

sti-P₃® 10 Year + Additional 20 Year Limited Warranty
Limitations of Liability and Disclaimer

What is Covered by this Warranty

Provided that the conditions set forth below are satisfied, the steel tank manufacturer identified with the tank (hereinafter referred to as "Warrantor") warrants the sti-P₃® tank for 30 years (10 years + an additional 20 years) following delivery of the tank to the tank owner at the time of the original installation ("the Owner"), against any of the following events which may occur, provided the event occurs under operating conditions covered by this Warranty: (i) non-corrosion related structural failure; (ii) corrosion caused by reaction of the tank with its soil environment; and (iii) perforation of the tank caused by internal corrosion for those tanks equipped with wear plate(s) and used to store heating or motor fuels, including alcohols and other compatible contents, which is caused by these heating or motor fuels, alcohols and other compatible contents. In addition, the Warrantor warrants the tank against failure due to defective materials and workmanship for up to 1 year following the delivery of the tank to the Owner.

Conditions to Warranty Effectiveness

The limited warranties set forth herein are subject to the following conditions:

1. The sti-P₃® tank: (i) must be the original underground installation within the Continental United States of America, Alaska, Hawaii, and the Commonwealth of Puerto Rico or Canada; (ii) installed, operated and maintained in accordance with the applicable sti-P₃® specifications and the applicable sti-P₃® Installation Instructions that were in effect on the date of shipment by the Warrantor, any subsequent maintenance procedures of which the Owner has written notice, and any applicable governmental codes and regulations; and (iii) operated at a temperature no greater than 120° F and the maximum temperature limitations of the tank and its components as set forth in the specifications for the tank; and (iv) not used for the storage of #6 heated oil. Refer to the Installation Instructions on the back of this document for technical requirements concerning relocation of this tank by the original owner, in order to retain warranty eligibility. Tanks remaining in their original installation location will retain warranty eligibility if the facility where the tank is installed is sold to a new owner.
2. This Limited Warranty is not valid unless, and until, the Warranty Validation Card is fully completed by the Owner and returned to Steel Tank Institute (STI) within 30 days after the date of tank installation, or 90 days after the Warrantor's shipment of the tank, whichever comes first.
3. Upon discovery of a suspected tank failure or leak by the Owner, the Owner shall give the Warrantor written notice of the suspected tank failure or leak and permit the Warrantor or its designated representative to inspect the tank site prior to, during and after excavation of the tank. The tank owner bears the responsibility to identify that the cause of the failure is from one of the events within the conditions covered by the Warranty.
4. Upon the Warrantor's determination that the tank failure or leak is covered by this Limited Warranty, the Warrantor at its sole option shall: (1) repair the tank; or (2) replace it with a tank of approximately the same size, design, quality of material and workmanship specified for the original tank; or (3) refund the purchase price of the original tank. If the Warrantor is unable to repair or replace the tank, it shall refund the original purchase price of the tank.

What is Not Covered by this Warranty

Warrantor does not warrant any piping system or any other attachments connected with the tank. Under no circumstances, shall the Warrantor be liable for (1) the cost of repair or replacement of any piping system or other attachments to the tank; or (2) labor costs or other installation costs for tank repair or replacement; or (3) damage to the tank or other property resulting from the accumulation of water in the tank; or (4) damage caused by excessive operating temperatures or other improper operating or maintenance practices; (5) failures resulting from gage stick damage occurring under tank openings other than the designated opening with a wear plate installed; or (6) tank failure due to defective materials and workmanship later than one year following delivery of the tank to the Owner or (7) cost of repair or replacement of internal linings.

Limitation of Liability and Exclusion of Other Remedies and Damages

The foregoing remedy of repair, replacement or refund shall constitute the sole and exclusive remedy to the Owner. Under no circumstances, shall the liability of the Warrantor, or its affiliates or subsidiaries, under this warranty, exceed the purchase price of the tank.

