

# Mueller® Lineseal® Series Butterfly Valves



150B and 250B Class — 3"-48"  
for Water Distribution and Transmission

**Mueller Co.**

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## Product Offering

### Lineiseal III® Valves

| Class | Sizes* | Max. Working Pressure | Max. Flow Velocity |
|-------|--------|-----------------------|--------------------|
| 150B  | 3"-48" | 150 psig              | 16 fps             |

### Lineiseal XP® and XPII® Valves

| Class | Sizes* | Max. Working Pressure | Max. Flow Velocity |
|-------|--------|-----------------------|--------------------|
| 250B  | 3"-48" | 250 psig              | 16 fps             |

## End configurations available

### Lineiseal III Valves

| Class | Sizes*   | Configuration     |
|-------|----------|-------------------|
| 150B  | 3"-48"   | Flg x Flg         |
|       | 4"-48"   | MJ x MJ           |
|       | 6"-36"   | Flg x MJ          |
|       | 12", 16" | Slip-on x Slip-on |
|       | 12", 16" | Slip-on x Flg     |

### Lineiseal XPII Valves

| Class | Sizes* | Configuration              |
|-------|--------|----------------------------|
| 250B  | 3"-48" | Flg x Flg (ANSI Class 125) |
|       | 4"-48" | MJ x MJ                    |
|       | 6"-36" | Flg (ANSI Class 125) x MJ  |

### Lineiseal XP Valves

| Class | Sizes* | Configuration              |
|-------|--------|----------------------------|
| 250B  | 3"-48" | Flg x Flg (ANSI Class 250) |

\* Contact your Mueller representative for valve sizes larger than 48".

# Performance Is the Key

*Designed specifically for the waterworks industry, Lineseal® butterfly valves offer the ruggedness and reliability required for buried service...and a key feature too often overlooked in underground valves — performance! Lower head loss means getting the most from your pumping station dollar. Lower torques mean less costly actuation packages, and the maintenance-free design helps keep your budget under control.*

## Lineseal® 3"-20" Valves



Our 3"-20" valves\* feature a molded-in elastomeric seat which is bonded to the valve body. The bond is tested to ASTM D-429, Method B (minimum 100-pound pull on 1" strip at 90° angle) to ensure the integrity of the bond. The

special configuration of the elastomeric seat resists cold flow and the likelihood of compression set, even when the valve is left in the closed position for extended periods.

The streamlined disc profile reduces turbulence and head loss. The 316 stainless steel disc edge is applied by a non-transferred plasma arc process which provides superior bonding.



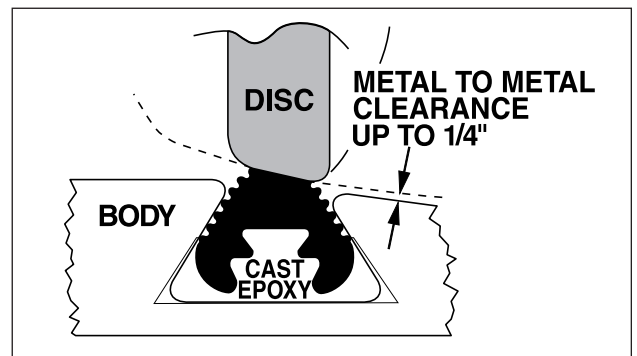
## Lineseal® 24" and Larger Valves



Our 24" and larger valves\* feature the patented E-LOK® 360° seating system. The body-mounted elastomeric seat has ridges, which provide multiple sealing lines and permit higher

levels of radial compression. As a result, stress in the seat material is reduced, allowing lower seating torques and better sealing action. The seat is mechanically retained in a machined groove by a unique cast epoxy design. Uniform pressure around the entire periphery provides a bubble-tight seal. This design also allows seat adjustment or replacement without removing the valve from the line.

Valves 30" and larger feature a flow-through disc design to provide a greater free-flow area and maintain the higher  $C_v$  performance of these larger Mueller valves. (The 24" valve has an offset, slightly concave solid disc which also provides the higher  $C_v$  performance.) For example, the 30" valve has a flow rate comparable to most competitors' 36" valves.

