

ISO 9001 CERTIFIED



AWWA BUTTERFLY VALVES

Scope of Line: AWWA Rubber Seated Butterfly Valves



Model 511A Butterfly Valve

Model 511A Flanged Butterfly Valve

Sizes: 3 through 20 inches

Body Style: Flanged x flanged ends

Pressure Class:

- Class 150B per AWWA Standard C504

Working Pressure: 150 psig

Flanges:

- Flat faced and drilled in accordance with ANSI B16.1, Class 125 standards.

Rubber Seat: Bonded seat-in-body

Actuation Options:

- MDT manual actuator with AWWA nut, handwheel or chainwheel
- Hydraulic or pneumatic cylinder
- Electric actuator

Model 510A Mechanical Joint Butterfly Valve

Sizes: 4 through 20 inches

Body Style: MJ x MJ ends

Pressure Class:

- Class 150B per AWWA Standard C504

Working Pressure: 150 psig

Rubber Seat:

- Bonded seat-in-body extends over inner surface to form self-gasketing feature

Actuation Options:

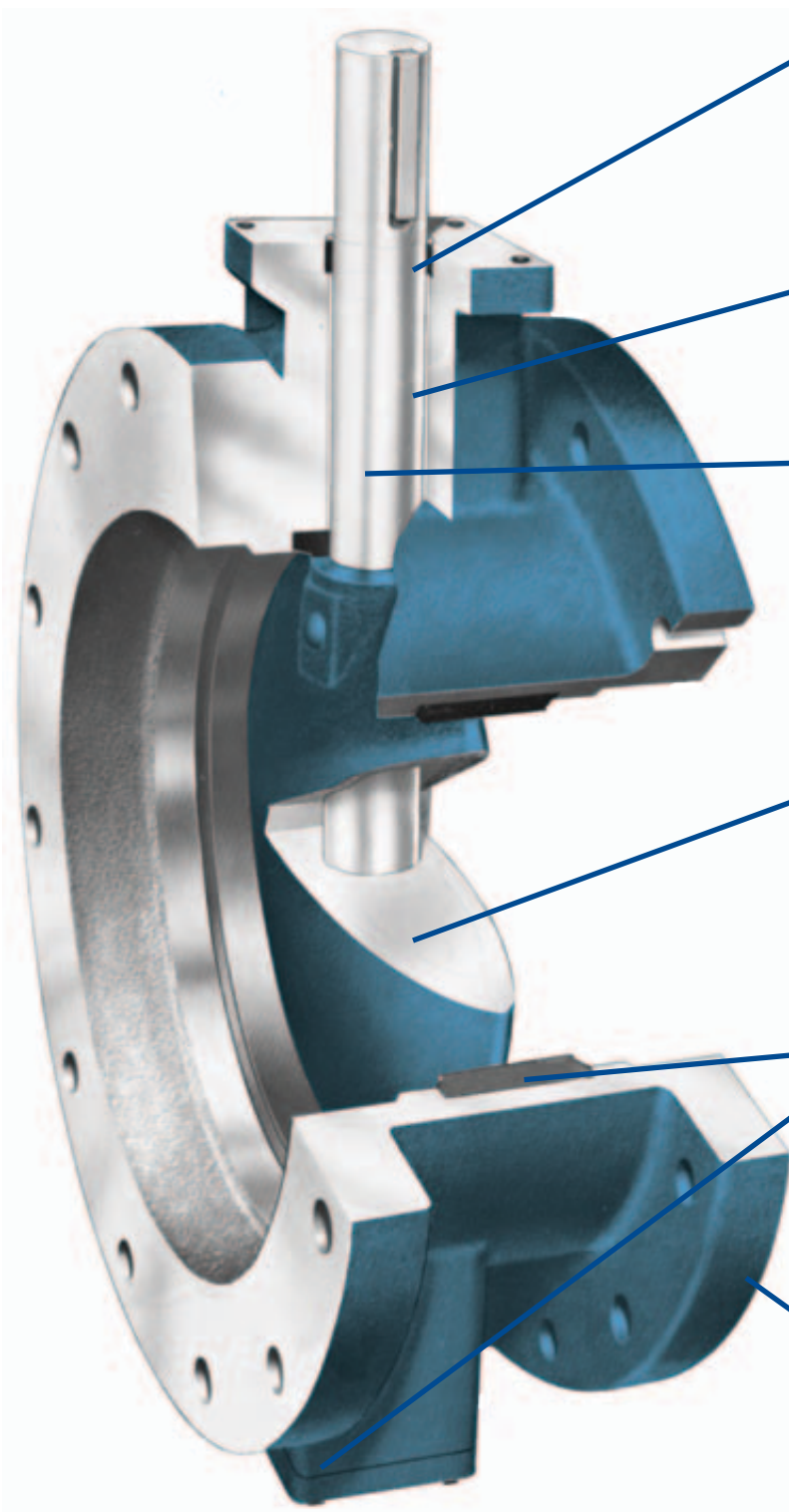
- MDT manual actuator with AWWA nut



Model 510A Butterfly Valve

Please see the outside back cover for a listing of other Milliken products

Design Details: Models 511A and 510A — 20" and Smaller



Self Adjusting Permanent Packing

Chevron type packing increases sealing force as line pressure increases. The self adjusting packing bears on turned, ground and polished stainless steel, minimizing wear and assuring long life. Packing is accessible for replacement without dismantling the valve per AWWA Standard C504.

Lifetime Bearings

Chemically inert nylon bearings are sized to meet or exceed AWWA specification pressure loads. They are self-lubricating, require no periodic maintenance and are designed to outlast the life of the pipeline.

Corrosion Resistant Shafts

Shafts in rubber seated butterfly valves, 3" through 20", are constructed of centerless, ground ASTM A276 type 304 or type 316 stainless steel bar and thus are not susceptible to corrosion as are carbon steel or other similar materials. Shafts are one-piece, through-shaft construction, sized to meet or exceed the requirements of AWWA Standard C504 for Class 150B butterfly valves.

Streamlined Discs

The lens-shaped discs are designed to minimize pressure drop and turbulence. In the full open position, the disc creates no more friction loss than a 45° elbow. Discs are secured to shafts by stainless steel pins to transmit required torques and withstand stresses imposed under a variety of operating conditions.

Body Seat

Our standard seats are constructed of Buna N rubber and bonded to the valve body. This molding process ensures that the disc-to-seat interference will not cause excessive wear or abrasion under normal operating conditions. The seat-in-body design minimizes the effects of corrosive buildup on the inside of the valve because deposits are swept away by the hard sealing edge of the disc each time the valve is exercised.

