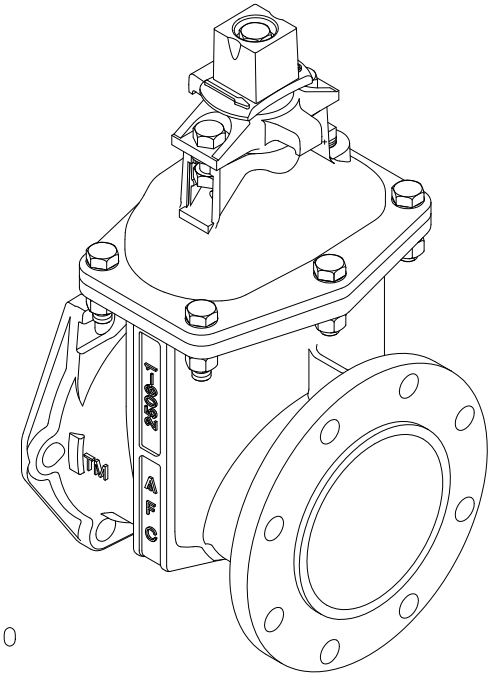
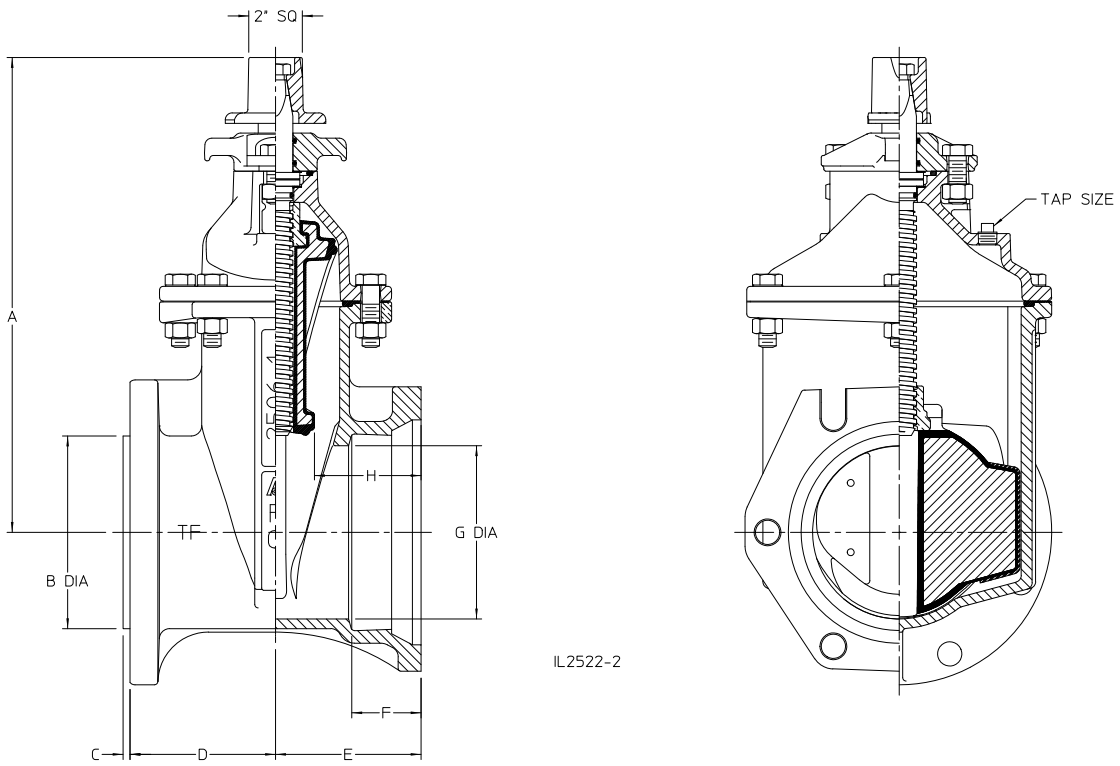
# TAPPING VALVES




IL3480

The AMERICAN Series 2500 is available in tapping configurations in sizes 4 in.–48 in. The tapping valve is provided with a rated working pressure of 250 psig and is designed for use in drinking water, sewage, fire protection systems, as well as irrigation systems.

# SERIES 2500 - TAPPING VALVE DIMENSIONS, 4"–24" SIZES

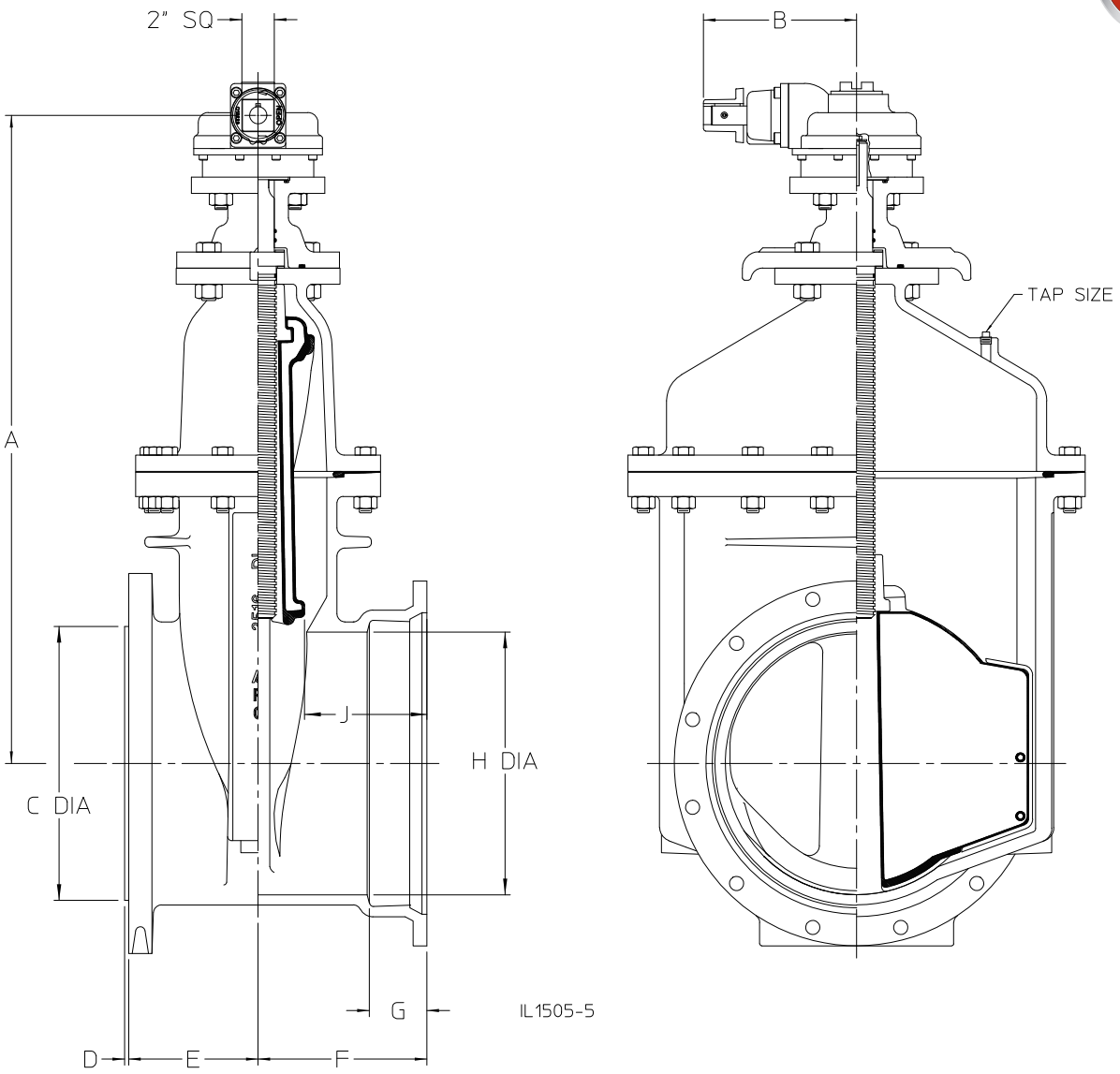



| Dimension | Valve Size | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Series 2500-1 | | | | | Series 2500 | | | | |
| | 4" | 6" | 8" | 10" | 12" | 14" | 16" | 18" | 20" | 24" |
| A | 13.91 | 17.12 | 20.47 | 24.06 | 27.59 | 33.25 | 36.75 | 39.62 | 43.25 | 51.25 |
| B +.000/- .031 | 4.984 | 6.984 | 8.984 | 10.984 | 12.984 | 14.937 | 16.937 | 18.937 | 20.937 | 24.937 |
| C +/- .016 | .188 | .250 | .250 | .250 | .250 | .250 | .250 | .250 | .250 | .250 |
| D (Flange End) (TF) (Class 125) | 4.50 | 5.25 | 5.75 | 6.50 | 7.00 | 7.50 | 8.00 | 8.50 | 9.00 | 10.00 |
| E (MJ End) MJ | 5.00 | 5.25 | 6.62 | 7.12 | 7.38 | 10.25 | 10.44 | 11.44 | 11.75 | 12.75 |
| F | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 |
| G Waterway Diameter | 4.25 | 6.25 | 8.25 | 10.25 | 12.25 | 14.19 | 16.19 | 18.12 | 20.12 | 24.12 |
| H | 3.73 | 3.84 | 4.94 | 5.30 | 5.38 | 7.62 | 7.56 | 8.44 | 8.62 | 9.00 |
| No. of turns to open | 14 | 20 | 26 | 32 | 38 | 44 | 50 | 56 | 62 | 76 |
| Tap Size | 3/8 NPT | 3/8 NPT | 3/8 NPT | 3/8 NPT | 3/8 NPT | 3/8 NPT | 3/8 NPT | 3/8 NPT | 3/8 NPT | 3/8 NPT |
| Max. Cutter Diameter | 4.00 | 6.00 | 8.00 | 10.00 | 12.00 | 14.00 | 16.00 | 18.00 | 20.00 | 24.00 |