IN NO EVENT SHALL THE WARRANTOR, OR ITS AFFILIATES OR SUBSIDIARIES, BE LIABLE FOR CLAIMS OF PERSONAL INJURY OR FOR SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR REVENUE, LOSS OF USE OF THE TANK OR ANY ASSOCIATED EQUIPMENT, COST OF CAPITAL, COST OF THE SUBSTITUTE EQUIPMENT, FACILITIES OR SERVICES, DOWNTIME COST, CLAIMS OF CUSTOMERS OF THE OWNER FOR SUCH DAMAGES, OR FOR DAMAGE TO PROPERTY, WHETHER SUCH CLAIM SHALL BE FOR BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE OR STRICT LIABILITY, AND WHETHER SUCH CLAIM ARISES OUT OF OR RESULTS FROM THIS LIMITED WARRANTY, OR EXPRESS OR IMPLIED WARRANTIES, OR FROM THE DESIGN, MANUFACTURE, SALE, DELIVERY, RESALE, INSTALLATION, TECHNICAL DIRECTION OF INSTALLATION, INSPECTION, REPAIR, OPERATION OR USE OF THE TANK.

Consumer Notice

The exclusion of indirect or consequential damages and the limitation of implied warranties herein may not be applicable to purchasers who are deemed "consumers" and who reside in states that do not allow the limitation of implied warranties or the exclusion of indirect or consequential damages otherwise applicable to consumers. Moreover, if you are deemed a "consumer", you may have specific legal rights in addition to those set forth in this warranty, which rights vary from state to state.

Disclaimer of Other Warranties

THE FOREGOING LIMITED WARRANTY IS THE ONLY WARRANTY MADE. THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Financial Assurance

Warrantor may have purchased insurance to cover some of its warranty obligations under this Limited Warranty. Such insurance would provide financial assurance for Warrantor's warranty obligations, but would not insure the Owner directly. If the Warrantor has purchased such insurance coverage, the Owner may request that the Warrantor provide a certificate of insurance to evidence Warrantor's purchase of such insurance.

Effective with tanks shipped on or after January 1, 2011.

INSTALLATION INSTRUCTIONS FOR STI-P3® UNDERGROUND STEEL STORAGE TANKS

1.0 EXCAVATION AND BEDDING

- 1.1 The bottom of the excavation shall be covered with a minimum of 12 inches (305 mm) of bedding, suitably graded and leveled. Bedding and backfill material surrounding the tank, to a width and depth of 12 inches (305 mm) all around the tank, shall be clean material.
- 1.2 Where anchoring by means of a concrete pad, the tank shall not be placed directly on the pad. Bedding material at least 6 inches (152.4 mm) deep must be spread evenly over the dimensions of the pad to separate the tank from the pad.
- 1.3 Bedding and backfill material shall consist of homogenous pea gravel, crushed stone, clean sand, natural earthen materials, or excavatable flowable fill. Crushed stone, clean sand and natural earthen materials shall be capable of passing 100% through a 1/2 inch (13 mm) sieve and no more than 12% by dry weight through a #200 sieve (0.0029 inch (0.0754 mm)). Pea gravel shall be no larger than 3/4-inch (19 mm). Flowable fill shall meet the National Ready Mixed Concrete Association for Controlled Low Strength materials (CLSM) with strength ranging from 70 – 150 psi and shall be installed in accordance with good engineering practice. The materials shall be free of all foreign materials, such as but not limited to, bricks, metals, concrete and plastics.
- 1.4 The backfill material may be from the tank site if it meets this description, or it may be delivered to the site from another source.
- 1.5 Sand or natural earthen materials used as backfill shall be placed into the excavation in 12-18 inch (305- 458 mm) vertical lifts, compacted after each lift, at least 60% up the vertical height of the tank.
- 1.6 If earthen material from the site, or other earthen material, is to be used as bedding or backfill material, a minimum of four 1 cu.ft. samples shall be taken from different locations which are representative of the backfill material and the site. Samples shall be sieved to determine if the material complies with this specification.
- 1.7 In a tidal area, the tank "bedding" material shall be crushed stone or pea gravel. Sand and natural earthen material may be used only if measures are taken to prevent washout of material during the design life of the system.

