



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: 4009542
Facility Owner: HPT TA Properties Trust
Facility Name: TravelCenters Of America TA 35
Street Address: 1702 West Evergreen
City: Effingham
County: Effingham

UST Information:

Tank ID Number: # 8 (NEW)
Tank Material: Steel _____
FRP X
Single Wall _____ or Double Wall X
Tank Volume: 20,000
Tank Product: B100 Biodiesel

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>	B	Containment Solution double wall fiberglass tank 20,000 gal, dry interstitial, and two Containment Solutions SW FRP 42" dia tank sumps
PIPING	NO	<u>YES</u>	B	Ameron Dauloy 3000L and LCX Double Wall fiberglass pipe, L3000 Ameron, 2" in 3" and 3" LCX, DW FRP piping systems.
CONTAINMENT SUMPS	NO	<u>YES</u>	B	Bravo, SW FRP sumps, model B9000 (under blending cabinet) and Containment Solutions SW FRP 42" tank Sumps (on B99/B100 UST)
PUMPING EQUIPMENT	NO	<u>YES</u>	B	FE Petro submersible pump, part #STPM200-VL2 With FE Petro MILD, model STP-MLD-BD-403171901

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	Veeder Root tank sump sensor, part #794380-351 Veeder Root interstitial sensor, part #794380-343, Veeder Root probe (TLM), part #846390-110
SPILL PREVENTION EQUIPMENT	NO	YES	B	OPW overspill 5 Gal. DW Spill Bucket 1-3100 series, part # 1C-3112D
OVERFILL PREVENTION EQUIPMENT	NO	YES	B	OPW overfill drop tube, part #71SOM-412C
GASKETS & SEALS	NO	YES		GASOILA E-SEAL Thread sealant for all B99/B100 steel piping joints
JOINT ADHESIVES	NO	YES	B	NOV FRP / Ameron glue, kits Model 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

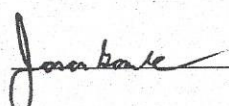
Note: Owners and operators may find American Petroleum Institute's Recommended Practice 1626, *Storing and Handling Ethanol and Gasoline-Ethanol Blends at Distribution Terminals and Filling Stations*, useful in complying with the compatibility requirements.

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: Jason Gomke

date completed: MAY 4/21

signature: 

position/title: OWNER

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.



FEDERAL PROCESS
CORPORATION



CLEVELAND, OHIO | 216.464.6440 • 800.846.7325

www.gasoila.com

MSDS Sheets Available Online

#DS-ES



MLD+ MECHANICAL LEAK DETECTORS

FE Petro™ brand MLD+ mechanical leak detectors provide precise leak detection for standard fuel and biofuel applications on 4" submersible turbine pumps (STPs). This lineup of advanced mechanical leak detectors features reliable line leak detection capabilities and maximum product flow rates. The MLD+ features a compact, yet rugged design to reduce installation height and provide accurate, hassle-free operation.

Highlights

- Two models to meet the needs of your standard fuel applications include the MLD+G (blue cover, copper vent tubing) for gasoline with up to 10% Ethanol and the MLD+D (gold cover, copper vent tubing) for diesel with up to 5% biodiesel.
- Two models to meet the needs of your biofuel applications include the MLD+AG (blue cover, stainless vent tubing) for gasoline with up to 85% Ethanol and the MLD+BD (gold cover, stainless vent tubing) for diesel with up to 20% biodiesel or 100% biodiesel.
- Piston style construction with reduced volume allows the MLD+ to react quickly and provide more accurate leak detection capabilities.
- A specialized metering pin unique to only the MLD+ provides precision leak detection for any type of pipework system including flexible, rigid or a combination of the two.
- Burnished piston chamber provides smooth operation and long service life.
- Color coded covers easily identify the model to the application (gold for diesel and blue for gas).
- Opens completely to allow maximum product flow during fueling operation and remains open with discharge pressure as low as 1 PSI (0.07 bar).
- Compatible with FE Petro™ brand STPs, as well as competitive STPs and line leak detector housings.

Specifications

- All models are capable of detecting line leaks equivalent to 3 gph at 10 psi (11.4 lph @ 0.70 bar) when installed properly with the appropriate fuels - all models will signal detection of leaks by restricting product delivery to less than 3 gpm (11.4 lpm) and taking more than 4 seconds to open
- All models will remain in the open position during product delivery to manifold, with discharge pressures as low as 1 psi (0.07 bar) - all models will reset to "tripped" when line pressure delay is below 3 psi (0.21 bar) with pump off
- Detects leaks up to 10 feet (3 meters) above the point of installation
- Max. liquid viscosity of 70 SSU at 60 °F (15 °C)
- Gasoline models (blue cover, MLD+G and MLD+AG) are also listed for fuel mixtures containing 20% MTBE, 20% ETBE or 17% TAME with gasoline as well as diesel fuels, fuel oils, kerosene, Avgas and jet fuels.
- Diesel models (gold cover, MLD+D and MLD+BD) are also listed for kerosene applications

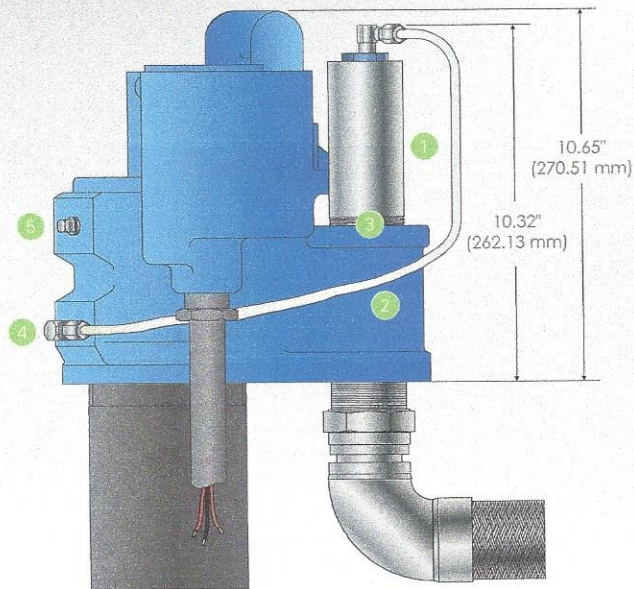
Approvals/Certifications

- cULus listed.
- Third party certified to comply with US EPA requirements 280.41 (B) and 280.44 (A) for continuous monitoring of pressurized piping.
- Consult factory for other applicable approvals.

