

PRATT®

a MUELLER brand

GROUNDHOG® BUTTERFLY VALVES

Engineering Creative Solutions for Fluid Systems Since 1901



MUELLER

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GROUNDHOG® BUTTERFLY VALVE

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4" - 20" GROUNDHOG® Buried Service Butterfly Valves



GROUNDHOG WITH MECHANICAL JOINT ENDS

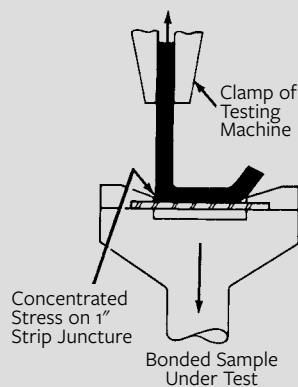
TECHNICAL DATA

Sizes	4" - 20"
Body Styles	Cast Iron with Mechanical Joints
Other Body Style Options	<ul style="list-style-type: none"> • Flanged ends • Wafer and Victaulic Couplings • Push-on joint (12", 16") • Push-on x flange (12", 16") for C900 PVC and ductile iron pipe.
Pressure Class	*Class 150B per AWWA Standard C504
Actuators	Pratt traveling nut design actuator in strict compliance with AWWA C504 latest revision. Specially designed and built for buried service. (Refer to page 12 for design details.)
Service	Distribution, potable or raw water
Accessories	DIVINER® ground-level position indicator, handwheel, extension stem (standard and slipjoint).

*Valves can be tested for 200 psi upon request.

GROUNDHOG AWWA CLASS 150B

SIZES	END CONNECTION
4" - 48"	MJ x MJ
3" - 72"	Flg x Flg
6" - 36"	Flg x MJ
12", 16"	Push on x Push on
24" - 54"	Victaulic
12", 16"	Push on x Flg



Underground distribution and transmission systems are most often designed with 4" through 20" mains. For isolation applications the Pratt® Groundhog Butterfly valve is designed to be buried and forgotten until needed. Components are selected for long-term reliability, so the valves will provide service life equaling or exceeding that of the pipeline.

A key design feature is the molded-in rubber seat which is bonded to the valve body. Made of a specially compounded Buna-N rubber, the seat is engineered so that no replacement or adjustment is required throughout the life of the valve, under normal operating conditions. The unique seat retention method eliminates the possibility of "ballooning" or "blow-out" of the seat and affords more precise control of circumferential tolerance, which assures bubble-tight valve performance even in the harshest operating environment.

The on-center disc, the only part exposed to water, is streamlined to minimize pressure drop and turbulence. At full open the valves create no more friction loss than a 45° elbow. The disc also provides built-in damage resistance. As the disc approaches the closed position, a high-velocity area is created which "flushes" the seat. The disc itself sweeps particles ahead to keep the seat clean.

Other important design features include: self-adjusting packing which should never need replacing; a corrosion-resistant, one-piece stainless steel shaft; an extra-heavy cast iron body; large, chemically inert nylon bearings which have tested out at more than 100,000 cycles; and a tamper-proof disc centering mechanism which maintains positive disc alignment without play.

Groundhog valves in 4" - 20" sizes meet all requirements of AWWA C504. A Pratt MDT buried service actuator is standard, and either flanged, mechanical joint, push-on joint, wafer or Victaulic coupling styles are available.

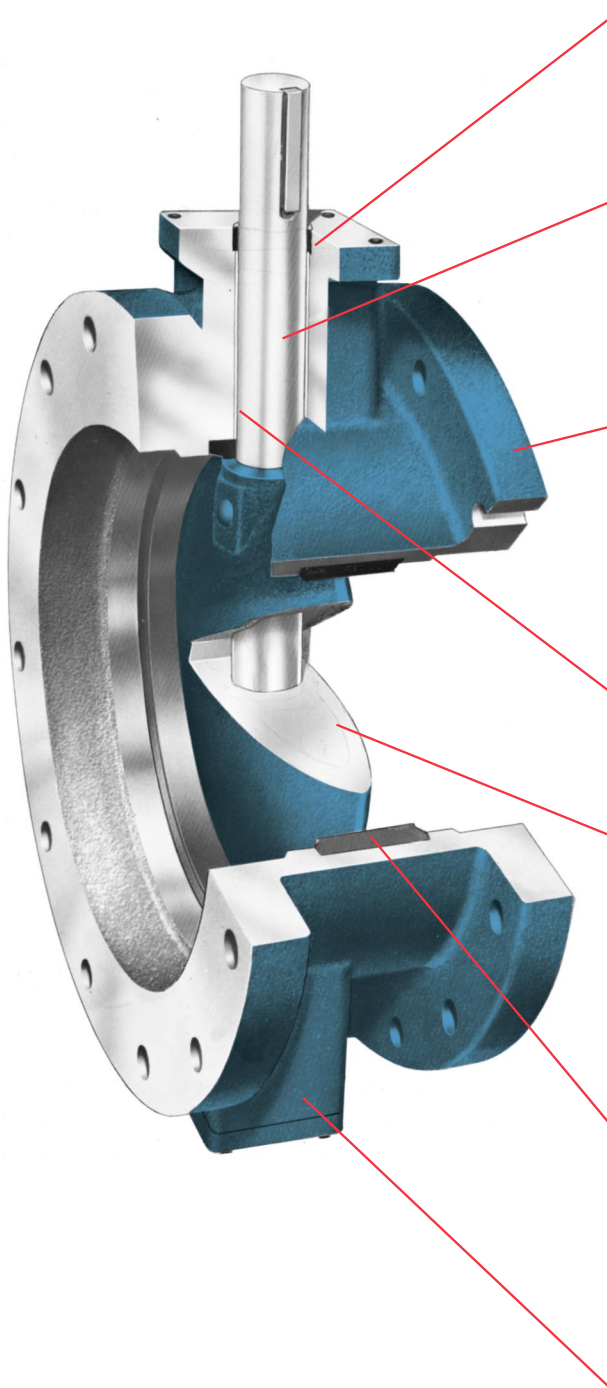
PERFORMANCE TESTED RELIABILITY

To assure a thoroughly reliable valve seat, the Pratt rubber seat bond is tested by the ASTM Test D-429, Method B. This test, one of the most stringent means of measuring bond effectiveness, consists of a minimum 75-pound pull on a 1" sharp line at 90° to the sample. Repeated testing confirms the integrity of the rubber seat bond at over 100 pounds pull.

For end connections other than those listed, please contact a Pratt representative.

DESIGN DETAILS

4" – 20" Groundhog® Buried Service Butterfly Valves



CHEVRON V PACKING

Packing is self-adjusting, long lasting and should never need replacement because quarter-turn valve operation causes little or no wear. Packing bears on turned, ground and polished stainless steel.

CORROSION RESISTANT SHAFT

To prevent corrosion of a vital structural component, shaft is constructed of Type 304 stainless steel which affords protection against the harmful effects of corrosion. Shaft is one-piece, through-shaft construction sized to meet or exceed requirements of AWWA Standard C504 for Class 150B service.

HEAVY DUTY BODY

Cast iron body is extra heavy with flanges fully faced and drilled per ANSI B16.1 Class 125 Standard for cast-iron flanges. Other ends, including integrally cast mechanical joint, push-on (for DI and PVC C900), wafer, and Victaulic coupling ends are also available. Operator mounting trunnion is machined and drilled for four-bolt connection.

