



State of Illinois
Office of the State Fire Marshal

Checklist for Documenting UST Compatibility

SUBMIT THIS FORM WITH SUPPORTING DOCUMENTATION ATTACHED.

ALL COMPONENTS MUST BE LISTED IN DETAIL, & COMPATIBILITY DOCUMENTATION MUST CLEARLY IDENTIFY THE COMPONENTS.

Facility where equipment is located:

Facility Number: 5038454
 Facility Owner: Thorntong, LLC
 Facility Name: Thorntong #373
 Street Address: 3005 South 6th St.
 City: Springfield IL 62703
 County: Sangamon

UST Information:

Tank ID Number: 9
 Tank Material: Steel _____
 FRP X
 Single Wall _____ Double Wall X
 Tank Volume: 6,000
 Tank Product: E-85

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>A & B</u>	Containment Solutions DWB-2 Containment Solutions watertight FRP SW TANK SUMPS 42" Dia. UL Standard 1316 & MH 7991
PIPING (incl. shear valves, flex connectors)	NO	<u>YES</u>	<u>A & B</u>	NOV Dualay 3000L DW piping OPW 10P-0152 E-85 Sheer valve UL-971
CONTAINMENT SUMPS	NO	<u>YES</u>	<u>A & B</u>	Bravo B-1000-EN Dispenser Sumps UL 1316
PUMPS (STPs/Suction; Dispensers, hoses, nozzles)	NO	<u>YES</u>	<u>A & B</u>	Franklin Fueling 4hp FE Petro Submersible Jst-m-R-154-UL2-17 OPW Hanging Hardware

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	A/B	Veeder Root Alternative Fluids Probe (848480-410) Fuel Kit E-85 (848400-004) Sump Sensor (794380-323) Tank Sensor (794380-343) E-85 Compatible PILD (848480-001) Veeder Root UL MH11766
SPILL PREVENTION EQUIPMENT	NO	YES	A/B	Franklin Fueling DeFender 705 series DW Spill Bucket UL MH 21091
OVERFILL PREVENTION EQUIPMENT	NO	YES	A/B	OPW 7150M-412C UL MH 21147
GASKETS & SEALS (installs after 10/13/18)	NO	YES	A	OPW Nitrile UL MH 21147
JOINT DOPES & ADHESIVES (installs after 10/13/18)	NO	YES	A/B	Gasolig GE-16

Methods:

- A. Certification or listing of UST system equipment or components by a nationally recognized, independent testing laboratory for use with the regulated substance stored.
- B. 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: Chuck Hoening date completed: 7/30/19
signature: Chuck Hoening position/title: Operator's Manager



Franklin Fueling Systems

September 1, 2016

Subject: Defender Series™ Overfill Prevention Valve (OPV) and Spill Containers Fuel Compatibility

To Whom It May Concern,

This letter affirms that the materials used by Franklin Fueling Systems in the construction of the Defender Series™ OPV and Spill Container models listed below, are compatible with the following fuels as defined by ASTM:

- Gasoline (E0 to E10)
- Diesel (B0 to B5)
- Mid-level Ethanol Fuel Blends (E11-E50)
- Ethanol Fuel Blends (E51-E83)*
- Biodiesel Blends (B5-B20) and Biodiesel (B100)

*Commercially known as "E85"

Models Compatible:

Item Number	Description
708591921	Defender Series™ OPV with 5' top drop tube, 8' bottom drop tube, AGB compatible*
708591922	Defender Series™ OPV with 5' top drop tube, 10' bottom drop tube, AGB compatible*
708592921	Defender Series™ OPV with 10' top drop tube, 8' bottom drop tube, AGB compatible*
708592922	Defender Series™ OPV with 10' top drop tube, 10' bottom drop tube, AGB compatible*
708593923	Defender Series™ OPV, poppeted coaxial with 6.5' top drop tube, 8' bottom drop tube, AGB compatible*
708593924	Defender Series™ OPV, poppeted coaxial with 6.5' top drop tube, 10' bottom drop tube, AGB compatible*
708594901	Defender Series™ OPV only with top adapter, AGB compatible*
708594902	Defender Series™ OPV only with coaxial top adapter, AGB compatible*
705xxxxxx	Defender Series™ 5-gallon spill container, single and double wall models

*AGB stands for Alcohol, Gas, and Biofuel and is used in our literature to identify such products.

Please let me know if there are any other questions or concerns regarding Defender Series™ OPV and Spill Containers.

Regards,

Nicole Keppy
Franklin Fueling Systems
Product Manager, Service Station Hardware



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



October 10, 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



Morrison Bros. Co.
570 E. 7th St.
P.O. Box 238
Dubuque, IA 52004-0238

Tel: 800-553-2709 ext. 223
Tel: 563-583-0632 ext. 223
Fax: 563-583-5028
E-mail: cglab@me.com

Website: <http://www.morbros.com>

Products Compatible with Ethanol Blend Fuels up to E-85

The following is a list of Morrison Bros. Co. products that are compatible for use with ethanol blend fuels up to, and including, the E-85 blend (85% ethyl alcohol and 15% gasoline).

