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: NA - New site
Facility Owner: IL Toll highway Authority
Facility Name: ISTHA M-8
Street Address: 351 Mettel Rd.
City: Aurora, IL
County: Kane

UST Information:

Tank ID Number: 3
Tank Material: Steel ____ FRP X
Single Wall ____ Double Wall X
Tank Volume: 10,000 Gallon
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	(YES)	B	Xerxes double wall tank with brine
PIPING (incld. shear valves, flex connectors)	NO	(YES)	B	Ameron LCX OPW 10 shear valve Hose Master Flexes
CONTAINMENT SUMPS	NO	(YES)	B	Bravo Sumps and fittings
PUMPS (STPs/Suction; Dispensers, hoses, nozzles)	NO	(YES)	B	Red Jacket Submersible Wayne dispenser

UST SYSTEM COMPONENTS	DOCUMENTATION DEMONSTRATING COMPATIBILITY WITH SUBSTANCE LISTED ABOVE		METHOD A or B (MAY USE BOTH)	DESCRIPTION OF COMPONENT TYPE, MODEL NUMBER, & NATIONAL LABORATORY CERTIFICATION, LISTING OR MANUFACTURER APPROVAL (ATTACH TO CHECKLIST)
RELEASE DETECTION EQUIPMENT	NO	(YES)	B	Veeder Root TLS-350 plus
SPILL PREVENTION EQUIPMENT	NO	(YES)	B	OPW Edge double wall
OVERFILL PREVENTION EQUIPMENT	NO	(YES)	B	OPW 7150M
GASKETS & SEALS (installs after 10/13/18)	NO	(YES)	B	All seals & gaskets Are part of the pumps and dispensers
JOINT DOPES & ADHESIVES (installs after 10/13/18)	NO	(YES)	B	Gasoilia

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: Jason Reed date completed: 7-07-2020

signature: Jason Reed position/title: Project Manager

LIMITED WARRANTY
Underground Petroleum Storage Tanks

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

1) Will not fail for a period of thirty (30) years from date of original delivery by Xerxes due to natural external corrosion.

2) Will not fail for a period of thirty (30) years from date of original delivery by Xerxes due to internal corrosion, provided the tank is used solely, with or without tank water bottoms, to store the following products:

   a. gasoline, jet fuel, aviation fuels, motor oils, motor vehicle waste oils, kerosene, diesel fuel, or fuel oils

      - gasoline with up to 20%, by volume, of methyl tertiary butyl ether (MTBE), ethyl tertiary butyl ether (ETBE), di-isopropyl ether (DIPE), tertiary butyl alcohol (TBA), tertiary amyl methyl ether (TAME), or tertiary amyl ethyl ether (TAEE)

   b. gasoline and ethanol blended motor fuels (per applicable ASTM fuel standards)

      - E10 (90% gasoline and 10% ethanol)
      - E15 (85% gasoline and 15% ethanol)
      - E85 (85% ethanol and 15% gasoline)
      - other ethanol blends up to and including 100% ethanol

   c. gasoline and methanol blended motor fuels (per applicable ASTM fuel standards)

      - M85 (85% methanol and 15% gasoline)
      - other methanol blends up to and including 100% methanol
      - Oxinol-50 waiver (90.5% gasoline and 9.5% Oxinol-50 comprised of a 4.75% methanol and 4.75% gasoline-grade tertiary butyl alcohol (GTBA) mixture)
      - Dupont EPA waiver (gasoline with 5% methanol and a minimum of 2.5% cosolvent – the blend may contain a maximum concentration of up to 3.7%, by weight, oxygen in the final fuel)

   d. biodiesel fuel blends up to 100% biodiesel (per applicable ASTM fuel standards)

3) Will not fail for a period of thirty (30) years from date of original delivery by Xerxes due to structural failure (defined as spontaneous breaking or collapse caused by material defects in materials or workmanship).

4) Will meet Xerxes' published specifications and will be free of material defects in materials and workmanship for a period of one (1) year following the date of original delivery by Xerxes.

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

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

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

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

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

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

XERXES®
a ZCL company

Effective: June 1, 2015
United States

Dualoy® 3000/LCX Product Data

Applications

Rigid fiberglass coaxial fuel handling systems requiring Underwriters Laboratories Listing for integral primary and containment piping conveying the following fuels:

- Motor Vehicle (MV)
- Aviation and Marine A&M)
- High Blend (HB)
- Bio-Diesel
- Concentrated (CT)
- Diesel Exhaust Fluid

Description

Dualoy 3000/LCX rigid fiberglass coaxial piping is a cost-effective solution for contained piping systems. LCX is used for product delivery lines in underground fuel handling systems to convey fuel from the tank to the dispensers. Dualoy 3000/LCX pipe is UL Listed for use with motor vehicle (MV), high blend (HB), concentrated (CT) and aviation and marine (A&M) fuels. Based on currently known tests, NOV Fiber Glass Systems found this product to be suitable for conveying all blends of biodiesel and ethanol type fuels and the conveyance of DEF.

