



## Parts & Repair Manual

**LINESEAL III® 24"-48"**  
**LINESEAL XP® 6"-48"**  
**LINESEAL XP II® 24"-48"**

**BURIED SERVICE BUTTERFLY  
VALVES WITH E-LOK™ SEAT**



500 West Eldorado Street

Decatur, Illinois 62522

[www.muellercompany.com](http://www.muellercompany.com)

### **! WARNING**

1. Read and follow instructions carefully. Proper training and periodic review regarding the use of this equipment is essential to prevent possible serious injury and/or property damage.
2. Do not exceed the pressure ratings of any components or equipment. Exceeding the rated pressure may result in serious injury and/or property damage.
3. Safety goggles and other appropriate protective gear should be used. Failure to do so could result in serious injury.

# INDEX

## LINESEAL III<sup>®</sup>, XP<sup>®</sup>, and XP11<sup>®</sup> BUTTERFLY VALVES WITH E-LOK<sup>™</sup> SEAT

	Page
Storage Procedure .....	3
Seat Adjustment Procedure .....	3
Troubleshooting Guide .....	4
V-Type Packing Replacement .....	5
LINESEAL III (24") Parts .....	6
LINESEAL III (30"–48") Parts .....	7
LINESEAL XP (6"–24") & XP11 (24") Parts .....	8
LINESEAL XP11 (30"–48") Parts .....	9
Buried Service Actuator – MDT-2S .....	10
Buried Service Actuator – MDT-3S & 4S .....	11
Buried Service Actuator – MDT-5 .....	12
Buried Service Actuator – MDT-5S .....	13
Buried Service Actuator – MDT-6S .....	14
Actuator & Valve Annual Maintenance Instructions ...	15
Parts & Services .....	15



### **Recommendations For Extended Storage (6 Months or Longer):**

Mueller® Rubber Seated Butterfly Valves have been designed to provide many years of trouble-free service. A reasonable amount of care should be exercised in storing the valves to assure trouble-free service. The following are precautions which should be observed regarding storage.

#### **OUTDOOR STORAGE:**

1. All exposed rubber components should be brush coated with Chemglaze Z-307 from Lord Chemical, or with EP2 lithium grease for potable water applications, to a thickness of 1-2 mils.
2. If valves will be stored in a high humidity or corrosive environment, where bare iron or steel flanges may rust, then flanges should be coated with a rust preventative suitable for outdoor exposure such as Rust-Veto by E.F. Houghton. Clean surfaces and apply one uniform coat with a dry rag or brush.
3. Valve flanges should be covered with full circle panels of 1/4" exterior grade plywood or tempered hardwood. These covers shall be fastened to the valve flanges.
4. Valve and operator assembly should be covered with black plastic sheeting having a minimum thickness of 4 mils.
5. Electric equipment must be stored off the ground above possible water or snow level, in a position similar to the intended mounting position, and be covered with plastic sheeting having a minimum thickness of 4 mils.
6. If the average mean temperature falls below 60° F and/or the relative humidity exceeds 50%, all electrical control components and motor control compartments with internal heaters must have the heaters wired and operating. The wire entrance points must be sealed against moisture. Desiccant must be placed in those units that do not have internal heaters. The desiccant should be removed from the unit prior to placing it in service.

7. All conduit openings shall be sealed with metal threaded pip plugs to keep equipment free from moisture and to protect threads of conduit openings. All other openings normally sealed by the mating mounting surfaces must be covered and sealed.

#### **INDOOR STORAGE:**

Indoor storage will require Steps 1, 6, and 7 listed under outdoor storage.

#### **E-LOK Seat Adjustment**

The valve seat is adjusted at the factory and should not require field attention. It is possible to make field adjustments to correct leakage resulting from minor damage to the seat sealing edge. Contact the factory for further information.

Mueller® LINESEAL III®, XP®, and XPII® BUTTERFLY VALVES WITH E-LOK™ SEAT  
 Troubleshooting Guide

TROUBLESHOOTING GUIDE		
PROBLEM	CAUSES	REMEDIES
Leakage between valve and actuator	Packing leak	Clean packing bore and replace packing. Cycle valve several times to allow packing to adjust.
Bottom trunion leaks	Packing or gasket leak	Replace bottom shaft packing, O-ring or gasket.
Valve leaks when closed	Disc not fully closed or past fully closed	Adjust actuator closed position stop.
	Disc edge wear or damage	Clean and/or repair disc edge.
	Rubber seat wear or damage	Adjust or replace valve seat.
Chain wheel jams	Poorly fitting chain	Replace with correct chain.
Valve hard to operate	Foreign material in valve	Remove obstructions.
	Corroded actuator parts	Clean and grease actuator.
	Loose actuator	Apply Loctite or Omni-fit locking compound and tighten bolts.
Automatic valve does not actuate	No power source	Check incoming power source and replace fuses or reset pressure.
	Improper signal	Check actuating signal sequence.
	Burned out or impaired component	Check and repair or replace solenoids, motors and relay devices.

# Mueller® LINESEAL III®, XP®, and XP II® BUTTERFLY VALVES WITH E-LOK™ SEAT

## Replacing V-Type Packing

### ! WARNING

Removal of actuator or its mounting bolts, whether or not valve is installed, or under pressure or flow conditions, may allow disc (including actuator, if unbolted and still attached to shaft) to rotate very rapidly without warning. Depending upon the situation, this may cause severe bodily harm to persons in the path of disc (or actuator) rotation, failure of piping from water hammer, or other significant damage to the valve or piping system. If valve is not installed, block or lock disc in place before removing actuator bolts. If valve is installed, line should be dewatered by first closing valves upstream of the valve to be serviced, then closing those downstream, allowing sufficient time for water to drain from the line.