2.0 AIR TEST AT JOB SITE

- 2.1 Temporary plugs and thread protectors installed by the manufacturer shall be removed. Apply compatible, non-hardening pipe sealant to internal bushing threads. Permanent metal plugs shall be installed at all unused openings.
- 2.2 If the manufacturer has shipped a double wall tank with a vacuum on the interstitial space, read and record the vacuum pressure. If the vacuum gauge reading has dropped more than 2 inches Hg (6.77 kPa), from the level at which it was shipped, contact the tank manufacturer.
- 2.3 To conduct a soap solution/air pressure test, follow these steps:
 1. The nylon bushings in sti-P3® tanks shall not be removed from the unused openings. Plugs used to temporarily seal the tank for the above ground air test, but later removed for pipe installation, shall not be over tightened. Do not cross thread or damage the nylon bushings when replacing plugs or installing required tank piping.
 2. Test pressure shall be maintained at, without exceeding, 5 psig (34.5 kPa) while a soap solution is applied to the area of pipe connections and welds.
 3. Dual wall tanks shall require different air pressure testing procedures. Do not connect a high pressure air line directly to the interstitial monitoring port. A factory applied vacuum within the interstitial space can be used in lieu of, or in addition to, the air test procedure. Consult tank fabricator for air test recommendations. Do not apply a vacuum to the primary tank or a single wall tank. PEI/RP 100-00 also provides guidelines.
 4. Take necessary safety precautions during air tests. Do not leave tanks unattended. Avoid standing at the head of the tank, especially while applying air pressure. Use an air-pressure relief valve.
- 2.4 In lieu of the air pressure test described above, a vacuum may be applied to the interstice of a double-wall tank. DO NOT APPLY A VACUUM TO THE PRIMARY TANK OF A DOUBLE-WALL TANK OR TO A SINGLE-WALL TANK. A vacuum of 6 inches Hg (20.3 kPa) is to be applied to the interstice. The vacuum shall be held without a loss for one hour on tanks less than 20,000 gallons and for 2 hours for tanks greater than or equal to 20,000 gallons. If this vacuum cannot be held for the specified time interval, then perform the air test procedure described in section 2.3.

3.0 COATING INSPECTION

- 3.1 Before placing the tank in the excavation, all dirt clods and similar foreign matter shall be cleaned from the tank, and areas of coating damage shall be repaired with touch-up coating kit provided.
- 3.2 Clean damaged coating areas through removal of surface rust, dirt, contaminants and disbonded coating prior to application of touch-up coating (see SSPC SP-2 "Hand Tool Cleaning" or SP-3 "Power Tool Cleaning" for additional guidance).

4.0 TANK HANDLING & PREPARATION

- 4.1 Controlled off-loading of the tank shall be allowed.
- 4.2 Equipment to lift the tank shall be of adequate size to lift and lower the tank without dragging or dropping to ensure there is no damage to the tank or the coating.
- 4.3 Tanks shall be carefully lifted and lowered by use of cables or chains of adequate length attached to the lifting lugs provided. A spreader bar shall be used where necessary. Under no circumstances shall chains or slings be used around the tank shell.
- 4.4 Follow label instructions including those at tank openings.
- 4.5 This tank requires venting. Refer to applicable local codes and PEI RP-100 for proper installation.

5.0 ANODE INTEGRITY

- 5.1 sti-P3® tanks may be equipped with either zinc or magnesium anodes. Whereas magnesium anodes are designed only for installation in soil resistivities of 2000 ohms-cm or greater, zinc anodes are effective in all soil resistivities.
- 5.2 After a sti-P3® tank has been placed in the excavation, if anode is connected by a lead wire, attachment to the tank shall be checked to assure this connection has not been damaged. Where damaged, the connection must be re-established in strict accordance with this specification.
- 5.3 To assure immediate operation of cathodic protection system, each anode shall be thoroughly saturated with water at time of backfill operations.

6.0 ANCHORING

- 6.1 High water tables or partially flooded excavation sites exert significant buoyant forces on tanks. Buoyant forces are partially resisted by the weight of the tank, the backfill and the pavement atop the tank. Additional buoyant restraint, when required, shall be obtained by using properly designed hold-down straps in conjunction with concrete hold-down slabs or deadman anchors. The use of steel cable and/or round bar as hold-down straps on the tank is prohibited.
- 6.2 If a metallic hold-down strap is used, a pad of inert insulating di-electric material must be used to insulate the hold-down strap from the tank. The separating pad shall be wider than the hold-down straps, which will prevent direct contact between the straps and the tank shell. This pad is not required if the hold-down strap is fabricated from non-conductive material.
- 6.3 Ballasting the tank may be necessary. When water is used as the ballast material, it shall only be potable water and shall not remain in the tank longer than 60 days. During construction, adequately vent all tank spaces. If product is used as ballast, proper precautions must be taken to prevent fires, spills, leaks, and other associated accidents. Monitor product level frequently to ensure there has been no unaccounted loss of product. Do not over tighten hold-down straps beyond snug and do not re-tighten hold-down straps after ballasting.

