



Department of Environmental Protection

2600 Blair Stone Road ♦ Tallahassee, Florida 32399-2400

DEP Form: 62-761.900(9)

Form Title: Storage Tank Equipment

Registration Form

Effective Date: July 2019

Incorporated in Rule 62-761.850, F.A.C.

Storage Tank System Equipment Registration Form

Fill out completely

General Information

Company Name: OPW Retail Fueling Contact Name: Gene Pope
Company Address: 3250 US Highway 70 Business West City, State: Smithfield, NC Zip: 27577
E-mail: gpope@popeasc.com Contact Number: 813-431-2009
Product Name: Fiberglass Vent & Grade Level Transition Sumps
Model Number(s): VSE & GSE Series Product Type: Piping Transition Sumps
Rule(s) citation that registration is being requested within Chapter 62-761 (UST), and/or 62-762 (AST), 62-761 & 62-762
(6) Piping sumps. (a) Piping sumps shall meet the performance requirements of paragraph 62-761.500(1)(b), F.A.C., and be register
F.A.C.: Write a brief description of equipment registration request including product limitations:

The OPW VSE Vent & GSE Grade Level Series Transition Sumps are the latest addition to the industry leading line of transition sumps manufactured by OPW. The transition sumps utilize the same DSE series containment sumps used in OPW's DSE Series Dispenser sumps that are approved under Florida EQ#966.

Information Checklist (Choose Yes, No, or N/A - Not Applicable):

	Yes	No	N/A
1. Third-party Certification by a Nationally Recognized Testing Laboratory? (Required)	☒	☐	☐
2. Documentation of third-party evaluation that the equipment meets DEP Rules?	☒	☐	☐
3. Documents included about the qualifications of the Nationally Recognized Testing Laboratory?	☒	☐	☐
4. Technical information and drawings included?	☒	☐	☐
5. Installation instructions included?	☒	☐	☐
6. Annual Operability Testing Requirements (Rules 62-761.500, 62-762.501, & 62-762.502 F.A.C.)?	☒	☐	☐
7. Integrity Testing Requirements (Rules 62-761.700, 62-762.701, & 62-762.702, F.A.C.)?	☒	☐	☐
8. Compatible with fuel blends containing >10% ethanol or >20% biodiesel?	☒	☐	☐
9. Has the product been approved or registered in other countries or states? (If so provide list)	☐	☐	☒
10. Any requirements for company-certified installers or trainers?	☒	☐	☐
11. Was this product(s) previously approved or registered by the Department? If yes, EQ- _____	☐	☒	☐
12. Any changes or modifications to the equipment since the last submittal to DEP?	☐	☐	☒

Document Information: Provide supporting documents indicated as "Yes" above including this form via email to Tanknotify@floridadep.gov, or documents can be sent to FDEP, Division of Waste Management, 2600 Blair Stone Road, MS 4560, Tallahassee, FL 32399.

Write a brief description of equipment installation and performance in the U.S.:

The OPW VSE Series Vent transition sumps are utilized between the underground vent lines and aboveground vent risers to provide containment and access to the underground vent pipe/aboveground vent riser interface. The GSE Series Grade Level Transition sumps are utilized between an aboveground tank piping system that transitions to underground piping. The GSE Series Transition Sump provides containment and access to the interface between the aboveground and underground piping systems.

Equipment Registration Certification:

To the best of my knowledge and belief, all information submitted on this form is true, accurate and complete.

Gene Pope - Manufacturer's Representative

Printed Name and Title

Gene Pope

Signature (right click to sign)

Digitally signed by Gene Pope
Date: 2024.06.05 14:00:13 -04'00'

06/02/2024

Date

For Department Use Only:

Date Application Received: 06/05/2024 Application complete: Yes: ☒ No: ☐

EQ- 1010 Date of complete or incomplete letter sent: 07/26/2024 Date Equipment Requires Renewal: 07/26/2029

Storage tank system equipment requires renewal every 5 years in accordance with subsection 62-761.850(2), F.A.C.

May 24, 2024

MR. KRIS KANE
OPW FUELING CONTAINMENT SYSTEMS INC
3250 U S RTE 70 BUSINESS W
SMITHFIELD, NC 27577

Notice of Completion (NoC) and authorization to apply the UL Mark

Your reference: PO 260058341

Our reference: File MH60659, Volume 1 Order: 15139928
Project: 4791164704

Project scope: Evaluation of Alternate Vent and Transition Sump (VSE and GSE Series) and add
Optional Pipe Boot to 2 and 3 in. REF Fittings.

Dear Mr. Kane:

We appreciate that you have a choice of certification providers and thank you for choosing UL Solutions. We have completed the investigation under the above project and confirmed compliance of your product(s) with UL Mark requirements.

This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Mark at the factory location(s) identified on the Authorization Page of UL Solutions File MH60659, Volume 1. You are required to send a copy of this letter to all manufacturing locations authorized under UL Solutions File MH60659, Volume 1.

The Follow-Up Services Procedure covering your product(s) will typically be provided by UL Solutions within 10 business days. Any information and documentation provided to you involving the UL Mark services are provided on behalf of UL LLC or any authorized licensee. The UL Solutions certification directory is updated with active certifications shortly after projects are reviewed and completed. Please visit <https://productiq.ulprospector.com/> to search for the certification.

Products that bear the UL Mark must be identical to those submitted to UL for evaluation and certification and must comply with the Follow-Up Services Procedure covering your product(s). Additional requirements related to the responsibilities of the Applicant and Manufacturer can be found under **Customer Requirements documents** at www.ul.com/fus.

A UL Solutions certification is a valuable marketing tool meaning your product or company has successfully met stringent requirements. We encourage you to use your UL Mark and certification in your marketing activities. We are happy to provide guidance on how best to promote your UL certification. Our [Certification Achievement Kit](#) demonstrates marketing and promotional concepts to help you best represent your UL certification.

UL Solutions is committed to providing you with an exceptional customer experience. You may receive an email from ULSurvey@feedback.ul.com inviting you to provide feedback. Your survey rankings and comments regarding the experience are important to us. We are always seeking ways to improve in any areas we can, and your feedback and comments are vital to this process.

If you have any questions, please contact me or any of our customer service representatives at www.ul.com/contact-us.

Sincerely,

Tim Crews
Staff Engineer
UL Solutions
Timothy.A.Crews@ul.com

David Piecuch
UL Mark Certification Program Manager
UL LLC
David.Piecuch@ul.com

29225f2b886447ec929c91177dcf4b59

OPW VENT TRANSITON SYSTEM



Customizable



Superior Quality



Faster Installs



LEARN MORE. VISIT US AT:
opwglobal.com/products/us/retail-fueling-products/def-handling-hardware

THE BEST SOLUTION FOR

VSE Vent Transition Sump

The primary component to OPW's Vent Transition System is the new VSE Vent Transition Sump. The VSE is an at-grade system that utilizes a fiberglass base with powder-coated steel top.