SELF-LUBRICATING BEARINGS

Chemically inert nylon bearings, liberally sized, are self-lubricating. These bearings should outlast the life of the pipeline.

STREAMLINED DISC

Lens-shaped disc is designed to minimize pressure drop and turbulence. Full open valve creates no more friction loss than a 45° elbow. Disc is secured to the shaft by stainless steel pins sized to transmit torques required and withstand stresses imposed under severe operating conditions. Disc is cast iron ASTM A 126 Class B with Type 316 stainless steel disc edge.

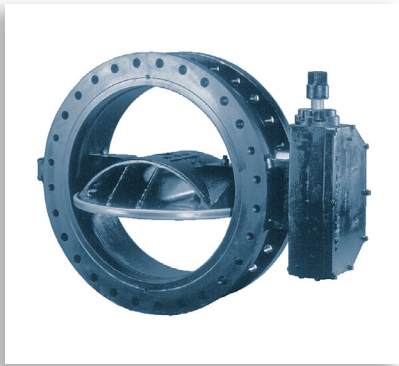
BODY SEAT

Seat is a special rubber compounded in the Pratt materials laboratory. It is bonded to the body by skilled technicians and special machinery. The result is a seat that cannot be torn from the body under normal pipeline conditions. The precision molding process also insures that the disc-seat indentation cannot cause excessive wear or abrasion upon closing.

TAMPER-PROOF DISC CENTERING

Precision molded flats in the bonded seat at the body trunnion mate with machined flats on the disc to provide tamper-proof centering of the disc in the body. Positive disc alignment without play is maintained, assuring long seat life.

24" - 72" GROUNDHOG® Buried Service Butterfly Valves



TYPICAL OF SIZES 24" AND ABOVE

To satisfy the demanding requirements of larger underground water distribution or transmission systems, we offer a unique design for 24" through 72" Groundhog valves. Based on the successful and field-proven TRITON XR-70® rubber seat butterfly valve concept, this design assures longer seat life, bubble-tight closure and less pressure drop than conventional butterfly valves of this size and pressure class.

A unique feature of these Groundhog valves is the E-LOK® seating system. The body-mounted rubber seat seals a full 360° against the stainless steel disc edge. Ridges on the seat provide multiple sealing lines and permit higher levels of radial compression. As a result, rubber stress is reduced for lower seating torques, better sealing action and longer seat life. The seat is mechanically retained in the body by a cast epoxy compound which locks the seat against the disc with uniform pressure around the entire periphery, to provide a bubble-tight seal. This eliminates seat retention hardware that often corrodes, causing seats to lose sealing integrity. The design also allows easy adjustment or replacement while the valve is in the line.

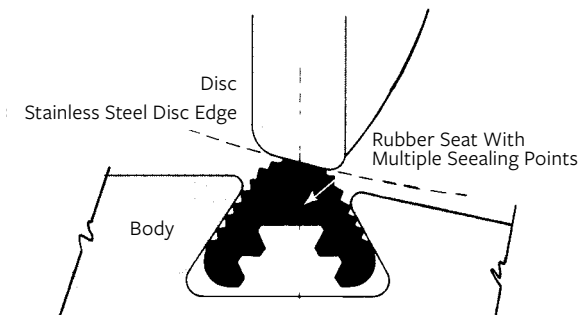
Another unique feature is the flow-through disc configuration, which provides greater free-flow area than either conventional on-center or offset disc designs. Greater mass is concentrated in areas of highest stress, for more strength with less weight. Structure is also safer because all surfaces can be 100% inspected to assure that all structural members are at full design strength.

Groundhog valves in these larger sizes meet all requirements of AWWA C504 for Class 150B. They come completely equipped with a Pratt MDT buried service operator and can be furnished with either flanged, mechanical joint, Victaulic coupling (Style 44), or concrete pipe end (SP-5 & SP-12) styles.

TECHNICAL DATA

Sizes	24" - 72"
Body Styles	Cast Iron with Flanged Ends (24" - 72") or Mechanical Joint Ends (24" - 48")
Other Body Style Options	<ul style="list-style-type: none"> • Mechanical Joints • Victaulic Couplings • Concrete Pipe
Pressure Class	*Class 150B per AWWA Standard C504
Actuators	Pratt traveling nut design actuator in strict compliance with AWWA C504 latest revision. Specially designed and built for buried service.
Service	Distribution, potable or raw water
Accessories	DIVINER® ground-level position indicator, handwheel, extension stem, valve box (standard and slipjoint).

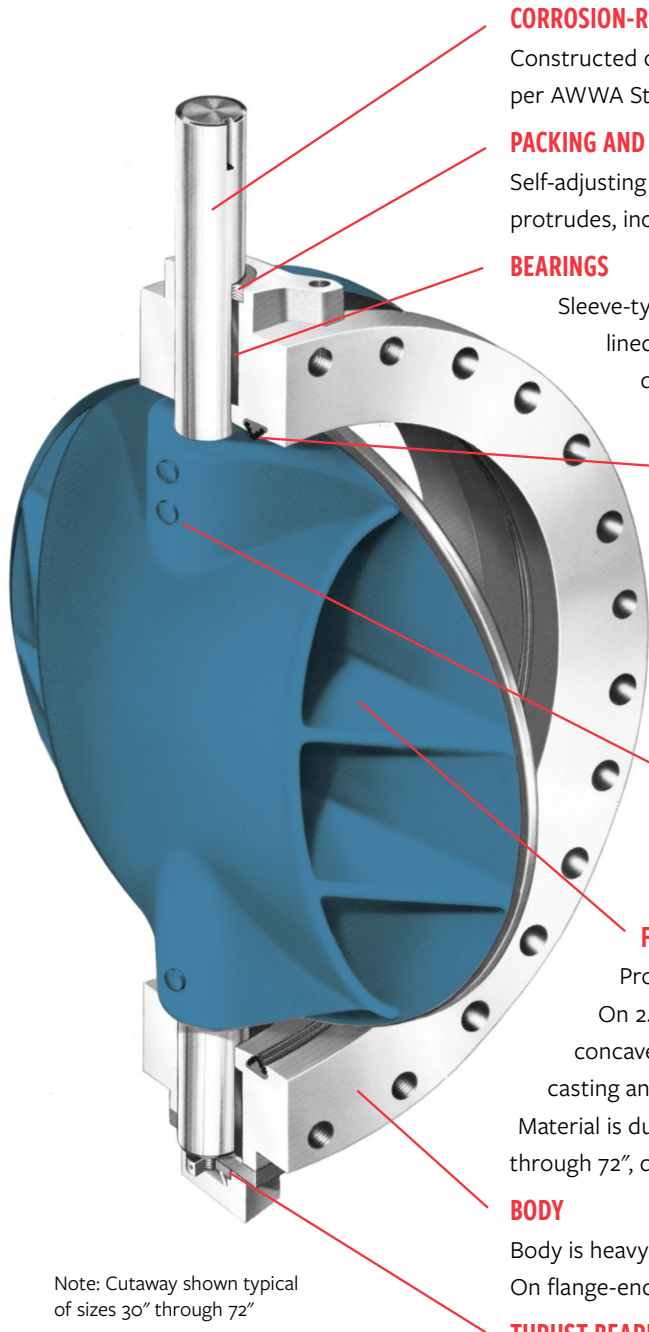
*Valves can be tested for 200 psi upon request.



