



State of Illinois
Office of the State Fire Marshal

Checklist for Documenting UST Compatibility

KEEP THIS FORM AT THE FACILITY WITH SUPPORTING DOCUMENTATION.

DO NOT MAIL OR FAX TO OSFM.

Facility where equipment is located:

Facility Number: NEW FACILITY

Facility Owner: LOVE'S TRAVEL STOPS

Facility Name: LOVE'S TRAVEL STOP # 754

Street Address: 400 STEWARD RD

City: ROCHELLE

County: OGLE

UST Information:

Tank ID Number: 6

Tank Material: Steel FRP

Single Wall or Double Wall ✓

Tank Volume: 20,000

Tank Product: B-99

Complete the checklist below, listing compatibility determination, method used and description. **All answers must be "YES" and supported with a sufficient description or supporting documentation** in order for your UST system to demonstrate compatibility with the blended fuel/biofuel product.

UST SYSTEM COMPONENTS	DOCUMENTATION DEMONSTRATING COMPATIBILITY WITH SUBSTANCE LISTED ABOVE		METHOD A or B (MAY USE BOTH)	DESCRIPTION OF COMPONENT TYPE, MODEL NUMBER, & NATIONAL LABORATORY CERTIFICATION, LISTING OR MANUFACTURER APPROVAL (ATTACH TO CHECKLIST)
TANK	NO	<u>YES</u>	<u>AB</u>	<u>UL 1314</u> <u>XERXES D.W TANK</u>
PIPING	NO	<u>YES</u>	<u>AB</u>	<u>AMERON-200</u> <u>DUALLOY 3060 LCCX DOUBLE</u> <u>WALL PIPE UL 971</u>
CONTAINMENT SUMPS	NO	<u>YES</u>	<u>AB</u>	<u>SBRAVO INC</u> <u>MODEL B-835 STD SUMP</u> <u>B-487 L SUMP AT FILL</u> <u>B-1006 DISP. SUMPS</u>
PUMPING EQUIPMENT	NO	<u>YES</u>	<u>AB</u>	<u>FRANKLIN FUELING</u> <u>4HP VARIABLE SPEED PUMP</u> <u>MODEL: ISTAPIKMVS4-UL2-24</u>

UST SYSTEM COMPONENTS	DOCUMENTATION DEMONSTRATING COMPATIBILITY WITH SUBSTANCE LISTED ABOVE		METHOD A or B (MAY USE BOTH)	DESCRIPTION OF COMPONENT TYPE, MODEL NUMBER, & NATIONAL LABORATORY CERTIFICATION, LISTING OR MANUFACTURER APPROVAL (ATTACH TO CHECKLIST)
RELEASE DETECTION EQUIPMENT	NO	YES	B	FRANKLIN FUELING: TSP-VLS - SUMP SENSOR TSP-ELLA - LINE LEAK DETECTION FMA-RIS - INTERSTITIAL SENSOR
SPILL PREVENTION EQUIPMENT	NO	YES	B	FRANKLIN FUELING 705-545011 DEFENDER SPILL CONTAINER
OVERFILL PREVENTION EQUIPMENT	NO	YES	B	FRANKLIN FUELING E-708-592-922 DEFENDER OVERFILL DROP TUBE VALVE
GASKETS & SEALS	NO	YES	B	GASOLILA E-SEAL
JOINT ADHESIVES	NO	YES	B	AMEREU-NDV PSX-20

Methods:

- Certification or listing of UST system equipment or components by a nationally recognized, independent testing laboratory for use with the regulated substance stored.
- Equipment or manufacturer approval. The manufacturer's approval must be in writing, indicate an affirmative statement of compatibility, specify the range of biofuel blends the component is compatible with, and be from the equipment or component manufacturer

Note: Owners and operators may find American Petroleum Institute's Recommended Practice 1626, *Storing and Handling Ethanol and Gasoline-Ethanol Blends at Distribution Terminals and Filling Stations*, useful in complying with the compatibility requirements.

In order to be in compliance with the 2015 federal UST regulation compatibility requirements for storing biofuels, you must keep documentation of compatibility of the UST system components listed on this page as long as you store the fuel.

For your records, you should update this checklist each time you repair or replace components of your UST system to ensure you have all the required compatibility documentation while storing biofuels.

Checklist Completed By: print name: CURIS EPIKIDS

date completed: 7/25/18

signature: 

position/title: OPERASSIT

LIMITED WARRANTY

Underground Petroleum Storage Tanks

Xerxes Corporation ("Xerxes") warrants to owner ("Owner") that our underground petroleum storage tanks, if installed, used, and maintained in the United States or Canada in accordance with Xerxes' published specifications, installation instructions and operating guidelines, applicable supplemental materials, all applicable laws and regulations, and limited to storage of the products listed below at ambient temperatures or fuel oils, used in oil burning equipment, at temperatures not to exceed 150°F (65°C):