The LCX pipe is manufactured as an integral unit. The primary is made of chemically inert, non-permeable, fiberglass reinforced epoxy resin which is inherently resistant to deterioration due to water and microbial attack. This layer is covered with a porous layer to provide the small volume interstitial space, which facilitates rapid leak detection. Then, the containment layer, comprised of the same material as the primary, is wound over the primary and porous layers.

The containment system is installed with custom designed clamshell containment fittings. Both the primary and containment systems are bonded for long-term, reliable performance.

- Dualoy 3000/LCX containment fittings are typically bolted in place while the adhesive cures.
- Dualoy 3000/LCX reduces installation and inspection time dramatically, retaining system integrity.
- Dualoy 3000/LCX double wall design significantly improves impact resistance over single wall pipe.
- Dualoy 3000/LCX systems provide true double wall design which permits rapid communication through the interstice.

Listings and Approvals

The rigid fiberglass piping used in Dualoy 3000/LCX is Listed in the United States with Underwriters Laboratories for nonmetallic underground piping for MV, HB, CT and A&M fuels under File No. MH9162. Dualoy 3000/LCX pipe and fittings are also Listed with Underwriters Laboratories of Canada for Petroleum Products and Oxygenated Fuels (File CMH715). Underwriters Laboratories has also approved Dualoy 3000/L and Dualoy 3000/LCX for use with MTBE fluids.

Performance

Primary operating pressures to 200 psig (13.8 bar)

Continuous operating temperature to 150°F (66°C)

Containment system pressures to 50 psig (3.45 bar)

Individual system components may not have the same ratings as the pipe. Refer to the detailed product information for the specific components to determine the pressure rating for the system as a whole.

Composition

Primary pipe: Filament-wound fiberglass reinforced epoxy pipe with integral epoxy liner. When classified in accordance with ASTM D2310 and ASTM D2996, the pipe meets the following cell limits: RTRP 11CF1-5420.

Pipe containment: Filament-wound fiberglass reinforced epoxy pipe.

Interstitial space: Dry, graded glass beads secured in place with adhesive backed tape.

Fittings: Compression molded or filament-wound fiberglass reinforced epoxy primary fittings. Containment fittings are molded.

Adhesive: PSX™ •20 or PSX™ •34 ambient-cure, two-part epoxy for all services (including alcohols and MTBE).

Joining System

Primary:

Bell and spigot taper/taper adhesive-bonded joint

Containment:

Adhesive-bonded clamshell fittings. Parts are compression molded for exact fit and match. Material is identical to primary fittings and is UL Listed for all services, including use in MTBE fluids.

Pipe Lengths

Standard 20 ft. (6.1 m) random lengths 17 to 21 ft. (5.2 to 6.4 m)
and 30 ft. (9.1 m) random lengths 27 to 32 ft. (8.2 to 9.7 m)

Other lengths up to 42 ft. (12.8 m) available upon request.

Fittings

Primary	Adapters: bell x NPT male[1]	Flange stub ends[1]
	Adapters: bell x NPT female[2]	Isolation bushings[1]
	Adapters: spigot x NPT female[2]	Nipples[2]
	Adapters: spigot x NPT male[2]	Reducer bushings[1]
	45° elbows[1]	Repair couplings[1]
	90° elbows[1]	Sleeve couplings[2]
	End caps[1]	Tees[1]
	Flange rings[1]	Dispenser pan penetration fittings[1]
Containment	45° elbows[1]	Couplings[1]
	90° elbows[1]	Tees[1]
	Termination sleeves[1], [3]	

[1] Molded fitting
[2] Filament-wound fitting
[3] 2" (50 mm) available with or without test valve. 3" and 4" (80 and 100 mm) available only with test valve

Typical Pipe Dimensions and Weights

Pipe Size		Primary Pipe ID		Primary Pipe OD[1]		Primary Wall Thickness		Containment OD		Capacity		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	gal/ft	l/m	lb/ft	kg/m
2	50	2.21	56	2.37	60	0.080	2.03	2.59	66	0.20	0.76	0.90	1.34
3	80	3.32	84	3.50	89	0.085	2.16	3.70	94	0.45	1.70	1.30	1.93
4	100	4.33	110	4.50	114	0.087	2.21	4.70	119	0.77	2.92	1.74	2.59

[1] Typical outside diameters of 2"-4" (50 -100 mm) pipe are within API, ASTM and ANSI fiberglass and steel pipe dimensions.

Typical Primary Pipe Performance

Pipe Size		Pressure Rating[1]		Ultimate Internal Pressure[1]		Ultimate Collapse Pressure[2]	
in	mm	psig	MPa	psig	MPa	psig	MPa
2	50	200	2.07	1500	10.3	153	1.05
3	80	200	1.38	1000	6.9	90	0.62
4	100	175	1.21	750	5.2	39	0.27

[1] At 80°F (27°C)
[2] At 80°F (27°C) For continuous service do not exceed 75% of these values.

