



DeZURIK AWWA BUTTERFLY VALVES



Defining the DeZURIK Difference



DeZURIK History

DeZURIK is an innovative global leader for the water and wastewater treatment industries, recognized worldwide for high quality and superior performance.

While DeZURIK provides innovative valves and related equipment for water and wastewater, DeZURIK eagerly responds as new industries develop and existing industries progress. Our knowledgeable engineers are quick to respond with groundbreaking technological advances. They continue to develop a wide range of products focusing on water and wastewater treatment, pulp and paper, chemical and petrochemical, power, mining and other process industries. Some of our products increase accuracy. Others assure durability or reliability. All of our products work to enhance our customer's profitability.

Certification

For our latest certifications, please visit our web site www.dezurik.com.

Leading Edge Design Software

Computer Aided Design systems are used by research and development engineers throughout the product development cycle. DeZURIK utilizes leading edge solid modeling software which allows product designers to view valve parts and assemblies three dimensionally. The 3D models are electronically transferred to Finite Element Analysis software where stress and deflection calculations are performed. This software allows designers to visualize deflection of critical parts under extreme loads. Proper relief and safety factors are included in every valve design to ensure long performance life.



Advanced Machining Capabilities

DeZURIK's solid modeling CAD software allows parts to be directly transferred to CAM modules for machine fixture design and NC programming. AWWA Butterfly Valves are manufactured with the most sophisticated machining centers available. Milling, drilling, boring, and tapping operations are performed on fully automated machine centers that perform sequential, error-free operations. DeZURIK's investment in state-of-the-art machining centers ensures products of consistently high quality.



Rubber & Elastomer Compounding

DeZURIK formulates and handcrafts rubber to control quality on critical components. Over 50 years of pressure/temperature rubber-molding experience assures the AWWA seat design provides long, maintenance-free service. DeZURIK compounds its own resilient seat materials to assure low operating torque and protection from pipeline corrosion and abrasion from sedimentation deposits.

Prototype Design Testing

Valve prototypes of sizes up to 36" (900mm) are tested in DeZURIK's flow laboratory. Flow ranges from a few cubic centimeters per minute to 72,000 gallons per minute can be tested. Computer controlled testing automatically sets flow, monitors temperatures, takes sample readings, and analyzes information. Before release, beta test sites are used to gain actual field experience. Valves are tested up to 10,000 cycles per AWWA C504 specifications. Proof of design testing certification is available.

Applications

DeZURIK AWWA Butterfly Valves are designed for applications throughout water and wastewater treatment plants, water distribution systems, power plants, and industrial plants. AWWA Butterfly Valves can be applied in applications demanding high-quality and thoroughly tested valves which offer many years of trouble-free service.



Pump Check Control Systems

Pump check control systems, utilizing AWWA Butterfly Valves, are available in many different models.



Square and Rectangular AWWA Butterfly Valves

Square and rectangular AWWA Butterfly Valves are available for controlling influent and effluent on grit removal and treatment tanks. A variety of square/rectangular valve sizes, mounting options, and actuators are available.

Production Testing

Each valve is given a hydrostatic, seat leakage and performance test per AWWA C504 before it is shipped.