NOTES:

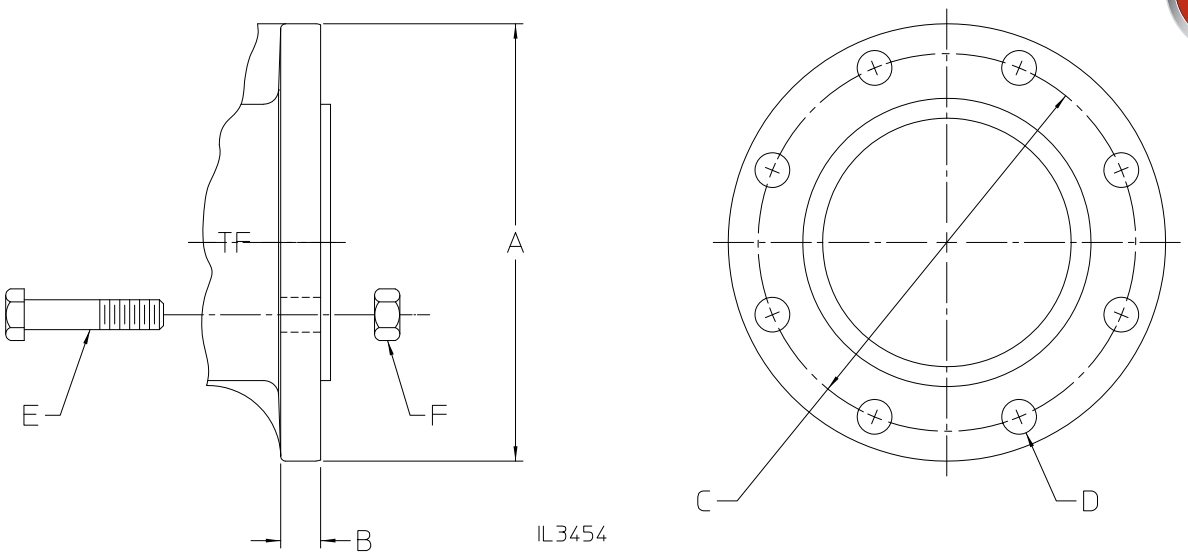
1. 4 in.–36 in. valves meet or exceed requirements of ANSI/AWWA C515.
2. 4 in.–16 in. valves may be ordered in configurations which are UL Listed and Approved by FM Approvals.
3. 18 in.–24 in. valves may be ordered in configurations which are UL Listed.
4. 4 in.–48 in. valves have 250 psig AWWA rated working pressure.
5. 4 in.–12 in. valves in Listed and Approved configurations have 250 psig UL and FM rated working pressure.
6. 14 in. and 16 in. valves in Listed and Approved configurations have 200 psig UL and FM rated working pressure.
7. 18 in.–24 in. valves in Listed configurations have 175 psig UL rated working pressure.
8. Fusion bonded epoxy coating meets or exceeds requirements of ANSI/AWWA C550.
9. Mechanical joint ends are in accordance with ANSI/AWWA C153/A21.53 and MSS SP-113.
10. Bolt patterns of flanged ends are in accordance with ANSI/AWWA C110/A21.10.
11. Raised pilot dimensions of flanged ends on tapping valves are in accordance with MSS SP-60.
12. Tapping valves are supplied with flanged-end hardware, including bolts, nuts, ring-type gasket and flange protection kit. The flange-end bolting is furnished in the same material as specified for the valve body bolting.
13. 4 in.–48 in. valves are Certified to NSF/ANSI Standard 61 and NSF/ANSI 372.

# SERIES 2500 - TAPPING VALVE WITH BEVEL GEARING DIMENSIONS, 14"–48" SIZES




| Dimension | Valve Size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Series 2500 | | | | | | | | |
| | 14" | 16" | 18" | 20" | 24" | 30" | 36" | 42" | 48" |
| A | 35.19 | 39.75 | 43.00 | 44.44 | 52.62 | 62.62 | 74.38 | 86.28 | 96.00 |
| B | 9.50 | 9.50 | 9.50 | 10.38 | 10.38 | 13.56 | 15.38 | 19.19 | 19.19 |
| C +.000/- .031 | 14.937 | 16.937 | 18.937 | 20.937 | 24.937 | 30.937 | 36.937 | 43.437 | 49.437 |
| D +/- .016 | .250 | .250 | .250 | .250 | .250 | .516 | .516 | .516 | .516 |
| E (Flange End) (TF) (Class 125) | 7.50 | 8.00 | 8.50 | 9.00 | 10.00 | 13.00 | 15.00 | 19.00 | 21.50 |
| F (MJ End) MJ | 10.25 | 10.44 | 11.50 | 11.75 | 12.81 | 16.88 | 18.75 | 23.38 | 22.50 |
| G | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 | 4.00 | 4.00 | 4.00 | 4.00 |
| H Waterway Diameter | 14.19 | 16.19 | 18.12 | 20.12 | 24.12 | 30.22 | 36.19 | 42.38 | 48.38 |
| J | 7.62 | 7.56 | 8.44 | 8.62 | 9.00 | 12.88 | 13.97 | 17.88 | 17.00 |
| No. of turns to open | 88 | 100 | 112 | 186 | 228 | 379 | 448 | 694 | 789 |
| Tap Size | 3/8 NPT | 3/8 NPT | 3/8 NPT | 3/8 NPT | 3/8 NPT | 3/8 NPT | 3/8 NPT | 1/2 NPT | 1/2 NPT |
| Max. Cutter Diameter | 14.00 | 16.00 | 18.00 | 20.00 | 24.00 | 30.00 | 36.00 | 42.00 | 48.00 |

# SERIES 2500 - CLASS 125 FLANGE DIMENSIONS

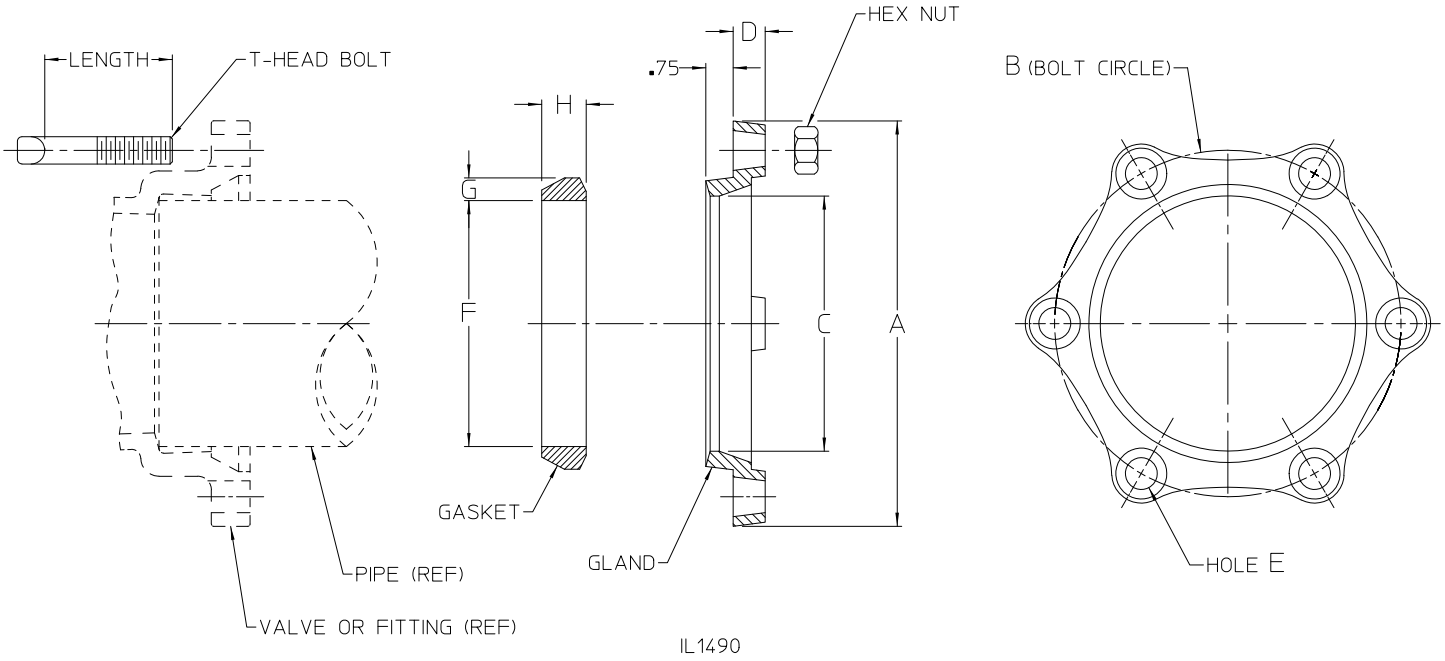



| Model | Valve Size | A | B | C | D | | E | F |
|---|---|---|---|---|---|---|---|---|
| | | Diameter of Flange | Flange Thickness | Bolt Circle Diameter | Bolt Holes | | Bolt Size See Note 2 | No. of Hex Nuts Required |
| | | | | | No. | Size | | |
| Series 2500-1 | 4” | 9.00 | .94±.12 | 7.50 | 8 | .75 | 5/8-11 x 3 | 8 |
| | 6” | 11.00 | 1.00±.12 | 9.50 | 8 | .88 | 3/4-10 x 3-1/2 | 8 |
| | 8” | 13.50 | 1.12±.12 | 11.75 | 8 | .88 | 3/4-10 x 3-1/2 | 8 |
| | 10” | 16.00 | 1.19±.12 | 14.25 | 12 | 1.00 | 7/8-9 x 4 | 12 |
| | 12” | 19.00 | 1.25±.12 | 17.00 | 12 | 1.00 | 7/8-9 x 4 | 12 |

NOTES:
1. Flange dimensions shown are per ASME B16.1, Class 125 for cast iron flanges and ANSI/AWWA C110/A21.10. Flange thickness tolerances shown are per ANSI/AWWA C110/A21.10.
2. Bolt lengths shown are for standard cast iron flange thicknesses with through holes. Steel or ductile iron flanges with reduced thickness or valves or fittings with tapped holes may require shorter bolts.