7.0 BACKFILLING

- 7.1 Homogeneous backfill similar to bedding material shall be placed carefully around the entire tank to create a uniform homogeneous environment. Avoid damage to coating especially where tamping is required.
- 7.2 Installing and tamping backfill along the bottom sides of the tank shall ensure that the tank is fully and evenly supported around the bottom quadrant.
- 7.3 Prior to backfilling to top of tank, all openings shall be visually inspected to assure that the sti-P3[®] nylon bushings remain in place. Where flanged openings have been used, isolation of the flange gaskets shall be confirmed with a continuity tester. No current shall pass through the factory installed flange gaskets. Isolation of the fittings is required to assure tank integrity. If the tank is to be installed in the presence of an impressed current system, the effect of the system must be considered on the sti-P3[®] tank. The corrosion consultant must consider including the sti-P3[®] tank into the design of the impressed current system.

8.0 FINAL AIR TEST

- 8.1 Install required tank piping using compatible non-hardening sealant, taking care not to cross thread or damage the non-metallic bushings. Torque of 400 to 1,000 ft-lbs (542.3 to 1355.8 N-m) may be required to fully insert pipe.
- 8.2 Where air or hydrostatic testing is required after installation the pressure shall not be in excess of 5 psig (34.5 kPa) as measured at the top of the tank. A soap solution shall be applied around pipe connectors while air test is being performed.

9.0 TANK MONITORING SYSTEM INSTALLATION

- 9.1 Each tank shall have a cathodic protection monitoring station (PP4[®], PP2[®], PP1[®], or other) installed in such a way so that there will be at least a tank structure lead easily accessible and identifiable at the finish grade and provide easy placement of a reference electrode during monitoring.
- 9.2 If your tank is equipped with a Protection Prover 4 (PP4), remove the unit from the shipping carton and inspect for damage. (See the separate manufacturers' installation instructions for specific details.)
- 9.3 Prior to installation of the PP4[®], remove the plastic bag from the reference cell element. After the tanks have been placed in the excavation, position the reference cell element midway from front to back between two tanks so that it is covered by 6 inches (152mm) of moist bedding material.
- 9.4 Drape the flexible pipe up to the top of the tank and temporarily secure the pipe to prevent damage during backfill operations. Backfill the excavation until the tanks are almost covered.
- 9.5 Locate the PP4[®] test head in its approximate final position and support with a wooden stake or other similar device. Connect the appropriate tank test wire from the reference cell element to the black test lead already installed on the tank using the hardware supplied or by performing a field splice.
- 9.6 Assure that the wire connection is strong by simultaneously placing tension on the wire at either side of the connection point. Protect the wire connection from corrosion using the material supplied with the PP4[®] or by wrapping the connection in half lapped layers of rubber and PVC electrical tape.
- 9.7 The test head shall be placed in a small grade manhole to protect it from vehicular traffic or set directly in the concrete covering for the excavation. During pouring of the at-grade slab protect the metal contact points on the test head from being covered by concrete.
- 9.8 If your tank is equipped with a Protection Prover 2[®] (PP2[®]), prior to completion of the backfill, the monitoring terminal located near the top of the tank must be positioned as follows:
 - 9.8.1 Select a terminal location on a pipe near grade that will be accessible through a grade manhole upon completion of installation.
 - 9.8.2 Loosen the black nylon pipe lashing by releasing the locking tab. Uncoil enough lead wire from the tank mounting lug to reach the terminal location with an additional 4 feet (1.2 m) of slack.
 - 9.8.3 Secure the PP2[®] terminal to the pipe by tightening the black nylon pipe lashing. The lead wire terminations shall remain sealed.
 - 9.8.4 Route wire to avoid strain or breakage during backfill. Do not cover PP2[®] terminal with backfill material.
- 9.9 If the tank is equipped with a Protection Prover 1 (PP1[®]) monitoring system, which includes a monitoring test station mounted at the end of the tank, prior to any backfilling, extend the monitoring system to 4 inches (102 mm) below grade level without pulling it out of the mounting bracket. The PP1[®] test station shall be protected by a grade manhole of 7½ inches (191 mm) minimum diameter.