Model 076DI and 078DI Expansion Relief Valve
Model 128DIS Frost Proof Drain Valve
Model 155 Double Outlet Vent
Model 184 Double Tap Bushing
Model 200S Anodized Farm Nozzle
Model 244 Series Emergency Vents
Model 246ADI and 246DRF Series Swing Check Valves
Model 272DI and 272HDI Series Internal Emergency Valves
Model 285 Series Line Strainers with Teflon
Model 305C Series Caps
Model 305XPA Series Tank Monitor Adaptor and Cap Kits
Model 317 Series Float Vent Valves
Model 323 Vapor Recovery Adaptor with Viton
Model 323C Series Vapor Recovery Caps
Model 346DI and 346FDI Series External Emergency Valves
Model 346SS and 346FSS Series External Emergency Valves
Model 354 Series Updraft Vents
Model 351S Flame Arrester
Model 419A Series Anodized Drop Tubes
Model 515/516/517/518 Series Spill Containers
Model 539TO and 539TC Series Anodized Diffusers
Model 548 Series Pressure Vacuum Vents
Model 560/561/562/563 Series Extractors
Model 691BSS Series Ball Valves
Model 710SS Series Solenoid Valves (3" Must be all Teflon version)
Model 748 Series Pressure Vacuum Vents
Model 749 Series Pressure Vacuum Vents
Model 818 Series Clock Gauges
Model 912 Anti-Syphon Valve
Model 918 Series Clock Gauge with Alarm
Model 918TCP Overfill Alarm
Model 922 Combination Vent/Overfill Alarm
Model 927 Dry Disconnect Adaptor
Model 958 In-Line Check Valve
Model 9095A-AV Overfill Prevention Valve
Model 9095SS Overfill Prevention Valve

Yours truly,

Charlie Glab
President



August 1, 2011

Fuel Storage Compatibility

This letter applies to all fiberglass fuel storage products manufactured since the inception of Containment Solutions, Inc. (CSI) on 1/1/1995 including:

- Single-wall underground tanks
- Double-wall underground tanks
- Triple-wall underground tanks
- ReTank® (In situ double-wall tank upgrade)
- BTU® (Bio fuel Tank Upgrade for fluid compatibility)
- Single-wall tank sumps
- Double-wall tank sumps

CSI single, double, and triple wall tanks are listed by Underwriters Laboratories Inc., under UL Standard 1316 - *Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols, and Alcohol-Gasoline Mixtures*.

All of the above Containment Solutions' products are compatible for use with the following fuels and fuel blends:

- Gasoline, jet fuel, aviation gasoline, motor oil (new or used), kerosene, diesel motor fuel
- Alcohol-gasoline blend motor fuels
 - Gasoline-ethanol blends with up to 100% ethanol
 - Gasoline-methanol blends with up to 100% methanol
- Biodiesel-diesel blends with up to 100% biodiesel (B100 per ASTM)
- Oxygenated motor fuels with up to 20% (by volume) 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 (TAEF)
- Diesel fuel oil

For more information on CSI products or CSI Field Services contact:

Containment Solutions

1-877-CSI-TANK

sales@csiproducts.com

www.containmentsolutions.com

Sincerely,

A handwritten signature in blue ink, appearing to read "Ron Shaffer".

Ron Shaffer

Vice President Sales & Marketing

Containment Solutions, Inc.



The leading authority for fuel and fluid handling equipment.

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OPW Equipment Listed for E85

OPW Fueling Components has announced that it has received Underwriters Laboratories (UL) Listing for its 21Ge Series Nozzles, ethanol swivels, breakaways and its 10 Plus Emergency Shut-Off Valve for use in applications containing ethanol concentrations up to 85 percent.

The third-party listing was received after the company's products passed a rigorous testing process by UL.

“All of our equipment is designed, built and rigorously tested to endure extreme environments and fuels,” said Brandon Grote, OPW Product Manager, Aboveground Products. “So, when UL tested our E85 products in highly corrosive acid-ethanol blends, we were confident our products would meet the industry’s expectations, and they did.”

With the UL Listing, OPW offers the a complete E85 UL Listed hanging hardware and under-pump equipment solution. The package includes the OPW 21Ge Ethanol Nozzle, 241TPS-0492 hose swivel, 66V-0492 hose breakaway, and 10 Plus Emergency Shut Off Valves (model 10P-0152E85).

