



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: 1L002425
Facility Owner: ORCHARDS LOT 6 LLC
Facility Name: ORCHARDS
Street Address: 3003 MANNHEIM RD
City: DES PLAINES
County: COOK

UST Information:

Tank ID Number: 7
Tank Material: Steel FRP ✓
Single Wall or Double Wall ✓
Tank Volume: 10,000
Tank Product: E85

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>		DOUBLE WALL COMPARTMENT TANK 6/10/10
PIPING	NO	<u>YES</u>		AMERON DUALOX 3000/LCX
CONTAINMENT SUMPS	NO	<u>YES</u>		BRAVO SYSTEM B400 SUBMERSIBLE B1000 DISPENSER
PUMPING EQUIPMENT	NO	<u>YES</u>		FR PETRO SUBMERSIBLE

Magnetostrictive Probes for Alternative Fluids

Certified performance for inventory control and in-tank leak detection in fuel blends up to 100% alcohol

Veeder-Root offers two types of Magnetostrictive Probes for Alternative Fluids to provide highly accurate, trouble-free in-tank leak detection and inventory control in fluids up to 100% alcohol. The Magnetostrictive Probe for Alternative Fluids with water detection is ideal for fuel blends with less than 20% alcohol. The Magnetostrictive Probe for Alternative Fluids without water detection has been developed for fluids up to 100% alcohol.

Series 8463 0.1 GPH Mag Probe for Alternative Fluids

The 0.1 GPH Mag Probe for Alternative Fluids has been third-party tested and certified to perform far better than the U.S. E.P.A. standards for both 0.1 GPH volumetric tank tightness testing and 0.2 GPH automatic tank gauging. (See the summary of leak test performance on back or call us for a copy of the complete test results.)

0.1 GPH Mag Probe and CSLD — Leak detection without shutting down your tanks!

CSLD, Continuous Statistical Leak Detection, is an advanced tank testing technology that makes full use of the TLS-300 and TLS-350(R)'s in-tank monitoring capabilities. CSLD eliminates the need for tank shutdown to perform a leak test — no lost business, no lost operating time!

The TLS-300 and TLS-350(R) equipped with CSLD use the 0.1 GPH Mag Probe to continuously monitor fuel height and temperature information to detect idle times in the tank. During each idle time, data collected forms a highly accurate leak detection database. Sophisticated statistical analysis techniques in CSLD constantly evaluate the database to discard invalid data and perform leak tests based on only high-quality information in the current database. In fact, a new leak test is performed every time new data from an idle period is added.

Series 8463 0.2 GPH Mag Probe for Alternative Fluids

The 0.2 GPH Mag Probe for Alternative Fluids provides the same reliable inventory control features and fluid compatibility as the 0.1 GPH Mag Probe for Alternative Fluids, but offers 0.2 GPH leak detection at a lower cost.

The 0.2 GPH Mag Probe for Alternative Fluids has also been third-party tested and certified to exceed U.S. E.P.A. standards for 0.2 GPH automatic tank gauging. (See the summary of leak test performance on back or call us for a copy of the complete test results.)

Approved for Aboveground Tank Applications

Veeder-Root Magnetostrictive Probes are approved for use in aboveground storage tanks to monitor fuel inventory. An AST installation Kit (Form Number 312020-984) is required for these applications and is available from Veeder-Root, Customer Service 800-873-3313 or your authorized Veeder-Root distributor.

Features & Benefits

- Non-corrosive, stainless steel tubing for long-life monitoring in fuels up to 100% alcohol
- Highly accurate Magnetostrictive measurement technology
- Fast accurate leak tests
- 0.1 GPH Mag Probe for Alternative Fluids is third-party certified to exceed U.S. E.P.A. performance standards for 0.1 GPH Volumetric Tank Tightness Testing
- 0.1 GPH Mag Probe for Alternative Fluids is compatible with TLS-300 and TLS-350R with CSLD for continuous statistical leak detection
- 0.2 GPH Mag Probe for Alternative Fluids is third-party certified to exceed U.S. E.P.A. performance standards for 0.2 GPH Automatic Tank Gauging
- 2", 3" and 4" Float Kits available



Magnetostrictive Probes for Alternative Fluids are available in 0.1 GPH and 0.2 GPH Versions



VEEDER-ROOT

Probe Models

Tank I.D.	Mag Plus Probes for Alternative Fluids with Water Detection Part No*			Mag Plus Probes for Alternative Fluids without Water Detection Part No*		
	0.1 GPH Leak Detection	0.2 GPH Leak Detection	Inventory Only	0.1 GPH Leak Detection	0.2 GPH Leak Detection	Inventory Only
4'	846391-101	846391-201	846391-301	846391-401	846391-501	846391-601
5'	846391-102	846391-202	846391-302	846391-402	846391-502	846391-602
5'4"	846391-103	846391-203	846391-303	846391-403	846391-503	846391-603
6'	846391-104	846391-204	846391-304	846391-404	846391-504	846391-604
7'	846391-105	846391-205	846391-305	846391-405	846391-505	846391-605
7'6"	846391-106	846391-206	846391-306	846391-406	846391-506	846391-606
8'	846391-107	846391-207	846391-307	846391-407	846391-507	846391-607
9'	846391-108	846391-208	846391-308	846391-408	846391-508	846391-608
9'6"	846391-117	846391-217	846391-317	846391-417	846391-517	846391-617
10'	846391-109	846391-209	846391-309	846391-409	846391-509	846391-609
10'6"	846391-110	846391-210	846391-310	846391-410	846391-510	846391-610
11'	846391-111	846391-211	846391-311	846391-411	846391-511	846391-611
12'	846391-112	846391-212	846391-312	846391-412	846391-512	846391-612
2.0M	846391-113	846391-213	846391-313	846391-413	846391-513	846391-613
2.5M	846391-114	846391-214	846391-314	846391-414	846391-514	846391-614
2.67M	846391-116	846391-216	846391-316	846391-416	846391-516	846391-616
3.0M	846391-115	846391-215	846391-315	846391-415	846391-515	846391-615
Custom Length	846391-199	846391-299	846391-399	846391-499	846391-599	846391-699

*Float kits must be ordered separately from probes, water floats not recommended for fuel blends with >20% alcohol

Floats Match Table

Product	Probe	Functions	Float Kit
Gasoline (<=20% Alcohol)	Mag Plus Probe for Alternative Fluids with Water Detection P/N 846391-1xx or -2xx	Inventory: Yes Leak Detection: Yes Water detection: Yes	Gasoline Float Kit P/N 846400-xy0* (*see note for definition of xy below)
	Inventory Only Mag Plus Probe for Alternative Fluids with Water Detection P/N 846391-3xx	Inventory: Yes Leak Detection: No Water detection: Yes	
Alcohol / Ethanol (<=100% Alcohol, including E85) Methanol (<=100% Alcohol) ETBE (<=100% Ether) MTBE (<=100% Ether) Used Oil	Mag Plus Probe for Alternative Fluids without Water Detection P/N 846391-4xx or -5xx	Inventory: Yes Leak Detection: Yes Water Detection: No	Alternative Fluids Float Kit P/N 846400-xy4* *Notes: x=0 -> 4" floats x=1 -> 2" floats x=3 -> 3" floats y=0 -> 5' cable y=1 -> 10' cable y=2 -> 20' cable
	Mag Plus Probe for Alternative Fluids without Water Detection P/N 846391-6xx	Inventory: Yes Leak Detection: No Water Detection: No	
Fuel Oil #4 & #6 Fuel Oil #4 & #6 Ethylene Glycol Propylene Glycol Windshield Washer Fluid	Mag Plus Probe for Alternative Fluids without Water Detection P/N 846391-6xx		

Leak Test Performance (Third Party Certified for all TLS-3xx Consoles*)

PROBE	TEST TYPE	P(D)	P(FA)	TEST TIME
0.1 GPH Mag Probe	0.1 GPH	99%	1%	3 Hours
0.1 GPH Mag Probe	0.2 GPH	99%	<.1%	2 Hours
0.1 GPH Mag Probe w/CSLD	0.2 GPH	99%	<.1%	Continuous
0.2 GPH Mag 2	0.2 GPH	99%	<.1%	2 Hours

Veeder-Root reserves the right to change product specifications without advance notice. Please ensure that you are using the latest version of product literature.



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Sensor Application Matrix

Sensor Description	Form #	Page #	Where Used							Category	Fuel Compatibility											
			Dispenser Pan	Spill Containment	STP Sump	Conduit Tank	Annular Space	Monitoring Well	Oil/Water Separator tank		ASTM D975	ASTM D7547	ASTM D7467	ASTM D6751	ASTM D975	ASTM D975	ASTM D975	ASTM D975	ASTM D975	ASTM D975	ASTM D975	ASTM D975
DPS Standard Dispenser Pan	794380-322	2	X	X					X		X	X	X	X	X	X ¹		X		X		X
CSS Standard Containment Sump	794380-352	3		X	X				X		X	X	X	X	X	X ¹		X		X		X
DPO Optical Dispenser Pan	794380-320	4	X	X					X		X	X	X	X	X	X ¹		X		X		X
CSO Optical Containment Sump	794380-350	5		X	X				X		X	X	X	X	X	X ¹		X		X		X
MSS Mag Sump Sensor	857080-XXX	6	X	X	X				X	X	X	X	X	X	X	X	X	X	X	X	X	X
SSDP Solid State Dispenser Pan	794380-321	7	X	X						X	X	X	X	X	X			X	X	X		X
SSCS Solid State Containment Sump	794380-351	8		X	X					X	X	X	X	X	X			X	X	X		X
Piping Sump	794380-208	9	X	X	X					X	X	X	X	X	X			X		X		X
Non-Discriminating Stand-Alone Dispenser Pan	847990-001	10	X	X	X					X	X	X	X	X	X			X		X		X
Position-Sensitive	794380-323	11	X	X	X					X	X	X	X	X	X	X	X	X	X	X		X
Interstitial for Fiberglass Tanks, Discriminating	794380-343	12				X			X		X	X	X	X	X			X	X	X	X	X
Interstitial for Fiberglass Tanks	794390-409	13				X				X	X	X	X	X	X			X		X		X
Interstitial for Fiberglass Tanks, High Alcohol	794380-345	14				X				X	X	X	X	X	X	X	X	X	X	X	X	X
Interstitial for Steel Tanks	794390-4X0	15		X		X				X	X	X	X	X	X			X		X		X
Interstitial for Steel Tanks, Position Sensitive ²	794380-333	16		X		X				X	X	X	X	X	X	X	X	X	X	X		X
Interstitial for Steel Tanks, High Alcohol	794380-430	17				X				X	X	X	X	X	X	X	X	X	X	X		X
Interstitial for Steel Tanks, High Alcohol, small footprint	794380-344	18				X				X	X	X	X	X	X	X	X	X	X	X	X	X
Hydrostatic Reservoir (Dual Point)	794380-303	19				X					X	X	X	X	X	X ¹		X		X		X
Single-Point Hydrostatic Sensor	794380-301	20				X					X	X	X	X	X	X ¹		X		X		
Single Point Mini Hydrostatic Reservoir (High Alcohol)	794380-304	21				X					X	X	X	X	X	X	X	X	X	X		X
Vapor	794390-700	22					X				X		X	X	X							
Ground Water	794380-62X	23					X				X	X	X	X	X			X		X		X
Oil / Water Separator	794690-XXX	24						X			X	X	X	X	X			X				X

¹Single use only if sensor was exposed to E85 (Test per Sensor Operability Guide [P/N 577013-814] in E-10 or less)

²Small Containment Areas (i.e. Spill Buckets)

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		VREDER ROOT TLS 350 PUD AND PROBE
SPILL PREVENTION EQUIPMENT	NO	YES		FRANKLIN FUELING
OVERFILL PREVENTION EQUIPMENT	NO	YES		OPW 7150M DROP TUBE JACK SCREW - EXTRACTOR
GASKETS & SEALS	NO	YES		FRANKLIN FUELING FLEX CONNECTOR
JOINT ADHESIVES	NO	YES		GASROCK E SEAL

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: Hoyt ARX

date completed: 4-29-18

signature: [Signature]

position/title: PROJECT MANAGER



FIBERGLASS-COMPOSITE PIPE GROUP

Group Headquarters
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Telephone: 832.912.8282
Fax: 832.912.9393

August 30, 2011

Subject: Bio-Fuel Compatibility

To Whom It May Concern:

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

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

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

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

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

Respectfully submitted,

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

JLF/vo



THE DEFENDER SERIES®

SPILL CONTAINMENT

The field-proven Defender Series® has gone toe-to-toe with the worst conditions the world's forecourts could throw at it and came out with a reputation for dependability and versatility. So how could you possibly improve upon the most dependable spill containment series on the market? For starters, we've integrated it into our rugged multiport platform and outfitted it for complete biofuel compatibility. The best defense just got better.