Vent Stack Entries

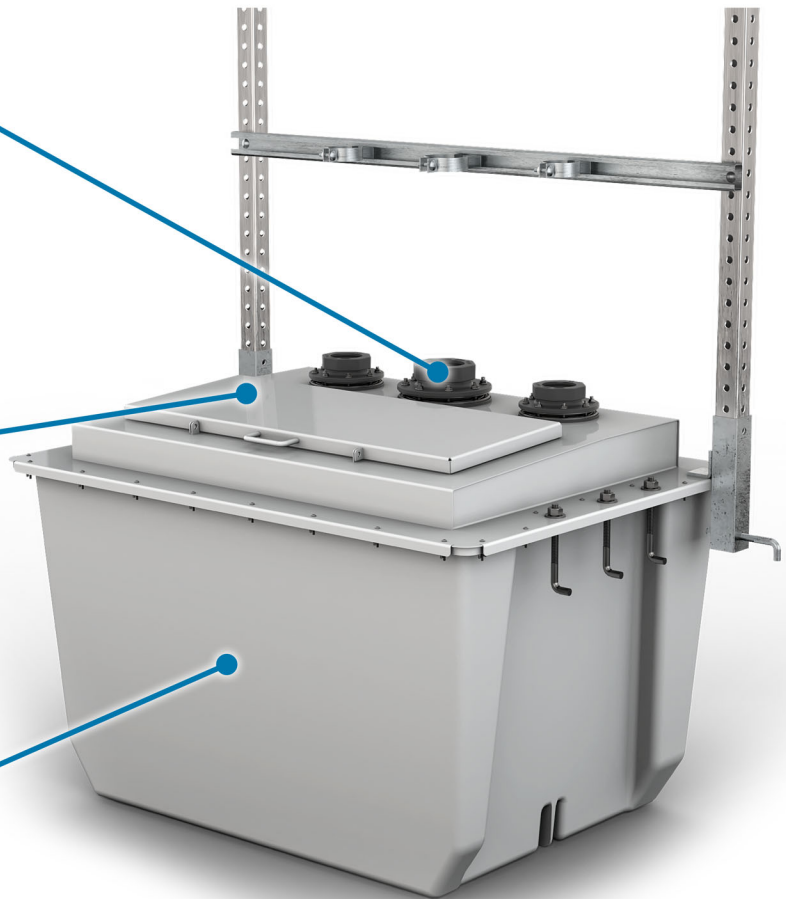
Rigid Entry Fittings (REF) are included for the top's pre-cut vent stack entries. Additionally, UV/weather-resistant caps are provided for protecting the REF fittings. A vent stack rack system is available in units of 4ft up to 12ft total.

Tops

Laser-cut tops feature a lockable access hatch along with tested water-shedding capability. The finish allows for less heat absorption and long-lasting performance. Tops are customizable, arriving with vent stack entries pre-cut.

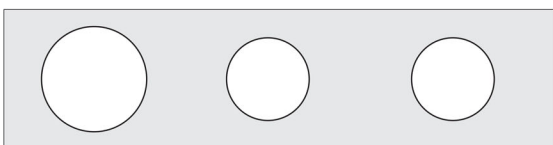
Base

The Fiberglass DSE Base is made using advanced composite technology, providing smooth surfaces on both sides of the sump walls. This creates consistent thickness and shape for strong bonds with entry fittings.



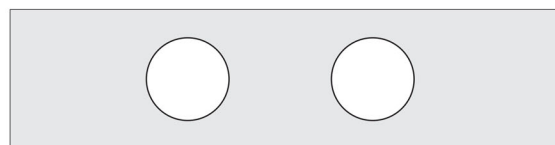
Part Number Configuration Guide

VSE - _ _ _ _ Dashes represent number of vent entry stacks (up to 4) and number of inches diameter (2" or 3")



Example A:

VSE-322 = (3) entries total. (1) 3" diameter and (2) 2" diameter



Example B:

VSE-22 = (2) entries total, both 2" diameter

EVERY VENT TRANSITION

OPW FlexWorks Vent Pipe

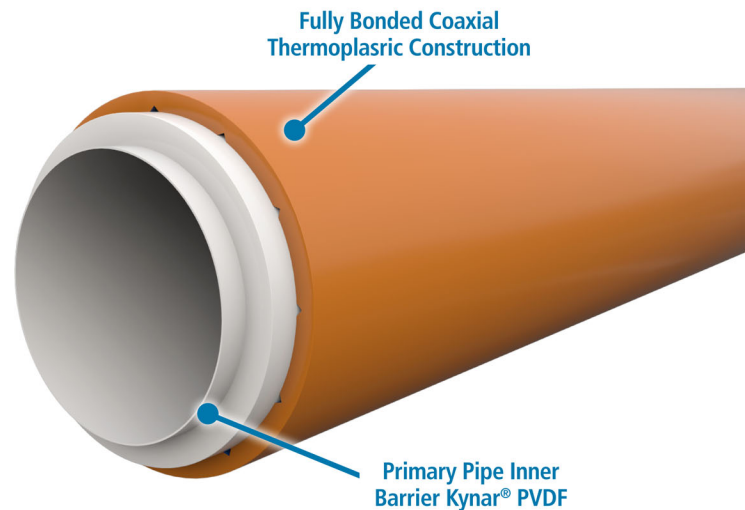
OPW Double-Wall Vent Piping is a new alternative to FRP vent pipe that is more flexible, lighter, and easier to install.

Eliminate Potential Underground Leak Points

- Continuous piping runs between tank and vent stacks
- No hand-built field joints
- Stainless-steel fittings for worry-free corrosion resistance
- Used with either OPW DPC swage-on or SBC bolt-on double-wall couplings

Features

- **Fast and easy installation** – results in less installation labor, time and cost
- **Eliminates burdensome cutting, fitting, cleaning, gluing or welding**
- **No adhesives**, heat assists, curing problems or electrofusion welding of joints
- **Easy to bend** - no special fittings to install in order to make bends
- **Vent Pipe Kit** to seal off interstitial testing port when directly burying double wall fittings



ULc Approved for Venting with All Fuels

Ordering specifications - Sizing Matrix

Part #	Description	Packaged
V20-250	2" Double-Wall Vent Pipe	250' Reel
V20-500	2" Double-Wall Vent Pipe	500' Reel
V30-250	3" Double-Wall Vent Pipe	2450' Reel
V30-500	3" Double-Wall Vent Pipe	500' Reel

Accessories

Pipe Couplings	DPC-2200A 2" Double-Wall Swivel Pipe Coupling, Flat Gasket DPC-2300A 3" Double-Wall Swivel Pipe Coupling, Flat Gasket BMA-3030 3" Barbed Male Adaptor
Entry Fittings (OPW Vent Pipe into Sump)	REF-0200 2" entry fitting HEF-6030 3" entry fitting EBF-0300 3" Entry Boot Fitting for 3" DW FlexWorks Pipe or 3" Rigid Pipe/LCX
Elbows	SEF-2020 2" Elbow, 2" Female NPT to 2" Male NPSH SEF-3030 3" Elbow, 3" NPSH x 3" NPT

OPW Vent Transition System

For superior performance, cost savings, and enhanced efficiency of installs, OPW now offers a selection of products to create a Vent Transition System. Customers may choose to include these products as part of their VSE vent sump installation.