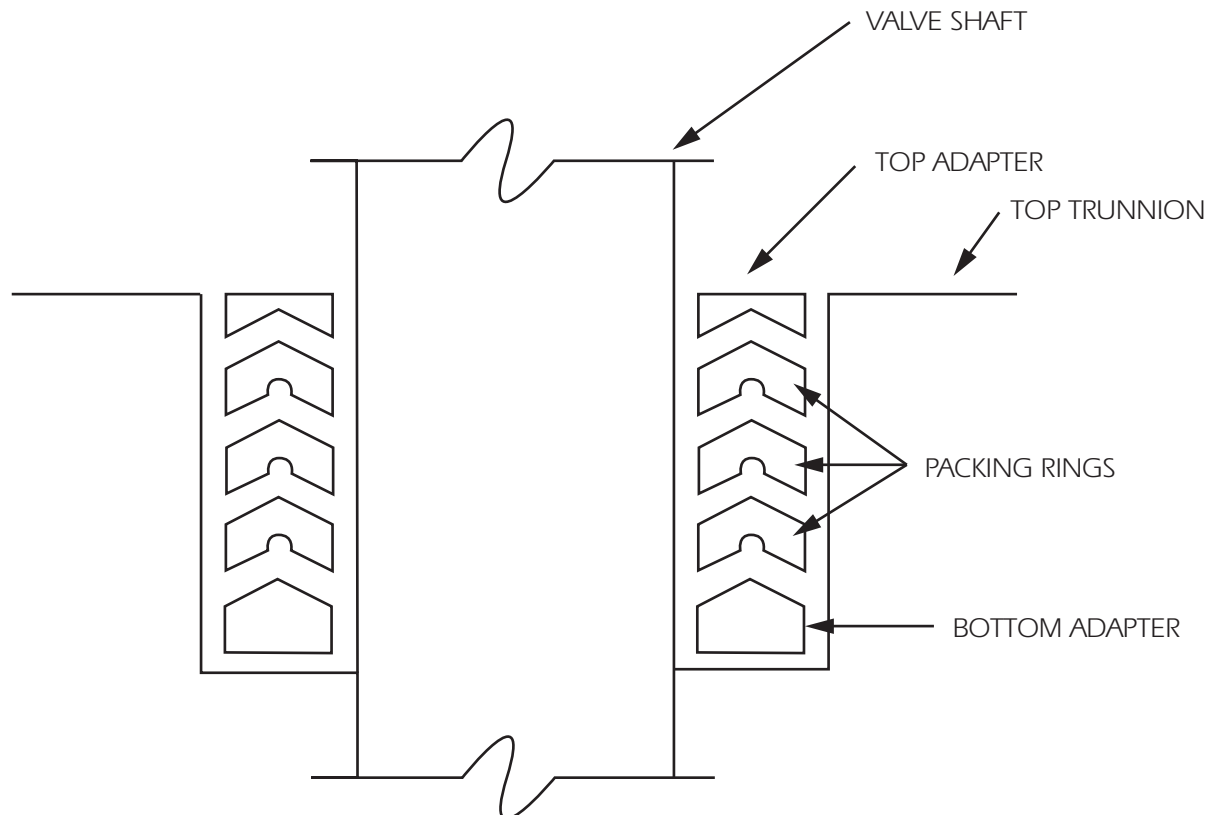
### Replacing V-Type Packing Rubber Seat Butterfly Valves:

Before commencing any work on the valve, be sure the valve disc is in the CLOSED POSITION. This prevents it from swinging freely when the operator is removed.

1. Remove old packing. A bent steel hook rod will assist in this operation.
2. Put in the packing, one ring at a time, seating each firmly against the adjacent ring, using a small amount of EP2 lithium grease

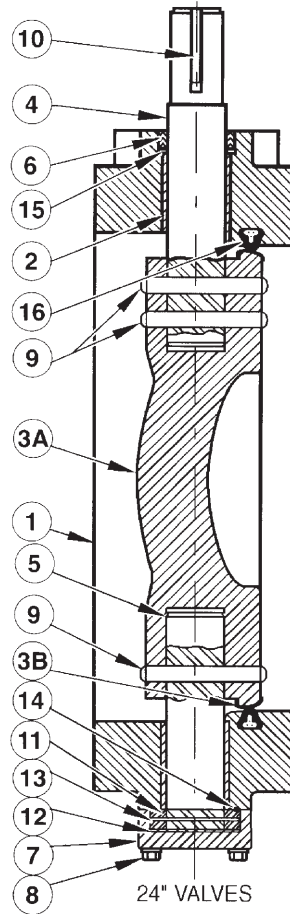
to lubricate and create initial seal. Exercise extreme care in placing ring in packing bore so as not to damage the ring. The two sealing lips on the V-packing should be pointed toward the valve disc (see sketch below).

3. Reassemble operator to Valve.



# Mueller® LINESEAL III®, XP®, and XP11® BUTTERFLY VALVES WITH E-LOK™ SEAT

Line seal III (24") Parts

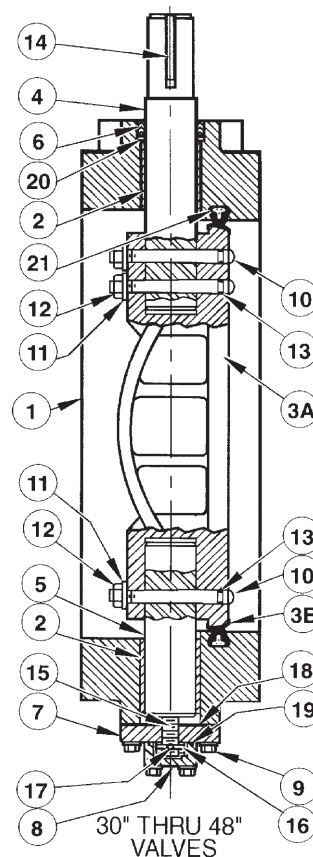


Parts for Mueller Line seal III Butterfly Valves, 24" Sizes,  
150psi working pressure