[Select Language](#) ▼



www.opwglobal.com

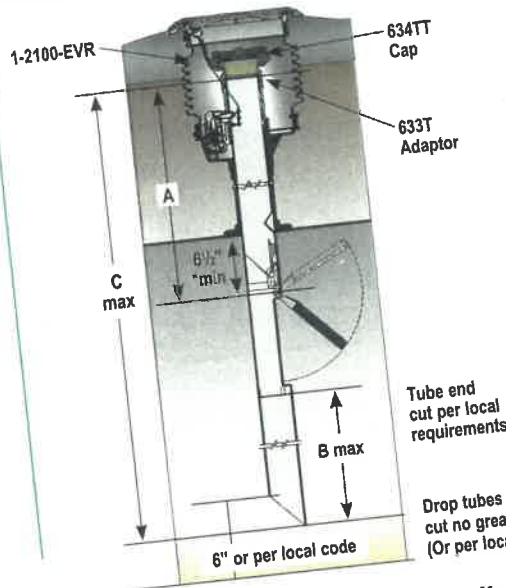
Typical Application Assembly

Installation schematic typical; exact dimensions will vary with tank configuration.

61SO-4000

* From inside wall of tank to bottom of upper tube

61SOK Float Kit Instruction Sheet
Order Number: H11403PA



Replacement Parts

Part #	Description
61SOK-0001	Float Kit
C03899M	Two-Point Inlet Tube
C03632M	Coaxial Inlet Tube
D01756	Inlet Tube/Adaptor Assy. for 61SOP
H11931M	Drop Tube O-Ring
C03749	Trap Door Assy. (Remote)

Tube end cut per local requirements

Drop tubes shall be cut at a 45° angle, with the top of cut no greater than 6" from the bottom of the tank (Or per local regulations)

Ordering Specifications

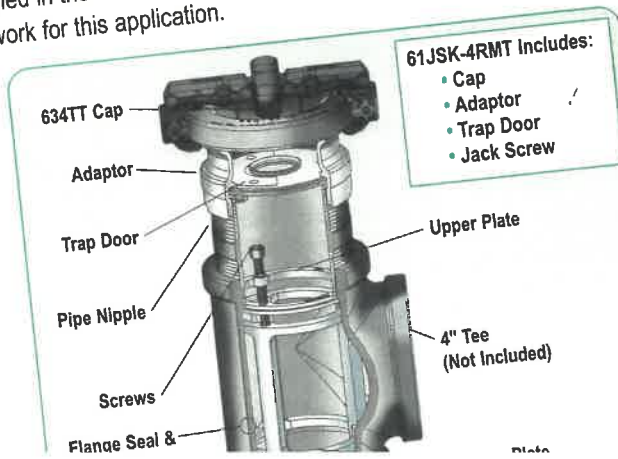
Product/ Suffix #	Description	A-Upper Tube Length		B-Lower Tube Length		C-Overall Length		Max. Riser Length		Max. Nominal Tank Dia.		Max. Actual Tank Dia.		Wt lbs.
		in.	m	in.	m	in.	m	in.	m	in.	m	in.	m	
61SOM-412C-EVR*†	CARB 4", two-point, ethanol/methanol	120	3.1	not included		233%	5.9	113%	2.9	120	3.1	126	3.2	25
61SOC-4001	Coaxial	60	1.5	83	2.1	154%	3.9	53%	1.4	96	2.4	107	2.7	16
61SOC-4011	Coaxial	120	3.1	102	2.6	233%	5.9	113%	2.9	120	3.1	126	3.2	25
61SOP-4002	CARB, pop. coaxial	60	1.5	83	2.1	154%	3.9	53%	1.4	96	2.4	107	2.7	20
61SOP-4012	CARB, pop. coaxial	108	2.7	102	2.6	221%	5.6	101%	2.6	120	3.1	126	3.2	27
61SOCM-4000*†	Coaxial, ethanol/methanol	60	3.1	not included		233%	5.9	113%	2.9	120	3.1	126	3.2	28
61SOR-4000**	Remote	72	1.8	83	2.1	166%	4.2	65%	1.7	96	2.4	107	2.7	1
61JSK-4RMT	Jack Screw Kit for Remote application													

* For use with M85 & M100 methanol fuels **Remote fill applications

† Methanol (M85) and Ethanol (E85) models do not include lower drop tube. Adaptor for 3" A.O. Smith Fiberglass Pipe (Drop Tube) is included. Appropriate length of 3" A.O. Smith Fiberglass Pipe is required for lower Drop Tube (not furnished).

