[20000FGREC](https://www.highlandtank.com/app/data/drawings-specs/20000FGREC.PDF)

**20,000-Gallon Capacity Aboveground Horizontal Rectangular Fireguard®**

**UL-2085 Thermally Insulated, Double-Wall Steel Storage Tank**

Quantity: \_\_\_\_

Nominal Capacity: 20,000-gallons, as indicated on drawing.

Nominal Tank Dimensions: Width Height Length

Primary Tank: 10-feet, 10-inches 5-feet, 5-inches 45-feet, 7-inches

Secondary Tank: 11-feet, 4-inches 6-feet, 0-inches 46-feet, 2-inches

Minimum Steel Thickness:

Primary Tank: 1/4-inch Secondary Tank: 1/4-inch

Tank shall be manufactured, tested and labeled in conformance with Underwriters Laboratories’

UL-2085 Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids, Double-wall Construction. Tank shall be manufactured and labeled in strict accordance with Steel Tank Institute (STI) Fireguard® Thermally Insulated, Double Wall Steel Aboveground Storage Tank standards as applied by a licensee of the STI. Tank shall be subject to the STI’s Quality Assurance program and shall be backed by

the STI 30-year limited warranty.

The tank shall be a rectangular, horizontal, steel tank intended for the storage of flammable and combustible liquids at atmospheric pressure. Tank shall include integral steel secondary containment and thermal insulation that provides a minimum two-hour fire rating. The tank design shall comply with UL 2085 "Protected" Tank standard having been tested for Ballistics, Impact, Hose Stream, and Pool Fire performance standards. Tank shall be designed for possible relocation at a future date. Concrete encased tank designs are not equal and will NOT be permitted.

Inner (primary) and outer (secondary) tanks shall be fabricated from mild carbon steel with flat-flanged heads, and lap-welds at all seams and joints. Primary and secondary tanks are air tested at the factory. (Primary tank may need to be retested for tightness at the jobsite prior to commissioning. Consult AHJ for requirements.) Tank shall be supplied with emergency vents for the primary and the secondary containment tanks. Emergency venting by "form of construction" is not equal and will NOT be permitted.

Tank shall comply with the latest edition of National Fire Protection Association NFPA 30 Flammable and Combustible Liquids Code. The tank system shall also meet or exceed the requirements of:

• National Fire Protection Association NFPA 30A Automobile And Marine Service Station Code

• 1997 Uniform Fire Code (UFC) "Protected" AST criteria as per Appendix II-F,

including ballistics protection

• California Air Resources Board (CARB) testing requirements for air emissions

• International Fire Code (IFC)

**Construction**

Tank shall be of double-wall construction and provide complete secondary containment of the primary storage tank’s contents by an impervious steel outer wall. Inner and outer tanks shall be manufactured in accordance with UL-142 Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids as referenced in UL-2085. Tank shall be fabricated of mild carbon steel with shell seams of continuous lap weld construction.

A minimum of 3" of porous, lightweight monolithic thermal insulation material shall be installed at the factory within the interstitial space between the inner and outer wall. Thermal insulating material:

• Shall be in accordance with American Society of Testing Materials (ASTM) Standards C-332 and C-495.

• Shall allow liquid to migrate through it to the monitoring point.

• Shall not be exposed to weathering and shall be protected by the steel secondary

containment outer wall (an exterior concrete wall or vault exposed to the elements will NOT be permitted).

Each tank shall be delivered as a complete UL-listed assembly including the following fittings

and components: (All fittings NPT or flanged, shall be supplied with plastic protectors for shipment)

Standard tanks shall include, at a minimum, fittings for normal vent, interstitial monitoring, emergency vent

for primary tank, emergency vent for secondary tank, product fill, product pump/supply and liquid level

gauge. See standard drawings at www.highlandtank.com for quantity, size and location of fittings on

standard tanks. All fittings must be located above the maximum fluid level per UL-2085 / STI Fireguard

requirements. Normal vent sizes are equal to, or larger than largest fitting to be used for fill or

withdraw from the tank. Emergency vent size is based on the wetted surface area of the tank.

• W4 x 13# Beam welded to tank - Design, quantity and location determined per STI specifications

• Lifting lugs shall be provided at balancing points to facilitate handling and installation.

Exterior Protective Coating:

• Surface Preparation: Grit blast - SSPC-SP-6 White Blast

• Finish: White urethane paint system 5-7 DFT on the shell and heads

Tank shall be supplied with a High-LINK® LevelShield Series P, Level Management System that includes:

1. One (1) Magnetostrictive probe for continuous monitoring of product and water levels, and

product temperature (provides temperature-compensated volume monitoring).

