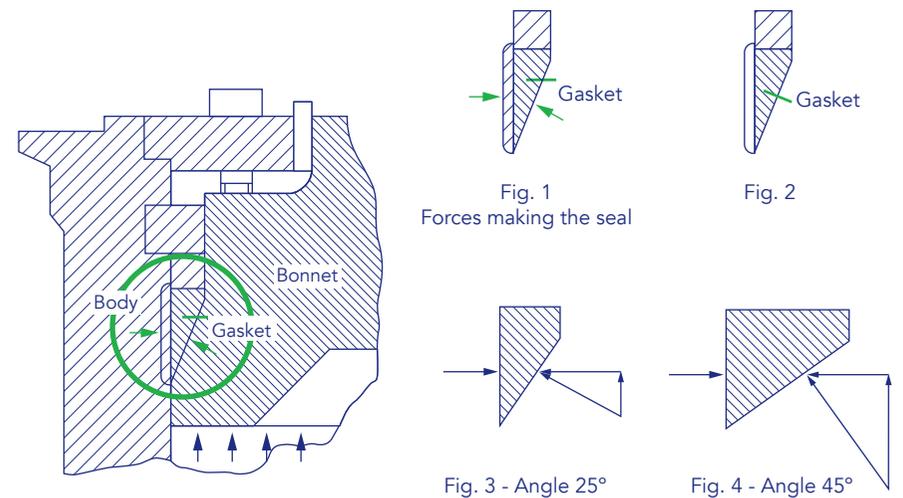
The main feature about the pressure seal bonnet is that the body-bonnet joints seals improves as the internal pressure in the valve increases, compared to other constructions where the increase in internal pressure tends to create leaks in the body-bonnet joint.

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 (disc 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.

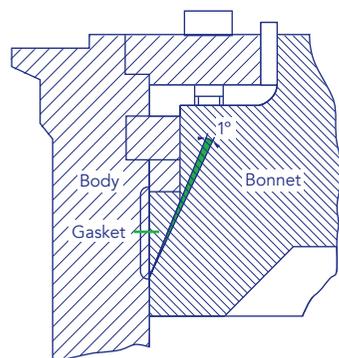


Fig. 5

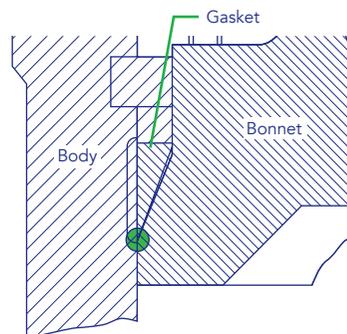


Fig. 6

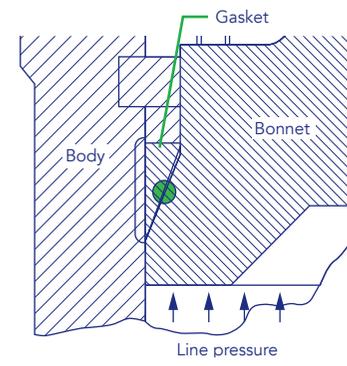
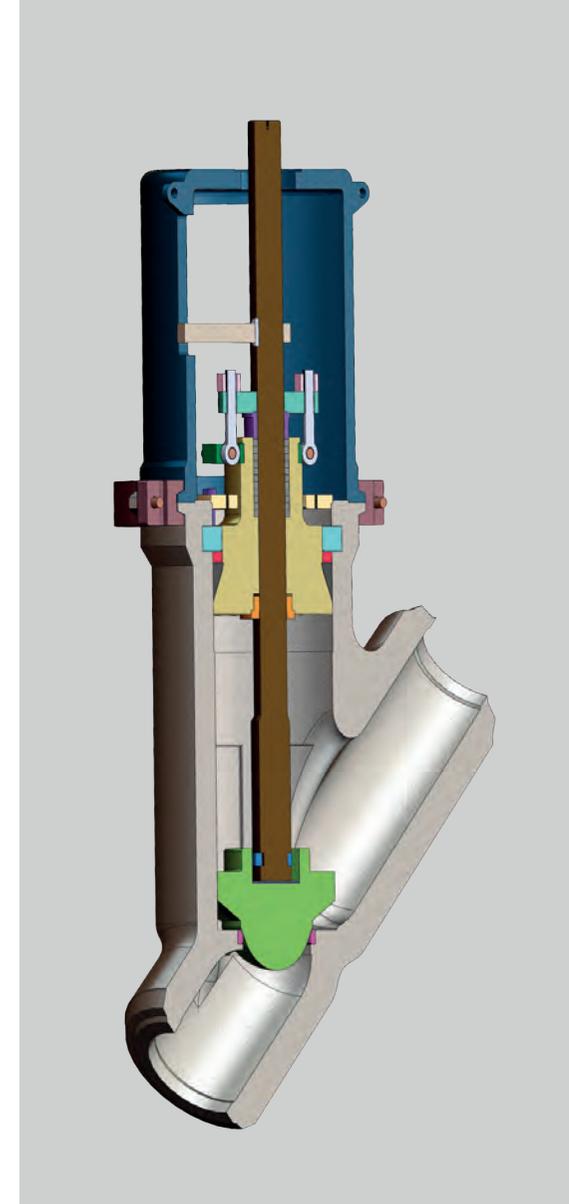


