

## DOUBLE BLOCK AND BLEED VALVES - DUAL VALVE

### Double Ball/Plug DB&B Valves

With the need for verifiable and maintainable shut off in safety critical applications, double block and bleed valves have commonly been used for primary and secondary tight shut off, in an attempt to provide and ensure system integrity. Historically, system integrity would be achieved through the use of two individual isolation valves, a spool piece and a bleed valve had the disadvantages of extensive cost and weight and also increases the risk of emissions due to multiple flanged faces. Consequently, combined integral DB&B valves are now widely used. These valves have a single or side entry body design with dual Ball or Plug valves with a bleed valve installed between the two main line valves. These valves are available bi-directional in metal seated and soft seated style, both in bubble tight shut off. Sometimes called twin DB&B or dual valves, these valves are available in Plug and Trunnion Ball type up to 600mm NB in ANSI 150 to 2500 class. These DB&B design valves offer several advantages. They replace existing traditional techniques employed by pipeline engineers to generate a double block and bleed configuration in the pipeline. There are several designs and configurations of Double Block & Bleed valves as follows:-

### Single Ball Trunnion DB&B

Conventional single ball trunnion mounted ball valves have two energised generally bidirectional seats. The body cavity can then be fitted with a drain valve at the body cavity drain point to allow verification of seat integrity and this type of valve is then sold as a "Double Block and Bleed Valve" (DBB). Australian Pipeline Valve individually tests each valve to verify zero leakage at the drain point. Conventional single ball trunnion valves typically feature self relieving 'single sealing' seats which automatically relieve body cavity pressure downstream. Uni-directional valves can be specified which only relieve upstream. Conventional single ball design still allows a closed valve to leak up or downstream should the body cavity over pressurise.

Double piston effect (DPE) seats can also be specified on single ball DB&B trunnion valves. This style of valve is classified under API6D as a "Double Isolation and Bleed valve"(DIB). This design ensures that both seats are always sealing, even if one seat does fail, ***the other seat will continue to maintain a seal*** as the two way seats maintain a bi-directional seal. With DPE seats, a body cavity external pressure relief valve is fitted (which can be optionally by-passed back to the upstream flange of the valve or to flare). This is a cheaper option than twin ball DB&B valves whilst still providing a high level of integrity.

Furthermore, we can even manufacture a floating ball 'trunnion style' design up to 200NB (8") 600LB (model BV100-F26) with an energised double sealing seat system incorporating metal seat retainers. This design offers the advantages of DB&B DPE seat trunnion valves without the disadvantages of elastomers, bearings and extra seals that could cause valve failure. (Refer to the Special Service Ball Valves catalogue at: [http://www.australianpipelinevalve.com.au/Valve\\_Catalogues.aspx](http://www.australianpipelinevalve.com.au/Valve_Catalogues.aspx)).

However, due to insurance reasons as well as for absolute sealing integrity, some customers require a dual ball or plug style to provide a higher level of assurance.



## Cartridge Type Standard Length Dual Valve Trunnion & Floating DB&B Valves

Compact cartridge type standard length DB&B valves consist of two valves and a bleed valve in one (side entry) compact cartridge type unit with ANSI B16.5 flanged & tapped connections. The design configuration allows the same face to face dimensions as a single block ball as specified in API 6D and ANSI B16.10 (Australian Pipeline Valve and its sub contract manufacturers can produce this type of DB&B ball valve in floating and trunnion configurations). In addition, integral one piece body design is also available in top entry and end entry design (see drawings on last page) further eliminating potential leak joints.

*DB&B Dual  
Cartridge Style  
(end entry - one side)*

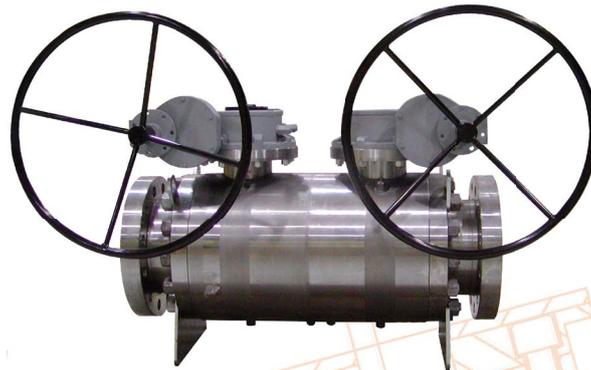


*DB&B Dual  
Cartridge Style  
(end entry - both sides)*



## Fully Flanged Long Pattern Dual Valve Trunnion DB&B Valves

DB&B valves feature the traditional style of flange-by-flange type and is available with ANSI B16.5 flanges, hub connections and weld ends. Australian Pipeline Valve and its manufacturing partners can manufacture this type of DB&B Ball valve. We can also supply integral uni-body top entry configuration that has no side body flanges.