Fittings Pressure Performance

Pipe Size		Primary All Fittings		Containment Clamshell Fittings	
in	mm	psig	MPa	psig	kPa
2	50	200	1.38	50[1]	345
3	80	125	0.86	50[1]	345
4	100	100	0.69	20	138

[1] With reinforcing rings

For dimensions of primary fittings, consult Dualoy 3000/L Fittings Dimensions document. Pressure ratings of fittings without UL Listing are available on request.

Dualoy 3000/LCX piping systems are designed to function at temperatures ranging from -40 to 150°F (-40 to 66°C) at service pressures between -1 and 13.8 bar. Dualoy 3000/LCX pipe conforms to ASTM D2310, D2517 and D2996.

Typical Physical Properties of Primary Pipe

Pipe Property	Units	Value	ASTM
Thermal conductivity	Btu-in/(h•ft²•°F) W/m•°C	1.7 7.6	C177
Linear thermal expansion	10^{-6} in/in/°F 10^{-6} cm/cm/°C	8.5 15.3	D696
Friction factor	Hazen-Williams	150.0	—
Absolute roughness	10^{-6} ft 10^{-6}m	15.0 4.6	—
Specific gravity	—	1.81	D792
Barcol Hardness	Impressor 934-1	65.0	D2583

Typical Mechanical Properties of Primary Pipe

Pipe Property[1]	Units	Value[1]	ASTM
Tensile strength			
Longitudinal	10^3 psi MPA	35.0 241.0	D2105
Circumferential	10^3 psi MPA	70.0 483.0	D1599
Tensile modulus			
Longitudinal	10^6 psi GPa	2.5 17.2	D2105
Circumferential	10^6 psi GPa	3.8 26.2	FGSTM
Compressive strength			
Longitudinal	10^3 psi MPa	24.5 168.9	FGSTM
Compressive modulus			
Longitudinal	10^6 psi GPa	2.6 17.8	FGSTM
Cyclic	10^3 psi MPa	8.0 55.0	D2992(A)
Poisson's Ratio[2]			
v_{xy}	—	0.16	FGSTM
v_{yx}	—	0.17	FGSTM

(1) Based on structural wall thickness.
(2) The first subscript denotes the direction of applied stress and the second that of measured contraction
x denotes longitudinal direction.
y denotes circumferential direction.

Bending Radius

Pipe Size		Minimum Bending Radius[1]		Maximum Deflection per 20 ft Joint	Minimum Length Required for 10° Change	
in	mm	ft	m	deg	ft	m
2	50	75	23	15	13	4
3	80	100	38	9	22	7
4	100	150	46	7.5	27	8

(1) At rated pressure. Sharper bends may create excessive stress concentrations. Do not bend pipe until adhesive has cured.

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17115 San Pedro Ave. Suite 200
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Phone: 31 345 587 587

Asia Pacific
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Jurong, Singapore 639407
Phone: 65 6861 6118

Middle East
P.O. Box 17324
Dubai, UAE
Phone: 971 4881 3566

www.fgspipe.com • fgspipe@nov.com

NOV Fiber Glass Systems

FH3600 September 2012

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

Tuesday - August 30 - 2011

R3 10.21.13

RE: Bravo Fiberglass Entry Fittings and Alternative fuels

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

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

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

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

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

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

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

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

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

Sincerely,

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

made in USA

PEI MEMBER

Certified WBENC Women's Business Enterprise

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

9-16-13 - R1 1-1-15

To whom it may concern,

This letter is provided to certify the material compatibility of Bravo epoxy-based adhesives and slurries with fuel when used for permanently bonding Bravo fiberglass components together.

The material selection of the epoxy and hardener (A and B parts) that comprises Bravo epoxies in either paste form (bonding adhesive) or liquid form (pour-in-place slurry) is equal to or more compatible with conventional or alternative fuels and their additives or vapors than other common adhesives such as NOV Smith 7014 / 8014 or Ameron PSX-20 / 34 bonding kits.

As such, the following kits manufactured by Bravo Systems in Commerce, California are compatible with conventional fuels and alternative fuels such as Biodiesel and Ethanol fuel blends up to B100 and E100, respectively:

> EP100 (7 oz standard epoxy kit)
> EP100RF (7 oz extra thick retrofit epoxy kit)
> EP-S.75GAL (3/4 gal epoxy slurry pour kit)
> EP-S1GAL (1 gal epoxy slurry pour kit)

Since the epoxy adhesives or slurries are only component installation materials used to install the parent products they are designed for, warranties are provided only for those products when installed per each product's installation manual.

If there are any questions or concerns feel free to direct them to me at jsmith@sbravo.com.

Sincerely,

Jonathan E. Smith
Director, IT & Brand Management
S. Bravo Systems, Inc.
jsmith@sbravo.com

HOSE MASTER

1233 East 222nd Street • Cleveland, Ohio 44117
(800) 221-2319 • Fax: (216) 481-7557 • www.hosemaster.com
Cleveland • Houston • Atlanta

ISO 9001
Registered Quality System

NAHAD Metal Hose Listed Manufacturer

Hose Master UL-listed Fire-Shield and Tefcon Flexible Connectors for Flammable Liquids have been listed by Underwriters Laboratories for use with "Petroleum Products, Alcohols and Alcohol-Gasoline Mixtures" , E85 (ethanol) fuel and any other alcohol based fuel or fuel consisting of a mixture of alcohol and petroleum fits within this listing.