Specifications continued

Installation

- 1 MLD+
- 2 MLD+ vent tube
- 3 Line leak detector housing (2" NPT)
- 4 Tank port (vent tube must be connected here)
- 5 Syphon port



Ordering Information

Standard Fuel MLD+ Mechanical Leak Detectors

Model	Description
403168901	STP-MLD+G for gas, single pack (blue cover, copper vent tube, brass fittings)
403168903	STP-MLD+G for gas, three pack
403170901	STP-MLD+D for diesel, single pack (gold cover, copper vent tube, brass fittings)
403170903	STP-MLD+D for diesel, three pack
403172903	STP-MLD+D combo, three pack (contains two STP-MLD+G and one STP-MLD+D)

Biofuel MLD+ Mechanical Leak Detectors

Model	Description
403169901	STP-MLD+AG for alcohol-gas, single pack (blue cover, stainless steel tube and fittings)
403169903	STP-MLD+AG for alcohol-gas, three pack
403171901	STP-MLD+BD for biodiesel, single pack (gold cover, stainless steel tube and fittings)
403171903	STP-MLD+BD for biodiesel, three pack

Notes:

1. MLD+G are listed for compatibility with fuel mixtures containing up to 10% ethanol with gasoline, up to 5% biodiesel with diesel fuels, and 20% MTBE, 20% ETBE, or 17% TAME with gasoline.
2. MLD+D models are listed for compatibility with diesel fuels with up to 5% biodiesel and kerosene applications only.
3. MLD+AG models are listed for fuel mixtures containing up to 85% ethanol with gasoline and 20% MTBE, 20% ETBE, or 17% TAME with gasoline as well as diesel fuels, fuel oils, kerosene, Avgas and jet fuels.
4. MLD+BD models are listed for diesel with up to 20% biodiesel or 100% biodiesel and kerosene applications only.
5. All above models will only mount in the 2" NPT leak detector port of a 4" submersible turbine, including competitive models, or in a leak detector adapter tee (sold separately below).
6. MLD+ models are listed for use with rigid pipelines up to 165.1 gallon capacity, with flexible pipelines up to 109.8 gallon capacity, and with combination rigid/flexible pipelines up to 274.9 gallon capacity.

Ordering Information continued

MLD+ Mechanical Leak Detector Repair Parts & Accessories

Model	Description
400440101	Vent tube (for use with MLD+G and MLD+D)
400449901	Hardware pack (fittings and documentation for MLD+G and MLD+D)
403123001	Vent tube, stainless steel (for use with MLD+AG and MLD+BD)
400449904	Hardware pack (fittings and documentation for MLD+AG and MLD+BD)
400518001	Leak detector adapter tee

FE PETRO®

A Franklin Fueling Systems Brand

franklinfueling.com

3760 Marsh Rd. • Madison, WI 53718, USA

Tel: +1 608 838 8786 • Fax: +1 608 838 6433

Tel: USA & Canada +1 800 225 9787 • Tel: UK +44 (0)1473 243300

Tel: Mex 001 800 738 7610 • Tel: FR +33 (0)1 69 21 41 41 • Tel: CH +86 10 8565 4566



4" SUBMERSIBLE PUMPS

Since hitting the market in 1938, FE PETRO® brand submersible pumps have developed a reputation as the standard in performance, quality and dependability with innovative features only available from Franklin Fueling Systems. It is, and always will be about filling cars faster. With best-in-class flow rates and backed by a long history of dependability, FE PETRO® pumps are responsible for delivering fuel to thousands of customers around the globe, day in and day out.

TECHNICAL ADVANTAGES

Variable Speed

With faster fill times during peak hours and power savings during non-peak hours, variable speed submersible pumping systems allow you to maximize profits with consistent flow rates while mitigating operating expenses.

MagShell®

The patented stainless steel MagShell®, available on 2 Hp and 4 Hp pumps, is designed to maximize flow rate capabilities, potential throughput, and profits. By expanding the pump motor shell, the MagShell® increases the area for product flow by 45%.

Biofuel Compatibility

FE PETRO® Alcohol-Gas (AG) and Advanced Protection (AP) pumps are UL listed with both UL79A (up to 85% Ethanol) and UL79B (up to 20% or 100% Biodiesel).

Variable Length

The patented telescoping pump shaft lets installers adjust the length of the pump onsite for the perfect fit.

Advanced Protection

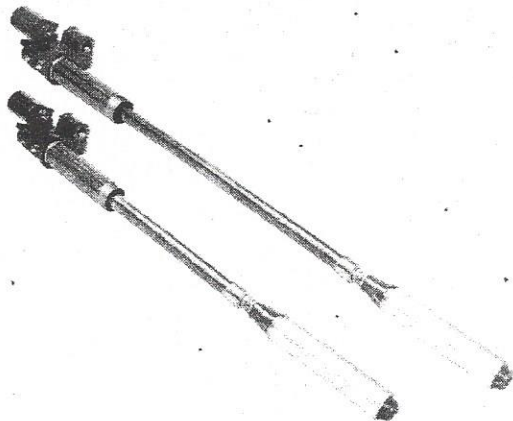
Stop corrosion in its tracks. Special powder-coated, e-coated, and stainless steel components defend your pump in the tank and in the sump from accelerated corrosion.

Turbine Pump Interface

Remote enhanced pump monitoring and control including pump-in-water automation, clogged intake escalation, tank leveling, and tank priority.

Intake Filter Screen

Avoid system damage, pumping slowdowns, and reduce filter changes by keeping harmful tank debris, sediment, and corrosion from entering the pumping system with this factory-installed option.



FEATURE SELECTION

				
Variable Speed	✓	✓	✓	✓
Fixed Speed		✓	✓	✓
MagShell®	✓	✓		
Biofuel Compatibility*	✓	✓	✓	✓
Variable Length	✓	✓	✓	✓
Fixed Length		✓	✓	✓
Advanced Protection	✓	✓	✓	✓
Turbine Pump Interface**	✓	✓	✓	✓
Intake Filter Screen	✓	✓	✓	✓

*Up to 85% Ethanol and up to 20% or 100% Biodiesel.

**Fixed speed models require a Guardian Series™ Single Phase Smart Controller (SPGC-220) to network with EVO™ Series Automatic Tank Gauges.

2 HP SUBMERSIBLE TURBINE PUMPS

With faster fill times during peak hours and power savings during non-peak hours, FE PETRO® 2 Hp variable speed submersible pumps deliver maximized profits while mitigating operating expenses. 2 Hp submersible pumps are also available in fixed speed models.



TECHNICAL ADVANTAGES

OPTIONAL FEATURES

Variable Speed

With faster fill times during peak hours and power savings during non-peak hours, variable speed submersible pumping systems allow you to maximize profits with consistent flow rates while mitigating operating expenses.

Biofuel Compatibility

FE PETRO® pumps are UL listed with both UL79A (up to 85% Ethanol) and UL79B (up to 20% or 100% Biodiesel).

Advanced Protection

Stop corrosion in its tracks. Special powder-coated, e-coated, and stainless steel components defend your pump in the tank and in the sump from accelerated corrosion.

STANDARD FEATURES

MagShell®

The patented stainless steel MagShell® is designed to maximize flow rate capabilities, potential throughput, and profits. By expanding the pump motor shell, the MagShell® increases the area for product flow by 45%.

Variable Length

The patented telescoping pump shaft lets installers adjust the length of the pump onsite for the perfect fit.

Active Air Eliminator

FE PETRO® STPs come standard with active air elimination, which eliminates air through the highest point in the pump head at all times when the pump is running, assuring air does not pass into discharge piping.

Safety and Ease of Maintenance

FE PETRO® STPs include a contractor electrical disconnect, which requires loosening only one bolt, allowing motor wiring to be disconnected without venting the dangerous tank vapors into the sump when servicing FE PETRO® submersible products.

Turbine Pump Interface

Remote enhanced pump monitoring and control including pump-in-water automation, clogged intake escalation, tank leveling, and tank priority.

Intake Filter Screen

Avoid system damage, pumping slowdowns, and reduce filter changes by keeping harmful tank debris, sediment, and corrosion from entering the pumping system with this factory-installed option.

Simple Servicing

If ever required, the pump can be easily removed from the tank by unthreading three bolts. There is no need to disconnect the syphon system or to remove the leak detector from the system to service the STP.