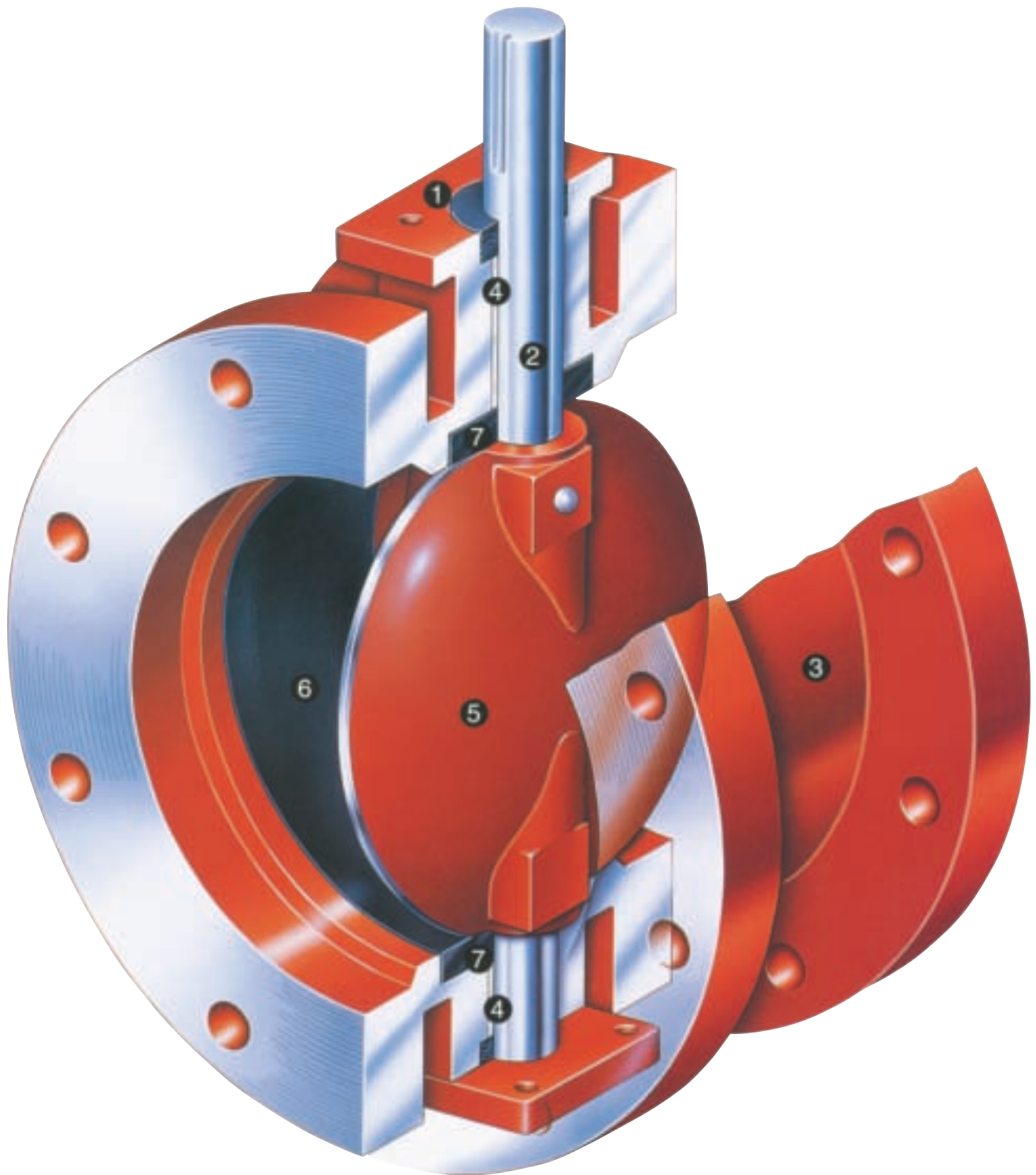


## All Valves Comply with AWWA C504

All Mueller Lineseal Butterfly Valves comply with AWWA C504 and are designed for a long service life with little attention or need for maintenance. Stainless steel shafts are corrosion resistant. Chevron V-Type packings are used to last the life of the valve without adjustment. These and other features described on the following pages make the Mueller Lineseal the preferred valve line.

\* Lineseal XP 6"-20" valves are similar in design to the 24" and larger valves.