Pressure Vacuum Vents:

OPW 623V and 723V (CARB EVR) installed at the top of vent pipe stacks protect from intrusion. A closed poppet opens at a pre-determined pressure to allow the tank to vent.

Vent Stack Modular Rack System:

Galvanized steel components to protect against rust/corrosion. Available in increments of 4 ft each up to 12 ft in total.

VSR-4: 4ft VSR-8: 8ft VSR-12: 12ft

VSE Vent Transition Sump:

Fiberglass base with configurable, laser-cut steel top that is powder-coated for durability. An at-grade system with lockable access hatch and water-shedding capabilities. Rigid Entry Fittings (REF) and UV/weather protection caps included for vent stack installation.

OPW FlexWorks Vent Pipe:

Fast, simple installation helps decrease labor costs. Less potential for underground leak points with continuous piping runs and no hand-built field joints. Available in 2" or 3".

Using OPW Flexible Vent Pipe over FRP vent pipe avoids the use and additional cost of flex connectors inside the sump.

Entry Fittings, Pipe Couplings and Components:

Complete the OPW Vent transition system with compatible entry fittings into the sump base, pipe couplings for vent pipe, and elbows from piping to vent stacks.



VSE Vent Transition Sump

The new OPW Vent Transition Sump (VSE) is an at-grade system that utilizes the fiberglass DSE base with a powder-coated steel top. This laser-cut top features a lockable access hatch and is sloped for water-shedding. Tops arrive configured with up to four (4) pre-cut entry holes for either 2" or 3" vent stacks.

Rigid Entry Fittings (REF) are included for the vent stack entries, along with UV/ weather-resistant caps for protection. A vent stack rack system is available in units of 4 feet up to 12 feet total.

The smooth walls inside and out of the DSE base allow for a more secure bond of the pipe entry fittings. See the chart below for available OPW Vent Transition System components for more efficient installs and superior quality.

The VSE Includes:

- ◆ Fiberglass DSE Base
- ◆ 14-Gauge Powder-Coated Steel Top
- ◆ Desired Configuration of Vent Stack Entries with REF Fittings and UV/ Weather-Protection Caps



VSE Vent Transition Sump
(with rack system)



OPW Vent Transition System

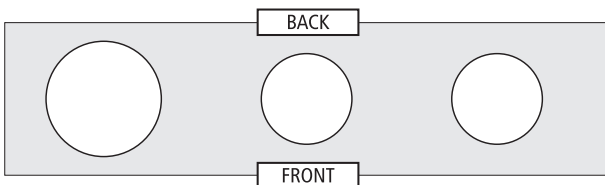
Features & Benefits:

- ◆ **Powder-Coated Steel Tops** – long-lasting, lockable, less heat absorption, and water-shedding performance. Rigid entry fittings included with UV / weather-resistant protective caps
- ◆ **Fiberglass DSE Base** – advanced composite technology provides smooth surfaces on both sides of the sump walls to create consistent thickness and shape for strong bonds with entry fittings
- ◆ **Any Pipe, Any Fittings** – sump base is compatible with all vent pipe and entry fittings.
- ◆ **Customizable** – Steel tops are pre-configured to arrive laser-cut with up to four (4) vent stack entries at either 2" or 3"
- ◆ **Peace-of-Mind Installations** – Tested, quality products that are designed to install faster and perform over time
- ◆ **Vent Transition System** – Combine with OPW's vent pipe, PV vents, and other components for superior performance, cost savings, and enhanced efficiency of installs
- ◆ **Tops can be ordered separately** – if stocking DSE bases

Part Number Configuration Guide

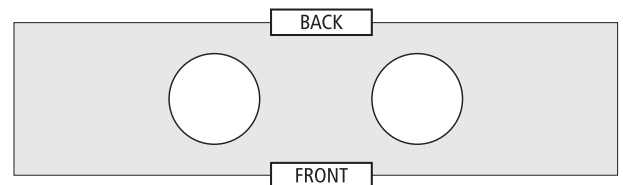
VSE - _ _ _ _ Dashes represent the sizes of vent stack entries, determined from left to right. (Up to 4 entries. Entry sizes 2" or 3")

To order Tops separately, follow above method using part number **VSE-TOP- _ _ _ _**



Example A:

VSE-322 = (3) entries total. (1) 3" diameter and (2) 2" diameter



Example B:

VSE-22 = (2) entries total, both 2" diameter

Vent Stack Modular Rack System

VSR-4: 4ft VSR-8: 8ft VSR-12: 12ft

Pipe clamps for vent stacks purchased separately.

218384	2" pipe clamp
218385	3" pipe clamp

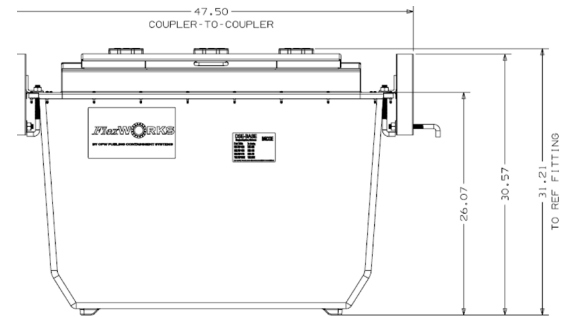
VSE & VSR Replacement Parts

Part Number	Description
REF-0200V	RIGID ENTRY FITTING, 2.0" SINGLE WALL FRP, 2" REF cover, VSE
REF-0300V	RIGID ENTRY FITTING, 3.0" SINGLE WALL FRP, 3" REF cover, VSE
218212	2" REF Cover
218356	3" REF Cover
215926	Top Installation Kit
H13190	Anchor bolt kit
218255	SQ TUBE, RACK
218257	STRUT
218256	Coupler
218437	Hardware kit base
218438	Hardware kit extension

Available OPW Vent Transition System Components

Pressure Vacuum Vents	623V-2203 2" Thread-On NPT 623V-3203 3" Thread-On NPT	723V-2203 2" Thread-On NPT. CARB EVR 723V-3203 3" Thread-On NPT. CARB EVR
OPW FlexWorks Vent Pipe	V20 2" Double-Wall Vent Pipe	V30 3" Double-Wall Vent Pipe
Pipe Couplings	DPC-2200A 2" Double-Wall Swivel DPC-2300A 3" Double-Wall Swivel	SBC-2200 2" Swivel Bolt-On (NPT)
Entry Fittings (for DSE sump)	REF-0200 2" Rigid Entry Fitting HEF-0200 2" Hybrid Entry Fitting HEF-6030 3" Hybrid Entry Fitting	
Elbows	SEF-2020 2" Elbow, 2" Female NPT to 2" Male NPSH SEF-3030 3" Elbow, 3" NPSH x 3" NPT	