Highlights

Spills In, Water Out

The foremost function of a spill container is to keep spills in and keep water out all while enduring constant attack from weather, forecourt traffic and continuous fuel delivery handling. The rugged concrete ring, sturdy snow plow ring, integrated liquid dam and gasketed lid keep the Defender Series® capturing spills and repelling water intrusion for maximum protection of your liquid investment.

Ready for Anything

Regulations and requirements are constantly changing. The Defender Series® lets you choose a single wall spill containment option with the ability to upgrade to a double wall spill containment option in the future for twice the protection. The upgrade is simple and can be carried out without having to break concrete; an expense and hassle that no one wants to encounter.

Easy Installation and Retrofit

Let's face it; installations don't always go exactly as planned. Installers will love the variable height adjustment feature of the Defender Series®, which allows for 3 inches of adjustment in installation height, making it easy to ensure proper grade level installation. This feature also allows for easy replacement of most any other spill container in retrofit applications.

Interstitial Monitoring (double-wall versions only)

The peace of mind in knowing your double wall spill containment is performing as it should is priceless. The Defender Series® features two options, both mechanical and electronic, to receive immediate confirmation of the integrity of the interstitial space so you can spend less time worrying about the possibility of leaks.

Multiport Platform

Franklin has integrated the direct bury Defender Series® spill container into its multiport platform for a new level of protection and complete ease of access. With several layout configurations to choose from, the multiport platform lets you incorporate all of your spill containment into one space-saving area.

Multiport & Direct Bury Upgrade

With the multiport platform you have the option to choose single wall spill containers now with the freedom to upgrade to double wall in the future. When the time is right, simply unbolt the multiport top and replace the spill containers. Replacement is different for multi vs direct bury. In direct fill, you unbolt the plow ring and remove the bucket; on multiports you remove the large treadplate lid and change out the buckets.

Simple Maintenance

Maintenance with the Defender Series® is a breeze. With the direct bury models, you can easily replace interior containment without having to break concrete. The Defender Series® plow ring bolts are completely protected – located inside the interior of the container shielding them from the potential wear and tear of the forecourt environment.

Fully Biofuel Compatible

The Defender Series® incorporates only the highest-grade biofuel compatible components, which allow for use with petroleum, petroleum/alcohol blends (including E-85), diesel and biodiesel.



Electronic Line Leak Detectors

Application Guide

Notice

Veeder-Root makes no warranty of any kind with regard to this publication, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

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Selecting a Line Leak Detector

This guide helps you to properly configure Veeder-Root's line leak equipment for underground pressurized piping. **Note: Following the industry's best practices, a containment sensor is recommended for sites with Pressurized Line Leak Detection (DPLLD, PLLD or WPLLD) in the event that the submersible pump develops a leak before the check valve and/or functional element. Line leak detectors only check leaks in the primary product line downstream from the pump.**

Veeder-Root offers three types of line leak detectors, each uniquely suited to a particular type of application:

- **DPLLD** Digital Pressurized Line Leak Detection
- **PLLD** Pressurized Line Leak Detection
- **WPLLD** Wireless Pressurized Line Leak Detection

DPLLD, PLLD and WPLLD eliminate the need to break the product line for installation or service. In addition, WPLLD installs without running new wires. DPLLD, PLLD and WPLLD are the cost-effective choice for most retrofit and new piping installations. Veeder-Root's electronic line leak detectors have been evaluated by a third party in accordance with EPA evaluation procedures. Please refer to the National Work Group Listings at www.nwglide.org.

FEATURE	DPLLD (8590 Series)	PLLD (8484 Series)	WPLLD (8494 Series)
SUPPORTED CONSOLE			
TLS-450PLUS	YES	NO	NO
TLS-450	YES	NO	NO
TLS-350	NO	YES	YES
LINE LEAK DETECTION			
3 gph Testing	YES	YES	YES
Precision Testing	OPTIONAL	OPTIONAL	OPTIONAL ¹
Positive Shutdown	YES	YES	YES
3rd Party Certified	YES	YES	YES
INSTALLATION REQUIREMENTS			
Requires TLS Console	YES	YES	YES
Installs Without Breaking Piping	YES	YES	YES
Installs Without New Sump	YES	YES	YES
Installs Without New Wires	NO	NO	YES

¹Not available for flexible piping

Line Leak Specifications - Supported Pump Models (Footnotes explained at end of table)

4-INCH FIXED SPEED MODELS		DPLD/PLLD	WPLD	
RED JACKET	THE RED JACKET	P75U1RJ1 - RJ3, AGP75S1RJ1 - RJ3 (3/4 HP)	YES	YES
		P150U1RJ1 - RJ3, AGP150S1RJ1 - RJ3 (1-1/2 HP)	YES	YES
		X3P150U1RJ1 - RJ3, X3AGP150S1RJ1 - RJ3 (1-1/2 HP)	YES	YES
		P200U1-3RJ1 - RJ3, AGP200S1RJ1 - RJ3 (2 HP)	YES	YES
	QUANTUM	P33U1 QS1 - QS3, AGP33S1 QS1 - QS3 (1/3 HP)	YES	YES
		P75U1Y QS1 - QS3, AGP75S1Y QS1 - QS3 (3/4 HP)	YES	YES
		P150U1Y QS1 - QS3, AGP150S1Y QS1 - QS3 (1-1/2 HP)	YES	YES
		X3P150U1Y QS1 - QS3, X3AGP150S1Y QS1 - QS3 (1-1/2 HP)	YES	YES
		X5P150U1Y QS1 - QS3, X5AGP150S1Y QS1 - QS3 (1-1/2 HP)	NO	NO
		P200U1-3Y QS1 - QS3, AGP200S1-3Y QS1 - QS3 (2 HP)	YES	YES
		STANDARD	P33R1 T1 - T4 (1/3 HP)	YES
	P75S1 T1 - T4 (3/4 HP)		YES	YES
	P150S1 T1 - T4 (1-1/2 HP)		YES	YES
	X3P150S1 T1 - T4 (1-1/2 HP)		YES	YES
	X5P150S1 T1 - T4 (1-1/2 HP)		NO	NO

FE PETRO	STP33, STPAG33 (1/3 HP)	YES	YES
	STP75, STPAG75 (3/4 HP)	YES	YES
	STP150, STPAG150, STPAGH150 (1-1/2 HP)	YES	YES
	STP200, STPAG200, STPMR200, STPR200 (2 HP)	YES	YES
	STPH200, STPAGH200, STPHMR200, STPHR200 (2 HP)	YES	YES

TOKHEIM	585-13 (1/3 HP)	YES	NO
	585-34 (3/4 HP)	YES	NO
	585-150 (1-1/2 HP)	YES	NO
BENNETT	ALL	YES	NO

4-INCH VARIABLE SPEED MODELS		DPLLD/PLLD	WPLLD
RED JACKET	STD and AG with CPT (2 HP) ^{1,2}	YES	NO
	QUANTUM P200U202Y QS1 - QS3 CPT (2 HP)	YES	NO
	QUANTUM AGP200T202Y QS1 - QS3 CPT (2 HP)	YES	NO
	THE RED JACKET P200U20-2RJ1 - RJ3 (2 HP)	YES	NO
	THE RED JACKET AGP200T20-2RJ1 - RJ3 (2 HP)	YES	NO
	THE RED JACKET VSFC ¹	YES	NO
FE PETRO	IST (2 HP) ¹	YES	NO
	STP VS2, STPAG VS2 (2 HP)	YES	NO
	STPRVS4, ISTVS4 AG	YES	NO
	STPMRVS4, ISTMVS4 AG	YES	NO

6-INCH HIGH CAPACITY MODELS		DPLLD/PLLD	WPLLD
RED JACKET - MAXXUM	MAXXUM MXP300 (3 HP)	YES ³	NO
	MAXXUM MXP500 (5 HP)	YES ³	NO
RED JACKET - BIG-FLO	P100H1 - 1MB (1 HP)	YES ⁴	NO
	P150H1 - 1HB (1-1/2 HP)	NO	NO
	P200H1 - 2MB (2 HP)	YES ⁴	NO
	P200H3 - 2MB (2 HP)	YES ⁴	NO
	P300H3 - 2HB (3 HP)	YES ⁴	NO
	P500H3 - 2K (5 HP)	YES ⁴	NO
FE PETRO	STP3, STPAG3 (3 HP)	YES ^{4,6}	NO
	STP5, STPAG5 (5 HP)	YES ^{4,6}	NO
	STP5H (5HP)	YES ^{4,6}	NO

APPLICATIONS	DPLLD/PLLD	WPLLD
SIPHON/MANIFOLDED TANKS	YES	YES
MANIFOLDED LINES	YES	YES
ELECTRONIC BLENDERS	YES	YES
MECHANICAL BLENDERS	YES ⁵	NO

¹See Site Preparation and Installation manual for supported settings.

²Requires TLS-350 Version X19 or later software and CPT Transducer Adaptor Kit (Red Jacket P/N 144-326-5).

³USER DEFINED pipe type must be used for precision (0.2 and 0.1 gph) testing.

⁴3.0 gph only testing.

⁵Requires TLS-350 Version 29C or later software (PLLD).

⁶Requires Model 'R' Relief Valve.

