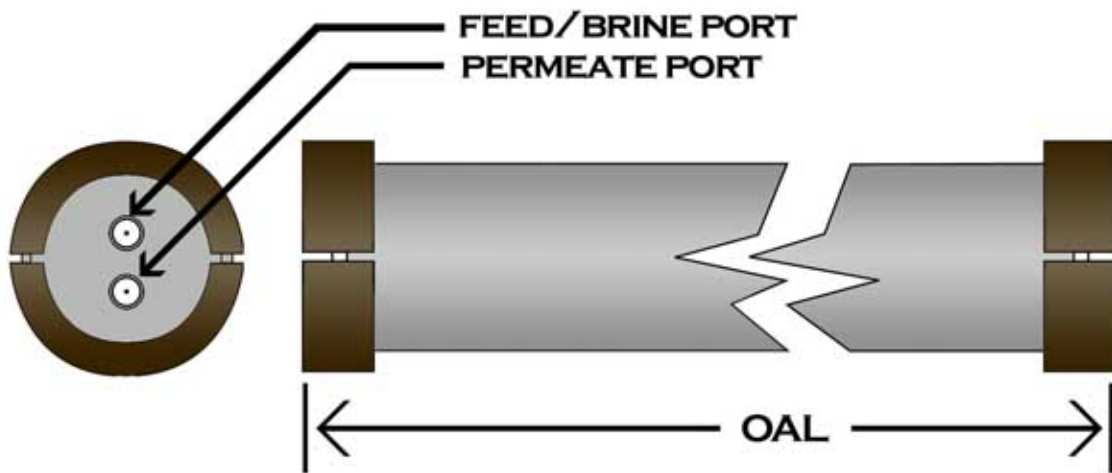




MANUFACTURERS OF THE FINEST 316 SS
& WHITE PVC PRESSURE VESSELS
**Hydrocomponents
& Technologies, Inc.**

Fiberglass Pressure Vessel



Vessel Series Number	Nominal		Rated Work Pressure	Max. Work Pressure	Model Number	Membrane Size	# of Membrane	OAL Length (inches)	Port Sizes (NPT)		
	ID	OD							Feed	Brine	Perm
2500.5S	2.5"	2.85"	800 psi	1000 psi	2514.5S	2.5"x14"	1	16.0	1/4"	1/4"	1/4"
					2521.5S	2.5"x21"	1	23.0	1/4"	1/4"	1/4"
					2540.5S	2.5"x40"	1	42.0	1/4"	1/4"	1/4"
					2580.5S	2.5"x40"	2	82.0	1/4"	1/4"	1/4"
4000.5	4.0"	4.75"	800 psi	1000 psi	4021.5	4.0"x21"	1	23.5	1/2"	1/2"	1/2"
					4040.5	4.0"x40"	1	42.5	1/2"	1/2"	1/2"
					4080.5	4.0"x40"	2	82.5	1/2"	1/2"	1/2"

END PLUG INSTALLATION & REMOVAL

When assembling a HC&TI pressure vessel, it is recommended that the "O"-rings on the end plugs be cleaned and installed so that they are not twisted and are seated properly in the "O"-ring glands. They should be lubricated using only Glycerine along with the housing as described in the LUBRICATION section of this manual.

Place the end plug in the housing aligning the U-Pin grooves with the retaining holes. Firmly press the end plug into the housing using both hands. Ensure that even pressure is applied so that the end plug goes in evenly and square. Do not allow it to tilt. Once the end plug is installed so that the U-Pin grooves are beyond the retaining holes, you may align the grooves to the holes by placing the U-Pin into the grooves and gently rotating the end plug. The U-Pin may now be installed as per the U-PIN section of this manual. Follow the same process for the remaining end plug.

To extract end plugs, remove the U-Pin. Lubricate the housing by pouring or spraying Glycerine in between the housing and the end plug allowing the Glycerine to flow down to the end plug "O"-ring. Place an end plug extractor tool into the center most port of the end plug and pull outward evenly. Sometimes a slight clockwise rotation of the extractor tool while pulling outward will help to dislodge the end plug. Caution must be observed so as not to damage the port thread while using this procedure. Many end plugs are difficult to remove because the "O"-ring have swollen and deformed. If you cannot remove the end plug, call HC&TI for further instructions. Never strike end plugs with an object that may cause damage to the end plug or the housing.

NEVER INSTALL A DAMAGED OR DEFECTIVE END PLUG.

INSTALLING FITTINGS INTO END PLUGS

All HC&TI end plugs contain Female National Pipe Thread ports. These ports are tapered and caution must be exercised so as not to over-tighten fittings. Caution must also be observed when installing fittings into end plugs so as not to cross-thread the fitting especially when using metallic fittings.

It is recommended that the fitting be gently and squarely placed into the port chamfer and rotated clockwise by hand. resistance should not be felt until the fitting has rotated 3 to 5 turns. Install fitting by hand until it firmly locks on the port thread. Do not over-tighten and do not use a wrench. Hook up system and slowly pressurize it. Carefully tighten fittings wrench until any leakage has stopped. This is enough; any further tightening may cause threading in the port or excessive stress on the end plug material. This will cause end plugs to crack even though it is not apparent during installation.