Cast Epoxy Compound Retains Seat in Body Without Hardware. Epoxy Neither Adheres to The Metal Body Channel Nor Rubber Seat Surface.

DESIGN DETAILS

24" – 72" Groundhog® Buried Service Butterfly Valves



Note: Cutaway shown typical of sizes 30" through 72"

CORROSION-RESISTANT SHAFTS

Constructed of ASTM A-276 Type 304 stainless steel. Two-piece, stub-type shafts are sized per AWWA Standard C504, Class 150B.

PACKING AND PACKING GLAND ASSEMBLIES

Self-adjusting "V" type packing, utilized only in top trunnion of valve body where shaft protrudes, incorporates nylon retainer followed by several rings of packing.

BEARINGS

Sleeve-type bearings are used in both trunnions of the valve body. Material is Teflon-lined with special non-metallic backing. This provides electrical insulation between disc and shaft to prevent galvanic corrosion. Lower coefficient of friction cuts down operating torque requirements.

RUBBER SEAT

Specially compounded Buna-N seat seals a full 360° against a stainless steel spherical disc edge. Unique grooved-seat design, coupled with the wide, spherically shaped seating edge of the disc, allows greater disc closure tolerance (up to 1° off center in closed position without leakage). Seat is mechanically retained in body without metal hardware by a cast epoxy compound that insures the seat conforms to the exact radius of the disc with uniform contact pressure.

SHAFT CONNECTIONS

Disc and shaft are connected together by generously sized stainless steel pins designed to transmit torques required and withstand stresses imposed under severe operating conditions.

FLOW-THROUGH DISC

Provides less pressure drop in full-open position than conventional disc shapes. On 24" size the arch side of disc is closed and the flat side is open, forming slightly concave surface. Disc structure is safer, with no internal cores that can shift during casting and no hollow chambers that can collect water, later freeze and fracture the disc. Material is ductile iron with stainless steel spherically shaped seating surface. In sizes 24" through 72", ductile iron ASTM A-536 is used.

BODY

Body is heavy cast iron ASTM A-126 up to 48" and ductile iron A-536 for sizes 54" and larger. On flange-end bodies, flange drilling is per ANSI B16.1 Class 125 Standard for cast iron flanges.

THRUST BEARING ASSEMBLY

Two-way bearing is preset at factory. On valves 30" and larger, assembly consists of stainless steel stud fastened to the bottom of the valve shaft. Stud extends beyond the bottom cover. Thrust collar is threaded to the stud and pinned. On 24" size, thrust collar is pinned to shaft and adjustment provided by bronze spacers. Thrust-collar cavity is packed with grease and fully gasketed to prevent leakage.

The Pratt® Seat on Body Design Advantage

A key aspect of butterfly valve design relates to location of the rubber seat. Essentially the seat can be positioned on the body or on the disc per AWWA C504.

But the sum of our design, testing, and field experience has proven conclusively that **seat on body design is preferred** because it provides maximum reliability.

The **major advantage of seat on body design** is that the risk of damage to the rubber seat is minimized because the sealing edge of the disc is much harder than any corrosion deposits built up within the valve body or pipeline. (See Figures 1 and 2) This is important because build up can interfere with the swing radius of the disc. Additionally, seats on body are recessed and thus more protected than seat on disc designs.

Seat on disc designs are much more susceptible to damage because it is the relatively soft rubber seat on the disc that comes into contact with corrosion deposits and build up. Also any solid

materials flowing in the fluid can impinge on a rubber seat located on the disc. (See Figure 3)

Another disadvantage of seat on disc design is that since the maximum velocity in a pipeline occurs at the upstream and downstream leading edges of the disc, the rubber seat on disc designs are much more susceptible to wear, vibration and potential loosening of hardware.

Conclusion: Pratt seat on body designs which do not depend on retaining hardware in the waterway for seat retention have recognized these potential problems and addressed them in advance. Successful field performance has substantiated the credibility of this design approach!!

PRATT – RUBBER SEAT ON BODY DESIGNS

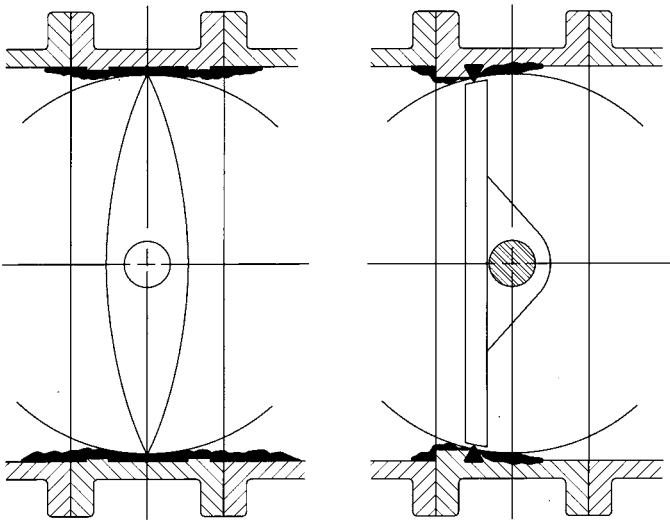


FIGURE 1

FIGURE 2

RUBBER SEAT ON DISC DESIGN BY OTHERS

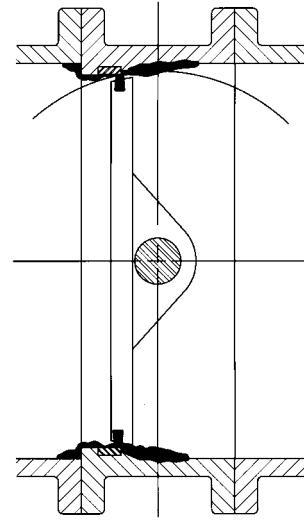


FIGURE 3

SUGGESTED SPECIFICATIONS

AWWA C504 Class 150B for Buried Service

All butterfly valves shall be manufactured in accordance with the latest revision of AWWA C504 for Class 150B service and comply with the following details:

Valve Bodies shall be constructed of cast iron ASTM A-126 Class B and conform to AWWA C504 in terms of laying lengths and minimum body shell thickness. End connections shall be as specified on the plans.

Valve Discs shall also be made from cast iron ASTM A-126 Class B in sizes 20" and smaller. Sizes 24" and larger shall be built from ductile iron in conformance to ASTM A-536. Disc shall be furnished with Type 316 stainless steel seating edge to mate with the rubber seat on the body.

Valve Seat shall be Buna-N rubber located on the valve body. In sizes 20" and smaller, valves shall have bonded seats that meet test procedures outlined in ASTM D-429 Method B. Sizes 24" and larger shall be retained in the valve body by mechanical means without use of metal retainers or other devices located in the flow stream.

Valve Shafts shall be Type 304 stainless steel conforming to ASTM A-276. Shaft seals shall be standard self-adjusting split V packing. Shaft seals shall be of a design allowing replacement without removing the valve shaft.

Valve Bearings shall be sleeve type that are corrosion resistant and self-lubricating.