3-20" (80-500mm) Design Features for Years of Trouble-Free Service

Body Styles

Flanged, ANSI B16.1 Class 125,
3-20" (80-500mm), Valve Class 150B

Flanged, ANSI B16.1 Class 125,
3-20" (80-500mm), Valve Class 250B*

Flanged, ANSI B16.1 Class 250,
3-18" (80mm-450mm), Valve Class 250B*

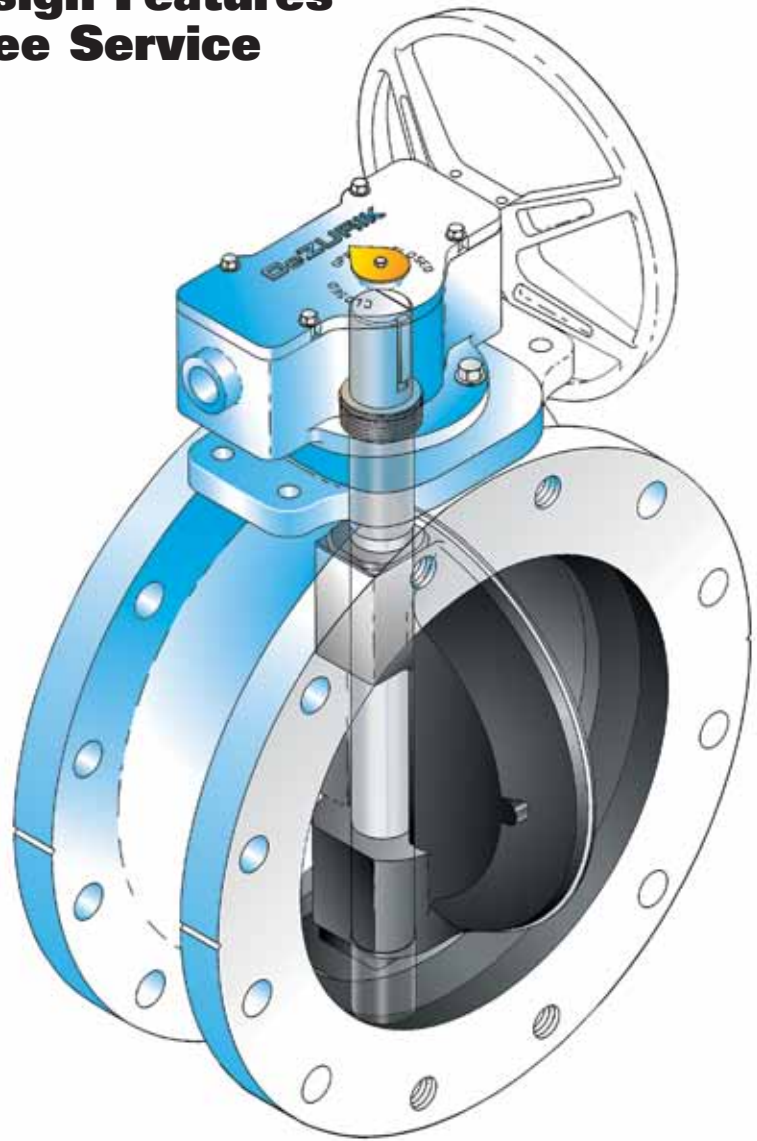
Mechanical Joint, ANSI/AWWA C111/A21.11,
4-20" (100-500mm), Valve Class 150B

Mechanical Joint, ANSI/AWWA C111/A21.11,
4-20" (100-500mm), Valve Class 250B*

*These valve classes meet or exceed the full intent of AWWA C504 including design, material, and testing requirements.

Corrosion Resistant Shaft

Stainless steel shafts provide corrosion resistance in bearing and packing journal areas to ensure long bearing and packing life. Standard shaft materials include 304, 316, and 17-4 PH stainless steel.



Long Life, Low Friction Bearings

Upper and lower journal shaft bearings are designed to provide high compressive strength, low friction and require no lubrication.

Self-Compensating Shaft Seals

Shaft seals are self-compensating, V-type packing. DeZURIK uses a minimum of four sealing rings. This proven multi-ring sealing technology offers reliability and continuous self-adjustment.

Fully Rubber Lined Body

A fully rubber lined body is standard, eliminating the need for inner body coating, and protecting the body against corrosion buildup.

Integrity of the Proven Molding Process

The rubber bonding process used on DeZURIK AWWA Butterfly Valves is proven by more than 50 years of field experience. AWWA C504 requires testing of the bonding process per ASTM D429, method B. The test requires a 1" (25mm) wide strip of rubber to withstand a minimum 75 lbs. pull force (at a 90° angle) before tearing away from the valve body. During destructive testing, the rubber must tear before the bond between the rubber seat and metal valve body gives way, demonstrating that the bond is stronger than the rubber. Based on extensive experience and proof of design testing, DeZURIK can assure that a molded-in body seat remains maintenance-free for the life of the valve.

Choice of Seat Materials

Standard seat materials include Acrylonitrile-Butadiene (NBR) for water service and EPDM for high-temperature applications such as air blower lines.

4° Sealing Surface

The spherical sealing surface, molded into the valve seat, provides constant interference between the sealing surface and the disc edge for a full 4° sealing range. This allows the actuator to be adjusted within the correct sealing range while the valve is under pressure and flow.