- 1) Will not fail for a period of thirty (30) years from date of original delivery by Xerxes due to natural external corrosion.
- 2) Will not fail for a period of thirty (30) years from date of original delivery by Xerxes due to internal corrosion, provided the tank is used solely, with or without tank water bottoms, to store the following products:
 - a. gasoline, jet fuel, aviation fuels, motor oils, motor vehicle waste oils, kerosene, diesel fuel, or fuel oils
 - gasoline with up to 20%, by volume, of methyl tertiary butyl ether (MTBE), ethyl tertiary butyl ether (ETBE), di-isopropyl ether (DIPE), tertiary butyl alcohol (TBA), tertiary amyl methyl ether (TAME), or tertiary amyl ethyl ether (TAE)
 - b. gasoline and ethanol blended motor fuels (per applicable ASTM fuel standards)
 - E10 (90% gasoline and 10% ethanol)
 - E15 (85% gasoline and 15% ethanol)
 - E85 (85% ethanol and 15% gasoline)
 - other ethanol blends up to and including 100% ethanol
 - c. gasoline and methanol blended motor fuels (per applicable ASTM fuel standards)
 - M85 (85% methanol and 15% gasoline)
 - other methanol blends up to and including 100% methanol
 - Oxinol-50 waiver (90.5% gasoline and 9.5% Oxinol-50 comprised of a 4.75% methanol and 4.75% gasoline-grade tertiary butyl alcohol (GTBA) mixture)
 - Dupont EPA waiver (gasoline with 5% methanol and a minimum of 2.5% cosolvent – the blend may contain a maximum concentration of up to 3.7%, by weight, oxygen in the final fuel)
 - d. biodiesel fuel blends up to 100% biodiesel (per applicable ASTM fuel standards)
- 3) Will not fail for a period of thirty (30) years from date of original delivery by Xerxes due to structural failure (defined as spontaneous breaking or collapse caused by material defects in materials or workmanship).
- 4) Will meet Xerxes' published specifications and will be free of material defects in materials and workmanship for a period of one (1) year following the date of original delivery by Xerxes.

Xerxes warrants to Owner that all Xerxes-manufactured tank accessories, if installed, used and maintained in Canada or the United States in accordance with Xerxes' published specifications, installation instructions and operating guidelines, applicable supplemental materials, and all applicable laws and regulations, will be free of material defects in materials and workmanship for a period of one (1) year following the date of original delivery by Xerxes.

If any tank or accessory is to be removed from an installation, moved and reinstalled at Owner's new location and is intended for active service at the new location, the tank and accessories must be recertified by Xerxes to continue the balance of the limited warranty as originally extended.

The foregoing limited warranty does not extend to tanks or accessories ("individually and collectively Goods") damaged due to acts of God, war, terrorism, or failure of Goods caused, in whole or in part, by misuse, unlawful use, improper installation, storage, servicing or maintenance, or operation in excess of their rated capacity or contrary to their recommended use, whether intentional or otherwise, or any other cause or damage of any kind not the fault of Xerxes. Xerxes only warrants repairs or alterations performed by Xerxes or its authorized contractors performing work authorized in advance, in writing, by Xerxes. Xerxes does not warrant any product, components or parts manufactured by others. All consumable components including but not limited to o-rings and gaskets are excluded from this limited warranty.

Owner's sole and exclusive remedy for breach of warranty is limited at Xerxes' option to: (a) repair of the defective tank or accessory, (b) delivery of a replacement tank or accessory to the point of original delivery, or (c) refund of the original purchase price. No warranty claim will be considered without removing the tank and any accessory from the ground if Xerxes deems it necessary to evaluate a warranty claim. In the event of a breach of warranty claim, a claimant must give Xerxes the opportunity to observe and inspect the installation prior to the removal of any backfill below the tank top, and the removal of the tank and any accessory from the ground, or the claim will be forever barred. All claims must be made in writing within one (1) year after tank or accessory failure or be forever barred. ALL RIGHTS, OBLIGATIONS AND CLAIMS UNDER THIS LIMITED WARRANTY SHALL BE EXCLUSIVELY MADE AND DETERMINED IN THE COURTS OF, AND GOVERNED BY THE LAWS OF, THE STATE OF MINNESOTA, U.S.A., EXCLUDING ITS CONFLICT OF LAW PRINCIPLES.

THE FOREGOING WARRANTY CONSTITUTES XERXES' EXCLUSIVE OBLIGATION AND XERXES MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, WITH RESPECT TO THE GOODS, OR ANY SERVICE, ADVICE, OR CONSULTATION, IF ANY, FURNISHED TO OWNER BY XERXES OR ITS REPRESENTATIVES, WHETHER AS TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE. THE SELLER (XERXES) UNDERTAKES NO RESPONSIBILITY FOR THE QUALITY OF THE GOODS, EXCEPT AS OTHERWISE PROVIDED IN THIS CONTRACT. THE SELLER (XERXES) ASSUMES NO RESPONSIBILITY THAT THE GOODS WILL BE FIT FOR ANY PARTICULAR PURPOSE FOR WHICH YOU (OWNER) MAY BE BUYING THESE GOODS, EXCEPT AS OTHERWISE PROVIDED IN THE CONTRACT. THE REMEDIES SET FORTH IN THE ABOVE WARRANTY ARE THE ONLY REMEDIES AVAILABLE TO ANY PERSON OR ENTITY FOR BREACH OF WARRANTY OR FOR BREACH OF ANY OTHER COVENANT, DUTY, OR OBLIGATION ON THE PART OF XERXES. XERXES SHALL HAVE NO LIABILITY OR OBLIGATION TO ANY PERSON OR ENTITY FOR BREACH OF ANY OTHER COVENANT, DUTY, OR OBLIGATION UNDER THIS WARRANTY EXCEPT AS EXPRESSLY SET FORTH HEREIN. IT IS EXPRESSLY AGREED THAT THIS WARRANTY DOES NOT FAIL OF ITS ESSENTIAL PURPOSE. XERXES SHALL HAVE NO LIABILITY FOR COSTS OF INSTALLATION OR REMOVAL OF GOODS, ENVIRONMENTAL CONTAMINATION, FIRES, EXPLOSIONS, OR ANY OTHER CONSEQUENCES ALLEGEDLY ATTRIBUTABLE TO A BREACH OF WARRANTY, OR INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR OTHER DAMAGES OF ANY DESCRIPTION, WHETHER ANY SUCH CLAIM OR DAMAGES BE BASED UPON WARRANTY, CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER TORT, OR OTHERWISE. IN NO EVENT SHALL XERXES' TOTAL LIABILITY HEREUNDER EXCEED THE ORIGINAL PURCHASE PRICE OF THE GOODS WHICH GAVE RISE TO SUCH LIABILITY.

