Qublock Technology

Innovative Special Valves

Introduction

On the basis of accurate date, extensive experience, technically excellent know-how, and superior to meet the special requirements of its customers. It takes into consideration various materials,

Years of Experiences and Study

Based on the wide experiences, its engineers have gained the technical and manufacturing know-how in the global valve industry. Qublock focuses on severe applications requiring solutions to **high-pressure, high-temperature, high cavitations, corrosive and erosive situations with a tight shutoff and low emission.**

Qublock Offers

Customized Products

We meet the special requirements of customers with valves that are designed on the basis of accurate data, extensive experience, technically excellent know-how, and superior precision machining. Customized valves offered by Qublock lead to considerably long, safe operation and effective maintenance for your plants.
Through Qublock Technology, you can realize the ideal performance of your plants.

- ***High pressure***
- ***Slurry***
- ***Solid sludge***
- ***Cryogenic***
- ***Corrosive***
- ***High viscosity***
- ***Toxic***
- ***Erosive***
- ***High temperature***
- ***Explosive***

Consulting

We listen to customer's demands and consult them closely.

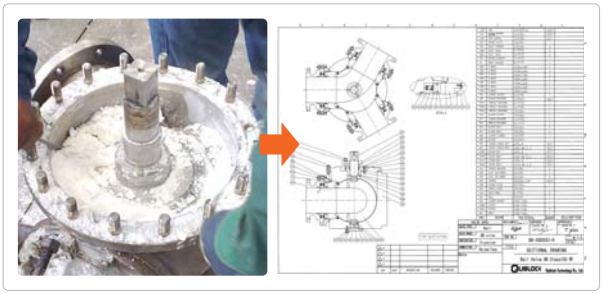
» ***Diagnosis-****We offer both on line and off line diagnosis when you a have headache in your plants.*

» ***Prediction-****Through the consulting and diagnosis, we provide how to predict some possible causes/matters*

» ***Solution-****When found any troubles, we give you clear solutions.*

Solution

As a leader in valve and process technology, Qublock`s engineers have devoted to troubled process, offering a clear solution to the users with an experience of more than 40 years in design, sizing and optimizing of various types of valves in the severe industry and manufacturing processes.



Certification and Standards

Qublock products are certified to comply with international certifications and standards to meet the demands of independent verification

» ***International Certificates***

- ISO 9001, 14001, 18001
- API 6D-1286
- Fire safe-API607 6th Ed.
- Fugitive Emission - ISO15848-1

» ***Reference Standards***

- ASTM, JIS, DIN, BS, UNS, API, JPI
- ASME B16.10 / 25 / 34 / 47 / 5
- MSS SP-06 / 25 / 55
- NACE MR 0175 / 0103
- EN 12266-1 / 2, EN ISO 17292, EN 473 / ISO 971

6D-1286

precision machining, Qublock aims to find innovative and dependable solutions to severe applications sizes, options and international standards and certificates to develop each solution.

Applications we focus

Coal to Gas / Liquid

Coal gasification is the process of producing coal gas, a type of syngas-a mixture of carbon monoxide (CO) and hydrogen (H_2) gas-from coal. IGCC is a high-efficiency electric power generation system for this process. Recently, it has attracted attention from the viewpoint of the low CO_2 exhaust achievable with CCS.

Polysilicon

Polycrystalline silicon, also called "Polysilicon," is a material consisting of small silicon crystals. It is different from single-crystal silicon, used in electronics and solar cells, and from amorphous silicon, used in thin-film devices and solar cells.

PTA (Purified Terephthalic Acid)

PTA is the main raw material used for making polyester fibers, PET fibers (raw material used for making plastic bottles), PET films, and so on. The base materials acetic acid and terephthalic acid are highly corrosive even after the slurry process. Hence, the titanium valve that regulates the flow of PTA needs to have strong erosion resistance.

Acetic Acid

Acetic acid is the base material for paints, adhesion bonds, and vinyl acetate. Usually, a Hastelloy or Zirconium valve is used for regulating the flow of acetic acid in order to meet the requirement of strong corrosion resistance.

Nickel Mining

Nickel is the base material of corrosion-inhibiting and corrosion-resistant materials such as stainless steel and inconel. The fluid condition is very crucial because of the high pressure, slurry, and use of strong sulfuric acid. The valves used by these mines have special specifications and requirements.

UREA

Urea is produced by an ammonia stripping process in which ammonia and carbon dioxide react at 150 bar to yield urea and ammonium carbide. High pressure, temperature, and corrosion resistance are all considered to be important criteria while selecting the materials for valves.