Molded-In Body Seat

The pressure/temperature molding process used on AWWA Butterfly Valves provides a long-lasting, maintenance-free seat. DeZURIK' molded-in body seat lasts far beyond the 10,000 cycles required by AWWA C504. The molded seat-in-body design provides:

- Uniform rubber thickness.
- Consistent interference between the rubber seating surfaces and the stainless steel disc edge.
- Tight tolerance control on critical seat dimensions.



Disc Locators

An innovative, molded-in, disc-centering device aligns the disc in the seat, providing a positive seal and longer seat life. Disc hubs, supported by the locators, ensure disc location accuracy. The off-set style disc design means disc-alignment locators are separate from the sealing surface, extending valve seat life.

Proven Disc-To-Shaft Pinning

All DeZURIK disc-to-shaft pinning connections conform to AWWA C504. Disc-to-shaft pinning is provided by a stainless steel torque screw on sizes 3–12" (80–300mm). Sizes 14–20" (350–500mm) utilize a tangential pin which is locked in place with a stainless steel set screw.

High Temperature Applications

For operating temperatures to 290° F (143°C), EPDM seat material and packing, high temperature bearings and high temperature paint on the disc are available as standard options.

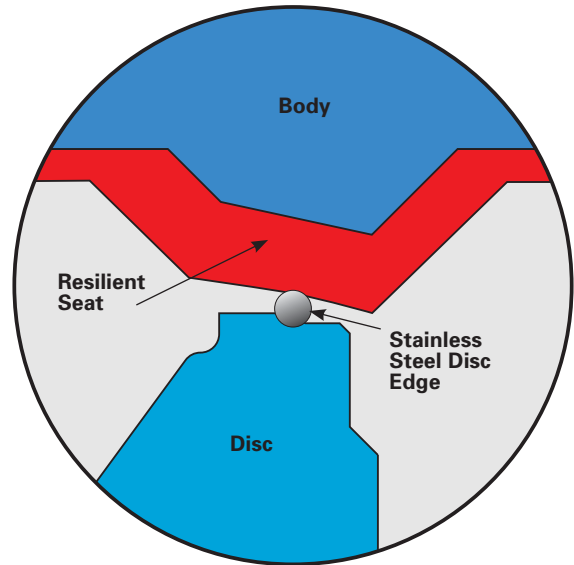
Integral Shaft Bearing Seals

To ensure all components of the valve remain maintenance-free, the molded-in body seat and body liner contain integral shaft bearing seals in the upper and lower journals. These seals protect bearing journal areas against sedimentation, mineral deposits, and corrosion particles — all of which can damage bearings and shorten valve life.

Seat-In-Body vs. Seat-On-Disc

DeZURIK's AWWA Butterfly began its evolution over 40 years ago. For over 25 years, a stationary rubber seat located in the valve body has been the standard. This feature is fundamental to the long-term performance of the valve.

After years of service, water distribution valves and pipelines (regardless of material) suffer the effects of abrasive corrosion and tuberculation buildup. When the rubber seat of a butterfly valve is located on the moving disc edge, it will erode or tear away as it plows its way through line buildup, causing the valve to leak. With a rubber seat-in-body design, the stainless steel disc provides the resistance necessary to plow through line buildup without seat-on-disc edge damage.

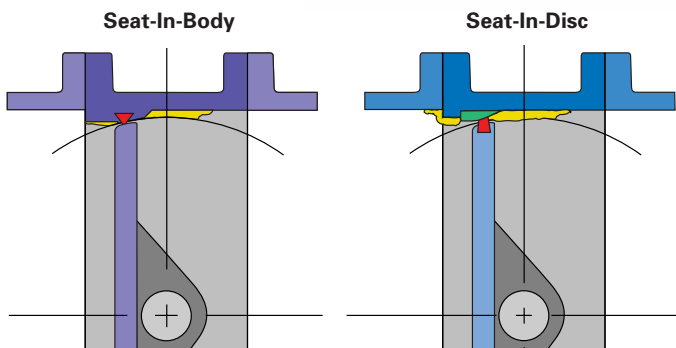


Off-Set Disc Design

The off-set disc provides an uninterrupted 360° sealing surface. The sealing surface is not interrupted by the valve shaft and does not have any continuous contact points between the rubber seat and the disc edge. This results in a longer seat life.