Item No.	Description	Material
1	Body	Cast Iron ASTM A-126 Class B
2	Bearings	PTFE Lined, Fiberglass Backed
3A	Disc	Ductile Iron ASTM A-536 Grade (65-45-12)
3B	Disc Edge	Stainless Steel Type 316 ASTM A-240
4	Top Stub Shaft	Stainless Steel Type 304 ASTM A-276
5	Bottom Stub Shaft	Stainless Steel Type 304 ASTM A-276
6	Packing	Buna N
7	Bottom Cover	Cast Iron ASTM A-126 Class B
8	Cap Screws	Carbon Steel
9	Squeeze Pins	Stainless Steel Type 304 ASTM A-276
10	Key	Carbon Steel AISI 1045
11	Thrust Collar	Bronze ASTM B-505 Alloy C93200
12	Thrust Collar Shims	Bronze Alloy C26000 Half Hard (H02)
13	Spring Pin	Stainless Steel Type 420
14	O-Ring	Buna N
15	Packing Retainer	Nylon
16	Seat	Buna N

# Mueller® LINESEAL III®, XP®, and XPII® BUTTERFLY VALVES WITH E-LOK™ SEAT

Line seal III (30" – 48") Parts

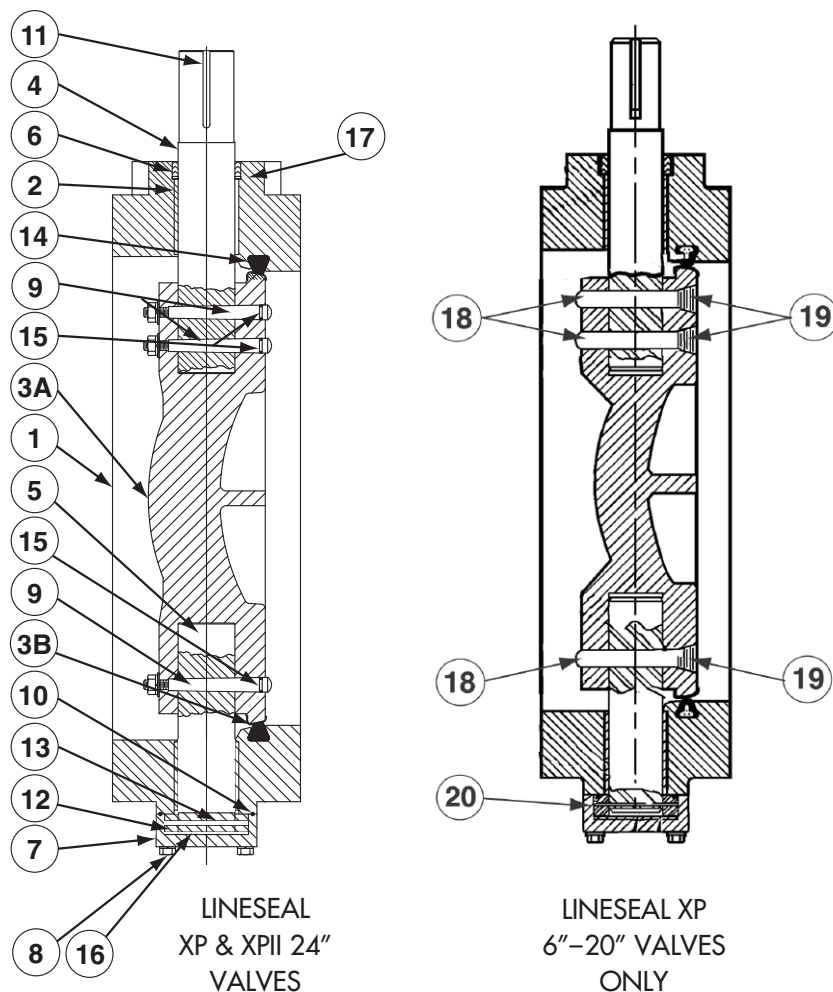


Parts for Mueller Line Seal III Butterfly Valves, 30" – 48" Sizes,  
150psi working pressure

Item No.	Description	Material
1	Body	Cast Iron ASTM A-126 Class B
2	Bearings	PTFE Lined, Fiberglass Backed
3A	Disc	Ductile Iron ASTM A-536 Grade (65-45-12)
3B	Disc Edge	Stainless Steel Type 316 ASTM A-240
4	Top Stub Shaft	Stainless Steel Type 304 ASTM A-276
5	Bottom Stub Shaft	Stainless Steel Type 304 ASTM A-276
6	Packing	Buna N
7	Bottom Cover	Cast Iron ASTM A-126 Class B
8	Bottom Cover Cap	Cast Iron ASTM A-126 Class B
9	Cap Screws	Carbon Steel
10	Taper Pins	Stainless Steel Type 630 ASTM A-564 Cond. H-1150
11	Lockwashers	Stainless Steel Type 304
12	Hex Nuts	Stainless Steel Type 304
13	O-Rings	Buna N
14	Key	Carbon Steel AISI 1045
15	Thrust Bearing Stud	Stainless Steel Type 304
16	Thrust Collar	Bronze ASTM B-505 Alloy C93200
17	Groove Pin	Alloy Steel
18	Bottom Cover Gasket	Non-Asbestos Material ASTM F104
19	O-Ring	Buna N
20	Packing Retainer	Nylon
21	Seat	Buna N

