Solent & Pratt
Double Block & Bleed TOSV
Over recent years the need to increased safety with regard to both operatives & the environment Solent & Pratt have pushed the design of the Triple Offset butterfly valve with all its benefits and developed two types of “Double Block & Bleed” (DBB) valves that can be utilized for many applications. The Single Disc & Twin Disc design have all the inherent features of the standard TOSV with the added benefit of a bleed cavity that can be used to provide a safe working environment downstream of the valve when used on the isolation of toxic, explosive or other critical applications. The use of the TOSV butterfly valve gives an inherently firesafe metal to metal seated valve with zero leakage capability for use on the most demanding applications.

New design provides a high integrity double seal with bleed facility between

Any seapage through the first seal drains through hole between seals

Drain tap to check for leakage
Applications
As safety and environmental issues have become of greater concern to mankind, the need for assured valve shut off providing absolute and verifiable isolation are regularly becoming the standard specification for critical applications.

Typical areas of application include offshore and onshore petro-chemical production including gas injection, water injection, oil and gas transmission lines including airport fueling facilities and other areas where flammable and toxic emissions are unacceptable.

Design
Previous common practice has been to use two valves (fig1), such as plug or ball valve designs, in series with a bleed facility located between them in order to establish the sealing integrity of the upstream valve. This configuration is far from optimum as more space is required, with considerable extra weight quite apart from the additional maintenance requirements of having two valves and the extra associated costs.

The Solent & Pratt Double Block and Bleed design (fig3) utilizes our well established, patented triple offset segment valve (TOSV). Two seals are incorporated on the disc segment thus providing sequential sealing. The downstream seat is not spring loaded, as is the practice for trunion mounted pipeline valves (fig2), which are also very heavy and expensive. Sealing integrity is therefore maintained should the upstream seat fail. When the valve is closed a channel between the two seats connects with a purge or bleed port in the valve body which is connected to an external outlet where an isolation valve or relief valve may be fitted for manual or automatic bleed. This compact Double Block and Bleed Design negates the need for reusing two valves in series.
Double Block & Bleed

- Inherently Firesafe primary metal/metal sealing certified to API 607
- Shut off class API 598. Zero leakage shut off available in both directions.
- Replacement body seat and laminated disc seal.
- Triple offset Design (non-rubbing).
- Internal anti-blowout stem standard. External to API 609 optional.
- Materials of construction available to NACE requirements.
- Wafer, lugged, double flanged and butt weld ends available.
- ANSI 150, 300, 600, 900 & 1500 with fully rated trims.
- Quality Assurance Systems approved to ISO 9001
- Patented in UK with worldwide patents pending.

Body Styles
Wafer flangeless, lugged (through drilled and tapped), double flanged and top entry butt weld ended body style are available.

Flange Standards
All flange standards can be accommodated including ANSI, API, MSS, BS, PN and ISO.

Face To Face Dimensions
Face to face dimensions shown are to BS.5155. Options include ANSI B16.10 and API 6D. Non standard dimensions are available on request.

Operators
Valves can be supplied with manual, electric, pneumatic or hydraulic operators. Fail-safe systems for emergency operation are also available.

Materials
Carbon Steels, 316 St/St, Duplex St/St. 6MO St/St, Super Duplex, Bronze, Monel, Hastelloy B & C, Titanium, Zirconium, Incoloy.

Single Disc Design
Size/Ratings: 150lb 6” to 36”, 300lb 6” to 36”
Temperature Range: -46 to +425 deg C

Twin Disc Design
Size/Ratings: 150lb 2” to 48”, 300lb 2” to 48”
600lb 4” to 48”, 900lb 6” to 36”
1500lb 6” to 24”
Temperature Range: -46 to +425 deg C

Triple Offset Segmented Valve (TOSV) Geometry
The shaft is offset in two directions. The disc is a segment taken from a cone where the apex is offset from the center line of the valve. No interference (rubbing) occurs between disc (segment) and seat making it ideal for metal seated valves.
**Double Block & Bleed**

Typical single disc metal seated Double Block & Bleed TOSV envelope dimensions 6”

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**Class 150lb Range (dimensions in mm)**

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<th>C (in mm)</th>
<th>D (in mm)</th>
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Note: (76mm to 64” [200mm]) refer to factory

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**Class 300lb Range (dimensions in mm)**

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The Twin Disc design of DBB butterfly valve can be used in many applications where weight is not a critical factor although the valve is up to 25% lighter than a comparable through conduit gate valve with bleed arrangement or where health and safety legislation or local regulations call for a true double isolation on such applications as Steam Lines, Toxic Fluids and other hazardous fluids, the valve gives unparalleled protection to personnel working downstream of the valve. The valve can be supplied with either manual or actuated options utilising most pneumatic, electric & hydraulic actuators. This valve can also be supplied in ratings of up to 1500lb with a true 255bar (1370 psi) shut off capability.
Double Block & Bleed

Typical twin disc metal seated Double Block & Bleed TOSV envelope dimensions 8”
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