Manual Pressure Relief

As a standard FE PETRO® feature, a vent screw is provided to bleed line pressure to zero when necessary. By turning this screw, product is diverted back to the tank, dropping line pressure to zero. This reduces fuel discharged into the sump manhole or dispenser pan during servicing, further protecting service technicians and the environment.

Outlast, Outperform with Franklin Electric Inside

FE PETRO® STPs are powered by the legendary Franklin Electric motor and built for long term performance. Franklin Electric-powered submersible pumps provide maximum uptime and a proven track record in the fueling industry that spans more than four decades. They feature best-in-class flow rates and a long history of dependability.

Quality Certification

Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

SPECIFICATIONS

General

- Variable speed models are available in variable lengths only.
- Fixed speed models are available in variable length and fixed length options.
- Check valve: 2 3/4" diameter fluorocarbon seal constructed with cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 40 psi and resets above 35 psi.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Variable Speed Pump Motor

- 2 Hp, variable speed, two-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Max. pressure: selectable operating pressure on MagVFC™ between 24 psi and 42 psi deadhead.
- Available with MagShell® which results in 45% increased flow area around motor.

Fixed Speed Pump Motor

- 2 Hp fixed speed, 3450 rpm, multi-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Standard pressure (M200, two-stage) model, max. pressure = 36 psi.
- High pressure (HM200, three-stage) model, max. pressure = 45 psi.
- Available with MagShell™ for 45% increased flow area around motor.

Approvals

- cULus listed.
- Consult factory for applicable approvals.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- STP variable speed models are UL and cUL listed for fuel mixtures containing up to 10% ethanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG (AG compatible) models are UL listed for fuel mixtures containing diesel fuel with up to 20% Biodiesel, 100% Biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- All variable speed (non-AG) models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- 2 Hp fixed speed models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Variable Speed Power Requirements

- Variable speed pumps can only be controlled by a MagVFC™ variable frequency controller.
- VS2 models can operate with single- or three-phase incoming power supply to the MagVFC™.
- Incoming power supply to the MagVFC™ can be 200-250 VAC, 50 or 60 Hz.
- MagVFC™ outputs a three-phase, variable frequency signal, valid for FE PETRO® variable speed pumps only.
- MagVFC™ max. line draw: 20 Amps.
- Max motor draw: 7 Amps.

Fixed Speed Power Requirements

- 2 Hp fixed speed models require single-phase, 208-230 VAC, 60 Hz incoming power.
- 2 Hp fixed speed models incorporate a starting and running capacitor, with internal bleed resistor, rated 370 Volt, 40 microfarad.
- STP-SCI single-phase Smart Controllers and STP-CBS single-phase control boxes are available for 2 hp pump control.
- Max. motor draw: 12 Amps.

Biodiesel

Manufacturer's Affirmative Statement of Compatibility
(As required by California Code of Regulations section 2631(k))

[illegible]

(Insert a company logo below if available)

For tanks and piping please list only double wall products

Manufacturer: NOV Fiber Glass Systems

Corporate

Headquarters

Address: 1004 AMERON RD., BULLBURLET, TX, 76554

Phone: (345) 569-8607

Email: Hector.MercadoCnov.com


FiberGlass Systems

I declare, to the best of my knowledge and belief, that this affirmative statement of compatibility and the information contained herein is true, correct, and complete.

❖ Please complete and submit form to Cory Hootman of the SWRCB at chootman@waterboards.ca.gov.

4/2012

Biodiesel

Manufacturer's Affirmative Statement of Compatibility
(As required by California Code of Regulations section 2631(k))

Hector Mercado

Print Name

Hector Mercado

Manufacturer's Authorized Signature

Manager, Applications Engineering

Title

5/15/12

Date

Manufacturer's Affirmative Statement of Compatibility
(As required by California Code of Regulations section 2631(k))

(Insert a company logo below if available)

4/2012

Biodiesel

Manufacturer's Affirmative Statement of Compatibility
(As required by California Code of Regulations section 2631(k))

Michael Connor
Manufacturer's Authorized Signature

5/15/2012

Date

❖ Please complete and submit form to Cory Hootman of the SWRCB at chootman@waterboards.ca.gov.

4/2012



From: Chuck Liebal
Product Manger
OPW-FCS
3250 Highway 70 Business West
Smithfield, NC 27577

RE: B100 Compatibility

To: Whom it may concern

The following products are compatible with B100 that meets the ASTM standard for this fuel quality:

61T-SS	Painted Stainless Steel Drop Tube
61SALP-MA	Nickel Coated Fill Swivel Adapter
1C-3xxxx	Edge Series Spill Containers
233-4430	Extractors
VPN4X7	4 X 7 Nipple
HJ2806M	4 X 5 Nipple
61JSK-44CB	Jack Screw Kit
116111-xxx	4" Pipe cap
23-0055	Vent cap
634LPC-0400	Fill cap
P511-xxxx	Spill Container (included in Multi-Port unit)

OPW 7150 Overfill Prevention Valves

The CARB-certified OPW 7150 vapor-tight Overfill Prevention Valve is designed to prevent the overfill of underground storage tanks by providing a positive shut-off of product delivery. The shut-off valve is an integral part of the drop tube used for gravity filling. The OPW 7150 allows easy installation (without breaking concrete) and requires no special manholes.

The OPW 7150 is a vapor-tight two-stage shut-off valve. When the liquid level rises to about 95% of tank capacity, the valve mechanism is released, closing automatically with the flow. This reduces the flow rate to approximately 5 gpm through a bypass valve. The operator may then stop the filling process and disconnect and drain the delivery hose. As long as the liquid exceeds the 95% level, the valve will close automatically each time delivery is attempted.

If the delivery is not stopped and the liquid rises to about 98% of tank capacity, the bypass valve closes completely. No additional liquid can flow into the tank until the level drops below a reset point.

NOTE: The 7150 Overfill Prevention Valve can be adjusted to shutoff at any desired tank capacity. Please contact the Authority Having Jurisdiction (AHJ) and review local, state, and national codes to determine the regulatory requirements governing shut-off capacity in your region, as well as take into account other considerations such as extreme tank tilt. In all cases, the upper tube must protrude into the tank at least 6 1/2" to ensure that the valve can shut off flow into the tank completely before the top of the tank is wetted as per EPA requirements.

7150 Instruction Sheet Order
Number: H15524PA

Listings and Certifications



Look for this label for
authentic OPW EVR
Approved products.

OPW 7150 is EVR Approved for E85

Materials

Valve Body: Cast aluminum

Float: Nitrile rubber, closed cell foam

Valve: Aluminum

Seals: Viton®

Upper & lower Drop Tube: Aluminum

Plastic parts: Acetal

Hardware: Stainless steel

Features

- ◆ **Simple, Easy and Quick Installation** – no excavation or special manholes required.
- ◆ **Economical** – costs a fraction of expensive, complicated and difficult-to-install valves.
- ◆ **Furnished Complete** – supplied with new upper and lower drop tubes, mounting hardware and thorough instructions for quick job site time.
- ◆ **Completely Automatic Operation** – no prechecks to perform, no resets and no overrides to be broken or abused.
- ◆ **No Pressurization of the Tank** – operates directly from liquid level.
- ◆ **Will Accept a Dipstick for Gauging**
- ◆ **Retrofits Directly** – for both new and existing tanks with 4" fill risers.
- ◆ **Quick Drain Feature** – automatically drains hose when head pressure is relieved.
- ◆ **Best Flow Rate in The Industry***

* OPW Test Lab results



Important

In order to prevent product spillage from the Underground Storage Tank (UST), properly maintained delivery equipment and a proper connection at the tight-fill adaptor are essential. Delivery personnel should be managed and trained to inspect delivery elbows and hoses for damaged and missing parts. They should always make certain there is a positive connection between the adaptor and elbow. If delivery equipment is not properly maintained, or the elbow is not securely coupled to the adaptor, a serious spill may result when the OPW 7150 closes, causing a hazard and environmental contamination.