Fig. 7

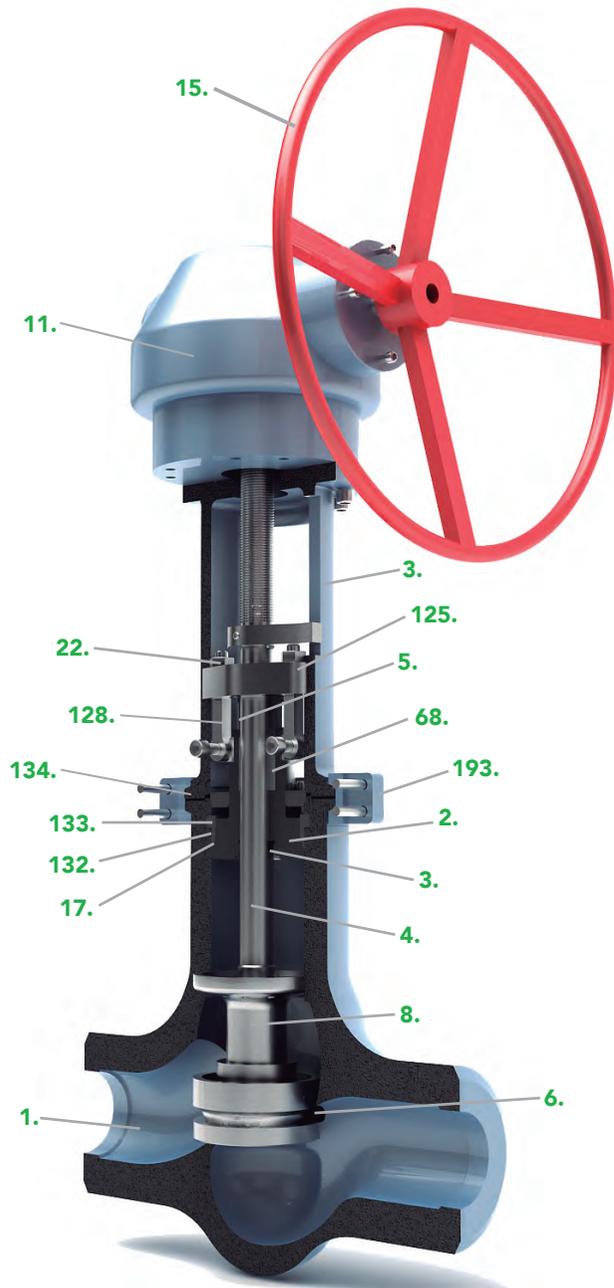
A gasket designed with a 25° angle (Fig. 3) will turn into radial force, a greater component of the force exerted by the pressure from the line on the bonnet, than a gasket designed with an angle of 30° 45° (Fig.4). Moreover, in order to achieve large unitary loads, the surface upon which the force is 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.