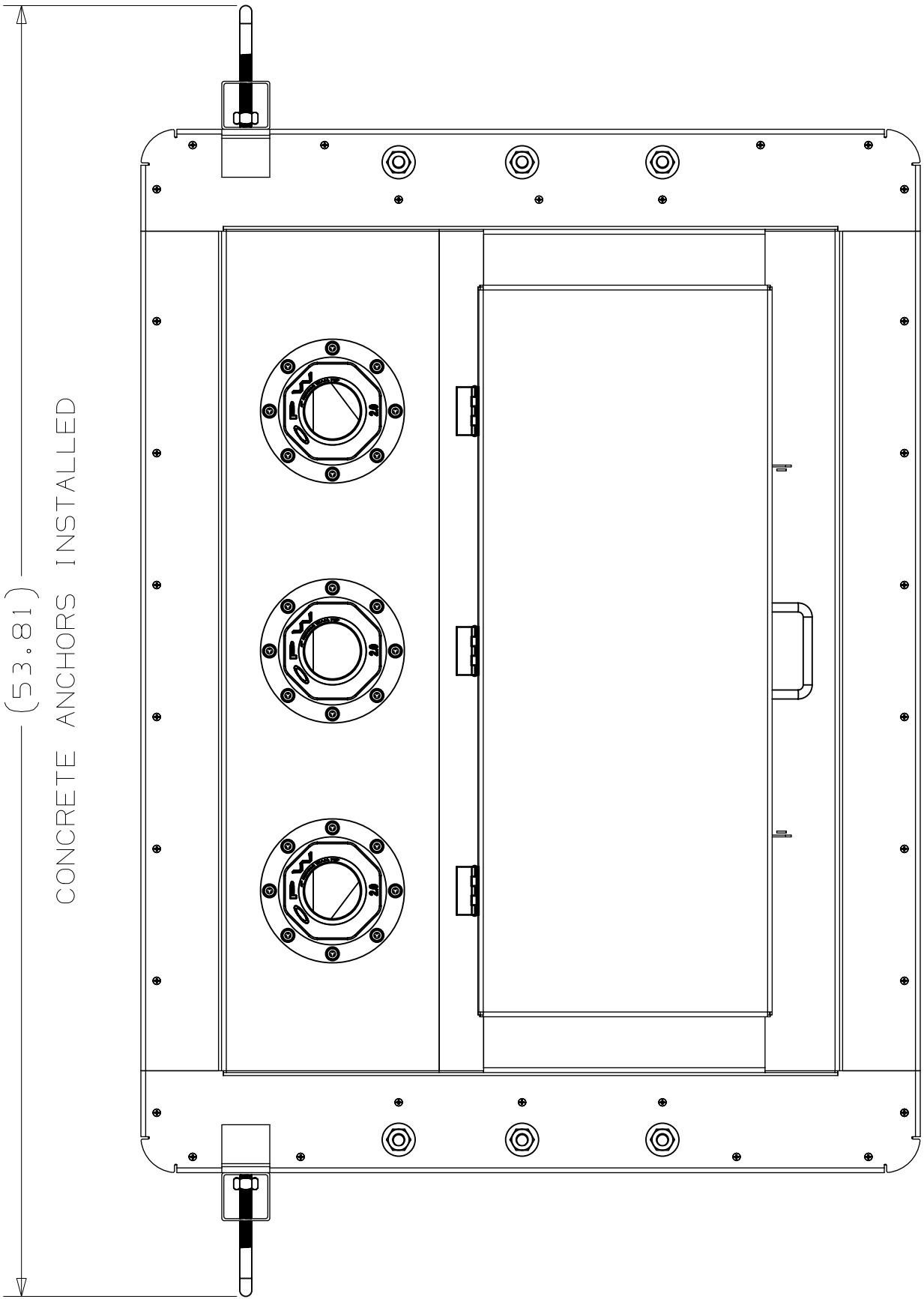
Product Dimensions



- 47.50" COUPLER-TO-COUPLER
- 31.21" TO REF FITTINGS
- HEIGHT: 30.57"
- WIDTH: 32.50"



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47.50
COUPLER - TO - COUPLER

GSE Grade-Level Transition Sump

The new OPW GSE Grade-Level Transition Sump is an at-grade system that utilizes the fiberglass DSE base with a powder-coated steel top. The top features a lockable access hatch and is sloped for water-shedding.

The smooth walls inside and out of the DSE base allow for a more secure bond with pipe entry fittings.

The GSE is an ideal transition sump for aboveground storage tank (AST), aviation, marina, fuel oil and generator applications. It can also serve as a multi-purpose junction box for various fuel, chemical, water and electrical installations.

The GSE Includes:

- ◆ Fiberglass DSE Base
- ◆ 14-Gauge Powder-Coated Steel Top



GSE Grade-Level Transition Sump

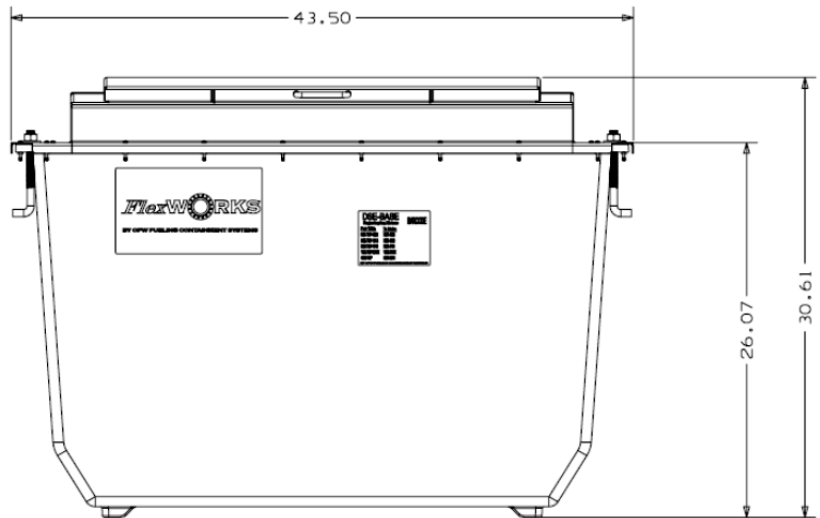
Features & Benefits:

- ◆ **Fiberglass DSE Base** – advanced composite technology provides smooth surfaces on both sides of the sump walls to create consistent thickness and shape for strong bonds with entry fittings. This is a multi-purpose base and is the same one used for dispenser and vent transition applications. It is completely stackable, nestable and easily separated to maximize warehouse and job-trailer space. One base – many functions!
- ◆ **Powder-Coated Steel Tops** – long-lasting, lockable, less heat absorption and water-shedding performance
- ◆ **Any Pipe, Any Fittings** – sump base is compatible with all pipe and entry fittings
- ◆ **Peace-of-Mind Installations** – Tested, quality products that are designed to install faster and perform over time
- ◆ **GSE Tops can be ordered separately** – for those who stock DSE bases
- ◆ **Versatile Transition Sump** – multiple applications as a transition or junction box, including AST, aviation, marina, fuel oil, generator, chemical, water and electrical

Part Numbers

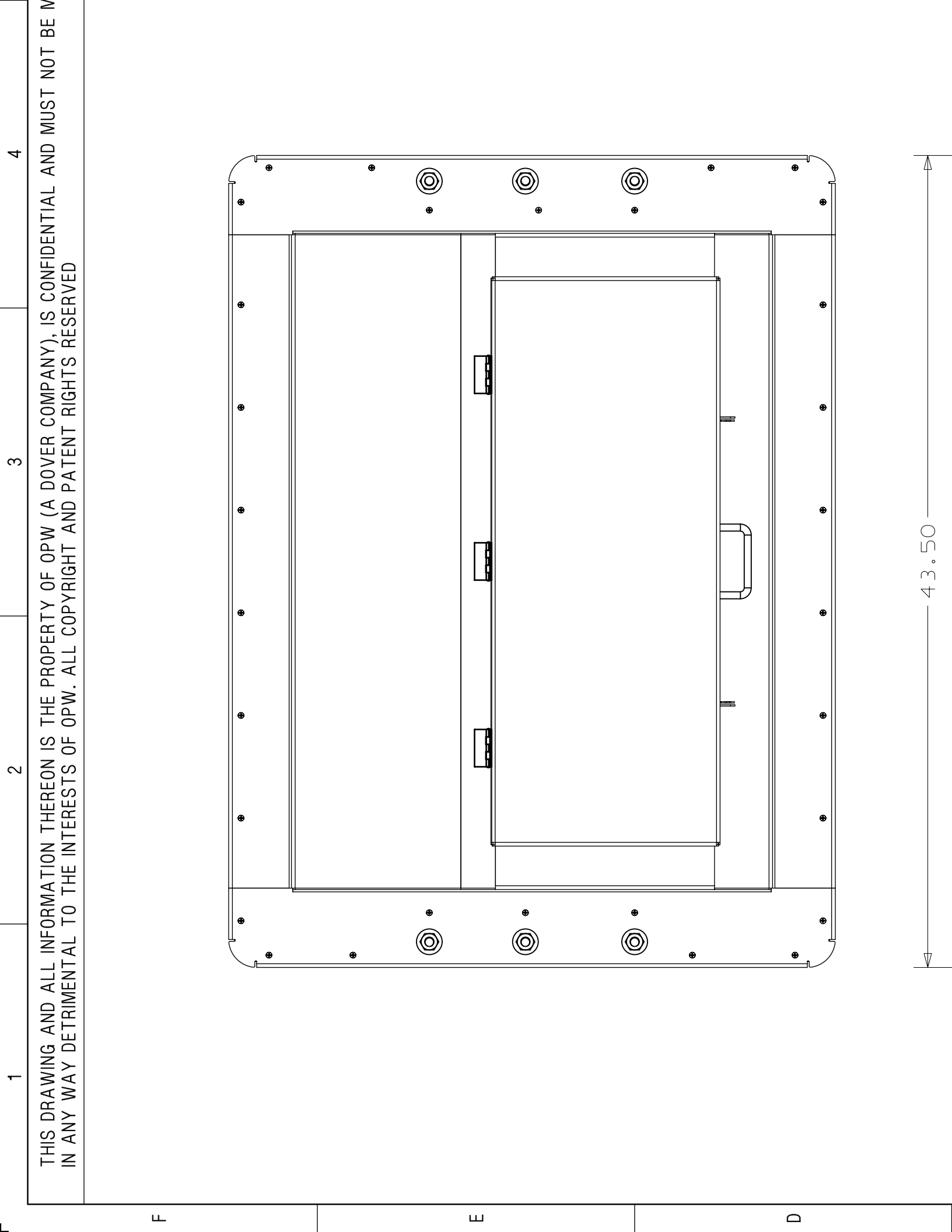
GSE-3344	GSE Steel Top with DSE Base
GSE-TOP	GSE Steel Top
DSE-BASE	DSE Base

Product Dimensions



Total: 43.5" length x 32.5" width







Underground Products Fuel Compatibility Matrix

Refer to individual product pages for
specific model certifications and approvals

Updated 08/2023

OPW Product Number	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)	CARB EVR
CXXA Double Wall Piping	Double Wall Primary Piping	X	X	X	X	X	X	X	
V20 Vent Piping	Double Wall Vent Piping								
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 & HEF Series Entry Fittings	Entry Fittings	X	X	X	X	X	X	X	
1-2100 Series / Multiports / 1-2200 Series	Spill Containers	X	X	X	X	X	X	***	X
FibreTite Multiports	Spill Containers	X	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	***	X
60V Series	Vapor Line Shear Valve	X	X	X	X	X	X		X
10 Series	Emergency Shut Off Valve	X							
10 Plus RF	Emergency Shut Off Valve	X	X	X	X	X	X		
10 Plus Series	Emergency Shut Off Valve	X					X	X	
60V-DEF-SS	DEF Series Shear Valve							X	
61SALP & E85 Series	Fill Swivel Adaptor	X	X	X	X	X	X		X
633T-8076	Fill Adaptor	X	X	X	X	X	X		
61VSA & E85 Series	Vapor Swivel Adaptor	X	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		X
1711T-7085-EVR	Vapor Cap	X	X	X	X	X	X		X
634LPC-040	Low Profile Fill Cap	X	X	X	X	X	X		X
1711LPC-0300	Low Profile Vapor Cap	X	X	X	X	X	X		X
62M & E85 Series	Monitoring Probe Cap	X	X	X	X	X	X	X	
61SO & 71SO Series	Overfill Valve	X				X	X		
61SOM & 71SOM Series	Overfill Valve Anodized	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		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	X
FCXX Series	Stainless Flex Connectors	X	X	X	X	X	X	X	
53VML/30MV Series	Ball Floats	X	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	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 Adaptor

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

Installation Instructions

Vent Transition Sump (VSE), Vent Rack System (VSR), Grade-Level Transition Sump (GSE)

IMPORTANT INFORMATION – FOLLOW ALL INSTRUCTIONS

OPW STANDARD PRODUCT WARRANTIES

FLEXWORKS by OPW, Inc., VAPORSAVER™ and all other OPW products must be used in compliance with all applicable federal, state, provincial and local laws, rules, and regulations. Product selection must be based on physical specifications and limitations, compatibility with the environment and material to be handled. All illustrations and specifications in the literature are based on the latest production information available at the time of publication. Prices, materials, and specifications are subject to change at any time, and models may be discontinued at any time, in either case, without notice or obligation. OPW warrants solely to its customer that the following products sold by OPW will be free from defects in materials and workmanship under normal use and conditions for the periods indicated:

Product	Warranty Period
FlexWorks Primary Pipe	10 years from date of manufacture
All Products Certified to California Standards*	1 year from date of manufacture or from date of installation registration (not to exceed 15 months from date of manufacture)
All other Products	1 year from date of manufacture
*Products certified to California 2001 Standards will have an OPW Registration Card enclosed/attached to the product.	