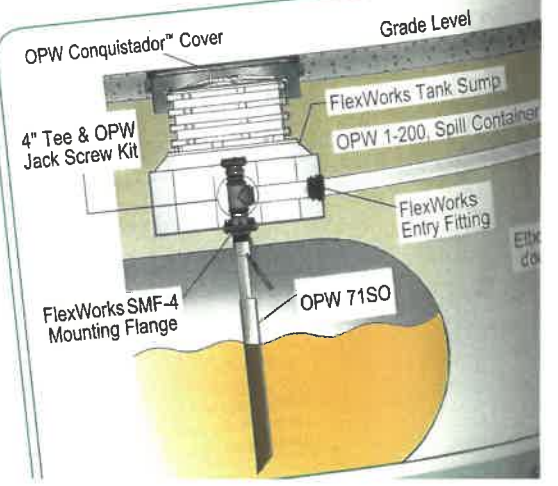
71SO Vapor-Tight Remote Fill

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 tank. A CARB approved vapor-tight 71SO overfill valve is installed in the sump through a riser pipe directly over the tank. The 61JSK-4RMT installed within a 4" Tee provides an anchoring mechanism by locking the 71SO overfill valve in the tank fill riser. The "trap-door" installed in the riser above the tank retains access for a gauge stick. The 61JSK-4RMT Kit coupled with any Vapor-Tight 61SO will work for this application.



61JSK-4RMT includes:

- Cap
- Adaptor
- Trap Door
- Jack Screw



Mag Plus Magnetostrictive Probe and Float Kit Fluid Compatibility Guide

Mag Plus Magnetostrictive Probes (Probe Model No. 846390-1xx)

Product	Float Kit	Product	Float Kit
Recommended for Inventory Monitoring and Leak Detection:			
Aviation Gasoline	Gasoline	Gasohol (<=10% Ethanol)	Gasoline
Leaded Gasoline	Gasoline	Mineral Spirits	Gasoline
Premium Unleaded Gasoline	Gasoline	Regular Unleaded	Gasoline
Gasoline with <=15% MTBE	Gasoline	Gasoline with <=15% ETBE	Gasoline
Gasoline with <=17% TAME	Gasoline	Gasoline with <=12% TBA	Gasoline
Gasoline with <=7% Methanol And 8% TBA	Gasoline	Diesel (Fuel Oil #2)	Diesel
		Jet Fuel (incl JP8)	Diesel
Kerosene (Fuel Oil #1)	Diesel	Motor Oil	Light Oil
Recommended for Inventory Monitoring Only (Not Recommended for Leak Detection):			
Gear Oil, 90W	Light Oil	Toluene	Light Oil
Transmission Fluid	Light Oil	Fuel Oil #4	Heavy Oil

Mag Plus Magnetostrictive Probes for Alternative Fluids with Water Detection (Probe Model No. 846391-3xx & 846391-1xx)

Product	Float Kit		
Recommended for Inventory Monitoring and Leak Detection in all of the Fluids Listed Above Plus:			
Gasohol (<=20% Alcohol)	Gasoline		

Mag Plus Magnetostrictive Probes for Alternative Fluids without Water Detection* (Probe Model No. 846391-6xx & 846391-4xx)

Product	Float Kit	Product	Float Kit
Recommended for Inventory Monitoring (846391-6xx) and Leak Detection (846391-4xx), without Water Detection, in all of the Fluids Listed Above Plus:			
Alcohol (<=100% Alcohol)	Alternative Fluids	Ethanol (<=100% Alcohol) Includes E85	Alternative Fluids
Methanol (<=100% Alcohol)	Alternative Fluids	MTBE (<=100% Ether)	Alternative Fluids
ETBE (<=100% Ether)	Alternative Fluids	Used Oil	Alternative Fluids
Recommended for Inventory Monitoring Only (Not Recommended for Leak Detection):			
Ethylene Glycol	Alternative Fluids	Fuel Oil #6	Alternative Fluids
Windshield Washer Fluid	Alternative Fluids	Propylene Glycol	Alternative Fluids
DEF (AdBlue)	Alternative Fluids		

* Requires the Alternative Fluids Float Kit which does not include a water float.

Use of Magnetostrictive Probes in Fluids Not Listed Above

Veeder-Root will not be responsible for probe performance or product contamination in fluids other than those specifically identified in this guide. Veeder-Root does not recommend the use of its probes for tank leak detection other than for the products specifically identified in this guide.

Containment Sensors - Continued

SOLID-STATE NON-DISCRIMINATING DISPENSER PAN AND CONTAINMENT SUMP SENSORS

Note when ordering with TLS-350 Systems: Requires an Eight-Input Type A Sensor Interface Module (P/N 329956-001). Any combination of up to eight Solid-State Non-Discriminating Dispenser Pan and Containment Sump Sensors may be connected to one module.

Note when ordering with TLS-450 Systems: Requires a Sixteen-Input Universal Sensor/Probe Module (P/N 332812-001). Any combination of up to sixteen Solid-State Non-Discriminating Dispenser Pan and Containment Sump Sensors may be connected to one module.

Part No.	Item	List Price
794380-321	Solid-State Dispenser Pan Sensor*	
794380-351	Solid-State Containment Sump Sensor*	

*NOTE WHEN ORDERING: Mounting brackets are required. You may order the Veeder-Root Universal Sensor Mounting Kit, Part No. 330020-012, see page 19.