Consumer Notice: This warranty gives you (Owner) specific legal rights. You (Owner) may also have other rights which vary from state to state.

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Xerxes® is a trademark of Xerxes Corporation

ASTM® and ASTM INTERNATIONAL® are trademarks of the American Society for Testing and Materials.

XERXES®
a zcl company

Effective: June 1, 2015
United States



FIBERGLASS-COMPOSITE PIPE GROUP

Group Headquarters
9720 Cypresswood Drive, Suite 325
Houston, Texas 77070
Telephone: 832.912.8282
Fax: 832.912.9393

August 30, 2011

Subject: Bio-Fuel Compatibility

To Whom It May Concern:

Ameron Dualoy " 3000/L and 3000/LC'X fiberglass piping systems (pipe, fittings and adhesive) are compatible with all concentrations of ethanol and ethanol blended fuels, from 0% to 100% ethanol content in gasoline.

The Dualoy product lines are also compatible with all concentrations of methanol blended fuels and all concentrations of bio-diesel.

Ameron Dualoy products are the only fully Listed systems for all applications, fuels and product types by Underwriters Laboratories Standard 971-2004.

Dualoy products were the first Listed by UL for full alcohol compatibility in 1988. Prior to that date, UL did not offer a Listing for alcohol blended fuels, although legacy Dualoy products prior to the Listing were compatible with ethanol and all concentrations of ethanol blended fuels.

For questions or other information needs, please contact Joie L. Folkers - Vice President Sales & Marketing at the above address or phone number or at jfolkers@ameron.com.

Respectfully submitted,

Joie L. Folkers
Vice President Sales & Marketing
Ameron International
Fiberglass-Composite Pipe Division-USA

JLF/vo





S. Bravo Systems, Inc.

2929 Vail Avenue
Commerce, CA 90040
1-800-AT-BRAVO
www.sbravo.com

Wednesday - August 25 - 2010

R3 10.21.13

RE: Bravo Fiberglass Sumps and Alternative fuels

This letter is to certify the compatibility of Bravo (S. Bravo Systems, Inc.) Single and Double Wall Fiberglass Containment Sumps with Alternative Fuels such as Biodiesel and Ethanol blended fuels. It also addresses compatibility with DEF Diesel Exhaust Fluid.

Bravo Fiberglass products are engineered with the same UL Listed materials used in the manufacture and certification of Fiberglass Tanks, matching the UL Standard 1316. Since our Fiberglass containment sumps are Built like a Tank, they can withstand continuous fuel exposure to Biodiesel, Ethanol and Alcohol blends without failure.

All DoubleWall Containment Sumps are engineered to be fully compliant with the California State Water Resource Control Board Assembly Bill AB-2481 for DoubleWall Sumps and Continuous Monitoring Systems.

The following Single and Double Wall Containment Sumps manufactured by Bravo Systems in Commerce, California are compatible with Biodiesel and Ethanol fuel blends up to B100 and E100, respectively.

- | | |
|---|--------------------------|
| > B3XX Series Spill Buckets | > B1XXX Series UDC Sumps |
| > B4XX Series Tank Sumps & Covers | > B7XXX Series UDC Sumps |
| > B5XX Series Planter Transition Sumps | > B8XXX Series UDC Sumps |
| > B6XX Series Walkover Transition Sumps | > B9XXX Series UDC Sumps |
| > B7XX Series H-20 Rated Transition Sumps | |
| > B8XX Series Transition Sumps | |

Bravo Systems also certifies that these products are compatible with and approved for use in secondarily containing DEF Diesel Exhaust Fluid.

Each respective Series may be UL Listed in addition to being manufactured of UL recognized materials approved for use in the manufacture of Fiberglass UST tanks. Any other relevant documentation will be located in the documents area of each product's respective webpage.

Please feel free to contact us with any questions you may have at 800-AT-BRAVO.

Additionally, you may find further information at www.sbravo.com.

Sincerely,

Jonathan E. Smith
Director of Brand Management
S. Bravo Systems, Inc.

made
in USA





RCRX.MH6262 Pumps, Power Operated, Flammable Liquid

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Pumps, Power Operated, Flammable Liquid

[See General Information for Pumps, Power Operated, Flammable Liquid](#)

FRANKLIN FUELING SYSTEMS INC
3760 MARSH RD
MADISON, WI 53718-6900 USA

MH6262

Submersible type transfer pump-motor assembly, Model STP with or without T, with or without AG or AP, with or without F, with or without H, with or without R, with or without V, with or without W, with or without K, followed by 33, 75, 150, 200, VS2 or VS4, may be followed by A, B, C or J, followed by -XXX, where X is any numeric character or VL1, VL1.5, VL2 or VL3, followed by two characters. All models have been evaluated for use with gasoline-ethanol blends with concentrations from E0 to E10 (up to E85 for models with suffix AG or AP). Models with AG or AP suffix have also been evaluated for diesel/biodiesel blends with nominal biodiesel concentrations up to 20 percent biodiesel (B20) and biodiesel (B100). Models with suffix VS2 are only for use with Model IST-VFC or MAG-VFC motor controllers. Models with suffix VS4 are only for use with MAG-VFC motor controller.