| Model | Valve Size | A | B | C | D | | E | | | | | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Diameter of Flange | Flange Thick-ness | Bolt Circle Diameter | Bolt Holes | | Bolt Size | Bolt Length | Stud Length | No. Bolts | No. Studs | No. of Hex Nuts Required |
| | | | | | No. | Size | | (See Note 2) | | | | |
| Series 2500 | 14” | 21.00 | 1.38±.19 | 18.75 | 12 | 1.12 | 1”-8 | 4-1/2 | 5-1/2 | 4 | 8 | 20 |
| | 16” | 23.50 | 1.44±.19 | 21.25 | 16 | 1.12 | 1”-8 | 4-1/2 | 5-1/2 | 8 | 8 | 24 |
| | 18” | 25.00 | 1.56±.19 | 22.75 | 16 | 1.25 | 1-1/8-7 | 5 | 6 | 8 | 8 | 24 |
| | 20” | 27.50 | 1.69±.19 | 25.00 | 20 | 1.25 | 1-1/8-7 | 5 | 6 | 12 | 8 | 28 |
| | 24” | 32.00 | 1.88±.19 | 29.50 | 20 | 1.38 | 1-1/4-7 | 5-1/2 | 6-1/2 | 12 | 8 | 28 |
| | 30” | 38.75 | 2.12±.25 | 36.00 | 28 | 1.38 | 1-1/4-7 | 6-1/2 | 7-1/2 | 20 | 8 | 36 |
| | 36” | 46.00 | 2.38±.25 | 42.75 | 32 | 1.62 | 1-1/2-6 | 7 | 8 | 24 | 8 | 40 |
| | 42” | 53.00 | 2.62±.25 | 49.50 | 36 | 1.62 | 1-1/2-6 | N/A | 9-1/2 | N/A | 36 | 72 |
| | 48” | 59.50 | 2.75±.25 | 56.00 | 44 | 1.62 | 1-1/2-6 | N/A | 9-1/2 | N/A | 44 | 88 |

NOTES:
1. Flange dimensions shown are per ASME B16.1, Class 125 for cast iron flanges and ANSI/AWWA C110/A21.10. Flange thickness tolerances shown are per ANSI/AWWA C110/A21.10.
2. Bolt lengths shown are for standard cast iron flange thicknesses with through holes. Steel or ductile iron flanges with reduced thickness or valves or fittings with tapped holes may require shorter bolts.




IL1490

| Model | Pipe or Valve Size | Gland | | | | | | | Gasket | | | | | | T-Head Bolt | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A Dia. | B Dia. | C Diameter | | D | E | | F Dia. | | G | | H | | Qty. | Size | Length |
| | | | | Std. Gland | Pit-Cast Gland | | Qty. | Size | Standard Gasket | Transition Gasket | Standard Gasket | Transition Gasket | Standard Gasket | Transition Gasket | | | |
| Series 2500-1 | 4” | 9.12 | 7.50 | 4.90 | 5.13 | .75 | 4 | .88 | 4.68 | 4.43 | .62 | .77 | 1.22 | 1.26 | 4 | 3/4-10 | 3-1/2” |
| | 6’ | 11.12 | 9.50 | 7.00 | 7.24 | .88 | 6 | .88 | 6.73 | 6.53 | .62 | .76 | 1.22 | 1.25 | 6 | 3/4-10 | 3-1/2” |
| | 8’ | 13.37 | 11.75 | 9.15 | 9.46 | 1.00 | 6 | .88 | 8.85 | 8.50 | .62 | .82 | 1.22 | 1.27 | 6 | 3/4-10 | 4” |
| | 10” | 15.62 | 14.00 | 11.20 | 11.53 | 1.00 | 8 | .88 | 10.87 | 10.59 | .62 | .79 | 1.22 | 1.26 | 8 | 3/4-10 | 4” |
| | 12” | 17.88 | 16.25 | 13.30 | 13.63 | 1.00 | 8 | .88 | 12.95 | 12.56 | .62 | .84 | 1.22 | 1.28 | 8 | 3/4-10 | 4” |
| Series 2500 | 14” | 20.25 | 18.75 | 15.44 | N/A | 1.25 | 10 | .88 | 14.99 | N/A | .62 | N/A | 1.22 | N/A | 10 | 3/4-10 | 4-1/2” |
| | 16” | 22.50 | 21.00 | 17.54 | N/A | 1.31 | 12 | .88 | 17.07 | N/A | .62 | N/A | 1.22 | N/A | 12 | 3/4-10 | 4-1/2” |
| | 18” | 24.75 | 23.25 | 19.64 | N/A | 1.38 | 12 | .88 | 19.13 | N/A | .62 | N/A | 1.22 | N/A | 12 | 3/4-10 | 4-1/2” |
| | 20” | 27.00 | 25.50 | 21.74 | N/A | 1.44 | 14 | .88 | 21.20 | N/A | .62 | N/A | 1.22 | N/A | 14 | 3/4-10 | 4-1/2” |
| | 24” | 31.50 | 30.00 | 25.94 | N/A | 1.56 | 16 | .88 | 25.34 | N/A | .62 | N/A | 1.22 | N/A | 16 | 3/4-10 | 5” |
| | 30” | 39.12 | 36.88 | 32.17 | N/A | 2.00 | 20 | 1.12 | 31.47 | N/A | .73 | N/A | 1.54 | N/A | 20 | 1”-8 | 6” |
| | 36” | 46.00 | 43.75 | 38.47 | N/A | 2.00 | 24 | 1.12 | 37.67 | N/A | .73 | N/A | 1.54 | N/A | 24 | 1”-8 | 6” |
| | 42” | 53.12 | 50.62 | 44.67 | N/A | 2.00 | 28 | 1.38 | 43.78 | N/A | .73 | N/A | 1.54 | N/A | 28 | 1-1/4-7 | 6-1/2” |
| | 48” | 60.00 | 57.50 | 50.97 | N/A | 2.00 | 32 | 1.38 | 49.98 | N/A | .73 | N/A | 1.54 | N/A | 32 | 1-1/4-7 | 6-1/2” |

**NOTES:**

1. Dimensions shown for standard glands and gaskets are in accordance with ANSI/AWWA C111/A21.11 and ANSI/AWWA C153/A21.53.
2. Dimensions shown are nominal.
3. T-head bolts and nuts are high-strength, low-alloy steel.
4. Glands are ductile iron.

## Valves

| End Connections | Valve Size | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Series 2500-1 | | | | | Series 2500 | | | | | | | | |
| | 4” | 6” | 8” | 10” | 12” | 14” | 16” | 18” | 20” | 24” | 30” | 36” | 42” | 48” |
| FL x MJ (Tapping) | 64 | 102 | 162 | 246 | 365 | 670 | 820 | 1100 | 1520 | 2300 | 4100 | 7450 | 11279 | 15870 |

**NOTE: All weights are in pounds.**

# AMERICAN Flow Control®
# TAPPING VALVE

## SUBMITTAL SHEET

**AMERICAN Flow Control®**
**American-Darling Valve & Waterous**
**A Division of AMERICAN**

| **City Specification:** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Qty. | **4”** | **6”** | **8”** | **10”** | **12”** | **14”** | **16”** | **18”** | **20”** | **24”** | **30”** | **36”** | **42”** | **48”** |
| | | | | | | | | | | | | | | |

| Actuator (Check One) | | |
|---|---|---|
| | ☐ NRS with 2” Sq. Oper. Nut | **4” - 12” Valves Only**<br>☐ NRS with Enclosed Miter Gearing<br>**Also Specify**<br>☐ 2” Sq. Oper. Nut Parallel to Waterway<br>☐ 2” Sq. Oper. Nut Perpendicular to Waterway |
| | **14” - 48” Valves Only**<br>☐ NRS with Bevel Gears | **Also Specify**<br>☐ 2” Sq. Oper. Nut ☐ Handwheel |

| |
|---|
| Open Direction: ☐ Left (C.C.W.) ☐ Right (C.W.) |
| End Connections: |
| Mechanical Joint Accessories: |
| UL Listed, FM Approved: |
| Other Requirements (List on a Separate Sheet): |

| **Available Configurations** | **Series 2500 Ductile Iron Resilient Wedge** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Series 2500-1** | | | | | **Series 2500** | | | | | | | | |
| | 4” | 6” | 8” | 10” | 12” | 14” | 16” | 18” | 20” | 24” | 30” | 36” | 42” | 48” |
| ACTUATORS | | | | | | | | | | | | | | |
| NRS with 2” Sq. Oper. Nut | X | X | X | X | X | X | X | X | X | X | N/A | N/A | N/A | N/A |
| NRS with Handwheel | X | X | X | X | X | X | X | X | X | X | N/A | N/A | N/A | N/A |
| NRS with Enclosed Miter Gearing | X | X | X | X | X | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| NRS with Bevel Gears | N/A | N/A | N/A | N/A | N/A | X | X | X | X | X | X | X | X | X |
| END CONNECTIONS | | | | | | | | | | | | | | |
| Flange x Mech Joint (FL x MJ, Tap) | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

KEY: X = Available N/A = Not Available

**NOTES:**

1. Series 2500 - Meets or exceeds requirements of ANSI/AWWA C515 (4 in. - 36 in.), 250 psig rated working pressure, is NSF/ANSI Standard 61 and NSF/ANSI 372 (4 in.–48 in.), and has fusion bonded epoxy coating which meets or exceeds ANSI/AWWA C550. 4 in.–16 in. valves may be ordered in configurations which are UL Listed and Approved by FM Approvals. 18 in.–24 in. valves may be ordered in configurations which are UL Listed.
2. Shell cutter sizes that can be used are as follows:

| **Maximum Shell Cutter Size That May Be Used** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Series 2500-1 | | | | | Series 2500 | | | | | | | | |
| **4”** | **6”** | **8”** | **10”** | **12”** | **14”** | **16”** | **18”** | **20”** | **24”** | **30”** | **36”** | **42”** | **48”** |
| Full Size May be Used | | | | | | | | | | | | | |

**Visit our website at http://www.american-usa.com/afc**

## Storage

Valves are palletized when shipped, which provides suitable protection from weather and sunlight during storage. If palletizing is disbanded and valves removed, remaining valves should be suitably covered or stored elsewhere with the valve stem vertical.

