



Blackhall
valvologists®

METAL SEATED WEDGE GATE VALVE

the **100 YEAR** valve™

SERIES 3411
BS 5163 & BS EN 1074



The
Anti-Jamming
Solution...

**MADE
IN UK**

COMPANY PROFILE



Blackhall's extraordinary heritage in manufacturing specialist water valves can be traced back to 1828, cities including London, New York, Montreal, Sydney, Mumbai, Johannesburg, Riyadh and many others continue to rely on Blackhall valves for a large part of their Water Infrastructure and Supply. Water Industry applications include dams, reservoirs, hydro-electric power plants and water distribution networks for raw, treated, brackish and in extreme cases salt water.



Our v a l v o l o g i s t s ® continue to embrace leading technologies and as a result the Blackhall team use the latest in materials, CFDA, FEA and seismic analysis ensuring that our customers receive high performance valves for life. All this combined with the Blackhall professionalism cements our reputation as an unrivalled manufacturer of large bore water valves for the discerning customer. The heritage and evolution of the range has created products where a 100 year asset life is a proven reality.



DN600 Fixed Cone Valve



DN1300 Larner-Johnson® Valve



DN1800 Gate Valve

**PARALLEL FACED
METAL SEATED GATE VALVES**

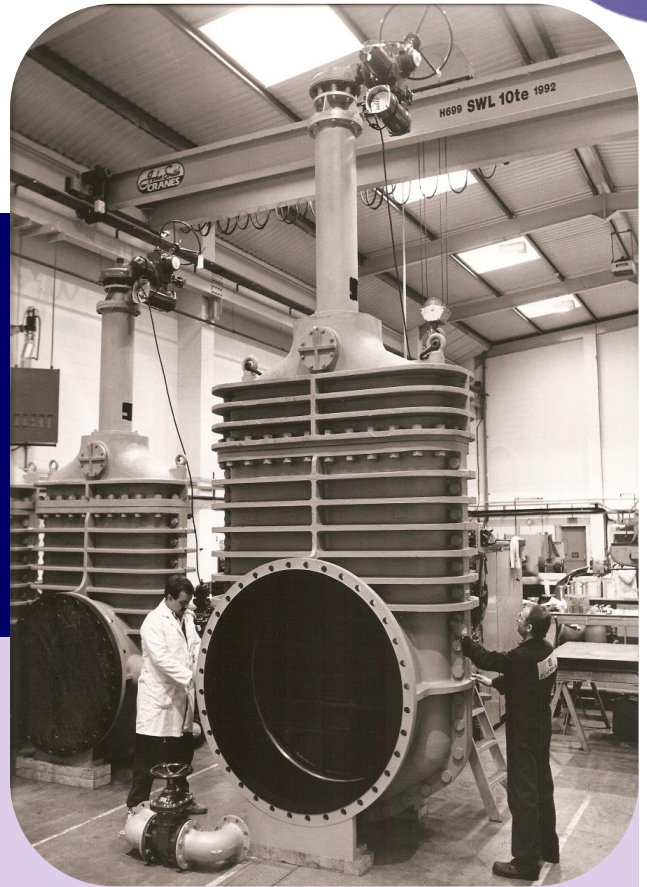


BLACKHALL PARALLEL FACED METAL SEATED GATE VALVE



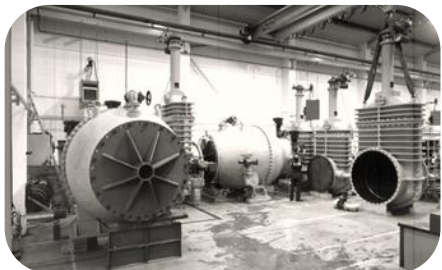
The Anti-Jamming Solution...

The Blackhall Metal Faced Gate Valve technology is evolved from the tried and tested BLAKEBOROUGH heritage, proving 100 Year Asset Life performance.

