



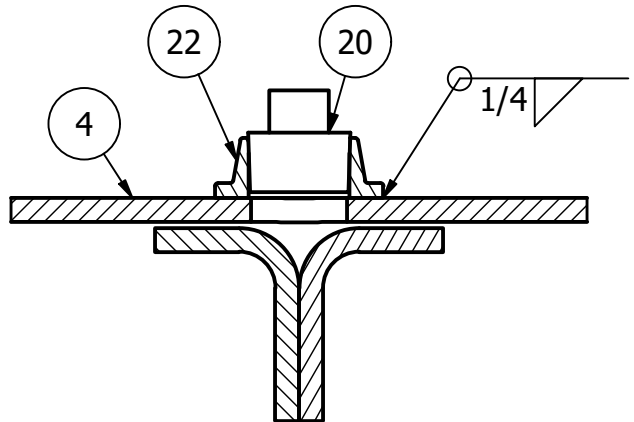
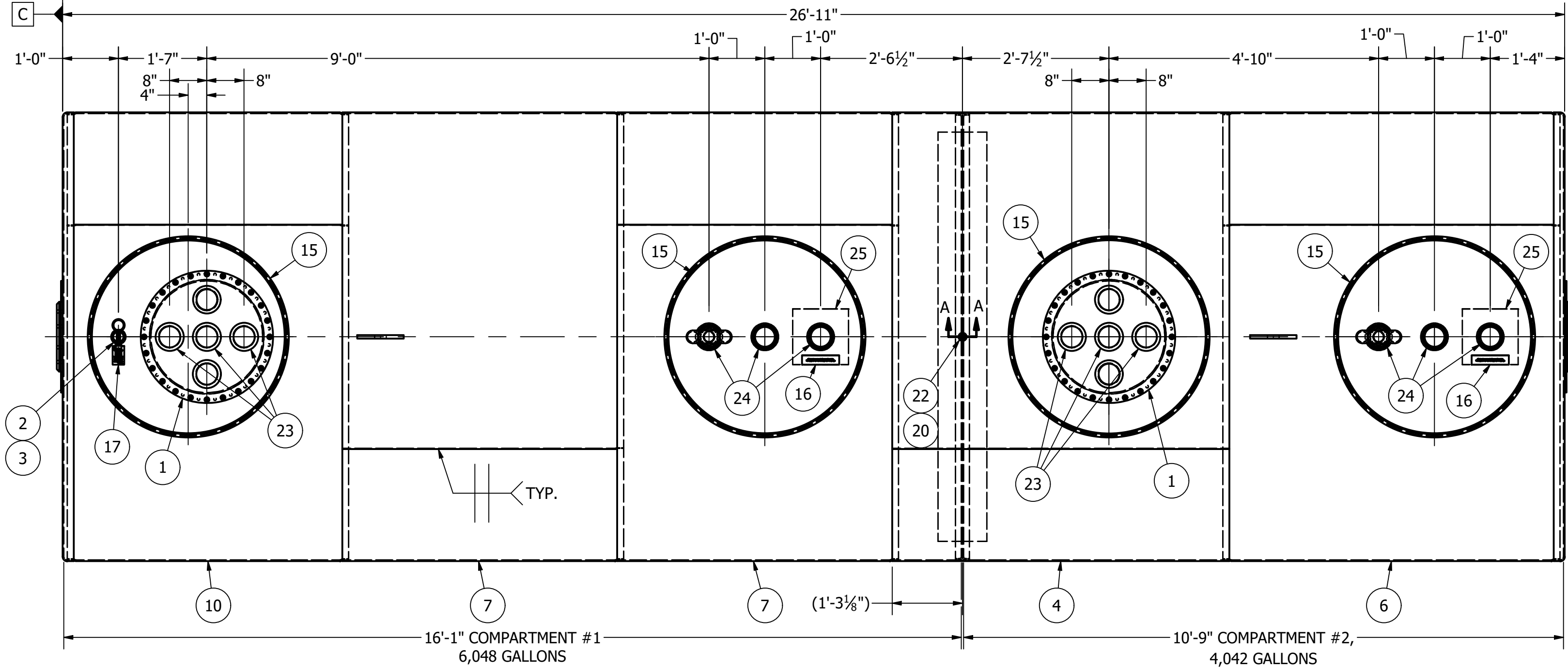
JONES COVEY GROUP, INC.

A  Company.

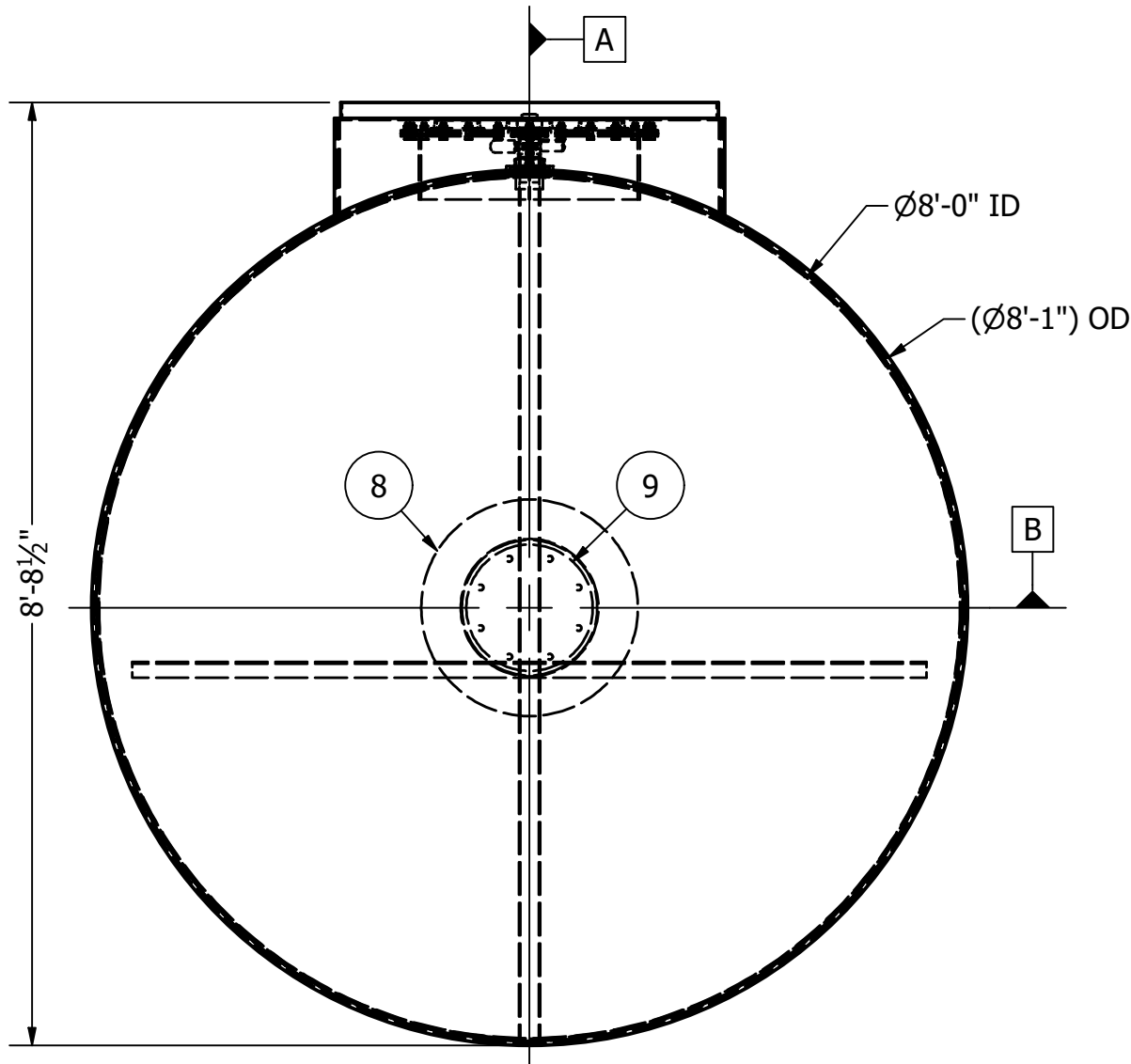
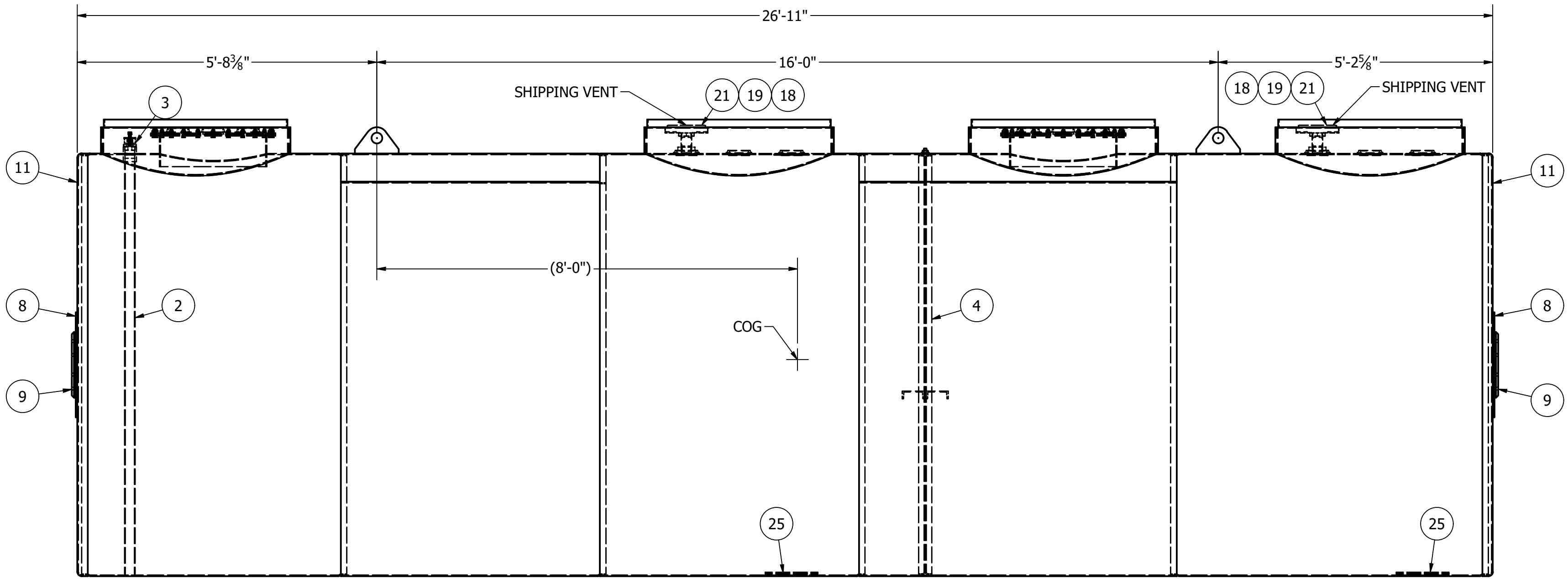
Provide. Build. Serve.

TANK & EQUIPMENT CUTSHEETS

QC	LAYOUT	DIM. INSP.:	WELDER:	WELD INSP.:	COATING:	COAT. INSP.:	COMP. DATE:	HEAT #:
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SECTION A-A



PLASTEEL®

TANK SPECIFICATIONS	
ITEM	VALUE
Nominal Capacity (gal)	10,000
Nominal Diameter (ft-in)	8'-0"
Nominal Length (ft-in)	27'-0"
Design Diameter (ft-in)	8'-0"
Design Length (ft-in)	26'-11"
Design Capacity (gal) Total	10,089
Design Capacity (gal) Compartment 1	6,047
Design Capacity (gal) Compartment 2	4,042
Shell Thickness	1/4"
Head Thickness	1/4"
Design Pressure (oz/in2)	Atmospheric
Maximum Burial Depth (ft)	5
Maximum Design Temp (F)	150

NOTES:

1. PRIMARY STEEL TANK SHALL BE BUILT AND TESTED IN ACCORDANCE WITH UL58 STEEL UNDERGROUND STORAGE TANKS FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS.
2. FIBERGLASS REINFORCED PLASTIC JACKET SHALL BE MANUFACTURED AND APPLIED IN ACCORDANCE WITH PLASTEEL® SPECIFICATIONS AND UL1746 PART III, CORROSION PROTECTION SYSTEMS FOR UNDERGROUND STORAGE TANKS.
3. TANK SHALL BE SHIPPED WITH VACUUM ON INTERSTITIAL SPACE AND GAUGE INSTALLED ON MONITOR PIPE.
4. INTERSTITIAL MATERIAL AND FRP COATING NOT SHOWN FOR CLARITY.
5. REFER TO TNS DOCUMENT "1009 FRP DETAIL STANDARD" FOR STANDARD DETAILS. DETAILS SHOWN ON THIS DRAWINGS SHALL SUPERCEDE SIMILAR INFORMATION ON STANDARD DETAILS DOCUMENT.
6. INCLUDE FRP TOUCH-UP KIT ON SALES ORDER; 1 PER TANK; 1500-0335 (NO MANWAY) OR 1500-0336 (WITH MANWAY)

5/19/2026	C	ADDED MANWAY FITTINGS	DR-30093	JLR
5/15/2026	B	CHANGED TANK SIZE, ADDED SUMPS	DR-30093	JLR
DATE	REV	DESCRIPTION	PROJ#	BY
REVISION HISTORY				

COATING SPECIFICATIONS		 3rd ANGLE PROJECTION	4401 West Main Fargo, ND 58103 Phone: 701-282-2345 Fax: 701-282-5516 TrueNorthSteel.com		 TrueNorthSteel [®]
ITEM	VALUE	UNLESS OTHERWISE SPECIFIED: UNITS = INCHES	DRAWN JLR	DATE 5/15/2026	PART#: 1009-1150
External Type	Plasteel FRP Specifications				
Internal Type	N/A	THIS DRAWING IS THE SOLE PROPERTY OF TRUENORTH STEEL, INC. ANY COPIES/EDITS MADE WITHOUT THE WRITTEN CONSENT OF TRUENORTH STEEL, IS STRICTLY PROHIBITED.	SCALE	DO NOT SCALE DRAWING	SHEET 1 OF 1
Internal Surface Prep	N/A				
Internal DFT	N/A				
Internal - Full or Partial	N/A				