- Always store valves fully closed.
- When possible, keep valves out of the weather.
- In cold climates, keep the inside of the valve drained of any water to prevent freezing.
- Whenever possible, cover valves with a waterproof covering.
- Protect all parts of the valve at all times

## Inspection Before Installation

- Check to make sure that the valve end connections are clean and that the valve is not damaged.
- Check opening direction and other details against specification.
- Open and close the valve to make sure it works properly.
- Clean the inside of the valve to remove all contaminants that may affect water system purity.

  Keep the valve closed when placing in trench.

AMERICAN recommends the use of AMERICAN Flow Control Series 2800 tapping sleeves. Please refer to Section 6A of the AMERICAN Valve and Hydrant Manual for tapping sleeve installation instructions. In cases, where other tapping sleeve designs or manufacturers are used, please contact that manufacturer for specific tapping sleeve installation and testing instructions. Applicable tapping sleeve dimensions should be in compliance with the Standard Practice as defined in MSS SP-60. AMERICAN will not be responsible for claims, errors or omissions in documentation provided by other manufacturers.

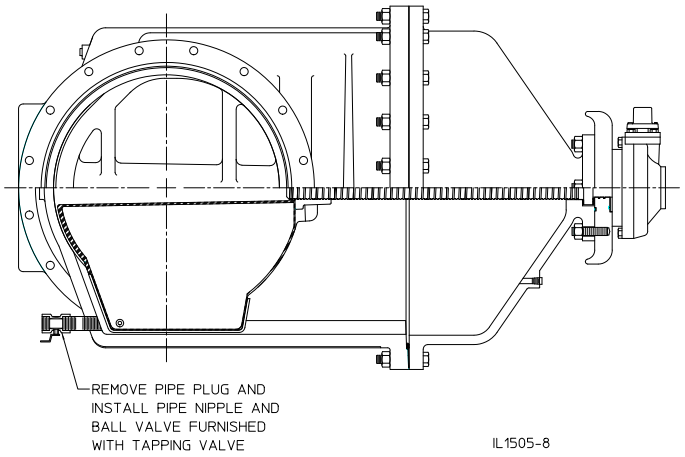
**WARNING: Use only water to test the tapping valve and sleeve assembly. Under no circumstance should air ever be used to conduct this test. Testing with air could result in serious injury or death.**

**Note: Use only water to test the tapping valve and sleeve assembly. Under no circumstance should air ever be used to conduct this test. Testing with air could result in serious injury and/or even death.**

1. Place gasket on tapping valve and bolt valve to sleeve. After valve is bolted securely in place, open valve fully and observe that the resilient wedge is clear of the waterway. Then close valve completely. Also refer to flanged end valve installation instructions if installing a Series 2500 Resilient Wedge Tapping Valve.
2. Safely install proper blocking under valve and behind sleeve to carry pipe thrust.
3. Prior to making the tap, test the tapping valve and sleeve as a complete unit by connecting the test pressure to the pipe tap on the back of the tapping sleeve. **Always test with water.** Test pressure must not exceed rated working pressure of the sleeve or valve. The pressure test should reveal any leaks or other problems caused by improper installation of the sleeve. Any leaks or other problems must be remedied before the pipe is tapped. If sleeve has no test plug, test sleeve and valve assembly through test plug in valve bonnet with the wedge in open position
4. Attach tapping machine to valve, making sure machine is centered and square with the end of the valve to assure straight travel of cutter through valve. With tapping machine attached and cutter fully retracted, check to be sure the valve can be closed completely, then open the valve fully.
5. Final check before tapped: Open the valve fully. Make sure the cutter does not damage gate or seats of valve (or touch any interior surface of a resilient wedge tapping valve). If any resistance is felt when hand feeding the cutter into position, stop and correct before making the tap.

   Full size cutters may be used with the following Series:
   - Series 2500-1: 4 in.–12 in. sizes
   - Series 2500: 14 in.–48 in. sizes

# BALL VALVE INSTALLATION AND TESTING, 14"–48" SIZES




All tapping valves with bevel gears (for horizontal installation) will be furnished with tapped and plugged holes, and a pipe nipple and ball valve for flushing. All tapping valves for vertical installation will have tapped and plugged holes but will not be furnished with pipe nipple and ball valve since flushing should not be necessary for vertical installations.

When a valve is installed horizontally, the pipe plug on the lower side of the valve body must be removed and the nipple and ball valve installed. After the tap is made, the ball valve should be used to flush any tapping debris (shavings) out of the track area of the valve as it is being closed.

**AMERICAN will not accept responsibility for problems encountered if a horizontal tap is made with a valve that does not have the nipple and ball valve flushing connection.**

Valves furnished without tapped and plugged holes should not be tapped in the field for installation of the ball valve assembly.

The following procedure should be followed to flush the interior of the tapping valve to remove shavings that could affect closure of the valve.

1. After the main valve has been installed and prior to adding pressure on the tapping sleeve, remove the lower pipe plug from the bottom of the main valve.
2. Install the pipe nipple and the ball valve using Teflon tape or other pipe sealing compound. Make sure the ball valve handle opens away from the body of the tapping valve.
3. It is good practice at this point to cap the end of the main valve in the open position and test the system, including the main valve, ball valve and tapping sleeve to ensure all seals are watertight.

**WARNING: Use only water to test the tapping valve and sleeve assembly. Under no circumstance should air ever be used to conduct this test. Testing with air could result in serious injury or death.**

**Note: Use only water to test the tapping valve and sleeve assembly. Under no circumstance should air ever be used to conduct this test. Testing with air could result in serious injury and/or even death.**

4. Once the wet tap has been made and the tapping cutter and coupon have been extracted from the main valve waterway, begin closing the main valve.
5. When the main valve is approximately halfway closed, open the ball valve and flush the line for several seconds, then close the ball valve.
6. When the main valve is nearly closed or when torque increase is first noticed through the actuator, open the ball valve and flush again for several seconds or until the color of the water clears, then close the ball valve.
7. Apply necessary torque to the actuator to seal the main valve. Care should be taken not to over-torque the valve as damage may result. Torque may vary. Contact AMERICAN Flow Control with any questions.
8. Once the tap is complete and the tapping machine has been removed, remove the handle of the ball valve and install the pipe plug (from Step #1) in the end to prevent dirt from getting into the ball valve.
9. Use care during backfilling to prevent damage to the ball valve and pipe nipple.

**WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. Do not make repairs while valve is under pressure.**

## Operation

1. Direction of opening is normally indicated by an arrow cast on the handwheel or wrench nut of the valve.
2. Operate gate valves from full closed to full open position and back before applying pressure.
3. Close gate valve slowly against pressure to avoid damage from surge or water hammer.
4. Valves installed on liquid service subject to freezing conditions should be protected to prevent trapping of liquid in the bonnet cavity, expansion on freezing and subsequent damage. The same is true of valves which are subject to considerable temperature increases. Trapped pressure should be vented back to the upstream side to prevent buildup of pressure in the valve bonnet due to high temperature expansion.
5. Valves should be opened and closed without the use of excessive torque applied to the handwheel or wrench nut. Excessive torque may damage the valve.
6. Gate valves are designed for open and close service. Their multi-turn design is not intended for throttling. As such, the valve should never be left in a partial open or closed position for extended periods.
7. For troubleshooting information, please refer to Section 3A of the AMERICAN Valve and Hydrant Manual.

## Maintenance

1. Operate valves at regular intervals. The necessary length of time between the operation of the valve depends upon the time the valve has been in service and the service conditions, but more specifically whatever time period is found to be satisfactory based on local experience. Operation should occur as a minimum of once per year, but in general as detailed in Section A.6, of Appendix A, of ANSI/AWWA C515.
2. Should disassembly or operation require additional lubrication, use an AMERICAN Flow Control recommended food grade grease for the stem threads and thrust collar.
3. Chipped spots in the epoxy coating should be repaired with a liquid two-part epoxy.

## Spare Parts

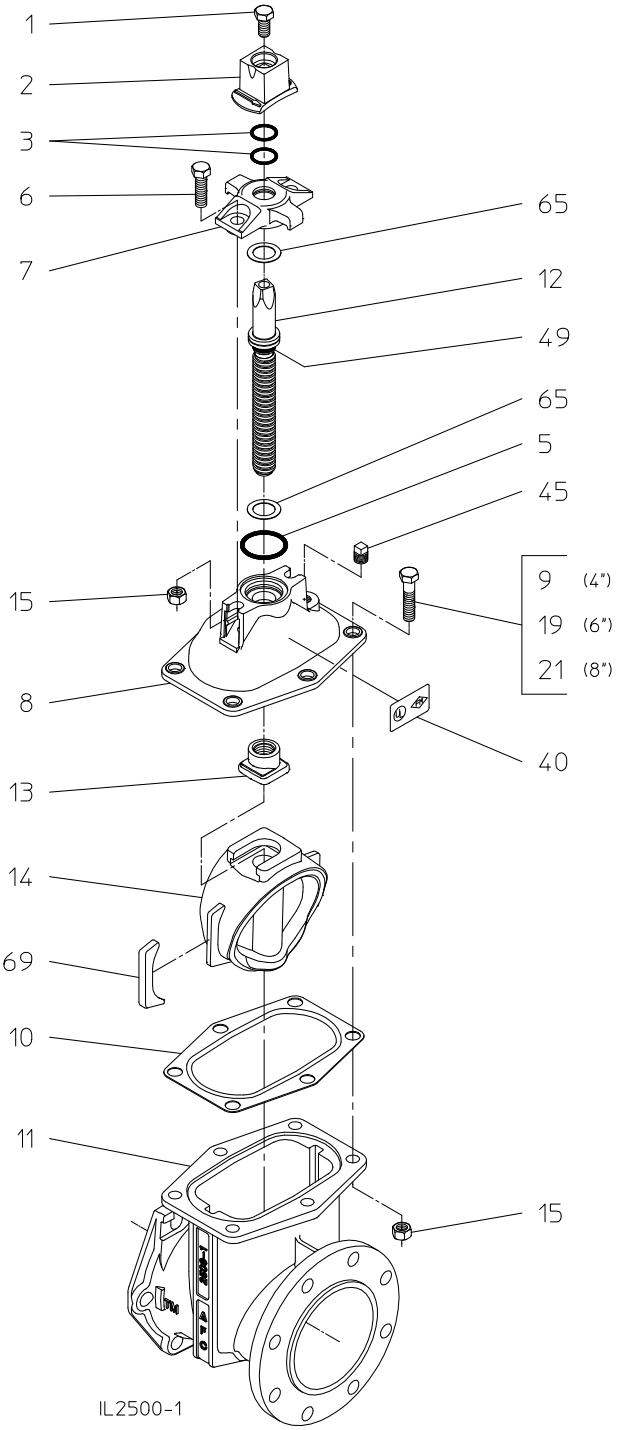
1. Under most conditions, the only spare parts needed for the valve would be upper and lower stem O-rings. Under rigorous service, stems, wedges, upper and lower stem O-rings and thrust washers should be carried as spare parts.
2. Use parts list drawings as a guide for disassembly and ordering repair parts. Also refer to disassembly/reassembly instructions.