Heavy Duty Bodies

Both Models 511A and 510A bodies are heavy duty cast iron. Model 511A flanges are fully faced and drilled in accordance with ANSI B16.1, Class 125 standard for cast iron flanges. Model 510A mechanical joint end connections are in accordance with AWWA C111 and ANSI 21.11. The actuator mounting trunnion is machined and drilled for a 4-bolt connection.

Suggested Specification for the Milliken Rubber Seated Butterfly Valve, Sizes 3 through 20 inches

General

Butterfly valves shall be manufactured in accordance with the latest revision of AWWA C504, Class 150B and conform to NSF Standard 61. The manufacturer shall have produced AWWA butterfly valves for a minimum of five years. All valves shall be either 511A Flanged or 510A Mechanical Joint and comply with the following details.

Valve Bodies

Valve bodies shall be constructed of ASTM A126, Class B cast iron. Flanged valves shall be fully faced and drilled in accordance with ANSI Standard B16.1, Class 125. Mechanical joint end connections are in accordance with AWWA C111 and ANSI 21.11.

Valve Seats

Rubber body seats shall be of one piece construction, simultaneously molded and bonded into a recessed cavity in the valve body. Seats may not be located on the disc or be retained by segments and/or screws.

Valve Bearings

Valve bearings shall be of a self-lubricating, non-metallic material to effectively isolate the disc-shaft assembly from the valve body. Metal-to-metal thrust bearings in the flow stream are not allowed.

Valve Disc

The disc shall be a lens-shaped design to afford minimal pressure drop and line turbulence. Materials of construction shall be:

- 3"-6" — ASTM A351 Gr. CF8M stainless steel disc
- 8"-20" — ASTM A126, Class B cast iron disc with a stainless steel type 316 edge

Discs shall be retained by stainless steel pins which extends through the full diameter of the shaft to withstand the specified line pressure up to valve rating and the torque required to operate the valve. Disc stops located in the flow stream are not allowed.

Valve Shafts

Valve shafts shall be of stainless steel type 304. At the operator end of the valve shaft, a packing gland utilizing "V" type chevron packing shall be utilized.

Painting

All surfaces of the valve interior shall be clean, dry and free from grease before painting. The valve interior and exterior, except for disc edge, rubber seat and finished portions shall be evenly coated with a 2-part liquid epoxy to comply with NSF61 and AWWA Standard C504.

Testing

Hydrostatic and seat leakage tests shall be conducted in strict accordance with AWWA Standard C504.