NEVER ATTEMPT TO TIGHTEN A FITTING DOWN TO ITS SHOULDER.

The most common cause of end plug failure is over-tightening or cross threading of fittings during installation. If you have any questions regarding this process, call HC&TI.

LUBRICATION

HC&TI strongly recommends the use of Glycerine as a lubricant for installing end plugs and membranes. It is water-soluble and will not harm membranes and housings.

Other lubricants may cause damage to membranes and cause housings to leak. It is recommended that Glycerine be swabbed around the housing from the outermost chamfer to beyond the U-Pin retaining holes and on the end plug "O" rings.

To ease end plug removal, it is recommended that Glycerine also be poured or sprayed around the end plug allowing it to flow down to the "O" ring. Using this method and an extractor tool will greatly ease the extraction process without damaging the housing or end plugs.

INSPECTION/CLEANING

When installing or retrofitting a pressure vessel assembly, always thoroughly clean and inspect every component, never use or reuse a damaged, worn or defective component. A 4" diameter vessel pressurized to 225 psig exerts a force on the end plug and locking system over 2800 lbs. using damaged components may cause severe bodily damage and/or death.

After installing or retrofitting a pressure vessel, logically and deliberately check all components including the vessel assembly, mounting clamps, fittings and hoses as well as the rest of the system for proper fastening and functioning.

ADEQUATE SAFETY PROCEDURES CANNOT BE OVER-STRESSED.

VESSEL ASSEMBLY INSTRUCTIONS

1. Unwrap vessel carefully. Do not use blades to cut overwrap material.
2. Inspect components for damage and cleanliness.
3. Install fittings. Use Teflon tape on threads. Do not over tighten.
4. Install "O" rings.
5. Lubricate "O" rings lightly with Glycerine.
6. Install one end plug aligning U-Pin with U-Pin holes in housing if applicable.
7. Install U-Pin or Retaining Clamps as per instructions section 7.1 or 7.2.
8. Install membrane (using adapters if required). Ensure it is properly seated into end plug receptacle.
9. Install second end plug aligning grooves with U-Pin holes in housing.

10. Install second U-Pin. Do not use excessive force.

NOTE: When a system is being started up, leakage may occur through "O" ring seals until the excess lubricant is dissipated. Vessel should not leak after operating pressure is applied (200 PSI - 250 PSI). If leakage continues at this point for more than 5 minutes, discontinue its use immediately.

7.1 U-PIN INSTALLATION & REMOVAL

HC&TI recommends that U-Pins be installed so that the legs point down toward the deck. Installing U-Pins should not require excessive force. Never use a hammer or strike a U-Pin during installation. Place the U-Pin in the retaining hole insuring that the end plug is properly aligned. Place your hand across the U-Pin back and gently "wiggle" it down to the bottom-retaining hole. The more pressure applied during this process the more difficult the installation will become. Once the U-Pin is aligned in the bottom-retaining hole, firmly press it into place until the radius on the U-Pin legs lock into the radius of the housing. At this point gently tap across the U-Pin back to ensure proper seating.

If the housing is not isolated from the vibration or the system cycles excessively, you may require a U-Pin lock kit available from HC&TI to ensure that the U-Pin "creep" does not occur. These kits are inexpensive and ensure positive locking of U-Pins in all situations.

To remove U-Pins, first insure that any locking kits have been removed. Then place a non-metallic flat object between the U-Pin back and the top of the housing and simply pry upward until the U-Pin has released. It may be necessary to lightly tap the bottom of each leg to unlock the U-Pin, if so, use caution so as not to damage the housing or the U-Pin. Once the U-Pin has unlocked simply remove it by gripping the U-Pin back and pulling it out.

Never use excessive force to install or remove a U-Pin.

NEVER REMOVE A U-PIN WITH EVEN RESIDUAL PRESSURE IN THE VESSEL.

7.2 INSTALLATION INSTRUCTIONS FOR RETAINING CLAMP Vessels

- 1) Both halves of the clamp must be properly aligned on the housing groove with equal spacing with equal spacing between the V-Clamp halves.
- 2) Both 10-32 bolts must now be run down to the flat loosely.
- 3) Check for equal spacing and tighten both bolts equally. 1/2 turn at time, maintaining equal spacing between V-Clamp halves.
- 4) Do not over tighten bolts. They do not effect clamping strength.
- 5) If bolts do not run down to the flat easily (finger only), the clamp is misaligned. Do not force bolts.

6) It is recommended that a single drop of "lock-tite" be applied to each bolt prior to installation.

7) Ensure that all components are properly aligned and installed (including end plug backing plates) prior to installing V-Clamps.

IMPORTANT: Housing clamps must be set & tightened evenly but not over-tightened to prevent them from stripping threads.

DO NOT use hammer to adjust clamps.