Plasteel® Elutron® Double Wall

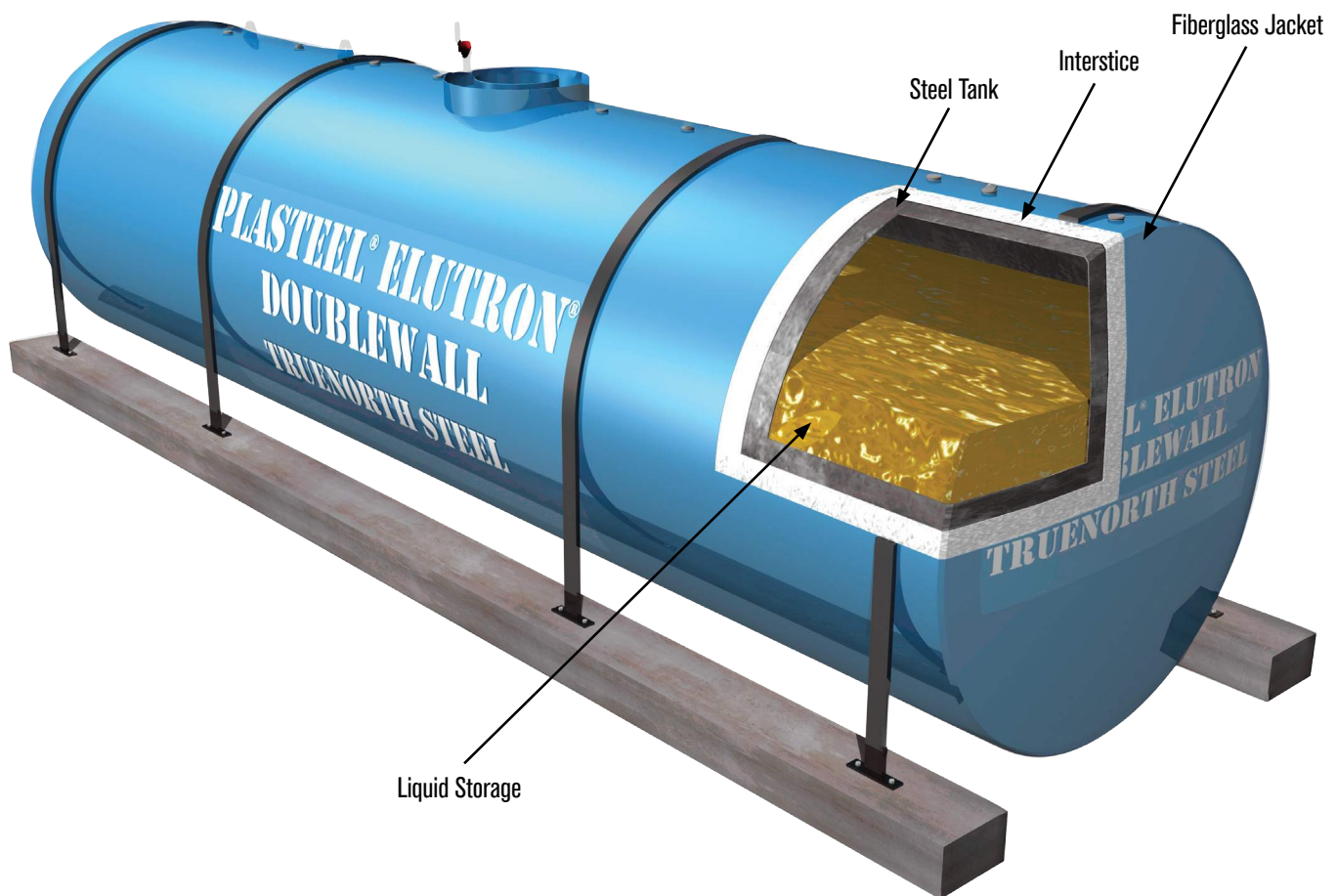
Underground Storage Tank Solutions



The Proven Choice for Long-Term Security and Performance

PLASTEEL® ELUTRON® JACKETED TANKS

- Reliable UL 58 Listed steel inner tank containment
- Durable UL 1746 Listed fiber reinforced plastic outer jacket
- 360 degree interstice provides tank integrity monitoring
- Compatible with gasoline, diesel, aviation, methanol and ethanol fuels
- Multiple compartment systems available
- Lower installed cost than non-metallic tank systems
- Over 22,000 Elutron tanks installed with no failures due to internal or external corrosion



Fiberglass Reinforced Plastic (FRP) for Superior Reliability

With the addition of a fiberglass reinforced plastic “FRP” outer, secondary containment layer, the UL Listed Elutron fuel storage system creates a high performance, seamless, and durable underground storage solution. The 360° interstice between the steel and FRP secondary containment is created by incorporating an aluminum foil layer which in turn provides a system for monitoring inner tank integrity. The steel inner tank provides the highest level of structural stability, while the outer FRP layer provides complete protection from underground environmental conditions. The UL Listed Elutron Double Walled Fiberglass Jacketed tank system meets the EPA 40 CFR subpart B, 280.20 standards for new underground storage tanks.

UL LISTED ELUTRON® UNDERGROUND FUEL STORAGE TANK FEATURES

- Sizes range from 560 to 50,000 gallons and 4 to 12 feet in diameter
- Fabricated with single or multiple compartments
- Each tank is UL listed and Elutron technology is tested per UL Standard 58 external pressure test
- Every tank is shipped with cleaned and leveled fittings to save installation time
- ULC Certified

CUSTOMIZABLE TANKS FOR DIVERSE APPLICATIONS

- Compatible with gasoline, ethanol blends from E10 to E100, diesel, bio-diesel blends from B2 to B100, fuel oil, methanol, and isobutanol and additives
- Used in fuel stations, emergency power generators, and farm or residential operations.
- Can incorporate multiple compartments for versatile storage.

30-YEAR WARRANTY

Elutron systems produced by TrueNorth Steel are supplied with a Plasteel's limited 30-year warranty when storing flammable and combustible fluids.



Advantages of the Elutron® Underground Tank System by TrueNorth Steel®

Each Elutron system is supplied with a factory-established interstitial vacuum. Prior to delivery, our team cleans and levels all the fittings and marks the center lines on each tank. These details save installers several hours of work normally spent on pre-installation testing and cleaning of non-metallic tanks.

Installation of Elutron underground storage tanks is uncomplicated and due to the inherent, long-term strength of steel are less dependent upon backfill for support when compared to non-metallic underground tank systems. Non-metallic underground tank systems require high-quality gravel backfill and a greater distance between adjacent tanks.

Quick and simple installation requires no special and expensive backfill material

Less risk of damage during installation when compared to non-metallic systems

TrueNorth Steel performs pre-installation interstitial vacuum testing

When it comes to sustainability, steel is the ultimate recyclable material



Delivering Quality Since 1945

- Every tank is assembled, welded and tested for tightness
- All of our welders are certified to American Welding Society standards
- TrueNorth Steel maintains a comprehensive Quality Management System that guides every aspect of our operations including sourcing, planning and manufacturing processes

Available Accessories

- Sump collars
- Manholes
- Threaded or flanged ports
- Deadman anchors
- Hold down straps
- Turnbuckles
- Submersible pumps



Comprehensive Steel Tank and Support Systems

ABOVE GROUND OIL FIELD TANKS

- Turnkey solutions, including the TrueContain Containment System.
- Designed to store a variety of liquids used in exploration, drilling, and production.

STAIRWAY, CATWALK, WALKWAY, EXTENSIONS, AND CROSSOVER SYSTEMS

BULK OIL DISPENSING SYSTEMS EQUIPPED WITH TRACKING SYSTEMS



**SCAN FOR TECHNICAL
REFERENCES, DRAWING,
ACCESSORIES, AND PUMP KITS**

TRUENORTHSTEEL.COM

Tank Installation Comparison

Plasteel® Elutron® Simplicity vs. FRP Complexity

PROCEDURE	PLASTEEL ELUTRON TANK	FRP DOUBLE WALL TANK	COST EFFECTIVENESS
Pre-Installation Testing	Not required if delivered with factory established interstitial vacuum.	Inner tank Pressure Test. Interstice Pressure Test. External Soap Suds Test. Monitor Fluid Leak Inspection.	FRP Tank: Additional labor and equipment required.
Backfill Material	Choice of sand, pea gravel, or crushed stone.	Pea gravel per ASTM C-33 for most FRP tanks.	FRP Tank: No potential savings. Elutron Tank: Potential saving with choice of materials.
Excavation	Smaller Excavation	Larger Excavation	FRP Tank: Most require 30-50% more soil removal and 30-50% more backfill material than Elutron Tank .
Backfill Procedure	Less time ensuring compaction.	More time ensuring proper placement and compaction.	FRP Tank: FRP tanks rely heavily on backfill for structural support, no voids allowed in backfill. Elutron Tank: Steel resistant to small backfill voids.
Ballasting	Quick and simple. Backfilling to the top not required before ballasting.	Slow and tedious.	FRP Tank: More labor hours for wet hole since most FRP tanks cannot be ballasted until backfilled to top of tank.
Deflection Measurement	Not required.	Most FRP Tanks require two measurements: one before backfill and the other after backfill.	FRP Tank: Additional labor and possible tank removal replacement of backfill.
Warranty	Deflection measurement compliance is not a term in the warranty.	Most warranty validations are based on compliance to a specified maximum Deflection measurement.	FRP Tank - Possible future, in-service costs if Deflection exceeds a specified maximum limit.

SUMMARY

1. All the above FRP Tank procedures are an effort to maintain structural integrity and minimize the Deflection of the FRP (non-metallic) structure during the service life of the FRP Tank. When the FRP Tank laminate exceeds it's yield point, failure can be catastrophic.
2. All **Plasteel Elutron Tanks** use a steel tank for structural stability. The steel tank provides the structural performance for the **Plasteel FRP** jacket.
3. Over 33,000 **Plasteel Tanks** (22,000 **Elutron Tanks**) have been placed in service since 1971. There has never been a **Plasteel Tank** failure due to external or internal corrosion when storing motor vehicle fuels.
4. **Elutron Tank** installation instructions are 3 pages. Most FRP Tank installation instructions exceed 20 pages.
5. The **Elutron Tank** was UL performance tested and Listed per the External Pressure Tes in UL Standard 58. The test tank was successfully submerged in 5 feet of water with no backfill. The test tank did not deflect or deform.

Effortless Installation, Certified Excellence and Unmatched Support

THE TRUENORTH STEEL EXPERIENCE

- 80 years of complex and critical steel tank fabrication
- American Petroleum Institute®, and Steel Tank Institute certified
- Member of American Iron and Steel Institute and Petroleum Equipment Institute
- A commitment to the highest levels of safety
- Unsurpassed customer support and commitment to on time delivery with in-house logistics



**Designed for Strength.
Delivered with Precision.**



SERVING CLIENTS NATIONWIDE FROM NINE LOCATIONS
TANK@TRUENORTH STEEL.COM • TRUENORTHSTEEL.COM



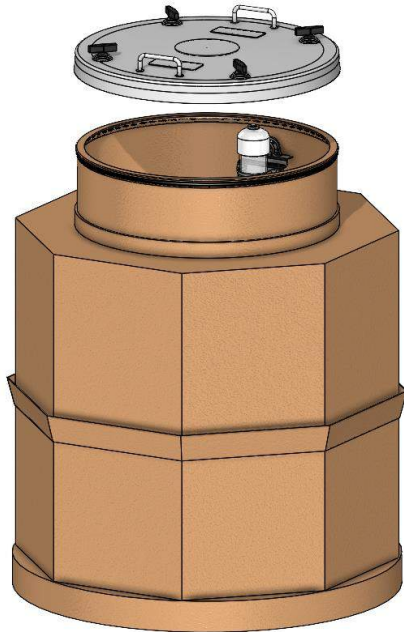
PLASTEEL® ELUTRON™
DOUBLEWALL





Collar Mount Double Wall Tank Sump

TANK SUMPS



Product Shown
B421-48-D-01

OVERVIEW:

The octagon-shaped Collar Mount Double Wall Tank Sump is ideally configured for piping laid out in 45- and 90-degree angles. It comes standard with a snap-lock lid with imbedded O-ring seal to make it watertight. There is a v-groove pour channel to join the two-piece containment sump eliminating the need for lamination. The pour channel allows communication between the base and the top-hat. The base of the sump can be applied to most industry standard 42- and 48-inch double wall tank collars. Sumps can be monitored by Vacuum, Liquid, and Dri interstitial monitoring.

SIZES:

- 42" or 48" diameter
- 32" or 36" Snap-Lock Lid

*See page 2 for dimensions drawing and chart

MATERIALS:

- Tank-grade fiberglass material allows our product to be exposed to leaks without degradation
- No secondary protective gel coat needed

SPECIFICATIONS:

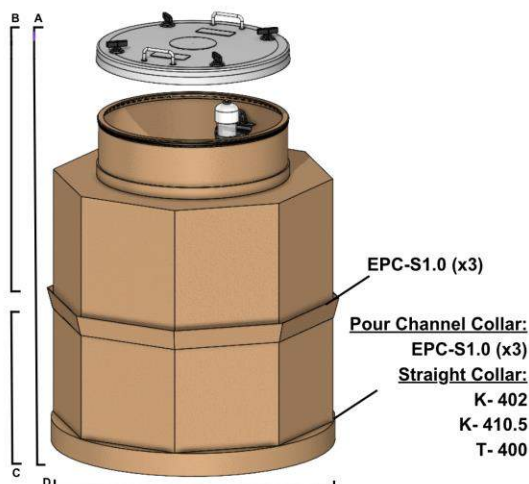
- Two-piece configuration is height-adjustable
- Easy slurry pour channel to join the sump base and top-hat saves install time
- 30-year corrosion warranty
- UL2447 listed
- AB2481 compliant in CA
- Triennial testing exempt when constantly monitored

**Available in 39" lids. Please contact customer service for additional details.*



Collar Mount Double Wall Tank Sump

TANK SUMPS



Recommended Parts and Accessories

K-402	Fiberglass laminating kit for 1 interior and exterior joint. 2 gallons, 90" Fiberglass mat (Catalyst: (2) Summer / (4) Winter) (Non-Returnable)
K-401	Fiberglass laminating kit for 1 interior and exterior joint. 1 gallon, 45" Fiberglass mat (Catalyst: (2) Summer / (4) Winter) (Non-Returnable)
K-410.5	Paste kit for interior and exterior joint, smooth transitions for lamination, ½ gallon. (Non-Returnable)
EPC-S1.0	1 gallon epoxy slurry kit. (Non-Returnable)
T-400	FRP & Paint rollers and mixing bucket: fiberglass lam, tool kit, includes rollers

Additional Parts and Accessories

SH-TS	Tank Sump sensor holder kit.
VST-TS	Tank Sump Vapor Stimulator Tube for Dri-Sump leak detection/testing. Includes: clamps and two tubes.

