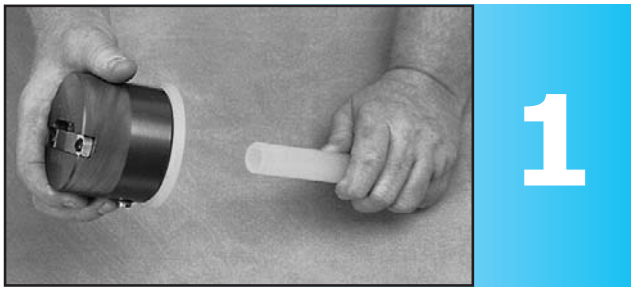
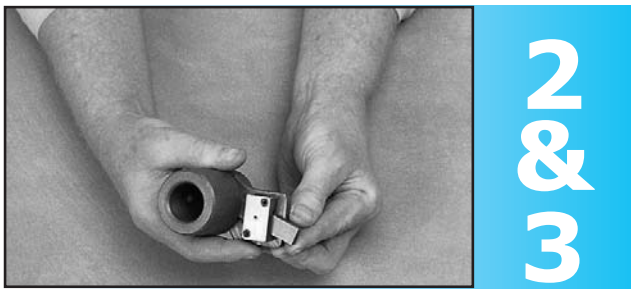
Riontite High Purity Assembly

Orion's RIONTITE system is an incredibly easy to install, 150 psi pressure system that is installed hand tight (without wrenches). To install Riontite, the only special tools required are Orion's Facing Tool and Groover. Wrenches are usually not required, since this is a hand-tight system. The below instructions must be carefully followed to insure a leak free system on every installation.
Please fead this instruction guide in it's entirety prior to beginning any Riontite installation.

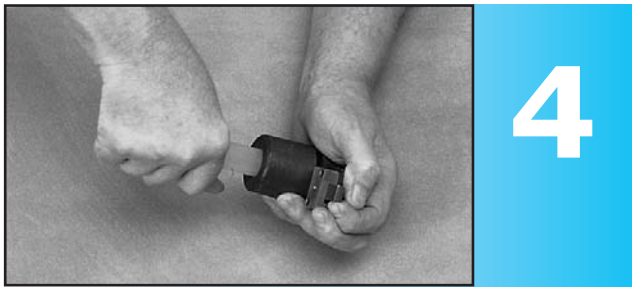


STEP 1
Cut pipe square. We suggest using a plastic wheel cutter to get a clean and square cut. Do not bevel or chamfer end of pipe.
After cutting the pipe, the edge must be **faced**. Facing the pipe is required and ***Pipe must be faced prior to grooving.*** Place pipe all the way into the facer and spin until the pipe edge is clean and square. This will likely take several full spins/rotations of the facer tool. *We suggest on the last spin to slowly let off pressure to avoid a sharp step in the edge of the pipe.*



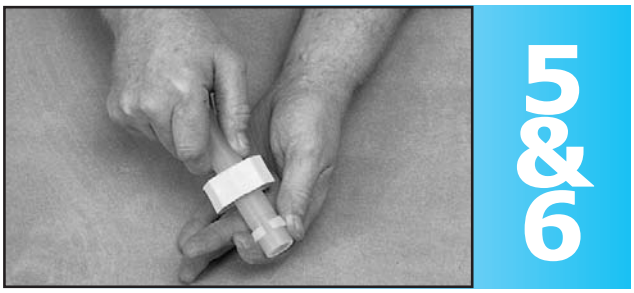
STEP 2
Use an Orion hand groover to cut groove in the pipe.The groove must be even and in the correct position. Grooves that rotate up the pipe will result in leaking joints (see back page for groove samples).

STEP 3
Retract groover blade before inserting pipe to avoid a linear notch in the pipe. Insert pipe into grooving tool until it bottoms out. Be sure the pipe is fully inserted into the groover before cutting the groove-otherwise the groove may be mis-aligned or in the wrong position on the pipe. If the groove is done incorrectly, cut the groove off the pipe and begin at step one. Do not go to step 4 if the pipe is grooved incorrectly.



STEP 4
Once properly positioned, rotate groover while pushing the blade until it engages the pipe. Rotate hand groover clock-wise twice around pipe. Maintain constant pressure at handle during rotation to avoid an un-even groove. If the pipe is over 12" long, a chain vise may be used to hold the pipe from twisting. Be sure to put the vise as far away from the groove as possible to avoid ovalizing the pipe and making an inconsistent groove. If channel lock wrenches are used to hold the pipe, they should also be as far away from the groove as possible. Do not allow pipe to pull out of groover during the grooving process. If this occurs, the bad groove should be cut out and begin at step One.

