Highland Tank | **BUILT ON TRADITION**

aboveground double-wall storage tank - installation instructions

site preparation, handling, placement, & air testing

HT-5500

Read and understand this entire document before beginning testing process

These instructions apply to stationary, factory-assembled, aboveground double-wall vertical and horizontal steel tanks for the storage of stable, flammable and combustible liquids at normal atmospheric pressure.

Tank installation is a specialized craft, it is assumed that those using these instructions will have knowledge of, and possess the skills and equipment necessary to, install this type of aboveground steel storage tank properly and safely.

These instructions only address the handling and testing of the tank after arrival at the site and its placement.

1.0 Tank Installation Site

The foundation for the tank must be designed to support the tank plus 100% of the weight of the maximum amount of product the tank will be storing.

The foundation may be comprised of concrete, asphalt, gravel or other stable material and must include provisions in its design to prevent tank movement.

The foundation design must also include provision for draining surface water away from the tank to minimize corrosion.

Consult the National Fire Protection Association, the Uniform Fire Code, or the International Fire code and your local fire marshal and building inspectors for all applicable codes and restrictions such as spacing from buildings, property lines, public ways, etc.

Tanks located in areas subject to flooding must be welded to supports and bolted to hold-down pad to prevent flotation.

Aboveground tanks should not be located above underground utilities or directly beneath overhead power lines.

The tank shall be protected from vandalism and accidental damage in accordance with all applicable codes.

2.0 Tank Handling & Placement

DO NOT handle or install tank without having knowledge and experience in procedures involved with proper and safe installation of an aboveground tank used for storage of stable, flammable and combustible liquids.

Reliance on skilled, professional installers is an important factor in avoidance of tank damage and system failures.

Equipment for handling the tank shall be of adequate size to lift and set the tank.

This is a stationary tank. **DO NOT** use this tank for transport of any product.

DO NOT handle or move the tank unless it is empty.

DO NOT drop or drag the tank.

Tanks shall be carefully handled using cables or chains of adequate length and size attached to the tank lifting lugs provided.

3.0 On-Site Air Pressure Testing

Air pressure testing of aboveground horizontal and vertical tanks and rectangular tanks is very similar.

It very important to know the type of tank and correct air pressure used for testing.

For Horizontal, Aboveground Cylindrical, Type I, Double-Wall Tank. See Fig 1.

NOTE:
The regulated air supply test pressure used for this test is not to be less than 3 psig (21 kPa) nor more than 5 psig (35 kPa). Use only calibrated air pressure gauges with a zero to 10 psig dial span.

Set pressure relief valve in test air supply line at 4.5 psi.

For Vertical, Aboveground, Type I, Double-wall tank or rectangular tanks (NOT Fireguard®). See Fig 2.

NOTE:
The regulated test air supply pressure used for this test is not to be less than 1-1/2 psig (10 kPa) nor more than 2-1/2 psig (17 kPa). Use only calibrated diaphragm type air pressure gauge with a zero to 3 psig dial span.

Set pressure relief valve in test air supply line at 2 psi.

For vertical tank installations without cathodic corrosion protection for the tank bottom, a static electricity grounding system should be installed for the tank in accordance with applicable electrical and fire code standards. Tanks must be grounded to protect them from lightning damage.

For vertical tank installations with cathodic corrosion protection for the tank bottom, consult applicable standards (i.e., National Association of Corrosion Engineers) to provide that tank with appropriate protection from static electricity without disruption of corrosion protection.

Install test piping as shown for the type of tank being tested.

WARNING:
NEVER leave a pressurized tank unattended.

DO NOT apply air pressure to the interstitial space between the walls of a double-wall tank without air pressure in the primary tank.

DO NOT apply air pressure to the interstitial space that is higher than the air pressure in the primary tank. Damage to the tank may result.

DO NOT modify tank structure in any way. This includes but is not limited to welding, cutting, drilling etc.

Install test piping as shown for the type of tank being tested.

DO NOT apply any air pressure until test apparatus is completely connected.

Temporarily plug or cap remaining tank openings to hold pressure.

If tank is equipped with a long-bolt man-way for emergency venting, clamp lid as required with C-clamps; tighten securely and/or if equipped with standard emergency vents, remove emergency vents and plug or cap openings to hold tank pressure as required.Tanks equipped with loose-bolt mnanways or emergency vents will arrive with plastic straps securing them for transport. Remove straps before putting tank into service.

CAUTION:
Check to see that regulated test air supply line pressure is properly set before proceeding.

WARNING:
Stay away from tank heads, fittings and manways while pressure is being applied to tank.

Air Test Procedure

1. Close valves A and B. Open valve C.

   CAUTION: Check to see regulated test air supply line pressure is properly set before proceeding.

2. Connect regulated test air supply line to test piping as shown.

   WARNING: NEVER leave a pressurized tank unattended.

3. Slowly open valve A to pressurize the primary tank. Pressure gauge 1 should indicate test air pressure of:

   • 3 to 5 psig for horizontal tanks

   • 1.5 to 2.5 psig for vertical and rectangular tanks

4. Close valve A. Disconnect regulated test air supply line from test piping.

5. Hold test pressure in primary tank for 1-hour minimum. A steady drop in pressure reading for gauge 1 indicates there may be a leak in the primary tank.

6. If no leaks are found, then close valve C and slowly open valve B to pressurize the interstitial space between the double walls of the tank.

   Note: Pressure gauge 1 will indicate a slight drop in test pressure when valve B is opened, but should hold steady at the lower pressure.

Fig 1. Horizontal Double-wall Tank Air Pressure Test Set-up
Use calibrated diaphragm test gauge only with 0 to 10 psig on dial span.