Line Volume Limits

Console Type	Transducer Type	Piping Type	3.0 GPH Certified Volume (Gal.)	0.2 GPH Certified Volume (Gal.)	0.1 GPH Certified Volume (Gal.)
SERIES 860091-X01 TLS-450PLUS CONSOLES W/SOFTWARE VERSION 7E OR HIGHER	Series 8590- DPLLD	Rigid	1178.6	1178.6	165.08
		Flexible	1178.6	1178.6	109.84
		Hybrid (Flex & Rigid)	1178.6	1178.6	267.8
SERIES 860090-100 TLS-450 CONSOLES		Rigid	425.84	165.08	165.08
		Flexible	109.84	109.84	109.84
		Hybrid (Flex & Rigid)	535.68	267.8	267.8
SERIES 8482 TLS-350, -350PC, -350R, -350RPC, - 350PLUS W/ SOFTWARE VERSION X19 OR HIGHER	Series 8484- PLLD	Rigid	212	119.4	119.4
		Flexible	212	119.4	119.4
		Hybrid (Flex & Rigid)	212	119.4	119.4

Supported Pipe Types and Line Lengths* - For DPLLD, PLLD and WPLLD

*lengths approved are for 3.0, 0.2, & 0.1 gph line leak tests using single pipe types. For mixed line types with DPLLD or PLLD, see footnote 1, 6 & 7 respectively.

PIPE TYPE	TLS-4XX w/ DPLLD ^{6,7} (Length Feet)	TLS-350 w/ PLLD ¹ (Length Feet)	TLS-350 w/ WPLLD ² (Length Feet)	BULK MODULUS ³ (PSI)	VOLUME (Gallons/Foot)
RIGID PIPE					
FIBERGLASS (2 INCH)	10-3660	10-500	10-500	25,000	0.204
FIBERGLASS (3 INCH)	10-2619	10-220	10-220	35,000	0.461
STEEL (2 INCH)	30-3000	30-500	30-500	50,000	0.190
COPPER (1 INCH, TYPE K)	10-500	10-500	No	55,000	0.041
FLEXIBLE PIPE - ADVANCED POLYMER TECHNOLOGY					
1.5-INCH (P150SC)	20-3000	20-1100	No	8800	0.092
1.75-INCH (P175SC)	20-3000	20-850	No	7400	0.125
2.0-INCH (P200SC)	20-3000	20-650	No	5600	0.163
2.5-INCH (P250SC)	20-3000	20-430	No	4400	0.255
1.5-INCH (XP-150-SC)	20-3000	20-1100	No	5042	0.092
2.0-INCH (XP-200-SC)	20-3000	20-650	No	5420	0.163
FLEXIBLE PIPE - AMERON					
DUALOY 3000/FLS III (1.5 INCH)	20-3000	20-1100	No	5400	0.092
DUALOY 3000/FLS III (2.0 INCH)	20-3000	20-650	No	7600	0.163
FLEXIBLE PIPE - BRUGG					
FLEXWELL HL-40 (1.5 INCH)	30-3000	30-1100	No	33,000	0.092
FLEXIBLE PIPE - ENVIRON					
GEOFLEX D (1.5 INCH) ⁴	30-3000	30-1100	10-500	14,500 ⁴ (5700)	0.092
GEOFLEX D (2 INCH) ⁴	30-3000	30-650	No	11,000 ⁴ (4500)	0.163
GEOFLEX D (3 INCH)	30-3000	30-300	No	4100	0.367
GEOFLEX PLUS D (1.5 INCH)	30-3000	30-1100	10-500	16,500	0.092
FLEXIBLE PIPE - FLEXWORKS					
C15 (1.5 INCH)	30-3000	30-1100	10-500	14,500	0.092
C20 (2.0 INCH)	30-3000	30-650	No	11,000	0.163
C30 (3.0 INCH)	30-3000	30-300	No	4100	0.367
FLEXIBLE PIPE - FURON					
OPW PISCES - SINGLE WALL					
SP15 (1.5 INCH)	30-3000	30-1100	No	9000	0.092
SP20 (2 INCH)	30-3000	30-650	No	7000	0.163
OPW PISCES - DOUBLE WALL					
CP15 (1.5 INCH)	30-3000	10-1100	No	11,650	0.092
CP15DW (1.5 INCH)	30-3000	30-1100	No	5400	0.092
CP20 (2 INCH)	30-3000	30-650	No	7600	0.163
WESTERN FIBERGLASS - DOUBLE WALL					
COFLEX (1.5 INCH) ⁵	10-3000	10-1100	No	14,500 ⁵ (5400)	0.092
COFLEX (2 INCH) ⁵	30-3000	30-650	No	11,000 ⁵ (7600)	0.163
FLEXIBLE PIPE - NUPI					
SMARTFLEX					
SMARTFLEX (1.5 INCH)	20-3000	20-1100	No	8600	0.092
SMARTFLEX (2.0 INCH)	20-3000	20-650	No	15,000	0.163
T SMA - T SMAH - SINGLE WALL					
1.5 INCH	30-3000	30-1100	No	18100	0.092
2 INCH	30-3000	30-650	No	17200	0.163
3 INCH	30-3000	30-300	No	16200	0.367
T SMA P - SINGLE WALL					
1.5 INCH	30-3000	30-1100	No	21500	0.092
2 INCH	30-3000	30-650	No	20700	0.163
3 INCH	30-3000	30-300	No	19400	0.367

PIPE TYPE	TLS-4XX w/ DPLD ^{6,7} (Length Feet)	TLS-350 w/ PLLD ¹ (Length Feet)	TLS-350 w/ WPLD ² (Length Feet)	BULK MODULUS ³ (PSI)	VOLUME (Gallons/Foot)
FLEXIBLE PIPE - NUPI (Continued)					
TSMAD - DOUBLE WALL					
1.5 INCH	30-3000	30-1100	No	18900	0.092
2 INCH	30-3000	30-650	No	12500	0.163
3 INCH	30-3000	30-300	No	28200	0.367
TSMAXPD - DOUBLE WALL					
1.5 INCH	30-3000	30-1100	No	15500	0.092
2 INCH	30-3000	30-650	No	9200	0.163
3 INCH	30-3000	30-300	No	27800	0.367
FLEXIBLE PIPE - PETROTECHNIK					
PETROTECHNIK UPP EXTRA (63 mm)	20-3000	20-650	No	11,500	0.163
FLEXIBLE PIPE - TOTAL CONTAINMENT					
ENVIROFLEX RETRACTABLE PIPE					
PP1500 (1.5 INCH)	10-3000	10-1100	10-500	2400	0.092
PP1501 (1.5 INCH)	10-3000	10-1100	10-500	3500	0.092
PP1502 (1.5 INCH)	10-3000	10-1100	No	7300	0.092
PP1503 (1.5 INCH)	10-3000	10-1100	No	2500	0.092
PP2500 AND PP2501 (2.5 INCH)	No	No	No	---	---
PP2502 (2.5 INCH)	10-3000	10-430	No	8700	0.255
PP2503 (2.5 INCH)	10-3000	10-430	No	3100	0.255
OMNIFLEX COAXIAL PIPE					
CP1501 (1.5 INCH)	10-3000	10-1100	10-500	13,000	0.092
CP1503 (1.5 INCH)	10-3000	10-1100	No	4500	0.092
CP2503 (2.5 INCH)	10-3000	20-430	No	3900	0.255
FLEXIBLE PIPE - DOUBLE TRAC (OMEGA FLEX)					
UGF-FSP-16 (1.0 INCH)	30-500	30-500	No	31,000	0.058
UGF-FSP-24 (1.5 INCH)	30-3000	30-1100	No	31,000	0.116
UGF-FSP-32 (2.0 INCH)	30-3000	30-650	No	31,000	0.204

¹Mixed Piping Types with PLLD: Using TLS-350 software Version 23 or later, PLLD is certified for 3 gph-only testing for line volumes up to 212 gallons; and for 0.2/0.1 gph testing for line volumes up to 110 gallons. To determine the line volume for mixed piping types, multiply the line length (in feet) times the 'gallons/foot' value for each pipe type and add the results. For example, site has 150 feet of 2" fiberglass and 50 feet of 3" fiberglass pipe:

$$\text{Total line volume} = [150 \times 0.204] + [50 \times 0.461] = 30.6 + 23.1 = 53.7 \text{ gallons}$$

²The 0.2 and 0.1 gph line leak tests cannot be run on flex piping with WPLD.

³Bulk Modulus entry is only applicable to TLS-350 consoles w/software Version 23 or later and all TLS-450 Series consoles. Refer to TLS-350 System Setup manual (P/N 576013-623) or TLS-450 Setup Manual (P/N 576013-940) for programming instructions.

⁴Geoflex piping produced prior to 2001 has a lower bulk modulus than the current product. For this piping (pre-2001) use the values in (). For 2001 piping and later, you must set the correct Bulk Modulus in the "User Defined" menu.

⁵Western Fiberglass COFLEX piping produced prior to 2005 has a different bulk modulus than the current product. For piping produced prior to 2005, use the values in ().

⁶Line lengths shown represent DPLD approved lengths for 3 gph and 0.2 gph testing. 3.0 gph and 0.2 gph testing for DPLD with software version 7E or higher is certified for line volumes up to 1178.6 gallons (not to exceed 3000 feet of line). See footnote 1 for instructions on calculating line volume for mixed piping.

⁷0.1 gph testing is certified for line volumes up to 535.6 gallons (not to exceed 1100 feet of line). See footnote 1 for instructions on calculating line volume for mixed piping.

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.

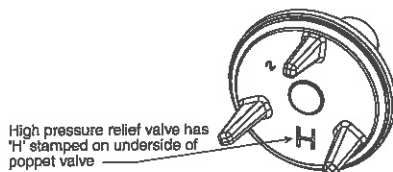
Check Valve Requirements

DPLLD, PLLD and WPLLD require certain check valves or Pressurstat assemblies to be installed on the pump. Use of non-compatible check valves can result in loss of leak detection performance.