NOTE: The OPW 7150 is designed for use on tight-fill gravity drop applications only. Do not use for pressure fill applications.

Advantages of Overfill Prevention Compared to Overfill Warning Systems:

- ◆ **Completely Automatic Operation** – does not rely on the alertness or speed of response of the delivery attendant for certainty of overfill prevention.
- ◆ **Keeps the Top of UST "Dry," per EPA Requirements** – eliminating possible leaks at loose bung fittings and the need for double containment on vent lines.
- ◆ **Does Not Rely on Pressure in the UST to Stop Flow** – allowing faster fill times and reducing spill risk.
- ◆ **Speeds Delivery Operations** – product flows unimpeded into the tank until the hose "kick" that accompanies the valve shut-off provides a clear signal that the liquid has reached the shut-off level.
- ◆ **Simple and Inexpensive Installation** – in both two-point and coaxial fill applications, no additional excavation, manholes or vent piping are required.

Raising The Standard In Overfill Prevention

From the company that brought you the industry standard OPW 6150, OPW raises the standard with the introduction of the **7150 Overfill Prevention Valve** – breakthrough innovation that takes overfill prevention to a whole new level of overfill perfection.

- **Eliminates curing issues due to hot or cold temperatures**
- **Easier, quicker, installation**
- **Higher quality, more reliable installation**
- **Lower costs**
- **Greater protection against fugitive emissions and pressure decay**
- **Fastest flow rate in the industry**

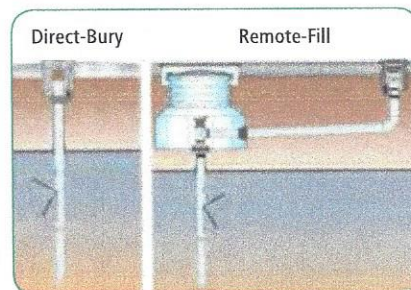
The new 7150 is a two-stage, positive shut-off valve, providing completely automatic operation with no pre-checks to perform, no resets, and no overrides to be broken or abused. The valve closes when the tank level rises to 95% capacity and provides a special bypass valve so the tank can be filled to a maximum capacity of 98%. The 7150 is available for direct-bury and remote applications.



All Vapor-Tight Overfill Valves are CARB EVR Certified



No Epoxy Sealants Required!



Replacement Parts

Part #	Description
6150K-0001	Replacement Float Kit
H11931M	Drop Tube Seal
H14840M	Lower Tube Seal

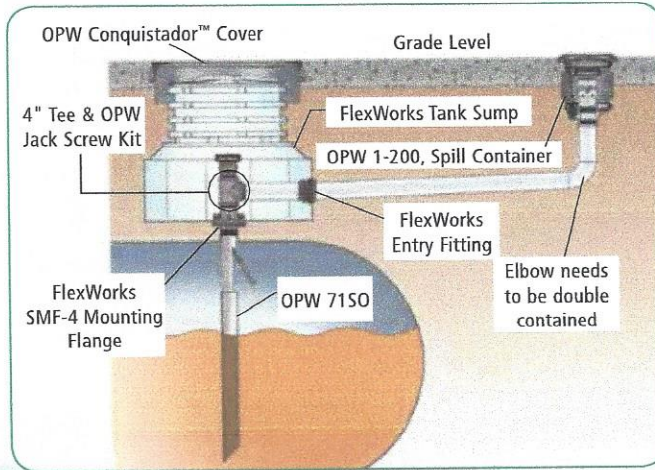
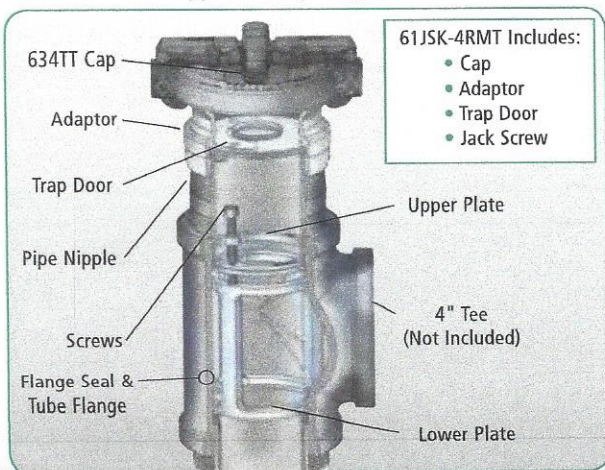
7150 Ordering Specifications

Product #	Description	Bury Depth		Tank Diameter		Upper Tube Length		Lower Tube Length		Overall Length		Max. Riser Length		Max. Nominal Tank Dia.		Max. Actual Tank Dia.		Weight	
		ft.	m	ft.	m	in.	m	in.	m	in.	m	in.	m	in.	m	in.	m	lbs.	kg
7150-400C	Vapor-Tight Overfill Valve	5	1.5	8	2.4	60	1.5	83	2.1	155 ³ / ₄	3.9	53 ¹ / ₂	1.4	96	2.4	107	2.7	16	7
7150-410C	Vapor-Tight Overfill Valve	10	3.0	10	3.0	120	3.1	102	2.6	234 ³ / ₄	5.9	113 ¹ / ₂	2.9	120	3.1	126	3.2	25	11
7150-420C	Vapor-Tight Overfill Valve	10	3.0	12	3.6	120	3.1	126	3.2	258 ³ / ₄	6.5	113 ¹ / ₂	2.9	144	3.7	150	3.8	26	12
7150-4000	Non Vapor-tight Overfill Valve	5	1.5	8	2.4	60	1.5	83	2.1	155 ³ / ₄	3.9	53 ¹ / ₂	1.4	96	2.4	107	2.7	16	7
7150-4010	Non Vapor-tight Overfill Valve	10	3.0	10	3.0	120	3.1	102	2.6	234 ³ / ₄	5.9	113 ¹ / ₂	2.9	120	3.1	126	3.2	25	11
7150M-412C	E85 Vapor-tight Overfill Valve	10	3.0	10	3.0	120	3.1	102	2.6	234 ³ / ₄	5.9	113 ¹ / ₂	2.9	120	3.1	126	3.2	38	17.3
7150-TOOLCT	7150 Installation Tool																	2.5	1
61JSK-4RMT	Jack Screw Kit For Vapor-Tight Remote Applications																	1.5	0.7
61JSK-4410	Jack Screw Kit For Composite Base Spill Bucketst																	1	0.5
61JSK-44CB	Jack Screw Kit For Cast Iron Base Spill Buckets																	1	0.5
71JSK-4RMT	E85 Jack Screw for Remote-Fill Applications																	1	0.5
71JSK-44MA	E85 Jack Screw for Direct-Fill Applications																	1.5	0.7

61JSK-4410 AND 61JSK-44CB Instruction Sheet Order Number: H15289M

7150 Vapor-Tight Remote Fill

The OPW Vapor-Tight Remote Fill is designed for two-point vapor-tight remote-fill applications, where the fill point is not directly over the UST. A CARB approved vapor-tight 7150 overfill valve is installed in the sump through a riser pipe directly over the tank.