Model STP with or without AG, F, R, S or T, with or without AG, followed by 3, followed by D, followed by -XXX-XX where X may be any numeric character.

Model STP with or without AG, F, R, S or T, with or without AG, followed by 5, followed by C, D, G, or H, followed by -XXX-XX where X may be any numeric character.

All models have been evaluated for use with gasoline-ethanol blends with concentrations from E0 to E10, 20 percent ETBE or MTBE with 80 percent gasoline, and 17 percent TAME with 83 percent gasoline.

Submersible type transfer pump-motor assembly, Models IST or IST VS4 with or without T, with or without AP, with or without F, with or without R, with or without V, with or without W, with or without K, with or without M, followed by 1, 2, 3, VL1, VL1.5, VL2 or VL3, followed by two characters, Model IST only for use with Model IST-VFC or MagVFC motor controller, Model IST VS4 only for use with Model MagVFC motor controller. IST Models have been evaluated for use with gasoline-alcohol blends with alcohol concentrations from E0 to E85. Also evaluated for diesel/biodiesel blends with nominal biodiesel concentrations up to 20 percent biodiesel (B20), and biodiesel (B100).

Submersible type transfer pump-motor assembly, Models 9000-01, 9000-02. Maximum outlet pressure 50 psi. Models have been evaluated for use with Gasoline/ethanol blends at levels designated as "gasohol" (E10 maximum).

Transfer pump-motor assembly, Model VP500. Maximum outlet pressure 50 psi. Models have been evaluated for use with Gasoline/ethanol blends at levels designated as "gasohol" (E10 maximum).

Model 2000C. Maximum outlet pressure 50 psi. Models have been evaluated for use with Gasoline/ethanol blends at levels designated as "gasohol" (E10 maximum).

Models VP500/C1, VP500/C2. Maximum outlet pressure 50 psi. Models have been evaluated for use with Gasoline/ethanol blends at levels designated as "gasohol" (E10 maximum).

Trademark and/or Tradename: "F. E. Petro", "HEALY"

[Last Updated](#) on 2014-05-15

[Questions?](#)

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FE PETRO®

WE SET THE STANDARD

Since hitting the market in 1988, FE Petro® brand submersible pumping systems have developed a reputation for setting the standard for quality, availability, service and innovation. Building on these key factors, we continue to set the bar even higher with technology and innovations available only from Franklin Fueling Systems.

VARIABLE SPEED PUMPING

HIGHER FLOW RATES, EFFICIENT OPERATION

Choosing variable speed submersible pumps (STPs) will help you meet your flow rate needs with faster fill times during peak hours and power savings during non-peak hours. FE Petro® brand variable speed STPs allow you to maximize profits and minimize operating expenses while protecting your site from accelerated wear.

- The MagVFC™ variable speed controller ramps the STP up and down as needed to provide optimal flow rates at fueling points. The result is faster flow rates, higher throughput, and a more consistent customer experience than fixed speed systems at virtually the same total cost of ownership.
- A variable speed system utilizes only the necessary pressure and power needed to meet demand. This drastically reduces the sudden pressure spikes, known as "Hydraulic Hammer", which result from a stoppage in flow in a pressurized piping system. Hydraulic hammer can result in accelerated system fatigue and intensified wear.

INTELLIGENT PUMPING

Run your business as efficient as possible by networking your FE Petro® submersible pumping system with an EVO® Series fuel management system. Add intelligence to your pumping system for additional performance capabilities.

Add Turbine Pump Interface (TPI) to your system and get:

- Remote access to STPs
- Response automation
- STP history reporting
- Pump in water prevention
- Clogged STP intake escalation
- Overflow protection/automation
- Primary/secondary pump management
- Adjusted pump priority (leveling on the fly)

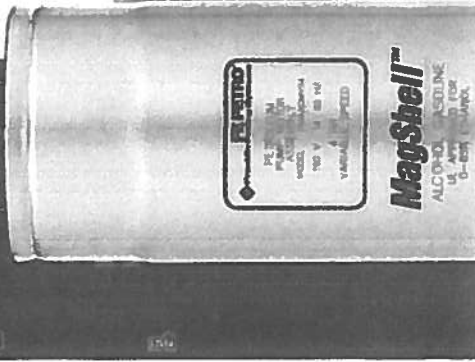
MAGSHELL
PMA

FILLING CARS FASTER

It's always been about filling cars faster. The patented Magshell® pump motor assembly (PMA) is designed to do just that. By expanding the pump motor shell, the Magshell® increases the area for product flow by 45%.

- The additional flow capability is equivalent to having one more nozzle operating during peak hours.
- Faster throughput during peak hours equates to greater fuel sales potential.
- Customers know which stations provide faster refueling.