Supported Pumps	Check/Relief Valve Type	3.0 GPH Only Testing (Req'd. Kit)	3.0, 0.2, 0.1 GPH Testing (Req'd. Kit)	Additional Req'd. Parts for Manifolded Lines (Single Tank w/ 2 STPs, or 2 or More Tanks w/ STP in Each)
DPLLD/PLLD Applications				
The Red Jacket	None Required	848480-001 (TLS-350) 859080-001 (TLS-4XX)	848480-001 (TLS-350) 859080-001 (TLS-4XX)	Check Valve for Each Slave Pump P/N 410153-002 (See illustration in Note 1 below)
Quantum (All Models) (See Note 2 below)	Red Jacket SpikeCheck Valve (Factory Installed)	848480-001 (TLS-350) 859080-001 (TLS-4XX)	848480-001 (TLS-350) 859080-001 (TLS-4XX)	Red Jacket Quantum SpikeCheck Valve, Non-PSI Relief Valve, Required for Each Slave Pump, P/N 388-081-5 (Field Installed Only)
	Red Jacket SpikeCheck Valve (Field Only Installed) P/N 388-080-5	848480-001 (TLS-350) 859080-001 (TLS-4XX)	848480-001 (TLS-350) 859080-001 (TLS-4XX)	
	Red Jacket Pressurstat Assembly.	848480-001 (TLS-350) 859080-001 (TLS-4XX)	----- Not supported -----	Non-Vented SwiftCheck Valve for Each Slave Pump kit, P/N 330020-416
	SwiftCheck	848480-003 (TLS-350) 859080-002 (TLS-4XX)	848480-003 (TLS-350) 859080-002 (TLS-4XX)	
Standard (All Models)	SwiftCheck	848480-003 (TLS-350) 859080-002 (TLS-4XX)	848480-003 (TLS-350) 859080-002 (TLS-4XX)	Non-Vented SwiftCheck Valve for Each Slave Pump kit, P/N 330020-416
	Red Jacket Functional Element Assembly	848480-001 (TLS-350) 859080-001 (TLS-4XX)	----- Not supported -----	
	Red Jacket SpikeCheck Valve (Field Installed Only) P/N 410557-001	848480-001 (TLS-350) 859080-001 (TLS-4XX)	848480-001 (TLS-350) 859080-001 (TLS-4XX)	Red Jacket Standard SpikeCheck Valve, Non-PSI Relief Valve, Required for Each Slave Pump, P/N 410557-002 (Field Installed Only)
Maxxum	None Required	848480-001 (TLS-350) 859080-001 (TLS-4XX)	848480-001 (TLS-350) 859080-001 (TLS-4XX)	See Note 4 below.
Big-Flo	Pressurstat Kit P/N 144-314-5		(See Note 3 below)	
FE Petro	FE Petro Model R P/N 400988932 and Replacement O-ring for the Valve Housing (See Note 4 below)	848480-001 (TLS-350) 859080-001 (TLS-4XX)	848480-001 (TLS-350) 859080-001 (TLS-4XX)	Non-Vented SwiftCheck Valve for Each Slave Pump kit, P/N 330020-416 --- OR --- FE Petro 65 psi Relief Check Valve (FE P/N 402459931) (See Note 5 below)
	FE Petro Model R Relief Valve P/N 401330902			
Tokheim & Bennett	SwiftCheck	848480-003 (TLS-350) 859080-002 (TLS-4XX)	848480-003 (TLS-350) 859080-002 (TLS-4XX)	Non-Vented SwiftCheck Valve for Each Slave Pump kit, P/N 330020-416
WPLLD Applications				
The Red Jacket	None Required	849490-006	849490-006	High Pressure Check Valve for Each Slave Pump, P/N 410153-002 (See illustration in Note 1 below)
Quantum (All Models) (See Note 2 below)	Red Jacket SpikeCheck Valve (Factory Installed)	849490-005 (Except CPT)	849490-005 (Except CPT)	Non-Vented SwiftCheck Valve for Each Slave Pump kit, P/N 330020-416
	Red Jacket Pressurstat Assembly	849490-005 (Except CPT)	----- Not supported -----	
Standard (All Models)	SwiftCheck	849490-002 (Except CPT)	849490-002 (Except CPT)	
	Red Jacket Functional Element Assembly	849490-003 (Except CPT)	----- Not supported -----	
FE Petro	FE Petro Model R P/N 400988932 and Replacement O-ring for the Valve Housing (See Note 5 below)	849490-001	849490-001	Non-Vented SwiftCheck Valve for Each Slave Pump kit, P/N 330020-416 --- OR --- FE Petro 65 psi Relief Check Valve (FE P/N 402459931) (See Note 5 below)

NOTES:

1. The Veeder-Root High Pressure Check Valve (P/N 410153-002) is shown below:



2. For Red Jacket Quantum pumps, the SpikeCheck is the preferred check valve type.
3. 0.2/0.1 gph testing is supported for the Maxxum pump, but you must select 'User Defined' as the pipe type during DPLLD or PLLD setup.
4. If maximum pump pressure is NOT a minimum of 5 psi below the pressurstat relief setting, then a check valve must be installed in the discharge line of the slave pump (see "Manifolded Line Applications" on page 12).
5. Veeder-Root does not warrant the performance of FE Petro's Model 'R' check valve or 65 psi relief check valve.

TLS-450PLUS and TLS-450 Series Consoles - DPLLD

Hardware Required for DPLLD Leak Detection

DIGITAL PRESSURIZED LINE LEAK DETECTOR (DPLLD) - Order one per line.

MODEL NO.	ITEM
859080-001	PRESSURIZED LINE LEAK DETECTOR WITHOUT SWIFTCHECK VALVE
859080-002	PRESSURIZED LINE LEAK DETECTOR WITH SWIFTCHECK VALVE

DPLLD MODULES

- One Universal Sensor Module is required per console. One USM module monitors up to 16 lines.
- One Input/Output Module is required per console. One I/O module monitors up to 5 lines.

MODEL NO.	ITEM
332812-001	UNIVERSAL SENSOR MODULE
332813-001	INPUT/OUTPUT MODULE

DPLLD Leak Test Options

TESTING	TLS-450	TLS-450PLUS
ULTIMATE TESTING	332972-007	332972-007
RISK MANAGEMENT	332972-008	332972-008
BASE COMPLIANCE	332972-009	332972-009
3 GPH	332972-999	Included

DPLLD Precision Testing Frequencies

ON-DEMAND (D)

Testing can be initiated manually through the TLS Console.

AUTO (A)

Tests will run repetitively until a passing test is achieved. Once a passing test is achieved, testing will stop and recommence six months from the date of the last passing test.

MONTHLY (M)

Tests will run repetitively until a passing test is achieved. Once a passing test is achieved, testing will stop and recommence the first calendar day of the next month.

REPETITIVE (R)

Tests will run repetitively according to pre-programmed time intervals.

Refer to the matrix below to determine which precision testing option best meets your needs:

TESTING OPTION	0.2 GPH TESTS	0.1 GPH TESTS
ULTIMATE TESTING	D, M, R	D, A, R
RISK MANAGEMENT	D, M, R	D, A
BASE COMPLIANCE	None	D, A

DPLLD Accessories and Spare Parts

The following DPLLD accessories and spare parts are available:

MODEL NO.	ITEM
331014-001	SWIFTCHECK VALVE (INSTALLS IN THE PUMP'S MECHANICAL LEAK DETECTOR PORT)
330020-619	UNIVERSAL PROBE/SENSOR INTERFACE MODULE
330020-620	UNIVERSAL INPUT/OUTPUT INTERFACE MODULE
330020-416	NON-VENTED SWIFTCHECK
410153-002	KIT-CHECK VALVE-HIGH
410557-001	KIT-CHECK/RELIEF VALVE
410557-002	KIT-CHECK/RELIEF VALVE-NON RELIEF

TLS-350 Consoles - PLLD

Hardware Required for PLLD Leak Detection

PRESSURIZED LINE LEAK DETECTOR (PLLD)

Order one per line.

MODEL NO.	ITEM
848480-003	PRESSURIZED LINE LEAK DETECTOR WITH SWIFTCHECK VALVE
848480-001	PRESSURIZED LINE LEAK DETECTOR WITHOUT SWIFTCHECK VALVE

PLLD MODULES

•TLS-350/TLS-350 Plus/TLS-350R Consoles - Leak Detection for up to 6 Lines

One Pressurized Line Leak Detector Interface Module is required per console. Order PLLD Controller modules as required - one Controller module monitors up to 3 lines.

MODEL NO.	ITEM
330843-001	SIX INPUT PRESSURIZED LINE LEAK INTERFACE MODULE (MAXIMUM 1 PER CONSOLE)
330374-001	PRESSURIZED LINE LEAK CONTROLLER MODULE (MAXIMUM 2 PER CONSOLE)

•TLS-350J Consoles - Leak Detection for up to 4 Lines

One 'J' PLLD Interface Module is required per console. Order PLLD Controller modules as required - one Controller module monitors up to 3 lines.

MODEL NO.	ITEM
330843-002	'J' PLLD INTERFACE MODULE (MAXIMUM 1 PER CONSOLE)
330374-001	PRESSURIZED LINE LEAK CONTROLLER MODULE (MAXIMUM 2 PER CONSOLE)

PLLD PRECISION TESTING SOFTWARE MODULE

Precision line leak detection capability (0.2 gph / 0.1 gph) requires one SEM (Software Enhancement Module) for the console that must be ordered separately from the table below. Not required for 3.0 gph-only line leak detection capability.

TESTING OPTION	TLS-350/TLS-350J/ TLS-350PLUS/TLS-350R WITHOUT BIR (SEM P/N)	TLS-350R WITH BIR (SEM P/N)
ULTIMATE TESTING	330160-010	330160-110
RISK MANAGEMENT	330160-060	330160-160
BASE COMPLIANCE	330160-050	330160-150
3.0 GPH	INCLUDED*	INCLUDED*

*A SEM is not required for 3 GPH-only testing.

PLLD Precision Testing Frequencies

ON-DEMAND (D)

Testing can be initiated manually through the TLS Console.

AUTO (A)

Tests will run repetitively until a passing test is achieved. Once a passing test is achieved, testing will stop and recommence six months from the date of the last passing test.

MONTHLY (M)

Tests will run repetitively until a passing test is achieved. Once a passing test is achieved, testing will stop and recommence the first calendar day of the next month.

REPETITIVE (R)

Tests will run repetitively according to pre-programmed time intervals.

Refer to the matrix below to determine which precision testing option best meets your needs:

TESTING OPTION	0.2 GPH TESTS	0.1 GPH TESTS
ULTIMATE TESTING	D, M, R	D, A, R
RISK MANAGEMENT	D, M, R	D, A
BASE COMPLIANCE	None	D, A

PLLD Accessories and Spare Parts

The following PLLD accessories and spare parts are available:

MODEL NO.	ITEM
331014-001	SWIFTCHECK VALVE (INSTALLS IN THE PUMP'S MECHANICAL LEAK DETECTOR PORT)
847490-109	SIX INPUT PLLD INTERFACE MODULE (THROUGH-HOLE MOUNT) - REPLACEMENT ONLY
847490-110	SIX INPUT PLLD INTERFACE MODULE (SURFACE MOUNT)
330020-416	NON-VENTED SWIFTCHECK
410153-002	KIT-CHECK VALVE-HIGH
410557-001	KIT-CHECK/RELIEF VALVE
410557-002	KIT-CHECK/RELIEF VALVE-NON RELIEF

Note:

The through-hole mount, six input PLLD Interface Module (P/N 847490-109) is for repair/replacement in existing consoles only. Spare 847490-109 modules are shipped with complete installation and programming instructions and not pre-installed in consoles. Customers that require replacement of PLLD Interface Modules should replace like for like, i.e. through-hole mount PLLD Interface Modules for through-hole mount PLLD Interface Modules. Surface mount PLLD Interface Modules are NOT interchangeable with through-hole mount PLLD Interface Modules.

TLS-350 Consoles - WPLLD

Hardware Required for Wireless Pressurized Line Leak Detection (WPLLD)

WIRELESS PRESSURIZED LINE LEAK DETECTOR (WPLLD)

Order one per line.

MODEL NO.	ITEM
849490-001	WPLLD KIT - FOR FE PETRO PUMPS ¹
849490-002	WPLLD KIT WITH SWIFTCHECK VALVE - FOR RED JACKET PUMPS (EXCLUDING QUANTUM) ²
849490-003	WPLLD KIT - 3 GPH ON RED JACKET PUMPS (EXCLUDING QUANTUM) ³
849490-004	WPLLD KIT W/O SWIFTCHECK VALVE FOR RED JACKET PUMPS (EXCLUDING QUANTUM)
849490-005	WPLLD KIT - FOR RED JACKET QUANTUM PUMPS ⁴
849490-006	WPLLD KIT - FOR THE RED JACKET PUMP

¹Contains Line Leak Sensor, and installation kit for FE Petro pumps. Requires FE Petro Model R Check Valve, P/N 400988932.

²Contains Line Leak Sensor, SwiftCheck valve, and installation kit for Red Jacket pumps.

