



Tomorrow's Valve Today.

[www.hobbsvalve.com](http://www.hobbsvalve.com)

## Welcome to Hobbs Valve.

Industry leaders in the design and manufacture of Triple Offset Butterfly Valves, UK based Hobbs Valve is at the forefront of innovation, producing high performance Triple Offset Butterfly Valves for the global Industries of Oil and Gas, Chemical, Petrochemical, Nuclear, Marine and Power.

Our innovative, patented range of TVT metal seated valves was designed and developed in house using advanced precision engineering techniques, and independently tested by accredited third parties. This ground breaking design produces optimum performance, with the TVT Range of Triple Offset Butterfly Valves able to provide maximum resistance during high intensity applications.

The Company is ethically committed to achieving excellence in standards of design, customer care, professionalism, quality and safety through the continual development of our products and services. Implementation of Internationally recognised accreditations such as Quality Standard ISO 9001:2008 and PED 97/23/EC ensures we are continually striving towards promoting safe working practices and environmental sustainability in line with OHSAS 18001 and ISO 14001.

Working hand in hand with our customers Hobbs Valve is determined to always deliver **'Tomorrow's Valve Today.'**



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At Hobbs Valve we believe in pushing the boundaries even further in terms of innovation and...
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Once again Hobbs Valve can proudly present an innovative product and still guarantee zero leakage...

## Hobbs

With a combined experience of over fifty years in triple offset design and manufacture, Hobbs Valve leads the way in terms of innovation and design. Led by key industry professionals and experts at the forefront of Triple Offset engineering, Hobbs has successfully designed, developed and produced the only current globally patented triple offset butterfly valve.

A results driven and forward thinking Company; our team of in house design engineers utilizes leading technologies including 3D Solid Modelling, Finite Element Analysis (FEA), and Computational Fluid Dynamics (CFD) to deliver tailor-made solutions that meet and exceed our customers' requirements.

Hobbs has implemented a traceability system similar to that used by aircraft manufacturers to provide the highest level of assurance in the quality and reliability of our products. Through this system components are traced from the original manufacture whether in house or sub-contractor through assembly, inspection and despatch guaranteeing the best certification and documentation package for your valve.

As a professional and environmentally conscious organisation, that acknowledges the impact our operations may potentially have on the environment we have clear objectives that minimise any impact throughout our manufacturing and supply chain whilst also committing to work towards the achievement of ISO 14001.

The Valve's unique features, advanced lightweight design and the use of modern machining methods allow for a more simplified manufacturing process, due to this and our continued investment in people Hobbs is able to deliver a competitive UK manufactured product with significantly short delivery lead times. Whether your order is large or small you will receive the same degree of care and service.



"Promoting safe working practices and environmental sustainability"



## Quality Assurance

### Meeting the latest ISO Quality Approval Standards

Hobbs Valve guarantees high quality design and manufacture with an embedded philosophy of professional service and customer care. As a result of our commitment to quality, our facility obtained the International standard ISO 9001:(2008) for the design and manufacture of Triple Offset Butterfly valves.

### Pressure Equipment Directive 97/23/EC

To facilitate and comply with requirements of our European based customers, Hobbs Valve identified the need to provide a quality support service in addition to quality products. In-line with current legislation, Hobbs Valve has been approved by Lloyds Register against the requirements of Annex III, Module H of the PED 97/23/EC, and Schedule 4, Module H of the Pressure Equipment Regulations 1999 for the Design and Manufacture of Triple Offset Butterfly valves.

(Approval Certificate COV0612538/01)

### Traceability and Documentation

Hobbs Valve recognises that the safety performance and traceability of our product is critical to our customers. With this in mind Hobbs Valve product is expected to surpass expectations of industry standards and not just achieve the basic requirement of PED 97/23/EC.

Adopting traceability standards from the aviation industry, Hobbs Valve will only use top quality components and materials to reassure the customer of consistently reliable operation throughout its life cycle. This reassurance can only be achieved by ensuring all materials are fully traceable from source to manufacture with the addition of all pressure retaining components certified to BS EN10204:2004 3.1.