Valve Actuators shall be fully grease packed and have stops in the open / close position. The actuator shall have a mechanical stop which will withstand an input torque of 450 ft. lbs. against the stop. The traveling nut shall engage alignment grooves in the housing. The actuators shall have a built in packing leak bypass to eliminate possible packing leakage into the actuator housing.

The **Valve Interior** and **Exterior Surfaces** except for seating shall be coated with Ameron Amerlock 370 in accordance with AWWA C550 and C504. All internal and/or external surfaces shall be covered with a polyamide cured epoxy coating applied over a sand blasted "new white metal surface" per SSPC-SP10 to a minimum of 8 mils in compliance with AWWA C550.

DIMENSIONAL DATA

Groundhog® Butterfly Valves

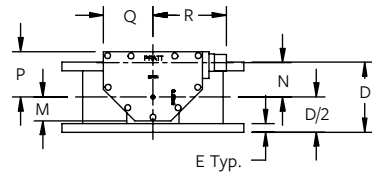
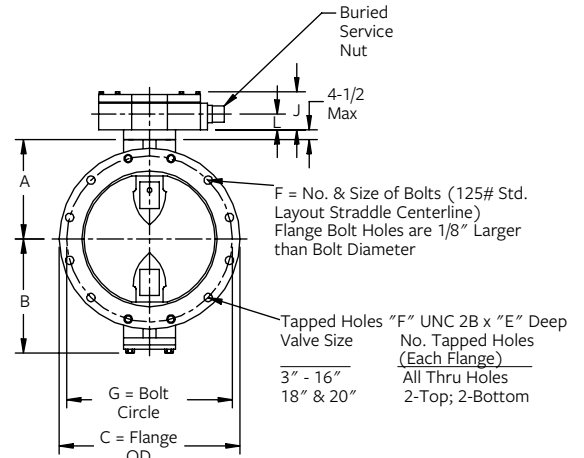
All end types on the following pages are standard and normally stocked in the sizes listed in the dimension charts. These dimensions are correct at time of publication but are not to be construed as certified drawings. Certified drawings available upon request.

FLANGED 3" - 20"

ACTUATOR SIZE	J	L	M	N	P	Q	R
MDT-2S	4-11/16	2	2-1/8	2	4-1/2	4-1/4	8-1/4
MDT-3S	5-5/8	2-7/16	3-1/4	3-5/32	5-5/8	5-3/8	10-3/8
MDT-4S	6-3/8	2-27/32	3-3/8	4	7-5/16	6-3/4	11-5/16

VALVE SIZE	A	B	C	D	E	F	G	MDT
3	4-3/4	3-1/4	7-1/2	5	3/4	4-5/8	6	MDT-2S
4	5-1/2	3-1/2	9	5	15/16	8-5/8	7-1/2	MDT-2S
6	6-1/2	5-1/8	11	5	1	8-3/4	9-1/2	MDT-2S
8	7-3/4	6-1/2	13-1/2	6	1-1/8	8-3/4	11-3/4	MDT-2S
10	9	9-7/8	16	8	1-3/16	12-7/8	14-1/4	MDT-2S
12	10-1/2	11-3/8	19	8	1-1/4	12-7/8	17	MDT-2S
14	11-7/8	12-3/4	21	8	1-3/8	12-1	18-3/4	MDT-3S
16	13-1/2	14-3/8	23-1/2	8	1-7/16	16-1	21-1/4	MDT-3S
18	14-3/8	15-1/4	25	8	1-9/16	16 - 1-1/8	22-3/4	MDT-4S
20	16	16-7/8	27-1/2	8	1-11/16	20 - 1-1/8	25	MDT-4S

- Note:**
- All dimensions shown in inches. "D" dimension $\pm 1/16"$ for 3" thru 10" valves. "D" dimension $\pm 1/8"$ for 12" thru 20" valves.
 - Dimensions and drilling of end flanges conform to the American Cast Iron Flange Standards, Class 125 (B16.1).
 - (Recommendations for mating flanges) where insulating bushings are used, it is necessary that bolt holes be drilled oversize by an amount equal to two times the insulating sleeve thickness to maintain the same minimum clearance for bolts.
 - Valves manufactured and tested in accordance with AWWA specifications C-504-latest Revision class 150B.



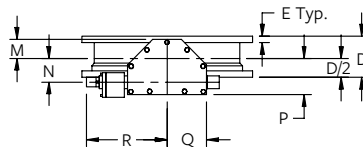
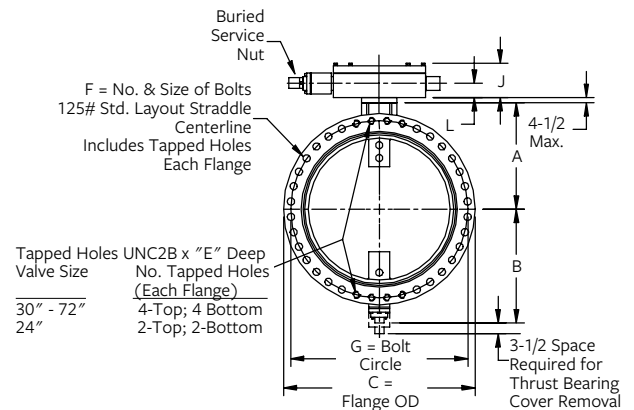
ACTUATOR POSITION 01

FLANGED 24" - 48"

ACTUATOR SIZE	J	L	M	N	P	Q	R
MDT-4S	6-3/8	2-27/32	3-3/8	4	7-5/16	6-3/4	11-5/16
MDT-5	7-9/16	3-15/32	4-1/2	5-1/2	8-3/4	10	17
MDT-5S	8-5/16	3-15/16	5-1/2	7	10-1/2	15-15/16	19-7/8
MDT-6S	10-3/16	5-1/16	7	8-1/4	12-5/8	14-3/16	26-1/2

VALVE SIZE	25 & 75 PSI		150 PSI		C	D	E	F	G	MDT
	A	B	A	B						
24	-	-	18-5/8	18-3/8	32	8	1-7/8	20-1-1/4	29-1/2	MDT-4S
30	21-9/16	22-3/4	21-1/2	24-1/8	38-3/4	12	2-1/8	28-1-1/4	36	MDT-5
36	25-1/16	26-1/2	25-7/16	28	46	12	2-3/8	32-1-1/2	42-3/4	MDT-5
42	29-1/16	30-3/8	29-7/8	32-11/16	53	12	2-5/8	36-1-1/2	49-1/2	MDT-5S
48	32-5/16	34-5/8	34-1/16	36-7/8	59-1/2	15	2-3/4	44-1-1/2	56	MDT-6S

- Note:**
- All dimensions shown in inches.
 - "D" dimension $\pm 1/8"$.
 - For bolts smaller than 1-3/4", bolt holes will be 1/8" larger than diameter of bolt. For bolts 1-3/4" or larger, bolt holes will be 1/4" larger than diameter of bolt.
 - Dimensions and drilling of end flanges conform to the American Cast Iron Flange Standards, Class 125 (B16.1).
 - Valves manufactured and tested in accordance with AWWA Specification C-504 latest revision, Class 150B.
 - Recommendation for mating flanges: where insulating bushings are used, it is necessary that bolt holes be drilled oversize by an amount equal to two times the insulating sleeve thickness to maintain the same minimum clearance for bolts.
 - Caution: It is recommended that valves be installed into piping system in accordance with AWWA M-11 to prevent any undue piping stress, deflection or bending that may effect the performance of the valve.