Reference can be made to the UL Online Certifications Directory (www.ul.com). Click on "certifications" then enter "Hose Master" in the company name field.

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.

made in USA

PEI MEMBER

Certified WBENC Women's Business Enterprise

Fuel Pumping Solutions

The Red Jacket Submersible Turbine Pump for Alternate Fuels

Key Features:

- Industry's newest motor design
- Track record of unsurpassed reliability
- Designed to maximize safety and ease of installation
- UL listed biofuel compatibility

The cornerstone of your alternative fueling infrastructure. The Red Jacket AG series submersible turbine pump is built on the foundation of The Red Jacket model and is specially designed for resiliency in the harsh alternative fuel environment.

Specifications:

Fuel Compatibility

- 100% Gasoline
- 100% Diesel
- 0-100% Biodiesel blends
- Jet fuel
- AVGAS
- Kerosene and Fuel Oil
- Methanol concentrations up to 100%
- Ethanol concentrations up to 90%
- MTBE, ETBE, or TAME concentrations up to 20%

Designed for Hazardous Locations

- Class 1, Group D atmospheres

Fits installations from 3 ½' to 19' in depth

4 Motor Sizes Available:

- ¾ HP, 60 Hz, 1 – phase
- 1 ½ HP, 60 Hz, 1 – phase
- X3 1 ½ HP, 60 Hz, 1 – phase, high pressure
- 2 HP, 60 Hz, 1 – phase

Siphon Ports:

- Two ports available, ¼" NPT
- Equipped with stainless siphon cartridge for survivability in corrosive fuels (410151-002)

Compatible with check valve housing models:

- Standard VR ready check valve for PLLD (410152-001)
- High pressure check valve for high pressure applications (410152-002)

Line Pressure Port: 1 Available, ¼" NPT

Vent Port: 1 Available, ¼"NPT

UL Listings:

- 100% Diesel
- 100% Gasoline
- 100% Biodiesel (B100)
- Kerosene and Fuel Oil
- 85% Ethanol (E85)
- 0-20% Biodiesel blends
- Gasoline and up to: 15% Methanol, 20% MTBE, 20% ETBE, 20% TAME

Other Agency Listings: cUL

Optional stainless steel trapper intake screen blocks corroded tank debris from clogging dispenser filters

Optimize Flow. Maximize Profits.

RED JACKET

Quick Set Final Assemblies (Adjustable)

Horsepower	KW	Length	Floating Suction Adapter	Model Number	Part Number
0.75	0.56	72" - 102"		AGP75S1 RJ1	410140-019
0.75	0.56	102" - 162"		AGP75S1 RJ2	410140-020
0.75	0.56	162" - 222"		AGP75S1 RJ3	410140-021
0.75	0.56	74.3" - 104.3"	•	AGP75S1 RJ1 FSA	410140-022
0.75	0.56	104.3" - 164.3"	•	AGP75S1 RJ2 FSA	410140-023
0.75	0.56	164.3" - 224.3"	•	AGP75S1 RJ3 FSA	410140-024
1.5	1.13	74.5" - 105"		AGP150S1 RJ1	410141-019
1.5	1.13	104.5" - 165"		AGP150S1 RJ2	410141-020
1.5	1.13	164.5" - 225"		AGP150S1 RJ3	410141-021
1.5	1.13	76.8" - 107.3"	•	AGP150S1 RJ1 FSA	410141-022
1.5	1.13	106.8" - 167.3"	•	AGP150S1 RJ2 FSA	410141-023
1.5	1.13	166.8" - 227.3"	•	AGP150S1 RJ3 FSA	410141-024
1.5	1.13	75.5" - 105.5"		X3AGP150S1 RJ1	410143-019
1.5 HIGH PRESSURE	1.13	105.5" - 165.5"		X3AGP150S1 RJ2	410143-020
1.5 HIGH PRESSURE	1.13	165.5" - 225.5"		X3AGP150S1 RJ3	410143-021
1.5 HIGH PRESSURE	1.13	77.8" - 107.8"	•	X3AGP150S1 RJ1 FSA	410143-022
1.5 HIGH PRESSURE	1.13	107.8" - 167.8"	•	X3AGP150S1 RJ2 FSA	410143-023
1.5 HIGH PRESSURE	1.13	167.8" - 227.8"	•	X3AGP150S1 RJ3 FSA	410143-024
2	1.5	78.5" - 108.5"		AGP200S1-3 RJ1	410142-019
2	1.5	108.5" - 168.5"		AGP200S1-3 RJ2	410142-020
2	1.5	168.5" - 228.5"		AGP200S1-3 RJ3	410142-021.
2	1.5	80.8" - 110.8"	•	AGP200S1-3 RJ1 FSA	410142-022
2	1.5	110.8" - 170.8"	•	AGP200S1-3 RJ2 FSA	410142-023
2	1.5	170.8" - 230.8"	•	AGP200S1-3 RJ3 FSA	410142-024

Fixed-Speed, single phase STP assemblies. Length measured from the top of the eyebolt to the bottom of the motor inlet. All 208/230 Volts.