### Health & Safety

At Hobbs Valve we understand that safety is paramount to the continued success of the company and that good HSE management equates to good business management. Safety awareness and a positive approach are integrated into all our activities, aspiring to eliminate all work related injuries to our employees and to cause no harm to the environment.



"Aircraft Industry traceability standards"

"Quality support service in addition to quality products"



## Fire Safe Test

BS EN ISO 10497:2004 (2010)  
for metal seated valves.

CERTIFIED

**Nickel Aluminium Bronze**  
Fire Safe Certified 10497:2010

CERTIFIED

**Non Graphite**  
Fire Safe Certified 10497:2010

### The Test

The innovative Hobbs Valve TVT range of Triple Offset Butterfly Valves successfully obtained the fire type test requirements of both BS EN ISO 10497:2004 (2010) and API Std 607:2005 5th Edition.

In 2006 Hobbs Valve became the first manufacturer to deliver a fire safe Triple Offset Butterfly Valve in line with BS EN ISO 10497:2004 and API Std 607:2005 5th Edition. We are supremely confident in the quality and performance of our product, which is why we chose accreditation to the then new standards as opposed to the withdrawn BS EN 6755-2:1987.

Furthermore, in 2010 Hobbs Valve became the first manufacturer to deliver a fire safe certified Nickel Aluminium Bronze Triple Offset Butterfly Valve to the later standard BS EN ISO 10497:2010.

In addition Hobbs Valve continued its commitment to innovation and engineered what we believe to be the first fire safe certified non-graphite Triple Offset Butterfly Valve, eliminating the possibility of galvanic corrosion through the use of graphite in Duplex and Super Duplex.

Test results certified by Lloyds Register indicated exceptional performance. The Hobbs Valve TVT range recorded zero leakage in both preferred and reverse flow directions on Through Seat Leakage and External Leakage @ 15 barG at up to 1000 degrees C during the 30 minute burn period.



Lloyds Register has confirmed that Hobbs Valve was the first valve manufacturer to obtain BS EN ISO 10497:2004 under their approval scheme.

## Service & Product Support



### Maintenance and Service Contracts

All Hobbs Valve products are supplied with an operation and maintenance manual to assist the user and to provide basic advice on preventative maintenance. On request, a recommended spare parts and consumables list along with a scheduled maintenance and service contract can be offered to ensure safe and reliable operation of your valve.

### Product Support

Hobbs Valve is committed to supporting our customers with any query they may have, whether it's general maintenance, warranty or spare parts and repairs. Just call us directly, or speak to your local distributor.

### Repairs

Should the occasion arise, Hobbs Valve has dedicated, qualified service engineers available to provide help and assistance or on-site servicing and repairs.

If your valve has to be returned to Hobbs Valve, we will ensure this process is as smooth and well managed as possible. Any repairs to be performed beyond the warranty period will be fully assessed and quoted to you for acceptance before any work is undertaken. We always work closely with our customers to achieve the best results for their requirements.

### Site Validation

Reliable operation is the key in today's market; failure to employ suitable equipment can be costly. No matter what level of Quality Assurance you require, we understand this can place additional burden on you, the customer. As such we can assist in these areas, leaving our customers to focus more of their time on day to day matters.

For more information please contact Hobbs Valve, or your local distributor.



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## Why Triple Offset? - Evolution...