Proof of Design

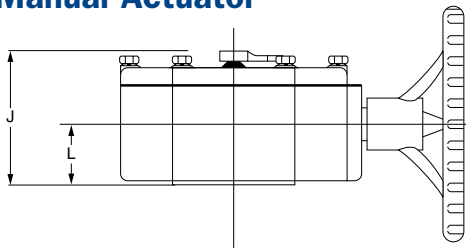
The manufacturer furnishing valves under the specification shall be prepared to provide Proof of Design Test reports to illustrate that the valves supplied meet the design requirements of AWWA C504.

Manual Actuators: Manual actuators shall be of the traveling nut, self-locking type and shall be designed to hold the valve in any intermediate position between fully open and fully closed without creeping or fluttering. Actuators shall be equipped with mechanical stop-limiting devices to prevent overtravel of the disc in the open and closed positions. Actuators shall be fully enclosed and designed to produce the specified torque with a maximum pull of 80 lb. on the handwheel or chainwheel. Actuator components shall withstand an input torque of 450 Lb. Ft. at extreme operator position without damage. Manual actuators shall conform to AWWA C504 and shall be Milliken MDT or an approved equal.

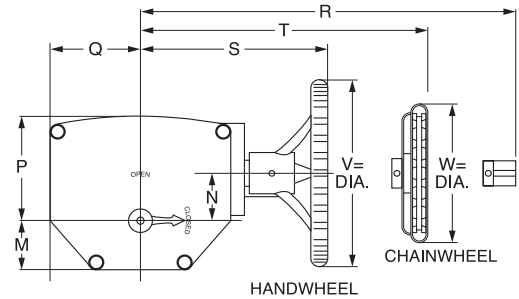


Actuator Dimensional Data for Models 511A and 510A — 20" and Smaller

MDT Manual Actuator



All dimensions shown in inches



Valve Size	MDT Size	J	L	M	N	P	Q	R	S	T	V	W	# Turns to Close
3 to 12"	MDT-2	4 ¹¹ / ₁₆	2	2 ¹ / ₈	2	4 ¹ / ₂	4 ¹ / ₄	8 ³ / ₄	7 ⁷ / ₈	7 ⁷ / ₈	8	9 ¹ / ₈	32
14, 16"	MDT-3	5 ⁵ / ₈	2 ⁷ / ₁₆	3 ³ / ₄	3 ⁵ / ₈	5 ⁵ / ₈	5 ³ / ₈	10 ³ / ₈	10 ¹ / ₂	10 ¹ / ₈	12	9 ¹ / ₈	30
18, 20"	MDT-4	6 ³ / ₈	22 ⁷ / ₃₂	3 ³ / ₈	4	7 ⁵ / ₁₆	6 ³ / ₄	11 ⁵ / ₁₆	11 ¹ / ₂	11	12	9 ¹ / ₈	40

Optional Accessories

Milliken offers a variety of actuator extensions to meet our customer's requirements. The choice of extension style is determined by the need for valve position indication, location of the actuator and application.

Extension Stem with AWWA Nut

- Used to extend the 2" nut on a buried service actuator.

Extension Bonnet

- Used to extend the actuator from the valve in situations when there may be space constraints, or it is not desirable to mount the actuator directly on the valve.
- Can be used for submerged service (such as reservoir inlet) and buried service applications.

Indicating Handwheel Floorstand, Torque Tube Floorstand, Motor Actuator on Floorstand

- Choice of floorstands or torque tube floorstand are determined by the need for valve position indication and angular alignment.

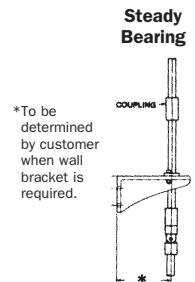
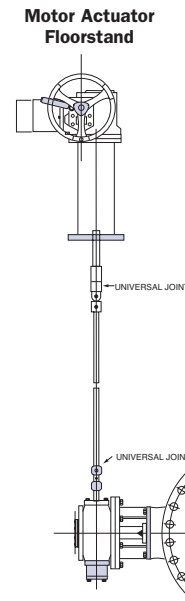
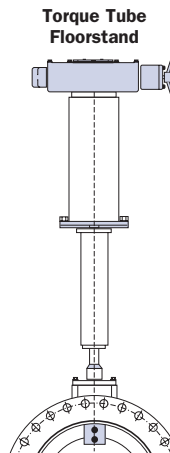
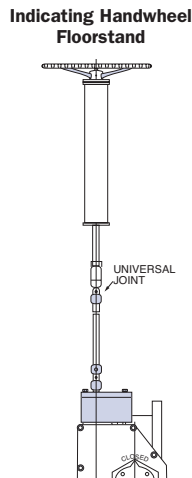
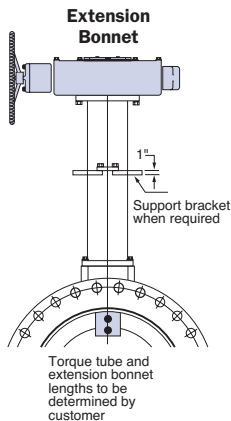
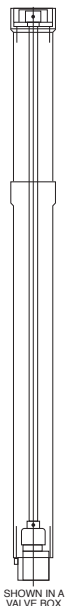
External Packing Bonnet