# Mueller® LINESEAL III®, XP®, and XP II® BUTTERFLY VALVES WITH E-LOK™ SEAT

Lineal XP (6" – 24") and XP II (24") Parts



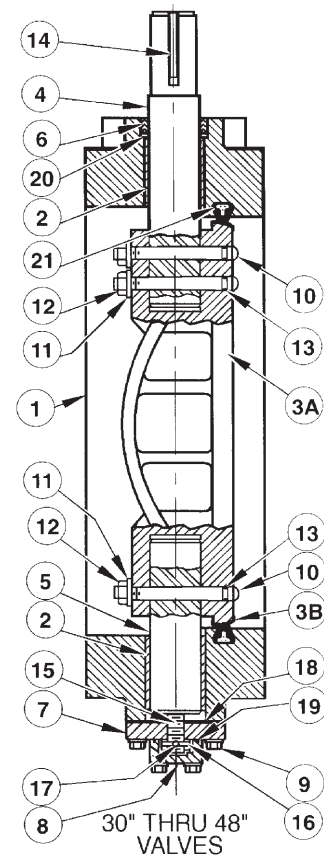
Parts for Mueller Lineal XP 6" – 24" Sizes and XP II Butterfly Valves 24" Sizes, 250psi working pressure

Item No.	Description	Material
1	Body	Ductile Iron ASTM A-536 Grade (65-45-12)
2	Bearings	PTFE Lined, Fiberglass Backed (XP 6" – 20" – Stainless Steel Backed)
3A	Disc	Ductile Iron ASTM A-536 Grade (65-45-12)
3B	Disc Edge	Stainless Steel Type 316 ASTM A-240
4	Top Stub Shaft	Stainless Steel Type 630 ASTM A-564 Cond. H-1150
5	Bottom Stub Shaft	Stainless Steel Type 630 ASTM A-564 Cond. H-1150
6	Packing	Buna N
7	Bottom Cover Cap	Cast Iron ASTM A-126 Class B
8	Cap Screws	Stainless Steel Type 304
9	Taper Pins	Stainless Steel Type 630 ASTM A-564 Cond, H-1150 (XP 6" – 20" – N/A)
10	O-Rings	Buna N (EPDM Optional)
11	Key	Carbon Steel AISI 1018 (XP 6" – 20" – Carbon Steel AISI 1045)
12	Thrust Collar	Bronze ASTM B-22 Alloy C91100
13	Spring Pin	Alloy Steel
14	Seat	Buna N (EPDM Optional)
15	O-Ring	Buna N (EPDM Optional) (XP 6" – 20" – N/A)
16	Thrust Collar Shims	Brass Alloy C26000 Half Hard (H02) (XP 6" – 20" – N/A)
17	Packing Retainer	Nylon
18	Spiral Pins*	Stainless Steel Type 420
19	Plugs*	Cast Iron
20	Thrust Collar*	Bronze ASTM B-22 Alloy C93700



# Mueller® LINESEAL III®, XP®, and XP11® BUTTERFLY VALVES WITH E-LOK™ SEAT

Lineseal XP and XP11 (30" – 48") Parts

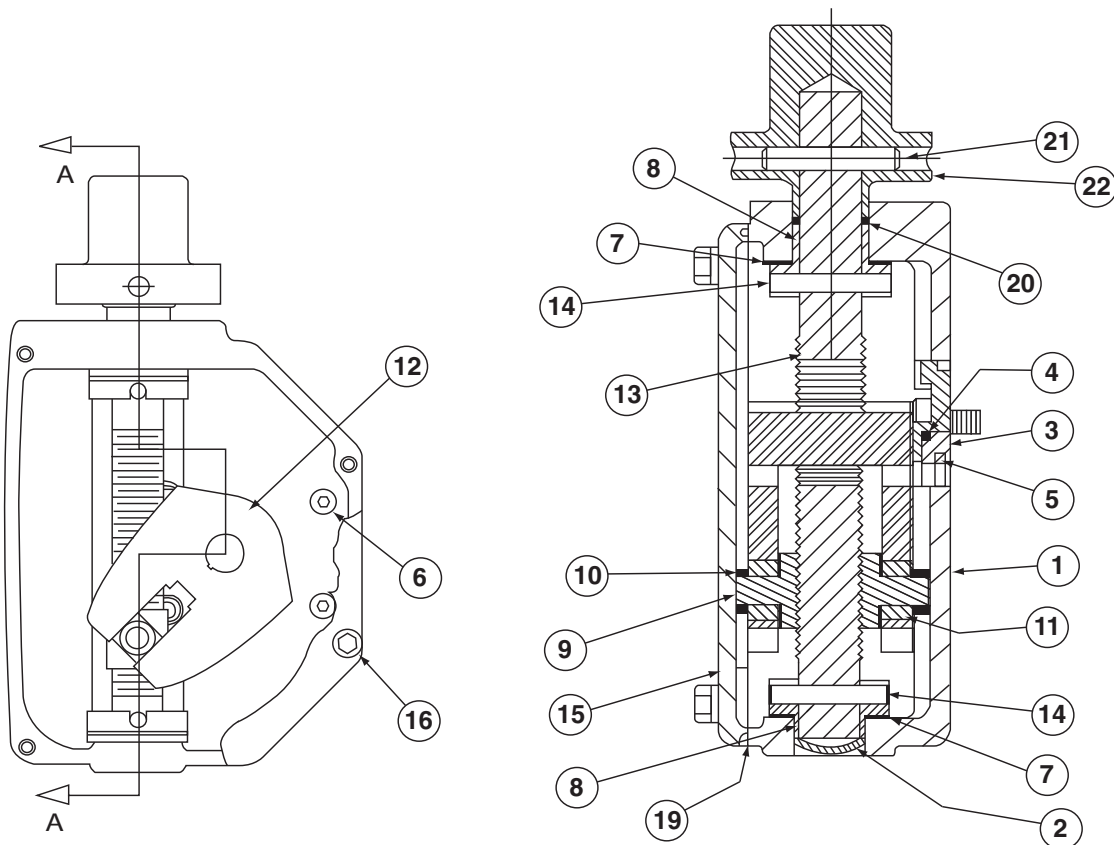


Parts for Mueller Lineseal XP and XP11 Butterfly Valves, 30" – 48" Sizes, 250psi working pressure