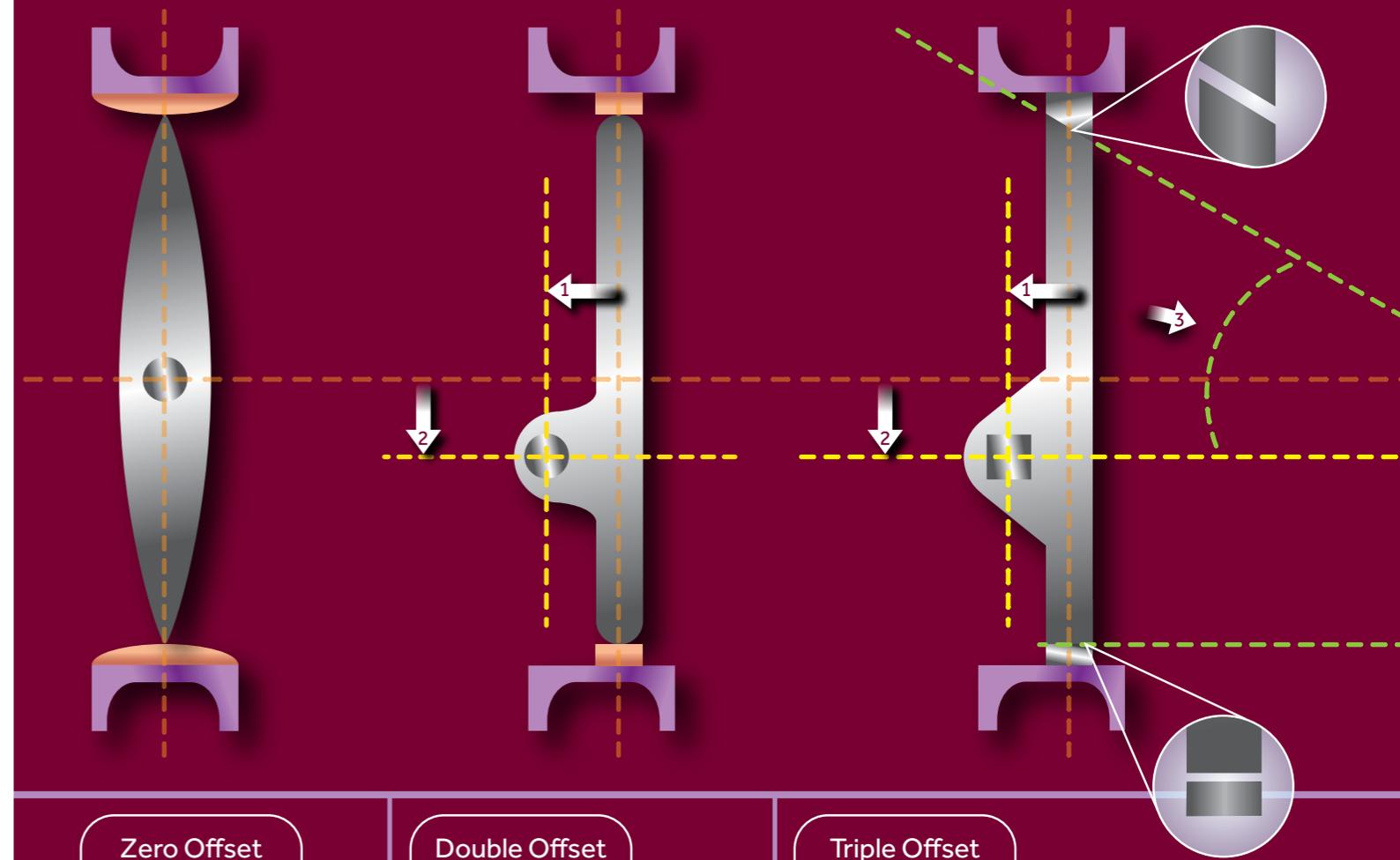
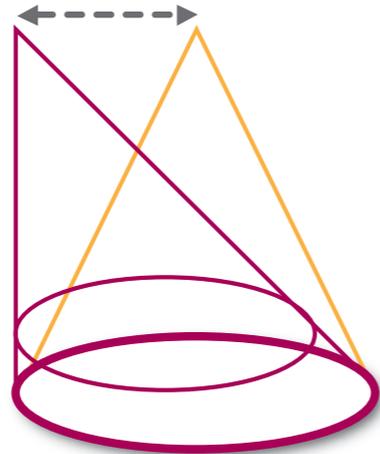
### Evolution of Triple Offset.

Due to low operating pressures and non critical applications, butterfly valves historically have been adopted in processes where bubble tight shut-off was not a necessity. Attempts to defy this resulted in the passing of valves and failure of systems ensuing in a long held belief by Engineers that butterfly valves as a type should not be used for more rigorous activities.

Concentric and double offset valves present during the mid twentieth century could only operate uni directionally with a maximum operating pressure of 10 barg at lower temperatures. Today, these valves are most commonly used in non critical utility services and can operate up to 52 barg and temperatures up to 200 degrees C along with the availability of bi-directional sealing if required. However, in some applications this design of valve was found to suffer from problems concerning wear erosion of the soft sealing materials and failure at high temperatures, leading to the withdrawal of the fire test Lloyds Rule DOT 54 obscuring its future use in high intensity applications such as Offshore Fire Mains service.

