

**OPERATING INSTRUCTIONS
TBD VALVE CHANGING TOOL
1" - 4" SIZE**

SIZE	MAXIMUM PRESSURE	INSTALLATION TORQUE GRIPPER NUT (T1) FT-LB	INSTALLATION TORQUE SEAL NUT (T2) FT-LB
1"	600 PSI	15	15
1-1/4"	550 PSI	45	20
1-1/2"	500 PSI	45	20
2"	450 PSI	65	45
2-1/2"	400 PSI	65	45
3"	350 PSI	85	90
4"	250 PSI	85	90

WARNING! NEVER USE TBD TOOL IN REVERSE PRESSURE APPLICATIONS. THE LINE PRESSURE MUST ALWAYS PRESSURIZE AGAINST THE BOTTOM WASHER OF THE SEALING ASSEMBLY.

1. With faulty valve in closed position disconnect downstream pipe from the valve.
2. Hold the tool next to the valve to be changed. Extend the tool so that the seal and grippers will be located in the upstream pipe. Measure the length between the Gripper Compression Nut and the Gland Nut. Use this length to ensure proper tool position when changing valve.
3. Apply thread sealant to Assembly Tube threads. With tool fully retracted thread Assembly Tube to valve leak tight. Tighten Gland Nut to create a seal between the Assembly Tube and the plug shaft.
4. With TBD tool fully retracted, turn faulty valve to open position.

Caution: If shaft is not fully retracted, fluid pressure could cause shaft to be violently thrust into retracted position.

5. Push tool shaft through valve until seal and grippers clear valve and are beyond the valve body and located in upstream pipe. The length between the Gripper Compression Nut and the Gland Nut should be the same as measured in step 2.
6. Tighten Gripper Compression Nut (see diagram on page 2) to the installation torque, T1 as shown in the Table above. This will expand the grippers against the pipe ID.
7. Tighten Seal Compression Nut (see diagram on page 2) to the installation torque, T2, as shown in the Table above. This will expand the seals against the pipe ID.
8. To release pressure from the isolated valve, loosen the Gland Nut. When all P.S.I. is released, unthread the Assembly Tube from the valve and remove from the plug shaft.



EST Group
2701 Township Line Rd
Hatfield, PA 19440-1770 USA
(P) 215.721.1100
800.355.7044
(F) 215.721.1101
est-info@curtisswright.com
http://estgroup.cwfc.com

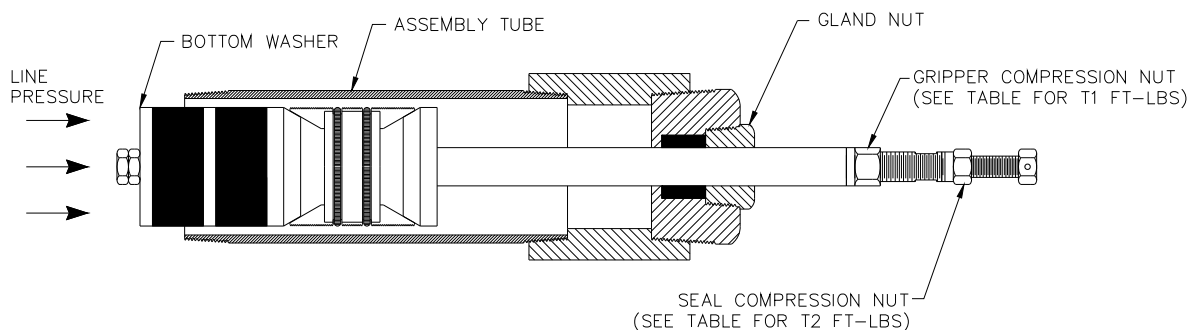
Europe / Middle East / Africa
EST Group B.V.
Hoon 312a
2404 HL Alphen aan den Rijn
The Netherlands
(P) +31.172.418841
(F) +31.172.418849
est-emea@curtisswright.com

Asia
EST Group Asia
35 Tannery Rd, #11-10 Tannery Block
Ruby Industrial Complex
Singapore 247740
(P) +65.6745.8560
(F) +65.6742.8700
est-asia@curtisswright.com

9. Remove faulty valve and repair or replace as required. Reinstall repaired or replacement valve.
10. Apply thread sealant to Assembly Tube threads and install Assembly Tube over plug shaft. Thread Assembly Tube to valve leak tight. Tighten Gland Nut to create a seal between the Assembly Tube and the plug shaft.

WARNING! KEEP CLEAR OF SHAFT END WHEN LOOSENING SEAL AND GRIPPER COMPRESSION NUTS AS THE DIFFERENTIAL PRESSURE MAY RESULT IN THE TOOL BEING THRUST INTO THE RETRACTED POSITION.

11. Loosen Seal Compression Nut until seals are fully released. Loosen Gripper Compression Nut until locking feet are fully retracted.
12. Fully retract the tool so that the seal and grippers clear the valve.
13. Move valve to the closed position. Loosen Gland Nut to release pressure. When all pressure has been released unthread the Assembly Tube from the valve and remove with tool.



WARNING! LINE PRESSURE MUST ALWAYS PRESSURIZE AGAINST THE BOTTOM WASHER OF THE SEALING ASSEMBLY AS SHOWN ABOVE. NEVER USE TBD VALVE CHANGING TOOL IN REVERSE PRESSURE APPLICATIONS.

QUESTIONS? Contact EST Group Customer Service at any of the following locations with questions.

In USA and Canada: tel: 800-355-7044, fax: 215-721-1101, e-mail: est-info@curtisswright.com

In Europe: tel: +31-172-418841, fax: +31-172-418849; e-mail: est-emea@curtisswright.com

In Asia: tel: +65-6745-8560, fax: +65-6742-8700, e-mail: est-asia@curtisswright.com

On the Internet: <http://estgroup.cwfc.com>

EST Group is a business unit of Curtiss-Wright Flow Control Company. **EST Group** provides a complete range of repair products, services and replacement parts covering the life cycle of tubular heat exchangers and condensers; additionally EST Group provides products and services to facilitate pressure testing pipe, piping systems, pressure vessels and their components. Visit EST Group on the Internet at <http://estgroup.cwfc.com>.



EST Group
2701 Township Line Rd
Hatfield, PA 19440-1770 USA
(P) 215.721.1100
800.355.7044
(F) 215.721.1101
est-info@curtisswright.com
<http://estgroup.cwfc.com>

Europe / Middle East / Africa
EST Group B.V.
Hoorn 312a
2404 HL Alphen aan den Rijn
The Netherlands
(P) +31.172.418841
(F) +31.172.418849
est-emea@curtisswright.com

Asia
EST Group Asia
35 Tannery Rd, #11-10 Tannery Block
Ruby Industrial Complex
Singapore 247740
(P) +65.6745.8560
(F) +65.6742.8700
est-asia@curtisswright.com