Item No.	Description	Material
1	Body	Ductile Iron ASTM A-536 Grade (65-45-12)
2	Bearings	PTFE Lined, Fiberglass Backed
3A	Disc	Ductile Iron ASTM A-536 Grade (65-45-12)
3B	Disc Edge	Stainless Steel Type 316 ASTM A-240
4	Top Stub Shaft	Stainless Steel Type 630 ASTM A-564 Cond. H-1150
5	Bottom Stub Shaft	Stainless Steel Type 630 ASTM A-564 Cond. H-1150
6	Packing	Buna N (EDPM Optional)
7	Bottom Cover	Cast Iron ASTM A-126 Class B
8	Bottom Cover Cap	Cast Iron ASTM A-126 Class B
9	Cap Screws	Carbon Steel (Stainless Steel Type 304 Optional)
10	Taper Pins	Stainless Steel Type 630 ASTM A-564 Cond. H-1150
11	Lockwashers	Stainless Steel Type 304
12	Hex Nuts	Stainless Steel Type 304
13	O-Rings	Buna N (EDPM Optional)
14	Key	Carbon Steel C-1045
15	Thrust Bearing Stud	Stainless Steel Type 630 ASTM A-564 Cond. H-1150
16	Thrust Collar	Bronze ASTM B-505 Alloy C93200
17	Groove Pin	Alloy Steel
18	Bottom Cover Gasket	Non Asbestos Material ASTM F-104
19	O-Ring	Buna N (EDPM Optional)
20	Packing Retainer	Nylon
21	Seat	Buna N (EDPM Optional)

# Mueller® LINESEAL III®, XP®, and XPII® BUTTERFLY VALVES WITH E-LOK™ SEAT

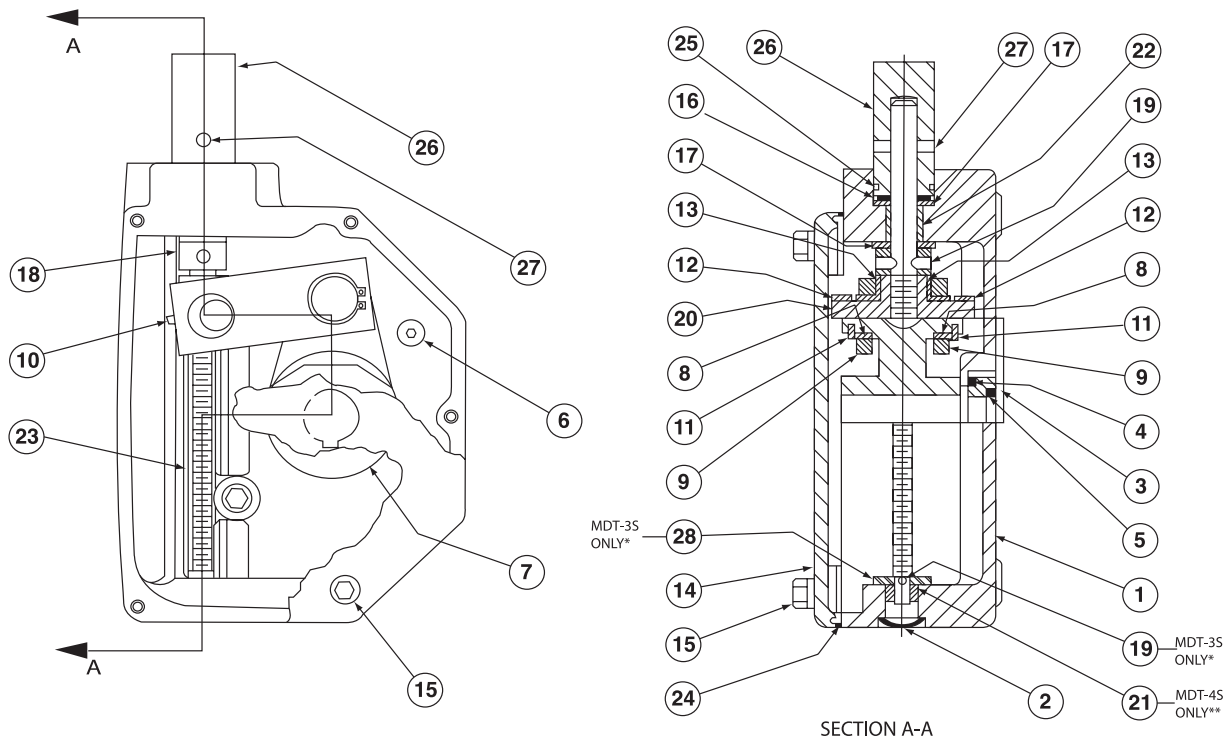
Buried Service Actuator – MDT-2S Parts



Item No.	Description	Material
1	Housing	Cast Iron ASTM A-126 Class B
2	Expansion Plug	Stainless Steel Type 304
3	Insert	Noryl Grade GFN3-780
4	O-Ring	Buna N
5	O-Ring	Buna N
6	Cap Screw	Alloy Steel
7	Shim	Hardened Steel
8	Bearing	Sintered Iron
9	Slider Nut	Ductile Iron ASTM A-536 Grade 80-60-03
10	Slider Tube	Carbon Steel
11	Slider Block	Sintered Iron ASTM B-439 GR3
12	Lever	Ductile Iron ASTM A-536 Grade (65-45-12)
13	Shaft	Carbon Steel (Stress Proof)
14	Groove Pin	Alloy Steel
15	Cover	Cast Iron ASTM A-126 Class B
16	Cap Screw	Stainless Steel Type 304
19	Gasket	Blended Fiber, Cured Nitrile Binder
20	O-Ring	Buna N
21	Spring Pin	Stainless Steel Type 420
22	Nut	Cast Iron ASTM A-126 Class B