SMART
CONTROLLER



ALTERNATIVE FUELS

FUEL COMPATIBILITY

As the demand for biofuels continues to grow, FE Petro® brand Alcohol-Gas (AG) optional submersible turbine pumps are at the forefront of motor fuel compatibility. Service station customers demand it, make sure you can provide it.

- FE Petro® brand STPAG and IST models of STPs are currently the only STPs UL listed for use with gasoline up to 85% ethanol (E85) and diesel fuel with up to 20% biodiesel (B20) or 100% biodiesel according to UL79A and UL79B respectively.

- As biofuel use continues to grow, so does the potential for increased debris inside the storage tank. To stop this debris from entering the pumping system, use an FE Petro® brand Intake Filter Screen (IFS). When installed, an IFS adds only about 1" to the length of the PMA and provides filtration down to about the size of a grain of sand (0.005" openings).



INTAKE FILTER SCREEN

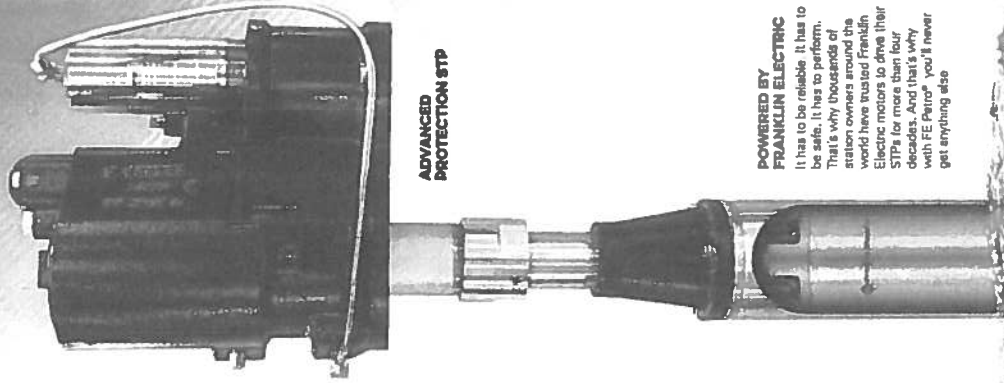
ADVANCED PROTECTION

ACCELERATED CORROSION PREVENTION

Available as an option on Alcohol-Gasoline (AG) compatible STPs, Advanced Protection defends pumps from accelerated corrosion caused by the acidic byproduct of microbial activity. Building on the AG construction for biofuel compatibility, the Advanced Protection option includes additional upgraded materials for a greater level of protection. Choose this added level of protection for installations where additional corrosion protection is needed including Ultra Low Sulfur Diesel applications, aboveground storage tanks, marinas, and aviation applications.

- Advanced Protection is a factory installed option on STPAG and IST biofuel compatible models.
- Specifically formulated powder-coated and E-coated finishes protect exterior cast surfaces from accelerated corrosion. Stainless steel fasteners, riser, variable length column pipe and coupler protect against corrosion and provide long service life.

ADVANCED
PROTECTION STP



**POWERED BY
FRANKLIN ELECTRIC**
It has to be reliable. It has to be safe. It has to perform. That's why thousands of station owners around the world have trusted Franklin Electric motors to drive their STPs for more than four decades. And that's why with FE Petro® you'll never get anything else.



Issue Date: December 20, 2013

Franklin Fueling Systems

**S940 Alarm Console with TSP-HFS Horizontal Float Switch Sensor, TSP-HLS High
TSP-UHS Universal Hydrostatic Sensor, and TSP-ULS Universal Liquid Level**

INTERSTITIAL DETECTOR (LIQUID-PHASE)**Detector:**

Output Type: qualitative
Sampling Frequency: continuous
Operating principle: float/reed switch

Test Results:

	<u>unleaded gasoline</u>	<u>diesel*</u>	<u>water</u>	<u>biodiesel*</u>	<u>E85</u>
TSP-HFS					
Detection time (min)	<1	<1	<1	<1	<1
Fall time (min)	<1	<1	<1	<1	<1
Threshold Level (in)	0.5146	0.4908	0.4480	0.4690	0.5046
TSP-HLS					
Detection time (min)	<1	<1	<1	<1	<1
Fall time (min)	<1	<1	<1	<1	<1
Threshold Level (in)	2.0328	1.9408	1.7658	1.8985	2.0030
TSP-UHS					
Detection time (min)	<1	<1	<1	<1	<1
Fall time (min)	<1	<1	<1	<1	<1
Threshold Level (in)	0.9628	0.8966	0.7952	0.8839	0.9125
TSP-ULS					
Detection time (min)	<1	<1	<1	<1	<1
Fall time (min)	<1	<1	<1	<1	<1
Threshold Level (in)	1.1243	1.0726	0.9529	1.0620	1.0994

*Evaluations determined these sensors' responses to the liquids shown above. Biodiesel blends B6-B20 meeting ASTM D7467 and **biodiesel B100 meeting ASTM D6751** would also produce an alarm if the sensor threshold is exceeded. Responses to these fuels were determined, but would be expected to be very similar to the diesel responses.

Comments:

Sensor TSP-UHS is the same as the TSP-ULS sensor except that the float has been inverted so that it may be used to monitor the bottom reservoir of containment sumps. An alarm condition will occur when the fluid level drops below the end of the sensor. Sensors are reusable.