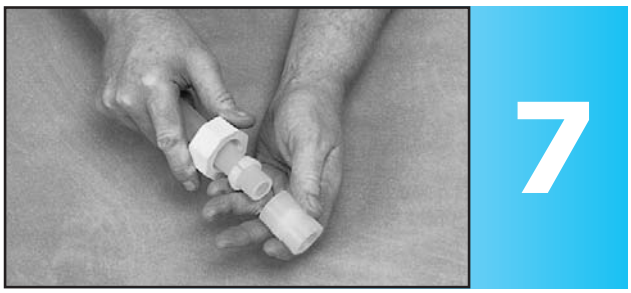
Once groove is properly completed, disengage groover blade and remove groover from pipe.



STEP 5
Slide nut over the pipe, then slide snap ring over pipe into groove (the bevel of ring should be facing the nut).

STEP 6
Be sure gasket is properly seated in fitting socket - check that gasket has not been damaged. If gasket is not in position, do not tighten nut. If gasket is damaged, it should be replaced with a new gasket.

NOTE: DO NOT TEST ANY ORION PIPING SYSTEM WITH COMPRESSED AIR OR GASSES.
TEST HYDROSTATICALLY ONLY



Step 7
Insert pipe into socket of fitting. Be sure that pipe is straight and is cut to the proper length before proceeding to next step. Pipe that is installed crooked will result in uneven force against the nut and may cause leaks.

Step 8
Slide the nut down the pipe and **hand tighten** onto the thread of the mating fitting. **Do not over tighten**. Over tightening may cause the snap ring to pull out of the joint and damage the groove (see back page for sample photos). *It is rarely necessary to further tighten with a wrench.* If a wrench is used , do not exceed 1/4 of a turn past hand tight or joint damage will result. **This system is designed to hold 150 psi with relatively minimal tightening torque on the joints-wrenches are typically NOT required to tighten joints. The system is very easy to install, but must be done in the correct order as explained above.**

Each Riontite joint must be fully tightened as the installation progresses. Do not loosely assemble the system and then go back and tighten nuts last, since pipe layout length errors will occur and will go undiscovered until such time as the nuts are fully tightened. Layout length errors from not tightening each joint as the installation progresses can cause excessive stress on the joints and damage the grooves resulting in future leaks.These leaks may occur at testing or over time. In addition, the system must be installed straight. Do not take two crooked pipe/fitting pieces and expect that tightening them will straighten out the joints. If the system is installed or supported crooked, there will be un-even forces on the snap-rings resulting in over-stressed joints and joint leakage. If joints have been over-tightened and the groove "rolled" the groove must be cut out and the pipe re-faced and re-grooved. Do not simply replace fittings and re-install the system.

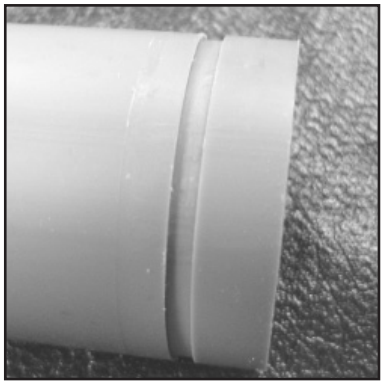


Fig. 1. Correctly faced and grooved pipe sample. (Shown on darker pipe for demonstration purposes)

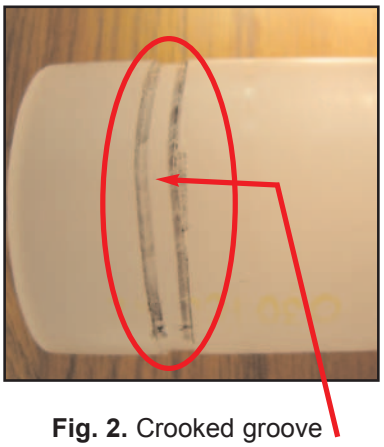


Fig. 2. Crooked groove tool moved during grooving

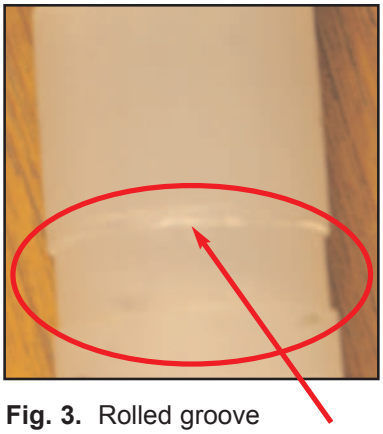


Fig. 3. Rolled groove from over-tightened nuts or nuts that were nut fully tightened as installation progressed

Fig 4. Pipe installed crooked and improperly supported.

Additional Notes:
Pipe supports should allow for axial movement. If pipe cannot move axially, it will snake as shown in Fig.4 above and joint leakage may occur.
When testing hydrostatically, do not instantaneously pressurize to full test pressure. Full test pressure should be achieved gradually. The maximum test pressure is 150 psi at 73 degrees F.
Please see our high purity catalog #OFHP1005 for proper support spacing and testing guidelines.

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