# Mueller® LINESEAL III®, XP®, and XP II® BUTTERFLY VALVES WITH E-LOK™ SEAT

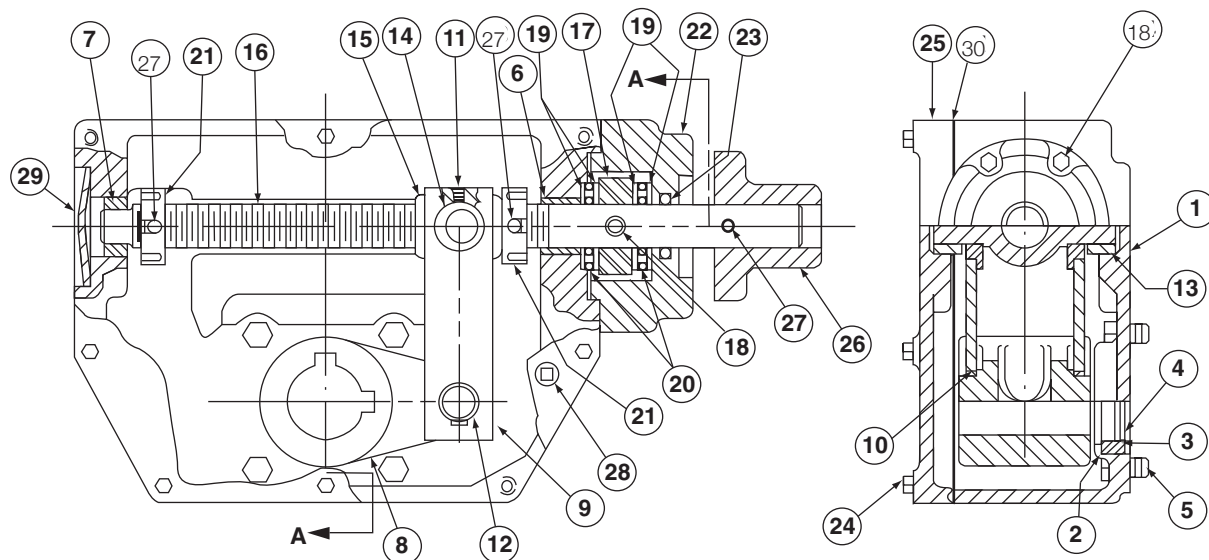
Buried Service Actuator – MDT-3S & -4S Parts



Item No.	Description	Material
1	Housing	Cast Iron ASTM A-126 Class B
2	Expansion Plug	Stainless Steel Type 304
3	Insert	Noryl Grade GFN3-780
4	O-Ring	Buna N
5	O-Ring	Buna N
6	Cap Screw	Alloy Steel (Zinc Plated)
7	Lever	Ductile Iron ASTM A-536 Grade (65-45-12)
8	Bearing	Sintered Bronze
9	Link	Carbon Steel
10	Set Screw	Alloy Steel
11	Retaining Ring	Carbon Steel
12	Slider Tube	Carbon Steel
13	Eccentric Bearing	Sintered Iron
14	Cover	Cast Iron ASTM A-126 Class B
15	Cap Screw	Stainless Steel Type 304
16	Shim	Carbon Steel
17	Thrust Washer	Sintered Bronze (MTD-4S)/Iron (MDT-3S)
18	Thrust Collar	Carbon Steel
19*	Drive Pin	Alloy Steel
20	Slider Nut	Ductile Iron ASTM A-536 (65-45-12)
21**	Bearing	Nylon
22	Bearing	Sintered Bronze
23	Shaft	Carbon Steel
24	Gasket	Blended Fiber, Cured Nitrile Binder
25	O-Ring	Buna N
26	Nut	Cast Iron ASTM A-48 Class 40 (MTD-4S)/ASTM A-126 Class B (MDT-3S)
27	Pin	Stainless Steel Type 304
28*	Flange Bearing	Sintered Iron