42" Diameter, 42" Collar

Part # with 32" SL Lid	Part # with 36" SL Lid	Part # with 32" Twist-Lock Lid	Min	A	B	C	D
B421-42-D-01	B421-42-D-02	B421-42-D-50	30"	42"	26"	16"	42"
B421-48-D-01	B421-48-D-02	B421-48-D-50	36"	48"	26"	22"	42"
B421-60-D-01	B421-60-D-02	B421-60-D-50	40"	60"	38"	22"	42"
B421-72-D-01	B421-72-D-02	B421-72-D-50	40"	72"	50"	22"	42"
B421-84-D-01	B421-84-D-02	B421-84-D-50	40"	84"	62"	22"	42"

48" Diameter, 48" Collar

Part # with 32" SL Lid	Part # with 36" SL Lid	Part # with 32" Twist-Lock Lid	Min	A	B	C	D
B481-42-D-01	B481-42-D-02	B481-42-D-50	30"	42"	26"	16"	48"
B481-48-D-01	B481-48-D-02	B481-48-D-50	36"	48"	26"	22"	48"
B481-60-D-01	B481-60-D-02	B481-60-D-50	40"	60"	38"	22"	48"
B481-72-D-01	B481-72-D-02	B481-72-D-50	40"	72"	50"	22"	48"
B481-84-D-01	B481-84-D-02	B481-84-D-50	40"	84"	62"	22"	48"

48" Diameter, 42" Collar

Part # with 32" SL Lid	Part # with 36" SL Lid	Part # with 32" Twist-Lock Lid	Min	A	B	C	D
B487-42-D-01	B487-42-D-02	B487-42-D-50	30"	42"	26"	16"	42"
B487-48-D-01	B487-48-D-02	B487-48-D-50	36"	48"	26"	22"	42"
B487-60-D-01	B487-60-D-02	B487-60-D-50	40"	60"	38"	22"	42"
B487-72-D-01	B487-72-D-02	B487-72-D-50	40"	72"	50"	22"	42"
B487-84-D-01	B487-84-D-02	B487-84-D-50	40"	84"	62"	22"	42"

Innovative Solutions for Secondary Containment

800-282-7286 | www.sbravo.com

OPW FibreTite Multiport Spill-Containment

OPW "FibreTite" Multiport Spill-Containment Manholes provide spill-containment for underground storage tank (UST) fill pipes and vapor recovery risers.

Multiports are installed over the top of tank sumps to preserve future access to the tank top and to facilitate containment of tank-bung fittings.

OPW "FibreTite" watertight covers are easy to remove. The composite manhole covers are available with center or offset port for access to fill risers.



Materials:

Cover: Fiberglass

Frame: Fiberglass

Skirt: Fiberglass



Features & Benefits:

- ◆ Lightweight - reduce risk of back, foot and hand injuries
- ◆ UV resistant
- ◆ Standard duty (20-ton load rating)
- ◆ No bolts required to seal top cover
- ◆ Anti-slip surface
- ◆ Composite construction; does not corrode
- ◆ Watertight, sealed design
- ◆ Monolithic structure eliminates delaminating
- ◆ Ergonomic, single-person removal and replacement with Fibrelite lifting handle
- ◆ Easy access watertight sump inspection port
- ◆ Replaceable double-wall spill-containment
- ◆ Easy access to overfill-prevention valve

OPW FibreTite Multiport and Sump System Kit

Includes:

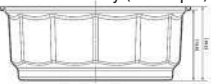
- Multiport Cover
- Spill-Containers
- Clamping Kits
- Top Hat
- Frame
- Port Covers
- Water-Spill Platform
- Sump Base
- Skirt
- Shroud Boot

FibreTite Multiport Spill-Containment Ordering Specifications

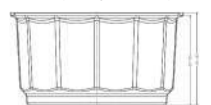
FTSX-XXXX XX - XXXXXX - X (X)

BASE DEPTH

M - Medium Bury (54" depth)

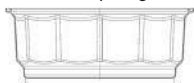


D - Deep Bury (64" depth)

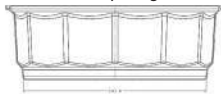


BASE DIAMETER

4237 - 42" Base & 37" Opening



4837 - 48" Base & 37" Opening

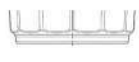


BASE MOUNTING

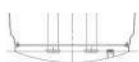
CR - Collar Ring



SB - Solid Bottom

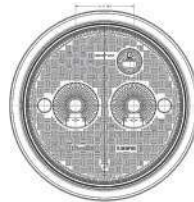


RF - Reverse Flange

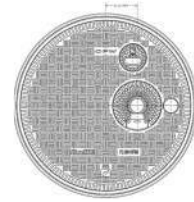


COVERCONFIGURATION

MP3716S - Multiport @ 16" Centers
SB - Solid Bottom



OF378S - Offset @ 8" offset



PORTCOVERCOLOR

BL - Black/Orange Cover
B - Blue/Orange Cover
G - Gray/Orange Cover
GR - Green/Orange Cover
O - Orange/Orange Cover
R - Red/Orange Cover
W - White/Orange Cover
Y - Yellow/Orange Cover

*Note: OF378S cover configuration will NOT include the Orange cover

PORTCOVER OPTION

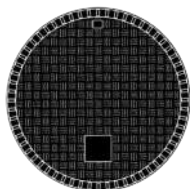
BLANK - FC-11 Cover



SC - Powder-Coated Sealable Cover



All Fill & Vapor Covers ship with Composite FC-11 Spill Port Covers.*



Add "SC" to the end of the part for Sealable Covers.



Listings and Certifications



*Does not come with FLMP-IP as pictured. Must order separately.

New Style

OPW FibreTite Multiport Kit to Install on Existing Tank Sump

Includes Spill-Containers

Kit includes; Multiport Cover, Frame, Skirt, Spill-Containers, Port Covers, Shroud Boot, Clamping Kits, Water-Spill Platform and Top Hat

FibreTITE
COMPOSITE MULTIPORT



Ordering Specifications

Part Number	Application	WT Cover	Bonded Manhole			
			Round Sump Riser Diameter	Skirt ID	FRP Cover	Fill & Vapor Cover
S42-3100G-MP3716S-W	5 Gallon Regular Gasoline MP System	37" WSP37-16S	42"	40"	Gray	White/Orange
S42-3100G-MP3716S-R	5 Gallon Premium Gasoline MP System	37" WSP37-16S	42"	40"	Gray	Red/Orange
S42-3100G-MP3716S-BU	5 Gallon Mid-Grade Gasoline MP System	37" WSP37-16S	42"	40"	Gray	Blue/Orange
S42-3100G-OF378S-Y	5 Gallon Diesel Offset System	37" WSP37-8S	42"	40"	Gray	Yellow
S48-3100G-MP3716S-W	5 Gallon Regular Gasoline MP System	37" WSP37-16S	48"	40"	Gray	White/Orange
S48-3100G-MP3716S-R	5 Gallon Premium Gasoline MP System	37" WSP37-16S	48"	40"	Gray	Red/Orange
S48-3100G-MP3716S-BU	5 Gallon Mid-Grade Gasoline MP System	37" WSP37-16S	48"	40"	Gray	Blue/Orange
S48-3100G-OF378S-Y	5 Gallon Diesel Offset System	37" WSP37-8S	48"	40"	Gray	Yellow



Replacement for Existing FL100 MP System includes Spill-Containers

Kit includes; Multiport Cover, Spill-Containers, Port Covers, Shroud Boot, Clamping Kits and Water-Spill Platform

Ordering Specifications

			Bonded Manhole			
Part Number	Application	WT Cover	Skirt ID	FRP Cover	Fill & Vapor Cover	
FL100G-RETRO-MP3716S-W	5 Gallon Regular Gasoline MP System	37" WSP37-16S	40"	Gray	White/Orange	
FL100G-RETRO-MP3716S-R	5 Gallon Premium Gasoline MP System	37" WSP37-16S	40"	Gray	Red/Orange	
FL100G-RETRO-MP3716S-BU	5 Gallon Mid-Grade Gasoline MP System	37" WSP37-16S	40"	Gray	Blue/Orange	
FL100G-RETRO-OF378S-Y	5 Gallon Diesel Offset System	37" WSP37-8S	40"	Gray	Yellow	

Multiport Kit Only, No Sump Includes Spill-Containers

Kit includes; Multiport Cover, Frame, Skirt, Spill-Containers, Port Covers, Shroud Boot and Clamping Kits

Ordering Specifications

		Bonded Manhole		
Part Number	Application	Skirt ID	FRP Cover	Fill & Vapor Cover
FL100GRAY-MP16S-SK12-W	5 Gallon Regular Gasoline MP System	40"	Gray	White/Orange
FL100GRAY-MP16S-SK12-R	5 Gallon Premium Gasoline MP System	40"	Gray	Red/Orange
FL100GRAY-MP16S-SK12-BU	5 Gallon Mid-Grade Gasoline MP System	40"	Gray	Blue/Orange
FL100GRAY-OF8S-SK12-Y	5 Gallon Diesel Offset System	40"	Gray	Yellow

Replacement Parts/Accessories

Part Number	Description
P761C-FLDV	5 Gallon Fill Bucket for Fibrelite MP with Drain-Valve and Cast-Iron Base
P761C-FLPL	5 Gallon Vapor Bucket for Fibrelite MP with Plug and Cast-Iron Base
FC-11-Orange	11" Orange Vapor Cover
FC-11-RED	11" Red Fill Cover
FC-11-WHITE	11" White Fill Cover
FC-11-YELLOW	11" Yellow Fill Cover
FC-11-BLUE	11" Blue Fill Cover
FL100GRAY-MP16S*	FL100 Gray Composite Multiport Cover- 16" Centers
FL100GRAY-OF8S	FL100 Gray Composite Cover Offset Port

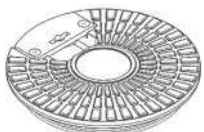
WSP37-16S 37" Dia. WT MP Spill Platform w Dual Access Part 16" Centers

* Does not come with FLMP-IP as pictured. Must order separately.

Part Number	Description
FLMP-SB	MPS Shroud Boot Kit (Includes WSP-CRKS, Clamp Kit)
FLMP-IP	Inspection Port Kit for Fibrelite Multiport
FC-11-SEAL	Seal for FC-11 Covers
WSP37-8S	37" Multiport Water Shroud for Single Offset Port
WS-RING-37	37" Dia. Stainless-Steel Retaining Ring Kit
S-CR-FGK	FRP Kit for Bonding Collar Ring Sump to FRP Tank Collar (Includes Resin, Catalyst & Glass Tape)
S-TH-FGK	FRP Kit for Top Hat to Sump (Includes Resin, Catalyst & Glass Tape)
RK-5000	Fiberglass Epoxy Kit (Qt. Size)
211300	Epoxy pack to bond 1TAG to composite cover

See 1TAG section for I.D. markers for new multiport

Spill-Container



Replacement Fill Cover*



Replacement 2-Port Cover

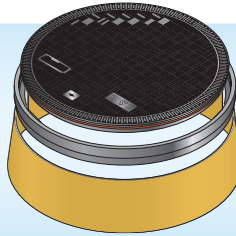
Fibrelite Composite Manholes

Fibrelite offers the retail petroleum industry's leading watertight, easy to remove, non-bolted composite manhole covers in a large selection of shapes and sizes. From general tank sump access to multiport and single port fill sump applications to interstitial sumps and monitoring wells, Fibrelite has every application covered.

Multiple colors are available – Contact OPW Customer Service for pricing, availability, and lead times.

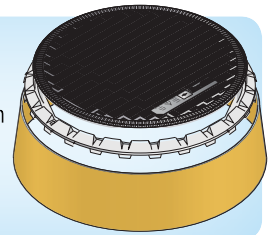
Materials:

Cover: Fiberglass
Frame: Fiberglass
Skirt: Fiberglass
Cover Includes Frame and Skirt



Materials:

Cover: Fiberglass
Frame: Aluminum
Skirt: Fiberglass
Cover Includes Frame and Skirt



Features & Benefits:

- ◆ UV resistant
- ◆ Round, square and rectangular (wide range of sizes)
- ◆ Anti-slip surface - no costly injury claims
- ◆ Anti-static - fully conductive
- ◆ Will not corrode
- ◆ Watertight, sealed design
- ◆ No bolts required
- ◆ Ergonomic, single person removal and replacement with Fibrelite lifting handle
- ◆ Monolithic structure eliminates delaminating
- ◆ Locks available for all covers
- ◆ Available in any color
- ◆ Heavy Duty covers available for truck stops, bus depots and industrial applications

Ordering Specifications - Complete Cover Assemblies

Complete Grade Level "Flat" Composite Manholes

Part Number	Description	Color	Skirt I. D.	Cover O. D.	Skirt Length	Weight
FL120BLACK-SK12	12" Black Flat Composite Manhole Cover Bonded	Black	12"	15"	12"	26 lbs
FL180BLACK-SK12	18" Black Flat Composite Manhole Cover Bonded	Black	18"	21.2"	12"	40 lbs
FL180GRAY-SK12	18" Gray Flat Composite Manhole Cover Bonded	Gray	18"	21.2"	12"	40 lbs
FL600BLACK-SK12	24" Black Flat Composite Manhole Cover Bonded	Black	24"	27"	12"	76 lbs
FL760BLACK-SK12	30" Black Flat Composite Manhole Cover Bonded	Black	30"	33"	12"	89 lbs
FL90BLACK-SK12	36" Black Flat Composite Manhole Cover Bonded	Black	36"	38.5"	12"	109 lbs
FL90GRAY-SK12	36" Gray Flat Composite Manhole Cover Bonded	Gray	36"	38.5"	12"	109 lbs
FL100BLACK-SK12	40" Black Flat Composite Manhole Cover Bonded	Black	40"	44"	12"	142 lbs
FL100GRAY-SK12	40" Gray Flat Composite Manhole Cover Bonded	Gray	40"	44"	12"	142 lbs

Complete Raised Composite Manholes

FL36BLACK-SK12	36" Black Raised Composite Manhole Cover Bonded	Black	36"	40"	12"	128 lbs
FL42BLACK-SK12	42" Black Raised Composite Manhole Cover Bonded	Black	42"	46.5"	12"	164 lbs
FL42GRAY-SK12	42" Gray Raised Composite Manhole Cover Bonded	Gray	42"	46.5"	12"	164 lbs

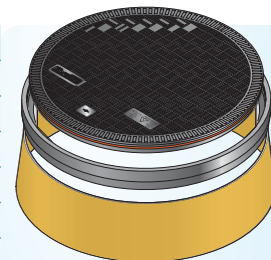
Monitoring Well Manholes

FL120BLACK-MW-SK12	12" Black Flat Monitoring Well Manhole Bonded	Black	12"	15"	12"	26 lbs
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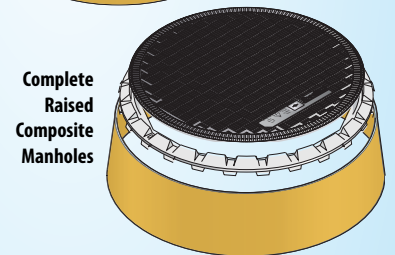
Bonded - Assembled Cover, Ring And Skirt • Contact OPW for custom length skirts, heavy duty or colored covers 1-800-422-2525.