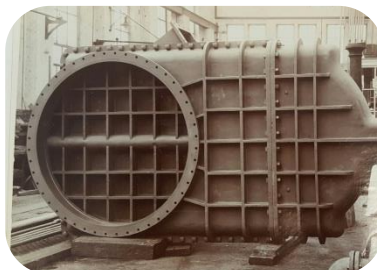


Used for pipeline isolation applications our Parallel Faced Metal Seated Gate Valves (PFGV) are designed with a 100 year asset life, we offer our customers a valve with ultimate longevity. Excellent sealing capabilities, low operating torques, larger bearing surfaces and the highest quality material selection all ensure that our PFGV's are built to last for demanding isolation roles. Maintaining a reliable service and lowest life-cycle costs, our valves play a key role in Infrastructure and Asset Management programmes, available from small to large beast size designs operating at ultra-low torques with an innovative feature that prevents the valve from Jamming. Blackhall gate valves offer the optimum guard valve selection for customers who may require a full clear bore for swabbing or under pressure drilling to take place.

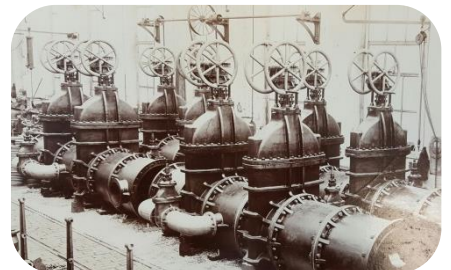
Snapshot of Gate Valve manufactured over the past century and still going strong!



DN1400 & DN1677 Gate Valve



DN2450 Gate Valve



DN1200 Gate Valve

**PARALLEL FACED
METAL SEATED GATE VALVES**



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DESIGN & PRODUCTION



DESIGN



The valves are initially designed using empirically based formula. These formulas have been derived over more than 140 years of valve manufacturing experience.

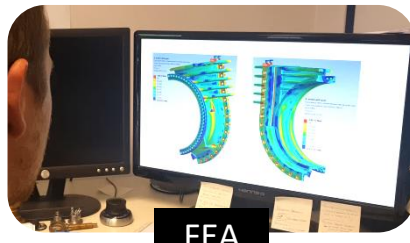
All valve designs are verified using state of the art technology such as FEA (Finite Element Analysis) and CFDA (Computational Fluid Dynamic Analysis) & Fatigue analysis. All real world forces; vibration, heat, fluid flow, seismic loads & other physical effects are taken into consideration.

As standard all valves have a minimum of 4 to 1 safety factor on the construction materials yield strength. This ensures fatigue life in excess of a million cycles.

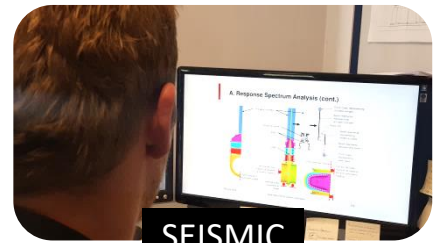
Using 3D models and CFDA, accurate operating forces can be predicted ensuring correct selection of actuator.



3D MODELLING



FEA



SEISMIC

PRODUCTION

The manufacture of all components & castings for the pressure envelope are closely controlled during manufacturing.



MAGMA SIMULATION

The latest casting simulation software MAGMA is used to ensure high quality components are produced every time. The simulation software accurately predicts the material structure & mechanical properties and ensures that the residual stresses are completely eliminated.