Designed to Deliver Cost-effective,  
Bubble-tight Closure



## 3"-20" Lineseal® Butterfly Valves\*

- ① **Chevron V-Type Packing** — 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, reducing wear.
- ② **Corrosion-resistant Shaft** — Constructed of stainless steel (Lineseal III is type 304, Lineseal XPII and XP are ASTM A-564 type 630 cond. H-1150). Shaft is one-piece, through-shaft construction sized to meet or exceed requirements of AWWA Standard C504.
- ③ **Heavy Duty Body** — Rugged cast iron construction for Lineseal III valves or ductile iron for Lineseal XPII and XP valves. End connections include choice of flanges fully faced and drilled per ANSI B16.1 Class 125 or Class 250, or integrally cast mechanical joint ends. For Lineseal III valves, slip-on ends (for DI and PVC C900 pipe) are also available.
- ④ **Self-lubricating Bearings** — Liberally sized, chemically inert nylon bearings are self-lubricating and designed to last the life of the valve.
- ⑤ **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 required torques and withstand stresses imposed under severe operating conditions. Lineseal III disc is cast iron, ASTM A-126 Class B with 316 stainless steel disc edge. Lineseal XPII and XP discs are ductile iron ASTM A-536 (65-45-12) with 316 stainless steel disc edge. (Discs for 3" and 4" Lineseal valves are cast stainless steel, ASTM A-351 CF8M.)
- ⑥ **Elastomeric Body Seat** — Buna N seat is bonded to the body\*. The seat cannot be torn from the body under normal pipeline conditions. The precision molding process also ensures that the disc/seat interference cannot cause excessive wear or abrasion during operation.
- ⑦ **Tamperproof Disc Centering** — Precision molded flats in the bonded seat at the body trunnion mate with machined flats on the disc to provide tamperproof centering of the disc in the body\*. Positive disc alignment, without play, assures long seat life.

\* For Lineseal XP valves, applies to 3" and 4" sizes only— all other sizes have E-LOK® style seat.