Globe 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 BS.

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 butt-welding 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 connections, supplied on request.

2. BONNET

Usually constructed in the same materials as the body, being designed so that the wall thickness always exceeds the requirement of BS 1873 / ASME B16.34.

A back seat (13) bush is fitted inside the bonnet lower cavity, to provide a closure when the valve is fully open. 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 is 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 pieces 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 non rotating stem is connected to the disc (8) by a rounded head connection through bearing ring (31A), and a stem retainer (29) and disc nut (18) assure the integrity of the kit.

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. 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.

5. / 125. GLAND BUSHING AND 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 RING

Supplied in forged stainless steel, hardfaced with Stellite-6 (2 mm of minimum thickness). Seat ring is renewable, normally welded to the body.

Sealing contact surface is lapped for a perfect tight seal. Controlled hardness differentials are maintained between the disc and the seat ring, as required by API 600 Std.

8. DISC

Constructed in forged stainless steel.

Disc is of swivel type, allowed to turn round freely upon the stem. Normally is of loose, Plug type, though can also of Ball, Needle and Parabolic shapes (equal percentage). Contact face is overlaid with Stellite-6 (2 mm of minimum thickness).

The stem-disc combination can be adapted to Stop-Check function.

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 is normally supplied of Hammer type, made of cast construction.

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
- 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 carbon fiber and inconel wire.

Gaskets can also be made in stainless steel.

22. / 128. GLAND BOLTS AND NUTS

The gland studs are of the eye-bolt type, which can be provided with live load systems, by means of Belleville rings.

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 pressure seal gasket and the spacer ring. It is calculated to withstand all the force without cracking.



134. BONNET RETAINER

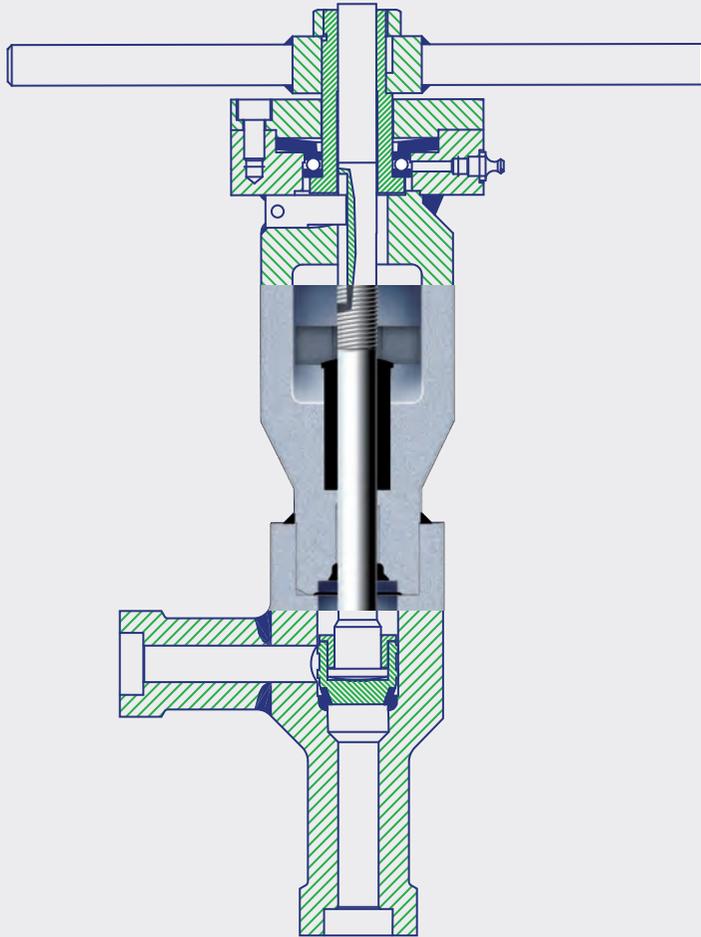
Designed sufficiently resistant to withstand the forces transmitted by the bonnet screws (111).