OPW's exclusive obligation under this limited warranty is, at its option, to repair, replace or issue credit (in an amount not to exceed the list price for the product) for future orders for any product that may prove defective within the applicable warranty period. (Parts repaired or replaced under warranty are subject to prorated warranty coverage for remainder of the original warranty period). Complete and proper warranty claim documentation and proof of purchase required. All warranty claims must be made in writing and delivered during the applicable warranty period to OPW at OPW 9393 Princeton-Glendale Road Hamilton, Ohio, USA 45011,

Attention: Customer Service Manager. No products may be returned to OPW without its prior written authority.

This limited warranty shall not apply to any FlexWorks or VAPORSAVER™ product unless it is installed by an OPW attested installer and all required site and warranty registration forms are completed and received by OPW within 60 days of installation. This limited warranty also shall not apply to any FlexWorks, VAPORSAVER™ or other OPW product: unless all piping connections are installed with a nationally-recognized or state-approved leak detection device in each tank and dispenser sump (which are not for storage and from which all discharge hydrocarbons must be removed, and the systems completely cleaned, within 24 hours); unless testable sumps utilize FlexWorks pipe and access fittings; unless a sump inspection log or an EPA recommended/required checklist is maintained and the results are furnished to OPW upon request; and unless OPW is notified within 24 hours of any known or suspected product failure and is provided with unrestricted access to the product and the site. This limited warranty also shall not apply to any product which has been altered in any way, which has been repaired by anyone other than a service representative authorized by OPW, or when failure or defect is due to: improper installation or maintenance (including, without limitation, failure to follow FlexWorks Quick Reference Manual Installation Guide and all product warning labels); abuse or misuse; violation of health or safety requirements; use of another manufacturer's, or otherwise un-authorized, substances or components; soil or other surface or subsurface conditions; or fire, flood, storm, lightning, earthquake, accident or any other conditions, events or circumstances beyond OPW's control.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND ALL OTHER WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY EXCLUDED.

OPW shall have no other liability whatsoever, whether based on breach of contract, negligence, gross negligence, strict liability, or any other claim, including, without limitation, for special, incidental, consequential or exemplary damages or for the cost of labor, freight, excavation, clean-up, downtime, removal, reinstallation, loss of profit, or any other cost or charges. No person or entity is authorized to assume on behalf of OPW any liability beyond this limited warranty. This limited warranty is not assignable.

IMPORTANT: Read these assembly and installation instructions completely and carefully prior to starting. Check to make sure all parts have been provided. Use only the parts supplied; substitution of parts may cause product failure.

IMPORTANT: Please read all warnings and follow the installation instructions completely and carefully. Failure to do so will void all warranties and may cause product failure or result in environmental contamination due to liquid leakage into the soil, creating hazardous spill conditions.

WARNING - DANGER: Using electrically operated equipment near gasoline or gasoline vapors may result in fire or explosion, causing personal injury and property damage. Be sure that the working area is free from such hazards, and always use proper precautions.

Vent/Grade-Level Transition Sumps

OPW FlexWorks Vent Sumps for automotive fuels are installed at grade at the vent stack to provide access to and secondary containment where the underground vent piping connects to the rigid vent stack piping. Use only OPW Retail Fueling supplied hardware and components.

NOTE: Sump must be assembled and installed by a qualified person. The use of non-qualified personnel or any deviations from these recommended procedures could result in damage or leakage.

NOTE: Sumps have been evaluated per UL for use with REF, HEF, and AXP series of products. Failure to use recommended combinations of sump products in a completed assembly may cause damage or leakage.

NOTE: Sump products are not intended for storage in excessive temperatures or direct sunlight. Rough handling may cause damage and leaking in use. Visually inspect sump prior to installation to ensure no damage. Damaged sumps shall not be used.

Tools Needed for Installation and Assembly

Hole saw (4" and/or 5", per sump configuration)
Drill with 5/16" drill bit
Torque wrench
Phillips-head screwdriver
7/16" socket
9/16" socket (VSR only)
1/2" socket (VSR only)
7/8" combination wrench/adjustable wrench
Pipe wrench
Strap wrench
Level

NOTE: For Vent Rack System (VSR) Installation, see page 4

NOTE: For Grade-Level Transition Sump (GSE) Installation, see page 5

Vent Transition Sump (VSE)

Determine Burial Depth (see Figure 1)

Determine burial depth of the piping entering the sump and position the sump base to allow entry boots to have proper clearance from the bottom of the sump while maintaining adequate drop from sump to tank. Locate and drill entry fitting mounting holes per manufacturer recommendations.

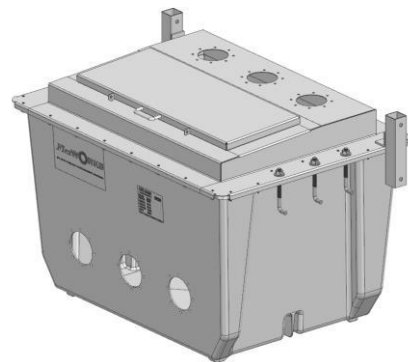


Figure 1

Install Sump Wall Entry Fittings (see Figure 2)

Install appropriate FlexWorks pipe and conduit entry fittings into the transition sump top at the proper locations. The location of each entry fitting should correspond with the vent line locations for the transition sump configuration that is to be installed. (Refer to the appropriate FlexWorks Entry Fitting Installation Instructions).

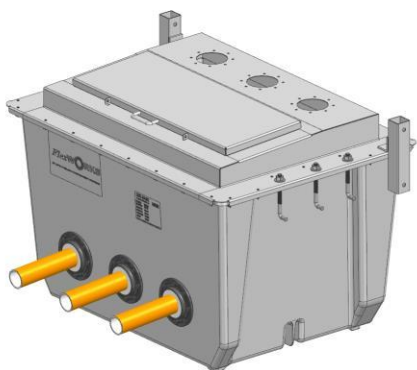


Figure 2

NOTE: When a FRP entry fitting is to be bonded to a FRP dispenser sump, surface preparation is **EXTREMELY IMPORTANT**. Follow all entry fitting manufacturer's recommendations for proper adhesion of the entry fitting. This includes sanding, cleaning, priming of bonding surfaces, and mixing and preparing of bonding materials. OPW recommends the use of Epoxy Acrylate Resins tested and approved for long-term use and exposure in automotive fueling station applications by UL.