# Designed to Deliver Cost-effective, Bubble-tight Closure

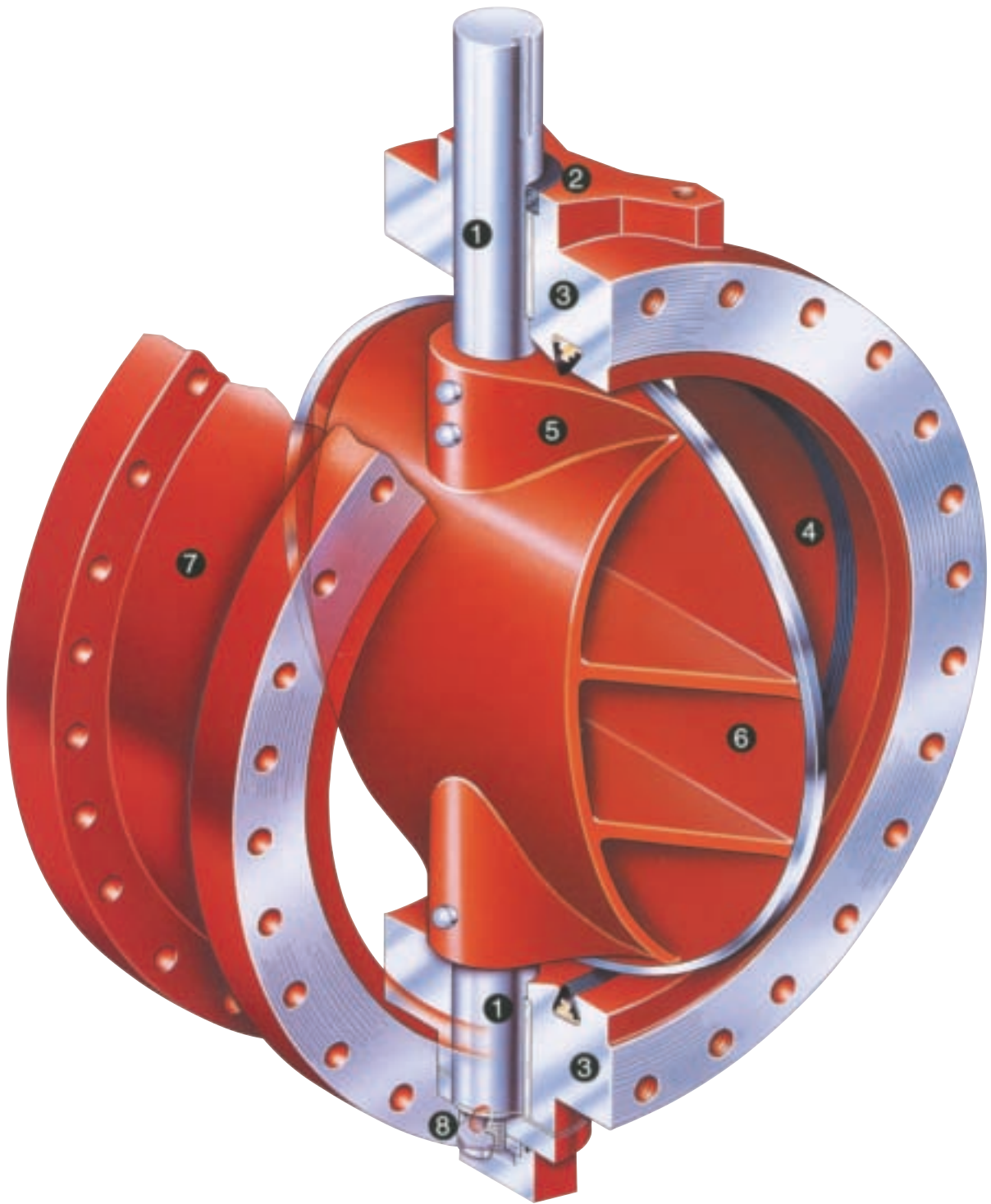
## 24"-48" Lineseal® Valves\*

- 1 Corrosion-resistant Shafts** — Constructed of ASTM A-564 Type 630 H-1150 stainless steel. Two-piece, stub-type shafts are sized per AWWA Standard C504.
- 2 Chevron V-Type Packing** — Self-adjusting packing in top trunnion of valve body where shaft protrudes.
- 3 Self-lubricating Bearings** — Sleeve-type bearings are used in both trunnions of the valve body. Teflon lined with special non-metallic backing. Provide electrical insulation between disc and shaft to prevent galvanic corrosion. Low coefficient of friction reduces operating torque requirements.
- 4 Elastomeric 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 ensures the seat conforms to the precise radius of the disc with uniform contact pressure. It is fully field adjustable and replaceable.
- 5 Strong Shaft Connections** — Disc and shafts are connected by tapered stainless steel pins designed to transmit required torques and withstand stresses imposed under severe operating conditions.
- 6 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 a slightly concave surface†.) Disc structure has no internal cores that can shift during casting, no hollow chambers that can collect water, freeze and fracture the disc. Disc edge has stainless steel spherically shaped seating surface. Ductile iron ASTM A-536 (65-45-12) used for Lineseal III and Lineseal XPII and XP valves.
- 7 Heavy Duty Body** — Rugged cast iron ASTM-126 Class B construction for Lineseal III valves, or ductile iron ASTM A-536 (65-45-12) for Lineseal XPII and XP valves. End connections include choice of flanges fully faced and drilled per ANSI B16.1 Class 125 or Class 250, or integrally cast mechanical joint ends. For Lineseal III valves, slip-on ends (for DI and PVC C900 pipe) are also available.
- 8 Preset 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.

\* Contact your Mueller representative for valve sizes larger than 48".

E-LOK seat design also applies to 6"-20" Lineseal XP valves.

† Also 6"-20" Lineseal XP valves.



# Buried Service Actuators Built Extra Strong and Water Tight for Years of Trouble-free Service

## Rugged, Feature-Packed Construction

Designed specifically for buried service, Mueller® valve actuators meet or exceed the operating requirements of AWWA Standard C504. They are traveling nut type and self-locking without a unidirectional sustained force from the valve. Unlike some actuators of other designs, our actuators can be relied upon to maintain exact valve position under conditions of fluctuating, turbulent and intermittent flow, yet one person can smoothly and easily operate the valve. Stop limiting devices are provided and are capable of withstanding 1-1/2 times the AWWA C504 standard input torque at full open or closed positions without damage to the valve or actuator.