The bonnet retainer is normally made of 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.

193. YOKE CLAMP

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

THREADED & WELDED



BABCOCK
VALVES

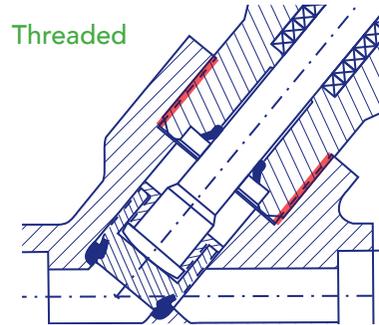
Unlike the bolted bonnet and pressure seal body-bonnet closure systems, the threaded & welded system consists of a double-sealed design, first by threading the bonnet-yoke to the body, and second by sealing it by means of a welding seam.

The necessary non destructive tests are carried out to ensure a perfect sealing.

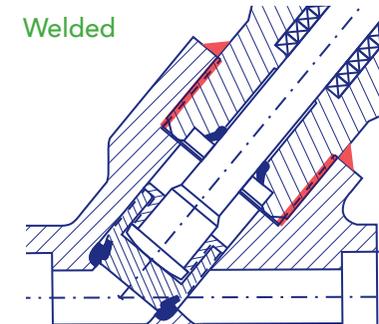
Under demand, a sealing gasket can also be placed between body and bonnet.

The threaded & welded design is primarily used on small size forged valves up to 2", and for high pressure ratings, from ASME class 900 to 4500.

Threaded



Welded



Types of disc

Globe valves can be supplied with four types of disc depending on the application. Each type shall allow a different grade of control over the circulating fluid. The right combination of a type of disc and material of construction and hardfacing, will minimize wear caused by cavitation in severe applications.

PLUG TYPE DISC

The disc has a flat finished, being the most normal globe disc type, as well as simple and economical. Designed to permit flow passage or flow stop without regulation. Therefore, it is normally used for positive shut off service.



BALL TYPE DISC

Lower half of the disc has a ball shape, permitting flow passage and flow stop, having the possibility to control partially the flow mainly in low pressure service.



NEEDLE TYPE DISC

With the needle disc design the flow rate is better controlled than other disc designs and a fine regulation is got.



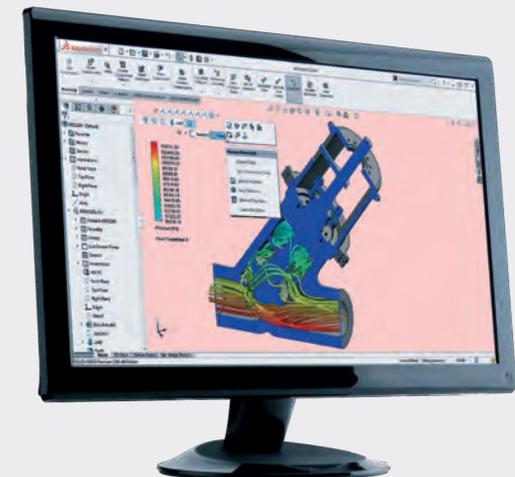
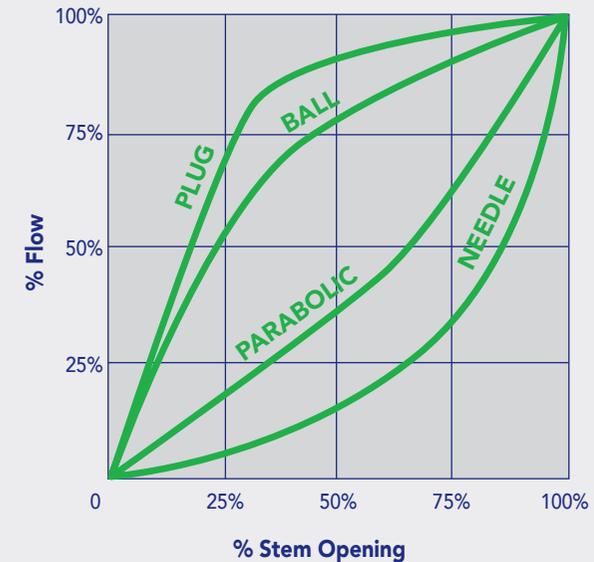
PARABOLIC TYPE DISC

It is similar to the ball type disc, but its parabolic design provides a higher flow regulation, having a better behavior against wear.