ACTUATOR POSITION 1

DIMENSIONAL DATA

Groundhog® Butterfly Valves

MECHANICAL JOINT 4" - 20"

ACTUATOR SIZE	J	L	M	N	P	Q	R
MDT-2S	4-11/16	2	2-1/8	2	4-1/2	4-1/4	8-1/4
MDT-3S	5-5/8	2-7/16	3-1/4	3-5/32	5-5/8	5-3/8	10-3/8
MDT-4S	6-3/8	2-27/32	3-3/8	4	7-5/16	6-3/4	11-5/16

VALVE SIZE	A	B	C	D	E	F	G	X	MDT
4	5-1/2	3-1/2	9	8-1/8	1	4-3/4	7-1/2	3-1/8	MDT-2S
6	6-1/2	5-1/8	11	8-1/2	1-1/16	6-3/4	9-1/2	3-1/2	MDT-2S
8	7-3/4	6-1/2	13-1/4	8-5/8	1-1/8	6-3/4	11-3/4	3-5/8	MDT-2S
10	9	9-3/4	15-9/16	9-1/4	1-3/16	8-3/4	14	4-1/4	MDT-2S
12	10-1/2	11-3/8	17-15/16	9-1/4	1-1/4	8-3/4	16-1/4	4-1/4	MDT-2S
14	11-7/8	12-3/4	20-5/16	11-1/2	1-5/16	10-3/4	18-3/4	4-1/2	MDT-3S
16	13-1/2	14-1/2	22-9/16	12	1-3/8	12-3/4	21	5	MDT-3S
18	14-3/8	15-3/8	24-11/16	12-1/4	1-3/8	12-3/4	23-1/4	5-1/4	MDT-4S
20	16	17	27-3/32	12-1/2	1-1/2	14-3/4	25-1/2	5-1/2	MDT-4S

Note:

- All dimensions shown in inches. "D" dimension $\pm 1/16$ " for 3" thru 10" valves. "D" dimension $\pm 1/8$ " for 12" thru 20" valves.
- Dimensions and drilling of end flanges conform to the American Cast Iron Flange Standards, Class 125 (B16.1).
- (Recommendations for mating flanges) where insulating bushings are used, it is necessary that bolt holes be drilled oversize by an amount equal to two times the insulating sleeve thickness to maintain the same minimum clearance for bolts.
- Valves manufactured and tested in accordance with AWWA specifications C-504-latest REVISION class 150B.
- See drawing GA-11486 for valve cross section.
- Caution: When using 10" and 12" valves on Class 200 PVC pipe, pipe end I.D. must be bevelled to ensure clearance for disc and proper valve operation.

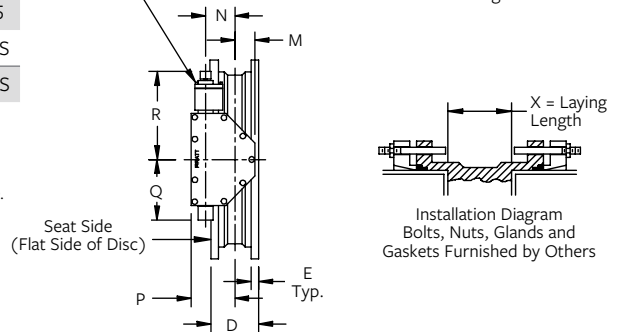
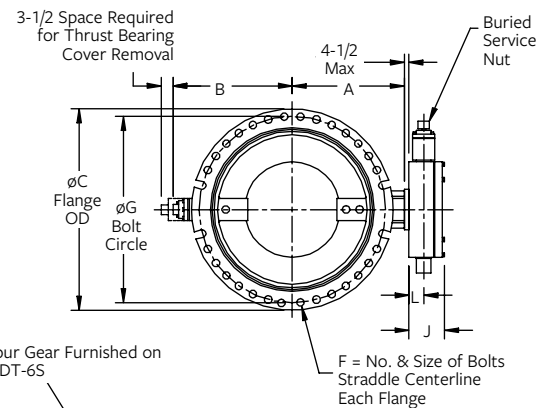
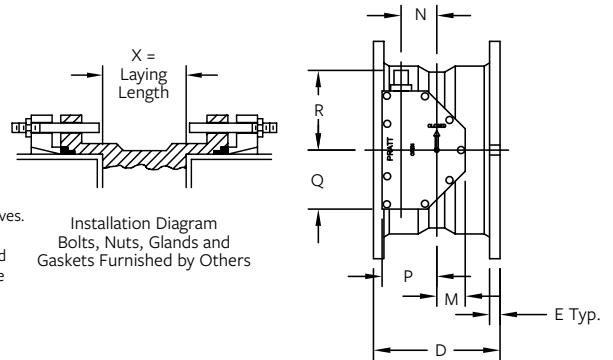
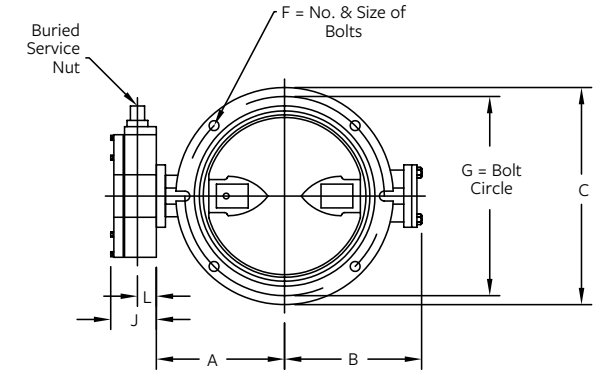
MECHANICAL JOINT 24" - 48"

ACTUATOR SIZE	J	L	M	N	P	Q	R
MDT-4S	6-3/8	3-7/16	3-3/8	4	7-5/16	6-3/4	11-5/16
MDT-5	7-9/16	3-1/2	4-1/2	5-1/2	8-3/4	10-7/16	17
MDT-5S	8-5/16	3-15/16	5-5/8	7	10-5/8	15-15/16	19-7/8
MDT-6S	11-1/8	5-1/16	7	8-1/4	12-5/8	18-5/8	26-1/2

VALVE SIZE	A	B	C	D	E	F	G	X	MDT
24	18-5/8	18-5/8	31-9/16	13-1/4	1-5/8	16-3/4	30	6-3/8	MDT-4S
30	21-1/2	24-3/8	39	18	1-13/16	20 1	36-7/8	10	MDT-5
36	25-7/16	28-1/4	45-7/8	22	2	24 1	43-3/4	14	MDT-5
42	29-7/8	32-7/8	53	22	2	28-1-1/4	50-5/8	14	MDT-5S
48	34-1/16	37-1/8	59-7/8	24	2	32-1-1/4	57-1/2	16	MDT-6S

Note:

- All dimensions shown in inches. "D" dimension $\pm 1/8$ " bolt holes will be $1/8$ " larger than diameter of bolt.
- Dimensions and drilling of mechanical joint ends conform to ANSI AWWA C111 / A21.11.
- Caution: It is recommended that valves be installed into the piping system in accordance with AWWA M-11 in order to prevent any undue piping stress, deflection or bending that may affect the performance of the valve.
- Valves manufactured and tested in accordance with AWWA specifications C-504-latest Revision class 150B.
- Caution: When using 10" and 12" valves on Class 200 PVC pipe, pipe end I.D. must be bevelled to ensure clearance for disc and proper valve operation.