As higher intensity applications started to become the norm valve manufacturers began to develop a more robust design where metal to metal sealing could be used in an attempt to enhance the capability of the butterfly valve. To have any chance of success the new design would need to eradicate the common sealing method of deformation and friction. It was this technical query that eventually pioneered the third offset design with the change to the geometry of the sealing components introducing the revolutionary, cost, weight and space saving Triple Offset Butterfly valve.

Fig 1



#### Zero Offset

Concentric valve (zero offset). Disc rotates around the centre axis allowing for a potential 360° rotation. Sealing is achieved by the Disc deforming the soft seal resulting in full friction through the full operating cycle.

#### Double Offset

To allow displacement of the seat the shaft is offset from the centre line of the disc seat and body seal (offset one), and the centre line of the bore (offset two). This creates a cam action during operation to lift the seat out of the seal resulting in friction during the first 10 degrees of opening and final 10 degrees of closing.

#### Triple Offset

The third offset is the geometry design of the sealing components not the shaft position. The sealing components are each machined into an offset conical profile resulting in a right angled cone (see Fig 1).

This ensures friction free stroking throughout its operating cycle. Contact is only made at the final point of closure with the 90° angle acting as a mechanical stop; resulting in no over - travel of the disc seat.

## Why Triple Offset? - Benefits

### Benefits of using Triple Offset.

With deformation and friction being such a prevalent requirement in the sealing capabilities of concentric and double offset butterfly valves, the life expectancy is substantially minimised after its first operation and can commonly be expected to pass media instantly.

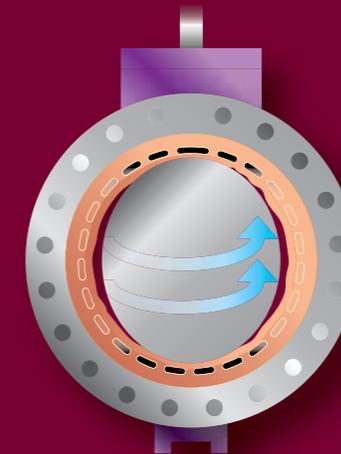
- The 'cam action' and 'right angled conical sealing' design ensures that the metal sealing components are never in contact until its final degree of closing, resulting in repeatable sealing and a vastly extended valve life.
- Butterfly valves provide significant cost savings over conventional valves such as gate, globe and ball due to an inherent reduction in materials and weight.
- Low torques result in low cost of automation.
- Minimal maintenance due to the robust design with the added advantage of field replaceable seat and seal components in the TVT Range.
- Low fugitive emissions due to quarter turn technology.
- Cavities do not exist between sealing components in comparison to some conventional, concentric and double offset valves therefore eliminating the ingress of particles.
- Metal to metal sealing allowing for higher pressure and temperature applications whilst still providing bubble-tight shut off.
- Ideal for use in controlling or throttling applications.
- Torque seated resulting in bi-directional, non-pressure aided frictionless seating.

Through the introduction of the revolutionary third offset, a solution has been engineered to eliminate deformation leaving the advantages of 'Triple Offset' clear to be seen...



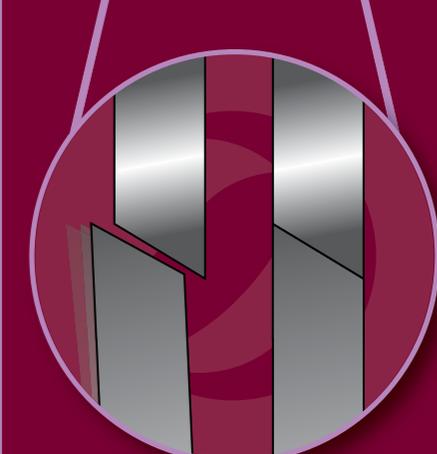
### Constant Friction

Friction is apparent throughout the operation cycle subsequently vastly reducing its life expectancy.



### Reduced Friction

The two offsets reduce the friction to within the final 15° of closure, still having reduced life expectancy.