Franklin Fueling Systems
3760 Marsh Road
Madison, WI 53718
Tel: (800) 225-9787
E-mail: info@franklinfueling.com

Evaluator: Ken Wilcox Associates
Tel: (816) 443-2494
Dates of Evaluations: 08/23/2013

Issue Date: September 1, 2006
Revision Date: June 22, 2012

Franklin Fueling Systems

TS-LS500, TS-LS500E Series (for Rigid, Flexible or Hybrid Combination of Rigid and Flexible Pipelines)

AUTOMATIC ELECTRONIC LINE LEAK DETECTOR

Certification	Leak rate of 3.0 gph at 10 psi* with PD = 100% and PFA = 0%. Leak rate of 0.2 gph at operating pressure with PD = 100% and PFA = 0%. Leak rate of 0.1 gph at 1.5 times operating pressure* with PD = 100% and PFA = 0%. *Since leak rate varies as a function of pressure, this leak rate and pressure were certified using an equivalent leak rate and pressure, in accordance with an acceptable protocol.
Leak Threshold	1.5 gph for leak rate of 3.0 gph. 0.1 gph for leak rate of 0.2 gph. 0.05 gph for leak rate of 0.1 gph. A pipeline system should not be declared tight if the test result indicates a loss that equals or exceeds this threshold.
Applicability	Gasoline, diesel, aviation fuels, fuel oil #4, waste oil, kerosene, biodiesel B6-B20 meeting ASTM D7467, <u>biodiesel B100 meeting ASTM D6751.</u>
Specification	On pressurized rigid, flexible, or combination rigid and flexible pipelines, system can perform 3.0 gph, 0.2 gph, and 0.1 gph tests. Tests are conducted at operating pressure.
Pipeline Capacity	Maximum of 312.2 gallons for steel and fiberglass pipelines (examples: 480 feet of 4 inch line; 671 feet of 3 3/8 inch line). Maximum of 95.4 gallons for flexible pipelines (examples: 260 feet of 3 inch line; 1040 feet of 1 1/2 inch line). Maximum of 415.8 gallons for hybrid combination of rigid and flexible pipelines (the capacity of the flexible component cannot exceed 95.4 gallons).
Waiting Time	None between delivery and testing. None between dispensing and testing for leak rate of 3.0 gph. Depending on temperature stability, 1 1/2 to 10 hours between dispensing and testing for leak rates of 0.2 gph and 0.1 gph.
Test Period	Response time is 1 to 2 minutes for leak rate of 3.0 gph. Minimum of 25 minutes for leak rate of 0.2 gph. Minimum of 34 minutes for leak rate of 0.1 gph. Test data are acquired and recorded by a microprocessor.
System Features	Permanent installation on pipeline. Automatic testing of pipeline every 45 minutes for leak rate of 3.0 gph. Automatic testing of pipeline when pump has been idle for 2 hours for leak rate of 0.2 gph. Automatic testing of pipeline when pump has been idle for 3 1/2 hours for leak rate of 0.1 gph. Pump shutdown, indicator light and alarm activation if leak is declared for 3.0 gph and 0.2 gph tests. The TS-LS500E series is an explosion proof version of the original TS-LS500 series.
Calibration	System must be checked annually and, if necessary, calibrated in accordance with manufacturer's instructions.

Franklin Fueling Systems
3760 Marsh Road
Madison, WI 53718

Evaluator: Ken Wilcox Associates
Tel: (816) 443-2494
Dates of Evaluations: 06/23/95, 09/10/98, 02/28/06, 8/28/06, 01/10/08

Part #**Product Description****B100 Liquid Compatibility****Phil-Tite EVR VR-101 Vapor Recovery Package**

705-545-011-CI-GKT	Single Wall Fill Defender Spill Bucket / drain - NPT	Components are designed for biofuel use however no 3rd party certification is currently available
705-545-012-CI-GKT	Single Wall Vapor Defender Spill Bucket w/o drain - NPT	Components are designed for biofuel use however no 3rd party certification is currently available
SWF-100-SS	4" SS Fill Swivel Adapter	Components are designed for biofuel use however no 3rd party certification is currently available
SWV-101-SS	4" SS Vapor Swivel Adapter	Components are designed for biofuel use however no 3rd party certification is currently available
777-201-02	4" Fill Cap	Components are designed for biofuel use however no 3rd party certification is currently available
304-301-01	Vapor Cap	Components are designed for biofuel use however no 3rd party certification is currently available
782-204-15-2	4" x 15' Straight Drop Tubes	Non-AGB (tubing) model - No 3rd party certification is currently available
708-592-902	Defender Overfill Valve (10' bottom and 10' Top)	Components are designed for biofuel use however no 3rd party certification is currently available

FE Petro Pumps

STP-5-SYP	5 HP 6"H/C SUBMERSIBLE PUMP with Syphon and Riser	No 3rd party certification is currently available for high capacity STP models
STP-SCIII	3HP/5HP-3PH SMART CONTROLLER (when purchased with STP)	Not applicable
STPM200-VL2-I	2HP Fixed Speed V12 with I-Check Valve with Riser	Non-AGB model - No 3rd party certification is currently available for non-AGB models
STP-SCI	STP Single Phase Smart Controller (when purchased with STP)	Not applicable
403478901	1 1/2hp 208/230v 3 phase DEF STP. 60 Hz, three phase, VL1 69" - 102" (1,750 mm - 2,590 mm) variable length diesel exhaust fluid submersible turbine pump kits. Kit Includes: Check Valve Kit (1.5" NPT non-return check valve and 1.5" NPT x 4" long nipple on inlet). Bypass Kit (includes 1/2" NPT bypass relief valve, 1/2" NPT x 1 1/2" NPT TEE). Pump motor assembly connection kit (includes 2" NPT male inlet x 1.5" NPT male outlet EZ FIT connection). 60Hz, three phase pump motor assembly.	No 3rd party certification is currently available
401220903	STP-CB3 three-phase control box with adjustable overload, 120 Volt relay, 3 hp, 208-230 Volt, 60 Hz pump control	Not applicable