Probe Specs:

* Probe length: 59″ - Additional probe length required \_\_\_\_\_\_\_″ (Available in 10″ increments)
* Communication cable 78″ (included) - Additional cable length required \_\_\_\_\_\_\_″

• RS-485 Communication

• 2 floats – (1) for product level, (1) for water level

• Thermocouple for product temperature measurement

• Measuring accuracy up to +/- 0.02″

• Resolution +/- .004″

• 316 Stainless Steel Shaft

• Polypropylene float material

• Explosion-proof head

• ¾" compression fitting

• ¾" x 2” NPT reducer bushing supplied (minimum 2″ opening required)

• Compatible with gasoline and diesel (Contact Highland Tank for other chemical/product compatibility)

2. CommBox transmits data from connected sensors/probes to cloud-based High-LINK® software platform.

• CommBox specs: Note: Maximum of two (2) probes per CommBox.

• NEMA 4 Enclosure

• 120VAC with terminals for electrical landing

• 5A 120VAC breaker

• Active barrier

• 12VDC power converter

• Terminal blocks for probe wire landing

• 4G cellular technology

• Two (2) Integrated LED/Horn combinations with dry contacts for audible/visual alarms.

3. High-LINK® Cloud-Based Software Platform

**Optional Equipment**

\_\_\_\_ Bulkhead(s) for Split Tank – Single or Double (Double bulkhead required if storing dissimilar products)

Tank splits: \_\_\_\_\_-gallons and \_\_\_\_\_-gallons (Contact Highland Tank for 3 or more compartments)

\_\_\_\_ Manway(s) Qty: \_\_\_\_\_, \_\_\_\_\_-inch diameter with gasket, bolts, nuts, washers and lid

\_\_\_\_ 7 or \_\_\_\_ 10-gallon Spill/Overfill Container

\_\_\_\_ Pump mount(s): \_\_\_\_ Top Mount, \_\_\_\_ Side Mount, or \_\_\_\_ for Free Standing Pumps and

Dispensers on Standard or Split Tanks

\_\_\_\_ Remote fill cabinet (\_\_\_\_ Post-mounted or \_\_\_\_ Tank-mounted: \_\_\_\_ head or \_\_\_\_ shell)

External Access component(s) please specify:

\_\_\_\_ Ladder(s), \_\_\_\_ Stairs, \_\_\_\_ Platform(s), \_\_\_\_ Walkway(s) with Handrails

\_\_\_\_ Internal Ladder(s) per drawing

\_\_\_\_ HTLP 1.5” Interstitial Float Switch Sensor for leak detection (Requires HTSC 2″ Pipe Cap)

\_\_\_\_ HTF-1 Float Switch Interface Stem Sensor for overfill detection

\_\_\_\_ Electronic Alarm Panel. Channel quantity: \_\_\_\_\_

\_\_\_\_ High-LINK **Fuel**Shield®, Fuel Management System

\_\_\_\_ Additional High-LINK Magnetostrictive probe for **Level**Shield Inventory System (2 Maximum)

\_\_\_\_ Equipment Packages available:

\_\_\_\_ Gasoline Dispensing \_\_\_\_ Diesel Dispensing

\_\_\_\_ Emergency Generator \_\_\_\_ Waste Oil Handling

- Consult Factory for Aviation Fuel (Avgas, Jet-A, or Jet A-1) Dispensing

Additional threaded fittings with thread protectors shall be supplied as follows. Add as needed.

1. \_\_\_\_-inch diameter, intended for \_\_\_\_\_\_\_\_\_\_\_\_\_\_ use, location indicated on drawing(s)
2. \_\_\_\_-inch diameter, intended for \_\_\_\_\_\_\_\_\_\_\_\_\_\_ use, location indicated on drawing(s)

Flanged fittings Class 150#, (RF-Raised-Face, FF-Flat-Face, SO-Slip-On, WN-Weld-Neck) with flange protectors shall be supplied as follows. . Add as needed.

1. \_\_\_\_-inch diameter, Type: \_\_\_\_\_, intended for \_\_\_\_\_\_\_\_\_\_\_\_\_\_ use, location indicated on drawing(s)
2. \_\_\_\_-inch diameter, Type: \_\_\_\_\_, intended for \_\_\_\_\_\_\_\_\_\_\_\_\_\_ use, location indicated on drawing(s)

Optional Exterior Coatings:

\_\_\_\_ Exterior polyurethane paint color: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_ Other exterior coating \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, Color: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Execution**

Tank to be set level on a solid foundation of reinforced concrete constructed by owner of installer.

Installation and testing shall be in strict accordance with STI’s Fireguard® Installation Instructions and performed by a licensed installer.

**Warranty**

The tank is warranted by Highland Tank & Mfg. Co. to be free from defects in manufacturing, workmanship and materials. Highland Tank will repair or replace, at its sole discretion F.O.B. factory, within a period of 30 years after date of shipment, any item of our manufacture. All other items shall be warranted by their respective manufacturers. Liability hereunder is limited, as stated above, and does not include labor, installation costs, indirect or consequential damages of any kind. Tanks must be returned to the factory and if found to be defective upon examination, will be repaired, replaced or credit will be issued at our option.

Tank to be manufactured by Highland Tank at one of the following locations: Stoystown, PA; Manheim, PA; Watervliet, NY; Greensboro, NC; Friedens, PA; Clarkston, MI or Mancelona, MI.