### No Friction

The third offset eliminates all friction throughout the operation cycle, therefore providing increased life expectancy.

## Why Triple Offset? - Process Applications

With the availability of metal to metal sealing, Triple Offset Butterfly Valves are able to withstand many industrial applications.

If you do not find your required application listed below, please do not hesitate to contact our sales team who will be more than happy to assist with your enquiry.

### Power Generation - Main Applications

- Equipments isolation (pumps, valves, heat exchangers etc)
- Cooling, condensate, feeding water and steam
- Gas to turbine
- Gas exhaustion and air injection

### Oil and Gas - Main applications

- Isolation of reservoirs and storage
- Steam piping and condensate
- Cooling water systems
- Desalinization
- Transport of hydrocarbons
- Dessulfurization system
- Services with hydrogen, cryogenic, vacuum
- Services with hot gasses
- Services with solvents
- LPG and LNG lines

### Chemical and petrochemical - Main applications

- Ethylene plants
- Propylene plants
- Service with hydrogen
- Service with CO2 and steam
- Cryogenic services
- Thermal fluids
- Tail gas
- Services with hydrocarbons

### Sugar and alcohol - Main applications

- Steam
- Cooling water
- Vegetable steam
- Boiler feed water piping
- Equipments isolation (pumps, heat exchangers etc)
- Pre-evaporators isolation
- Condensate lines
- Pressure relief of process steam lines

## Process Applications Continued...

### Mining and metallurgy - Main applications

- Water pumping stations
- Cooking water services
- Vacuum service

### Steel mill - Main applications

- Cooling water pumping stations
- Hot gas (tail gas)
- Hot air
- Blast furnace, tail gas and coke oven gas

### Pulp and paper - Main applications

- Boiler isolation equipments (pumps etc)
- Liqueurs green, white and black
- Whitewash
- Cooling water, boiler feeding, steam and co-generation systems

### Water and sewage - Main applications

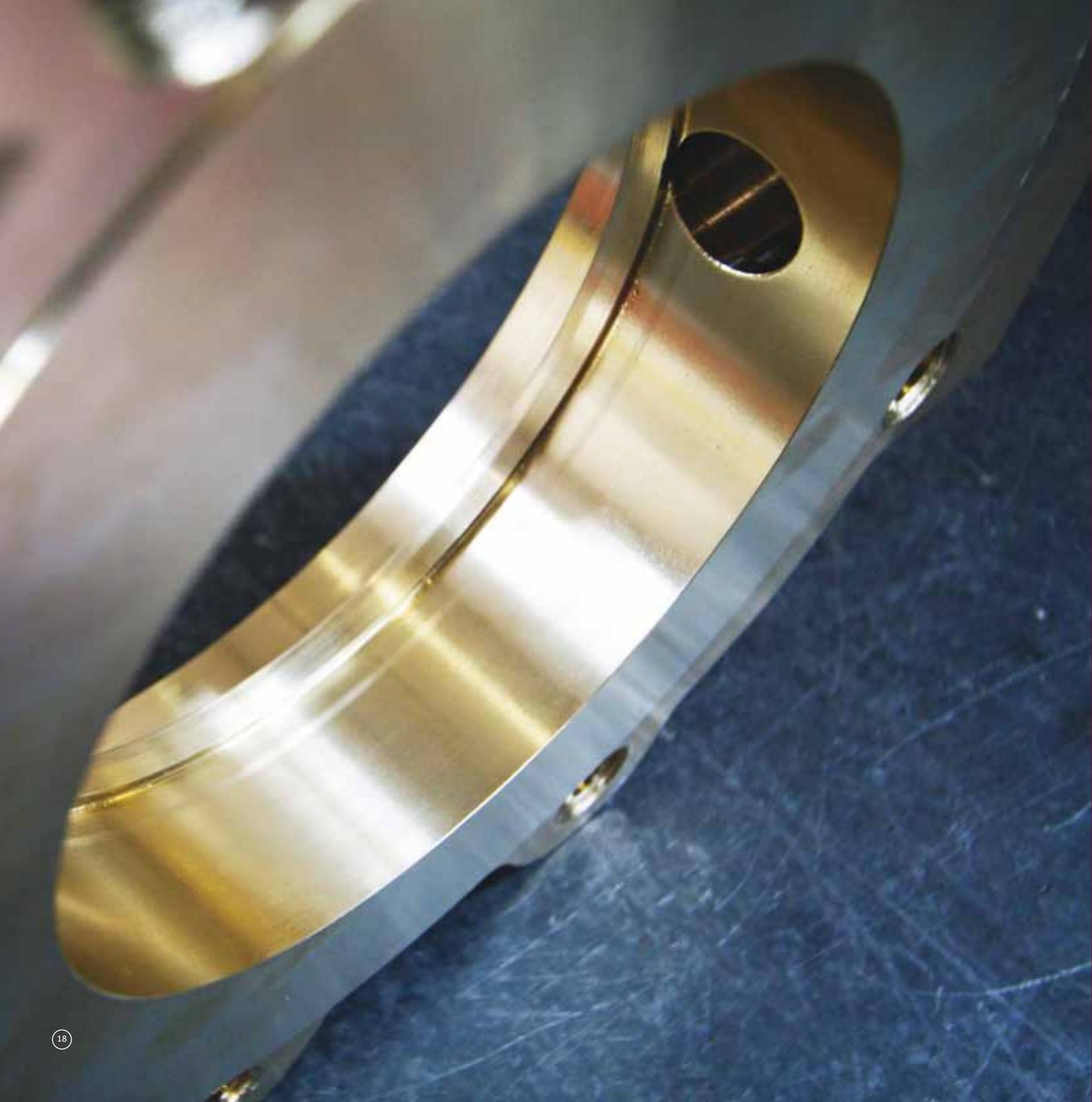
- Water distribution pumping
- Sewage pumping
- Water and waste treatment
- Water pumping stations