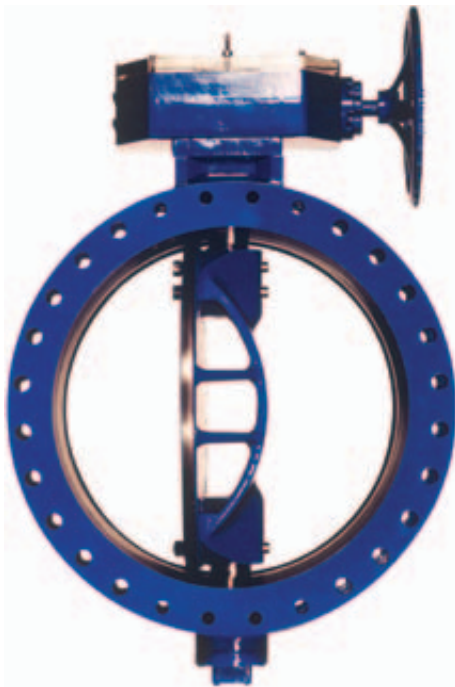
- There are two styles offered based on valve size. Both styles serve the same purpose; to allow for the valve packing to be replaced without removing the actuator.

Stem Guide

- A stem guide is a support designed to restrict the bending of a long vertical pipe.

Extension Stem With 2" AWWA Nut





Milliken Model 511 Flanged/ 510 Mechanical Joint

Sizes: 24 through 72 inches

Body Styles:

- Flanged (24" - 72")
- Mechanical Joint (24" - 48")

Pressure Class:

- Class 150B per AWWA Standard C504

Actuation Options:

- Handwheel
- Electric Motor
- Pneumatic or Hydraulic Cylinder
- Buried Service
- Chainwheel

Materials of Construction:

Body – ASTM A126 CLB cast iron

Disc – ASTM A126 CLB cast iron

Disc Edge – ASTM A276 Type 316 stainless steel

Seat – Buna N/EPDM rubber retained in the body

Seat Segments – ASTM A276 Type 316 stainless steel

Shaft – ASTM A276 Type 304 stainless steel

Bearings – Teflon lined fiberglass backed

Packing – Buna N/EPDM – V type packing

Paint – Liquid epoxy conforming to NSF 61 (lined and coated)

Features and Benefits

Rubber seat in body

- Reduces the chance of seat damage from tuberculation or other solids

Recessed segmented seat retention

- Allows for simple bi-directional point adjustment on rubber seat while keeping hardware out of flowstream

Mechanically adjustable seat

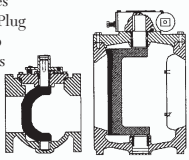
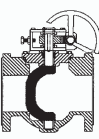
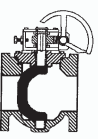
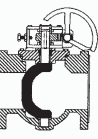









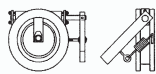
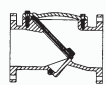
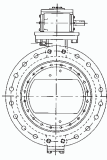
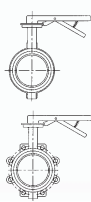
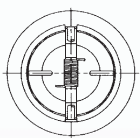
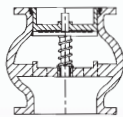
- No special tools or training required to adjust and/or replace the seat