QB-Series | Trunnion Ball Valves

Superfine Roundness, Low Friction, Tight Shut-off, Solid Resistance, Fugitive Emission

Rating_Class150 to 2500, JIS10K to 63K
Temperature_up to 800 deg-c (1,470 °F)
Hard Facing_TiO2, SFNi, Tungsten, Others
Size_1" to 40" (25A to 1000A)
Leakage Rate_API598, Tight Shut Off

Superfine roundness : The perfect spherical shape designed on the basis of the Q-Lap® system creates a seal-lock environment.
Scrapping seat : The self-cleaning system to remove adhesive media on the ball surface whenever the valve is cycled.
Tight shutoff sealing : The soft-seated and metal-seated QB-series exhibit a tight shut-off sealing performance. This is the result of trustable engineering data and production control.

QB-Series | Floating Ball Valves

Superfine Roundness, Low Friction, Tight Shut-off, Solid Resistance, Fugitive Emission

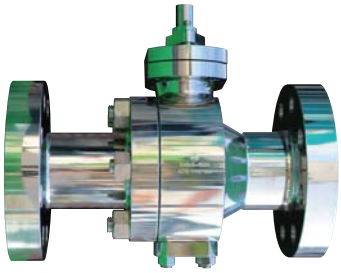
Rating_Class150 to 2500, JIS10K to 63K
Temperature_up to 800 deg-c (1,470 °F)
Hard Facing_TiO2, SFNi, Tungsten, Others
Size_1/2" to 10" (15A to 250A)
Leakage Rate_API598, Tight Shut Off

Double seal structure : All parts where emission is possible have two stages of sealing structure with soft and metal seals.
Solid resistance through hard-facing : Qublock hard-facing solutions can be used to provide high resistance to severe impacts in critical applications
Low friction : The superfine roundness of ball and precisely machined valves parts lead to low friction, a reduction in the valve torque, and the extension of product life.

QB-Series | V-Port Ball Valves

High pressure, Tight Shut-off, Smooth flow characteristics with No cavity

Rating_Class150 to 1500, JIS10K to 63K
Temperature_up to 800 deg-c (1,470 °F)
Hard Facing_TiO2, SFNi, Tungsten, Others
Size_1" to 24" (25A to 600A)
Leakage Rate_API598, Tight Shut Off, Class VI



Wide range ability (100:1) : The control valve range ability can be described as the ratio of the maximum controllable flow to the minimum controllable flow
High pressure range : The basic design of the Qublock V-port valve is metal seated and trunnion ball valve to cover the high pressure range up to 1500 LB.
Tight shut off : The Qublock V-port valve has a metal seat however, it also features tight shut-off sealing performance.

QB-Series | DBB Ball Valves

Rating_Class150 to 2500, JIS10K to 63K
Temperature_up to 800 deg-c (1,470 °F)
Hard Facing_TiO2, SFNi, Tungsten, Others
Size_1" to 40" (25A to 1000A)
Leakage Rate_API598, Tight Shut Off

Intrinsic safety - When compared to a traditional hook-up of two single 3-piece isolated ball valves with a standard trunnion design, Qublock DBBV has been designed to reduce the number of potential leaks.
Space saving - The replacement of single isolated valves with a true double block and bleed valve, but within the same overall length, ensures that expensive pipe work is kept to an absolute minimum, thus reducing the overall space requirements for the associated equipment.
Weight saving -When compared to a conventional double block and bleed hook-up of two separate ball valves with a central spool piece and vent valve, weight savings are considerable.

QC-Series | Check Valves

Rating_Class 150 to 2500, JIS 10K to 63K
Size_1/2" to 24"
Type_Straight, Lift, Dual Plate, Swing
Temperature_550°C, 1022°F
Leakage Rate_API 598
Hard Facing_Hard Chrome Plating, Nickel Alloy Overlay, Carbonized Tungsten, Titanium Oxide, Stellite#6

High pressure range ability : Qublock check valves have a wide pressure range from Class 150 to 2500 for providing high-integrity first-line defense and cracking pressure.
Optimum spring selection : A specially designed spring is incorporated in QC-Series for minimum opening pressure and preventing chattering perfectly.