Date: August 19, 2015

Re: Fuel Compatibility OPW Part number 71SOM-412C

To Whom It May Concern:

This letter serves as verification that the 71SOM-412C overfill prevention valve manufactured by OPW Retail Fueling, is compatible with gasoline blends up to 85% percent alcohol (E85) and compatible with bio-diesel blends up to 100% (B100).

This product will carry OPW's standard product warranty when used with the above listed blends of alcohol and bio-diesel.

Very truly yours,



Edward J Kammerer
Director of Global Product Management
OPW Retail Fueling

www.opwglobal.com

ONE COMPANY. ONE WORLD. ONE SOURCE.™

OPW Retail Fueling

3250 US Highway 70 Business West
Smithfield, NC USA 27577-6954
Telephone: 1 (919) 209-2442
Fax: 1 (919) 573-9497
Customer Service: 1 (800) 422-2525
Customer Service Fax: 1 (800) 421-3297

OPW Retail Fueling

9393 Princeton Glendale Rd.
Hamilton, Ohio USA 45011
Tel: 1 (800) 422-2525
Fax: 1 (800) 421-3297
Int'l Tel: 1 (513) 870-3315
Int'l Fax: 1 (513) 870-3157

OPW Fuel Management Systems

6900 Santa Fe Dr.
Hodgkins, Illinois USA 60525
Tel: 1 (708) 485-4200
Fax: 1 (708) 485-7137
info@opwfm.com

OPW 1SC-2100-EVR Series Sealable Cover Spill Containers

OPW Spill Containment Manholes are designed to prevent spilled product from entering the soil near the fill and vapor return riser connections on underground storage tanks during normal tank filling operation, or in the event of tank overflow. The spill containers catch spillage to help prevent soil contamination and groundwater pollution. The OPW 1SC-2100-EVR Series Sealable Cover Spill Containers are designed to eliminate the problems associated with water entering grade level spill containers. The operation of the cover is similar to that of a "plumbers plug." When the lever is latched down, the plates are drawn together, expanding the seal against the machined mounting ring wall. The 1SC-2100-EVR spill containers are ideal for areas with a high water table, areas subject to tropical rain and standing water, and cold regions where melting snow and road salt can enter standard spill containers.

Materials

Cover: Cast aluminum
Cover Seal: Low swell nitrile
Lever: Bronze
Mounting Ring: Teflon® plasma-coated cast iron
Bellows: Polyethylene
Base: Duratuff® II or cast iron E-coating
Clamps: Stainless steel
Seals: Low swell nitrile



Lid Features

- ◆ **Simple "Plumbers Plug" Operation** – cover seal is expanded against mounting ring wall.
- ◆ **Vertical Sealing Surface** – prevents gravel and debris from damaging or interfering with the cover seal.
- ◆ **Machined Sealing Surface** – ensures watertight seal. Teflon coated stainless steel.
- ◆ **Field Replaceable Seal** – designed for all-weather performance.
- ◆ **Clear Anodized Aluminum Top Plate** – deters cover theft.
- ◆ **Potted Hinge Mechanism** – prevents ice and debris from hindering lever operation.

Additional Features

- ◆ **Product Identification Tags** – available for both the spill container cover and bucket to positively identify the product contained in the UST with standard API symbols. (See product I.D. tag specification page for more information: page 74.)
- ◆ **Capacities** – 5 and 15-gallon
- ◆ **Fuel Compatibility** – designed to accommodate all fuels, including methanol, ethanol and MTBE.
- ◆ **Highway 20 Rated (H20)** – all OPW spill containers and manholes exceed the requirements of the Highway 20 rating.

Listings and Certifications



Look for this label for authentic OPW EVR Approved products.

Ordering Specifications

Plug or Drain Valve Models

Model	Gal.	Liter	Base	Drain Valve or Drain Plug	Cover	lbs.	kg
1SC-2100-DEVR	5	19	Composite	Drain Valve	Aluminum	47	21
1SC-2115-DEVR	15	57	Composite	Drain Valve	Aluminum	47	21
1SC-2100-PEVR	5	19	Composite	Drain Plug	Aluminum	47	21
1SC-2115-PEVR	15	57	Composite	Drain Plug	Aluminum	47	21
1SC-2100C-DEVR	5	19	Cast Iron	Drain Valve	Aluminum	53	24
1SC-2115C-DEVR	15	57	Cast Iron	Drain Valve	Aluminum	53	24
1SC-2100C-PEVR	5	19	Cast Iron	Drain Plug	Aluminum	53	24
1SC-2115C-PEVR	15	57	Cast Iron	Drain Plug	Aluminum	53	24

Dimensions

Slip-On Models (see drawing on right)

	1SC-2105		1SC-2155	
	in.	cm	in.	cm
A	16	41	16 ⁷ / ₃₂	41
B	14	36	22	56
C	1 ⁵ / ₃₂	3	1 ⁵ / ₃₂	3
D*	10 ¹ / ₁₆	26	14 ¹ / ₈	36
E*	17	43	21	53

*Subtract 2" from "E" dimension for Cast Iron Base Models.

Thread-On Models (see drawing on right)

	1SC-2100		1SC-2115	
	in.	cm	in.	cm
A	16	40	16 ⁷ / ₃₂	41
B	14 ¹ / ₁₆	36	22	56
C	1 ⁵ / ₃₂	3	1 ⁵ / ₃₂	3
D	16 ³ / ₈	42	20 ¹ / ₂	52
E*	18 ⁵ / ₁₆	47	22 ¹ / ₂	57

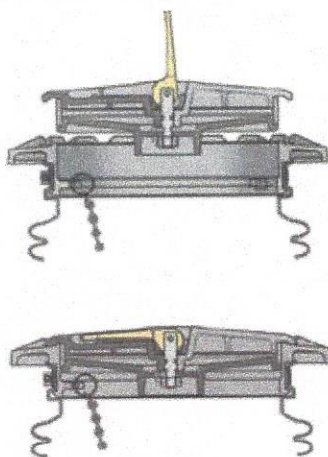
Replacement Parts

Part #	Description
SC-PLAIN	Replacement Cover
H13931M	Cover Gasket
C04101B	Bronze Lever Arm
D01874M	Lower Plate
C04141M	Rubber Insert
H12927M	Adjustment Nut
1SC-TOOL	Optional Easy Opening Tool
1DK-2100-EVR	Drain Valve Kit

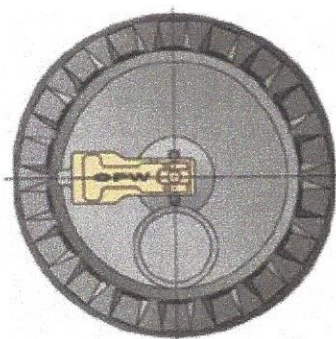
4" Threaded Nipples for Mating Spill Bucket to Adaptor