10.0 TANK EQUIPMENT

- 10.1 Contact between the steel tank and all other structures such as external and internal piping, pumps, valves, gauge and monitoring equipment, and grounding systems, will nullify the cathodic protection design. Prior to backfill, a simple continuity test between the tank lead wire and each connected system will verify the electrical isolation. Continuity shall not be present. After backfill, continuity can be checked with a high impedance voltmeter by fixing a copper/copper sulfate reference cell in the soil and contacting all structures with the other voltmeter lead wire. Do not move the reference cell. Potential differences between the tank to soil and all other structures to soil must exceed 10 millivolts to verify electrical isolation.

11.0 FINAL BACKFILL

11.1 Homogeneous backfill shall be deposited carefully around the tank and to a depth of at least one foot (305mm) over the tank. (See NFPA 30 and state or local codes for minimum depth of cover required).

12.0 POST-INSTALLATION CATHODIC PROTECTION MONITORING

12.1 All tanks must be monitored to assure proper installation and ensuing cathodic protection of the tank. Before pouring concrete or asphalt pad atop tank, a tank to soil potential reading with a high impedance voltmeter and copper/copper sulfate reference electrode must be taken. Reference electrode shall be placed in moist soil directly above the tank. A minimum reading of -850 millivolts should be obtained to indicate that the tank anodes are activated. Record reading on installer information card and other permanent files.

12.2 If the tank is connected to a PP4® test station the cathodic protection can be easily verified using a high impedance digital volt-meter. Touch the meter probes to the appropriate test head terminals as shown in the diagram above. As stated in 12.1, a minimum reading of -850 millivolts should be obtained.

13.0 OPERATING LIMITATIONS

Operation of the tank above 120°F (49°C) requires the use of specific components and materials. The tank manufacturer must be notified, prior to tank use, of the owner's intent to operate this tank above 120°F (49°C) so that proper components and materials can be incorporated.

13.1 When the product stored is heated, the temperature inside the tank shall be constantly monitored to assure the maximum allowable temperature is not exceeded.

14.0 MAINTENANCE

14.1 The primary tank shall be inspected monthly for the presence of water. Inspection shall take place at the lowest possible points inside the primary tank. Remove any water found. Water and sediment in fuel can cause plugging of filters. Also, bacterial growth, originating from the fuel, can cause filters to plug and corrosion of tanks and lines. For procedures on how to check for the presence of water and removal of water, refer to STI R111, Storage Tank Maintenance. For copies of the RP and more information, please go to www.steeltank.com.

14.2 sti-P3® tanks shall be tested for cathodic protection at installation in 3 year intervals for the life of the installation and after any activity that might affect the CP system. sti-P3® tanks which might otherwise be classified as ACT-100® composite tanks, due to factory attachment of anodes, do not require testing every third year. In addition, double-wall sti-P3® systems that use interstitial monitoring that is capable of detecting a breach of either tank wall, do not require testing every third year. (See EPA UST Technical Compendium for complete details www.epa.gov/swrust1/compend/nus18lh.pdf). Follow applicable local, state, and federal regulations for any additional requirements. Reference NACE RP-0285 for more specifics on protection criteria.

14.3 Tank must be installed within one year of delivery from tank manufacturer. If tank is not installed within this time period, contact tank manufacturer to recertify the tank.

14.4 Safety considerations and controls should be established prior to undertaking physical activities associated with USTs. Some hazards associated with USTs are, but not limited to, confined space entry, cleaning, inspection, moving and any other aspect of in-service work.

14.4.1 Contact tank manufacturer before moving tank for information on recertifying tank for continued use.

These instructions are intended only as an aid to tank installers who are knowledgeable and experienced in underground tank installation. Compliance herewith does not necessarily meet the requirements of applicable federal, state and local laws, regulations and ordinances concerning tank installation. STI makes no warranties, express or implied, including but not limited to, any implied warranties of merchantability or fitness for a particular purpose, as a result of these installation instructions.

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