Fixed Length Final Assemblies (Non-Adjustable)

Horsepower	KW	Length	Floating Suction Adapter	Model Number	Part Number
0.75	0.56	42" - 132"		AGP75S1 RJ	410166-010
0.75	0.56	133" - 168"		AGP75S1 RJ	410166-011
0.75	0.56	169" - 222"		AGP75S1 RJ	410166-012
0.75	0.56	44.3" - 134.3"	•	AGP75S1 RJ FSA	410166-028
0.75	0.56	135.3" - 170.3"	•	AGP75S1 RJ FSA	410166-029
0.75	0.56	171.3" - 224.3"	•	AGP75S1 RJ FSA	410166-030
1.5	1.13	45" - 135"		AGP150S1 RJ	410173-010
1.5	1.13	136" - 171"		AGP150S1 RJ	410173-011
1.5	1.13	172" - 225"		AGP150S1 RJ	410173-012
1.5	1.13	47.3" - 173.3"	•	AGP150S1 RJ FSA	410173-028
1.5	1.13	138.3" - 173.3"	•	AGP150S1 RJ FSA	410173-029
1.5	1.13	174.3" - 227.3"	•	AGP150S1 RJ FSA	410173-030
1.5	1.13	46" - 135"		X3AGP150S1 RJ	410175-010
1.5 HIGH PRESSURE	1.13	136" - 171"		X3AGP150S1 RJ	410175-011
1.5 HIGH PRESSURE	1.13	172" - 225"		X3AGP150S1 RJ	410175-012
1.5 HIGH PRESSURE	1.13	48.3" - 137.3"	•	X3AGP150S1 RJ FSA	410175-028
1.5 HIGH PRESSURE	1.13	138.3" - 173.3"	•	3AGP150S1 RJ FSA	410175-029
1.5 HIGH PRESSURE	1.13	174.3" - 227.3"	•	X3AGP150S1 RJ FSA	410175-030
2	1.5	49" - 138"		AGP200S1-3 RJ	410174-010
2	1.5	139" - 174"		AGP200S1-3 RJ	410174-011
2	1.5	174.9" - 227.9"		AGP200S1-3 RJ	410174-012
2	1.5	51.3" - 140.3"	•	AGP200S1-3 RJ FSA	410174-028
2	1.5	141.3" - 176.3"	•	AGP200S1-3 RJ FSA	410174-029
2	1.5	177.2" - 230.2"	•	AGP200S1-3 RJ FSA	410174-030

Fixed length pumps may not be returned to stock.

To learn more, contact us at 888.561.7942 or visit www.redjacket.com

RED JACKET™ VEEDER-ROOT™

Sensor Application Matrix

			Where Used							Category						Fuel Compatibility														
																	ASTM D975			ASTM D7547				ASTM D7467	ASTM D6751	ASTM D975			
Sensor Description	**Form #**	**Page #**	Dispenser Pan	Spill Containment	STP Sump	Convault Tank	Annular Space	Monitoring Well	Oil/Water Separator tank	Discriminating	Non-Discriminating	Position Sensitive	Level Sensing	Static Testing	Hydrostatic	100% Gasoline	Diesel	Kerosene	Jet Fuel	Aviation Gas	E-15	E-85	E-100	Bio-Diesel 20	Bio-Diesel 100	Renewable (Green) Diesel	Diesel Exhaust Fuel (DEF)	Waste Oil	Motor Oil
DPS Standard Dispenser Pan	794380-322	2	X	X						X						X	X	X	X	X	X	X[1]		X		X		X	X
CSS Standard Containment Sump	794380-352	3		X	X					X						X	X	X	X	X	X	X[1]		X		X		X	X
DPO Optical Dispenser Pan	794380-320	4	X	X						X						X	X	X	X	X	X	X[1]		X		X		X	X
CSO Optical Containment Sump	794380-350	5		X	X					X						X	X	X	X	X	X	X[1]		X		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	X	X	X	X
SSDP Solid State Dispenser Pan	794380-321	7	X	X							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		X	X
Piping Sump	794380-208	9	X	X	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		X	X
Position-Sensitive	794380-323	11	X	X	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	X	X
Interstitial for Fiberglass Tanks	794390-409	13					X				X					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	X	X
Interstitial for Steel Tanks	794390-4X0	15			X		X				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	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		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	X	X
Hydrostatic Reservoir (Dual Point)	794380-303	19					X								X	X	X	X	X	X	X	X[1]		X		X		X	X
Single-Point Hydrostatic Sensor	794380-301	20					X								X	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	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		X	X
Oil / Water Separator	794690-XXX	24							X							X	X	X	X	X	X			X				X	X