Attach Sump Top

Although it is not required for concrete depths greater than 6" when measured from grade, Urethane Sealant (p/n SL-1100) can be used at the discretion of the installer. Apply a 1/8" minimum continuous bead of Urethane Sealant (p/n SL-1100) to the flat flange on the containment chamber just inside the slotted bolt holes. Attach the sump top to the containment chamber with the supplied screws and wing nuts and securely tighten using a Phillips screwdriver.

Install Upper Entry Fittings (see Figure 3)

Entry Fitting	For Use With
REF-0200V	2" Nom. Dia. Riser
REF-0300V	3" Nom. Dia. Riser

Install supplied FlexWorks pipe entry fittings to the upper lid assembly per manufacturer recommendations. Do not discard provided UV protection boots.

NOTE: The nylon nut should be facing upward, toward the outside of the sump. Leave nut loosely installed at this time.

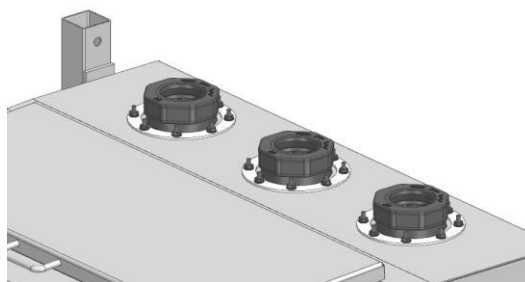


Figure 3

Install Riser Piping (see Figures 4 & 5)

Carefully insert the riser pipe through the UV protection boot and down the corresponding entry fitting. Make appropriate connections to vapor piping inside the sump using either flexible or rigid fittings, ensuring risers are plumb.

A pipe wrench must be used to secure lower section of the riser pipe. Tighten the nylon nut with a strap wrench until the end of the grommet is flush with the face of the nut (approximately 3.5 turns).

Slide UV boot down over the entry fitting so that it sits flush against the lid.

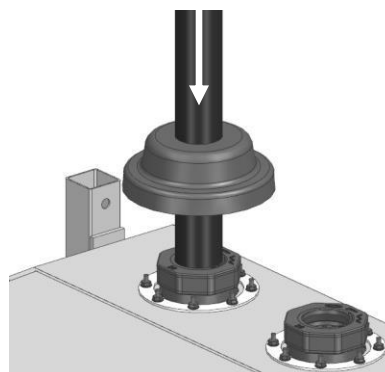


Figure 4



Figure 5

NOTE: Verify nuts on all anchor bolts and hardware connecting the top and base are secured tightly before proceeding to backfilling and pouring concrete. See Figure 6.

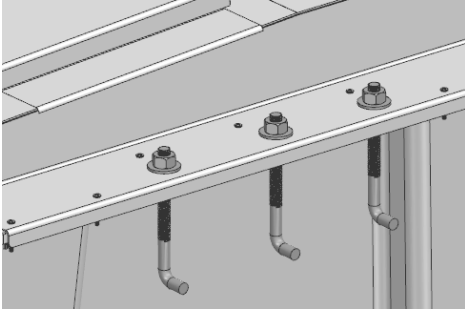


Figure 6

Backfill Piping and Sump

Ensure sump is set level. Rounded pea gravel with a minimum diameter of 1/8" and a maximum diameter of 3/4" must be used for backfilling around OPW Sumps. To prevent sump damage, avoid dumping pea gravel directly onto the Transition Sump when backfilling. Backfill equally around the sump in layers to prevent damage or deformation. Ensure proper backfill with no voids under sump bottom and joint.

Pour Concrete Pad (see Figure 7)

A concrete pad must be installed to counter the buoyancy effects of the sump. A minimum of 6 cubic feet of reinforced concrete must be installed. A minimum 12" wide by 6" deep around the perimeter of the sump is required.

IMPORTANT: If installing optional VSR rack system, see **Vent Rack System** for instructions prior to pouring concrete.

NOTE: Concrete shall not be poured higher than 1" above the base of lid assembly. Use caution as to avoid pouring into rack mounting couplings.

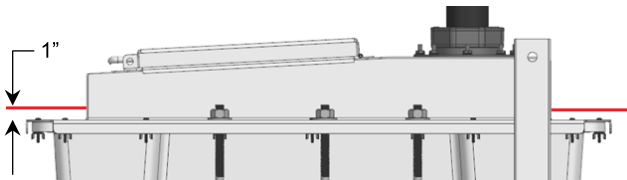


Figure 7

NOTE: Vent stacks must be supported and tied together in at least one position; either against an existing structure or by way of an anchored rack system. In areas prone to high winds and severe weather conditions, additional support may be

required. Refer to local codes and regulations for proper support information.

Vent Rack System (Optional) OPW Part No. VSR-4, VSR-8, VSR-12

VSR-4 Installation (see Figures 8 & 9)

Install anchor bolts in the lower holes on each of the two couplers located on the steel top. Slide a length of 2" x 2" square tubing into each coupler, using the anchor bolt as a bottom stop. Fasten together through the uppermost holes using included hardware.

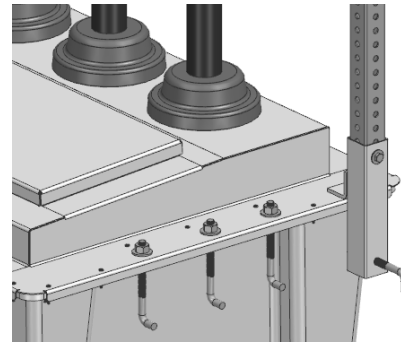


Figure 8

Attach horizontal strut to each section of square tubing with provided hardware ensuring strut remains level. Each vent stack shall be secured to the horizontal strut via an appropriately sized pipe clamp (sold separately).



Figure 9

VSR-8 and VSR-12 Installation (see Figure 10)

Follow VSR-4 installation instructions to install 4-foot rack section. To increase rack height to 8 feet, slide couplers on each section of square tubing and fasten to secure.

NOTE: The coupler should overlap each section of tubing by a minimum of three (3) holes.

Tighten horizontal strut to the square tubing with provided hardware to 20-25 ft-lb, ensuring the strut remains level. Repeat this procedure to increase rack height to 12 feet.

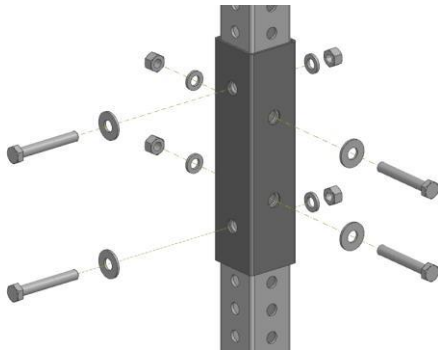


Figure 10

Grade-Level Transition Sump (GSE)

Determine Burial Depth (see Figure 11)

Determine burial depth of the piping entering and/or exiting the sump and position the sump base to allow entry boots to have proper clearance from the bottom of the sump while maintaining adequate drop from sump to tank. Locate and drill entry fitting mounting holes per manufacturer recommendations.