Replacement Parts - Replacement Covers

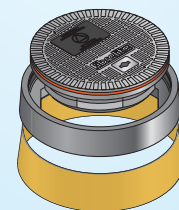
Part Number	Description	Color	Skirt I. D.	Cover O. D.	Cover Height	Weight
FL120BLACK	12" Dia. Black Flat Sealed Composite Cover	Black	12"	15"	3.91"	13 lbs
FL120BLACK-MW	12" Dia. Black Flat Sealed Composite Cover - Labeled Monitoring Well	Black	12"	15"	3.91"	13 lbs
FL180BLACK	18" Dia. Black Flat Sealed Composite Cover	Black	18"	21.2"	3.84"	22 lbs
FL600BLACK	24" Dia. Black Flat Sealed Composite Cover	Black	24"	27"	3.84"	46 lbs
FL760BLACK	30" Dia. Black Flat Sealed Composite Cover	Black	30"	33"	3.84"	59 lbs
FL90BLACK	36" Dia. Black Flat Sealed Composite Cover	Black	36"	38.5"	3.84"	75 lbs
FL100BLACK	40" Dia. Black Flat Sealed Composite Cover	Black	40"	44"	3.84"	110 lbs
FL100GRAY	40" Dia. Gray Flat Sealed Composite Cover	Gray	40"	44"	3.84"	110 lbs
FL36BLACK	36" Dia. Black Raised Composite Cover	Black	36"	40"	3.84"	66 lbs
FL36GRAY	36" Dia. Gray Raised Composite Cover	Gray	36"	40"	3.84"	66 lbs
FL42BLACK	42" Dia. Black Raised Composite Cover	Black	42"	46.5"	3.84"	93 lbs



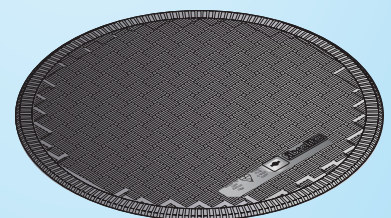
Complete Grade Level "Flat" Composite Manholes



Complete Raised Composite Manholes

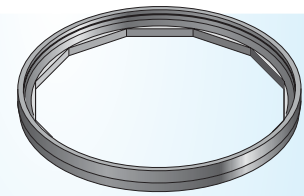


Monitoring Well Manholes

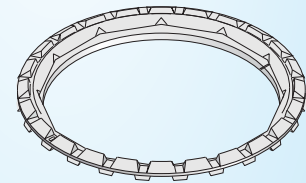


Ordering Specifications

Frames "Mounting Frame"				
Part Number	Description	Skirt I.D.	Manhole Type	Weight (lbs)
FL120F	12" Composite Frame For FL120 Covers	12"	Flat	7.7
FL180F	18" Flat Composite Frame For FL180 Covers	18"	Flat	11
FL600F	24" Flat Composite Frame For FL600 Covers	24"	Flat	17
FL760F	30" Flat Composite Frame For FL760 Covers	30"	Flat	18
FL90F	36" Flat Composite Frame For FL90 Covers	36"	Flat	20
FL100F	40" Composite Frame For FL100 Covers	40"	Flat	26
FL36F	36" Raised Aluminum Frame For FL36 Covers	36"	Raised	46
FL42F	42" Raised Aluminum Frame For FL42 Covers	42"	Raised	55



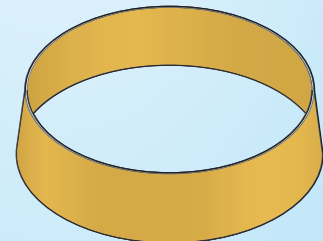
Frames - Flat Fiberglass Mounting Ring



Frames - Raised Aluminum Mounting Ring

Ordering Specifications

Skirts					
Part Number	Description	Skirt I.D.	Manhole Type	Skirt Length	Weight (lbs)
FL120-SK12	12" Deep FRP Skirt To Fit FL120	12"	Flat	12"	5
FL180-SK12	12" Deep FRP Skirt To Fit FL180	18"	Flat	12"	7
FL600-SK12	12" Deep FRP Skirt To Fit FL600	24"	Flat	12"	10
FL760-SK12	12" Deep FRP Skirt To Fit FL760	30"	Flat	12"	12
FL90-SK12	12" Deep FRP Skirt To Fit FL90 Flat	36"	Flat	12"	14
FL100-SK12	12" Deep FRP Skirt To Fit FL100	40"	Flat	12"	16
FL100-SK10-16	10" Deep FRP Skirt To Fit FL100	40"	Flat	10"	15
FL36-SK12	12" Deep FRP Skirt To Fit FL36 Raised Manhole	36"	Raised	12"	15
FL42-SK12	12" Deep FRP Skirt To Fit FL42- Raised Manhole	42"	Raised	12"	16



Skirt

Ordering Specifications

Cover Accessories	
Part Number	Description
FL7	Lifting Handle For Raised Covers - FL42/FL36
FL7A	Lifting Handle With Foot Pedal For Watertight Covers - FL100/FL90/FL180
FL7A-ENCL	Enclosure To House FL7A Handles
KEY-HREP-10-76-90	Key Housing Repair Kit & Compound
FIB-KHB	Replacement Rubber Bung
FIB-KHP	Rubber Key Housing Plug
FIB2-RL	Tamper Proof Cover Lock To Fit Watertight Covers - FL100/FL90
FIB2-RL-KEY	Key For FIB2-RL Cover Lock
FL120-SEAL	12" Replacement Gasket For FL120
FL180-SEAL	18" Replacement Gasket For FL180
FL600-SEAL	24" Replacement Gasket For FL600
FL760-SEAL	30" Replacement Gasket For FL760
FL90-SEAL	36" Replacement Gasket For FL90
FL100-SEAL	40" Replacement Gasket For FL100



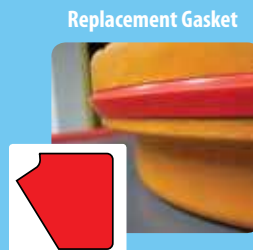
FL7A Keylift



FL7 Keylift



FIB2/L



Replacement Gasket



FL7A-ENCL Enclosure

A detailed photograph of an OPW 7150 Overfill Prevention Valve. The valve is a vertical assembly with a segmented, black, cylindrical top section. Below this is a green O-ring seal. The main body of the valve is a polished metal rod that extends into a large, brown, cylindrical storage tank. The background shows a blurred industrial setting with other tanks and structures under a blue sky with clouds.

OPW 7150 OVERFILL PREVENTION VALVES

One Company. One Call. One Package.

- Segmented Version Now Available
- Testable and Non-Testable Models
- Vapor-Tight and Non-Vapor Tight

OPW 
RETAIL FUELING
a **DOVER** company

FUELED BY **EXCELLENCE**

71SO OVERFILL PR

71SO Overfill Prevention Valves

The 71SO Overfill Prevention Valve prevents the overfill of underground storage tanks by providing a positive shut-off of product delivery. The shut-off valve is an integral part of the drop tube used for gravity filling.

The OPW 71SO allows easy installation (without breaking concrete) and requires no special manholes.

The OPW 71SO is a two-stage shut-off valve. When the liquid level rises to ~95% of tank capacity, the valve mechanism is released, closing automatically with the flow. This reduces the flow rate to approximately 5 gpm through a bypass valve. The operator then stops the filling process, disconnects and drains the delivery hose. If liquid exceeds the 95% level, the valve will close automatically each time delivery is attempted.

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

Features & Benefits:

- **Completely Automatic Operation** – no pre-checks to perform, no resets and no overrides to be broken or abused. No reliance on delivery attendant for certainty of overfill protection.
- **Simple, Easy and Quick Installation** – no excavation or special manholes required.
- **Segmented Version Now Available** – for ease of shipping, storage and enhanced protection.
- **Economical** – costs a fraction of difficult-to-install valves.
- **Does Not Rely on Pressure in the UST to Stop Flow** – operates directly from liquid level.
- **Will Accept a Dipstick for Gauging**
- **Retrofits Directly** – for both new and existing tanks with 4" fill risers.
- **Quick Drain Feature** – automatically drains hose when head pressure is relieved.
- **Keeps the Top of UST "Dry," per EPA Requirements** – eliminates possible leaks at loose bung fittings and the need for double containment on vent lines.
- **Fastest Flow Rate in The Industry***

* OPW Test Lab results

Materials

- Valve Body:** Cast aluminum
- Float:** Nitrile rubber, closed-cell foam
- Valve:** Aluminum
- Seals:** Viton®
- Upper & lower Drop Tube:** Aluminum
- Plastic Parts:** Acetal
- Hardware:** Stainless steel



71SO Testable Overfill Valve

The OPW Testable 71SO-T Overfill Prevention Valve is the easiest, quickest and most cost-efficient way to ensure that your overfill valves will operate when called upon – verifiable without removing them from the tanks. The OPW 71SO-T Testable Overfill Prevention Valve is the only UST Overfill Prevention Valve that is testable from the surface without removal from the tank.

Testing & Verification Easy as 1-2-3



Loosen test plug

Lift float with cable to simulate fill

Validate proper poppet operation

The OPW Testable 71SO Helps You Be in Compliance with EPA Regulations

- The Overfill Prevention Valve is testable without removal from the tank
- A testable feature is attached to a sealed plug in the inlet Adaptor
- The plug is easily accessed with a standard socket extension
- Attached to the extension, the testable feature can be raised and lowered, allowing the user to inspect valve operation from inside the tube
- The plug is then easily reinstalled to the inlet Adaptor from grade
- No fill components, overfill valves or vapor-tight seals have to be removed – avoids compromising vapor-tight compliance
- The Testable 71SO uses the same industry-leading overfill prevention technology for strong vapor-tight compliance
- B100 compatible (ULC)

EVENTION VALVES

71SO Segmented Overfill Prevention Valve

The new 71SO Segmented Overfill Valve is designed with the same reliability, quality materials and shut-off features trusted in the traditional 71SO, with the added benefit of more compact packaging for transport and storage.

Shipping in segments helps reduce potential damage during transit while enabling more cost-efficient transport and easier storage. The four 5 ft. segments can be customized to fit 8-12 ft. tank diameters, with an overall length exceeding 223 inches.

The 71SO Segmented Drop Tube is available in multiple versions to meet your needs:

■ **Testable or Non-Testable** ■ **Vapor-Tight* or Non-Vapor-Tight**

Easy to assemble with included tube joiners. Download the OPW App for installation calculators.

All Segmented Overfill Valves are compatible up to B100 (non-E85 versions).



Product Parts

Product Number	Product Description	Tank Diameter	Upper Tube Assembly Length	Lower Tube Assembly Length	Overall Length
71SO-4S	Segmented Non-Vapor-Tight Overfill Valve (Non-Testable)	8', 10', 12'	98-3/8"	112-9/16"	223-9/16"
71SO-4SC	Segmented Vapor-Tight* Overfill Valve (Non-Testable)	8', 10', 12'	98-3/8"	112-9/16"	223-9/16"
71SO-4SCT	Segmented Vapor-Tight* Overfill Valve (Testable)	8', 10', 12'	98-1/4"	112-9/16"	223-3/8"
71SOM-4SC	Segmented E85 Vapor-Tight* Overfill Valve	8', 10', 12'	98-3/8"	112-7/16"	223-7/16"
71SOM-4SCT	Segmented E85 Testable Vapor-Tight* Overfill Valve	8', 10', 12'	98-1/4"	112-7/16"	223-5/16"
61T-4SC	Segmented Vapor-Tight* Drop Tube	-	-	-	168-1/16"

Replacement Tube Segments

Part #	Description
71SO-4S-T1	Segment 1 Tube - Segmented Non-Vapor-Tight Overfill Valve
71SO-4S-T2	Segment 2 Tube - Segmented Non-Vapor-Tight Overfill Valve
71SO-4S-T3	Segment 3 Tube - Segmented Non-Vapor-Tight Overfill Valve
71SO-4S-T4	Segment 4 Tube - Segmented Non-Vapor-Tight Overfill Valve
71SO-4SC-T1	Segment 1 Tube - Segmented Vapor-Tight* Overfill Valve
71SO-4SC-T2	Segment 2 Tube - Segmented Vapor-Tight* Overfill Valve
71SO-4SC-T3	Segment 3 Tube - Segmented Vapor-Tight* Overfill Valve
71SO-4SC-T4	Segment 4 Tube - Segmented Vapor-Tight* Overfill Valve
71SO-4ST-T1	Segment 1 Tube - Segmented Testable Vapor-Tight* Overfill Valve
71SO-4ST-T2	Segment 2 Tube - Segmented Testable Vapor-Tight* Overfill Valve
71SO-4ST-T3	Segment 3 Tube - Segmented Testable Vapor-Tight* Overfill Valve
71SO-4ST-T4	Segment 4 Tube - Segmented Testable Vapor-Tight* Overfill Valve
61T-4SC-T1	Segment 1 Tube - Segmented Vapor-Tight* 61T Drop Tube
61T-4SC-T2	Segment 2 Tube - Segmented Vapor-Tight* 61T Drop Tube

Accessories & Replacement Parts

Part #	Description
71SO-SEGTOOL	Tool and Hardware, 71SO Seg. Drop Tube and Inlet Tube
71SO-SEGTOOL-HWKIT	Replacement Hardware Kit, 71SO Segmented Drop Tube Tool and Inlet Tube
71SO-4S-DBKIT	Deep Bury Kit for 71SO-4S
71SO-4S-TJKIT	Replacement Tube Joiner Kit for 71SO-4S
206740-KIT	Replacement Cable Kit
61SOK-0001	61SO Replacement Float Kit
H11931M	Drop Tube Seal/O-ring
H14840M	Lower Tube Seal/O-ring