# Mueller® LINESEAL III®, XP®, and XPII® BUTTERFLY VALVES WITH E-LOK™ SEAT

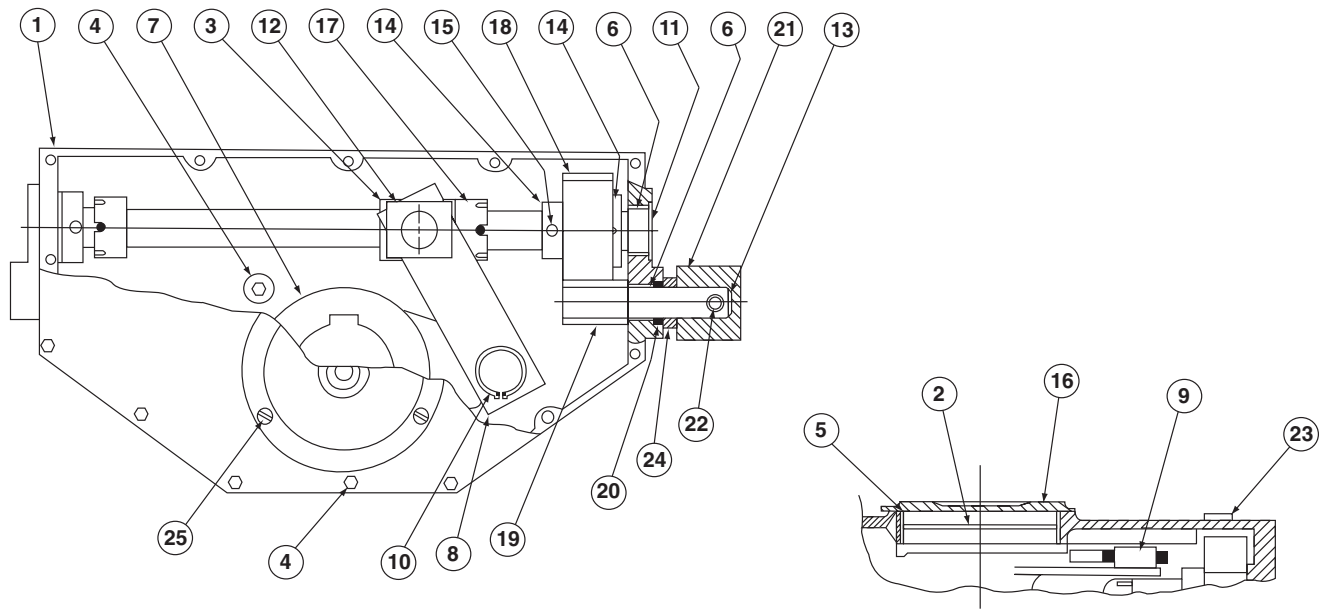
Buried Service Actuator – MDT-5 Parts



Item No.	Description	Material
1	Housing	Cast Iron ASTM A-48 Class 40
2	O-Ring	Buna N
3	O-Ring	Buna N
4	Insert	Noryl GFN3-780
5	Cap Screw	Alloy Steel
6	Bearing	Sintered Bronze
7	Bearing	Sintered Bronze
8	Lever	Ductile Iron ASTM A-536 GRADE 80-60-03
9	Link	Carbon Steel
10	Link Bearing	"DU" Bearing Material
11	Set Screw	Alloy Steel
12	Retaining Ring	Carbon Spring Steel
13	Slider Block	Aluminum Bronze
14	Eccentric Bearing	Sintered Metal
15	Slider Nut	Ductile Iron ASTM A-536 GRADE 80-60-03
16	Shaft	Carbon Steel AISI B12L14
17	Thrust Collar	Carbon Steel
18	Cap Screw	Stainless Steel
19	Thrust Race	Hardened Steel
20	Roller Bearing	Hardened Steel
21	Collar	Ductile Iron ASTM A-536 GRADE 80-60-03
22	Adapter	Cast Iron ASTM A-48 Class 40
23	O-Ring	Buna N
24	Cap Screw	Carbon Steel
25	Cover	Cast Iron ASTM A-48 Class 40
26	Nut	Cast Iron ASTM A-48 Class 40
27	Spring Pin	Stainless Steel Type 420
28	Pipe Plug	Malleable Iron (Galvanized)
29	Expansion Plug	Stainless Steel Type 304
30	Gasket	Neoprene Rubber

# Mueller® LINESEAL III®, XP®, and XPII® BUTTERFLY VALVES WITH E-LOK™ SEAT

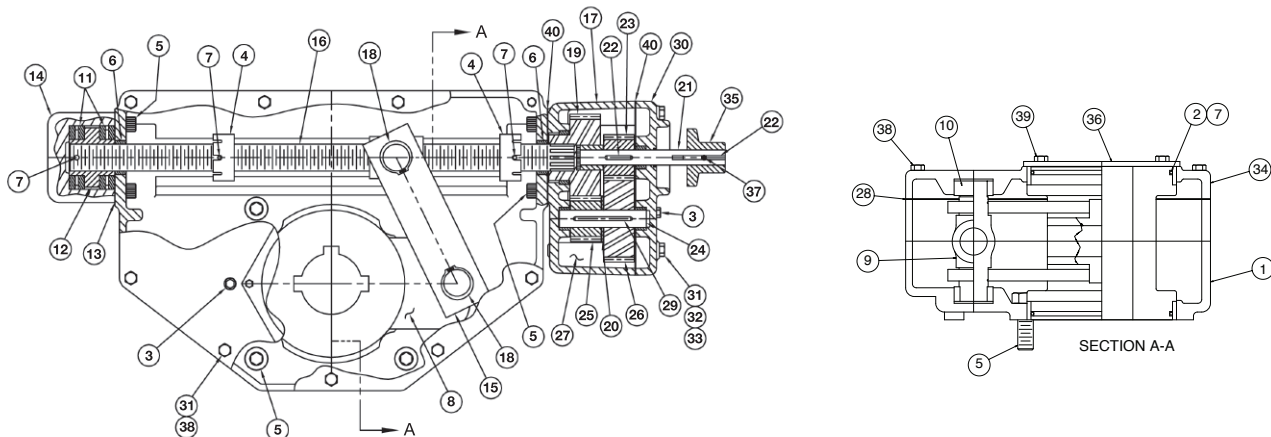
Buried Service Actuator – MDT-5S Parts



Item No.	Description	Material
1	Housing	Ductile Iron ASTM A-536 Grade 65-45-12
2	O-Ring	Buna N
3	Slider Block	Aluminum Bronze ASTM B-148 Alloy C95400
4	Cap Screw	Carbon Steel
5	Bearing	Sintered Bronze
6	Bearing	Sintered Bronze
7	Lever	Ductile Iron ASTM A-536 Grade 80-60-06
8	Link	Carbon Steel AISI 1018
9	Link Bearing	Bronze
10	Retaining Ring	Carbon Spring Steel
11	Expansion Plug	Stainless Steel Type 304
12	Slider	Aluminum Bronze ASTM A-150 Alloy C63000
13	Shaft	Carbon Steel AISI B12 L14 Cold Drawn
14	Thrust Collar	Carbon Steel (Stress Proof)
15	Spring Pin	Carbon Steel
16	Indicator	Cast Iron ASTM A-126 Class B
17	Collar	Ductile Iron ASTM A-536 Grade 65-45-12
18	Drive Gear	Alloy Steel
19	Drive Pinion	Carbon Steel
20	Wiper	Buna N
21	Nut	Cast Iron ASTM A-48 Class 40
22	Spring Pin	Stainless Steel Type 420
23	Pipe Plug	Malleable Iron (Galvanized)
24	Clamp Collar	Carbon Steel
25	Screw	Carbon Steel