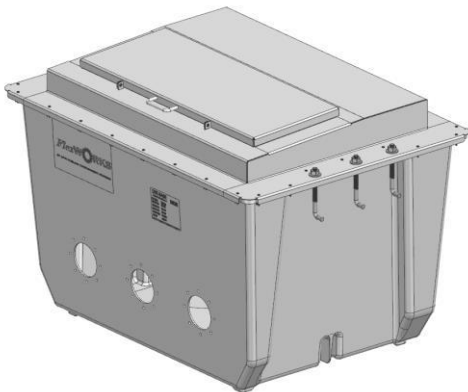


Figure 11

Install Sump Wall Entry Fittings (see Figure 12)

Install appropriate FlexWorks pipe and conduit entry fittings into the transition sump top at the proper locations. The location of each entry fitting should correspond with piping locations for the transition sump configuration that is to be installed. (Refer to the appropriate FlexWorks Entry Fitting Installation Instructions).

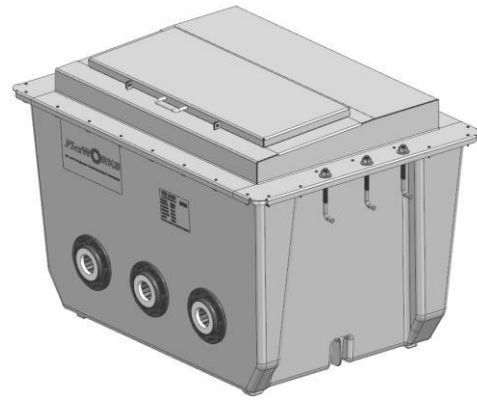


Figure 12

NOTE: When a FRP entry fitting is to be bonded to a FRP dispenser sump, surface preparation is **EXTREMELY IMPORTANT**. Follow all entry fitting manufacturer's recommendations for proper adhesion of the entry fitting. This includes sanding, cleaning, priming of bonding surfaces, and mixing and preparing of bonding materials. OPW recommends the use of Epoxy Acrylate Resins tested and approved for long-term use and exposure in automotive fueling station applications by UL.

NOTE: When installing entry fittings to the upper lid assembly follow manufacturer's installation recommendations. Drill **ONLY** in area highlighted in Figure 13.

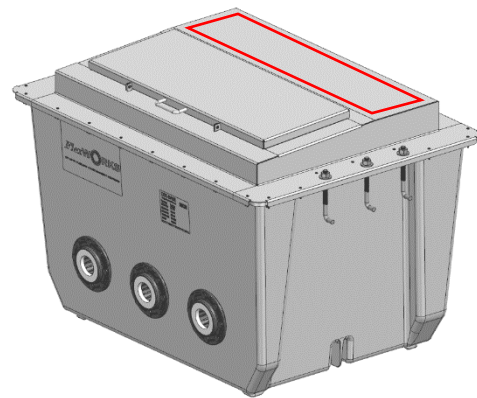


Figure 13

Attach Sump Top

Although it is not required for concrete depths greater than 6" when measured from grade, Urethane Sealant (P/N SL-1100) can be used at the discretion of the installer. Apply a 1/8" minimum continuous bead of Urethane Sealant (P/N SL-1100) to the flat flange on the containment chamber just inside the slotted bolt holes. Attach the sump top to the containment chamber with the supplied screws

and wing nuts and securely tighten using a Phillips screwdriver.

Make Internal Connections

Make appropriate connections to piping inside the sump using either flexible or rigid fittings, ensuring all fittings are properly torqued to manufacturer's recommendations.

NOTE: Verify nuts on all anchor bolts and hardware connecting the top and base are secured tightly before proceeding to backfilling and pouring concrete. See Figure 14.

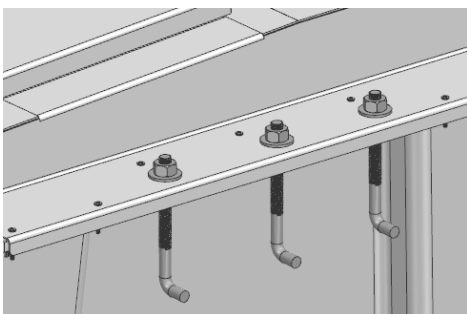


Figure 14

Backfill Piping and Sump

Ensure sump is set level. Rounded pea gravel with a minimum diameter of 1/8" and a maximum diameter of 3/4" must be used for backfilling around OPW Sumps. To prevent sump damage, avoid dumping pea gravel directly onto the Transition Sump when backfilling. Backfill equally around the sump in layers to prevent damage or deformation. Ensure proper backfill with no voids under sump bottom and joint.

Pour Concrete Pad (see Figure 15)

A concrete pad must be installed to counter the buoyancy effects of the sump. A minimum of 6 cubic feet of reinforced concrete must be installed. A minimum 12" wide by 6" deep around the perimeter of the sump is required.

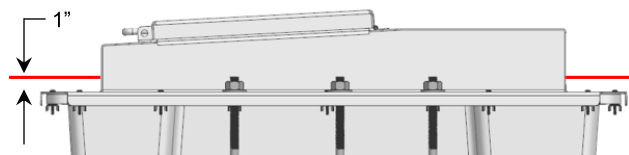


Figure 15

NOTE: Concrete shall not be poured higher than 1" above the base of lid assembly.

Operation and Maintenance

The FlexWorks System is designed to provide reliable underground fuel transfer and short-term secondary containment of leaked petroleum product.

FlexWorks sumps and secondary containment pipes are not intended for long term storage of petroleum products. Liquid that accumulates in the secondary containment system must be promptly removed and properly disposed of. Operational third party approved liquid sensors should be installed and maintained in each sump to reliably indicate to the operator that liquid is present in the secondary containment system. Once a leak is detected, the system must be shut down immediately and the source of the leak must be repaired. All liquid must be thoroughly flushed and cleaned out of the secondary containment system at once. Inspect all system components at least monthly for leaks or damage, and repair or replace any suspect component as necessary.

Visual inspections of all containment sumps and components should be made on a routine basis to check for damage, water infiltration or for any signs of leaking product. An electronic or mechanical shut-off leak detection system is recommended for all containment sumps. Sumps are to be kept free of debris and spilled fuel.

NOTE: Failure to remove fuel and liquids from containment sumps may compromise the performance and integrity of the sump and its associated fittings and seals over prolonged periods of time.

NOTE: Common sense and good judgment should always be exercised. The contractor's understanding of all related site conditions prior to starting the project is essential. If the contractor does not have a clear understanding of the required work and site conditions, the contractor is advised to seek clarification prior to starting any portion of the project.



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