PLASTEEL® ELUTRON®

Double-Wall Fiberglass Jacketed Underground Tank
Interstitial Vacuum Test Instructions
Vacuum Pre-Established by Fabricator

Elutron underground tanks feature an interstitial annular space between the primary inner steel tank and the outer fiberglass shell or "jacket." This outer fiberglass shell or jacket also functions as the secondary containment. The purpose of this interstitial annular space is to provide a method for continuous monitoring of primary inner steel tank and secondary containment for potential leaks. Elutron tanks may be delivered with a pre-established vacuum within the interstice as a means to simplify and facilitate the installation of the Elutron tanks. The vacuum in the tank interstice can change during shipment and upon delivery due to changes in temperature and barometric pressure; thus, the tank vacuum needs to stabilize in the site environment

Note: Do not pressure test the interstitial annular space under any circumstances. Damage my occur. Do not apply vacuum to primary tank, damage may occur.

The process for assuring the tank is maintaining a vacuum and ready for installation is as follows:

1. Record the initial vacuum reading on the Elutron Certificate of Completion document prior to removal from the delivery trailer or immediately thereafter, and before installation of the tank.
    a. The tanks will be delivered with a vacuum gauge, which shows the vacuum within the tank's annular interstice. See Figure 1.0. Take extreme care not to impact, adjust, or move the gauge or gauge assembly installed on the tank.
    b. The reading on the tank upon arrival at job site, should be a minimum of 10"Hg, or greater. If it is, go to step 2.
    c. If the reading is below 10"Hg, inspect tank for damage and check vacuum test assembly for tightness. Go to step 5 to re-establish vacuum.
2. Record the time at the initial vacuum reading in Step 1. The vacuum test period shall be one hour from the initial vacuum reading.
3. Begin timing the one-hour test period.
4. Record the vacuum reading, and the time, at the end of the one-hour test period.
    a. If the initial vacuum reading remains the same or drops less than 2"Hg, the tank is considered airtight and ready for installation. Go to step 6.
    b. If the vacuum has dropped more than 2"Hg, the tanks vacuum shall be reestablished. This vacuum change does not necessarily indicate a leak. Go to step 5.
5. The tank's vacuum shall be reestablished. This process may require several attempts until the vacuum reading stabilizes.
    a. Establish a vacuum gauge reading above 10"Hg. Utilize the vacuum test assembly as shown in Figure 1.0, or alternatively use a venturi type vacuum generator as shown in Figure 2.0.
    b. Restart monitoring of the vacuum for one hour and ensure that the vacuum reading does not drop more than 2"Hg. Record vacuum reading and starting time.
        i. If the vacuum maintains a vacuum with less than 2"Hg drop, record the vacuum gauge reading on the Elutron Certificate of Completion document. At this point, the tank is deemed airtight and ready for installation. Go to Step 6.
        ii. If the vacuum reading does not maintain a minimum vacuum of 10"Hg after repeated attempts, contact the tank fabricator immediately. Inspect the tank again for signs of damage.
6. The vacuum gauge and gauge assembly may be left in place during installation. The vacuum gauge and vacuum gauge assembly are not meant for long-term monitoring of the tank's interstitial integrity.

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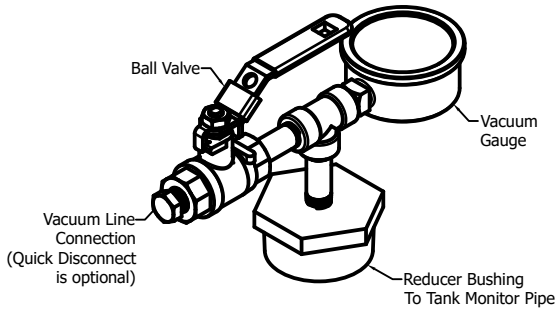
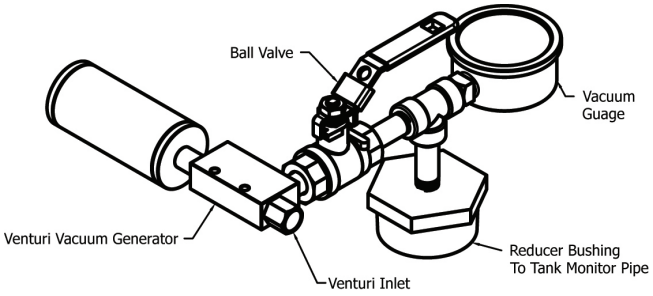
7. Vacuum Gauge Assembly Removal: The interstitial precision tightness test gauge assembly is not for long-term monitoring of the tank's interstitial (annular) space. This gauge assembly shall be removed when the backfill and associated piping is complete. This will confirm that no damage has occurred to the tank's secondary containment during installation. The interstitial monitor opening shall be accessible at grade. This opening must be closed to the atmosphere and protected from external loads and movement. Complete all piping connections, making sure to use a compatible, non-hardening pipe sealant on all threaded connections.

Figure 1.0 - Test assembly



Vacuum gauge test assembly (typical) accuracy:
ASME (ANSI) Grade B, 2%, ±0-30" Hg graduations

Figure 2.0 - Alternate test assembly for using venturi-type vacuum



8. Apply 5 psi pressure to the primary inner steel tank to test the tightness of piping connections to the tank and manway covers.

Note: The primary tank test pressure shall not exceed 5 psi. Exceeding 5 psi may damage the primary tank. Isolate piping from the tank before testing piping at pressures greater than 5 psi.

9. Be sure to confirm that the monitor pipe riser is at the proper elevation and is water and vacuum-tight. It is recommended that monitor pipe grade access be locked and secured from tam-pering. This will prevent the accidental introduction of water or product into the tank's annular space.

10. Venting: The primary tank must be vented to atmospheric pressure. Use of vapor recovery systems are allowed, provided pressure does not exceed 1 psi or vacuum may not exceed 1 Hg. It is recommended that the interstice be sealed airtight.

11. Plasteel Sealing Procedures: Finally, follow the Plasteel Elutron procedures for coating and sealing exposed areas found in the installation guidelines. This step is required in order to provide corrosion protection. A tank sealing kit is provided with the tank.

Note: This leak tightness test method has been third party evaluated per the Alternate EPA Test Protocols for Plasteel International. The third party environmental consulting firm that performed the evaluation was Ken Wilcox Associates, Inc.,19401 E. 40 Highway, Suite 100, Independence, MO 64055, (816) 795-7997