³Supports 3 GPH testing only. Contains Line Leak Sensor, and installation kit for Red Jacket pumps. Requires Red Jacket's Functional Element Assembly models 323-001-5 or 323-002-5. Does not support precision (0.2 GPH or 0.1 GPH) line testing.

⁴Contains Line Leak Sensor and Installation kit for Red Jacket Quantum pumps. Requires purchase of SpikeCheck valve, P/N 368-080-5, from Red Jacket.

WPLLD MODULES

One of each module from the table below is required. Order additional WPLLD Controller modules (P/N 330841-001) as required - each Controller module monitors up to 3 lines.

MODEL NO.	ITEM
330874-001	WPLLD AC INTERFACE MODULE (MAXIMUM 1 PER CONSOLE)
330883-001	COMMUNICATIONS MODULE (MAXIMUM 1 PER CONSOLE)
330841-001	WPLLD CONTROLLER MODULE (MAXIMUM 3 PER CONSOLE*)

*Maximum of 2 WPLLD Controller module per TLS-350J console

WPLLD PRECISION TESTING SOFTWARE MODULE

Precision line leak detection capability (0.2 gph / 0.1 gph) requires one SEM (Software Enhancement Module) for the console that must be ordered separately from the table below. Not required for 3.0 gph-only line leak detection capability.

TESTING OPTION	TLS-350 / TLS-350J / TLS-350PLUS / TLS-350R (W/O BIR) (SEM P/N)	TLS-350R (WITH BIR) (SEM P/N)
ULTIMATE TESTING	330160-010	330160-110
RISK MANAGEMENT	330160-060	330160-160
BASE COMPLIANCE	330160-050	330160-150
3.0 GPH	INCLUDED*	INCLUDED*

*A SEM not required for 3 gph testing.

WPLLD Precision Testing Frequencies

ON-DEMAND (D)

Testing can be initiated manually through the TLS Console.

AUTO (A)

Tests will run repetitively until a passing test is achieved. Once a passing test is achieved, testing will stop and recommence six months from the date of the last passing test.

MONTHLY (M)

Tests will run repetitively until a passing test is achieved. Once a passing test is achieved, testing will stop and recommence the first calendar day of the next month.

REPETITIVE (R)

Tests will run repetitively according to pre-programmed time intervals.

Refer to the matrix below to determine which precision testing option best meets your needs:

TESTING OPTION	0.2 GPH TESTS	0.1 GPH TESTS
ULTIMATE TESTING	D, M, R	D, A, R
RISK MANAGEMENT	D, M, R	D, A
BASE COMPLIANCE	NONE	D, A

WPLLD Accessories & Spare Parts

The following WPLLD accessories and spare parts are available:

MODEL NO.	ITEM
330020-290	WIRELESS REPLACEMENT TRANSDUCER FOR RED JACKET PUMPS
330020-291	WIRELESS REPLACEMENT TRANSDUCER FOR FE PETRO PUMPS
330773-001	SWIFTCHECK VALVE FOR WPLLD
330841-001	WPLLD CONTROLLER MODULE
330874-001	WPLLD AC INTERFACE MODULE
330883-001	WPLLD COMMUNICATIONS MODULE
330020-416	NON-VENTED SWIFTCHECK
330770-001	WPLLD SENSING LINE FOR FE PETRO PUMPS
330772-001	WPLLD SENSING LINE FOR RED JACKET PUMPS W/ SWIFTCHECK
331069-001	WPLLD SENSING LINE FOR RED JACKET STANDARD PUMPS W/O SWIFTCHECK
410138-001	WPLLD SENSING LINE FOR THE RED JACKET STANDARD PUMPS W/O SWIFTCHECK
330020-412	WPLLD INSTALLATION ADAPTOR KIT FOR RED JACKET QUANTUM PUMPS
330020-477	WPLLD INSTALLATION ADAPTOR KIT FOR RED JACKET PUMPS
330020-096	WPLLD INSTALLATION ADAPTOR KIT FOR FE PETRO PUMPS

Special Installations

Manifolded Line Applications

DPLLD, PLLD and WPLLD leak detection systems can handle product lines supplied by multiple tanks and pumps, to a maximum of 8 tanks and pumps per product line.

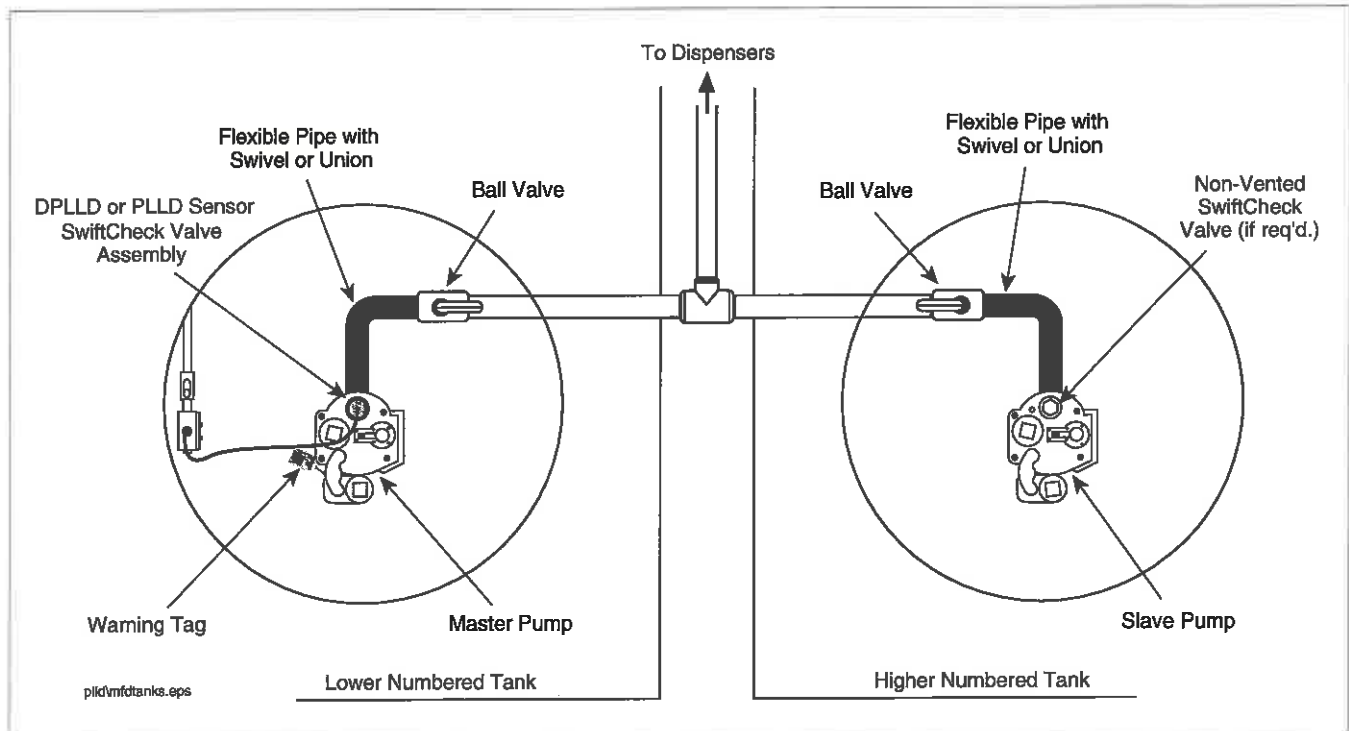
Standard line leak sensing and check valve equipment should be installed at the primary pump.

To perform 0.2 and 0.1 gph tests, a non-vented SwiftCheck valve (P/N 330020-416), or new Red Jacket 65 psi relief valve (P/N 410153-002), or SpikeCheck Valve Non-PSI Relief Valve for Standard Pump (P/N 410557-002), or FE Petro 65 psi Relief Check Valve (FE P/N 402459931) should be installed on each of the other pumps supporting the manifolded product line. The Non-Vented SwiftCheck Valve is rated to a maximum 70 gpm.

NOTICE For 5 HP Maxxum pumps in diesel, an additional in-line check valve with no pressure relief should be installed on the 'Slave' pump to prevent backflow.

A relay on a Four-Relay module or I/O Combination module (TLS-350 Series) or I/O Module (TLS-450 Series) must be available to control each secondary pump. The standard line leak modules will provide pump control output for the primary pump and the "Pump In" signal for the set.

A typical manifolded line installation for DPLLD and PLLD is shown below:



Transducer Installation - Red Jacket CPT and Quantum CPT Pumps

This installation procedure is to be used with Red Jacket CPT and Quantum CPT Pumps.

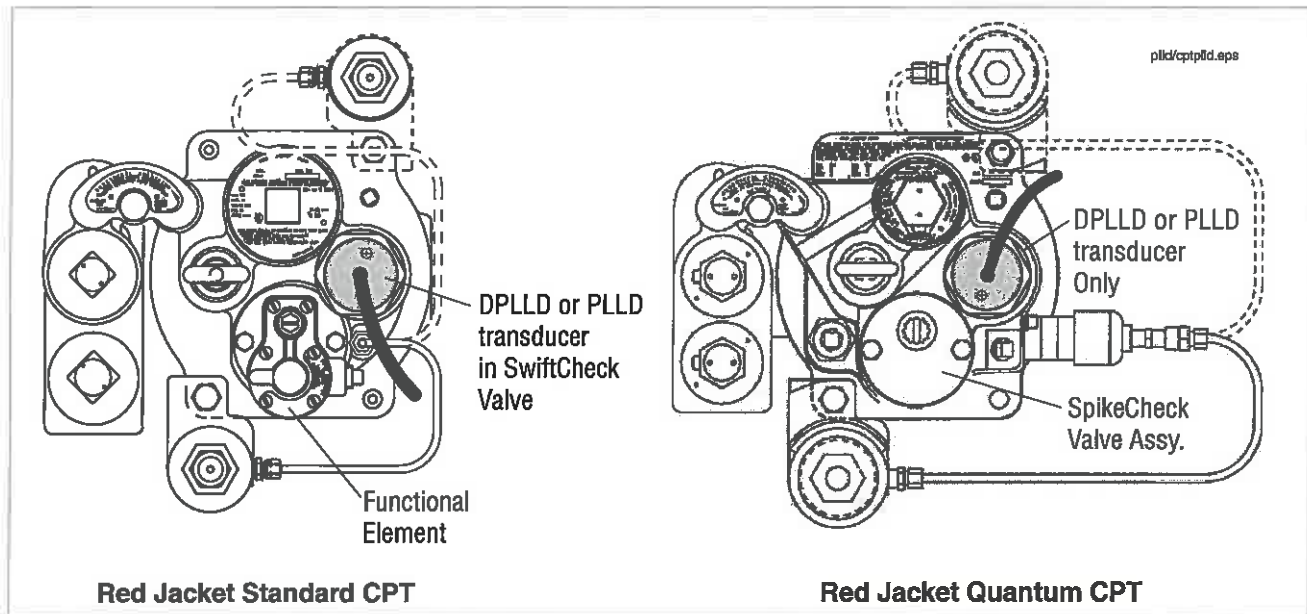
1. Install the Red Jacket CPT Transducer Adapter Kit (Red Jacket part number 144-326-5) following the instructions with the kit. Thread the PLLD transducer in the mechanical LLD port of the pump.

NOTICE Seal any pipe threads using a UL-classified, nontoxic pipe sealant suitable for the fuel involved.