**PARALLEL FACED
METAL SEATED GATE VALVES**

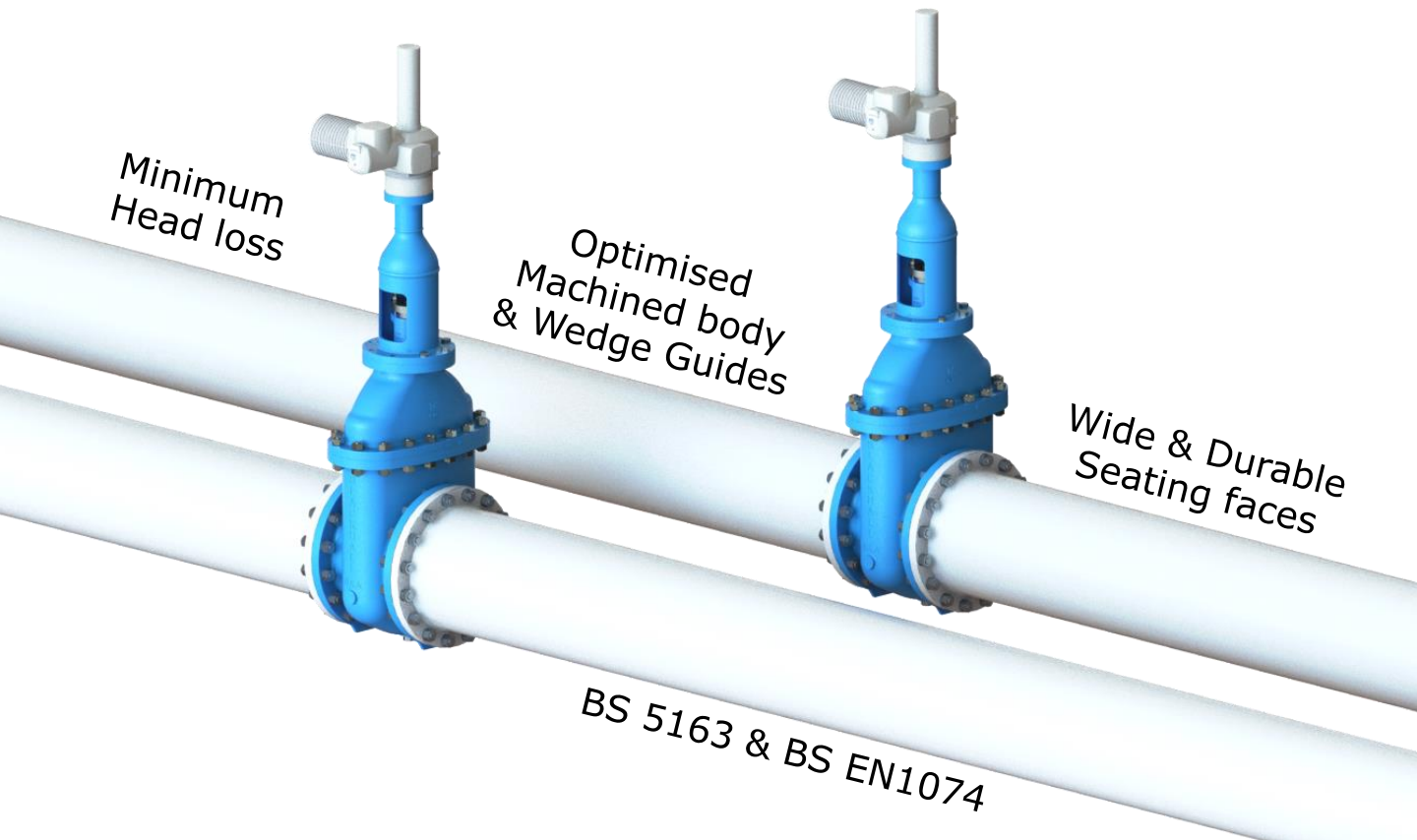


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DESIGN HIGHLIGHTS



- Blackhall Parallel Faced Gate Valves are designed to minimise head loss in the open position.
- Designed in accordance with BS5163 & BS EN 1074
- Body and Gate guides are integrally cast and accurately machined, this ensures precise guidance of the wedge along its full travel.



- The valve offers a positive seal when closed. with optional electrical actuator, hydraulic or manual operation by reducing gearbox.
- Opening and closing indicators are provided if required.
- The design incorporates facilities for a large bore bypass to ensure operation.
- The gate seats and corresponding body seats are machined and have a wide bearing surface for wear resistance, the seats are securely fixed into a machined recess with pins and accurately lapped to give a watertight shut-off.

MATERIALS OF CONSTRUCTION

The Blackhall Parallel Faced Metal seated Gate Valves are made using highest quality material selection procured from the top UK foundries.