Other Items

TSP-UJLS	Universal Liquid Sensor	No 3rd party certification is currently available
Part number not specified	INCON Probes	No 3rd party certification is currently available
Part number not specified	FIREFLEX Flexible Connectors	No 3rd party certification is currently available

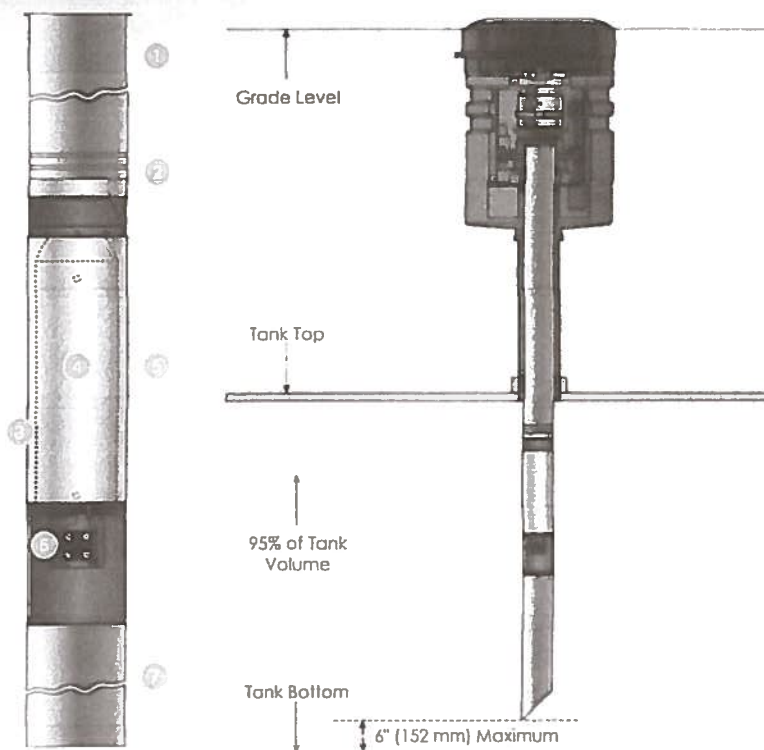
Specifications continued

Components

- ① Pre-flanged aluminum top drop tube
- ② Roll-cripped top fitting/drop tube
- ③ Protective float sleeve
- ④ Float (shielded by float sleeve)
- ⑤ Valve Assembly
- ⑥ Magnetically-coupled actuator
- ⑦ Threaded bottom drop tube

Operation

As the liquid level in the UST approaches 95% capacity, the liquid level raises the float. As the float rises it actuates the external/internal magnetic couplers which release the flapper to be closed by the flow of product. As the float continues to rise, the internal mechanism pushes the flapper further into the product flow to allow actuation at high or low flow rates. This sudden reduction in flow caused by the primary flapper closing creates "line shock" to the fill hose which signals the delivery driver that the tank is nearing 95% capacity. As the float continues to rise to the 95% fill level, the secondary closes, completely stopping the flow of fuel.



Ordering Information

Model	Description
708591901	Defender Series™ overfill prevention valve with 5' (1524mm) top drop tube, 8' (2438mm) bottom drop tube
708591902	Defender Series™ overfill prevention valve with 5' (1524mm) top drop tube, 10' (3048mm) bottom drop tube
708591921	Defender Series™ overfill prevention valve with 5' (1524mm) top drop tube, 8' (2438mm) bottom drop tube, AGB compatible*
708591922	Defender Series™ overfill prevention valve with 5' (1524mm) top drop tube, 10' (3048mm) bottom drop tube, AGB compatible*
708592901	Defender Series™ overfill prevention valve with 10' (3048mm) top drop tube, 8' (2438mm) bottom drop tube
708592902	Defender Series™ overfill prevention valve with 10' (3048mm) top drop tube, 10' (3048mm) bottom drop tube
708592921	Defender Series™ overfill prevention valve with 10' (3048mm) top drop tube, 8' (2438mm) bottom drop tube, AGB compatible*
708592922	Defender Series™ overfill prevention valve with 10' (3048mm) top drop tube, 10' (3048mm) bottom drop tube, AGB compatible*
708593901	Defender Series™ overfill prevention valve, coaxial with 6.5' (1981mm) top drop tube, 8' (2438mm) bottom drop tube
708593902	Defender Series™ overfill prevention valve, coaxial with 6.5' (1981mm) top drop tube, 10' (3048mm) bottom drop tube
708593923	Defender Series™ overfill prevention valve, poppeted coaxial with 6.5' (1981mm) top drop tube, 8' (2438mm) bottom drop tube*
708593924	Defender Series™ overfill prevention valve, poppeted coaxial with 6.5' (1981mm) top drop tube, 10' (3048mm) bottom drop tube*
708594901	Defender Series™ overfill prevention valve only with top adapter, AGB compatible*
708594902	Defender Series™ overfill prevention valve only with coaxial top adapter, AGB compatible*
708535901	Roll crimping tool
708530930	Replacement roll crimper tool roller bit for retrofit with existing tool
708534901	Remote testing tool, 11' (3353mm) long sectional/collapsible

*Alcohol, gas, biofuel compatible (E-85, gasoline and biodiesel) models come with hard coated anodized drop tubes for full compatibility.



