



aboveground water storage tank installation instructions



site preparation, handling, placement, & air testing

HT-5515

Read and understand this entire document before beginning testing process

These instructions apply to stationary, factory-assembled, aboveground single-wall vertical and horizontal steel tanks for storage 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, 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.

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.

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, Single-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, Single-Wall Tank or Rectangular tanks.

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 any air pressure until test apparatus is completely connected.

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

Temporarily plug or cap remaining tank openings to hold pressure.

If tank is equipped with a long-bolt manway 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 manways 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.

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

6. Apply approved leak test solution to tank exterior surfaces, welds, seams, fittings, etc. Check for leaks.

NO LEAKS ARE PERMITTED.

If leaks are found, notify Highland Tank. If no leaks are found, testing is complete. Proceed with testing instructions.

7. Slowly open valve A to release test air pressure from the tank.

8. 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 manway, remove C-clamps.

Fig 1. Horizontal Single-wall Tank Air Pressure Test Set-up

Use calibrated diaphragm test gauge only with 0 to 10 psig on dial span.

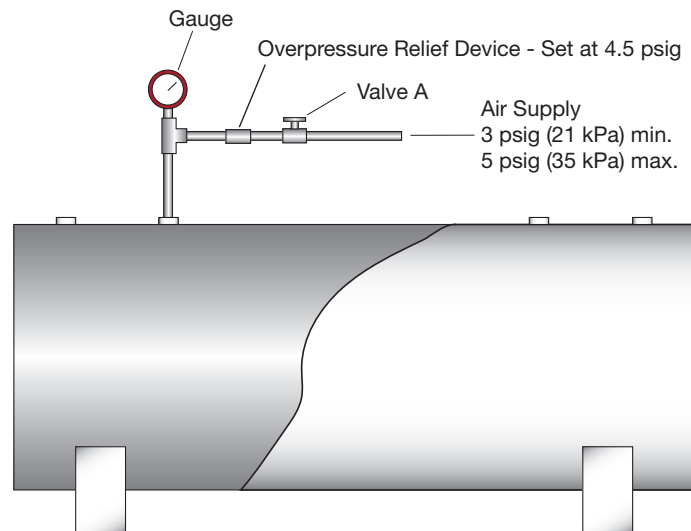
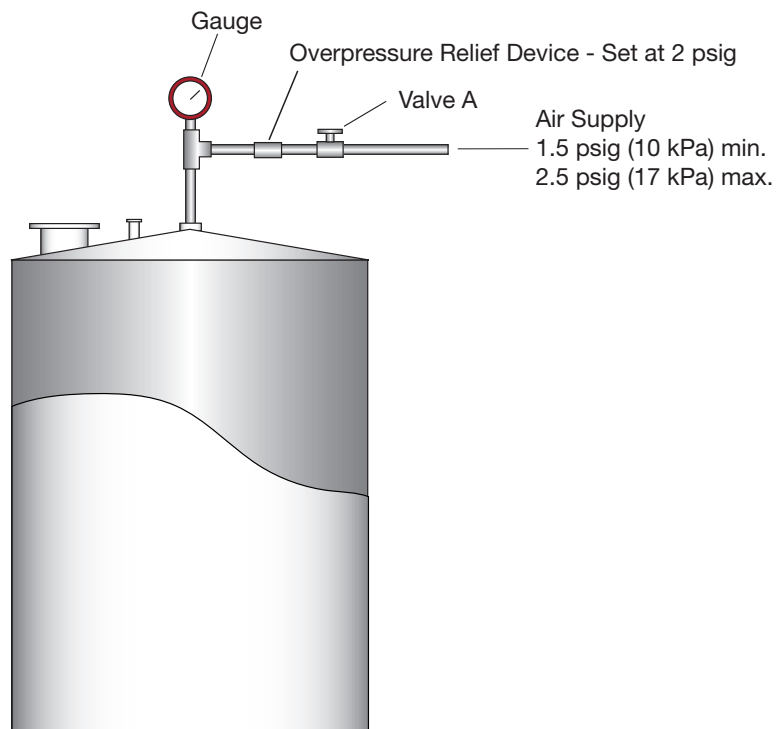


Fig 2. Vertical & Rectangular (non-Fireguard®) Single-wall Tank Air Pressure Test Set-up. Use calibrated diaphragm test gauge only with 0 to 3 psig on dial span.

Use calibrated diaphragm test gauge only with 0 to 3 psig on dial span.



4.0 Tank Finishing After Air Test

Install all permanent piping and fittings using compatible non-hardening thread sealant material. Remove all plastic threaded protectors from unused tank openings, and properly seal the unused openings 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.

5.0 Vent

Tanks shall have a vent installed prior to use. Typically the vent is a gooseneck style and is the same diameter or larger than the larger of the supply or withdrawal openings.

6.0 Outdoor Tanks

If the tank is to be used outdoors, a system to keep the water and vents from freezing should be designed by site engineers.

Typically this is accomplished with a combination of insulation, heat, and circulation. The size and types of components should be tailored to the local temperature.

Disclaimer

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These instructions ARE NOT meant to provide interpretation of regulatory or legislative requirements in the tank industry.



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