The body and gates are manufactured from close grain ductile iron to BS EN 1563 GJS-450-10.

The trim, including pins, spindle and face rings, etc., are manufactured from corrosion resistant materials with consideration given to the effects of bi-metallic corrosion.



Unless otherwise specified by Blackhall Engineering Ltd, materials used in the manufacture of the Parallel Faced Gate Valve are as per following;

Material	Standards
Ductile Iron	BS EN 1563 GJS-450-10.
Aluminium Bronze	BS EN 1982 GRADE CC333G
Stainless Steel	BS EN 1088-3 GRADE 1.4401
Alloy Steel	BS EN 3506 GRADE A2

**PARALLEL FACED
METAL SEATED GATE VALVES**

PROTECTIVE COATINGS & IN-HOUSE TESTING



Protection Against Extreme Climatic Conditions

- We use high quality **WRAS** Water Coatings which are non-toxic and water works approved, and therefore do not permit microbiological growth nor impart any odour, taste, cloudiness or discolouration to the water. Ferrous surfaces in contact with water are two pack epoxy painted. All valve bodies and all other castings are supplied coated for tropical conditions.



IN-HOUSE TESTING

All valves are stringently tested in accordance with BS 5163 & BS EN 1074 Standards.

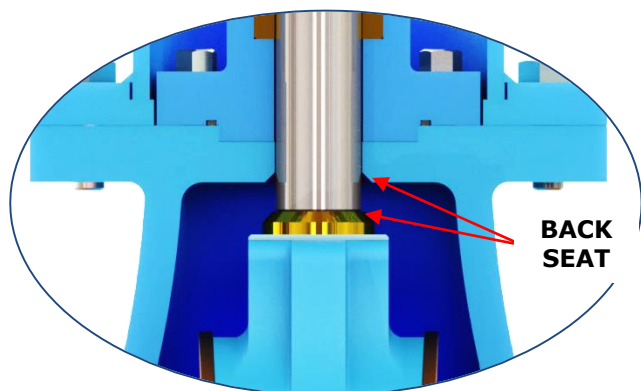
**PARALLEL FACED
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FEATURES & BENEFITS



1) Back Seat (Rising Stem Valves Only)

Back seating is achieved by manually operating the valve from the fully open position. Once in position the Stem Collar makes contact with the Bonnet Bush seating surface and provides a positive back seal.

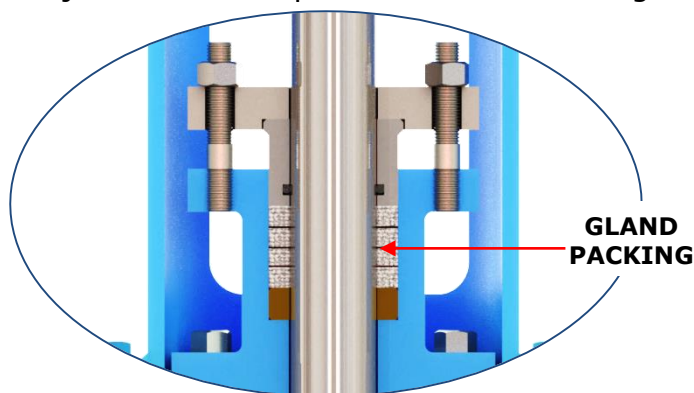


Benefits:

- Permits repacking of the valve whilst under full line pressure
- In this position maintenance personnel may safely replace the gland packing whilst under full line pressure

2) Gland Packing

Adjustable and Replaceable Gland Packing.

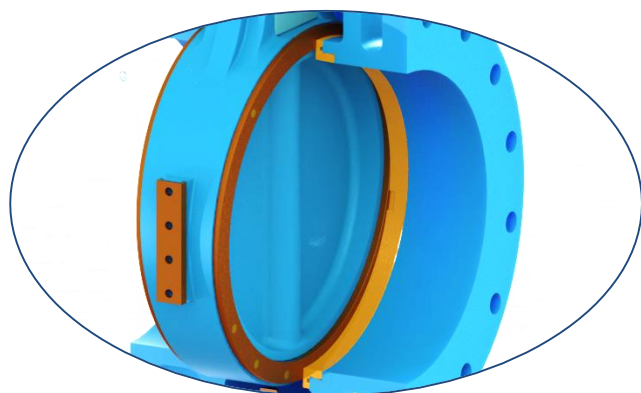


Benefits:

- Ensuring continuous seating of the operating stem.