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

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

Sensor Description	**Position Sensitive Sensor**	This Sensor is installed in a containment sump or dispenser pan and will detect the presence of, and differentiate between, hydrocarbons and other liquids.	Sensor Matrix Back
Form Number	**794380-323**		

Where Used (Typical)

- ☑ Dispenser Pan
- ☑ Spill Containment
- ☑ STP Sump
- ☐ Convault Tank
- ☐ Annular Space
- ☐ Monitoring Well
- ☐ Oil/Water Separator Tank

Category

- ☐ Discriminating
- ☑ Non–Discriminating
- ☑ Position Sensitive
- ☐ Level Sensing
- ☐ Static Testing
- ☐ Hydrostatic

Fuel Compatibility

FUEL

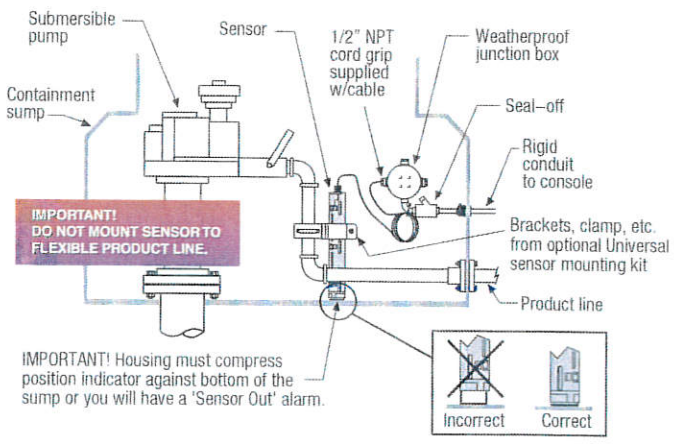
- ☑ Gas
- ☑ Diesel
- ☑ Kerosene
- ☑ Jet Fuel
- ☑ Aviation Gas
- ☑ E–15
- ☑ E–85
- ☑ E–100
- ☑ Bio–Diesel 20
- ☐ Bio–Diesel 100
- ☑ Green Diesel
- ☐ DEF
- ☑ Waste Oil
- ☑ Motor Oil

Console Compatibility (*International Only[1])	Min. Console Software	Sensor Interface Modules				
		Module Form #	Module Description	# Of Modules Per Console	# Of Sensor Inputs Per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher	332812-001				
[1]TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)		330020-750				
[1]TLS4B (8601 Series)		330020-751			6	
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or higher	329356-004	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	4	Sold Separately
TLS-300i		330230-001	4 Probe / 8 Sensor Interface Module		8	Included
TLS-300C		330513-001	2 Probe / 8 Sensor Options			

Alarm Notification		
	Normal	Sensor in normal state- no liquid present
	Sensor Out alarm	Sensor not resting on bottom of containment
	Fuel alarm	Liquid present in containment area
	Sensor out	Sensor not communicating to ATG / Console
Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)

Specifications	
Operating Principle	Product permeable, reed switch /float
Product Activation Height	1.52" (3.86cm)
Operating Temp	0 to +140°F (0 to +60°C)
Dimensions	12" (30.5cm) high, 2.2" (5.6cm) dia.
Miscellaneous / Notes	Standard Cable Length: 12Feet (3.66m).
Third Party Evaluation	http://www.nwglde.org/evals/veeder_root_o.html
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors
Warranty with System	1 Yr Parts & Labor
Warranty (When purchased separately)	1 Yr Parts Only

Example Installation



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 TRANSDUCER[3]	11 FEET	11 FEET	11 FEET
MINIMUM PUMP OUTPUT PRESSURE[4]	23 psi	23 psi	23 psi

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

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

[3]Applications 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).

[4]Pump 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.

Wayne
FUELING SYSTEMS

Installation / Operation

Select™ 3/G7200 Fleet Dispensers

E3/G7203D/28/GHJX/JS3

000-920812-
Rev P

DOVER
FUELING SOLUTIONS

2.3 Ethanol and Bio-Diesel Installations

All Wayne dispensers are rated and Listed for use with Ethanol blends up to and including E10. For blends that exceed E10, the dispenser must be supplied with a first suffix option of "9" for blends up to E25 and B20 or an "E" prefix option for blends up to E85. "E" prefix dispensers are Listed for use up to and including E85 blends. The "9" suffix is available for all enhanced capacity remote dispensers. The "E" prefix is only available on remote dispenser models 3/G7201D, 3/G7202D, and 3/G7203D. When considering an installation, all fluid handling components must be rated for the type of fuel that will be dispensed. Piping connections for above E10 must use UL Classified Saf-T-Lok Teflon pipe sealant.

WARNING

Some alternative fuels and additives can degrade the dispenser performance and integrity if the dispenser is not designed for that product. In addition, converting between fuel types (especially between an alternative fuel to a standard fuel) can degrade the dispenser performance and integrity. Before changing fuel types, always make sure that the dispenser is designed for use with the new product. In addition, the dispenser should be closely monitored for any sign of degradation or leaks after the conversion. This monitoring should take place in the days, weeks and even a month after the conversion takes place. Leaks can result related to the conversion which can create an environmental hazard.