QT-Series | Tank Bottom Valves

Rating_Class 150 to 1500, JIS 10K to 63K
Size_1/2" to 24"
Type_Inside disc, Outside disc, Ram
Temperature_550°C, 1022°F
Hard Facing_Stellite #6,#12,T-Ni
Option_Full Jacket, Semi Jacket, Double Gland Packing with Lantern Ring, Buffing Inside Port

Fugitive emissions-ISO15848 : The latest international fugitive emission standard ISO 15848 was applied to the QT series to minimize the level of emission
Dead space free : Drain valves are designed to ensure complete drainage from the vessel and from the valve itself. QT-Series dead space free design prevents slurry or particle accumulation.

QS-Series | Gate Valves

Rating_Class 150 to 2500, JIS 10K to 63K
Size_1/4" to 60"
Temperature_550°C, 1022°F
Hard Facing_Stellite #6,#12,T-Ni, Bronzing
Option_Full Jacket, Semi Jacket, Bellows Seal, Purge Nozzle, Double Gland Packing with Lantern Ring, Vent Hole & Relief Valve

Double seal structure : A unique advantages of the QS-series, the double-seal design is applied to all parts where emission is possible with both soft and metal seals for ensuring intrinsic fire-safe performance, low emission, and easy maintenance.
Robust packing retainer : In emergency cases such as emission leakage from gland packing, a strong force can be supplied to tighten the bolt gland packing. A strong packing retainer can transmit the strong force to gland packing and thus limit leakage.

QG-Series | Globe Valves

Rating_Class 150 to 2500, JIS 10K to 63K
Size_1/4" to 24"
Temperature_550°C, 1022°F
Leakage Rate_Class VI, API598
Hard Facing_Stellite #6, #12,T-Ni, HCr
Option_Full Jacket, Semi Jacket, Purge Nozzle, Double Gland Packing with Lantern Ring

Low emission packing : The special stem sealing was designed to meet the latest ISO15848 fugitive emission standard. This packing is made of expanding graphite, which has various advantages such as heat, chemical resistance, less stress relaxation, and low creep
Live loading design : The live loaded packing combines the excellent sealing performance of the graphite packing set with the high performance of the spring pack. It ensures emission prevention.

QF-Series | Butterfly Valves

Rating_Class 150 to 2500, JIS 10K to 63K
Size_2" to 60"
Temperature_550°C, 1022°F
Hard Facing_Stellite #6, #12,T-Ni, HCr
Option_Full Jacket, Semi Jacket, Purge Nozzle, Double Gland Packing with Lantern Ring, Extension Bonnet, Long Pattern Dimension

Unique seal design : QF series seal mechanism gives flexibility to the seat and distributes load to the disc equally for providing low-operation torque and great seal performance.
Long bearings : Qublock bearings provide minimum friction during shaft rotation, long-term sealing performance, and stable operating torque. This long bearing is also designed for the "no lubrication"condition

Exotic Material

Qublock has a wide range of extraordinary skills and experience to handle exotic alloys such as titanium, Hastelloy, Inconel, Incoloy Monel, and zirconium to meet customers needs. Selecting and blending of materials, handling of the machine, and assembling parts are key processes for obtaining a complete product. Qublock specializes in managing the core processes for valve manufacturing to produce high-quality products.

Fugitive Emission Design (ISO 15848)

Increasing plants safety level is considered as one of important issues for plant management. Therefore, Qublock technology provides a few packing options in order to reach the low emission level in accordance with ISO-15848.

1 Double gland packing

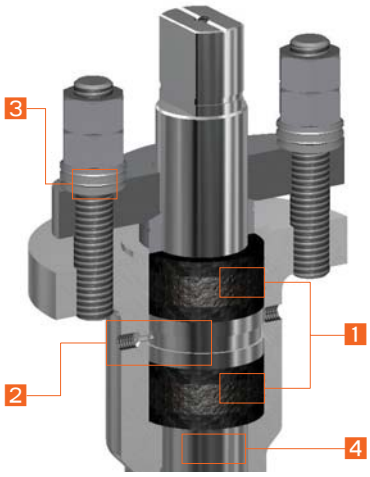
It is applying two sets of graphite gland packing to increase sealing performance. In case that the first packing set is pressed and damaged by fluid conditions such as heat, high pressure, foreign substance and so on, the second packing set keeps the sealing performance.

2 Lantern ring with injection Port

A lantern ring is inserted between the two-gland packing for injecting gas inside it works for ultimate sealing on the gland packing part and for a leak check.