3) Seating Capabilities

A special & optimised wide seat profile made with high strength material considerably reducing the seat loads during closure.



The lapping method is used to ensure flatness within 3 light bands which guarantees drop-tight closure.

Benefits:

- Tight Shut-Off at high & low differential pressures.
- Wear Resistant.

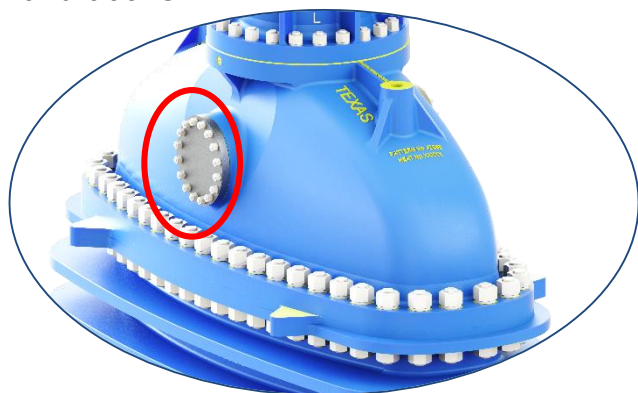
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FEATURES & BENEFITS



4) Inspection Covers

The valve incorporates two inspection covers within the valve bonnet on sizes 30" and above.

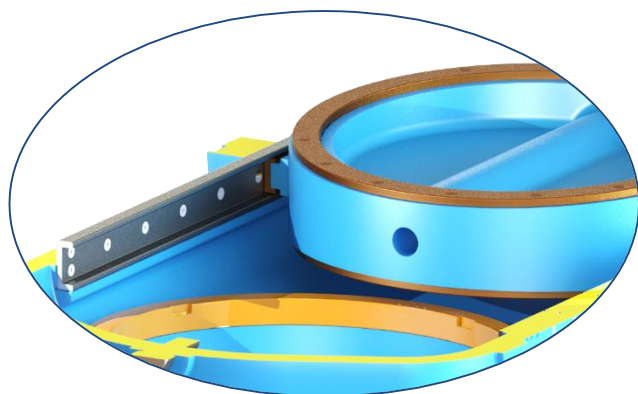


Benefits:

- The covers enable maintenance personnel to inspect the valve internals and offers access for inspection with endoscopic camera equipment.

5) Self-Cleaning Guides

Self-Cleaning guides incorporated into the valve design operating automatically during every cycle.

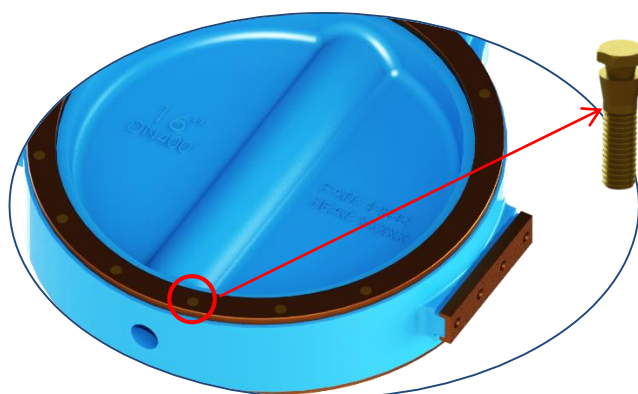


Benefits:

- Prevents the formation of debris / minerals / mollusc / mussel.

6) Seat Face

Seating faces are fully retained with screwed metal face pins.



Benefits:

- This prevents the faces from dislodging under extreme operating conditions.