A Franklin Fueling Systems Brand

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Top Adapter

DEFENDER SERIES™ OVERFILL PREVENTION VALVE

The Defender Series™ overfill prevention valve (OPV) is a self contained two-stage positive shut-off valve that prevents the overfill of an underground storage tank (UST) during a gravity-fed product delivery. The Defender Series™ OPV employs a revolutionary magnetically-coupled actuator system to provide positive shutoff. This unique method of shutoff eliminates any penetrations in the valve, making it both vapor and leak tight. The Defender Series™ OPV provides safe, rapid, and reliable fuel drops for the broadest range of fuel applications and environmental conditions. Simple to install, service and test remotely, the Defender Series™ OPV is the industry's most versatile overfill prevention valve.

Service Station Hardware

Highlights

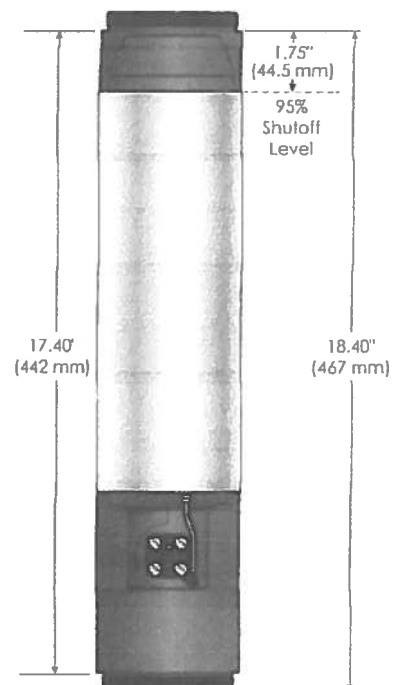
- Magnetic coupler actuates the interior primary flapper assembly and secondary shut-off valve when the float rises outside of the valve, eliminating valve body penetrations and any potential product or vapor leak points.
- After cutting to length in the field, the upper drop tube is roll-crimped onto a top adapter outfitted with two O-rings and then threaded onto the top of the valve body, eliminating the need for drilling, rivets, epoxy, and flaring tools.
- Bottom drop tube is cut in the field and threaded onto the bottom of the valve ensuring straight installation.
- The roll-crimp/thread method of installing drop tubes ensures proper alignment of the drop tubes with the rest of the OPV assembly, making installation and removal of the entire assembly smooth.
- Damaged drop tubes can be easily replaced instead of having to purchase an entire new assembly.
- Fully compatible with gas, gas/alcohol blends, diesel and biodiesel.
- Compatible with industry standard 4" drop tubes allowing retrofit into existing installations.
- The entire OPV assembly remains within the 4" inner diameter of the riser preventing interference with other tank components and also allowing removal even while the tank is full.
- Actuates in both low and high flow applications and functions within a broad range of flow rates from 25 gpm to 370 gpm (95 lpm to 1,400 lpm).
- The remote testing tool allows for remote testing of the primary functionality without having to remove the OPV from the riser.

Specifications

Approvals/Certifications

- ULc listed.
- ATEX approved.

Dimensions



TECHNICAL DATA

2013

Description

A dark green, opaque, viscous, non-hardening, textured paste with PTFE.

Type

Slow-drying, soft-setting, non-toxic, brushable, without grit. Cures by solvent evaporation providing a durable, long-lasting seal that can be easily disassembled.

Typical Uses

Especially designed for ethanol blended gasoline including E10, E20 & E85.

Substrates

Can be used on brass, copper, stainless steel, aluminum, black pipe, tin, galvanized pipe, ABS plastic, CPVC, nylon, PVC, polyethylene, polypropylene and more.

Chemical Resistance

Excellent resistance to ethanol blended gasoline, kerosene, petroleum solvents, diesel fuel, propane, butane, LPG, water, cutting oils. NOT oxygen.

Set Time

None. For immediate service
Dries to the touch 48-72 hour

Packaging

Available in 1/4 pint, 1/2 pint and pint cans with brush-top lids.

For Chemical Emergency, Spill, Leak,
Fire, Exposure or Accident Call:

CHEMTREC - Day or Night. 1-800-424-9300

KEEP OUT OF THE REACH OF CHILDREN

Product Data Sheet

Safety

Contains no lead, is non-toxic, not a skin sensitizer, and is non-corrosive.

Shelf Life: One year in original containers, when stored at room temperature at or below 80°F (27°C)

Wt./Gal.: 11.35 lbs

Color: Medium/Green

Clean Up: Hand cleaner or alcohol.

Temperature Range

-100°F to 600°F (-73°C to 316°C)
Allow to dry thoroughly before exposing to high temperatures. Remains usable in sub-zero weather.

Pressure Range

Up to 10,000 psi when sealing liquids and up to 3,000 psi with gases. Allow to dry, if possible, before subjecting to pressure.

The information presented is in good faith, but no warranty is given, nor are results guaranteed. Federal Process has no control over physical conditions surrounding application conditions. Federal Process disclaims any liability for untoward results.



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