Epoxy paint

- Reduces potential corrosion and extends valve life

Flow through disc design

- Disc design results in lower head-loss than solid or hollow disc designs

<p>Series 600/601 Eccentric Plug Valve</p> <p>Welded Nickel Seat Stainless Steel Bearings ANSI-B16.1 Flanges Solid Ductile Iron Plug Low Pressure Drop Flanged & MJ Ends Sizes 2"-72" FL Sizes 3"-48" MJ</p>  <p>Flanged and MJ</p>	<p>Series 601SS Eccentric Plug Valve</p> <p>Integral Stainless Seat Stainless Bearings Stainless Steel Body ANSI B16.5 Class 150 Flanges Solid Stainless Steel Plug Low Pressure Drop Size: 1/2"-24"</p> 	<p>Series 601RL Eccentric Plug Valve</p> <p>Soft or Hard Rubber Lining Stainless Steel Bearings ANSI B16.1 Flanges Solid Ductile Iron Plug Low Pressure Drop Sizes 3"-54" Metal Plugs Available - Consult Factory</p>  <p>Rubber Lined</p>	<p>Series 602 Eccentric Plug Valve</p> <p>Welded Nickel Seat Stainless Steel Bearings ANSI B16.1 Class 250 Flanges Solid Ductile Iron Plug Low Pressure Drop Sizes 2-1/2"-54"</p>  <p>High Pressure</p>
<p>Series 603 Eccentric Plug Valve</p> <p>Solid Ductile Iron Plug Round Port Low Pressure Drop Memory Stop NPT End Connections Sizes 1/2"-2"</p>  <p>Threaded End</p>	<p>Series 604E Eccentric Plug Valve</p> <p>Epoxy Seat Solid Ductile Iron Plug Stainless Steel Bearings Low Pressure Drop Lift & Turn NOT Required High Solids & Flow Capacity Sizes 3"-16"</p>  <p>Three Way Valve</p>	<p>Series 606 Eccentric Plug Valve</p> <p>Welded Nickel Seat Stainless Steel Bearings AWWA C-606 Grooved Solid Ductile Iron Plug Low Pressure Drop Ductile or Steel Pipe Sizes 3"-24"</p>  <p>Grooved End</p>	<p>Series 611/610 Eccentric Plug Valve</p> <p>Ductile Iron Body ANSI B16.1 Flanges MJ AWWA C111 Welded Nickel Seat Solid Ductile Iron Plug Low Pressure Drop Sizes 2"-72" FL Sizes 3"-48" MJ</p>  <p>Flanged and MJ</p>
<p>Model 625 Eccentric Plug Valve</p> <p>Available in Threaded and Flanged Ends Rated for 175 psi Sizes 1/2"-4" UL/CGA Listed</p> 	<p>Series 8000 AWWA Swing Check</p> <p>Full waterway Weight or Spring Bronze/SS Body Seat Ring Bronze/Buna/EPDM disc insert Sizes 2"-36"</p> 	<p>Series 8500 AWWA Swing Check</p> <p>Full waterway Ductile Iron Construction Weight or Spring Air Cushion SS body seat ring Buna disc insert Sizes 3"-24"</p> 	<p>Series 9000 AWWA Swing Check</p> <p>Clear waterway Weight or Spring Air or Oil Cushion Bronze/SS Body seat ring Bronze/Buna/EPDM disc insert Sizes 3"-72"</p> 
<p>Model 720A Wafer Check Valve</p> <p>Center Guided Check Valve Rated for 250 psi SS Disc/EPDM Seat Sizes 2"-12"</p> 	<p>Series 700 Wafer Check Valve</p> <p>ANSI Class 125/150 High Flow Capacity Narrow Face-to-Face Sizes 3"-12" 316 SS Internals Disc Position Indicator</p>  <p>Wafer Check Valve</p>	<p>Figure 851 Flex Check</p> <p>Million Cycle Certification Complete Ductile Iron Construction 285 psi Pressure Rating Fully Epoxy Lined Interior No Internal Shafts, Bearings or Bushings No External Levers, Weights or Springs Hard or Soft Rubberlining Available 2"-24" Size Range Backflush Devices Proximity Switches</p> 	<p>Figure 510A/511A AWWA Butterfly Valve</p> <p>Complies with AWWA C-504 Class 150B Flanged or MJ Cast iron body and disc Seat in body Flow through disc on 24" and larger Epoxy Paint on all sizes standard 3" - 72"</p> 
<p>Figure 565/566 General Service Butterfly Valve</p> <p>Meets MSS SP 67 Cast Iron Body Bronze Disc Other Materials Upon Request Wrench or Gear Operated Available 2"-24" Size Range</p> 	<p>Figure 740A Double Disc Check Valve</p> <p>Wafer pattern check valve rated for 250 psi. Available in sizes 2"-36" with a SS Disc/EPDM Seat</p> 	<p>Figure 821A Globe Style Check Valve</p> <p>Center guided check valve. SS Disc/EPDM Seat and is available in sizes 2"-24".</p> 	<ul style="list-style-type: none"> • ISO 9001:2000 Certified • Field Services Available • Engineering Services



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