### Marine - Main applications

- HVAC
- Ballast tanks

### Nuclear - Main applications

- Steam Lines
- Water Lines
- Compressed Air
- Nitric Acid
- Sodium Hydroxide
- Sulphuric Acid
- Uranyl Nitrate
- Nitrous Oxide



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## Our Product



### Pushing design & innovation.

'Tomorrows Valve Today' – The TVT Range of Triple Offset Butterfly Valves pushing design and innovation to new heights.

Hobbs Valve have redesigned the basic unchanged Triple Offset Butterfly valve and incorporated new performance enhancing operational features, allowing for a more simplified manufacturing process. The result is our exclusive patented range of superior performance zero leakage bi-directional Triple Offset Butterfly Valves, suitable for extreme pressure/temperature applications.

The TVT range consists of 2"-48" 150,300 & 600 lb pressure class ratings along with a -196°C (Cryogenic) and a Double Block & Bleed Butterfly Valve. All of which are manufactured in a wide range of materials from high specification metals including Carbon and Stainless Steels, through to the high tensile or corrosion resistant Nickel Aluminium Bronze, 6 Mo, Titanium, Duplex and Super Duplex.



## Features & Benefits



The Hobbs Valve patented range of TVT Triple Offset Butterfly Valves has a significant number of design features:-

- Triple offset circular conical sealing geometry
- Fully rated
- Genuinely bi-directional
- Zero leakage
- Zero sealing friction
- Excellent flow and control characteristics
- Nickel Aluminium Bronze & Non graphite (GB Patent pending 1016971.2) both Fire Safe certified to BS EN ISO 10497:2004 (2010)
- Bearing protectors as standard
- Seat and seal easily replaceable
- Unique disc seat design allows for less internal gasket joints (Patent No. EP 2059697)
- Free floating disc design allows for unrestricted stem expansion under high temperatures
- Floating bearings eliminate seizure
- Square Drive for multiple actuation orientation

# Standard Product Specifications

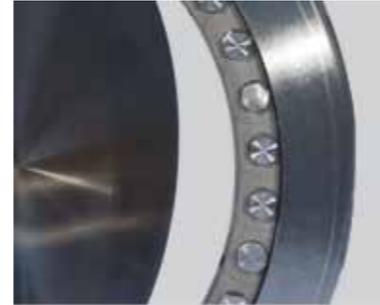
## Body Style Options



Wafer Lugged Through Drilled



Wafer Lugged Through Drilled & Threaded



Wafer Non-Lugged



Double Flanged Short Pattern



Double Flanged Long Pattern



Double Block and Bleed

### Materials

Standard Carbon Steels (A216) –WCB, WCC  
 Low Temp Carbon Steel (A352) –LCB, LCC  
 Standard Stainless Steels (A351) – CF8M, CF8, CK3MCuN(6Mo)  
 High Temp Stainless Steels (A217) – WC6, WC9  
 Duplex & Super Duplex (A995) – 4A, 6A  
 Nickel Aluminium Bronze – BS EN 1982:CC333G, (B148) C95800  
 Titanium (B637) – Grade C-2