SUMP SENSOR

Note when ordering with TLS-350 Systems: Requires an Eight-Input Interstitial/Liquid Sensor Interface Module (P/N 329358-001). Any combination of up to eight Series 7943 Interstitial Sensors for Fiberglass Tanks, Interstitial Sensors for Steel Tanks, Sump Sensors, Position Sensitive Pan/Sump Sensors or Hydrostatic Sensors may be connected to one module. Also compatible with TLS-300 Series (No additional module required).

Note when ordering with TLS-450 Systems: Requires a Sixteen-Input Universal Sensor/Probe Module (P/N 332812-001). Any combination of up to sixteen Sump Sensors may be connected to one module.

Part No.	Item	List Price
794380-208	Sump Sensor – 12 ft. cable	
794380-209	Sump Sensor – 30 ft. cable	

POSITION SENSITIVE PAN/SUMP SENSOR

Approved for monitoring high alcohol alternative fluids such as E85**.

Note when ordering with TLS-350 Systems: Requires an Eight-Input Interstitial/Liquid Sensor Interface Module (P/N 329358-001). Any combination of up to eight Series 7943 Interstitial Sensors for Fiberglass Tanks, Interstitial Sensors for Steel Tanks, Sump Sensors, Position Sensitive Pan/Sump Sensors or Hydrostatic Sensors may be connected to one module. Also compatible with TLS-300 Series (No additional module required).

Note when ordering with TLS-450 Systems: Requires a Sixteen-Input Universal Sensor/Probe Module (P/N 332812-001). Any combination of up to sixteen Position Sensitive Pan/Sump Sensors may be connected to one module.

Part No.	Item	List Price
794380-323	Position Sensitive Pan/Sump Sensor*** – 12 ft. cable	
331102-001	20' Replacement Cable - 2 Wire Sensors with Connector (Required if replacing a Sump Sensor (794380-209) that currently has a cable longer than 12')	

**Only sensors with serial number greater than 200,000 are compatible. If serial number is less than 200,000, replace cable with p/n 331102-001 (20ft) or 331102-002 (12ft, see Spare Parts page 6) and sensor will be high alcohol compatible.

***A core program has been established for the 794380-208/209 Sump Sensors that are being upgraded to the 794380-323 Position Sensitive Pan/Sump Sensor. A core credit of \$30.00 will be issued when the Sump Sensor is returned to Customer Service in Altoona, PA. An RGA number will be provided on the packing slip if the purchase order indicates upgrade to Position Sensitive Sensor. Otherwise, Customer Service can be contacted for an RGA.

Interstitial Sensors

INTERSTITIAL SENSORS FOR FIBERGLASS TANKS

Note when ordering with TLS-350 Systems: Requires an Eight-Input Interstitial/Liquid Sensor Interface Module (P/N 329358-001). Any combination of up to eight Series 7943 Interstitial Sensors for Fiberglass Tanks, Interstitial Sensors for Steel Tanks, Sump Sensors, Position Sensitive Pan/Sump Sensors or Hydrostatic Sensors may be connected to one module. Also compatible with TLS-300 Series (No additional module required).

Note when ordering with TLS-450 Systems: Requires a Sixteen-Input Universal Sensor/Probe Module (P/N 332812-001). Any combination of up to sixteen Interstitial Sensors for Fiberglass Tanks Sensors may be connected to one module.

Part No.	Tank I.D.	List Price
794390-401	4', 5'	
794390-404	5'4", 6', 7'	
794390-407	7'6", 8', 9'	
794390-409	10', 10'6", 11', 12'	

SOLID-STATE DISCRIMINATING INTERSTITIAL SENSOR FOR FIBERGLASS TANKS

Note when ordering with TLS-350 Systems: Requires an Eight-Input Type A Sensor Interface Module (P/N 329956-001). Any combination of up to eight Series Type A Sensors may be connected to one module.

Note when ordering with TLS-450 Systems: Requires a Sixteen-Input Universal Sensor/Probe Module (P/N 332812-001). Any combination of up to sixteen Solid-State Discriminating Interstitial Sensors for Fiberglass Tanks Sensors may be connected to one module.

Part No.	Item	List Price
794380-343	Solid-State Discriminating Interstitial Sensor for Fiberglass Tanks (4' to 10' tank I.D.) – 25 ft. cable	

ALTERNATE ETHANOL FLUID INTERSTITIAL SOLID STATE SENSOR FOR FIBERGLASS TANKS

Approved for monitoring of fiberglass interstitial in high alcohol alternative fluids such as E85.

Note when ordering with TLS-350 Systems: Requires an Eight-Input Type A Sensor Interface Module (P/N 329956-001). Any combination of up to eight Series Type A Sensors may be connected to one module.

Note when ordering with TLS-450 Systems: Requires a Sixteen-Input Universal Sensor/Probe Module (P/N 332812-001). Any combination of up to sixteen Alternate Ethanol Fluid Interstitial Solid State Sensors for Fiberglass Tanks Sensors may be connected to one module.