Part #	Description
TC-400	4" Torque Cap
H15144M	4" NPT Nipple, 4" Length
H12806M	4" NPT Nipple, 5" Length
VPN4X7	4" NPT Nipple, 7" Length
H15271M	4" NPT Nipple, 8" Length
VPN4X9	4" NPT Nipple, 9" Length
H15268M	4" NPT Nipple, 10" Length

Sealable Cover Operation

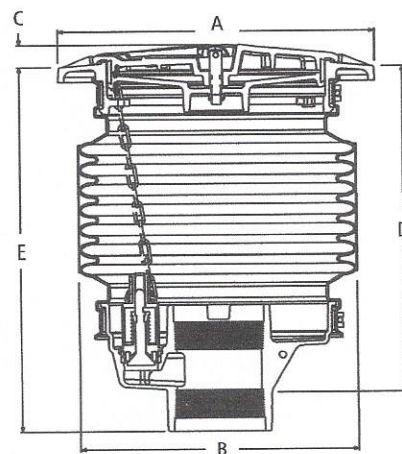


Lid in Closed Position

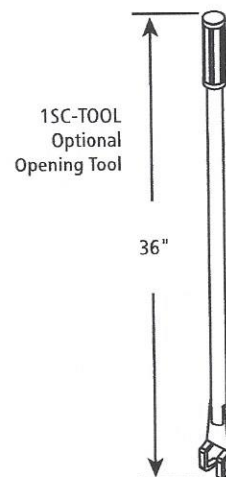
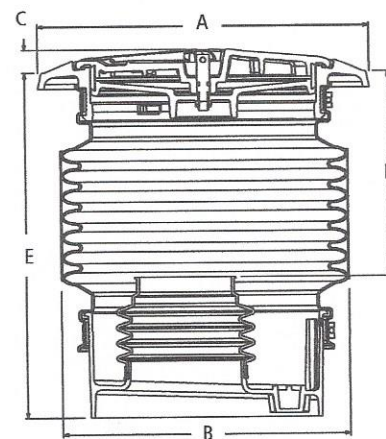


1DK-2100 Drain Valve Kit
Instruction Sheet Order
Number: H11471M

Thread-On Models



Slip-On Models



**Veeder-Root Company**

125 Powder Forest Drive
Post Office Box 2003
Simsbury, CT 06070
USA
Tel: 860-651-2700
Fax: 860-651-2719
www.veeder.com

September 23, 2015

Subject: Veeder-Root Fuel Compatibility Statement

Veeder-Root Company equipment is compatible with the percent content of the listed alternative fuels.

Equipment Type	Series or Part Number (P/N)	Ethanol %	Biodiesel % ASTM 6751 ASTM 7467
Magnetostrictive Probe	Mag Plus Series 8463XX, Mag Series 8473XX	15%	100%
Tall Tank Probe	Mag-FLEX 889560-XXX, MAGXL-XXX	90%	100%
Continuous Interstitial Tank System	P/N 857280-100, 857280-200, 857280-30X	15%	20%
Electronic Line Leak Detector	Series 8484, 8590	15%	100%
Ground Water Monitoring	P/N 794380-621, 794380-622, 794380-624	15%	20%
Interstitial and Secondary Containment Monitoring	P/N 794380-XXX, 794390-XXX, 847990-00X, 857080-XXX	15%	20%
Interstitial and Secondary Containment Monitoring	P/N 794380-321, 794380-323, 794380-333, 794380-344, 794380-345, 794380-351, 794380-430	85%	20%
Interstitial and Secondary Containment Monitoring	794380-344, 794380-345, 794380-321, 794380-351	85%	100%
Vapor Monitoring	P/N 394390-700	15%	20%
Red Jacket Maxxum Pump	410763-XXX (MXP300JX-XXX or MXP500JX-XXX)	20%	100%

Note: "X" can be substituted for any value.

Compatibility has been determined by testing, industry research and/or engineering judgement.

Regards,

Dale Spence
Director, Global ATG Products
Veeder-Root Company
Tel: 860-651-2721
Fax: 860-651-2719

Issue Date: September 1, 2004

Revision Date: April 8, 2011

Veeder-Root

Secondary Containment Leak Detection (SCLD)

TLS-350/ProMax/EMC Console with Vacuum Sensors 857280-100, 200, 30x, or Assembly 332175-001

CONTINUOUS INTERSTITIAL TANK SYSTEM MONITORING METHOD (PRESSURE/VACUUM)

Certification:

Certified as equivalent to European leak detection standard EN-13160-2, Part 2, as a Class I leak detection system.

Operating Principle:

System uses vacuum generated by the turbine pump to continuously maintain a partial vacuum within the interstitial space of double-walled tanks and double-walled piping.

System is designed to activate a visual and acoustic alarm, and optional turbine pump shutdown before stored product can escape to the environment.

System is capable of detecting breaches in both the inner and outer walls of double-walled tanks and double-walled piping.

Alarm Condition:

System alarms when a liquid or air leak occurs which causes the interstitial vacuum to decrease (pressure to increase) and the system is unable to maintain minimum vacuum.

System will also alarm if liquid is detected in the interstitial space, or if the vacuum level in the interstitial space decreases at a rate exceeding 85±15 liters/hour.

Applicability:

Underground double-walled tank, connected double-walled piping, and other connected interstitial spaces storing gasoline, gasohol, diesel, heating oil #2, kerosene, aviation fuel, motor oil, water.

Storage of biodiesel blends B6-B20 meeting ASTM D7467 and biodiesel B100 meeting ASTM D6751 would also produce a system alarm if the system threshold is exceeded. Responses to these fuels were not determined, but would be expected to be very similar to the system's response when storing diesel.

Manufacturer's Specifications:

Alarm will activate when interstitial vacuum decreases to 1.7 psi vacuum (3.5"Hg).

Default maximum vacuum level (pump-off pressure) is 8 psi vacuum (16.3" Hg), but can be set as low as 4 psi (8.2" Hg) if the monitored system requires that a lower level of vacuum be maintained.

The interstitial space shall be rated for the operating vacuum of the leak detector, regardless of temperature and groundwater level fluctuations.

Volume of monitored interstitial space must not exceed 8 m³ for tanks and 10 m³ for piping.

When monitoring double-walled tanks, a liquid sensor must be located at lowest point of interstitial space.

Calibration:

Functional and operational safety tests should be performed in accordance with manufacturer's instructions.

Comments:

Interstitial space is tested continuously.

System is connected to the interstitial space by a single vacuum line.

Vacuum is generated by the turbine pump, and is measured and controlled by a vacuum sensor.

This system may not be compatible with all secondarily contained tanks and/or piping. Always consult with the tank and/or piping manufacturer and the manufacturer's applicable recommended installation practices before installing this system, or damage may be caused to the tank or piping by its use.

Veeder-Root
125 Powder Forest Dr.
Simsbury, CT 06070-2003
Tel: (860) 651-2700
E-mail: info@veeder.com
URL: www.veeder.com

Evaluator: Ken Wilcox Associates
Tel: (816) 443-2494
Date of Evaluation: 06/09/2004



| [Home](#) | [Vendors: A - F](#) | [Vendors: G - M](#) | [Vendors: N - S](#) | [Vendors: T - Z](#) | [Method Index](#) | [Glossary](#) |

Appearance on this list is not to be construed as an endorsement by any regulatory agency nor is it any guarantee of the performance of the method or equipment.