### Body Style

Buttweld End  
 Top Entry  
 Ring Type Joint

### Pressure Classes

Class 150 – 2" to 48"  
 Class 300 – 2" to 48"  
 Class 600 – 4" to 24"



## Standard Design Codes

API STD 609:2004	Butterfly Valves: Double Flanged, Lug- and Wafer-Type
ANSI/ASME B16.34:2004	Valves Flanged, Threaded and Welding End
ANSI/ASME B16.10:2000	Face to Face and End-to-End Dimensions of Valves
ANSI/ASME B16.5:2009	Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard
ANSI/ASME B16.47:2006	Large Diameter Steel Flanges: NPS 26 through NPS 60
ANSI/ASME B16.24:2006	Cast Copper Alloy Pipe Flanges and Flanged Fittings: Classes 150, 300 and 600
BS EN 593:2004	Industrial valves. Metallic butterfly valves
BS EN 1092-1:2007	Flanges and their joints. Circular flanges for pipes, valves, fittings and accessories, PN designated. Steel flanges
BS EN 1092-3:2003	Flanges and their joints. Circular flanges for pipes, valves, fittings and accessories, PN designated. Copper alloy flanges
BS EN 12516:2005 Series	Industrial Valves
ISO 5752:1982	Metal valves for use in flanged pipe systems -- Face-to-face and centre-to-face dimensions

## Cryogenic Design Codes

BS EN 1626:2008	Cryogenic vessels. Valves for cryogenic service
BS 6364:1984	Specification for valves for cryogenic service
MSS SP-134-2006a	Valves for Cryogenic Service Including Requirements for Body/Bonnet Extensions

## Cryogenic Valve (-196°C)

For many years, valves have been required to operate and withstanding the harsh environment of low temperatures down to -196°C to provide critical isolation in industries such as LNG, LPG, liquid hydrogen and liquid oxygen. In more recent years thanks largely to the requirement for speed of operation the users 'first choice' has been quarter turn valves and more commonly the Triple Offset Butterfly Valve.

With the Hobbs range of cryogenic butterfly valves you have the complete package for Cryogenic duties including; leak tight isolation, throttling and flow control along with quick operation due to its ¼ turn design.



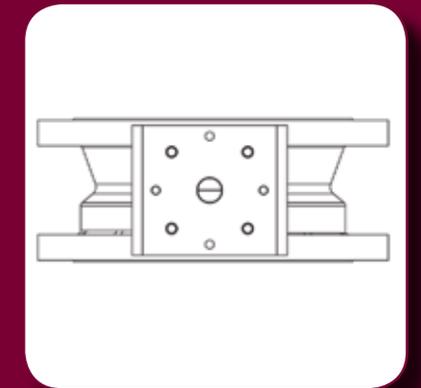
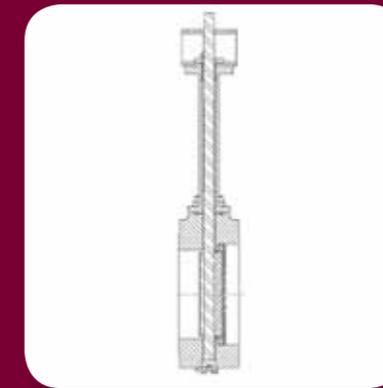
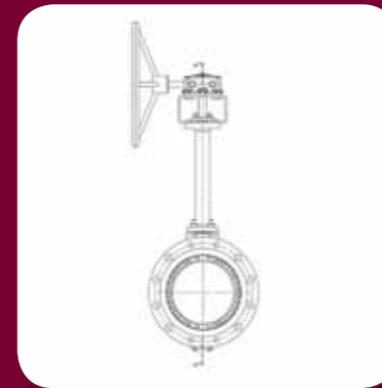
- The zero leakage performance by means of its unique sealing principle and our triple off set concept allow full isolation to be maintained at cryogenic.
- Given that the Hobbs Cryogenic valve does not have open cavities; fluids are unable to remain trapped after the valve is operated.
- The metal to metal sealing is virtually unaffected by very low temperatures; the valve performance and the operating torque are identical at ambient and cryogenic temperatures.
- The Hobbs one piece Shaft design ensures there is no potential of Stem failure.
- Extended Bonnet comprising of an adequate gas column to keep the Shaft (Stem) packing away from cryogenic fluids. Generally supplied in a fabricated or cast condition with a minimum length of 250mm, Hobbs design capabilities allows us to provide solutions to your specific needs.
- The quarter turn operation provides lower fugitive emissions than that of rising or multi-turn type valves.
- The Extension Bonnet is connected to the valve by an ANSI standard flange connection.