Stainless Steel Disc Edge

Solid 316 stainless steel disc edge provides the corrosion and abrasion resistance essential for long-lasting, maintenance-free service.



24" (600mm) and Larger Design — Quality Features for Superior Performance

Body Styles

Flanged, ANSI B16.1 Class 125,
24–120" (600–3000mm), Valve Class 150B

Flanged, ANSI B16.1 Class 125,
30–72" (750–1800mm), Valve Class 75B*

Flanged, ANSI B16.1 Class 125,
30–48" (750–1200mm), Valve Class 25A*

Flanged, ANSI B16.1 Class 125,
20–54" (600–1400mm), Valve Class 250B*

Flanged, ANSI B16.1 Class 250,
24–48" (600–1200mm), Valve Class 250B*

Mechanical Joint, ANSI/AWWA C111/A21.11,
24–48" (600–1200mm), Valve Class 150B

Mechanical Joint, ANSI/AWWA C111/A21.11,
24–48" (600–1200mm), Valve Class 250B*

*These valve classes meet or exceed the full
intent of AWWA C504 including design,
material, and testing requirements.

Corrosion Resistant Shaft Material

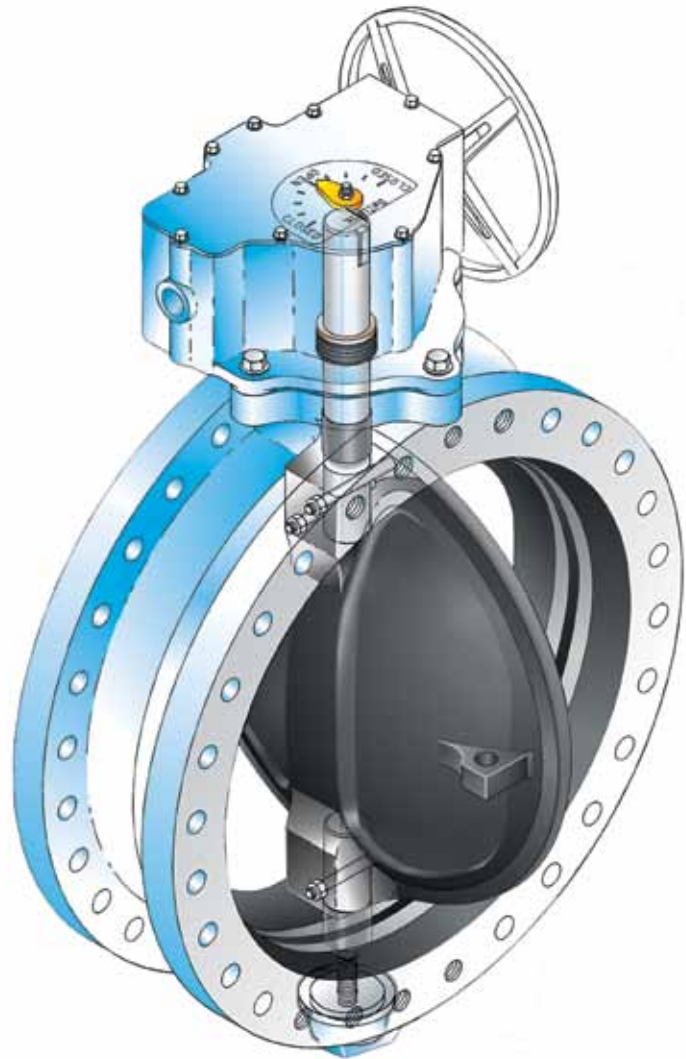
Standard shaft materials include 304, 316, and
17-4 PH stainless steel, providing the corrosion
resistance in the bearing and packing journal
areas necessary to ensure long bearing and
packing life.

Stainless Steel Disc Edge

Solid 316 stainless steel disc edges provide
a corrosion and abrasion resistant seating
area essential for long-lasting, maintenance-
free service.

Choice of Seat Materials

Standard seat materials include Acrylonitrile-
Butadiene (NBR) for water service and EPDM
for high temperature applications such as air
blower lines.