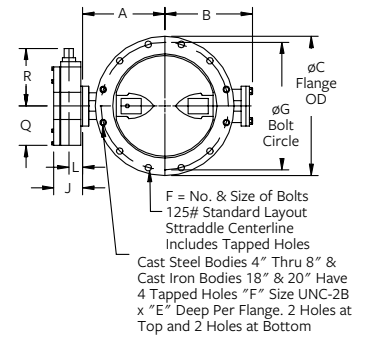
ACTUATOR POSITION 1

DIMENSIONAL DATA

Groundhog® Butterfly Valves

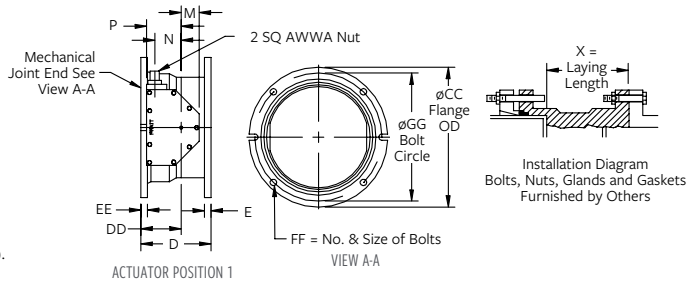
FLANGED X MECHANICAL JOINT 6" - 20"

VALVE SIZE	A	B	C	CC	D	DD	E	EE	F	FF	G	GG	X	MDT
6	6-1/2	5-1/8	11	11	6-3/4	4-1/4	1-1/16	1-1/16	8-3/4	6-3/4	9-1/2	9-1/2	4-1/4	MDT-2S
8	7-3/4	6-1/2	13-1/2	13-1/4	7-5/16	4-5/16	1-1/8	1-1/8	8-3/4	6-3/4	11-3/4	11-3/4	4-13/16	MDT-2S
10	9	9-7/8	16	15-9/16	8-5/8	4-5/8	1-1/4	1-3/16	12-7/8	8-3/4	14-1/4	14	6-1/8	MDT-2S
12	10-1/2	11-3/8	19	17-15/16	8-5/8	4-5/8	1-1/4	1-1/4	12-7/8	8-3/4	17	16-1/4	6-1/8	MDT-2S
14	11-7/8	12-3/4	21	20-5/16	9-3/4	5-3/4	1-3/8	1-5/16	12 1	10-3/4	18-3/4	18-3/4	6-1/4	MDT-3S
16	13-1/2	14-3/8	23-1/2	22-9/16	10	6	1-7/16	1-3/8	16 1	12-3/4	21-1/4	21	6-1/2	MDT-3S
18	14-3/8	15-1/4	25	24-11/16	10-1/8	6-1/8	1-9/16	1-7/16	16-1-1/8	12-3/4	22-3/4	23-1/4	6-5/8	MDT-4S
20	16	16-7/8	27-1/2	27-3/32	10-1/4	6-1/4	1-11/16	1-1/2	20-1-1/8	14-3/4	25	25-1/2	6-3/4	MDT-4S



ACTUATOR SIZE	J	L	M	N	P	Q	R
MDT-2S	4-11/16	2	2-1/8	2	1/2	4-1/2	8-1/4
MDT-3S	5-5/8	2-7/16	3-1/4	3-5/32	5-5/8	5-3/8	10-3/8
MDT-4S	6-3/8	2-27/32	3-3/8	4	7-5/16	6-3/4	11-5/16

- Note:**
- All dimensions shown in inches.
 - "D" dimension $\pm 1/16$ " for 6" thru 10" valves. "D" dimension $\pm 1/8$ " for 12" thru 20" valves.
 - For bolts smaller than 1-3/4", bolt holes will be 1/8" larger than diameter of bolt. For bolts 1-3/4" or larger, bolt holes will be 1/4" larger than diameter of bolt.
 - Dimensions and drilling end flange conform to the American Cast Iron Flange Standards, Class 125 (B16.1).
 - Dimensions and drilling of mechanical joint end conform to ANSI / AWWA C111 / A21.11.
 - Valves manufactured and tested in accordance with AWWA specification C-504 class 150B.
 - Recommendation for mating flanges: Where insulating bushings are used, it is necessary that bolt holes be drilled oversize by an amount equal to two times the insulating sleeve thickness to maintain the same minimum clearance for bolts.
 - Caution: When using 10" and 12" valves on Class 200 PVC pipe, pipe end I.D. must be bevelled to ensure clearance for disc and proper valve operation.

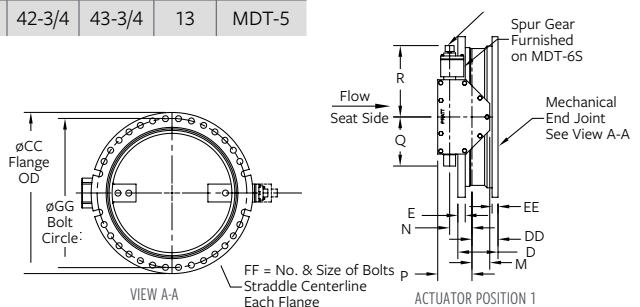
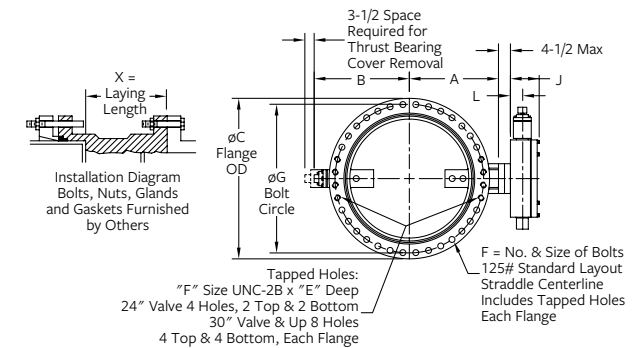


FLANGED X MECHANICAL JOINT 24" - 36"

ACTUATOR SIZE	J	L	M	N	P	Q	R
MDT-4S	6-3/8	2-27/32	3-3/8	4	7-5/16	6-3/4	11-5/16
MDT-5	7-9/16	3-15/32	4-1/2	5-1/2	8-3/4	10	17

VALVE SIZE	A	B	C	CC	D	DD	E	EE	F	FF	G	GG	X	MDT
24	18-5/8	18-5/8	32	31-9/16	10-5/8	6-5/8	1-7/8	1-5/8	20-1-1/4	16-3/4	29-1/2	30	7-1/8	MDT-4S
30	21-1/2	24-3/8	38-3/4	39	15	9	2-1/8	1-13/16	28-1-1/4	20-1	36	36-7/8	11	MDT-5
36	25-7/16	28-1/4	46	45-7/8	17	11	2-3/8	2	32-1-1/2	24-1	42-3/4	43-3/4	13	MDT-5

- Note:**
- All dimensions shown in inches.
 - "D" dimension $\pm 1/16$ " for 6" thru 10" valves. "D" dimension $\pm 1/8$ " for 12" thru 20" valves.
 - For bolts smaller than 1-3/4", bolt holes will be 1/8" longer than diameter of bolt. For bolts 1-3/4" or larger, bolt holes will be 1/4" larger than diameter of bolt.
 - Dimensions and drilling of end flange conform to the American Cast Iron Flange Standards, class 125 (B16.1).
 - DIMENSIONS AND DRILLING OF MECHANICAL JOINT END CONFORM TO ANSI / AWWA C111 / A21.11.
 - Valves manufactured and tested in accordance with AWWA specification C-504 latest revision, class 150B.
 - Recommendation for mating flanges: where insulating bushings are used, it is necessary that bolt holes be drilled oversize by an amount equal to two times the insulating sleeve thickness to maintain the same minimum clearance for bolts.
 - Caution: When using 10" and 12" valves on Class 200 PVC pipe, pipe end I.D. must be bevelled to ensure clearance for disc and proper valve operation.