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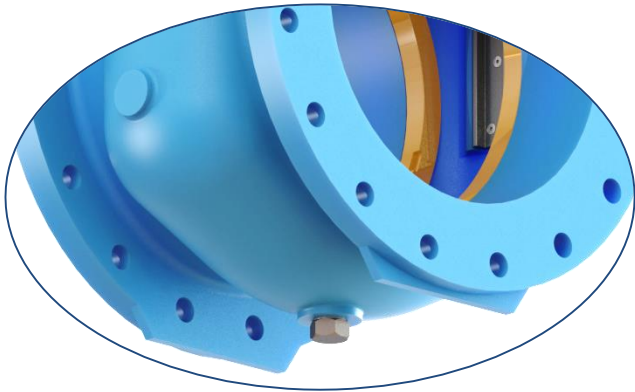
FEATURES & BENEFITS

Contd.



7) Integral Flushing Port

Flushing port is incorporated in all valves.

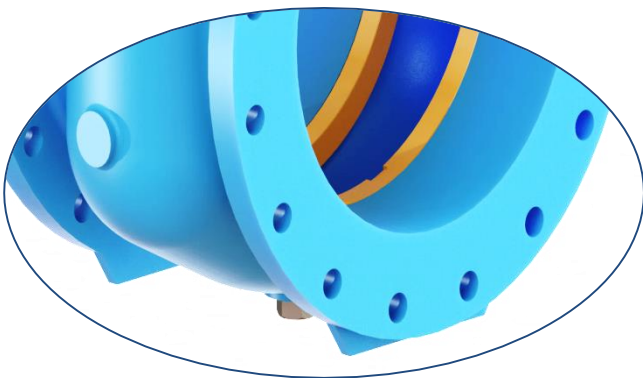


Benefits:

- This allows the periodic removal of silt build up.
- Plugged and Screwed on small bore valves (up to 24").
- Flanged with rodding facility on larger bore valves (30" and above).

8) Integral Support Feet

The body includes integral mounting facilities.

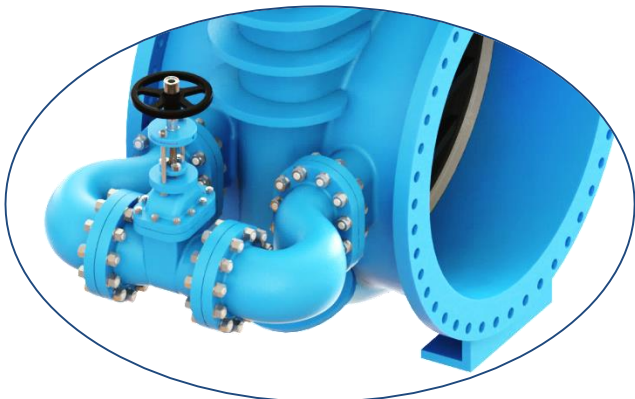


Benefits:

- Easy mounting of the valve.

9) Large Bore Bypass

The valve incorporates a large bore bypass.



Benefits:

- Rapid pressure balance.



The Standard Documentation supplied with the Blackhall Metal Faced Gate Valves :

- ✓ Drawings - indicating overall dimensions, materials of construction and settings
- ✓ Data including - pressure ratings, materials of manufacture and weights of valves
- ✓ Test and certificate of conformity
- ✓ Operation and Maintenance Manual

After-Sales Service

- ✓ **Blackhall, Taylor and Shaw** have over 100 years of experience in designing and manufacturing valves for a diverse range of industries, and during this time we've offered a **comprehensive after-sales service** including spares, in-house refurbishment, and on-site service & repair for our customers. Whether it is a single valve or an entire plant Blackhall provides a **professional service**, with the experience, manufacturing capabilities and skills to ensure your valves are in the most **reliable hands** in the business.



BEFORE



AFTER

Did you know?

*Blackhall manufactured
world's largest gate valve
designed to last for 100
years*

**Contact Blackhall Engineering Ltd. for additional information
on our Metal Faced Gate Valves and other products such as
Larner-Johnson® Flow Control, Fixed Cone Free Discharge &
Submerged Discharge valves.**



Explore more at
www.blackhallwatervalves.com

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