## Typical Operating Torque At Rated Working Pressure

| Valve Size | Closing Torque Ft-lbs | Opening Torque Ft-lbs |
|---|---|---|
| 2” | 15-20 | 15-20 |
| 2-1/2” | 15-20 | 15-20 |
| 3” | 30-40 | 30-40 |
| 4” | 30-40 | 30-40 |
| 6” | 50-60 | 50-80 |
| 8” | 70-80 | 60-90 |
| 10” | 90-100 | 125-150 |
| 12” | 100-125 | 140-175 |
| 14” | Contact Factory | |
| 16” | Contact Factory | |
| 18” | Contact Factory | |
| 20” | Contact Factory | |
| 24” | Contact Factory | |
| 30” | Contact Factory | |
| 36” | Contact Factory | |
| 42” | Contact Factory | |
| 48” | Contact Factory | |

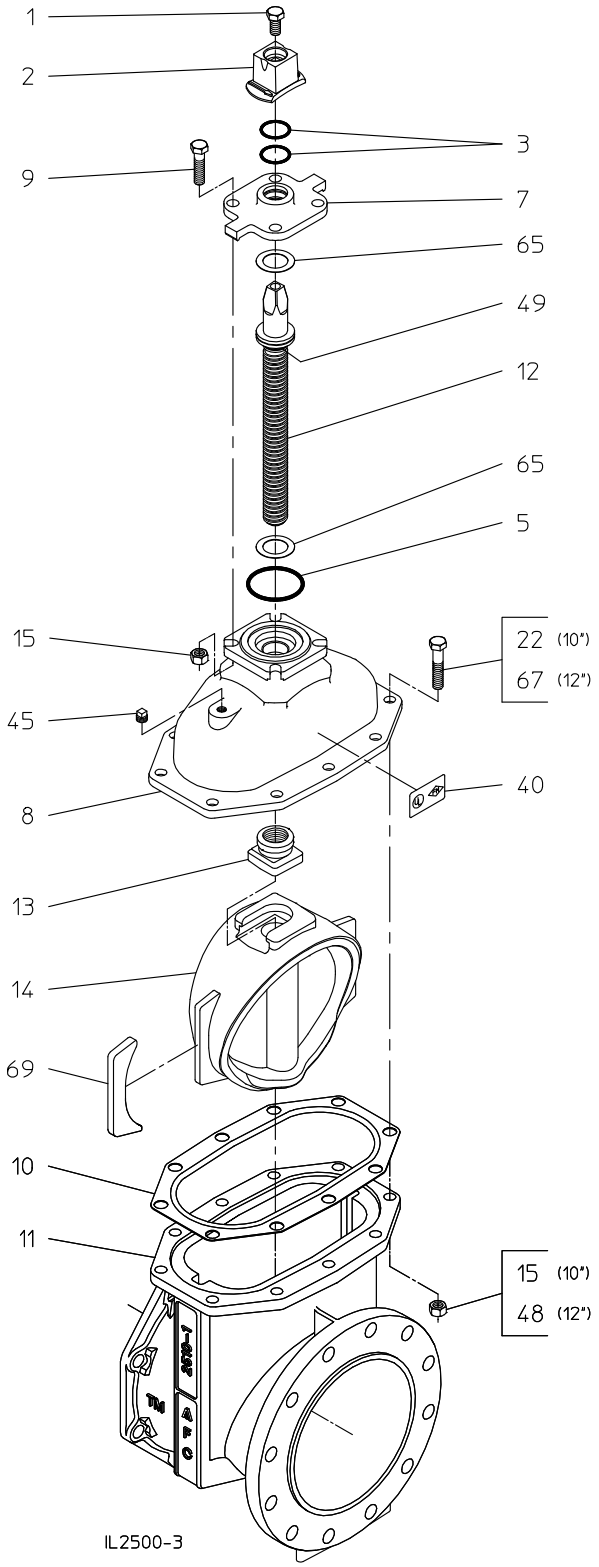
# SERIES 2500 - TAPPING VALVE PARTS LIST, 4”–8” SIZES

| Ref No | Description | Material | Qty. Series 2500-1 | | |
|---|---|---|---|---|---|
| | | | 4” | 6” | 8” |
| 1 | Hex Head Bolt, 5/8-11 x 1” | Stainless Steel | 1 | 1 | 1 |
| 2 | Operating Nut, 2” Square | Ductile Iron | 1 | 1 | 1 |
| 3 | O-ring | Rubber | 2 | 2 | 2 |
| 5 | Stuffing Box Gasket | Rubber O-ring | 1 | 1 | 1 |
| 6 | Hex Head Bolt, 5/8-11 x 1-3/4” | Stainless Steel | 2 | 2 | 2 |
| 7 | Stuffing Box | Ductile Iron | 1 | 1 | 1 |
| 8 | Bonnet | Ductile Iron | 1 | 1 | 1 |
| 9 | Hex Head Bolt, 5/8-11 x 2” | Stainless Steel | 4 | - | - |
| 10 | Bonnet Gasket | Rubber | 1 | 1 | 1 |
| 11 | Body | Ductile Iron | 1 | 1 | 1 |
| 12 | Stem | Bronze | 1 | 1 | 1 |
| | | Stainless Steel (Optional) | | | |
| 13 | Wedge Nut | Bronze | 1 | 1 | 1 |
| 14 | Resilient Wedge | Ductile Iron, Encapsulated with EPDM Rubber | 1 | 1 | 1 |
| 15 | Hex Nut, 5/8-11 | Stainless Steel | 6 | 8 | 10 |
| 19 | Hex Head Bolt, 5/8-11 x 2-1/4” | Stainless Steel | - | 6 | - |
| 21 | Hex Head Bolt, 5/8-11 x 2-1/2” | Stainless Steel | - | - | 8 |
| 40 | UL/FM Label | Film | 1 | 1 | 1 |
| 45 | Pipe Plug, 3/8 NPT | Stainless Steel | 1 | 1 | 1 |
| 49 | O-ring | Rubber | 1 | 1 | 1 |
| 65 | Upper Thrust Washer | Stainless Steel | 2 | 2 | 2 |
| 69 | Wedge Cover | Polymer | 2 | 2 | 2 |



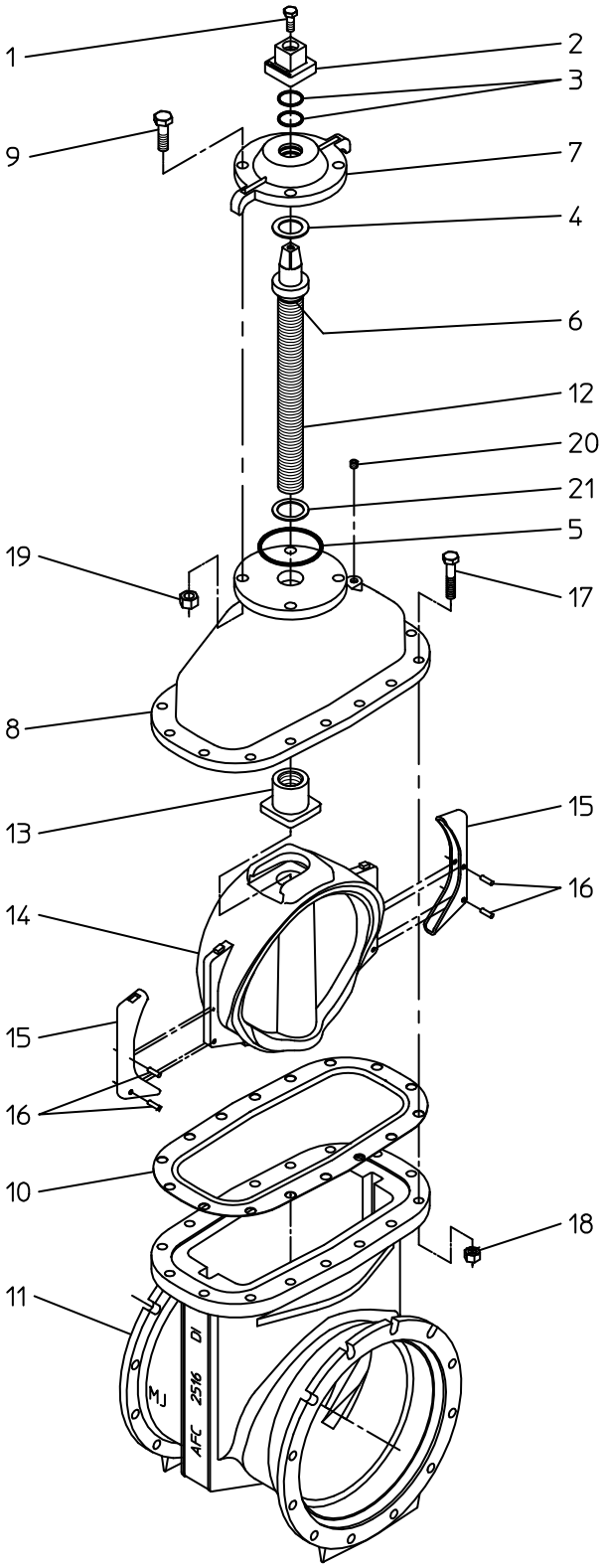
# SERIES 2500 - TAPPING VALVE PARTS LIST, 10” & 12” SIZES