2.4 Existing Installations

- If the dispenser is to be installed on an existing installation, it is still the responsibility of the installer to read and follow this installation manual in its entirety and make sure the existing installation meets the requirements and satisfies local, state, and federal codes.

2.5 Island Construction, Dispenser Anchoring, and Piping

- A concrete foundation must be provided for the dispenser. Do not pour concrete around product lines or electrical conduit risers. Allow for the proper dispenser containment box if required by local, state, or federal regulations. Reference Appendix A, Dimensions & Base Layouts, for dispenser dimensions.
- Anchor bolts pre-set in the concrete, or concrete anchors driven into the concrete, must be used to securely bolt the dispenser to the island in accordance with NFPA requirements. The base of the dispenser contains two bolt holes for anchoring the dispenser to the island. If anchor bolts are used, position the anchor bolts in accordance with the dimensions given on the appropriate Dimensions & Base Layout drawing in Appendix A. Use ½" diameter bolts.
- Vertical supply risers and electrical conduits must be located per the Installation Drawing for the appropriate model. Proper height must be maintained to avoid undue stress on the dispenser. See Section 3.3 for wiring and conduit requirements. Reference Appendix B for Wiring Diagrams.
- Supply piping should be selected and installed based on the product dispensed and in accordance with local, state, and federal regulations. The piping manufacturer's instructions should be followed for the proper trenching, connection, sealing, corrosion prevention, pressure relief, leak detection, containment, and testing.
- Supply lines should extend a minimum of 18" (46cm) straight down from the dispenser (more in hot climates and high altitudes to prevent product vaporization) and then slope downwards to the tank at approximately ¼" per foot (1cm drop per 48cm run). Be sure there are no traps and minimize the number of bends and elbows.
- Enhanced Capacity models: If the distance from the dispenser to the tank is 60 feet (18.2m) or less, 1½-inch (3.8cm) schedule 40 pipe may be used. For distances greater than 60 feet (18.2m), 2-inch (5.1cm) schedule 40 pipe is recommended to lessen friction.

Liquid Crystal Displays:	Backlit 1" (2.5 cm) six-digit Volume and Total $ displays (Total $ for /1 option) and ½" (1.3 cm) four-character status display per hose (Price for /1 option). Displays each side of cabinet, except models with lane-oriented nozzle boots only display on corresponding nozzle boot side. Configurable 0-4 digits to right of decimal. Programmable gallons or liters. In event of power loss, remain visible for approximately 15 minutes.
Totalizers:	7-digit electromechanical non-resettable totalizer per product. One non-resettable and one resettable electronic 6-digit totalizer per hose. Electronic totalizers display on volume display by using infrared remote control.
Light:	Light in electronic head provides backlighting for liquid crystal displays and illuminates product identification panels. 120VAC 60 HZ operation. Optional 240VAC 50/60 Hz operation.
Fuel Control System Interfaces:	Wayne dispenser US Current Loop protocol. Optional pulse output interface.
Meter:	Enhanced Capacity and Super High Capacity Models: Wayne 2-piston, positive displacement iMeter with integral intelligent pulser. E85 models utilize Xflo meter. Electronic calibration. Ultra High Capacity Models: Liquid Controls M-5 positive displacement rotary meter with Wayne optical pulser. Electronic calibration.
Pumping Unit:	Suction pump models. Wayne Compact Pumping Unit (CPU). Belt-driven, positive displacement rotary gear pump with integral centrifugal air separator. Not available on UHC or E85 models.
Motor:	Suction pump models. 1 HP, continuous duty motor. 120/240VAC, 50/60 Hz, with thermal overload. Adjustable V-link belt connects to the pump pulley.
Junction Boxes:	Explosion-proof AC junction box standard for electronic head, light, suction pump, and submersible connections. Additional explosion-proof junction box supplied with pulse output interface option for third party control system wire terminations.
Strainer:	Enhanced Capacity and Super High Capacity Models: 120-mesh; removable for cleaning. Ultra High Capacity Models: No strainer is provided. See filter section. Disposable strainer canisters are available as an option replacing filters.
Filter:	Enhanced Capacity and Super High Capacity Models: Internal filter adapter with 30-micron particulate filter element (remote dispenser models only). Ultra High Capacity Models: Two internal Cimtek Series 800 filters (40 GPM each) per hose with 30-micron particulate filter elements. (Note: User should make sure the filter element meets the application and replace with the appropriate element as necessary.)
Flow Control Valve:	Enhanced Capacity and Super High Capacity Models: Proportional 7/8" (2.2cm) 24V valve. Standard on remote dispensers, Twin I suction model, and suction models w/ price display (/1) option. Optional on other suction models. Ultra High Capacity Models "//W3": 120 VAC 2-stage 1-1/2" (3.81cm). UHC units w/o "//W3" use 24 VDC proportional valves.
Inlet:	Enhanced Capacity Models: 1 ½" (3.8cm) male NPT. Super High Capacity Models: 1 ½" (3.8cm) male or 2" female (5.1cm) NPT. Ultra High Capacity Models: 2" (5.1cm) male NPT. Satellite Models: 1 ½" (3.8cm) male NPT
Outlet:	Enhanced Capacity and Super High Capacity Models (including Satellite SHC Models): 1" (2.5cm) female NPT. ¾" (1.9cm) reducing bushing supplied for ¾" hose assemblies on non-SHC models. Outlet for satellite on Master configurations is 1-1/2" NPT. Ultra High Capacity Models (including UHC Satellite Models): 1-1/4" (3.2cm) female NPT. 1" (2.5cm) reducing bushing supplied for 1" hose assemblies. Outlet for satellite on Master configurations is 1-1/2" NPT.
Cabinet:	Galvanealed metal. Hinged front and rear doors. Optional SS on most models.
Finish:	Silver powder coat finish with blue powder coated doors. Optional black, green, red, silver, white, or yellow powder coated doors.