*CARB/EVR Pending

Revised: 10-30-2025

Traditional (Non-Segmented) 71SO Overfill Prevention Valves

Ordering Specifications

Testable

Product #	Description	A- Upper Tube Length		B- Lower Tube Length		C- Overall Length		Max. Riser Length		Max. Nominal Tank Dia.		Max. Actual Tank Dia.		Weight	
		in.	m	in.	m	in.	m	in.	m	in.	m	in.	m	lbs.	kg
71SO-400CT*	Testable Vapor-Tight Overfill Valve, 5 Ft. Bury, 8 Foot Tank	60	1.5	83	2.1	154 ^{3/4}	3.9	53 ^{1/2}	1.4	96	2.4	107	2.7	16	7
71SO-410CT*	Testable Vapor-Tight Overfill Valve, 10 Ft. Bury, 10 Foot Tank	120	3.1	102	2.6	234 ^{3/4}	5.9	113 ^{1/2}	2.9	120	3.1	126	3.2	25	11
71SO-420CT*	Testable Vapor-Tight Overfill Valve, 10 Ft. Bury, 12 Foot Tank	120	3.1	126	3.2	258 ^{3/4}	6.5	113 ^{1/2}	2.9	144	3.7	150	3.8	26	12

206740-KIT Replacement Cable Kit

206741 Replacement Inlet Tube w/ 206740 Cable Kit

* ULC B100 Compatible

Product #	Description	Bury Depth		Tank Diameter		Upper Tube Length		Lower Tube Length		Overall Length		Max. Riser Length		Max. Nominal Tank Dia.		Max. Actual Tank Dia.		Weight	
		ft.	m	ft.	m	in.	m	in.	m	in.	m	in.	m	in.	m	in.	m	lbs.	kg
71SO-400CB*	B20-B100 Overfill Valve	5	1.5	8	2.4	60	1.5	83	2.1	155 ^{3/4}	3.9	53 ^{1/2}	1.4	96	2.4	107	2.7	16	7
71SO-410CB*	B20-B100 Overfill Valve	10	3.0	10	3.0	120	3.1	102	2.6	234 ^{3/4}	5.9	113 ^{1/2}	2.9	120	3.1	126	3.2	25	11
71SO-420CB*	B20-B100 Overfill Valve	10	3.0	12	3.6	120	3.1	126	3.2	258 ^{3/4}	6.5	113 ^{1/2}	2.9	144	3.7	150	3.8	26	12
71SO-400C	Vapor-Tight Overfill Valve	5	1.5	8	2.4	60	1.5	83	2.1	155 ^{3/4}	3.9	53 ^{1/2}	1.4	96	2.4	107	2.7	16	7
71SO-410C	Vapor-Tight Overfill Valve	10	3.0	10	3.0	120	3.1	102	2.6	234 ^{3/4}	5.9	113 ^{1/2}	2.9	120	3.1	126	3.2	25	11
71SO-420C	Vapor-Tight Overfill Valve	10	3.0	12	3.6	120	3.1	126	3.2	258 ^{3/4}	6.5	113 ^{1/2}	2.9	144	3.7	150	3.8	26	12
71SO-4000	Non Vapor-Tight Overfill Valve	5	1.5	8	2.4	60	1.5	83	2.1	155 ^{3/4}	3.9	53 ^{1/2}	1.4	96	2.4	107	2.7	16	7
71SO-4010	Non Vapor-Tight Overfill Valve	10	3.0	10	3.0	120	3.1	102	2.6	234 ^{3/4}	5.9	113 ^{1/2}	2.9	120	3.1	126	3.2	25	11
71SOM-412C	E85 Vapor-Tight Overfill Valve	10	3.0	10	3.0	120	3.1	102	2.6	234 ^{3/4}	5.9	113 ^{1/2}	2.9	120	3.1	126	3.2	38	17.3
71SO-TOOLCT	71SO Installation Tool																	2.5	1
61JSK-4RMT	Jack Screw Kit For Vapor-Tight Remote Applications																	1.5	0.7
61JSK-4410	Jack Screw Kit For Composite Base Spill Buckets																	1	0.5
61JSK-44CB	Jack Screw Kit For Cast-Iron Base Spill Buckets																	1	0.5
71JSK-4RMT	E85 Jack Screw for Remote-Fill Applications																	1	0.5
71JSK-44MA	E85 Jack Screw for Direct-Fill Applications																	1.5	0.7

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

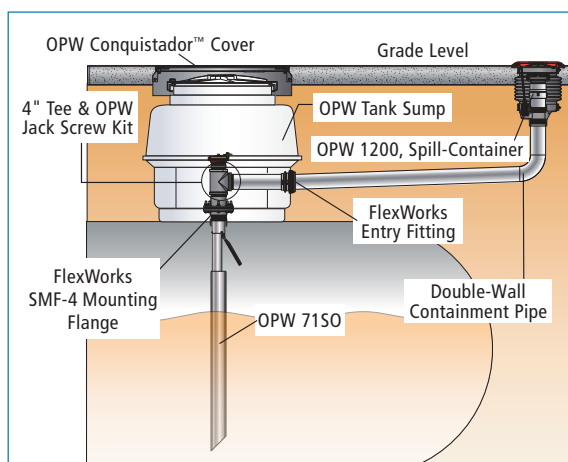
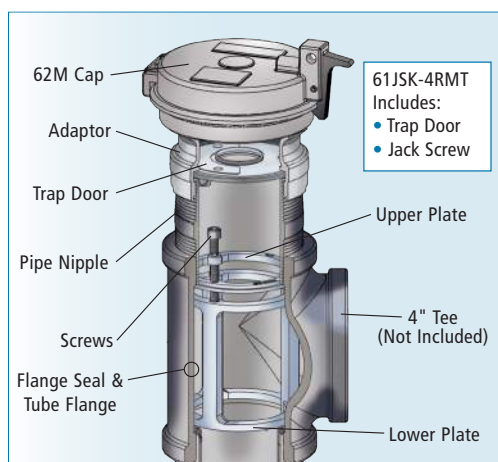
* ULC B100 Compatible



OPW 71SOM is EVR Approved for E85

71SO Vapor-Tight Remote Fill

The OPW Vapor-Tight Remote Fill is designed for two-point vapor-tight remote-fill applications, where the fill point is not directly over the UST. A CARB-approved vapor-tight 71SO overfill valve is installed in the sump through a riser pipe directly over the tank.



Important

In order to prevent product spillage from the Underground Storage Tank (UST), properly maintained delivery equipment and a proper connection at the tight-fill adaptor are essential. Delivery personnel should be managed and trained to inspect delivery elbows and hoses for damaged and missing parts. They should always make certain there is a positive connection between the adaptor and elbow. If delivery equipment is not properly maintained, or the elbow is not securely coupled to the adaptor, a serious spill may result when the OPW 71SO closes, causing a hazard and environmental contamination.

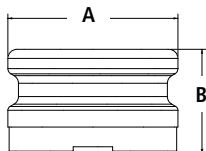
NOTE: The OPW 71SO is designed for use on tight-fill gravity-drop applications only. Do not use for pressure-fill applications.

OPW Tight-Fill Top-Seal Adaptors

Tight-Fill Top-Seal Adaptors are installed in spill containment manholes on the fill riser pipe from an underground fuel storage tank. They mate with the gravity drop delivery elbow on the transport truck.



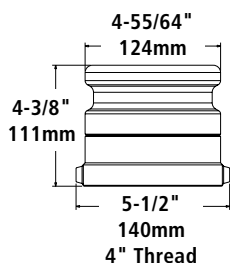
633T-8076



61SALP-1020-EVR



61SALP-MA
E85 EVR Approved



OPW 633T

OPW 633T Top-Seal Adaptors thread onto the fill pipe of underground storage tanks, and are designed to mate with top-seal delivery elbows. Use OPW 634TT, 634TE or 634TTP Top-Seal Caps with 633T Adaptors.

Features

- ◆ **Easy Installation** – integral internal wrenching lugs are provided for installing in the confined space of spill containers
- ◆ **Accommodate 633LC Lock Clamp** – 4" x 4" 633T (E) models incorporate dual notches in the base to accept 633LC clamps
- ◆ **Manufactured from Durable, Corrosion-Resistant Materials** – bronze and hardcoat aluminum

Ordering Specifications

Product #	Elbow Size	Riser Thread	A		B		Weight		Material
			in.	mm	in.	mm	lbs.	kg	
633T-8060	3"	3"	3 ¹⁹ / ₃₂	41	1 ⁵ / ₈	92	0.96	.44	Bronze
633T-8070	3"	4"	3 ¹⁹ / ₃₂	68	2 ¹¹ / ₁₆	92	0.71	.32	Hardcoated Al.
633T-8075	4"	4"	4 ⁵⁵ / ₆₄	75	2 ³¹ / ₃₂	124	0.82	.37	Hardcoated Al.
633T-8076	4"	4"	4 ⁵⁵ / ₆₄	75	2 ³¹ / ₃₂	124	2.70	1.23	Bronze

Note: Maximum height of adaptor is 2¹¹/₁₆" (68mm).

Replacement Parts

Part #	Description
H05289M	Gasket
H04150M	Gasket
H04150M	Gasket
H04150M	Gasket

OPW 61SA Swivel Adaptor

Pressure decay testing of underground storage tank systems has identified the joint between the tight-fill adaptor and the nipple or tank riser as a persistent leak point. Considerable movement takes place along the hose while the fill elbow is connected. Walk-downs and changes from one compartment to another move the hose across the pavement, rotating the elbow along with it. The result can be a loosening of the adaptor. As the adaptor backs off, the seal between it and the nipple is relaxed and a leak path is created allowing vapors to escape to the atmosphere. Vacuum-assist dispensing systems can aggravate this situation due to the slight pressurization of the UST.

The 61SA Swivel Adaptor mates with 4" top-seal delivery elbows and features a top section that rotates with hose movement while the bottom section remains securely in place maintaining seal integrity.

Features

- ◆ **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 and maximize flow rates for quick product delivery
- ◆ **61SALP-MA – EVR Approved for E85**

Ordering Specifications

Product #	Base Material	Adaptor Material	Weight	
			lbs.	kg
61SALP-1020-EVR*	Bronze	Bronze	7.1	3.2
61SALP-MA	Nickel	Nickel	7.1	3.2
61SA-Tool**	Wrench		11.0	5.0
H09039M	Replacement Gasket			

*Low Profile Fill Adaptor **See description on page 99.

Materials

Retaining Ring: Conductive nylon

Set Screws: Stainless steel

Seals: Buna-N

Listings and Certifications



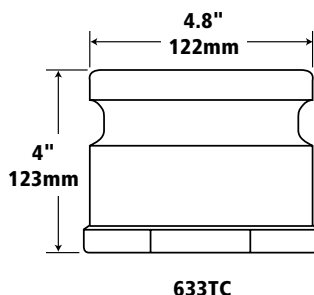
Look for this label for authentic OPW EVR Approved products. 61SALP-1020 & 61SALP-MA are EVR Approved for E85 USA Patent No. 5,664,951



Materials

Available in bronze or anodized aluminum for corrosion and wear resistance

633TC



633TC

Ordering Specifications

Product #	Elbow Size		Riser Thread		lbs.	kg	Description
	in.	mm	in.	mm			
633TC-8090	4	102	4	102	1.45	.66	Anodized Aluminum
633TCP-3803	4	102	4	102	1.26	.57	Anodized Aluminum

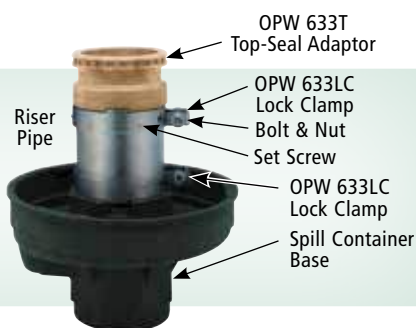
Matching Adaptors & Caps

	Description	Adaptor Part #	Seal	Cap Part #
Fill	3" Fill Elbow	633T, 633TE	Top	634TE
	4" Fill Elbow	633T, 633TE, 61SA, 61SALP	Top	634TT, 634LPC
	4" Coaxial Fill Elbow	633TC, 633TCP	Top	634TT, 634LPC
	3" Fill Elbow	61AS-3"	Side	62
Vapor	4" Fill Elbow	61AS-4"	Side	62, 62TT
	3" Vapor Elbow	1611AV, 1611AVB, 1611VR	Top	1711T, 1711LPC
Monitoring	Monitoring Well Pipe Caps	62M, 116M, 116, 634TTM, 62PMC	Complete Adaptor & Cap Kit	
Loose-Fill	Loose-Fill Pipe Caps 83, 269		Complete Adaptor & Cap Kit	

* Any variation of desired Adaptors will mate with corresponding Caps

Materials

Clamp: Stainless steel
Bolt: Zinc plated steel
Set Screw: Stainless steel



633LC



Ordering Specifications

Part #	in.	cm	Description
633LC-1000	4"	10.16	Stainless Steel Locking Clamp



OPW 61SA-TOOL

OPW 61SA-TOOL

The 61SA-TOOL is a wrench designed to thread on the 61SA Fill and 61VSA Vapor Adaptors. The OPW 61SA-TOOL Adaptor installation tool is required to insure proper installation of OPW rotatable swivel adaptors, thread-on spill containers, fill and vapor adaptors, TC-400 torque cap for pipe nipples and threaded riser adaptors as per EVR requirements. The 61SA-TOOL includes provisions for the use of a torque wrench to facilitate accurate installation and testing.

OPW Tight-Fill Top-Seal Adaptors

Coaxial Adaptors

OPW 633TC

OPW coaxial vapor recovery fittings provide an easy, inexpensive means to convert existing conventional 4" underground storage tank fill pipes to coaxial vapor recovery installations when Stage I Vapor Recovery is required. Normally, little or no digging or breaking of concrete is necessary. Simply remove existing tight-fill adaptor and drop tube (if installation is so equipped), and insert an OPW 61TC Coaxial Drop Tube and the 633TC Adaptor. The OPW 633TC Adaptor is designed to mate with a coaxial delivery elbow.

OPW 633TCP Use On 61SOP

The OPW 633TCP Coaxial Adaptor features a poppeted vapor return path that opens only when connected to a fill elbow. When not in use, the vapor path is sealed, preventing fugitive emissions. The 633TCP is a replacement adaptor for the 61TCP Coaxial Drop Tube, and is designed to mate with a coaxial delivery elbow.

NOTE: Poppeted fittings are certified by California Air Resources Board (CARB).