High Temperature Applications

For operating temperatures to 290°F (143°C),
EPDM seat material and packing, high temperature
bearings and high temperature paint on the body
and disc are standard.

Positive Disc Locators

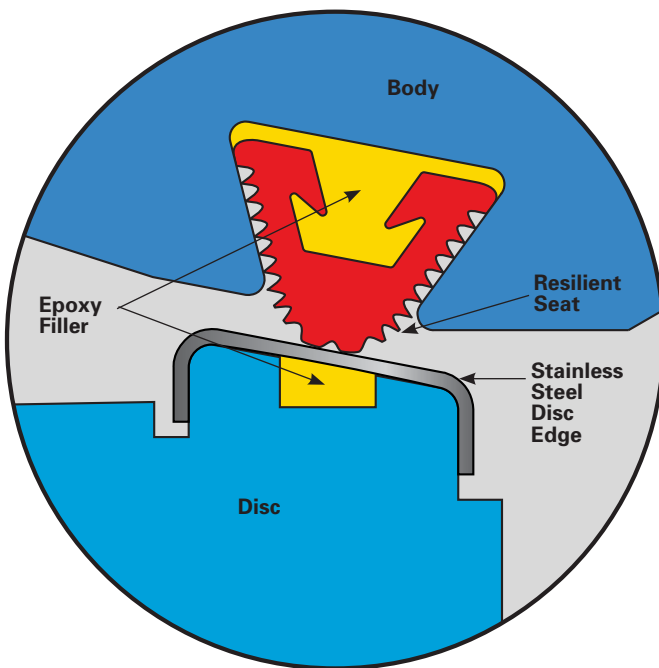
Incorporated into the lower shaft is an adjustable
thrust bearing assembly which holds the disc
position in all possible installation orientations.
This thrust bearing absorbs forces from the disc
weight, internal hydraulics and axial shaft loads.

Rugged Disc Structure

DeZURIK utilizes state-of-the-art design and analysis computer software and test equipment to develop the optimum disc structure. Larger valves have an open disc structure, allowing water to flow through the center ports of the disc. On smaller sizes, DeZURIK utilizes a dome disc structure. On all valve sizes the disc structure is non-hollow, allowing inspection of each surface and wall thickness against shrinkage and core shift during the casting process.

Seat Design

DeZURIK's large valve seat design is industry proven and offers reliability, low operating torque and long life. The rubber seat is retained within a dovetail groove in the valve body and locked in place by an epoxy wedge. This design eliminates the need for fasteners, retaining rings or retaining segments to lock the seat in place. After the valve is fully assembled, with the disc in the closed position, an epoxy compound is injected behind the rubber seat and cured at a predetermined pressure based on the valve's pressure class. The injection pressure controls the interference between the rubber and stainless steel disc edge, providing a level of seating performance virtually impossible to achieve with other seat designs.



Adjustable, Replaceable Seat

As required by AWWA C504 for valves 24" (600mm) and larger, this seat design offers field adjustment and replacement capabilities. Proper field adjustment can be performed from either the upstream or downstream side of a pressurized valve.

Proven Disc-To-Shaft Pinning

Disc-to-shaft pinning is provided by a stainless steel tapered pin on sizes 24" (600mm) and larger. This proven design provides a reliable, high strength connection that conforms to AWWA C504.

Long Life, Low Friction Bearings

The upper and lower journal shaft bearings are designed to provide high compressive strength, low friction and require no lubrication.

Self-Compensating Shaft Seals

Shaft seals are self-compensating, V-type packing. DeZURIK uses a minimum of four sealing rings. This proven multi-ring sealing technology offers reliability and continuous self-adjustment. Standard packing materials include Acrylonitrile-Butadiene (NBR) or EPDM to meet all application requirements.

Off-Set Disc Design

The off-set disc provides an uninterrupted 360° sealing surface. The sealing surface is not interrupted by the valve shaft and does not have any continuous contact points between the rubber seat and the disc edge. This results in a longer seat life.

Actuators



Rotary Manual Actuators

DeZURIK offers a variety of rotary manual actuator options which are in complete compliance with AWWA C504. Manual actuators are available with handwheel, chainwheel or 2" (80mm) square nut options.