Equipment should be installed and operated in accordance with all applicable laws and regulations. For full details, please refer to our expanded ["DISCLAIMER"](#) page.



Veeder-Root Company
125 Powder Forest Drive
PO Box 2003
Simsbury, CT 06070-7684
USA

Phone: 860.651.2700
Fax: 860.651.2719

Laura S. Fisher, Chief
UST Leak Prevention Unit
State Water Resources Control Board
1001 I Street, PO Box 2231
Sacramento, CA 95812

Thursday, July 09, 2009

Dear Laura,

Please see the attached results from the evaluation of Veeder-Root's leak detection and tank monitoring equipment to determine functional compatibility for use in BioDiesel and Ethanol blended fuels.

Please feel free to contact me if you have any questions,

Sincerely,

Kent Reid
Vice President Strategic Development

Leak Detection Equipment Functional Compatibility Claims and Validation

Veeder-Root (Subsidiary Companies)

Type Equipment	Equipment Name	Functional Compatibility Claim			Validation Method (U.L. Listed, Independent Testing, Internal Testing, Engineering Analysis, Unsubstantiated Manufacturer Claim)	Comments
		Ethanol (%)		Biodiesel (%)		
		W/Water Detection	W/Out Water Detection			
Control Engineers Products						
Not Active						
Marconi Commerce Systems Products (formerly Gilbarco)						
Not Active						
Marley Pump Co. Products						
Mechanical Line Leak Detector	Red Jacket DLD and XLD					
Mechanical Line Leak Detector	Red Jacket FX1 and FX2					
Mechanical Line Leak Detector	Red Jacket FX1D, FX2D	N/A	Up to 100%		U.L. Listed	EUQT – Dispensing Device Accessories, Miscellaneous (Certification #: MH8536)
Mechanical Line Leak Detector	FX1DV, FX2DV					
Mechanical Line Leak Detector	Red Jacket XLP					

Note: NWGLDE's Disclaimer posted on its Website includes the statement: "Unless specifically indicated on the individual data sheets, the equipment listed by the NWGLDE has not been evaluated using alternative fuels." However, evaluation with alternative fuel is for leak detection performance only – not compatibility of material with alternative fuels.

Leak Detection Equipment Functional Compatibility Claims and Validation

Type Equipment	Equipment Name	Functional Compatibility Claim			Validation Method (U.L. Listed, Independent Testing, Internal Testing, Engineering Analysis, Unsubstantiated Manufacturer Claim)	Comments
		Ethanol (%)		Biodiesel (%)		
		W/Water Detection	W/Out Water Detection			
Veeder-Root Co.						
Magnetostrictive Probe (ATGS)	Series 8463 – Mag Plus	15% ¹	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Magnetostrictive Probe (ATGS)	Series 8473 – Standard Mag	15% ¹	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Continuous Interstitial Tank System (Pressure/Vacuum)	857280-100, 200, 30x, or assembly 332175-001 (Vacuum Sensors)	N/A	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Electronic Line Leak Detector	Series 8475 (volumetric)	N/A	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Electronic Line Leak Detector	Series 8484 (pressure)	N/A	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Electronic Line Leak Detector	Series 8494 (wireless)	N/A	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Groundwater Monitoring	Series 794380-621, 622, 624	N/A	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment

Note: NWGLDE's Disclaimer posted on its Website includes the statement: "Unless specifically indicated on the individual data sheets, the equipment listed by the NWGLDE has not been evaluated using alternative fuels." However, evaluation with alternative fuel is for leak detection performance only – not compatibility of material with alternative fuels.

Leak Detection Equipment Functional Compatibility Claims and Validation

Type Equipment	Equipment Name	Functional Compatibility Claim			Validation Method (U.L. Listed, Independent Testing, Internal Testing, Engineering Analysis, Unsubstantiated Manufacturer Claim)	Comments
		Ethanol (%)	W/Out Water Detection	Biodiesel (%)		
Interstitial Detector	Series 794390-401, 404, 407, 409 (for fiberglass tanks) - Series 794390-420, 460 (for steel tanks) - Series 7943800-206 (for sumps) - 794390-700	N/A	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Vapor Monitoring		N/A	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Interstitial Detector (Liquid-phase)	- 794380-341 (Int. Sens) - 794380-320 (Dispenser Pan Sensor) - 794380-350 (Discrim. Cont. Sump Sensor) - 794380-360, 361, 362 (Discrim. Fiber Trench Sensor)	N/A	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Interstitial Detector (Liquid-phase)	- 794380-322 (Discrim. Disp. Pan Sensor) - 794380-352 (Discrim. Cont. Sump Sensor)	N/A	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Interstitial Detector (Liquid-phase)	- 794380-321 (Non-Discrim. Disp. Pan Sensor) - 794380-351 (Non-Discrim. Cont. Sump Sensor)	N/A	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment

Note: NWGLDE's Disclaimer posted on its Website includes the statement: "Unless specifically indicated on the individual data sheets, the equipment listed by the NWGLDE has not been evaluated using alternative fuels." However, evaluation with alternative fuel is for leak detection performance only – not compatibility of material with alternative fuels.

Leak Detection Equipment Functional Compatibility Claims and Validation

Type Equipment	Equipment Name	Functional Compatibility Claim			Validation Method (U.L. Listed, Independent Testing, Internal Testing, Engineering Analysis, Unsubstantiated Manufacturer Claim)	Comments
		Ethanol (%)		Biodiesel (%)		
		W/Water Detection	W/Out Water Detection			
Interstitial Detector (Liquid-phase)	- 847990-001 (Disp. Pan Sensor)	N/A	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
	- 847990-002 (Differentiating Disp. Pan Sensor)					
Interstitial Detector (Liquid-phase)	- 794380-301 (Single Stage Hydrostatic Sensor)	N/A	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
	- 794380-302, 303 (Dual Stage Hydrostatic Sensor)					
Interstitial Detector (Liquid-phase)	- 794380-208 and 794380-209 (Piping Sump Sensor)	N/A	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
	- 794380-340 (Micro- Sensor)					
Interstitial Detector (Liquid-phase)	- 794380-343 (Discrim. Int. Sensor)	N/A	15% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Interstitial Detector (Liquid-phase)	- 794380-344 (Micro- Sensor)	N/A	85% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Interstitial Detector (Liquid-phase)	- 794380-323 (Position Sensitive Sensor)	N/A	85% ¹	20% ²	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment

Note: NWGLDE's Disclaimer posted on its Website includes the statement: "Unless specifically indicated on the individual data sheets, the equipment listed by the NWGLDE has not been evaluated using alternative fuels." However, evaluation with alternative fuel is for leak detection performance only – not compatibility of material with alternative fuels.

Leak Detection Equipment Functional Compatibility Claims and Validation

Type Equipment	Equipment Name	Functional Compatibility Claim			Validation Method (U.L. Listed, Independent Testing, Internal Testing, Engineering Analysis, Unsubstantiated Manufacturer Claim)	Comments
		W/Water Detection	Ethanol (%)	W/Out Water Detection		
Interstitial Detector (Liquid-phase)	- Series 857060-xxx and 857080-xxx - (Magnetostrictive Sump Sensor)	15% ¹		15% ¹	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Interstitial Detector (Liquid-phase)	794380-304 (Single Point Mini Hydrostatic Sensor)	N/A		15% ¹	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Interstitial Detector (Liquid-phase)	794380-340 (Float Sensor)	N/A		15% ¹	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment
Interstitial Detector (Liquid-phase)	794380-345, 430 (Interstitial Sensor)	N/A		85% ¹	1) UL Listed in File No. MH11766 2) Engineering Analysis	EQXX – Control Monitoring & Auxiliary Equipment

Note: NWGLDE's Disclaimer posted on its Website includes the statement: "Unless specifically indicated on the individual data sheets, the equipment listed by the NWGLDE has not been evaluated using alternative fuels." However, evaluation with alternative fuel is for leak detection performance only – not compatibility of material with alternative fuels.