OPW 633LC

OPW 633LC Lock Clamp is designed to lock the OPW adaptor onto the riser pipe, preventing any potential vapor leaks from pressurized systems. The locking clamp slips over the riser pipe. The 633T, 633TE, or 1611 Adaptor is then threaded onto the riser pipe. Next, the lock clamp should be slid up the riser until the protrusions in the lock clamp line up with the notches in the adaptor. Once the adaptor and clamp are engaged, the lock clamp can be tightened and the adaptor will be locked onto the riser pipe, preventing it from being loosened by a delivery elbow.

Additionally, the lock clamp can be turned upside down on the riser pipe to lock the riser into the base of all OPW spill containers, which have notches in them similar to the adaptors. Using the lock clamp in this manner will lock the riser pipe into the spill container.

633TC & 633TCP Instruction Sheet Order Number: **H10013PA**

OPW 634 Series Tight-Fill Top-Seal Caps

Tight-Fill Top-Seal Caps are installed on top-seal adaptors, when not in use, to prevent gasoline vapors from escaping and to prevent water, dust and debris from entering the tank.



EVR Approved for E85

Materials

Cap & Links: Duratuff®
Pins: Stainless-steel
Gasket: Nitrile
Color: Grey

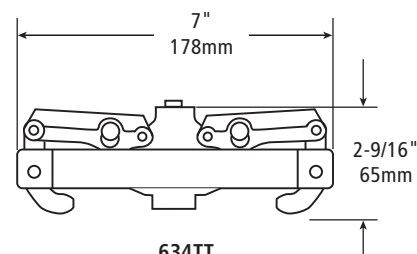


Ordering Specifications

Product #	in.	mm	lbs.	kg
634TT-7085-EVR	4	102	1.01	.46

Replacement Parts

Part #	Description
H15005M	Nitrile Gasket



NOTE: Effective height above adaptor: 1-19/32"

OPW 634TT

The OPW 634TT is designed to mate with 4" 633T, 633TE, 61SA, 633TC, and 633TCP Top-Seal Adaptors. Heavy-duty and corrosion-resistant, the body is made of Duratuff® to help eliminate rust and oxidation for a long, maintenance-free life. The toggle lever distributes downward pressure to compress its Buna-N gasket evenly, ensuring a positive, water and vapor-tight seal. The 634TT can be locked with a padlock or wire seal.

The OPW 633TE adaptor is similar to the 633T, except it does not have internal wrenching lugs.

OPW 634TT - Metal

The 634TT-4000 is a metal top-seal cap with the same dimensions as the 634TT-7085.

Materials

Cap: Die-cast zinc (powder-coated black)
Lever: Duratuff®
Pins: Stainless-steel
Gasket: Nitrile

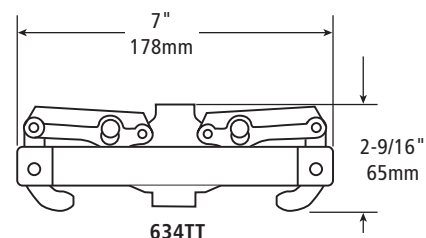


Ordering Specifications

Product #	in.	mm	lbs.	kg
634TT-4000	4	102	1.01	.46

Replacement Parts

Part #	Description
H15005M	Gasket for 634TT-4000



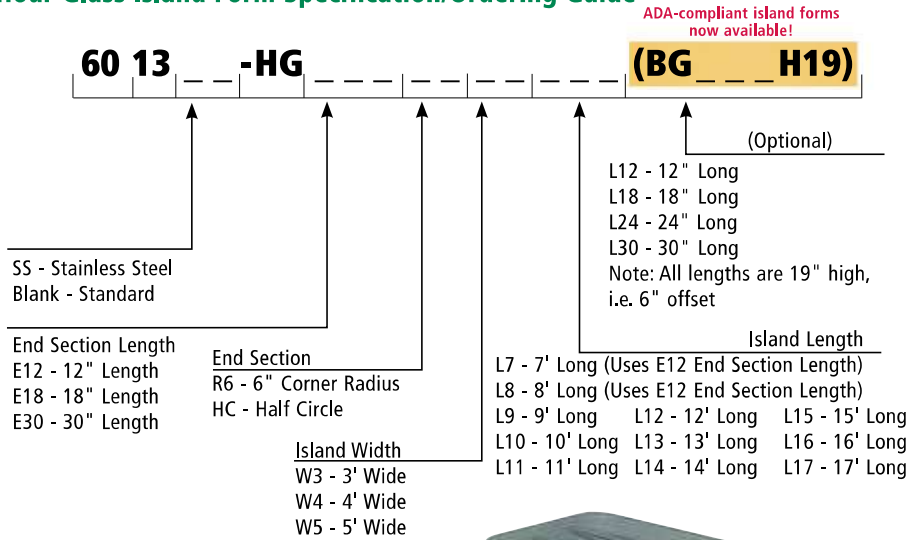
Listings and Certifications



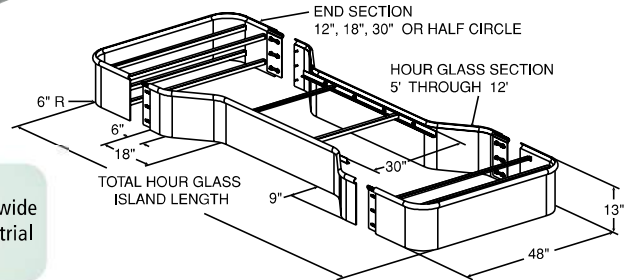
OPW 634TT & 634LPC
are EVR Approved for E85



Hour Glass Island Form Specification/Ordering Guide



Specify Standard Island Form configurations designed by OPW for a wide variety of retail, commercial and industrial traffic management applications.



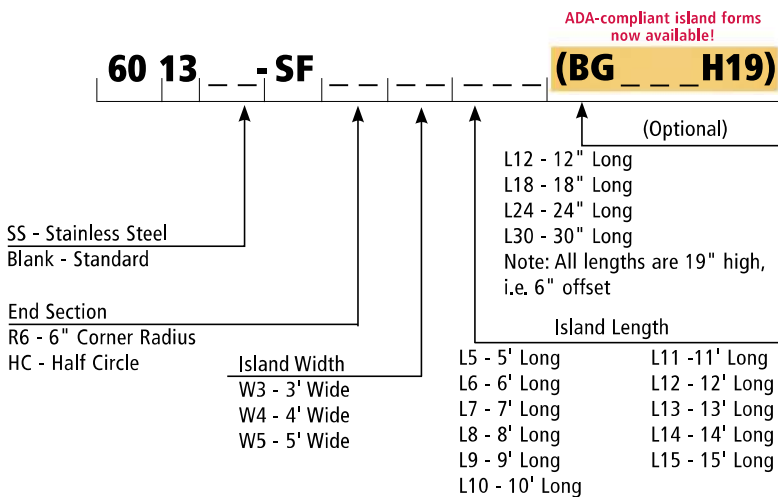
OPW Standard Island Forms

Specify Standard Island Form configurations designed by OPW for a wide variety of retail, commercial and industrial traffic management applications. Available in hot-rolled 12-gauge primed gray steel and stainless steel models are 304 grade stainless.

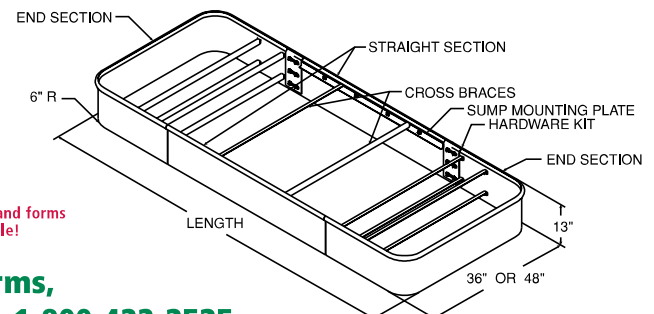
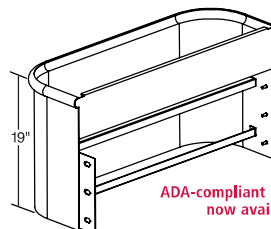
Hour Glass Island Forms

Hour Glass Island Forms are designed with side sections integrating a double-reverse 9" taper to provide easy access to multi-product gasoline dispensers while protecting expensive electronic equipment. Ends of these islands can be extended to wrap around canopy columns, hose bibs or trash receptacles by simply adding straight sections.

Standard (Straight) Island Form Specification/Ordering Guide



Note:
End Sections on Standard Island Forms are 2'-6' in length.



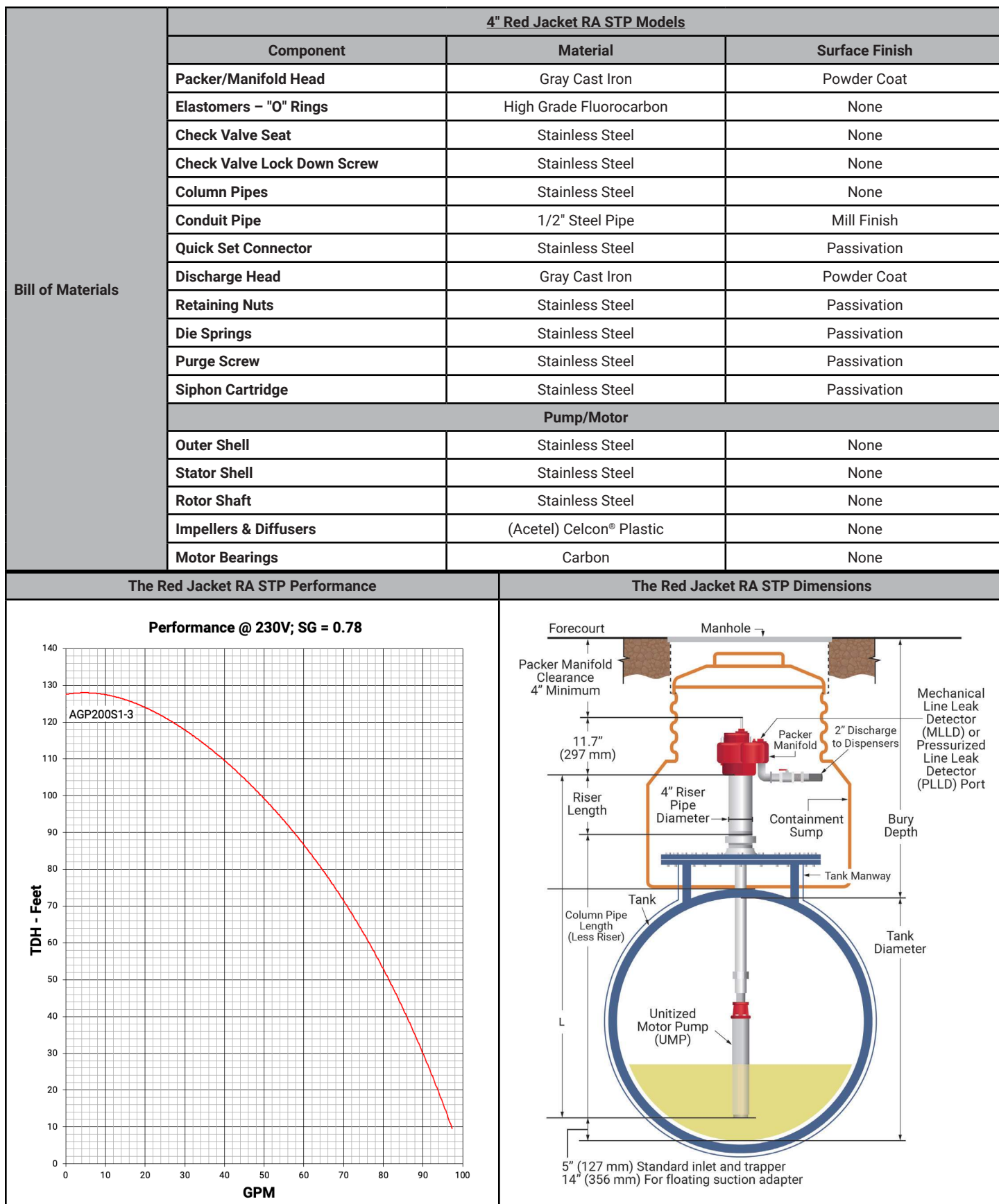
Standard (Straight) Island Forms

Straight Island Forms are designed with straight side sections to provide a convenient means of installing multiple dispensers on a single island. Straight Island Forms are also used to protect teller and ATM equipment at banks, restrict or route material handling equipment in warehouses, streamline traffic flows in toll booths and quick-serve restaurants and various other commercial traffic routing applications. Standard models are steel and stainless steel models are 304 stainless.

**For Custom Island Forms,
Contact OPW Customer Service at 1-800-422-2525**

STP Description	The Red Jacket Red Armor (RA) Submersible Turbine Pump (STP) is responsible for driving fuel from the storage tank, through the piping infrastructure and into the vehicle through the use of pressure energy. It optimizes fuel flow and dispensing, and its advanced packer manifold design makes it the industry's easiest and safest STP to install and service. Available in 3/4 HP to 2 HP configurations in variable Quick Set® lengths. As a Veeder-Root flagship product line, Red Jacket is backed by the largest network of distributors and authorized service contractors worldwide.				
4" Red Jacket RA STP	Part #	Description	Model #	Notes	
	0410142-063	4" TRJ RA STP - Quick Set (Adjustable) Final Assemblies, 78.5" - 108.5" Length	AGP200S1-3RA1	• 2 HP, 1.5 KW, 208/230 Voltage, single-phase. • Length is in inches, measured from top of the eyebolt to the bottom of the motor inlet. • FSA stands for Floating Suction Adapter.	
	0410142-064	4" TRJ RA STP - Quick Set (Adjustable) Final Assemblies, 108.5" - 168.5" Length	AGP200S1-3RA2		
	0410142-065	4" TRJ RA STP - Quick Set (Adjustable) Final Assemblies, 168.5" - 228.5" Length	AGP200S1-3RA3		
	0410142-066	4" TRJ RA STP - Quick Set (Adjustable) Final Assemblies, 80.9" - 110.9" Length	AGP200S1-3RA1 FSA		
	0410142-067	4" TRJ RA STP - Quick Set (Adjustable) Final Assemblies, 119.9" - 170.9" Length	AGP200S1-3RA2 FSA		
	0410142-068	4" TRJ RA STP - Quick Set (Adjustable) Final Assemblies, 170.9" - 230.5" Length	AGP200S1-3RA3 FSA		
Fuel Compatibility	The Red Jacket RA Submersible Turbine Pump Model is UL Listed for:			STP Application Description	
	• 100% Gasoline • 100% Diesel • 80% Gasoline with 20% TAME, ETBE or MTBE Gasoline • 85% Gasoline with 15% Methanol • 90% Gasoline with 10% Ethanol			STP shall be of submersible centrifugal type which installs through a standard 4" threaded tank opening. Motor size shall be from 3/4 through 2 HP, depending upon required flow rates and head loss of a given piping system.	
Mechanical Features	Pump			Impellers and Diffusers	
	Pump shall be multi-stage, dependent upon required flow rate, self-lubricating and easily removed from storage tank without disconnecting discharge piping, mechanical or electronic leak detectors or siphon systems. The pump and motor assembly shall be readily separable from the pump column pipe to allow for simple field replacement of the pump and motor.			Impellers shall be splined to the pump shaft to provide positive, non-slip rotation. Diffusers shall be tightly secured to prevent rotation.	
	Pump Intake Inlet			Manifold Head Assembly	
	Pump intake inlet shall be horizontal to prevent drawing sediment from the tank bottom into the pump inlet. The intake inlet shall be compatible with the particulate "Trapper" to prevent particulate from being ingested into the motor.			Manifold head assembly shall consist of a manifold and extractable packer assembly and shall be completely sealed against product leakage into the ground and exterior water intrusion into the storage tank. The discharge outlet shall be a 2" NPT opening. The manifold shall have a built-in air purge screw, line check valve, pressure relief valve, and shall support dual vacuum sensor siphon systems when required. The extractable packer shall incorporate industrial die springs to break loose the o-ring seals, when the flange nuts holding the extractable packer in place are removed. No physical lifting effort or special equipment shall be required to break the extractable packer seals. The contractor's box shall be built into the manifold head assembly and be completely isolated from the fuel path. The extractable packer assembly shall incorporate a lifting eye for safe extraction of the pump motor.	