DIMENSIONAL DATA

Groundhog® Butterfly Valves

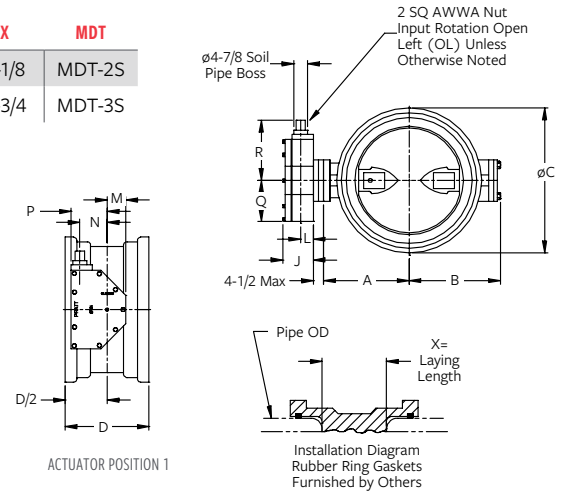
PUSH-ON JOINT ENDS 12", 16"

PIPE SIZE	PIPE O.D.	MIN. MATING I.D.	VALVE SIZE	A	B	C	D	X	MDT
12	13.20	10.97	12	10-1/2	11-3/8	16-3/8	15	5-1/8	MDT-2S
16	17.80	14.59	16	13-1/2	14-1/2	21-1/4	15	4-3/4	MDT-3S

ACTUATOR SIZE	J	L	M	N	P	Q	R
MDT-2S	4-11/16	2	2-1/8	2	4-1/2	4-1/2	8-1/4
MDT-3S	5-5/8	2-7/16	3-1/4	3-5/32	5-5/8	5-3/8	10-3/8

Note:

- All dimensions shown in inches.
- "D" dimension $\pm 1/16"$ for 4" thru 10" valves. "D" dimension $\pm 1/8"$ for 12" thru 16" valves.
- Valves manufactured and tested in accordance with AWWA specification C-504 latest revision, class 150B.
- Use with "tyton" rubber ring gasket (registered trademark of U.S. Pipe and Foundry Co.).
- The valve is designed for iron or PVC pipe with cast iron equivalent O.D.'s (not for use with IPS O. D. pipe).
- Extension stem can be used with standard valve boxes or 5" soil pipe.
- Also available in 24" size, dimensions available upon request.



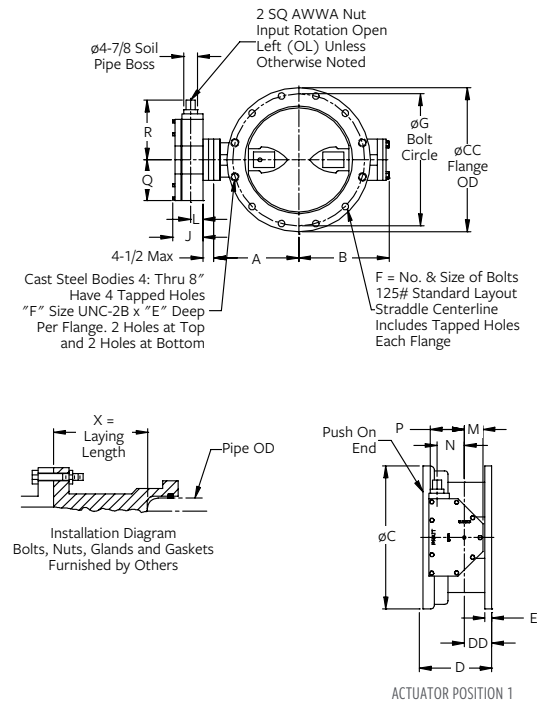
12", 16" PUSH-ON X FLANGE

ACTUATOR SIZE	J	L	M	N	P	Q	R
MDT-2S	4-11/16	2	2-1/8	2	4-1/2	4-1/2	8-1/4
MDT-3S	5-5/8	2-7/16	3-1/4	3-5/32	5-5/8	5-3/8	10-3/8

VALVE SIZE	A	B	C	CC	D	DD	E	F	G	X	MDT
12	10-1/2	11-3/8	16-3/8	19	11-1/2	4	1-1/4	12-7/8	17	6-9/16	MDT-2S
16	13-1/2	13-7/8	21-3/4	23-1/2	11-1/2	4	1-7/16	16 1	21-1/4	9-3/16	MDT-3S

Note:

- All dimensions shown in inches.
- "D" dimension $\pm 1/16"$ for 4" thru 10" valves. "D" dimension $\pm 1/8"$ for 12" thru 16" valves.
- For bolts smaller than 1-3/4, bolt holes will be 1/8" longer than diameter of bolt. For bolts 1-3/4 or larger, bolt holes will be 1/4" larger than diameter of bolt.
- Dimensions and drilling of end flange conform to the American Cast Iron Flange Standards, class 125 (B16.1).
- Valves manufactured and tested in accordance with AWWA specification C-504 latest revision, class 150B.
- Recommendation for mating flanges: where insulating bushings are used, it is necessary that bolt holes be drilled oversize by an amount equal to two times the insulating sleeve thickness to maintain the same minimum clearance for bolts.
- The valve is designed for iron or PVC pipe with cast iron equivalent O.D.'s (not for use with IPS O. D. pipe).
- Use with "tyton" rubber ring gasket (registered trademark of U.S. Pipe and Foundry Co.).



BURIED SERVICE ACTUATORS

Built Extra Strong and Water Tight for Years of Trouble Free Service

RUGGED, FEATURE PACKED CONSTRUCTION

Designed and developed by us specifically for buried service, Groundhog® valve actuators exceed the rigid operating requirements of AWWA Standard C504. They are traveling nut type and are self-locking without a unidirectional sustained force from the valve. Unlike some actuators of other designs Groundhog actuators can be relied upon to maintain exact valve position under conditions of fluctuating, turbulent and intermittent flow, yet one man can smoothly and easily operate the valve. Stop limiting devices are provided and are capable of withstanding 1.5 times the AWWA C504 standard input torque at full open or closed positions without damage to the valve or actuator.

MOISTURE RESISTANT

These rugged actuators are lubricated for the life of the valve. They can be operated without maintenance in underground-water conditions because of their grease-packed construction. As long as the cover, gasket and seals remain intact, there is no need to worry about damage resulting from water infiltration.