DISC FUNCTIONABILITY

The chart shows the stem opening related to the quantity of flow provided. As well indicates the grade of control over the fluid between the different type of disc that we can supply.



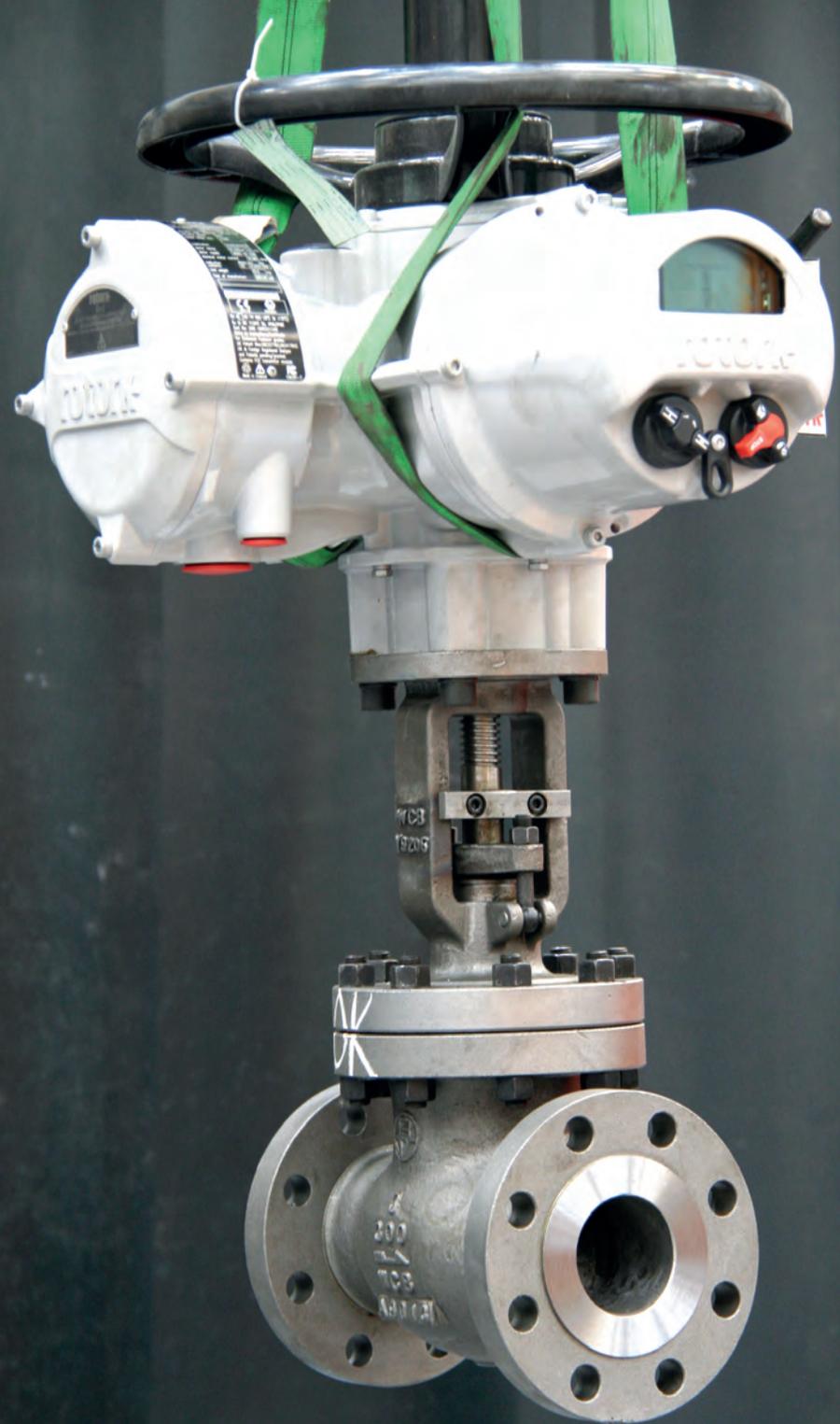
Accessories and Special Equipment

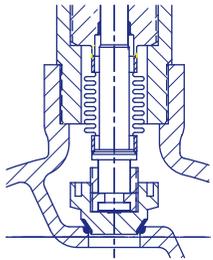
Babcock Valves can supply globe valves with any kind of actuator system:

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

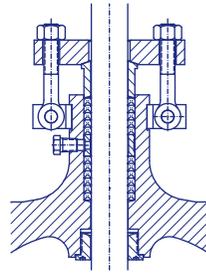
We are also able to supply our globe valves with any kind of accessory, from stem extensions and chain wheels to position indicators, locking devices, pressure relieving systems, lantern ring device, by-passes, limit switches, etc.

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

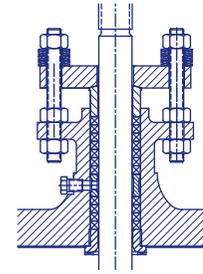




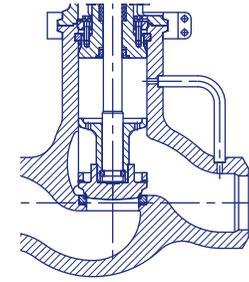
Belows seal



Lantern ring



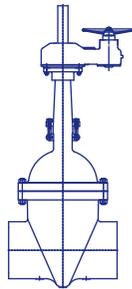
Live loading packing