## Cryogenic Valve (-196°C)



### Hobbs Cryogenic Valve - Design Codes

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BS 6364:1984	Specification for valves for cryogenic service
MSS SP-134-2006a	Valves for Cryogenic Service Including Requirements for Body/Bonnet Extensions
SPE 77/306	Shell standard specification for cryogenic service



## Double Block & Bleed

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

Once again Hobbs Valve can proudly present an innovative product that guarantees zero leakage.

Safety 1st - 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 that recognisably not only offer extensive cost and weight but also increases the risk of emissions due to multiple flanged faces.

With the advantages of Triple Offset Butterfly Valves clear to be seen, Hobbs Valve engineered a solution that would integrate these features into a three piece valve assembly manufactured within a one piece cast body. A primary advantage of the TVT Double Block & Bleed range 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.

This engineered solution eliminated many of the historical problems associated with conventional double block and bleed valves whilst also reducing weight, space and above all cost.

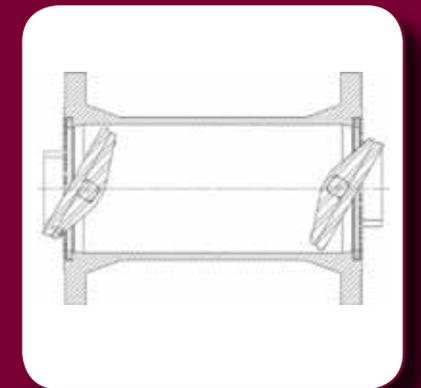
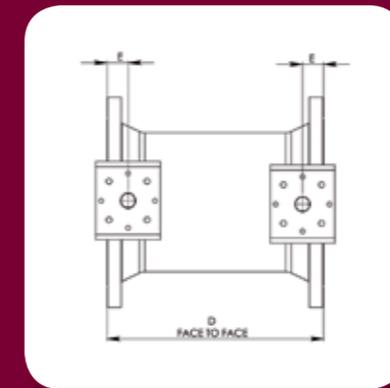
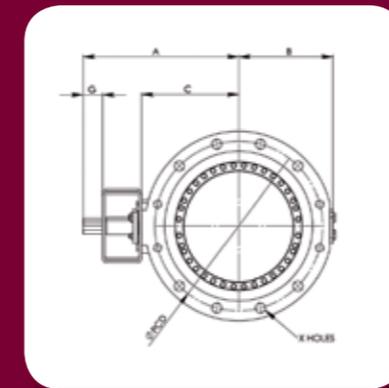


## Safety Critical



### Hobbs Double Block & Bleed Valve - Safety Critical

- Double isolation in a single cast
- Guaranteed zero leakage
- Safety critical
- Fully Rated, Bi-Directional & Zero Leakage
- Dual Disc Design
- Face to Face Dimensions equivalent to a standard Gate Valve
- Bleed Valve accommodated integrally in the cast
- Fewer flanged faces resulting in the potential of lower fugitive emissions



## Make a connection...

For any further information, and to discuss how Hobbs Valve can deliver Tomorrow's Valve to you, please do not hesitate to contact us.



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Patent Numbers:  
EP 2059697  
GB Pending 1016971.2  
US Pending 12/295156



ISO-FT