SMOOTH OPERATION

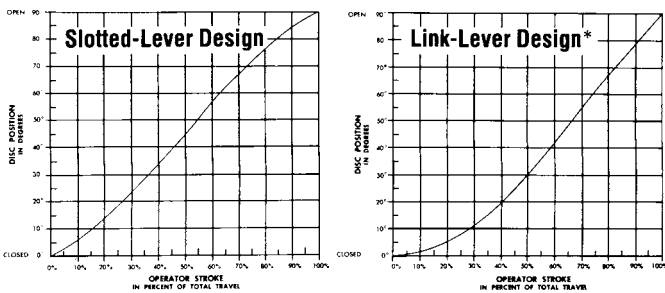
On 4" through 12" valve sizes operation is linear, with valve opening approximately in proportion to the turns of the nut. In sizes 14" and larger, a link-lever arrangement provides characterized closure, which minimizes the possibility of line shock by slowing down valve travel as the valve approaches the closed position.

TURNS REQUIRED TO OPEN OR CLOSE

VALVE SIZE	MDT SIZE	NO. OF TURNS
4" - 12"	MDT-2S	32
14" - 16"	MDT-3S	30
18" - 24"	MDT-4S	40
30"	MDT-5	44
36"	MDT-5	44
42"	MDT-5S	136
48"	MDT-6S	215

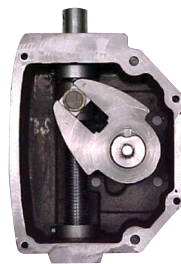
Note: 54" - 72" turns on request

ACTUATOR CHARACTER CURVES

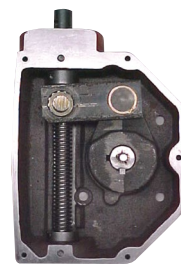


*Curve is approximate. Exact characteristic varies with size of valve and operator.

- Housing** - Provides structural support plus protection for internal operating mechanism. Mounts to valve trunnion with four bolts. Gasket between housing and cover prevents infiltration of dirt and moisture.
- Screw Rod** - Precision-machined, high strength steel.
- Stop Limiting Collars** - Built-in, threaded into position and pinned. Meet or exceed AWWA C504 Standard for input torque requirements to eliminate the possibility of damage to actuator housing, mechanism or disc-shaft assembly.



SLOTTED-LEVER (4" - 12")



LINK-LEVER (14" - 48")

- Lever** - Rugged casting built to transmit torques from slider nut to valve shaft. On link-lever design, takes up higher portion of nut movement at the "closing" end of the screw. (Refer to actuator characteristic curves below.)
- Key** - Actuator is keyed to valve shaft for positive connection of two units.
- Slider Nut** - Precision machined to mate perfectly with screw rod and lever. Capable of withstanding 450 ft. lb. input torque against stop collar.
- Dual-Link Construction** - One link above the screw (shown) and one below (hidden), adds strength and prevents misalignment and jamming of slider nut.

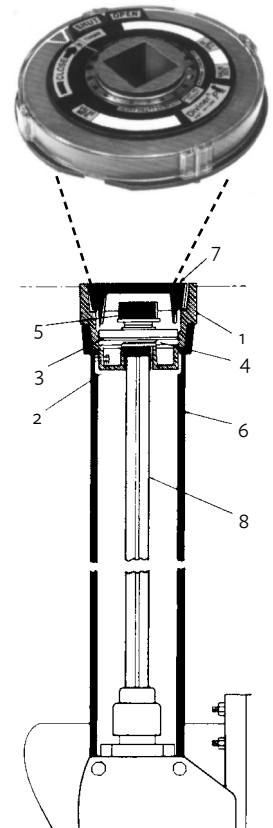
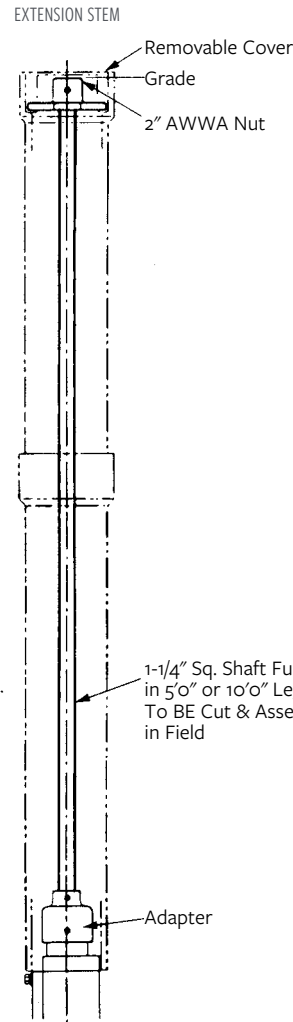
DIVINER®

Ground Level Position Indicator

The Pratt® Diviner position indicator is a useful accessory that identifies valve position at a glance, as well as direction and number of turns to open or close completely. This durable indicator is designed for simple operation, strength and reliability. All working parts are constructed of non-metallic material that is virtually indestructible in this kind of service. Hermetically sealed, the internal gearing is protected from the elements with a clear, tough plastic cover.

The Diviner position indicator is shipped for field assembly complete with cast iron adapter (1) and cap screws, guide bushings (2), position indicator (3), flexible washer (4), and a two-inch square AWWA nut (5) with set screw. The adapter fits a standard 5 1/4 inch valve box (6) or 5 inch cast iron soil pipe bell utilizing a cast cover with skirt depth of 1" or less (7). Extension stems (8) are available in 5-foot and 10-foot lengths and can be ordered separately at extra cost.

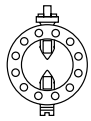
The device is designed for use with valves requiring 250 turns or less. Specify number of turns required for valves not made by us.



NOTES

PRATT

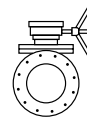
Product Guide



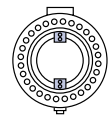
MODEL 2FII



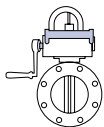
MONOFLANGE MKII



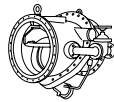
PLUG VALVES



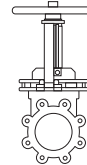
TRITON[®] XR70



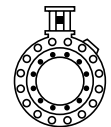
INDICATING BUTTERFLY VALVES UL & FM APPROVED



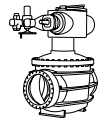
TILTING DISC CHECK VALVES



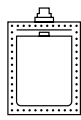
KNIFE GATE VALVES



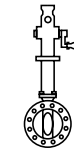
N-STAMP NUCLEAR BUTTERFLY VALVES



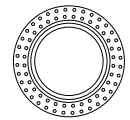
CONE VALVES



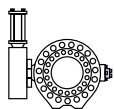
RECTANGULAR



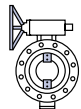
PIVA POST INDICATING VALVES ASSEMBLY UL & FM APPROVED



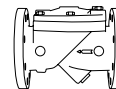
SLEEVE VALVES



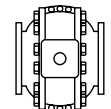
RUBBER SEATED BALL VALVES



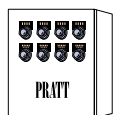
TRITON[®] 250



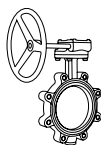
CHECK VALVES



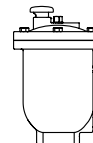
METAL SEATED BALL VALVE



CONTROL SYSTEMS



INDUSTRIAL VALVES



AIR VALVES

For more information about Pratt or to view our full line of water products, please visit www.prattvalve.com or call Pratt customer service at 1.800.423.1323.

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