| Ref No. | Description | Material | Qty. Series 2500-1 | |
|---|---|---|---|---|
| | | | 10” | 12” |
| 1 | Hex Head Bolt, 5/8-11 x 1” | Stainless Steel | 1 | 1 |
| 2 | Operating Nut, 2” Square | Ductile Iron | 1 | 1 |
| 3 | O-ring | Rubber | 2 | 2 |
| 5 | Stuffing Box Gasket | Rubber O-ring | 1 | 1 |
| 7 | Stuffing Box | Ductile Iron | 1 | 1 |
| 8 | Bonnet | Ductile Iron | 1 | 1 |
| 9 | Hex Head Bolt, 5/8-11 x 2” | Stainless Steel | 4 | 4 |
| 10 | Bonnet Gasket | Rubber | 1 | 1 |
| 11 | Body | Ductile Iron | 1 | 1 |
| 12 | Stem | Bronze | 1 | 1 |
| | | Stainless Steel (Optional) | | |
| 13 | Wedge Nut | Bronze | 1 | 1 |
| 14 | Resilient Wedge | Ductile Iron, Encapsulated with EPDM Rubber | 1 | 1 |
| 15 | Hex Nut, 5/8-11 | Stainless Steel | 14 | 4 |
| 22 | Hex Head Bolt, 5/8-11 x 2-3/4” | Stainless Steel | 10 | - |
| 40 | UL/FM Label | Film | 1 | 1 |
| 45 | Pipe Plug, 3/8 NPT | Stainless Steel | 1 | 1 |
| 48 | Hex Nut, 3/4-10 | Stainless Steel | - | 10 |
| 49 | O-ring | Rubber | 1 | 1 |
| 65 | Upper Thrust Washer | Stainless Steel | 2 | 2 |
| 67 | Hex Head Bolt, 3/4-10 x 3” | Stainless Steel | - | 10 |
| 69 | Wedge Cover | Polymer | 2 | 2 |



# SERIES 2500 - TAPPING VALVE PARTS LIST, 14”–24” SIZES

| Ref No. | Description | Material | Qty. Series 2500 | | | | |
|---|---|---|---|---|---|---|---|
| | | | 14” | 16” | 18” | 20” | 24” |
| 1 | Hex Head Bolt, 5/8-11 x 1-3/4” | Stainless Steel | 1 | 1 | 1 | 1 | 1 |
| 2 | Operating Nut, 2” Square | Ductile Iron | 1 | 1 | 1 | 1 | 1 |
| 3 | O-ring | Rubber | 2 | 2 | 2 | 2 | 2 |
| 4 | Upper Thrust Washer | Delrin | 1 | 1 | 1 | 1 | 1 |
| 5 | Stuffing Box Gasket | Rubber O-ring | 1 | 1 | 1 | 1 | 1 |
| 6 | O-ring | Rubber | 1 | 1 | 1 | 1 | 1 |
| 7 | Stuffing Box | Ductile Iron | 1 | 1 | 1 | 1 | 1 |
| 8 | Bonnet | Ductile Iron | 1 | 1 | 1 | 1 | 1 |
| 9 | Hex Head Bolt, 7/8-9 x 3” | Stainless Steel | 4 | 4 | 4 | - | - |
| 9 | Hex Head Bolt, 7/8-9 x 4” | Stainless Steel | - | - | - | 4 | 4 |
| 10 | Bonnet Gasket | Rubber | 1 | 1 | 1 | 1 | 1 |
| 11 | Body | Ductile Iron | 1 | 1 | 1 | 1 | 1 |
| 12 | Stem | Bronze / Stainless Steel (Optional) | 1 | 1 | 1 | 1 | 1 |
| 13 | Wedge Nut | Bronze | 1 | 1 | 1 | 1 | 1 |
| 14 | Resilient Wedge | Ductile Iron, Coated with EPDM Rubber | 1 | 1 | 1 | 1 | 1 |
| 15 | Wedge Cover | Polymer | 2 | 2 | 2 | 2 | 2 |
| 16 | Wedge Cover Pin | Polymer | 2 | 4 | 4 | 2 | 2 |
| 17 | Hex Head Bolt, 3/4-10 x 3-1/2” | Stainless Steel | 14 | 16 | - | - | - |
| 17 | Hex Head Bolt, 7/8-9 x 4” | Stainless Steel | - | - | 16 | - | - |
| 17 | Hex Head Bolt, 7/8-9 x 4-1/2” | Stainless Steel | - | - | - | 18 | - |
| 17 | Hex Head Bolt, 7/8-9 x 5” | Stainless Steel | - | - | - | - | 20 |
| 18 | Hex Nut, 3/4-10 | Stainless Steel | 14 | 16 | - | - | - |
| 18 | Hex Nut, 7/8-9 | Stainless Steel | - | - | 16 | 18 | 20 |
| 19 | Hex Nut, 7/8-9 | Stainless Steel | 4 | 4 | 4 | 4 | 4 |
| 20 | Pipe Plug, 3/8 NPT | Stainless Steel | 1 | 1 | 1 | 1 | |
| 21 | Lower Thrust Washer | Delrin | 1 | 1 | 1 | 1 | 1 |

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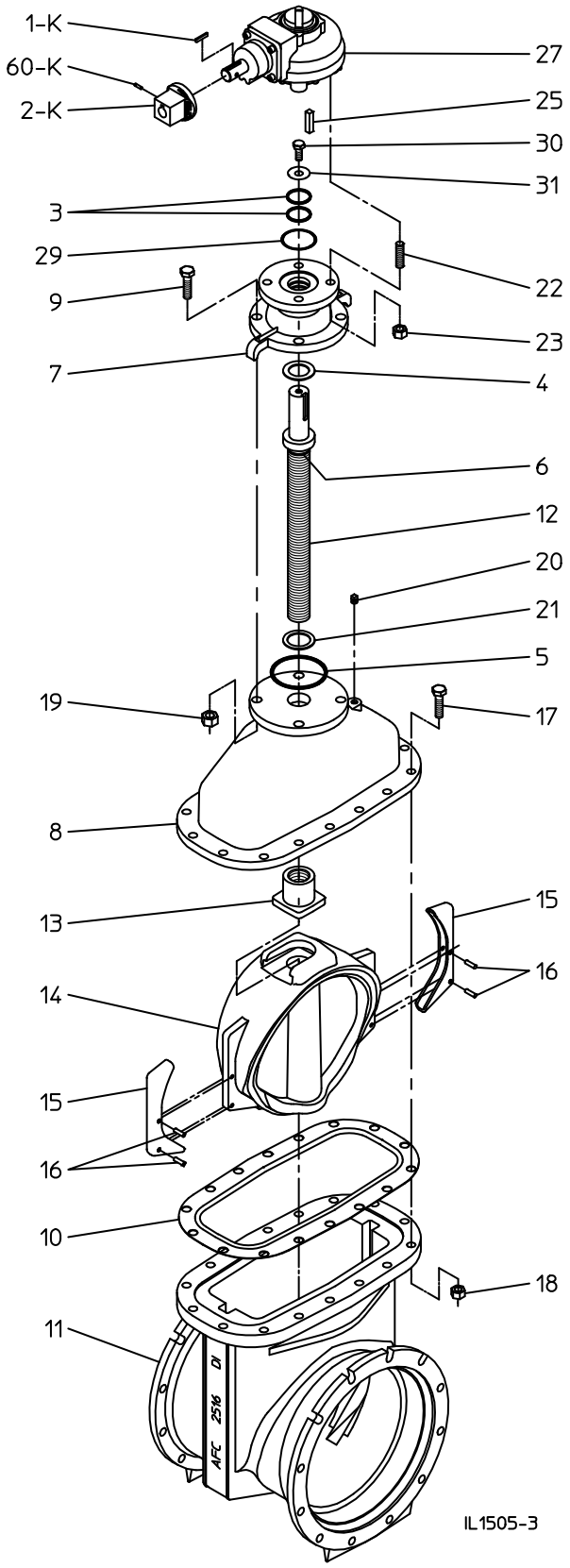
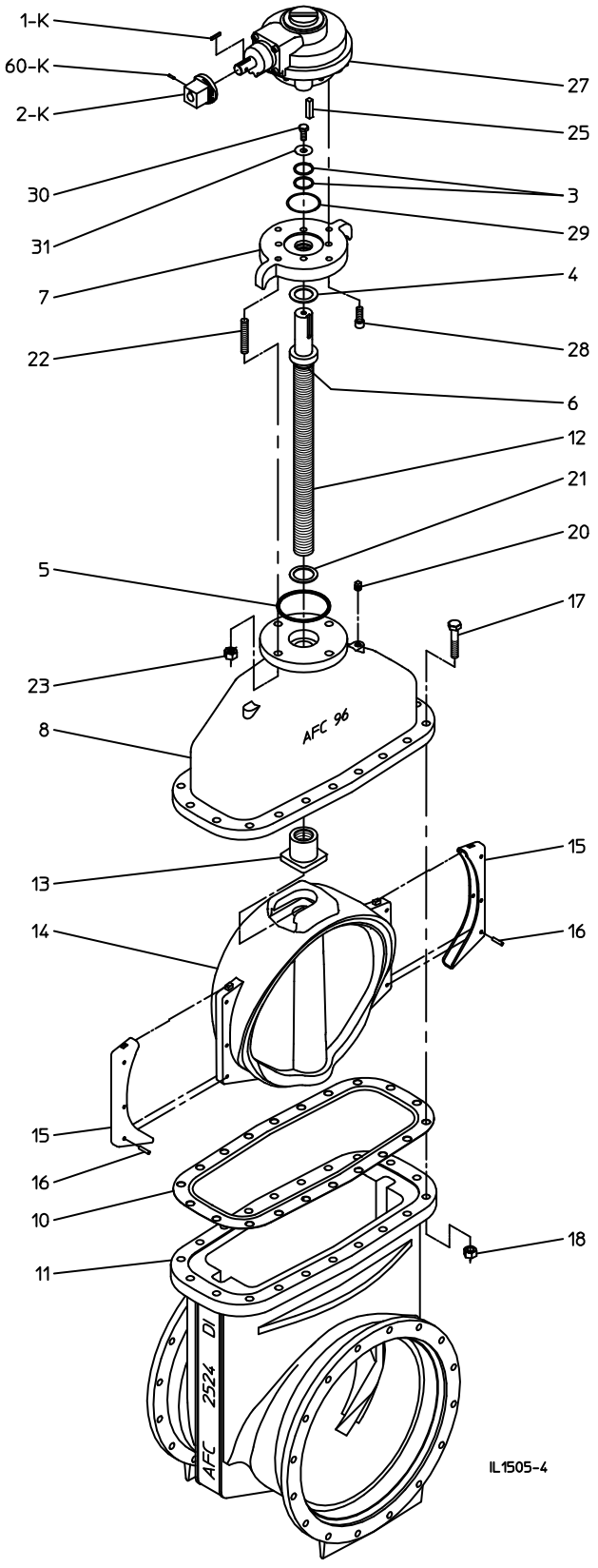
# SERIES 2500 - TAPPING VALVE W/BEVEL GEARING PARTS LIST, 14”–18” SIZES