The figure below illustrates two DPLLD and PLLD transducer installations in Red Jacket CPT pumps - consult "Check Valve Requirements" on page 6, to determine what check valve you will need to install to perform your intended level of testing.

2. Verify that the TLS-350 Series Console has Version x19 or later (TLS-450 Series Console has Version 1 or later) software.
3. Verify that the CPT Controller has Version 1.02 or later software installed.

4. Locate red switch bank labeled **S1** on the CPT's Controller CPU board, and verify that dip switch 2 is set to the **Closed** position (to enable the PLLD precision line leak function), and dip switch 8 is set to the **Open** position (to disable the CPT's line leak function).
5. Verify that the Rotary Pressure Dial, also on the CPT's Controller CPU board, is set to either the 2 (24 psi), 3 (27 psi), 4 (30 psi), 5 (33 psi), or 6 (36 psi) position.



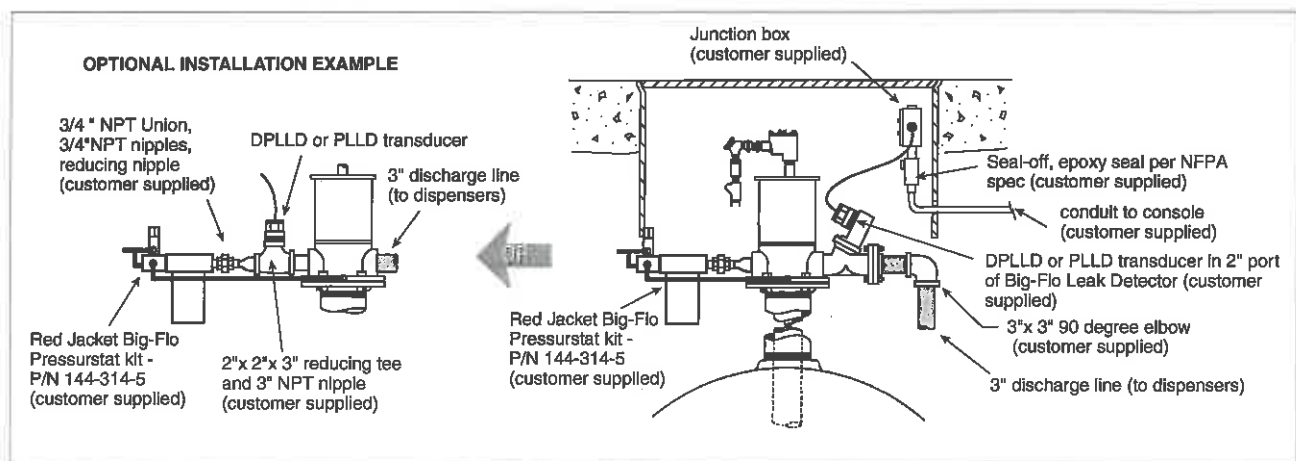
Transducer Installation - Red Jacket Big-Flo Pumps, Red Jacket Maxxum Pumps and FE Petro High Capacity Pumps

BIG-FLO PUMPS

1. You will need to install a reducing tee (customer supplied) in either of the 3-inch discharge ports of the pump with the 2-inch opening facing up. If you have the room, it may be easier to install this tee between the Pressurstat kit and the unused port instead of in the discharge line (as shown in the figure below). Alternatively, the DPLLD or PLLD transducer can be installed in the leak detector port of a Big-Flo leak detector if it is already present in the line (as shown in the figure below).
2. Install the Red Jacket Big-Flo Pressurstat Kit (Red Jacket part number 144-314-5) following the instructions with the kit.
3. Thread the DPLLD or PLLD transducer into the 2-inch opening of the tee.

NOTICE Seal any pipe threads using a UL-classified, nontoxic pipe sealant suitable for the fuel involved.

4. Verify that the TLS-350 Series Console has Version x19 or later (TLS-450 Series Console has Version 1 or later) software.

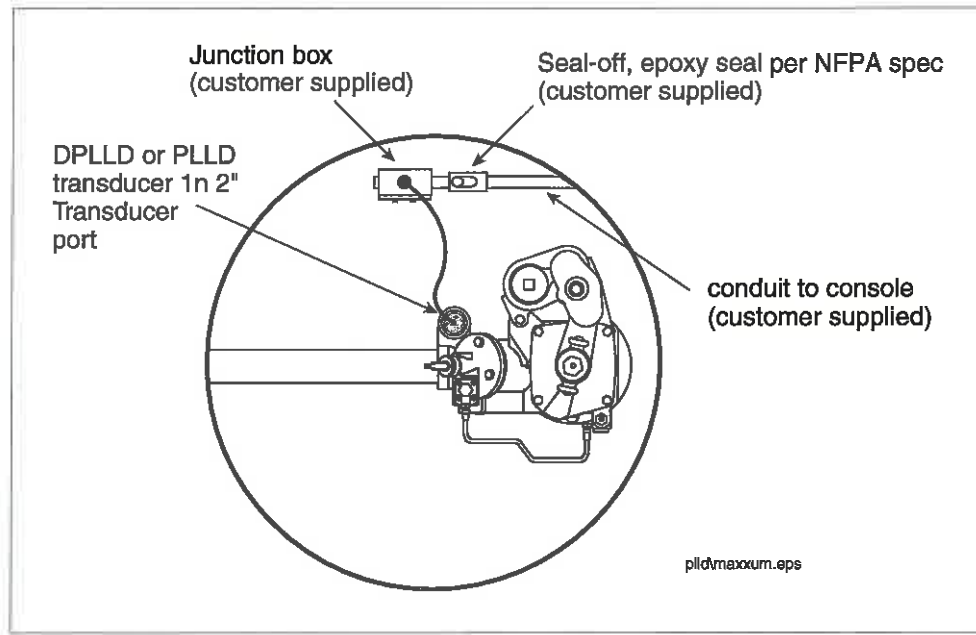


MAXXUM PUMPS

1. Thread the DPLLD or PLLD transducer into the 2-inch opening of the transducer port.

NOTICE Seal any pipe threads using a UL-classified, nontoxic pipe sealant suitable for the fuel involved.

2. If any in-line check valves or a Big-Flo Diaphragm Valve are installed in the line, they must be removed.
3. Verify that the TLS 350 Series Console has Version x19 or later software (TLS-450 Series Consoles Version 1 or later software).



FE PETRO HIGH CAPACITY PUMPS

1. Install a reducing tee (customer supplied) in either of the 3-inch discharge ports of the pump with the 2-inch port facing up.
2. Thread the D/PLLD transducer into the 2-inch port on the tee fitting.

NOTICE Seal any pipe threads using a UL-classified, nontoxic pipe sealant suitable for the fuel involved.

3. Install a model "R" relief valve into the pump if one is not already present.

BIOFUEL

COMPATIBLE COMPLETE SYSTEMS

AG Model STPs Now UL Listed for E85 Applications

THE FUTURE OF THE FUELING
INDUSTRY IS NOW.

With many submersible turbine pump innovations and industry firsts already to its credit, FE Petro submersible turbine pumps from Franklin Fueling Systems are now UL listed for use in applications containing ethanol concentrations up to 85%.

In addition to great benefits like faster fueling times, safe and easy maintenance and simple servicing that FE Petro STPs already offer, now you can rest easy knowing you have an STP E85 application that is backed by a globally-known and trusted safety certification resource: Franklin Fueling Systems has a full line of approved AG models to meet the varying needs of its customers.

Available AG Models

- Intelligent STPs
- 2 hp fixed speed STPs
- 1.5 hp fixed speed STPs
- 1/3 and 3/4 hp fixed speed STPs
- Fixed length STPs

Complete Biofuel Compatible Systems

Components of FFS systems are designed together to work together, ensuring environmental compliance and overall safety.

Enhanced component design, including the incorporation of stainless steel and high grade elastomers, ensures compatibility and durability while preventing fuel contamination.

Franklin's global customer service and technical support team allow a single point of contact for all your Biofuel system needs.



Franklin Fueling Systems

AG Compatible Submersible Turbine Pumps

Intelligent Submersible Turbine Pumps

Model	Description	Model Length
ISTM-1	2 hp variable speed with MagShell™	59"-87"
ISTM-2	2 hp variable speed with MagShell™	90"-151"
ISTM-3	2 hp variable speed with MagShell™	122"-213"
ISTMVS4-VL1	4 hp variable speed with MagShell™	64"-92"
ISTMVS4-VL2	4 hp variable speed with MagShell™	95"-156"
ISTMVS4-VL3	4 hp variable speed with MagShell™	127"-218"

2 hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length
STPAGM200-VL1	2 hp AG fixed speed with MagShell™	63"-91"
STPAGM200-VL2	2 hp AG fixed speed with MagShell™	94"-154"
STPAGM200-VL3	2 hp AG fixed speed with MagShell™	126"-217"
STPAGHM200-VL1	2 hp AG high pressure fixed speed with MagShell™	63"-92"
STPAGHM200-VL2	2 hp AG high pressure fixed speed with MagShell™	94"-155"
STPAGHM200-VL3	2 hp AG high pressure fixed speed with MagShell™	126"-218"

1½ hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length
STPAG150-VL1	1½ hp AG fixed speed	60"-88"
STPAG150-VL2	1½ hp AG fixed speed	91"-152"
STPAG150-VL3	1½ hp AG fixed speed	123"-214"
STPAGH150-VL1	1½ hp AG high pressure fixed speed	61"-89"
STPAGH150-VL2	1½ hp AG high pressure fixed speed	92"-152"
STPAGH150-VL3	1½ hp AG high pressure fixed speed	124"-215"

1/3 and 3/4 hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length
STPAG33-VL1	1/3 hp AG fixed speed	55"-83"
STPAG33-VL2	1/3 hp AG fixed speed	86"-147"
STPAG33-VL3	1/3 hp AG fixed speed	118"-209"
STPAG75-VL1	3/4 hp AG fixed speed	57"-86"
STPAG75-VL2	3/4 hp AG fixed speed	88"-149"
STPAG75-VL3	3/4 hp AG fixed speed	120"-212"

Fixed Length Submersible Turbine Pumps

Model	Description	Model Length
STPAG33	1/3 hp fixed speed	37"-132"
STPAG75	¾ hp fixed speed	37"-132"
STPAG150	1½ hp fixed speed	37"-132"
STPAGH150	1½ hp high pressure fixed speed	37"-132"
STPAGM200	2 hp fixed speed with MagShell™	37"-132"
STPAGHM200	2 hp high pressure fixed speed with MagShell™	37"-132"

FE PETRO®



Franklin Fueling Systems

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FFS-0129 01-10



FIREFLEX FLEXIBLE CONNECTORS

Since their introduction in 1995, FLEX-ING™ FIREFLEX Flexible Connectors have quickly become the industry standard and benchmark for quality as a means to easily connect pipework system to other systems components such as submersible pumps or shear valves. The benefit of their use is undeniable. They have quickly become an integral part of any installation. Installers love their ease of installation while station owners have come to depend on their durability and how easy they make regular maintenance. With tons of available options, Franklin Fueling Systems has the right connector to fit any application.

Highlights

Flexibility is Key

When it comes to Flexible Connectors, flexibility is key. The tight working conditions found in dispenser and tank sumps provide little room for installers to work, motivating some manufacturers of flexible connectors to sacrifice overall strength for flexibility. With FLEX-ING™ FIREFLEX Flexible Connectors, there's no need to compromise. Their corrugated fuel contact layers feature a 25% thicker metal construction and gain flexibility from having more corrugations per foot rather than thinner walls.