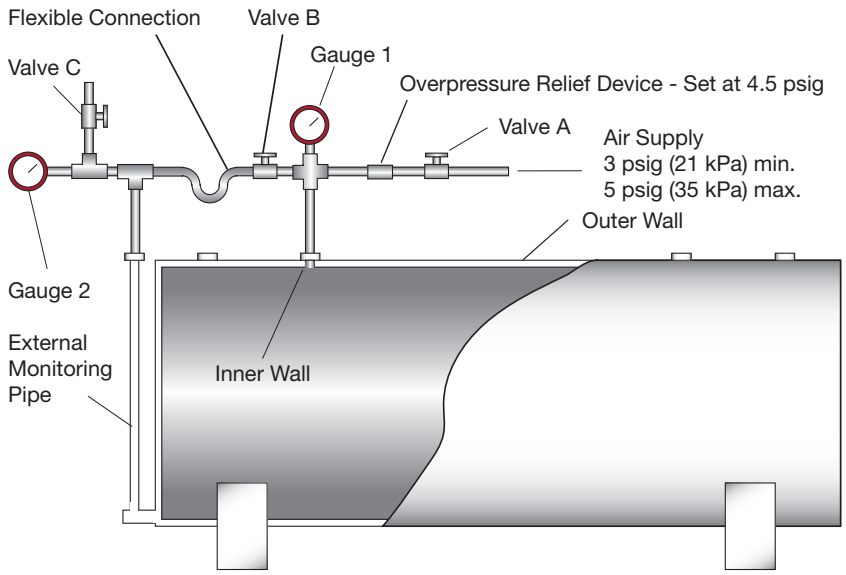
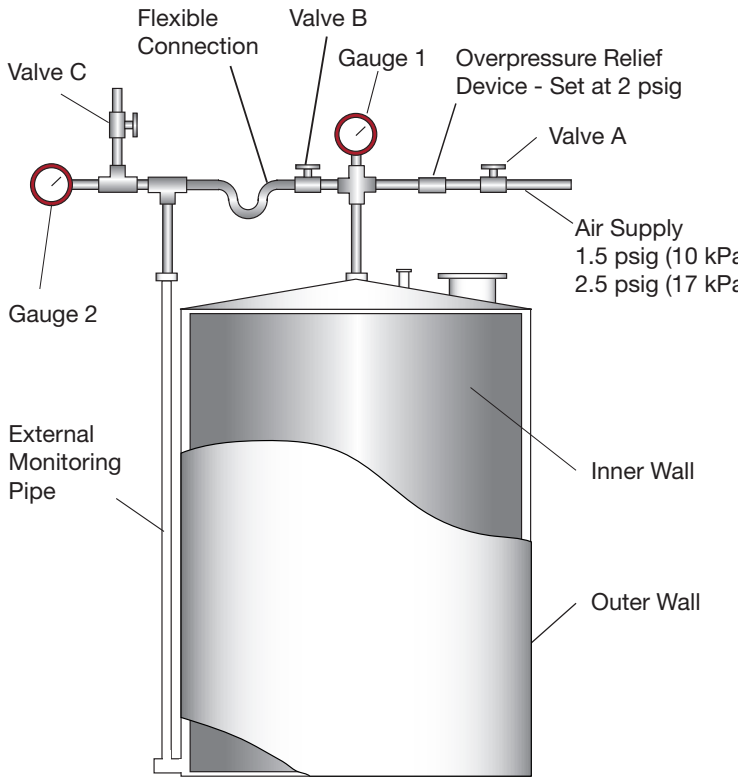


Fig 2. Vertical & Rectangular (non-Fireguard®) Double-wall Tank Air Pressure Test Set-up. Use calibrated diaphragm test gauge only with 0 to 3 psig on dial span.



7. If test pressure drops below minimum requirements, close valve B and reconnect air supply line. Slowly open valve A to increase pressure in primary tank to within range for tank type.

   When the required pressure is indicated on gauge 1, close valve A, disconnect test air supply line.
8. Open valve B to equalize pressure in the primary tank and the interstitial space. Gauge 1 and gauge 2 should have the same pressure reading.

9. Close valve B. Hold test pressure in interstitial space for 1-hour minimum. A steady drop in pressure gauge 2 indicates there may be a leak in the outer wall.

10. Apply approved leak test solution to tank exterior surfaces, welds, fittings, etc.

    Check for leaks.
    NO LEAKS ARE PERMITTED.

    If leaks are found, notify the tank manufacturer. If no leaks are found, testing of the tank is complete.

11. Open valve B, then slowly open valve A to release test air pressure from primary tank and interstitial space at the same time.

12. With tank pressure released, remove test piping, temporary plugs, caps and seals. Reinstall emergency relief vents, etc. If tank is equipped with an emergency vent long-bolt man way, remove C-clamps.

4.0 Tank Finishing After Air Test

Install all permanent piping and fittings using compatible non-hardening thread sealant material.

All unused tank openings must be properly sealed using metal threaded pipe plugs, flanges or caps using compatible non-hardening thread sealant material.

Labeling

Tanks were labeled in accordance with all applicable manufacturing codes. Check with authority having jurisdiction to determine if additional labeling is required.

Highland Tank

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One Highland Rd.
Stoystown, PA 15563
(814) 893-5701

Manheim, PA
4535 Elizabethtown Rd.
Manheim, PA 17545
(717) 664-0600

Watervliet, NY
958 19th St.
Watervliet, NY 12189
(518) 273-0801

Greensboro, NC
2700 Patterson St.
Greensboro, NC 27407
(336) 218-0801

Friedens, PA
1510 Stoystown Rd.
Friedens, PA 15541
(814) 443-6800

Clarkston, MI
4701 White Lake Rd.
Clarkston, MI 48346
(248) 625-8700

Mancelona, MI
9517 Lake St.
Mancelona, MI 49659
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