| Ref No. | Description | Material | Qty. Series 2500 14” | 16” | 18” |
|---|---|---|---|---|---|
| 1-K | Key 8 mm x 7 mm x 40 mm | Steel | 1 | 1 | 1 |
| 2-K | Operating Nut, 2” Square | Ductile Iron | 1 | 1 | 1 |
| 3 | O-ring | Rubber | 2 | 2 | 2 |
| 4 | Upper Thrust Washer | Delrin | 1 | 1 | 1 |
| 5 | Stuffing Box Gasket | Rubber O-ring | 1 | 1 | 1 |
| 6 | O-ring | Rubber | 1 | 1 | 1 |
| 7 | Stuffing Box | Ductile Iron | 1 | 1 | 1 |
| 8 | Bonnet | Ductile Iron | 1 | 1 | 1 |
| 9 | Hex Head Bolt, 7/8-9 x 3” | Stainless Steel | 4 | 4 | 4 |
| 10 | Bonnet Gasket | Rubber | 1 | 1 | 1 |
| 11 | Body | Ductile Iron | 1 | 1 | 1 |
| 12 | Stem | Bronze | 1 | 1 | 1 |
| | | Stainless Steel (Optional) | | | |
| 13 | Wedge Nut | Bronze | 1 | 1 | 1 |
| 14 | Resilient Wedge | Ductile Iron, Coated with EPDM Rubber | 1 | 1 | 1 |
| 15 | Wedge Cover | Polymer | 2 | 2 | 2 |
| 16 | Wedge Cover Pin | Polymer | 2 | 4 | 4 |
| 17 | Hex Head Bolt, 3/4-10 x 3-1/2” | Stainless Steel | 14 | 16 | - |
| 17 | Hex Head Bolt, 7/8-9 x 4” | Stainless Steel | - | - | 16 |
| 18 | Hex Nut, 3/4-10 | Stainless Steel | 14 | 16 | - |
| 18 | Hex Nut, 7/8-9 | Stainless Steel | - | - | 16 |
| 19 | Hex Nut, 7/8-9 | Stainless Steel | 4 | 4 | 4 |
| 20 | Pipe Plug, 3/8 NPT | Stainless Steel | 1 | 1 | 1 |
| 21 | Lower Thrust Washer | Delrin | 1 | 1 | 1 |
| 22 | Stud, 5/8-11 x 2-3/4” | Stainless Steel | 4 | 4 | 4 |
| 23 | Hex Nut, 5/8-11 | Stainless Steel | 4 | 4 | 4 |
| 25 | Square Key, 5/16 x 2-1/2 | Hardened Steel | 1 | 1 | 1 |
| 27 | Bevel Gear Operator 2:1 | Rotork IB5 | 1 | 1 | 1 |
| 29 | Actuator Gasket | Rubber O-ring | 1 | 1 | 1 |
| 30 | Hex Head Bolt, 3/8-16 x 3/4” | Zinc Plated Steel | 1 | 1 | 1 |
| 31 | Washer | Steel | 1 | 1 | 1 |
| 60-K | Spring Pin, 1/4 x 3/4” | Stainless Steel | 1 | 1 | 1 |



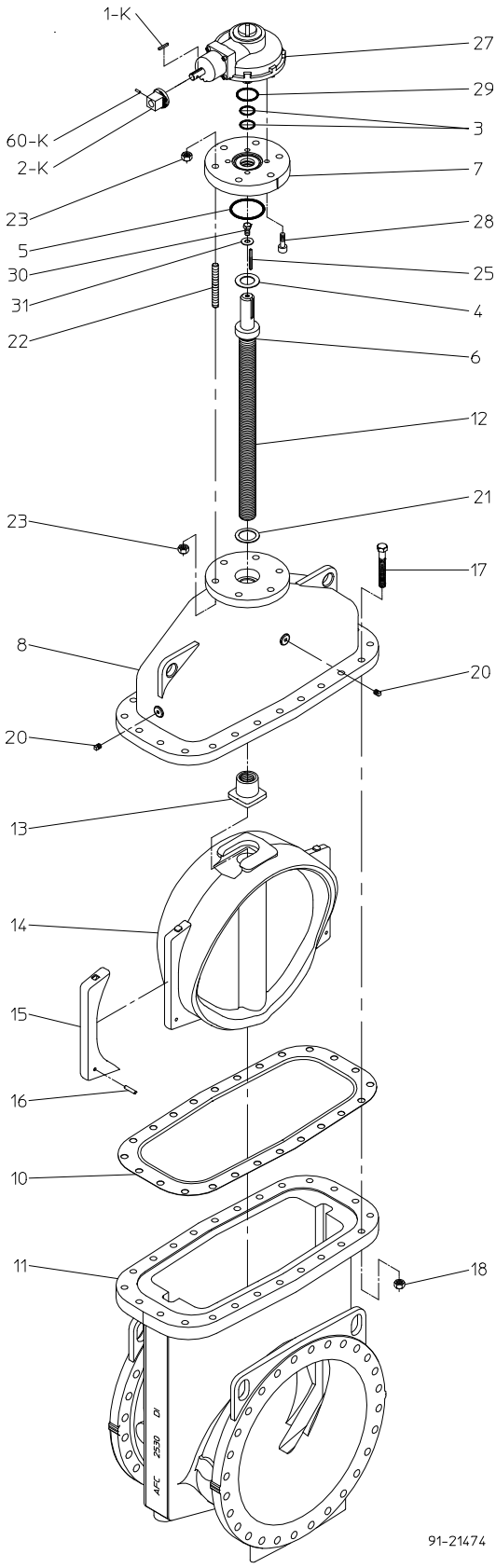
# SERIES 2500 - TAPPING VALVE W/BEVEL GEARING PARTS LIST, 20" & 24" SIZES

| Ref No. | Description | Material | Qty. Series 2500 | |
|---|---|---|---|---|
| | | | 20" | 24" |
| 1-K | Key 8 mm x 7 mm x 40 mm | Steel | 1 | 1 |
| 2-K | Operating Nut, 2" Square | Ductile Iron | 1 | 1 |
| 3 | O-ring | Rubber | 2 | 2 |
| 4 | Upper Thrust Washer | Delrin | 1 | 1 |
| 5 | Stuffing Box Gasket | Rubber O-ring | 1 | 1 |
| 6 | O-ring | Rubber | 1 | 1 |
| 7 | Stuffing Box | Ductile Iron | 1 | 1 |
| 8 | Bonnet | Ductile Iron | 1 | 1 |
| 10 | Bonnet Gasket | Rubber | 1 | 1 |
| 11 | Body | Ductile Iron | 1 | 1 |
| 12 | Stem | Bronze | 1 | 1 |
| | | Stainless Steel (Optional) | | |
| 13 | Wedge Nut | Bronze | 1 | 1 |
| 14 | Resilient Wedge | Ductile Iron, Coated with EPDM Rubber | 1 | 1 |
| 15 | Wedge Cover | Polymer | 2 | 2 |
| 16 | Wedge Cover Pin | Polymer | 2 | 2 |
| 17 | Hex Head Bolt, 7/8-9 x 4-1/2" | Stainless Steel | 18 | - |
| 17 | Hex Head Bolt, 7/8-9 x 5" | Stainless Steel | - | 20 |
| 18 | Hex Nut, 7/8-9 | Stainless Steel | 18 | 20 |
| 20 | Pipe Plug, 3/8 NPT | Stainless Steel | 1 | 1 |
| 21 | Lower Thrust Washer | Delrin | 1 | 1 |
| 22 | Stud, 7/8-9 x 3-1/2" | Stainless Steel | 4 | 4 |
| 23 | Hex Nut, 7/8-9 | Stainless Steel | 4 | 4 |
| 25 | Square Key, 1/2 x 2-3/4 | Hardened Steel | 1 | 1 |
| 27 | Bevel Gear Operator 3:1 | Rotork IB7 | 1 | 1 |
| 28 | Socket Head Cap Screw 3/4-10 x 2" | Stainless Steel | 4 | 4 |
| 29 | Actuator Gasket | Rubber O-ring | 1 | 1 |
| 30 | Hex Head Bolt, 1/2-13 x 1" | Zinc Plated Steel | 1 | 1 |
| 31 | Washer | Steel | 1 | 1 |
| 60-K | Spring Pin, 1/4 x 3/4" | Stainless Steel | 1 | 1 |