*Dual Trunnion  
DB&B Ball Valve*

## Double Block & Bleed Plug Valves

DB&B Plug valves in lubricated and non lubricated types are also available in a dual valve configuration in pressure balanced style, rectangular port, inverted plug and full circular port.



*DB&B Round Port Plug Valve*

Both these single body DB&B designs have operational advantages as there are less potential leak paths within the double block and bleed section of the valve.

## Dual Ball Floating Design DB&B Valves

In smaller sizes typically from 8NB (1/4") to 150NB (6") Floating Ball design firesafe certified Twin Ball Double Block & Bleed valves are also available. Australian Pipeline Valve and its manufacturing partners can supply this style of valve in very short delivery in A105N, LF2, 316, F51, etc., in 150 to 2500 class.



*DB&B Floating Ball Valve*

Lower cost firesafe certified modular DB&B Dual Floating Ball valves are also manufactured by Australian Pipeline Valve in flanged & screwed ends.

This style can also be configured with one ball plus one needle valve in-line with an additional needle valve side bleed in cartridge style configuration with tapped ends to suit flanged connections both ends. For instrumentation use, mono flange wafer style, needle valve DB&B valves are also manufactured in short lead times.



*DB&B Component Dual Ball Valve*



*DB&B Modular Dual Ball Valve*

## Single Cast Double Block & Bleed Triple Offset Butterfly Valve

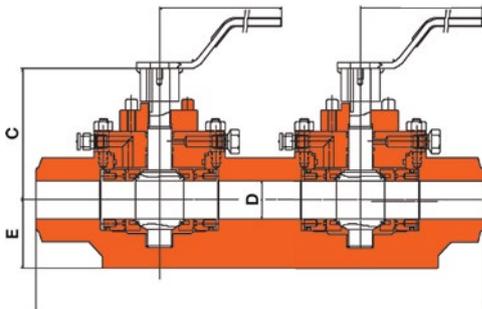
With the weight and price advantages of zero leakage Triple Offset 'metal to metal' seated Butterfly Valves clear to be seen, this solution integrates these features into a one piece cast body. A primary advantage of this design is that it has an increased cavity between both discs, reducing the possibility of a breach during full pressurisation and further enhancing safety performance in critical applications. A wide range of sizes and pressure classes are available up to ASME 1500 class. This valve will replace a standard single ball trunnion ball valve as in most sizes it is the same face to face dimension.



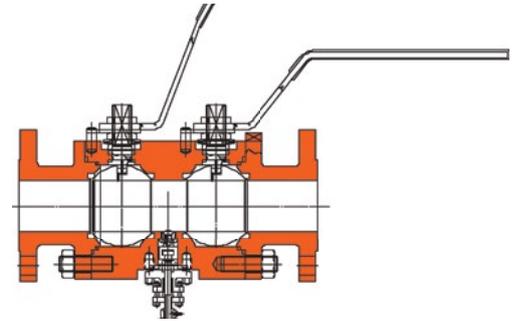
*DB&B HP Firesafe Butterfly Valve*



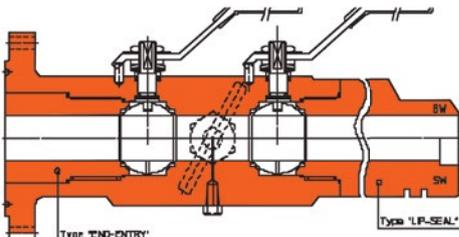
Top Entry Integral - Uni-Body



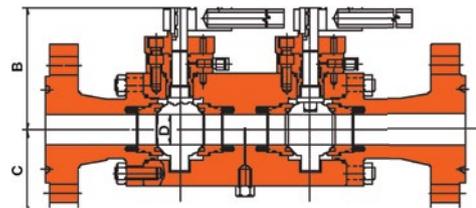
Trunnion Top Entry - Uni-Body



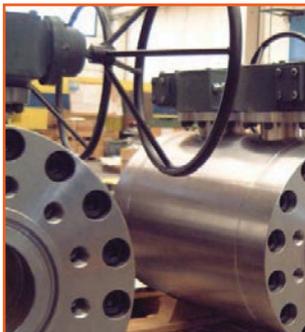
Floating Split Body - Uni-Body



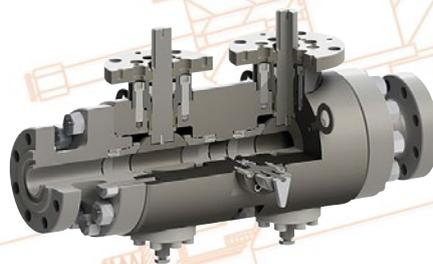
Floating End Entry



Trunnion Side Entry



Cartridge Style Compact Side Entry



Flanged Side Entry Long Pattern

**DISCLAIMER: -**

This is a general overview. Information provided should not be used to make your operational or design decision. We accept no liability or responsibility for the information and do not guarantee it's correctness.