Part No.	Item	List Price
794380-345	Interstitial Solid-State Sensor for Fiberglass Tanks (4' to 10' tank I.D.) – 25 ft. cable	

SUBMERSIBLE TURBINE PUMPS

ORDERING INFORMATION CONTINUED

Advanced Protection Submersible Turbine Pumps

Model	Description	Model Length Range ^a
ISTAPMVS4-VL1	4 hp AP variable speed with MagShell™	64" - 92"
ISTAPMVS4-VL2	4 hp AP variable speed with MagShell™	95" - 156"
ISTAPMVS4-VL3	4 hp AP variable speed with MagShell™	127" - 218"
ISTAPM-1	4 hp AP variable speed with MagShell™	59" - 87"
ISTAPM-2	2 hp AP variable speed with MagShell™	90" - 151"
ISTAPM-3	2 hp AP variable speed with MagShell™	122" - 213"
STPAPM200-VL1	2 hp AP fixed speed with MagShell™	63" - 91"
STPAPM200-VL2	2 hp AP fixed speed with MagShell™	94" - 154"
STPAPM200-VL3	2 hp AP fixed speed with MagShell™	126" - 217"
STPAPHM200-VL1	2 hp AP high pressure fixed speed with MagShell™	63" - 92"
STPAPHM200-VL2	2 hp AP high pressure fixed speed with MagShell™	94" - 155"
STPAPHM200-VL3	2 hp AP high pressure fixed speed with MagShell™	126" - 218"
STPAP150-VL1	1½ hp AP fixed speed	60" - 88"
STPAP150-VL2	1½ hp AP fixed speed	91" - 152"
STPAP150-VL3	1½ hp AP fixed speed	123" - 214"
STPAPH150-VL1	1½ hp AP high pressure fixed speed	61" - 89"
STPAPH150-VL2	1½ hp AP high pressure fixed speed	92" - 152"
STPAPH150-VL3	1½ hp AP high pressure fixed speed	124" - 215"
STPAP75-VL1	¾ hp AP fixed speed	57" - 86"
STPAP75-VL2	¾ hp AP fixed speed	88" - 149"
STPAP75-VL3	¾ hp AP fixed speed	120" - 212"

Notes:

1. Remove "M" from model number for non-MagShell™ pump motor assembly (where applicable).
2. STPAP/ISTAP models are listed for compatibility with 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 models can also be used with fuel oils, kerosene, Avgas, and jet fuels in a non-gelled pourable state with a maximum liquid viscosity of 70 SSU at 60°F (15°C).
3. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
4. All above ISTAP models can only be powered by a MagVFC™. 4 hp models require three-phase incoming power supply, 2 hp models can be supplied with single- or three-phase incoming power.
5. All above STPAP models require single-phase, 208-230 VAC, 60 Hz incoming power.
6. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
7. For riser pipe lengths 31" to 60", adder charge applies (call Customer Service for lead times).

Factory Installed Options

Specified in model number at time of STP order.

Model	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
K	IFS (intake filter screen) factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder-Root™ PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket PPM4000 Line Leak