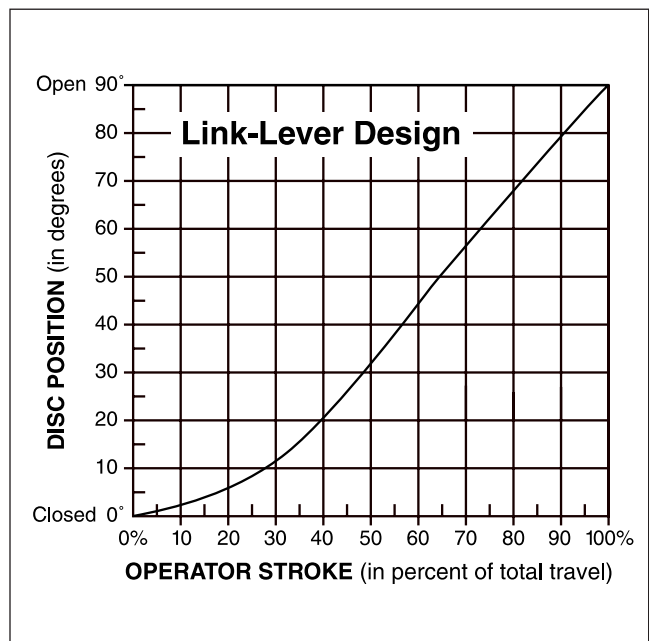
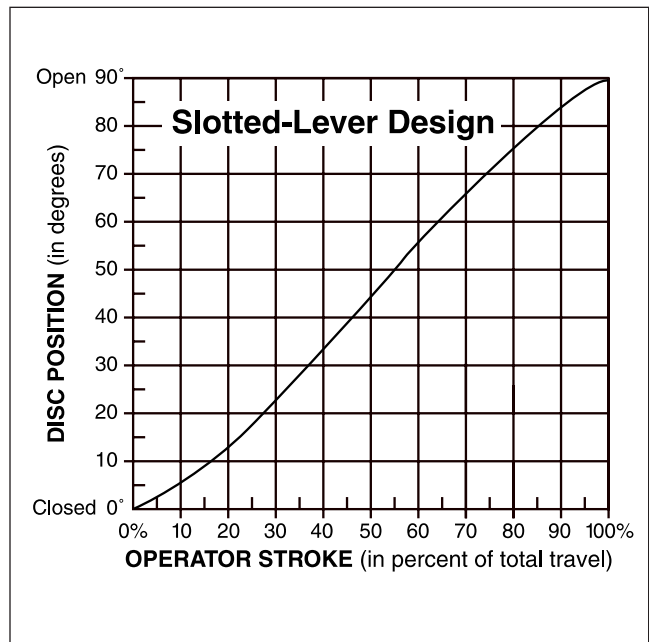
## Moisture Resistant

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

## Smooth Operation

On 3" through 12" Lineseal III® and 3" through 8" Lineseal XPII® and XP valve sizes a slotted lever arrangement provides linear operation, with valve opening approximately in proportion to the turns of the nut. In sizes 14" and larger Lineseal III valves and 10" and larger Lineseal XPII and XP valves, a link-lever arrangement minimizes the possibility of line shock by slowing down valve travel as the valve approaches the closed position.