Mechanical Features (Continued)	Electrical Disconnect	Check Valve with "Lock-n-Lift" Feature
	The electrical disconnect shall be an integral part of the manifold assembly. The electrical disconnect shall automatically disconnect and sever electrical connection to the pump motor, without a swing joint, when the extractable packer assembly is removed. Re-insertion of the extractable packer and tightening of the flange nuts shall remake the electrical connection.	The check valve shall incorporate a "Lock-n-Lift" feature that mechanically locks the check valve and lifts to provide a larger path to depressurize the line and manifold head assembly, returning fuel to the tank preventing service spills. The check valve shall provide pressure relief of the product line and be optimized for compatibility with Veeder-Root PLLD systems.
	Vacuum Sensor Siphon System	Quick Set®
	The vacuum sensor siphon system shall be capable of drawing 25" of mercury vacuum through a venturi. The vacuum sensor siphon shall incorporate a check valve to maintain the siphon system vacuum after the pump has been turned off. Check valves shall be incorporated on the siphon inlet and fuel source inlet to the venturi. The inlet shall incorporate a screen that reduces clogs and failures that can cause false alarms on vacuum monitor systems. The vacuum sensor siphon system shall incorporate a swivel top for easy connection to siphon tubing. The vacuum sensor siphon system shall be designed to integrate with Veeder-Root Vacuum Sensors. The manifold head assembly shall support dual vacuum sensor siphon systems for vacuum monitoring or siphon manifold applications. Unused vacuum siphon ports shall be sealed with a plug designed specifically for that purpose.	The Quick Set feature shall be capable of varying the overall pump length. The Quick Set shall incorporate a collet gripping mechanism and setscrew as a locking mechanism allowing future resizing.
Electrical Features	Electric Motors – 4" Models	Connections
	The motor shall be 208/230 volt, 60Hz, single-phase, 3450 RPM, permanent split capacitor type continuous duty, rated explosion proof in Class 1, Group D, petroleum products. The motor windings shall be hermetically sealed against leakage of product or moisture, and shall have a thermal overload device with automatic reset built into the motor windings for motor cut-off when motor temperature reaches a level which may cause damage to the motor.	The motor shall have a quick-disconnect type male/female connector to be readily separable for servicing without cutting or splicing of conducting wires. Wiring connections to the motor shall be disconnected by the quick-disconnect. Reconnecting motor to column pipe shall use an alignment dowel pin for positive realignment of electrical male/female connector.
Construction	Accessibility	Assembly Order
	All components shall be designed and assembled to facilitate disassembly and servicing from above without disrupting the discharge piping, leak detection equipment and vacuum sensor siphon systems.	The pump shall be assembled with the pump inlet and impellers at the bottom for maximum liquid draw. The motor is to be mounted above the pump inlet, so that the motor is both cooled and lubricated by the liquid flow through and past the motor.
Environmental	- The Red Jacket RA STP has an additional 30% increase in stainless steel hardware from The Red Jacket AG STP. - The pump assembly shall be rated for operation between -40°F (-40°C) and 105°F (40.5°C) in non-gelling petroleum products. - The pump assembly shall be listed under UL 79 for operation between -20°F (-4°C) and 125°F (51°C) ambient environment. - The product temperature must not exceed 105°F (40.5°C). - Petroleum shall not exceed the specific gravity as stated in the installation manuals (ranging from 0.86 - 0.95) based upon the specific pump model. - Maximum viscosity allowable – 70SSU @ 60°F (15°C).	
Approvals	UL 79, UL 79A, UL 79B, cUL	
Product Installation Guide	https://www.veeder.com/us/technical-document-library	



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Example Illustrations

Illustrations used in this guide may contain components that are customer supplied and not included with the Red Jacket Submersible Turbine Pump. Please check with your Veeder-Root Distributor for recommended installation accessories.



A VONTIER COMPANY

AtlasX

Next-Gen Commercial Refueling

9850G Electronic Ultra High Flow Dispensers

Introducing AtlasX 9850G commercial series.

The 9850G series dispensers are engineered to meet the demanding needs of commercial and fleet fueling operations. Designed for durability and reliability, these dispensers feature rugged galvanized steel frames and come in a variety of configurations.

The AtlasX ultra high flow fuel dispensers ensure fast and accurate fuel delivery. The ability of lane-oriented or side-load options make them adaptable to various fueling setups. Pair with the AtlasX Satellite dispenser or TW3 Combo and fuel both saddle tanks simultaneously.

Utilizing industry standard current loop protocol or Pulse Output to communicate with Gasboy's PRIME Controllers or other 3rd party controllers for reliable and accurate fuel management.

The heavy-duty steel construction, along with its compatibility of 100% biodiesel applications, guarantees long-term durability and future-proof performance.



*Front Load Model Shown

Model number	Description	Type	Hoses	Products	Register	Flow Rating
9850GX	Single, Front Nozzle	Dispenser	1	1	Elec	50 GPM
9850GX	Single, Side Nozzle	Dispenser	1	1	Elec	50 GPM
9850GXTW1	Twin, Front Nozzle	Dispenser	2	1	Elec	50 GPM
9850GXTW1	Twin, Side Nozzle	Dispenser	2	1	Elec	50 GPM
9850GXTW2	Twin, Front Nozzle	Dispenser	2	2	Elec	50 GPM
9850GXTW2	Twin, Side Nozzle	Dispenser	2	2	Elec	50 GPM
9850GXTW3	Combo Dispenser	Dispenser	2	2	Elec	50 GPM

Feature	Description	9850G
Approvals	Safety, UL and cUL Listed W&M, NCWM, Measurement Canada (MC)	S S
Working Pressure	50 psi maximum	S
Unit of Measure	Gallons/Liters Selectable	S
Filters	Internal strainer External canister type	S O
Piping	Internal fuel piping	1 1/4"
Discharge	Hose connection-NPT	1"
Satellite Piping	Satellite piping connections (S) – dispenser only	O
Inlet	Island connection-NPT	2"
Junction Box	Field wiring junction box	S
Housing	G30 Galvanized steel	13GA
Panels/Sheathing	Lockable removeable-precoated galvanized steel 2mm thick Lockable removeable-stainless steel-22 gauge	S O
Brand panel	Lighted brand panel	O
Meter	Liquid controls 6 step rotary PD Meter	S
Calibration	Electronic	S
Display Power	Power Fail backup	S
Solenoid Valve	2-stage valve for preset operations (PP)	S
Totalizer	Electronic Totalizer 10 digits and display 6-digits on LCD display	1 1/2"
Connectivity	2-wire communication protocol(current-loop) Pulse Output, Dual channel	S O

Operating Environment

Environment	Range	
Relative humidity	20% to 95% non-condensing	S
Electronics Minimum Ambient Temperature	-22°F (-30° C)	S
Electronics Maximum Ambient Temperature	131°F (55° C)	S
Hydraulics Minimum Ambient Temperature	29°C (-20°F)	S
Hydraulics Maximum Ambient Temperature	52°C (125° F)	S



1 Year Warranty

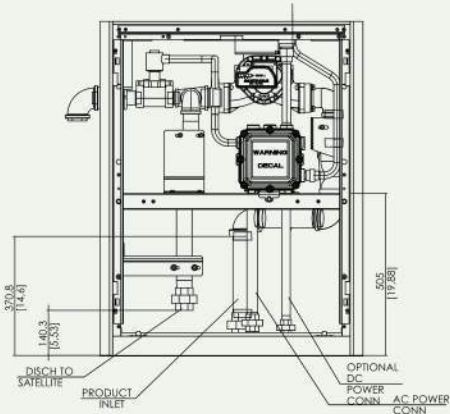
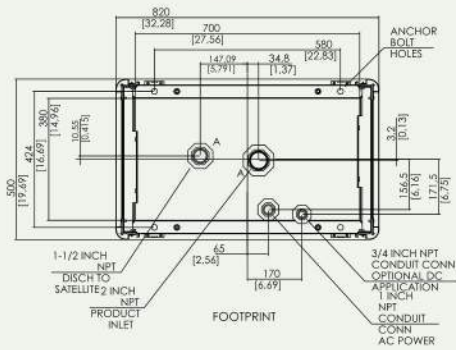
Commercial and Retail Pumps and Dispensers are warranted against defects in material and workmanship for 12 months from date of installation or 24 months from date of original invoice, whichever occurs first. The PRIME factory installed fuel management system electronics are also warranted against defects in material and workmanship for 12 months from date of installation or 24 months from date of original invoice. Warranty coverage for AtlasX and AtlasX PRIME includes parts and labor. Field-installed kits are warranted against defects in material and workmanship for 12 months from date of installation or 24 months from date of original invoice, whichever occurs first. The warranty coverage is for parts only.

S = Standard
O = Optional
– = Not available

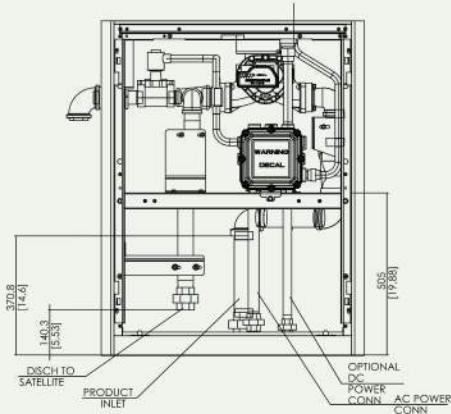
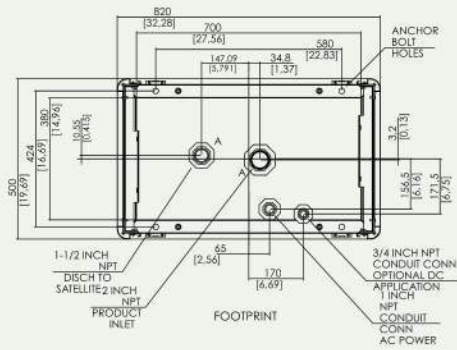
Technical Specification and Foundation Layout

Measurements in mm (Measurements in inches)

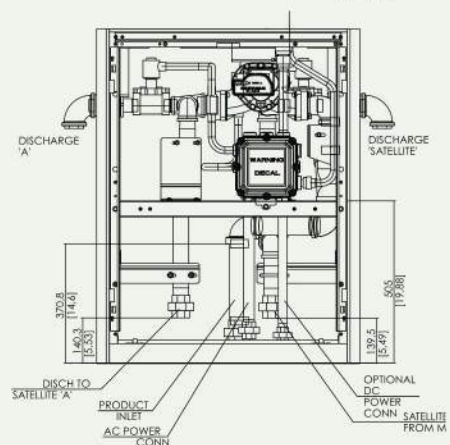
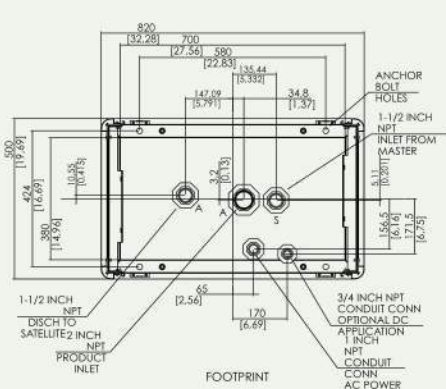
9850GX



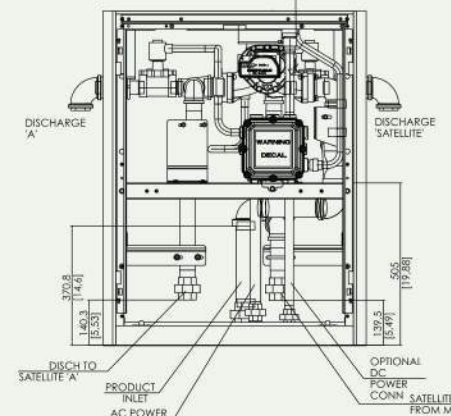
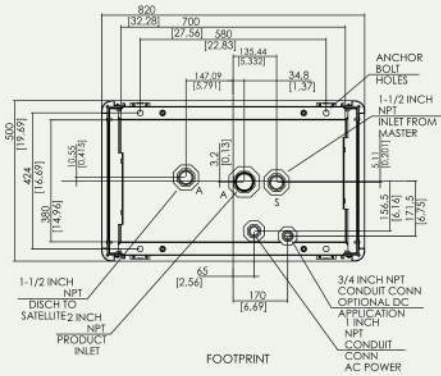
9850GXTW1



9850GXTW2



9850GXTW3



AtlasX Key Enhancements



Best-in-class engineering

Pulser ensures precise measurement Interfaces with various FMS to track and control fuel dispensing, facilitates more accurate transactions by automating data capture process.