OPW FCS Product Compatibility Matrix 2018

OPW FCS Products	Description	Standard Fuels:		High Ethanol Content		High Biodiesel Content		High Biodiesel Content		Av-Gas / Jet Fuel	Kerosene / Fuel Oil	DEF (Diesel Exhaust Fluid)
		±15% Ethanol Gasoline	±5% Bio-Diesel*	Gasoline: 15-100% Ethanol	High Biodiesel Content: 5-20% Biodiesel*	High Biodiesel Content: 5-100% Biodiesel*	High Biodiesel Content: 5-100% Biodiesel*					
OPW Double Wall Piping	Double Wall Primary Piping	X		X		X		X		X		X
DPC Series	Double Wall Pipe Couplings	X		X		X		X		X		X
SBC Series	Single Wall Pipe Coupling	X		X		X		X		X		X
SBC Series	Stainless Steel Swivel Bolt On Coupling	X		X		X		X		X		X
SMA-1515, SMA-1520, SMA-2020, SMA-3030	E-Coated Male Adaptors	X		X		X		X		X		X
SMA-1515, SMA-1520, SMA-2020, SMA-3030	Swivel Male Adaptor (Brass or Zinc Plated)	X		X		X		X		X		X
SMA-1515, SMA-2020, SMA-3030	E-Coated Swivel Tees	X		X		X		X		X		X
SFA-7575, SFA-1010	Swivel Female Adaptor (Brass or Zinc Plated)	X		X		X		X		X		X
SEF-1515, SRE-2015, SEF-2020, SEF-3030	E-Coated Swivel Elbows	X		X		X		X		X		X
Polyethylene and Fiberglass Sumps**	Dispenser, Tank, Loop, and Transition Sumps	X		X		X		X		X		X
REF Series Entry Fittings**	Entry Fittings	X		X		X		X		X		X
DEB and EBF Series**	Entry Boots	X		X		X		X		X		X
1-2200 Series / Multiports / 1-2200 Series	Spill Containers	X		X		X		X		X		X
Fibretite Multiports	Spill Containers	X		X		X		X		X		X
1018G Series	Spill Containers	X		X		X		X		X		X
1-3100 Series (Edge)	Double Wall & Single Wall Spill Container Series	X		X		X		X		X		X
60V Series	Vapor Line Shear Valve	X		X		X		X		X		X
10 Series	Emergency Shut Off Valve	X		X		X		X		X		X
10 Plus Series	Emergency Shut Off Valve	X		X		X		X		X		X
60V-DEF	DEF Series Shear Valve	X		X		X		X		X		X
61SALP Series	Fill Swivel Adaptor	X		X		X		X		X		X
633T-8076	Fill Adaptor	X		X		X		X		X		X
61VSA Series	Vapor Swivel Adaptor	X		X		X		X		X		X
1611AVB-1625	Vapor Adaptor	X		X		X		X		X		X
63ATI-7085-EVR	Fill Cap	X		X		X		X		X		X
1711T-7085-EVR	Vapor Cap	X		X		X		X		X		X
634LPC-0400	Low Profile Vapor Cap	X		X		X		X		X		X
62M Series	Monitoring Probe Cap	X		X		X		X		X		X
61SO & 71SO Series	Overfill Valve	X		X		X		X		X		X
61SO-B Series	Overfill Valve Anodized	X		X		X		X		X		X
6111 & 611T Series	High Biodiesel Overfill Valve	X		X		X		X		X		X
61T Series	Tank Bottom Protectors	X		X		X		X		X		X
61T-SS Series	Drop Tubes	X		X		X		X		X		X
61T-DEF Series	Stainless Steel Drop Tube	X		X		X		X		X		X
233 Series	Extractor Valve	X		X		X		X		X		X
F-CXX Series	Stainless Steel DEF Drop Tube	X		X		X		X		X		X
53VAL/30MMV Series	Ball Floats	X		X		X		X		X		X
523V Series	Pressure Vacuum Vent	X		X		X		X		X		X
623V Series	Pressure Vacuum Vent	X		X		X		X		X		X
723V Series	EVR Pressure Vacuum Vent	X		X		X		X		X		X

* Bio-Diesel must meet ASTM Standard for fuel quality to maintain compatibility with products above

** Compatible for Short Term Containment of Fluid

*** Drain Plug versions compatible with DEF if installed with Stainless Steel Drop Tube between Nipple and Fill Adaptor

5 Refers to less than or equal to the fuel standard rating for percentage of content

Excludes All these Nitrite Gaskets

Gasoil® Quick and Easy Sealant Reference Guide

Soft-Set



- General Purpose, Top-selling Sealant
- Perfect for New Pipes
- Stays Pliable in Cold Temperatures
- Non-Hardening,
- Non-Separating
- Non-Toxic

TYPE	APPLICATIONS	USED BY	USED ON	APPROVALS
Blue Gray Paste with PTFE	Water, Steam, Natural Gas, LPG, Propane, Gasoline, Butane *Not for Use with Oxygen systems	<ul style="list-style-type: none"> • Mechanical Contractors • Plumbers • Gas Utilities • Service Station Installers • Manufacturing Plants 	All Metals and Most Plastics	CSA, UL NSF 61 NSF 14
Green Paste with PTFE	Ethanol Blended Gasoline, including E10 and E85 (*NOT 100% Ethanol applications) *Not for Use with Oxygen systems	<ul style="list-style-type: none"> • Gas Station Installers 	All Metals	UL
Red Varnish	Aliphatic, Aromatic and Chlorinated Solvents *Not for Use with Oxygen systems	<ul style="list-style-type: none"> • Auto Industry to Seal Drive Trains, Coat parts • Contractors Installing Underground Piping, Steam Systems • Marine Manufacturers 	All Metals, Rubber, Porcelain, Wood	UL
Gray Paste with PTFE	Chlorine, Diesel, Jet Fuel, Steam, Dilute Acid, LPG *Not for Use with Oxygen systems	<ul style="list-style-type: none"> • Chemical Plants, • Gas Utilities • Refineries • Airlines, Hydraulics • Tank Trucks 	All Metals and Most Plastics	CSA UL
Black Paste	High Concentrations of Alcohol, Solvents, Caustic Chemicals 100% Ethanol 100% Methanol *Not for Use with Oxygen systems	<ul style="list-style-type: none"> • Pharmaceutical • Chemical Companies 	All Metals and Fiberglass *Not for Use on Plastic Pipe *Threads must be Clean Prior to use	
Oyster White Paste with PTFE	Water, Steam, Natural Gas, LPG, Propane, Gasoline, Freon 22 and Hydraulic Fluids *Not for Use with Oxygen systems	<ul style="list-style-type: none"> • Plumbers, • Gas Utilities • Manufacturing Plants 	All Metals	
Dark Blue Paste without PTFE	Water, Steam, LPG, Propane, Gasoline *Not for Use with Oxygen systems	<ul style="list-style-type: none"> • Propane Companies • Petroleum Companies 	All Metals and Most Plastics	NSF 61 NSF 14
Smooth White Paste with PTFE	Air Conditioning Lines, Hydraulic-Pneumatic Lines, Air Compressor Hoses, Sprinkler Installations *Not for Use with Oxygen systems	<ul style="list-style-type: none"> • HVAC • Refrigeration Companies 	Metals *Not for Use on Plastic Pipe	UL

