



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 that 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.

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

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.

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	
54"	Contact Factory	
60"	Contact Factory	
66"	Contact Factory	

SERIES 2500 - TROUBLESHOOTING GUIDE



Problem	Solution																																																												
Leakage	<p>Depending on the location of the leakage, the following should be examined.</p> <ol style="list-style-type: none"> 1. SEAT: Foreign material may be stuck under the valve wedge. Open valve only enough to get high velocity flow to flush out valve. Repeat several times until leak stops. If this does not solve the problem, it is then necessary to open the valve and check for damage to the rubber encapsulated wedge. If it is damaged or severely cut, replace the wedge. 2. STEM: The stem seals are of the O-ring type and the valve has a thrust collar (electric actuated valves normally do not have thrust collars). Always relieve pressure before working on any valve. Check all O-ring seals for leakage and replace as necessary. On OS&Y valves leakage can be stopped by evenly tightening the packing gland bolts. If leakage cannot be stopped, the valve should be repacked. 3. BODY: Check for cracked or damaged valve body or bonnet. If damage has occurred, contact manufacturer for further instructions. 4. BOLTED CONNECTIONS: Check for loose bonnet-to-body bolts, stuffing box bolts or end joint bolts and tighten as necessary. This should be done prior to pressurization of the line. If line is pressurized, pressure should be relieved prior to tightening any bolts. Do not tighten bolts past the yield strength of the bolt. Reinstall all bolts and nuts and tighten alternately to 70-90 ft-lbs of torque. 																																																												
Valve is Hard to Operate or Is Inoperable	<ol style="list-style-type: none"> 1. A valve can become inoperable or hard to operate during testing of the pipeline. Prior to relieving pipeline pressure, the valve should be opened to relieve any trapped pressure. 2. The application of excessive torque on a valve can cause permanent damage to the operating parts. A common source of excessive torque is from the use of portable power actuators. Output torques generated by these machines should be adjusted to be suitable for the valve size. The last or first turns of operation should be done by hand. <p style="text-align: center;">Number of Turns to Open/Close</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <thead> <tr> <th colspan="20">Series 2500 / Series 2500-1</th> </tr> <tr> <th>2"</th><th>2-1/2"</th><th>3"</th><th>4"</th><th>6"</th><th>8"</th><th>10"</th><th>12"</th><th>14"</th><th>16"</th><th>18"</th><th>20"</th><th>24"</th><th>30"</th><th>36"</th><th>42"</th><th>48"</th><th>54"</th><th>60"</th><th>66"</th> </tr> </thead> <tbody> <tr> <td>9</td><td>11</td><td>13</td><td>14</td><td>20</td><td>26</td><td>32</td><td>38</td><td>44</td><td>50</td><td>56</td><td>62</td><td>76</td><td>379</td><td>448</td><td>694</td><td>789</td><td>789</td><td>984</td><td>984</td> </tr> </tbody> </table> <p>Note: 24" and smaller reflect non-geared valves. 30" and larger reflect geared valves</p> <ol style="list-style-type: none"> 3. If valve has not been operated periodically, excessive buildup could occur that would affect valve operation. The valve should be exercised one turn at a time and cycled from open to closed as necessary to attempt removal of internal buildup. 	Series 2500 / Series 2500-1																				2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"	48"	54"	60"	66"	9	11	13	14	20	26	32	38	44	50	56	62	76	379	448	694	789	789	984	984
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Valve Leaks During Testing	<ol style="list-style-type: none"> 1. Resilient seated gate valves per ANSI/AWWA C515 have a zero allowable leakage rate. If a leak is detected while testing, it is necessary to find the cause. 2. If seat leakage is detected, it may be due to foreign material or trapped air in the line. Open the valve enough to get high velocity flow to flush out valve. Repeat several times until leakage stops. 3. If testing between valves, allow enough time to fill the valve and vent off air. 																																																												