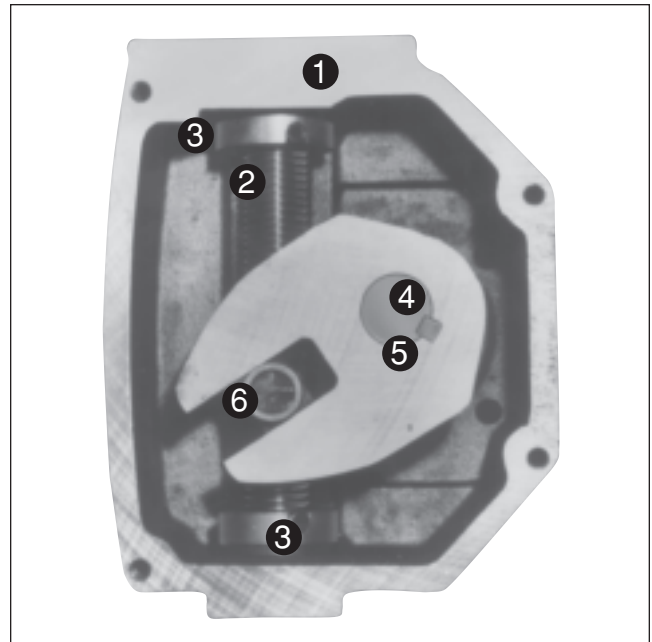
## Actuator Characteristic Curves



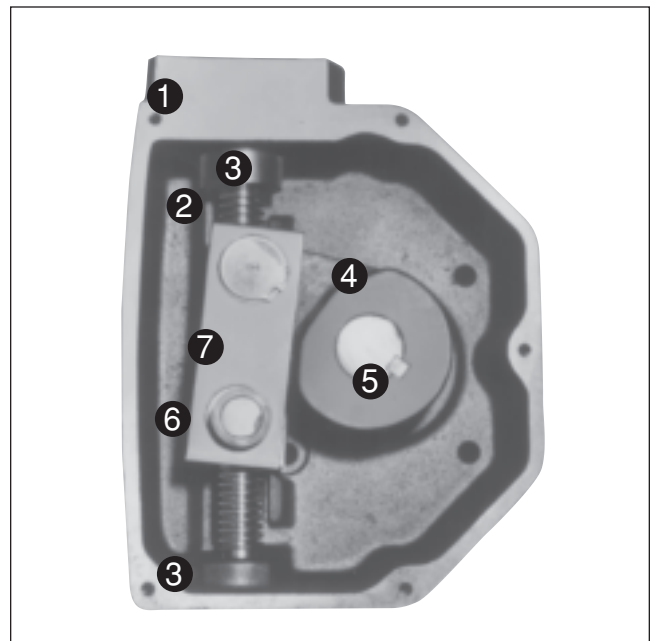


## Features

- ① **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.
- ② **Screw Rod** — Precision machined, high strength steel. Transmits input torque to drive mechanism.
- ③ **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.
- ④ **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 on page 8.)
- ⑤ **Key** — Actuator is keyed to valve shaft for positive connection.
- ⑥ **Slide Nut** — Precision machined to mate precisely with screw rod and lever. Capable of withstanding 450 ft. lb. input torque against stop collar.
- ⑦ **Dual-link Construction** — One link above the screw (shown) and one below (hidden), adds strength and prevents misalignment and jamming of slider nut.