S. Bravo Systems, Inc.

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

Tuesday - August 30 - 2011

R3 10.21.13

RE: Bravo Fiberglass Entry Fittings and Alternative fuels

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

Bravo Fiberglass Fittings 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 Fittings are Built like a Tank, they can withstand continuous fuel exposure to, or submersion in Biodiesel, Ethanol and Alcohol blends without failure.

All Fiberglass Fittings designed for DoubleWall 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 Fiberglass Fittings manufactured by Bravo in Commerce, California are compatible with Biodiesel and Ethanol fuel blends up to B100 and E100, respectively.

- > **F-Series** "Full Body" Fiberglass Fittings.
- > **FF-Series** "Flange" Fiberglass Fittings.
- > **FPE-Series** Fiberglass Fittings for Flexible pipe.
- > **FLX-Series** Fiberglass Split Retrofit Fittings for Flexible pipe.
- > **FR-Series** Fiberglass Split Test Reducers.
- > **F-Series Retrofit-S & SD-AB** Fiberglass Split Retrofit Fittings.
- > **F-Series D-BLR-S & D-INR-S** Fiberglass Split Retrofit Fittings.
- > **TBF-Series** Fiberglass Tank Bung Fittings.

Bravo 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,

A handwritten signature in black ink, appearing to read 'Jonathan E. Smith'.

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



July 21, 2016

RE: Compatibility of Red Thread™ IIA and Dualoy™ Piping Products

To Whom It May Concern:

NOV Fiber Glass Systems has been manufacturing highly-engineered fiberglass pipe for the fuel handling industry for almost 50 years, receiving our first Underwriters Laboratories (UL) listing in 1968. We currently have two product lines serving the Fuel Handling market: Red Thread IIA and Dualoy (3000/L and 3000/LCX). This letter addresses compatibility with current and past product generations.

Red Thread IIA

The Red Thread IIA piping system has been manufactured since 1990. The system was UL listed for alcohol compatibility in 1990, and is UL-971 listed for all fuels and applications per UL Standard 971-2004. In addition, the materials are compatible with Ethanol, Methanol, and Biodiesel blended fuels, through 100 percent concentrations.

Red Thread (manufactured and UL listed from 1968 to 1984) and Red Thread II (manufactured and UL listed from 1984 to 1990) are both compatible with all ethanol fuels up to 100 percent concentration.

Dualoy 3000/L & 3000/LCX

The Dualoy piping systems have been manufactured since 1971. The system was UL listed for alcohol compatibility in 1988, and is UL-971 listed for all fuels and applications per UL Standard 971-2004. In addition, the materials are compatible with Ethanol and Methanol blended fuels, through 100 percent concentrations, and Biodiesel blended fuels.

Prior to 1988, 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.

If you have any questions or require additional information, please let us know.

Respectfully yours,



Josh Fowler
Manager, Fuel Handling Sales



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Ref: Fuel Compatibility of Dualoy® 3000/L & 3000/LCX

Ameron's Dualoy® 3000/L & 3000/LCX piping systems have been tested and were found to comply with the applicable requirements of UL971, Standard for Nonmetallic Underground Piping for Flammable Liquids with revisions through and including March 2, 2006. These include:

Diameters 2", 3", 4" & 6" Series Dualoy 3000/L Primary Carrier and Secondary Containment Piping, Diameters 2", 3" & 4" Series Dualoy 3000/LCX Integral Primary/Secondary Piping and Series PSX-20 and PSX-34 adhesives for conveying Primary Product, Vent and Vapor Recovery of Motor Vehicle Fuels, Concentrated Fuels, High Blend Fuels and Aviation and Marine Fuels.

Based on all available testing Ameron finds the following additional fuels suitable for use with the Dualoy® 3000/L and 3000/LCX piping systems: B2, B5, B20, B100, E10, E85, E100, low/medium/high grades of unleaded, aviation and marine fuels.

The primary pipe for the Series Dualoy® 3000/L system has maintained the same design performance since 1988.

Sincerely,

Hector Mercado
Engineering Manager

TA Bio-Diesel Blending IN-LINE System Description **(UST)**

1.0 General B100 Data

Vehicles cannot run on pure B100 unless they are designed for it. It is similar to motor oil. Pure B100 has a high flash point (266° F to 300° F) similar to a class IIIB liquid. It is UN Classified, and it is deemed NON hazardous as per Federal C29 regulations.

If it were a regulated product the storage tank could be 20,000 gallon per NFPA 30 Chapter 22, sections, 22.11.3.1 to 22.11.3.13 and all of section 22.11.4 (because of the high flash point).

In addition, NFPA section 4.3.2.5 allows storage tank capacities to be 20,000 gallon for fleet vehicles.

The system we are proposing to install is for on-site in-line blending operations. The blending system will directly connect to the existing underground piping and into the existing dispensers, with the blended product ranging from B5 to B20.

2.0 General System Operations

The site gets a new blending skid (shed/cabinet) and a B100 storage tank. The B100 storage tank is to be a UST DW FRP 20,000 gallon tank.

B100 is delivered into the B100 tank.

Diesel type 2/LSD fuel is trucked/ delivered into the existing UST's /site as it is today.

The diesel fuel tanker unloads into the existing underground storage tanks as previously operated. No changes.

The diesel fuel from the existing underground storage tanks is supplied to the dispensing system from the existing submersible pumps. This flow is diverted through underground product piping into the new in line blending cabinet. In the blending cabinet the diesel line and the b100 lines are metered, tied together and controlled for the set blend rate, and the two products are blended in the cabinet. The blended product (B5 to B20) is then returned into the main product underground lines and into the existing diesel supply system and dispensers to their customers.

The retail fuel consumer fills their truck with the blended bio diesel fuel through the existing bio-diesel dispenser.

The finished product (B5 to B20) flows in the existing underground product lines and in current dispensing system. The difference is on-site in line blending versus buying it splash blended from the rack.

3.0 Equipment and Piping

All new underground piping is to be UL971 DW FRP.

All above ground piping will be SW steel schedule 40, heat traced and insulated for Division 1 class one areas.

The existing Veeder Root monitoring system also provides over-fill protection and will provide automatic shut off of the blending skid / cabinet

There is an e-stop to shut the system down.

The inline blending system ties into the diesel product supply system, injecting the correct amount of B100 into the Diesel product to create B5 to B20 at the per set value. The rest of the existing diesel dispensing system is not adjusted or changed. The existing DEF system is also not changed.

The B100 bio-diesel system has a closed loop recirculation heating system in the blending cabinet and runs between the B100 UST and the Blending cabinet and returns.

The new B100 UST is 120" dia x 34'6" DW FRP Monitored.

The blending skid / cabinet is = 5'6" wide, 12'3" long x 5' high.

Bollards are to be installed to protect the new equipment from traffic impact, where required.