Quality Construction

Enclosing the corrugated fuel contact layer is a stainless steel braid that is manufactured from only high-grade stainless steel. The precision braiding process used to manufacture the braid gives strength while still maintaining flexibility. These layers are tied together with a hand-welded coupler ring, and are factory pressure-tested for zero leaks.

Ready for Anything

FLEX-ING™ FIREFLEX Flexible Connectors are available in a multitude of end connections to ensure the right fit for any application - including tees, elbows and FRP transitions. Standard male and female end connections with integrated hex-head surfaces provide easy installation and tightening. The male swivel end connection option allows for the ultimate in ease of installation. The male swivel end connection option features a three-gasket, x-ring seal design. This adds up to a total of six seals, eliminating potential leak paths.

EZ Fit Flexible Connectors

The EZ FIT union style coupling system is specifically designed to make connections in confined spaces simple and tight. The entire flexible connector assembly can be quickly and easily disconnected and pulled out of the inline system without breaking pipe. This feature makes installation fast and regular maintenance simple to carry out. Each EZ FIT union style coupling comes complete with couplers and gaskets..

Specifications

- USA NFPA 30-A fire rated
- All metal construction means one flexible connector for both above and below ground applications
- An 18-8 alloy outer shell, 321 Stainless Steel inner core provides a long service life
- Thick, schedule 80 hex end fittings protect against deformation of the ends
- 100% pressure tested to assure quality
- UL 2039 listed for 50psi working pressure
- EZ FIT clamp and gasket are included with each assembly

Certifications

- UL 2039 listed for above and below ground installation; for use with gasoline, gas alcohol blends (up to E85), diesel and biodiesel.



[Home](#) → [Products](#) → [Pipe Thread Sealants](#) → [Gasoil® E-Seal Thread Sealant](#)



Gasoil® E-Seal Thread Sealant

Non-hardening, non-toxic, opaque, dark green paste designed specifically for ethanol blended gasoline including E10 and E85 (for 100% ethanol or 100% methanol applications - use Gasoil 100).

Provides a positive seal on pipe threads, joints, fittings, hoses, nozzles, pump assemblies, oil burners, hydraulics, bolts, compressors, engines, motors, fuel lines and couplings.

For use on brass, copper, stainless steel, aluminum, black pipe, tin and galvanized pipe.

Excellent resistance to gasoline, ethanol blended gasoline such as E10 and E85, petroleum solvents, kerosene diesel oil, BioDiesel propane, jet fuels, butane, LPG, cutting oils, ammonia, aliphatic solvents, acids, steam and potable water.

NOT for use on oxygen.

Temperature Range: -100°F to 600°F (-74°C to 318°C).

Pressure Range: Up to 10,000 psi when sealing liquids and up to 3,000 psi with gases.

One year shelf life.

Distributors

GASOILA
CHEMICALS



Translated Information for Download



Related



Fast Anaer Seal



Gasoil Thread PTFI



Gasoil Thread Seal

[Additional Info](#)

[Data Sheets](#)

FPC Stock Code	Container Size	Units per Case
GE04	1/4 pt. Brush	24
GE08	1/2 pt. Brush	24
GE16	1 pt. Brush	12



S. Bravo Systems, Inc.
2929 Vall Avenue
Commerce, CA 90040
1-800-AT-BRAVO
www.sbravo.com

Wednesday - August 25 - 2010

R3 10.21.13

RE: Bravo Fiberglass Sumps and Alternative fuels

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

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

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

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

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

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

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

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

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

Sincerely,

A handwritten signature in black ink, reading 'Jonathan E. Smith'.

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





WHY CHOOSE A FIBERGLASS TANK?

Best Product Investment

Fiberglass tanks have rapidly grown in popularity since they were first introduced more than 50 years ago as the corrosion-resistant alternative to underground steel tanks that were rusting, leaking and creating serious environmental damage. Major oil companies and large fuel marketers were the first to realize the benefits of fiberglass over steel for underground tanks. Today, a large majority of North American fuel marketers choose fiberglass, and the preference for fiberglass reaches all segments of the market, including industrial, commercial and government accounts who specify, install and own underground storage tanks. The growing understanding of fiberglass' benefits goes well beyond external corrosion protection with the recognition that fiberglass is corrosion-resistant, both inside and out.

FIBERGLASS OUTPERFORMS STEEL

CORROSION RESISTANCE

It's now common knowledge that fiberglass tanks are protected from external rusting due to corrosive soil environments. Today, the widespread use of ethanol-blended gasoline (E10, E15, E85), biodiesel fuels and ultra-low sulfur diesel (ULSD) has shifted the concern about corrosion to include internal protection. Most significantly, new ethanol-blended fuels raise questions about the compatibility of storage tank materials with stored fuel. When today's buyers compare fiberglass and steel tanks they see the clear advantage of our fiberglass tanks, which are not vulnerable to aggressive internal corrosion caused by storage of today's biofuels. The fact that fiberglass tanks are corrosion-resistant both inside and out give them a distinct advantage over steel tanks.

FUEL COMPATIBILITY

Customers today want to be confident that they are choosing a tank material that is compatible with the new fuels as well as traditional fuels. Our UL-listed (1316) and ULC-listed (S615) double-wall fiberglass tanks are UL-compatible with 0-100 percent ethanol storage. They are also warranted for the full range of ethanol-blended gasoline. The correlating UL listing (58) for steel fuel tanks does not require testing for ethanol compatibility. This third-party compatibility verification for fiberglass tanks – that steel tanks do not have – makes fiberglass the clear and superior choice for fuel tanks.



Mag Plus Magnetostrictive Probe and Float Kit Fluid Compatibility Guide, continued

Mag Plus Magnetostrictive Probes for Alternative Fluids without water detection with leak detection (Probe Model No. 846391-4xx, 846397-4xx, 846391-5xx, 846397-5xx) and *Mag Plus* Magnetostrictive Probes for Alternative Fluids without water detection* and no leak detection (Probe Model No. 846391-6xx, 846397-6xx).

Recommended for Inventory Monitoring and Leak Detection:				
Product	Float Kit		Product	Float Kit
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):				
Product	Float Kit		Product	Float Kit
Ethylene Glycol	Alternative Fluids		Fuel Oil #6	Alternative Fluids
Windshield Washer Fluid	Alternative Fluids		Propylene Glycol	Alternative Fluids
DEF (AdBlue)	Alternative Fluids			

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.



DEFINING | WHAT'S NEXT

45 search results for "E85 "

[62M-MA Monitoring Cap EVR Approved for E85 \(/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/caps-adaptors/62m-ma-monitoring-cap-evr-approved-for-e85\)](/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/caps-adaptors/62m-ma-monitoring-cap-evr-approved-for-e85)

/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/caps-adaptors/62m-ma-monitoring-cap-evr-approved-for-e85

62M-MA Monitoring Cap EVR Approved for E85, OPW Retail Fueling 62M-MA for use with E85 CARB /EVR Approved for use with E85 Anodized aluminum construction Includes 3/8" Pipe Plug and 3/8" Grommet Fitting Compatible with 1/2" Grommet (sold separately) Product No. Body Cap Grommet Riser Thread Weight in. mm in. mm lbs. kg 62M-MA Anodized Aluminum, 62M-MA Monitoring Probe Cap EVR Approved for E85

[61T-SS Drop Tube E85 EVR Approved \(/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/overflow-prevention-valves/61t-ss-drop-tube-e85-evr-approved\)](/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/overflow-prevention-valves/61t-ss-drop-tube-e85-evr-approved)

/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/overflow-prevention-valves/61t-ss-drop-tube-e85-evr-approved

61T-SS Drop Tube E85 EVR Approved, OPW Retail Fueling 61T-SS for use with E85 EVR Approved for use with E85 Stainless Steel construction 4" Diameter in 12' or 17' Lengths – Accommodate a variety of tank diameters and fill riser pipe sizes. Drop Tube Length Product No. in. mm lbs. kg ft. m 61T-SS-0412 4 102 6.18 2.80 12 3.66 61T-SS-0417 4 102 13 5.9 17 5.19 61T-SS Series Drop Tube

[71JSK Series Jack Screw Kit EVR Approved for E85 \(/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/spill-containers/71jsk-series-jack-screw-kit-evr-approved-for-e85-\)](/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/spill-containers/71jsk-series-jack-screw-kit-evr-approved-for-e85-)

/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/spill-containers/71jsk-series-jack-screw-kit-evr-approved-for-e85-

71JSK Series Jack Screw Kit EVR Approved for E85 , OPW Retail Fueling 71JSK for use with E85 Product # Description 71JSK-4RMT Remote Fueling Jack Screw Kit E85 EVR Approved 71JSK-44MA Jack Screw Kit for Cast Iron Base Spill Buckets E85 EVR Approved CARB /EVR Approved for use with E85 Nickel Plated Aluminum Works in conjunction with our 71SOM for remote fueling applications Includes cages for both cast iron and composite base spill containers Eliminates notorious leak

61VSA Vapor Recovery Swivel Adaptor E85 EVR Approved (/products/us/retail-fueling-products/above-ground-products/ast-equipment/fuel-delivery-couplings/61vsa-vapor-recovery-swivel-adaptor-e85-evr-approved)

/products/us/retail-fueling-products/above-ground-products/ast-equipment/fuel-delivery-couplings/61vsa-vapor-recovery-swivel-adaptor-e85-evr-approved

61VSA Vapor Recovery Swivel Adaptor E85 EVR Approved, OPW Retail Fueling 61VSA-MA for use with E85 61VSA for use with E85 61VSA-MA for use with E85 61SA-TOOL Dual Seals – ensure a vapor and liquid-tight seal. Conductive, Self-Lubricating Retaining Rod – ensures maintenance-free, reliable service life. Same Internal Dimension as Standard 633T Adaptors – to minimize pressure drop, Adaptor: nickel coated brass Base: nickel coated brass E85 EVR Approved 61VSA Adaptor

62M-MA Monitoring Probe Cap EVR Approved for E85

(http://www.opwglobal.com/docs/libraries/product-catalog/retail-fueling/below-ground/underground-equipment/62m-

ma_monitoring_probe_cap_evr_approved_for_e85.pdf?status=master&sfvrsn=2)

http://www.opwglobal.com/docs/libraries/product-catalog/retail-fueling/below-ground/underground-equipment/62M-MA_Monitoring_Probe_Cap_EVR_Approved_for_E85.pdf?Status=Master&sfvrsn=2

62M-MA Monitoring Probe Cap EVR Approved for E85,

61VSA-MA Vapor Recovery Swivel Adaptor E85 EVR Approved (/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/caps-adaptors/61vsa-ma-vapor-recovery-swivel-adaptor-e85-evr-approved)

/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/caps-adaptors/61vsa-ma-vapor-recovery-swivel-adaptor-e85-evr-approved

61VSA-MA Vapor Recovery Swivel Adaptor E85 EVR Approved, OPW Retail Fueling

61JSK (Jack Screw Device) (/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/spill-containers/61jsk-jack-screw-device)

/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/spill-containers/61jsk-jack-screw-device