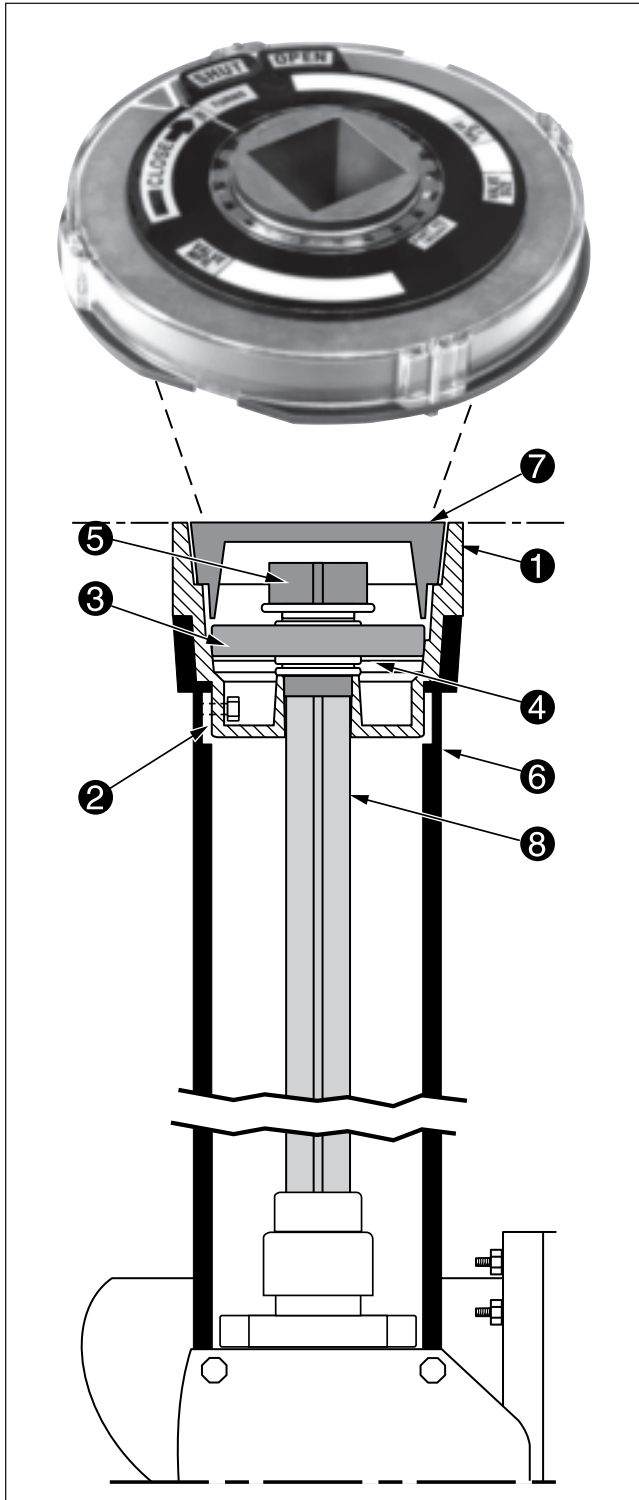


**Slotted-Lever Actuator**



**Link-Lever Actuator (typical)**

# Ground Level Position Indicator



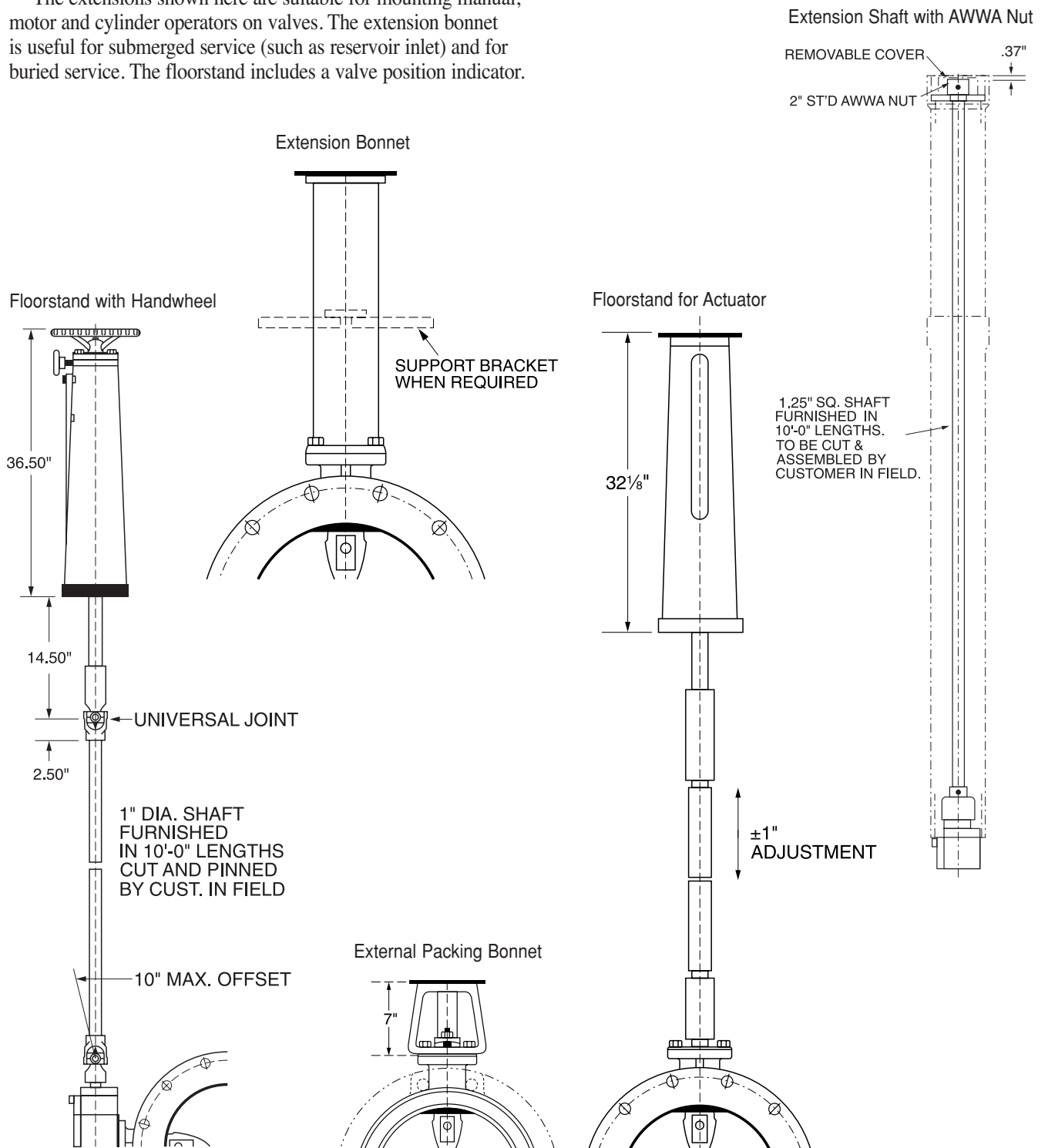
The Mueller® position indicator identifies valve position at a glance, as well as direction and number of turns to open or close completely. This durable indicator is designed for simple operation, strength and reliability. All working parts are constructed of non-metallic material that is virtually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