OPW
a DOVER company

Below Ground Products
Fuel Compatibility Matrix

Updated 12/2018

OPW FCS Products	Description	Standard Fuels:≤15% Ethanol Gasoline≤5% Bio-Diesel*	High Ethanol Content Gasoline: 15-100% Ethanol	High Biodiesel Content 5-20% Biodiesel*	High Biodiesel Content 5-100% Biodiesel*	Av-Gas/ Jet Fuel	Kerosene/ Fuel Oil	DEF (Diesel Exhaust Fluid)
CXXA Double Wall Piping	Double Wall Primary Piping	X	X	X	X	X	X	X
DPC Series	Double Wall Pipe Couplings	X	X	X	X	X	X	
SPC 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	X
SMA-1515, SMA-1520, SMA-2020, SMA-3030	E-Coated Male Adaptors	X	X	X	X	X	X	
SMA-7575, SMA-1010	Swivel Male Adaptor (Brass or Zinc Plated)	X					X	
STF-1515, STF-2020, STF-2215, STF-2020	E-Coated Swivel Tees	X	X	X	X	X	X	
SFA-7575, SFA-1010	Swivel Female Adaptor (Brass or Zinc Plated)	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	X
REF Series Entry Fittings	Entry Fittings	X	X	X	X	X	X	X
DEB and EBF Series	Entry Boots	X	X	X		X	X	X
1-2100 Series / Multiports / 1-2200 Series	Spill Containers	X	X	X	X	X	X	***
FibreTite Multiports	Spill Containers	X	X	X	X	X	X	***
101BG-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
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	
634TT-7085-EVR	Fill Cap	X	X	X	X	X	X	
1711T-7085-EVR	Vapor Cap	X	X	X	X	X	X	
634LPC-040	Low Profile Fill Cap	X	X	X	X	X	X	
1711LPC-0300	Low Profile Vapor Cap	X	X	X	X	X	X	
62M Series	Monitoring Probe Cap	X	X	X	X	X	X	X
61SO & 71SO Series	Overfill Valve	X				X	X	
61SOM Series	Overfill Valve Anodized	X	X			X	X	
71SOM Series	Overfill Valve Anodized	X	X	X	X	X	X	
71SO-B Series	High BioDiesel Overfill Valve	X		X	X	X	X	
6111 & 61TP Series	Tank Bottom Protectors	X				X	X	
61T Series	Drop Tubes	X				X	X	
61T-SS Series	Stainless Steel Drop Tube	X	X	X	X	X	X	
61T-DEF Series	Stainless Steel DEF Drop Tube							X
233 Series	Extractor Valve	X	X	X	X	X	X	X
FCXX Series	Stainless Flex Connectors	X	X	X	X	X	X	X
53VML/30MV Series	Ball Floats	X	X	X	X	X	X	
523V Series	Pressure Vacuum Vent	X	X	X	X	X	X	X
623V Series	Pressure Vacuum Vent	X	X	X	X	X	X	X
723V Series	EVR Pressure Vacuum Vent	X	X	X	X	X	X	X

* Bio-Diesel must meet ASTM Standard for fuel quality to maintain compatibility with products above
*** Drain plug versions compatible with DEF if installed with Stainless Steel Drop Tube between Nipple and Fill Adapter
≤ Refers to less than or equal to the fuel standard rating for percentage of content

GASOILA® E-Seal

GASOILA® CHEMICALS

TECHNICAL DATA 2013

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

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

Typical Uses
Especially designed for ethanol blended gasoline
Including E10, E20 & E85.

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

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

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

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

For Chemical Emergency, Spill, Leak, Fire, Exposure or Accident Call:
CHEMTREC - Day or Night. 1-800-424-9300
KEEP OUT OF THE REACH OF CHILDREN

Product Data Sheet

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

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

Wt./Gal.: 11.35 lbs

Color: Medium/Green

Clean Up: Hand cleaner or alcohol.

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

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

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