Easily Adjustable Stops

Open and closed position stops can be easily adjusted without drilling, shimming or pinning. The stops ride the input shaft and can be repositioned with a simple adjustment of the stop nut.

Rugged Designs

Manual actuators are sized to operate with a maximum input of 150 foot pounds on 2" (80mm) square operating nuts, and 80 pound rim pull on handwheels and chainwheels. The actuators are self-locking, maintaining valve position under varying flow conditions.



Easily Rotatable

The four keyways in the yoke make DeZURIK manual actuators easy to rotate to any of four mounting positions.

Lever Actuators

Lever actuators are available on 3–8" (80–200mm) valve sizes.

Buriable and Weatherproof Construction

DeZURIK actuators feature a cast iron housing in buriable or weatherproof construction. The mechanism is totally enclosed and does not require lubrication for routine maintenance. Buried service actuators are grease filled per AWWA C504.

Valve Position Indicator

The pointer on weatherproof actuators clearly indicates the valve position marked on top of the housing. The indicator shaft is sealed to keep moisture from entering the actuator housing.

M-Series Design

The M-Series design is available on 3–36" (80–900mm) valve sizes. The scotch yoke mechanism allows the M-Series actuators to provide a torque curve matching the torque required by the valve. The actuator features a steel threaded input shaft and ductile iron yoke nuts. The high-strength stainless steel yoke nut bearings ensure efficiency and increase cycle life.

300 & 450 Foot Pound Input Torque

As required by AWWA C504, an input torque of 300 foot pounds against the fully adjustable open and closed position stops is standard. A 450 foot pound input capability against the stops is an option.

LA-Series Design

The LA-Series design is available on 30–72" (750–1800mm) valve sizes. The link-arm mechanism allows the LA-Series actuator to provide characterized closure which slows valve travel as the disc comes into the seat. The actuators feature high compressive strength yoke nut bearings which ensure reliable operation and increase cycle life.

High Output Torque

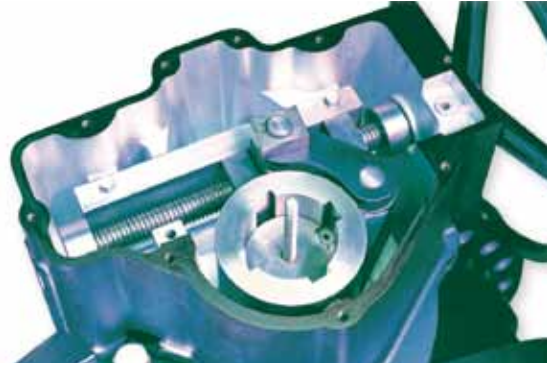
The LA-Series actuators feature an input torque capability of 450 foot pounds against the open and closed position stops as standard. An optional spur gear provides a 2:1 mechanical advantage while maintaining an input torque capability of 300 foot pounds against the stops. The spur gear slows closing of the valve, minimizing the possibility of water hammer.

Accessories

DeZURIK offers a complete line of extensions and accessories including enclosed neck extensions, extended operating nuts, floorstands, valve boxes, floor boxes, mechanical joint accessories, solenoid valves, speed control valves, positioners and switches.

Cylinder Actuators

All cylinder actuators are double-acting, stationary mounted with all working parts totally protected within weatherproof enclosures.



Electric Motors

Electric motors offer reliable and economical valve operation. The electric actuator and associated gearing meet AWWA C540. DeZURIK AWWA Butterfly Valves can be furnished with electric motor actuators produced by leading manufacturers.

C540 Cylinder Actuators

DeZURIK C540 pneumatic and hydraulic cylinder construction is in strict accordance with AWWA C540. The cylinder head and end cap are ductile iron. On pneumatic cylinders, interior surfaces are epoxy coated; on hydraulic cylinders, interior surfaces are nickel plated.

On pneumatic cylinders, the piston is epoxy coated cast iron and the piston rod is chrome plated carbon steel.

On hydraulic cylinders, the piston is nickel plated cast iron and the piston rod is chrome plated stainless steel.



Sales and Service

For information about our worldwide locations, approvals, certifications and local representative:

Web Site: www.dezurik.com E-Mail: info@dezurik.com



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