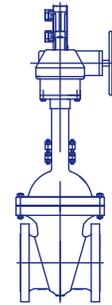
Equalizer



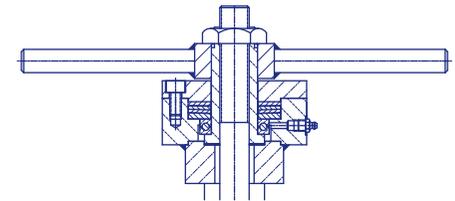
Stem extension with floor stand and universal joint



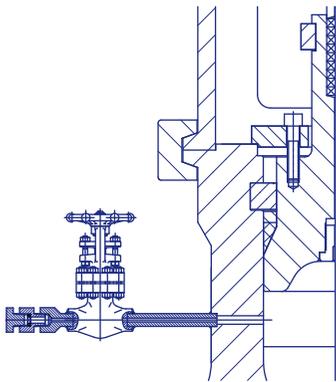
Horizontal spur gearing



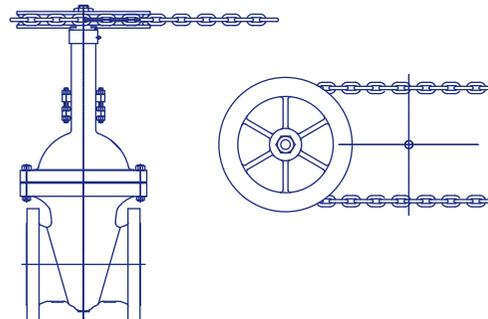
Limit micro switches



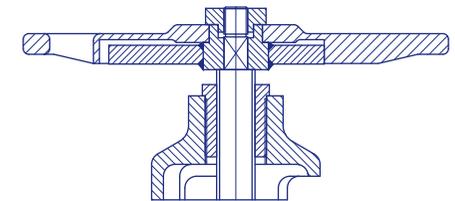
Dilatation compensating device



Overpressure protection device



Handwheel with chain



Impactor handwheel

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.



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Babcock Valves S.A.
P.E. Abra Industrial, Parcela 1.5.6
48530 Ortuella-Bizkaia (Spain)
Phone: (+34) 944 536 423
Fax (+34) 944 535 739
info@babcockvalves.com
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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.

Edition: November of 2017

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)



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TC No. RU-ES-AB45.B.14161