

## **Water Service Fittings and Curb Stops:** Pack Joint end connections

### **Application:**

This information is applicable to Models T-5300, T-5300MP, T-4211, T-4300, T-4320, T-4305, T-4326, T-4301, T-4321, T-4325, T-4410, T-4412, T-4411, T-4413, T-4440, T-4441, T-4442, T-4110, T-4111, T-4112, T-4500 and T-4501. For other models, please see the installation-operation-maintenance sheets for ring compression connections or flared connections. They can be downloaded at [www.legendvalve.com](http://www.legendvalve.com) or by calling Customer Service at 800-752-2082. Legend pack joint curb stops and fittings are designed and manufactured in accordance with AWWA C-800 specifications and are suitable for installation onto underground cold water service lines only.

NOTE: All pack joint end connections accept the following CTS (Copper Tubing Size) types of tubing or IPS (Iron Pipe Size) types of pipe:

### **CTS tubing:**

Types K or L copper tubing

CTS polyethylene plastic tubing (ASTM D2737 SDR9)

### **IPS pipe:**

Steel pipe

Brass pipe

PVC pipe (ASTM D1785-06)

IPS polyethylene plastic pipe (ASTM D2239 SDR 7)

Extra-strong (XS) lead pipe (models T-4110, T-4111 and T-4112 only)

Insert stiffeners (sold separately) **MUST** be used when installing fittings or curb stops onto polyethylene plastic tubing or pipe.

### **Installation Instructions for pack joint end connections:**

1. Cut tubing or pipe to desired length, using an appropriate tubing or pipe cutter.
2. The cut must be square and round. Correct any out-of-round tubing or pipe using the appropriate tool. The cut end of the tubing or pipe must be free of burrs, dents, nicks, deep scratches, dirt or debris.
3. **If you are installing the Legend pack joint fitting or curb stop onto polyethylene plastic tubing or pipe**, insert the correct stiffener into the cut end of the plastic tubing or pipe (Legend Model T-4500 or T-4501). Make sure to fully insert the stiffener. Partially inserted stiffeners may prevent the pack joint connection from joining or sealing correctly. **NOTE:** Insert stiffeners are not required when installing rigid PVC plastic pipe or metallic tubing or pipe.
4. Remove the pack joint nut assembly from the fitting or curb stop body.
5. Visually verify that the assembly is complete: pack joint nut, stainless steel clamp bolt, NBR rubber gasket and Nylon anti-friction ring (underneath the gasket). (*insert pack-joint nut exploded view diagram here*)
6. Place the pack joint nut assembly over the end of the tubing or pipe, clamp end first. Make sure the anti-friction ring and gasket are not cocked at an angle. Both should be resting flat against the inside face of the pack joint nut.
7. Slide the pack joint nut assembly down onto the tubing or pipe approximately three inches.

8. Place the curb stop's or fitting's body section onto the tubing or pipe end. Some fittings will have a tubing or pipe stop machined internally, others will not (e.g. all union fittings). Completely insert the tubing or pipe. When installing the union, insert the tubing or pipe only as far as the half-way point of the union's body, to allow enough insertion depth for the other tubing or pipe end.
9. Slide the pack joint nut toward the curb stop's or fitting's body and engage the nut onto the body by turning clockwise by hand.
10. Tighten the nut to the specified torque (see pack joint nut torque chart below).

<b>PACK JOINT NUT TORQUE (FT/lb)</b>						
Pack joint nut size:	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Minimum torque:	25	30	35	40	45	50
Maximum torque:	40	45	50	55	60	65

**CAUTION!** Make sure the wrenches fit tightly. Loose-fitting wrenches can cause injury or damage the curb stop or fitting.

11. Using a ratchet and the correct socket, tighten the pack joint clamp bolt to the specified torque (see pack joint clamp bolt torque chart below). **NOTE:** all 1/2" through 1-1/4" pack joint nuts are equipped with a 3/8" hex head bolt and all 1-1/2" and 2" pack joint nuts are equipped with a 1/2" hex head bolt. While all of the hexagonal bolt heads are slotted, a ratchet and socket are preferred over a flat-blade screwdriver, since a torque wrench can be used with a socket to more accurately determine torque.

<b>PACK JOINT CLAMP BOLT TORQUE (IN/lb)</b>						
Pack joint nut size:	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Clamp bolt size:	3/8"	3/8"	3/8"	3/8"	1/2"	1/2"
Torque range for installation onto soft copper or PE plastic:	65 to 75	75 to 85	85 to 95	115 to 135	155 to 175	195 to 215
Torque range for installation onto hard copper or pipe:	65 to 75	75 to 85	60 to 75	75 to 90	155 to 175	195 to 215

NOTE: If you are installing models T-5300, T-5300MP, T-4301, T-4321, T-4325, T-4411, T-4413, T-4441, T-4442 or T-4112, please see the ADDITIONAL RECOMMENDATIONS AND WARNINGS section below. If you are installing other Legend pack joint models, proceed to the installation instructions for NPT pipe thread connections shown below:

**Installation instructions for male and female NPT (pipe) thread connections:**

All pipe thread connections should be made in accordance with standard industry practice, which involves engagement length verses a specific torque rating, as stated in ANSI / ASME B1.20.1:

1. Inspect all male and female tapered pipe threads for damage. DO NOT attempt to assemble damaged threads. Using a stiff wire brush, remove all dirt or debris from the thread surfaces.
2. Apply thread sealing compound or Teflon tape to the male pipe threads. Apply the tape by wrapping the male threads in a clockwise direction.
3. Carefully engage and tighten the threads by hand.
4. Using the appropriate wrench, tighten an additional 1-1/2 to 2 revolutions.

## ADDITIONAL RECOMMENDATIONS AND WARNINGS:

**WARNING!** Pressure-test the system in accordance with local code requirements before backfilling. Visually inspect all connections for leakage and correct as necessary. Installation is complete only after a pressure test has been completed.

- While the Legend pack joint nuts utilize a high-quality NBR gasket, which is resistant to most petroleum-based lubricants, it is still recommended that no lubricant be applied to any surface of the pack joint fitting or curb stop.
- Do not use thread sealant on any of the fitting or curb stop pack joint connections.
- Looping or snaking the service line in the trench will minimize line stress during backfilling as well as allow expansion and contraction movement without placing strain on the pack joint connection.
- Use insert stiffeners when installing Legend pack joint fittings or curb stops onto polyethylene plastic tubing or pipe.
- All Legend pack joint nut assemblies are marked for use with copper tubing size tubing (marked CTS) or iron pipe size pipe (marked IPS). Be certain that you are installing the correct curb stop or fitting by verifying that you have either tubing or pipe. Legend pack joint nut assemblies are not interchangeable between tubing and pipe.

### **Operation, Maintenance and Adjustment:**

Legend pack joint fittings and curb stops do not require maintenance or adjustment when properly installed and pressure tested. Should leakage occur during pressure testing, de-pressurize the system, loosen the pack joint clamp bolt, tighten the pack joint nut an additional 1/8-turn or until the leak stops, then repeat step eleven.