The Mueller position indicator is shipped for field assembly, complete with cast-iron adapter (1) and cap screws, guide bushing (2), position indicator (3), flexible washer (4) and a 2" square AWWA nut (5) with set screw. The adapter fits a standard 5.25" valve box (6) or 5" cast-iron soil pipe bell utilizing a cast cover with skirt depth of 1" or less (7). Extension stems (8) are available in 5' and 10' lengths and are ordered separately.

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

# Operator Extensions

The extensions shown here are suitable for mounting manual, motor and cylinder operators on valves. The extension bonnet is useful for submerged service (such as reservoir inlet) and for buried service. The floorstand includes a valve position indicator.



# Suggested Specifications

## Lineal III® Butterfly Valve 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 be made of stainless steel ASTM A-351 Grade CF8M (3"-6"), cast iron ASTM A-126 Class B (8"-20"), sizes 24" and larger shall be built from ductile iron in conformance to ASTM A-536 (65-45-12). Disc shall be furnished with 316 stainless steel seating edge to mate with the rubber seat on the body.

**Valve Seats** 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 conform to stainless steel ASTM A-276 Type 304. Shaft seals shall be standard self-adjusting, Chevron V-Type 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. Bearing load shall not exceed 1/5th of the compressive load strength of the material.

**Valve Actuators** shall be fully grease packed and have stops in the open/close position. The actuator shall withstand an input torque of 450 ft. lbs against each stop. The traveling nut shall engage alignment grooves in the housing.

**The Valve Interior and Exterior Surfaces** except for seating shall be coated in accordance with TT-C-494A and AWWA C504 latest edition.

**Optional:** All internal and/or external surfaces shall be covered with a polyamide cured epoxy coating applied over a sand blasted "near white metal surface" per SSPC-SP10 and in compliance with AWWA C550.

## Lineal XP® and XP® Butterfly Valves Class 250B For Buried Service

Valves shall be manufactured with a 250 psi rating. The valves shall be capable of operating at pressures of 250 psi and will comply with the following details:

**Valve Bodies** shall be constructed of ductile iron ASTM A-536 (65-45-12). End connections shall be as specified on the plans.

**Valve Discs** shall be stainless steel ASTM A-351 Grade CF8M (3" and 4"); shall be ductile iron ASTM A-536 (65-45-12) and furnished with 316 stainless steel seating edge to mate with the rubber seat (6" through 48").

**Valve Seats** shall be Buna N rubber (EPDM option) located on the valve body, and shall be retained without the use of metal retainers or other devices located in the flow stream.

**Valve Shafts** shall be stainless steel ASTM A-564 Type 630 Condition H-1150. Through shaft for 3" through 20" and stub shaft for 24" through 48" shall be acceptable.

**Shaft Seals** shall be standard Buna N (EPDM option) self-adjusting, Chevron V-Type 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. Bearing load shall not exceed 1/5th of the compressive strength of the material.

**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 each stop. The traveling nut shall engage alignment grooves in the housing.

**The Valve Interior and Exterior Surfaces** except for seating shall be coated in accordance with TT-C-494A and AWWA C504 latest edition.

**All Valves** shall be hydrostatic and leak tested. The leak test shall be performed at a differential pressure of 250 psig with the disc in a closed position. In a slightly open position, internal hydrostatic pressure equal to 500 psi shall be applied to the inside of the valve body for five minutes.

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