3 Live loading gland bolts

In normal case, valve packing is tightened by gland and gland bolting. During the service, the gland load retention will be reduced by long time pressure from medium, which will cause possible leakage with loosened packing. Using springs installed on each gland stud to provide a continuous compressive force on gland keeps permanent load retention for the stem packing to avoid fugitive emissions.



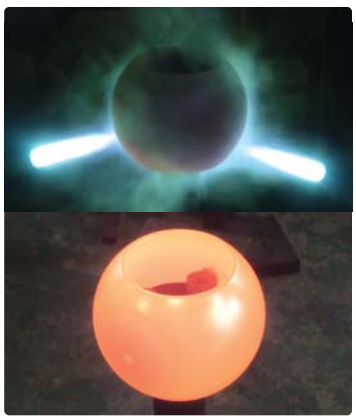
4 Special finished seal parts

For minimizing damages of gland packing for long service life, Qublock applies speical finishing treatments on the sealing parts

Valve Hardfacing

In recent years, most valve designers have been considering the protection or removal of the seats and seating members from direct impingement by particles in the flow stream. The downside of metal-seated valves is the inability to provide a repeatable leak rate acceptable for a specific application or the inability to provide seats resistant to abrasive wear and impingement by particulates, fines, and other solids entrained in the process stream. Technical advancements have occurred in hard-facing and coatings.

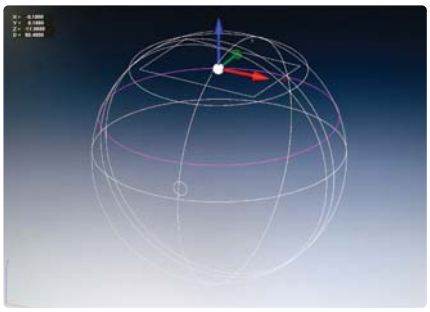
The choice of which hard-facing to use is determined by the propensity for damage by direct impingement, potential for abrasive wear due to fines, hardness requirement, corrosion and thermal cyclic considerations, bearing properties, and substrate material and geometry.



Qublock provides solutions on the basis of past experience, operation cycle, compatibility with the base material, and fluid conditions. Various Qublock hard-facing solutions provide high resistance to severe impacts used to critical applications such as PTA, polysilicon, coal gasification, urea processes, etc. Qublock enhances the wear/corrosion resistance of the ball and the seat materials by weld overlays, electroless nickel coating, plasma coating, detonations, powder flame spraying, and other special treatments depending upon the process conditions and customized specifications.

Superfine Roundness - Tolerance of Ball Surface: 1 μm

The perfect spherical shape designed using the Q-LAP system creates a seal-lock environment and leads to a relatively long life.
The superfine ball surface enhances the removal of particles on the surface, minimizes leakage, and extends product life. It also provides a high sealing performance, achieving a tight shut-off leakage rate. This can be achieved by Class VI API 598 with a metal-to-metal seat.



Q-LAP® System


Trimming

Coating

Grinding

Auto-Lapping

Final Hand Lapping

Roundness Check

The surface of the parent material will be even after the trimming process, and blasting increases the adhesion of the coating.

Various coating methods are applied. The coating thickness and order will be changed slightly according to the process condition in order to achieve the best performance.

Before lapping, the coating surface is roughly ground; the coating condition is rechecked at the end of this process.

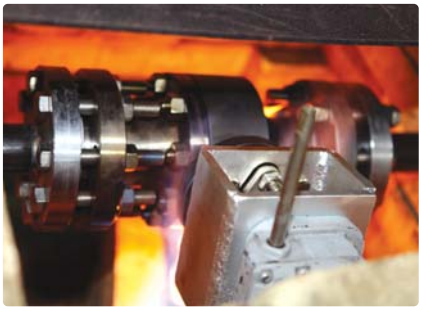
Qublock's auto-lapping machine significantly reduces time and cost.

Final hand lapping and visual check is conducted by experts in order to obtain the ultimate roundness.

The valve roundness will be measured if the result is within the tolerance limits. All data and results are registered. Further, a test report will be supplied if requested.

Fire Safety Design

Qublock has fundamental robust applications where integrated valves must be maintained before, during, and after a fire. Further, Qublock's independent mechanism assures a tight shut off and prevents external leakage in the extreme heat of an industrial fire. All sealing faces are designed with two phases, gasket and metal-to-metal. Qublock ball valves provide not only reliable sealing characteristics in case of a fire but also continuously intended functions after a fire. The structure, the material used for the gasket, and the packing applied are certified by API 607 6th Edition, and the design complies with ISO 10497.



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