# Mueller® LINESEAL III®, XP®, and XP II® BUTTERFLY VALVES WITH E-LOK™ SEAT

Buried Service Actuator – MDT-6S Parts



Item No.	Description	Material
1	Housing	Ductile Iron ASTM A-536 (65-45-12)
2	O-Ring	Buna N
3	Pipe Plug	Cast Iron
4	Collar	Ductile Iron ASTM A-536 (65-45-12)
5	Socket Head Cap Screw	Alloy Steel SAE Grade 8
6	Bearing	Sintered Bronze ASTM B-438 Grade 2
7	Groove Pin	Alloy Steel
8	Lever	Ductile Iron ASTM A-536 (65-45-12)
9	Slider Nut	Ductile Iron ASTM A-536 (80-55-06)
10	Slider Block	Aluminum Bronze ASTM B-505 Alloy C95400
11	Thrust Bearing	Carbon Steel
12	Thrust Collar	Cast Iron ASTM A-48 Class 40
13	Shim	Plastic
14	Cover	Ductile Iron ASTM A-536 65-45-12
15	Link	Carbon Steel
16	Shaft	AISI 1040 Carbon Steel
17	Spur Housing	Cast Iron ASTM A-126 Class B
18	Retaining Ring	Carbon Steel (Spring Steel)
19	Splined Spur	Carbon Steel AISI 4150 85,000 PSI
20	Flat Washer	Zinc Plated Carbon Steel
21	Shaft	Stainless Steel TYPE 304
22	Key	Carbon Steel AISI 1045
23	Pinion Gear	Carbon Steel AISI 1045
24	Idler Shaft	Carbon Steel AISI 1018
25	Pinion Gear	Carbon Steel AISI 4150 85,000 PSI
26	Gear	Cast Iron ASTM A-48 Class 30
27	Grease	EP2 Lithium Grease
28	Gasket	Closed Cell Neoprene Sponge Rubber
29	Key	Carbon Steel AISI 1045
30	Spur Cover	Cast Iron ASTM A-126 Class B
31	Thread Locker	Thread Locker
32	Hex Head Cap Screw	Carbon Steel SAE Grade 2 (Zinc Plated)
33	Lockwasher	Carbon Steel AISI 1055
34	Cover	Cast Iron ASTM A-126 Class B
35	2" AWWA Nut	Cast Iron ASTM A-48 Class 40
36	Indicator	Hot Rolled Carbon Steel
37	Set Screw	Alloy Steel (Zinc Plated)
38	Cap Screw	Alloy Steel SAE Grade B
39	Cap Screw	Steel SAE Grade 2 (Zinc Plated)
40	Gasket	Non-Asbestos Gasket Material

# Mueller® LINESEAL III®, XP®, and XP II® BUTTERFLY VALVES WITH E-LOK™ SEAT

Actuator & Valve Annual Maintenance Instructions / Parts & Services

## MDT Actuators (For Standard Service):

1. Verify that actuator is still bolted securely to the valve turnion or bonnet. If movement is detected, remove actuator cover and tighten mounting bolts.
2. If operation is difficult or gear box noisy, remove actuator cover to inspect gearing and lubricant. Clean actuator and replace grease if it has separated or worn away.

## LUBRICANT LIST

Shell Acuania EP-2  
Mobil Mobilux #2

## MDT Actuators (For Standard Service):

No scheduled maintenance required.

## Butterfly Valves With E-LOK Seat

1. Cycle valve to verify operation and no interference in line.
2. Close valve and check for leakage. If leakage is detected, check actuator stops to verify that disc is fully closed. If leakage persists, inspect seat and adjust or replace the seat in accordance with the instruction manual.
3. Check flange connections for leakage. Tighten bolts accordingly.
4. Check top trunion area for shaft leakage. If leakage is detected, replace valve packing.
5. If access to line is possible, then removal of scale that may interfere with disc travel is suggested. Also, the seat should be inspected for wear and taper pin nuts should be tight.

**NOTE: Lubrication is not required.**

Mueller products are designed for long life. No spare parts are recommended or required for normal operations; however, should a part ever be found worn or broken, you can order replacement parts.

## HOW TO ORDER PARTS:

To obtain further information or to order parts for the 24" – 48" MUELLER® LINESEAL III® OR 24" – 48" MUELLER® LINESEAL XP II® Butterfly Valve, contact a local Mueller representative or customer service for butterfly valves:

Henry Pratt Company  
401 S. Highland Avenue  
Aurora, IL 60506-5563  
Attention: Parts Manager

Phone: (630) 844-4000 extension 0  
Fax: (630) 844-4191  
E-mail: [bfvparts@muellervalves.com](mailto:bfvparts@muellervalves.com)

## TO ORDER SERVICE:

Henry Pratt Company  
401 S. Highland Avenue  
Aurora, IL 60506-5563  
Attention: Field Service Manager

Phone: (630) 844-4000 extension 4163  
Fax: (630) 844-4160  
E-mail: [bfvservice@muellervalves.com](mailto:bfvservice@muellervalves.com)

For the most prompt assistance, please be ready to provide the following information before speaking with a customer service representative:

1. Valve size and type
2. Serial number
3. Order number

This information can be found on the valve nameplate or on the submittal drawings.

**Mueller Co.**