E-Seal



- Specifically for E10 and E85
- Stays Pliable in Cold Temperatures
- Non-Hardening,
- Non-Separating
- Non-Toxic

Hard-Set



- Hard Setting Sealant
- Assembles Threaded Joints Permanently
- Excellent for Coating Surfaces.
- Impervious to Gasoline
- Flammable

PLS-2



- Ideal for Demanding Pneumatic and LPG Applications

100



- Ideal for use on Systems with 100% Methanol, Ethanol, Alcohol and Highly Corrosive Chemicals
- Soft Setting

JC-30



- For Damaged, Irregular, Mis-cut and Straight Threads
- Vegetable Oil Base
- Thick Consistency, 10-15% more Solids than Conventional Sealants

NT



- Soft Setting for Applications Requiring Grit-Free, Non-PTFE Compound
- No Fillers to Contaminate Gas Lines
- For use when Non-PTFE Sealant is Preferred

FasSeal ATS

Anaerobic Thread Sealant that cures in Absence of Oxygen • Ideal for Refrigeration or other High Vibration Applications • High Speed Curing Time • Vibration Resistant.



Phone: 800-846-7325 - Fax: 800-797-2080

#GCC4 JAN - 2015

Specifications and Compatible Fluids Requirements

The table below lists Veeder-Root Line Leak Detector specifications.

SPECIFICATION	TLS-4XX w/ DPLLD	TLS-350 w/ PLLD	TLS-350 w/ WPLLD
OPERATING TEMP:	-25 TO +130°F	-25 TO +130°F	-25 TO +130°F
COMPATIBLE FUELS:	UNLEADED GASOLINE LEADED GASOLINE 5% METHANOL / 95% UNLEADED 0 - 100% ETHANOL 10% ETHANOL / 90% UNLEADED 15% MTBE / 85% UNLEADED DIESEL BIODIESEL (UP TO B100) ^{1,2} KEROSENE JET FUEL AVIATION GASOLINE	UNLEADED GASOLINE LEADED GASOLINE 5% METHANOL / 95% UNLEADED 0 - 100% ETHANOL 10% ETHANOL / 90% UNLEADED 15% MTBE / 85% UNLEADED DIESEL BIODIESEL (UP TO B100) ^{1,2} KEROSENE JET FUEL AVIATION GASOLINE	UNLEADED GASOLINE LEADED GASOLINE 5% METHANOL / 95% UNLEADED 10% ETHANOL / 90% UNLEADED 15% MTBE / 85% UNLEADED DIESEL BIODIESEL (UP TO B100) ^{1,2} KEROSENE JET FUEL AVIATION GASOLINE
LINE FLOW RATE:	120 GPM MAX. W/SWIFTCHECK VALVE	120 GPM MAX. W/SWIFTCHECK VALVE	120 GPM MAX. W/SWIFTCHECK VALVE
OPERATING RANGE:	0 - 70 PSI	0 - 70 PSI	0 - 70 PSI
PROOF PRESSURE:	200 PSI	200 PSI	200 PSI
MAX. VERTICAL PIPELINE HEIGHT ABOVE TRANSDUCER³	11 FEET	11 FEET	11 FEET
MINIMUM PUMP OUTPUT PRESSURE⁴	23 psi	23 psi	23 psi

¹Biodiesel compliant with ASTM D7467 (up to B20) or ASTM D6751.

²Consult pump manufacturer for compatibility ratings on fuel blends greater than B20.

³Applications that exceed these max. vertical pipeline heights will require further consultation. Please contact Veeder-Root at 800-323-1799 (request a Veeder-Root/Red Jacket Application Engineer).

⁴Pump output pressure should be a minimum of 4 psi above the check valve's relief pressure.

Veeder-Root recommends that system software for the console be upgraded to the latest version when installing any new hardware. For TLS-350 Consoles, when installing latest software, PLLD or WPLLD must be specified and customer must upgrade to ECPU2 if not already installed. See Accessories/Upgrades section of price book or your local Veeder-Root authorized distributor for details.