

- ▶ **RED TLP PVC TUF Grip Restraint is for restraining PVC pipe manufactured to AWWA C900/C905 and ASTM D2241 (IPS) OD's using a transition gasket.**
- ▶ **Black TLD DUCTILE TUF Grip Restraint is for restraining Ductile pipe manufactured to AWWA C151**
- ▶ **Do not use TLD DUCTILE TUF Grip on Plain end fittings**
- ▶ **Do not remove washers under wedge bolt twist off nut.**
- ▶ **Use T-Bolts that conform to ANSI/AWWA C111/A21.11**

TUF GRIP INSTALLATION INSTRUCTIONS

1. Insure the pipe end to be joined and mechanical joint socket is clean and free of debris. Slide the TUF Grip onto the pipe to be restrained. The TUF Grip lip extension will be toward the pipe end being restrained.
2. Lubricate the pipe end and inside surface of gasket with joint lubricant that meets the requirements of AWWA C111. Place gasket over the plain end of the pipe with the narrow edge of the tapered gasket toward the pipe end.
3. Insert the pipe end into the MJ socket and slide the gasket firmly and evenly into the socket recess. Joint must be kept straight during assembly.
4. Push the TUF Grip evenly against the thick side of the gasket and insert T-bolts. Evenly hand-tighten the T-bolt nuts making sure the gland is centered on the pipe. (If deflection is needed, deflect the pipe after all T-bolts are hand tightened 3° max. for 3", 5° max. for 4" thru 12", 2° max. for 14" thru 16", and 1.5° max. for 18" thru 48").
5. Using a wrench, tighten the bolts while maintaining the same distance between the TUF Grip and face of MJ socket. Maintain this by tightening one bolt a few turns, then tighten the bolt on the opposite side of the joint a few turns, move to the next bolt and repeat this. Tighten the bolts in an alternating pattern to the final torque (3" 45-60 ft.-lbs., 4" thru 24" 75-90 ft.-lbs. 30" thru 36" 100-120 ft.-lbs., and 42" thru 48" 120-150 ft.-lbs.) **DO NOT OVER-TORQUE.**
6. Hand tighten the TUF Grip wedge bolts in a clockwise direction (direction indicated by the arrow on the twist off bolt head) until all wedges are in contact with the pipe. With a wrench continue to tighten with alternating pattern by turning each bolt head $\frac{1}{2}$ turn until all bolt heads twist off. (Never turn a bolt head more than $\frac{1}{2}$ turn without moving another bolt). When all bolt heads twist off the joint is restrained.

REMOVAL-IF GLAND REMOVAL IS REQUIRED, LOOSEN THE TUF Grip WEDGE BOLTS USING THE $\frac{5}{8}$ " HEX HEAD THAT REMAINS ON THE BOLT. REASSEMBLE-FOLLOW THE STEPS ABOVE AND TORQUE THE TUF Grip $\frac{5}{8}$ " HEX HEAD BOLT TO 45-60 ft.-lbs.