61JSK (Jack Screw Device), OPW Retail Fueling 61JSK Product # Description FSA-400 4" Face Seal Adaptor FSA-400-S 4" Short Face Seal Adaptor for Cast Iron Base Only 61JSK-4410 Jack Screw Kit for Composite Base Spill Bucket 61JSK-44CB Jack Screw Kit for Cast Iron Base Spill Bucket 71JSK-4RMT Remote Fueling Jack Screw Kit E85 EVR Approved 71JSK-44MA Jack Screw Kit for Cast Iron Base Spill Buckets E85 EVR Approved Eliminates notorious leak point Patent Pending



DEFINING | WHAT'S NEXT

45 search results for "E85 "

[71SOM Vapor Tight Overfill Prevention Valve for Alcohol \(/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/overfill-prevention-valves/71som-vapor-tight-overfill-prevention-valve-for-alcohol/\)](/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/overfill-prevention-valves/71som-vapor-tight-overfill-prevention-valve-for-alcohol/)

/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/overfill-prevention-valves/71som-vapor-tight-overfill-prevention-valve-for-alcohol

71SOM Vapor Tight Overfill Prevention Valve for Alcohol, OPW Retail Fueling 71SOM for use with E85 Nickel plated aluminum, anodized aluminum, stainless steel and other compatible materials, excavation, manholes or vent piping are required. CARB /EVR Approved for use with E85 Constructed, Installation Tool 2.5 1 71JSK-44MA Jack Screw Kit EVR Approved for E85 1.5 0.7 71JSK-4RMT Remote Fueling Jack Screw Kit EVR Approved for E85 1 0.5 NOTE: The 71SOM Overfill

[233 Series Extractor Fittings \(/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/extractor-fittings/233-series-extractor-fittings/\)](/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/extractor-fittings/233-series-extractor-fittings/)

/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/extractor-fittings/233-series-extractor-fittings

% Ethanol (E85) or Methanol (M85) Body: Duragard® Coated Cast Iron Cage Assembly: ZA12 Zinc/Alloy, Fittings are EVR Approved for E85 233 Series Extractor Fittings FlexWorks Vent Pipe Installation

[61T Drop Tube \(/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/overfill-prevention-valves/61t-drop-tube/\)](/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/overfill-prevention-valves/61t-drop-tube/)

/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/overfill-prevention-valves/61t-drop-tube

17 5.19 E85 EVR Approved Drop Tube Length Product No. in. mm lbs

[OPW 241TPS Series Hose Swivels \(/products/us/retail-fueling-products/above-ground-products/standard-dispensing-equipment/swivels-and-breakaways/multi-plane-swivels/opw-241-tps-series-hose-swivel/opw-241tps-series-hose-swivels/\)](/products/us/retail-fueling-products/above-ground-products/standard-dispensing-equipment/swivels-and-breakaways/multi-plane-swivels/opw-241-tps-series-hose-swivel/opw-241tps-series-hose-swivels/)

/products/us/retail-fueling-products/above-ground-products/standard-dispensing-equipment/swivels-and-breakaways/multi-plane-swivels/opw-241-tps-series-hose-swivel/opw-241tps-series-hose-swivels

241TPS-0492* (E85) 241TPS-75RF** (E25/B20) 3/4" F x 3/4" M (NPT) 4-7/8" 2-3/16" 19 mm x 19 mm 124

OPW 11BP Series Ethanol Nozzles (/products/us/retail-fueling-products/above-ground-products/standard-dispensing-equipment/automatic-nozzles-gas-station/opw-11bp-series-ethanol-nozzles)

/products/us/retail-fueling-products/above-ground-products/standard-dispensing-equipment/automatic-nozzles-gas-station/opw-11bp-series-ethanol-nozzles

) 19 F x 19 F 0.6 0.27 Valve for up to E85 / 300 lb. □66V Series 3/4" Instruction Sheet Order Number: H10993PA E-85: Nozzles compatible up to E85 (85% Ethanol) Handwarmer Color 11BP

OPW 66V Series Breakaways (/products/us/retail-fueling-products/above-ground-products/standard-dispensing-equipment/swivels-and-breakaways/e-85-alternative-fuel-swivels-breakaways/opw-66v-series-breakaways)

/products/us/retail-fueling-products/above-ground-products/standard-dispensing-equipment/swivels-and-breakaways/e-85-alternative-fuel-swivels-breakaways/opw-66v-series-breakaways

66V-0492 3/4" F x 3/4" F (NPT) 19 F x 19 F 0.6 0.27 Valve for up to E85 / No More Than 300 lb. , 66V-0492* 3/4" F x 3/4" F (NPT) 19 F x 19 F 0.6 0.27 Valve for up to E85 / No More Than

Vertical Check Valves (with Shear Groove) (/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/suction-equipment/vertical-check-valves-with-shear-groove)

/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/suction-equipment/vertical-check-valves-with-shear-groove

Vertical Check Valves (with Shear Groove), OPW Retail Fueling 70 70S Series Low Pressure Drop M-19 Viton Seals - on main poppet for compatibility with methanol-blended fuels and reliable sealing Protective Shear Groove - designed to reduce the possibility of damage to buried piping in the event the dispenser is knocked over Thermal Relief Valve - to reduce pressure build-up in suction pumps. Opens between 25 & 35 PSI (1.7 & 2.4 bar) compatible with 85% Ethanol (E85) or Methanol (M85)

61SALP Swivel Adaptor (/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/caps-adaptors/61sa-swivel-adaptor)

/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/caps-adaptors/61sa-swivel-adaptor

61SALP Swivel Adaptor, OPW Retail Fueling 61SALP-1020 EVR 61SALP-MA 61SA-Tool Dual Seals – Ensures a vapor- and liquid-tight seal. Conductive, Self-Lubricating Retaining Rod – Ensures maintenance-free, reliable service life. Same

Internal Dimension as Standard 633T Adaptors – To minimize pressure drop and maximize flow rates for quick product delivery. 61SALP-MA - EVR Approved for use with E85 61SALP Adaptor: bronze Base: bronze Retaining ring: conductive nylon Set screws

OPW 21Ge™ Series Ethanol Nozzles (/products/temporary-/opw-21ge-series-ethanol-nozzles)

</products/temporary-/opw-21ge-series-ethanol-nozzles>

3/4" F (NPT) 19 F x 19 F 0.6 0.27 Valve for up to E85 / 300 lb. □66V Series 3/4

10 Plus Series Emergency Shut-Off Valves (/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/emergency-shear-valves/10-plus-series-emergency-shut-off-valves)

</products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/emergency-shear-valves/10-plus-series-emergency-shut-off-valves>

Double Pressure Combination E85 10P-0152E85 1-1/2" 4 6.8 3.10 NPT Double

1 2 3 4 5

<http://www.opwglobal.com/search-results?retail/retail/page/2?indexCatalogue=retail&searchQuery=E85+&wordsMode=0>

[retail/retail/page/2?indexCatalogue=retail&searchQuery=E85+&wordsMode=0](http://www.opwglobal.com/search-results?retail/retail/page/2?indexCatalogue=retail&searchQuery=E85+&wordsMode=0)

[indexCatalogue=retail&searchQuery=E85+&wordsMode=0](http://www.opwglobal.com/search-results?retail/retail/page/2?indexCatalogue=retail&searchQuery=E85+&wordsMode=0)

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The following U.S. patents have expired:

4,199,012; 4,351,375; 4,429,725; 4,505,308; 4,453,578; 4,497,350; 4,557,302; 4,649,969; 4,682,714; 4,825,914; 4,971,121; 5,007,468; 5,135,029.

OPW claims no rights in any patent beyond its expiration.

[/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/multiports/spill-container-product-identification-tags](#)

Vapor Recovery Solid Orange 1TAG-7000 1TAG-7010 85% Ethanol (E85) Bronze Diamond / Black letters (E85) 1TAG-CE85
1TAG-BE85 Ultra Low Sulfur Yellow Hex / Black letter (U) 1TAG-4200

[/products/us/retail-fueling-products/above-ground-products/standard-dispensing-equipment/swivels-and-breakaways/e-85-alternative-fuel-swivels-breakaways/opw-241tps-0492-ethanol-swivel](#)

OPW 241TPS-0492 Ethanol Swivel, OPW Retail Fueling 241TPS-0492 E85 Ethanol Swivel UL Listed for up to 85% ethanol. Allows for easy nozzle positioning in fill pipes – Utilizing two planes of rotation. Reduces premature hose wear – Utilizing two planes of rotation. Added protection vs. thermal and chemical degradation – Dual Seals Design working pressure 50 PSI (3.45 bar) maximum pressure. Body: aluminum w/ nickel plating Outlet Adaptor: zinc w/ nickel plating Inlet Adaptor: zinc w

[/products/us/retail-fueling-products/below-ground-products/underground-storage-tank-equipment/caps-adaptors/62m-monitor-probe-cap-adaptor-kit](#)

62M Monitor Probe Cap & Adaptor Kit, OPW Retail Fueling 62M Monitor Probe Cap (Cast Aluminum) 62M Monitor Probe Cap Body – Cast aluminum Cap – Cast aluminum Seals – Nitrile Latch – Duratuff® 62M-MA Monitor Probe Cap Body – Anodized aluminum Cap – Anodized aluminum E85 EVR Approved Product No. Body Cap Grommet Riser Thread Weight in. mm in. mm lbs. kg 62M-0375 Aluminum Aluminum 3/8 9.5 4 102 1.3 .59 Accepts .069

1 2 3 4 5

(http://www.bbb-lln.com/search-resultresultsresultsresults-retailRetail/retail/page/5?index=0&mode=0)

The following U.S. patents have expired:

4,199,012; 4,351,375; 4,429,725; 4,505,308; 4,453,578; 4,497,350; 4,557,302; 4,649,969; 4,682,714; 4,825,914; 4,971,121;
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January 13, 2011

Concerned Regulatory Agency

Re: Veeder-Root Compatibility with E85

To whom it may concern:

Veeder-Root TLS branded automatic tank gauging products have UL listings for product safety. The wetted component materials used with the below listed products are deemed by Veeder-Root to be compatible with ethanol 85 applications.

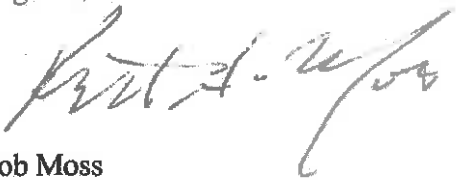
<u>VR Part Number</u>	<u>Description</u>
848480-003	Pressurized Line Leak Detector
846391-4XX, 5XX, 6XX	Mag Plus Probes for Alternative Fluids without water detection
846400-004,304,104	Mag Float Kit (5" cable) for Alternative Fluids 4", 3" & 2" floats
846400-014,314,114	Mag Float Kit (10" cable) for Alternative Fluids 4", 3" & 2" floats
846400-024,324,124	Mag Float Kit (20" cable) for Alternative Fluids 4", 3" & 2" floats
794380-323	Position Sensitive Pan/Sump Sensor
794380-344	MicroSensor
794380-345	Interstitial Solid State Sensor for Fiberglass Tanks
794380-430	Interstitial Sensor for Steel Tanks

The following sensor is exposed to Brine and is not of concern in an E85 application.

794380-301 Hydrostatic Sensor

Please contact Veeder-Root Technical Support at 1-800-323-1799 with further questions.

Regards,


Bob Moss
VP Engineering