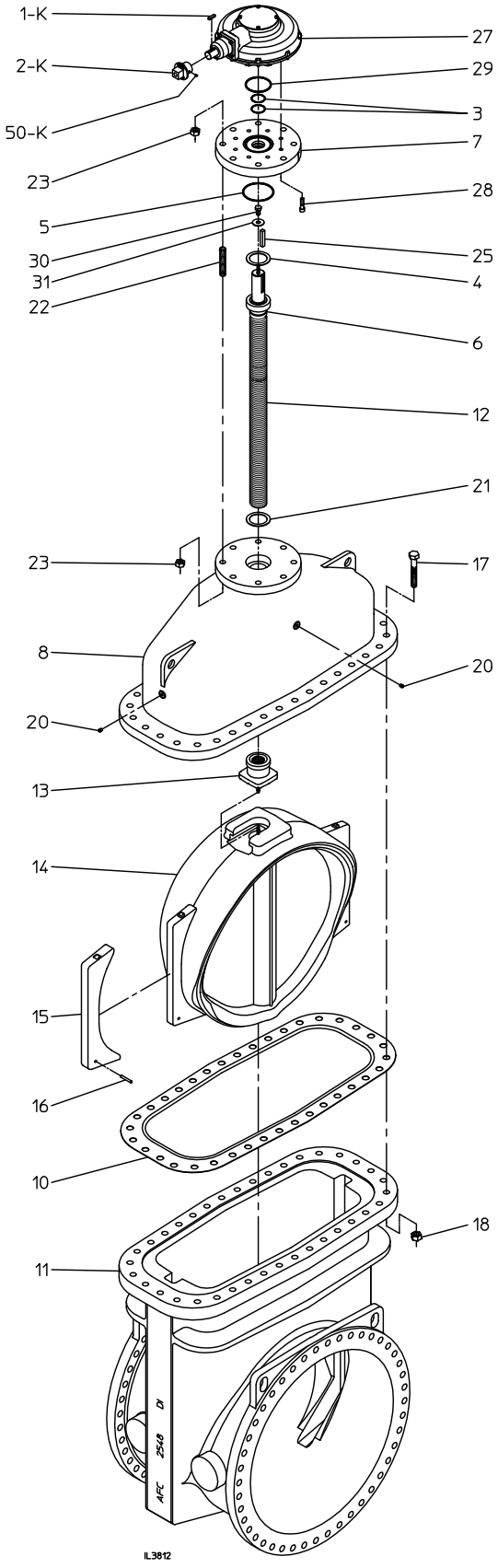
# SERIES 2500 - TAPPING VALVE W/BEVEL GEARING PARTS LIST, 30" & 36" SIZES

| Ref No. | Description | Material | Qty. Series 2500 | |
|---|---|---|---|---|
| | | | 30" | 36" |
| 1-K | Key 8 mm x 7 mm x 40 mm | Steel | 1 | 1 |
| 2-K | Operating Nut, 2" Square | Ductile Iron | 1 | 1 |
| 3 | O-ring | Rubber | 2 | 2 |
| 4 | Upper Thrust Washer | Delrin | 1 | 1 |
| 5 | Stuffing Box Gasket | Rubber O-ring | 1 | 1 |
| 6 | O-ring | Rubber | 1 | 1 |
| 7 | Stuffing Box | Ductile Iron | 1 | 1 |
| 8 | Bonnet | Ductile Iron | 1 | 1 |
| 10 | Bonnet Gasket | Rubber | 1 | - |
| 10 | Bonnet Gasket | EPDM Rubber | - | 1 |
| 11 | Body | Ductile Iron | 1 | 1 |
| 12 | Stem | Bronze | 1 | 1 |
| | | Stainless Steel (Optional) | | |
| 13 | Wedge Nut | Bronze | 1 | 1 |
| 14 | Resilient Wedge | Ductile Iron, Coated with EPDM Rubber | 1 | 1 |
| 15 | Wedge Cover | Polymer | 2 | 2 |
| 16 | Wedge Cover Pin | Polymer | 2 | 2 |
| 17 | Hex Head Bolt, 1"-8 x 6" | Stainless Steel | 24 | - |
| 17 | Hex Head Bolt, 1-1/4-7 x 7" | Stainless Steel | - | 28 |
| 18 | Hex Nut, 1"-8 | Stainless Steel | 24 | - |
| 18 | Hex Nut, 1-1/4-7 | Stainless Steel | - | 28 |
| 20 | Pipe Plug, 3/8 NPT | Stainless Steel | 4 | 4 |
| 21 | Lower Thrust Washer | Delrin | 1 | 1 |
| 22 | Stud, 1"-8 x 6" | Stainless Steel | 6 | - |
| 22 | Stud, 1"-8 x 6-1/2" | Stainless Steel | - | 8 |
| 23 | Hex Nut, 1"-8 | Stainless Steel | 12 | 16 |
| 25 | Square Key, 1/2 x 3-1/2 | Hardened Steel | 1 | - |
| 25 | Square Key, 5/8 x 4" | Hardened Steel | - | 1 |
| 27 | Bevel Gear Operator 4:1 | Rotork IB8 | 1 | - |
| 27 | Bevel Gear Operator 4:1 | Rotork IB10 | - | 1 |
| 28 | Socket Head Cap Screw 3/4-10 x 2" | Stainless Steel | 4 | - |
| 28 | Socket Head Cap Screw 5/8-11 x 2" | Stainless Steel | - | 8 |
| 29 | Actuator Gasket | Rubber O-ring | 1 | 1 |
| 30 | Hex Head Bolt, 3/4-10 x 1" | Zinc Plated Steel | 1 | 1 |
| 31 | Washer | Steel | 1 | 1 |
| 60-K | Spring Pin, 1/4 x 3/4" | Stainless Steel | 1 | 1 |



# SERIES 2500 - TAPPING VALVE W/BEVEL GEARING PARTS LIST, 42" & 48" SIZES

| Ref No. | Description | Material | Qty. Series 2500 | |
|---|---|---|---|---|
| | | | 42" | 48" |
| 1-K | Key 14 mm x 9 mm x 54 mm | Steel | 1 | 1 |
| 2-K | Operating Nut, 2" Square | Ductile Iron | 1 | 1 |
| 3 | O-ring | Rubber | 2 | 2 |
| 4 | Upper Thrust Washer | Delrin | 1 | 1 |
| 5 | Stuffing Box Gasket | Rubber O-ring | 1 | 1 |
| 6 | O-ring | Rubber | 1 | 1 |
| 7 | Stuffing Box | Ductile Iron | 1 | 1 |
| 8 | Bonnet | Ductile Iron | 1 | 1 |
| 10 | Bonnet Gasket | EPDM Rubber | 1 | 1 |
| 11 | Body | Ductile Iron | 1 | 1 |
| 12 | Stem | Bronze | 1 | 1 |
| | | Stainless Steel (Optional) | | |
| 12 | Stem | Stainless Steel | - | - |
| 13 | Wedge Nut | Bronze | 1 | 1 |
| 14 | Resilient Wedge | Ductile Iron, Coated with EPDM Rubber | 1 | 1 |
| 15 | Wedge Cover | Polymer | 2 | 2 |
| 16 | Wedge Cover Pin | Polymer | 2 | 2 |
| 17 | Hex Head Bolt, 1-1/4-7 x 7-1/2" | Stainless Steel | 32 | - |
| 17 | Hex Head Bolt, 1-3/8-6 x 8-1/2" | Stainless Steel | - | 36 |
| 18 | Hex Nut, 1-1/4-7 | Stainless Steel | 32 | - |
| 18 | Hex Nut, 1-3/8-6 | Stainless Steel | - | 36 |
| 20 | Pipe Plug, 1/2 NPT | Stainless Steel | 4 | 4 |
| 21 | Lower Thrust Washer | Delrin | 1 | 1 |
| 22 | Stud, 1-1/4-7 x 7-1/2" | Stainless Steel | 8 | - |
| 22 | Stud, 1-1/4-7 x 7-3/4" | Stainless Steel | - | 8 |
| 23 | Hex Nut, 1-1/4-7 | Stainless Steel | 16 | 16 |
| 25 | Square Key, 3/4 x 4-1/2 | Hardened Steel | 1 | 1 |
| 27 | Bevel Gear Operator 8:1 | Rotork IB12 | 1 | 1 |
| 28 | Socket Head Cap Screw 3/4-10 x 2-1/2" | Stainless Steel | 8 | 8 |
| 29 | Actuator Gasket | Rubber O-ring | 1 | 1 |
| 30 | Hex Head Bolt, 7/8-9 x 1-1/2" | Zinc Plated Steel | 1 | 1 |
| 31 | Washer | Steel | 1 | 1 |
| 50-K | Set Screw 5/16-18 x 3/4" | Stainless Steel | 1 | 1 |



Tapping valves shall be resilient wedge type with bodies and bonnets made of ductile iron for 250 psig working pressure.

- The alignment ring dimensions of the tapping valve flange conform to MSS SP 60 to help ensure true alignment of the valve with the tapping sleeve. The outlet end of the valve shall have the desired joint connection for the intended pipe.
- All tapping valves shall include a minimum 3/8 in. NPT pipe plug on the bonnet of the valve body to aid in the field testing of the valve.
- All wedges shall be fully encapsulated with EPDM rubber.
- All wedges shall be provided with guide covers.
- All interior and exterior ferrous surfaces shall be protected against corrosion by fusion-bonded epoxy coating. The coating shall be applied prior to assembly to assure coverage of all exposed areas, including bolt holes.
- Tapping valve shall be AMERICAN Flow Control's **4 in.–48 in. Series 2500** Ductile Iron 250 psig rating (accepts full size shell cutter).