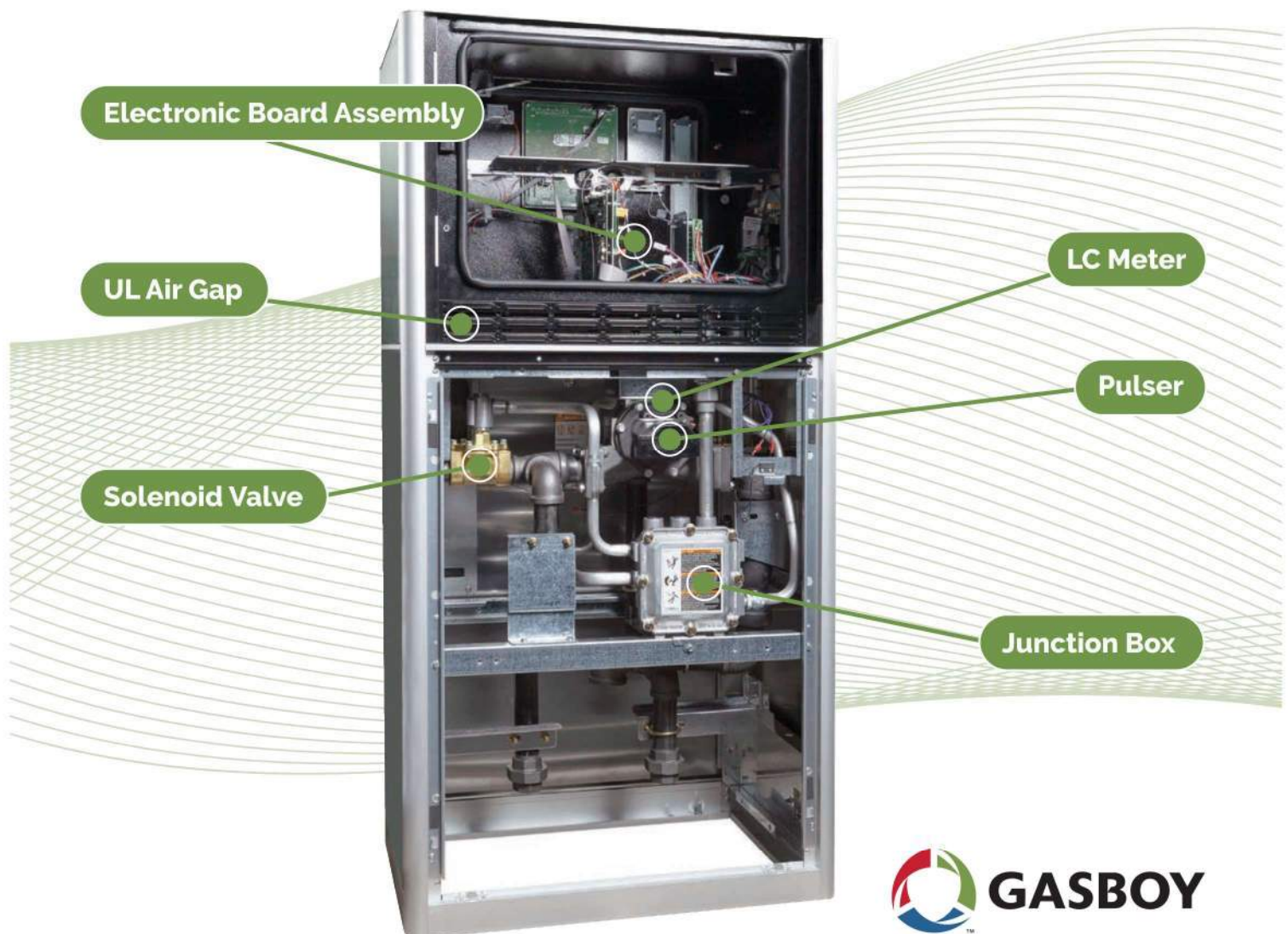
Modern design

Taller, sleeker design with smooth modern lines built with painted galvanized-steel panels that enable greater durability.



Future-proof

Modern Encore Electronics platform provides the foundation for future applications (remote diagnostics, remote software updates, secure payments etc.)





B1000 Double Wall UDC

UDC SUMPS



Product Shown
B1380-D30

SIZES:

- 28" width at base

*See page 2 for dimensions drawing and chart

MATERIALS:

- Tank-grade fiberglass material allows our product to be exposed to leaks without degradation
- Galvanized steel
- Double wall construction allows for constant monitoring

OVERVIEW:

The B1000 Series Double Wall UDC is available for most modern dispensers. All metal work is galvanized for corrosion resistance and the splash is fiberglass for a distinct corrosion advantage over other designs. The B1000 has unistrut on both ends that can hold up to 5 conduits per side.

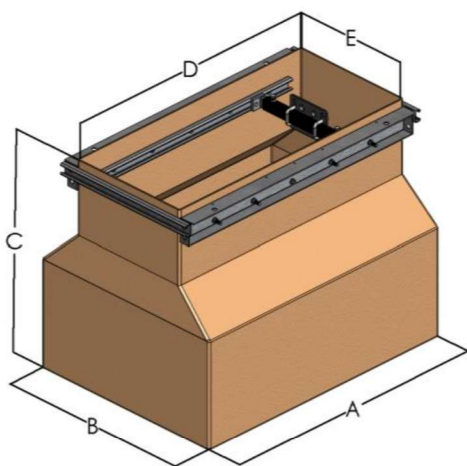
SPECIFICATIONS:

- Triennial testing exempt when constantly monitored
- Quality fiberglass construction
- Pre-plumb and pre-assembled options available
- 30-year corrosion warranty
- AB2481 compliant in CA
- UL2447 listed



B1000 Double Wall UDC

UDC SUMPS



Parts and Accessories

BK-1017	Boss-mount bracket for B1000 and 17" wide stabilizer bar assembly with hardware. Encore/Helix wide models.
BK-1015	Boss-mount bracket for B1000 and 15" wide stabilizer bar assembly with hardware, Ovation, Advantage Narrow, Vista, Reliance, Pacific, Helix Narrow, Gasboy Atlas X.
BK-1011	Boss-mount bracket for B1000 and 11" wide stabilizer bar assembly with hardware. Gasboy Atlas & 3000 Bennett.
SH-UDC	UDC sensor holder kit.

Dispenser Model	Part #	A	B	C	D	E
Gilbarco Encore 300, 500, 700	B1380-D30	38.5"	28"	29.5"	37.5"	17"
Wayne Ovation (3+0) (3+1) up to 3 inlets	B1250-D30	37"	28"	29.5"	35"	14.75"
Wayne Ovation (3+1+1) up to 4 inlets	B1251-D30	37.5"	28"	29.5"	37"	14.75"
Wayne Ovation High-Speed Diesel/Ovation HL Series	B1256-D30	37"	28"	29.5"	35"	14.75"
Wayne Ovation High-Speed Diesel/Ovation HL Series Wayne Helix Narrow Frame	B1242-D30	29"	28"	29.5"	27.5	14.75"
Wayne Helix Wide Frame	B1254-D30	38.5"	28"	29.5"	37.5"	17"
Wayne Reliance Select	B1210-D30	29"	28"	29.5"	27.5	14.75"
Bennett Pacific	B1411-D30	37"	28"	29.5"	35"	14.75"
Bennett 3000 Big Fueler	B1430-D30	19"	28"	29.5"	19"	11.5"
Gasboy Atlas X 9XXXG	B1678-D30	29"	28"	29.5"	24"	14.75"



Product Shown
B501-S

About the B500 Series

Bravo's B500 Series Singlewall and Doublewall transition sumps are compatible with all common motor fuels and can be ordered with standard AST fittings pre-installed. The fittings range from electrical offset (EO) to 3" compression pass-through AST fittings. This series comes standard with positive concrete anchoring and mounting points for optional rack system.

Bravo Solution Center

Call or Text (323) 541-3851

orders@sbravo.com

SIZES

- Small 25.5"
- Large 41.5"

**See page 2 for dimension drawing and dimension chart*

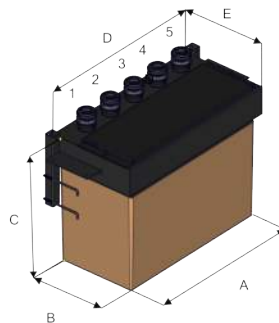
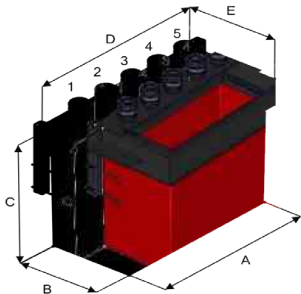


MATERIAL

- Fiberglass
- Epoxy coated galvanized steel

SPECIFICATIONS

- Quality FRP construction, no need for gelcoat for chemical resistance
- "Planter" style raised lid to keep surface water out
- Accommodates up to 5 factory installed AST fittings depending on model
- Factory mounting points make a rack system installation simple
- 30-year corrosion warranty
- UL2447 listed
- Doublewall construction can be monitored with vacuum or hydrostatically making it triennial testing exempt with continuous monitoring
- Ships under a continuous 20" Hg vacuum test



Optional Rack Systems

Part #	Description
RS-501	Small rack for 1, 2 or 3 vents (includes hardware)
RS-502	Large rack for 4 or 5 vents (includes hardware)

B500 Series Planter-style Singlewall

Transition Sump Type	Part #	Description	Fitting size position 1	Fitting size position 2	Fitting size position 3	Fitting size position 4	Fitting size position 5	A	B	C
B500 Planter-style lid	B501-S	Singlewall FRP vent / transition sump with-out AST fittings	NA	NA	NA	NA	NA	25.5"	20"	32"
B500 Planter-style lid	B501-S-200	Singlewall FRP vent / transition sump with 1, 2" AST fitting	2"	NA	NA	NA	NA	25.5"	20"	32"
B500 Planter-style lid	B501-S-220	Singlewall FRP vent / transition sump with 2, 2" AST fittings	2"	2"	NA	NA	NA	25.5"	20"	32"
B500 Planter-style lid	B501-S-222	Singlewall FRP vent / transition sump with 3, 2" AST fittings	2"	2"	2"	NA	NA	25.5"	20"	32"
B500 Planter-style lid	B503-S-22220	Singlewall FRP vent / transition sump with 4, 2" AST fittings	2"	2"	2"	2"	NA	41.5"	20"	32"
B500 Planter-style lid	B503-S-22222	Singlewall FRP vent / transition sump with 5, 2" AST fittings	2"	2"	2"	2"	2"	41.5"	20"	32"

B500 Series Planter-style Doublewall

Transition Sump Type	Part #	Description	Fitting size position 1	Fitting size position 2	Fitting size position 3	Fitting size position 4	Fitting size position 5	A	B	C
B500 Planter style lid	B501-D	Doublewall FRP vent / transition sump without AST fittings	NA	NA	NA	NA	NA	25.5"	20"	32"
B500 Planter-style lid	B501-D-200	Doublewall FRP vent / transition sump with 1, 2" AST fitting	2"	NA	NA	NA	NA	25.5"	20"	32"
B500 Planter-style lid	B501-D-220	Doublewall FRP vent / transition sump with 2, 2" AST fittings	2"	2"	NA	NA	NA	25.5"	20"	32"
B500 Planter-style lid	B501-D-222	Doublewall FRP vent / transition sump with 3, 2" AST fittings	2"	2"	2"	NA	NA	25.5"	20"	32"
B500 Planter-style lid	B503-D-22220	Doublewall FRP vent / transition sump with 4, 2" AST fittings	2"	2"	2"	2"	NA	41.5"	20"	32"
B500 Planter-style lid	B503-D-22222	Doublewall FRP vent / transition sump with 5, 2" AST fittings	2"	2"	2"	2"	2"	41.5"	20"	32"



Product Shown
F-32S-T-F

About the F Series Full-Body

The Bravo F Series full body entry fitting is compatible with both singlewall and doublewall monitored sumps. The F Series is a termination entry fitting which terminates secondary pipe at the exterior of the containment sump. A separate test reducer is not needed to terminate from primary to secondary pipe. The F Series has dual integrated test ports that can be used for testing, drainage to a sensor, or VPH constant monitoring. Models available for both size-over-size and rigid conduit. Quality FRP construction and bonded installation provides an extremely long service life compared to flexible entry fittings.

Bravo Solution Center

Call or Text (323) 541-3851
orders@sbravo.com

SIZES

- ¾", 1"
- 3x2"
- 4x3" FRP Piping
- 6x4"

MATERIAL

- Tank-spec fiberglass

SPECIFICATIONS

- Bonded FRP entry fitting, for long service life
- Available for singlewall and doublewall sumps
- No piping test reducers required
- Dual redundant test ports
- Models for flat and curved sump walls
- 30-year corrosion warranty
- UL2447 Listed



NEW CONSTRUCTION FITTINGS

F Series Full-Body, Flat Sump Wall



Pipe type	Part #	Description
3/4" galvanized conduit	F-07S-0-F	3/4" galvanized conduit, full-body with duel injection ports, EPOXY REQ'D
3/4" PVC coated conduit	F-07RS-0-F	3/4" PVC coated conduit, full-body with duel injection ports, EPOXY REQ'D
3/4" galvanized conduit	F-07S-0-DF	3/4" galvanized conduit, doublewall full-body, duel injection ports and tertiary boot seal, Flat wall FRP, EPOXY REQ'D
3/4" PVC coated conduit	F-07RS-0-DF	3/4" PVC coated conduit, doublewall full-body, duel injection ports and tertiary boot seal, Flat wall FRP, EPOXY REQ'D
1" galvanized conduit	F-10S-0-F	1" galvanized conduit, full-body with duel injection ports, EPOXY REQ'D
1" PVC coated conduit	F-10RS-0-F	1" PVC coated conduit, full-body with duel injection ports, EPOXY REQ'D
1" galvanized conduit	F-10S-0-DF	1" galvanized conduit, doublewall full-body, duel injection ports and tertiary boot seal, Flat wall FRP, EPOXY REQ'D
1" PVC coated conduit	F-10RS-0-DF	1" PVC coated conduit, doublewall full-body, duel injection ports and tertiary boot seal, Flat wall FRP, EPOXY REQ'D
3/4 brass ground- ing rod	F-07-GR	3/4" brass grounding rod, full-body with brass conductor and clamps, EPOXY REQ'D
3 x 2" FRP	F-32S-T-F	3x2" FRP, full-body taper by slip; dual test ports and single injection port, EPOXY REQ'D
4 x 3" FRP	F-43S-T-F	4x3" FRP, full-body taper by slip; dual test ports and single injection port, EPOXY REQ'D
6 x 4" FRP	F-64S-T-F	6x4" FRP, full-body taper by slip; dual test ports and single injection port, EPOXY REQ'D
3 x 2" FRP	F-32A-T-F	3x2" FRP, adjustable full-body taper by slip; dual test ports and single injection port, EPOXY REQ'D
4 x 3" FRP	F-43A-T-F	4x3" FRP, adjustable full-body taper by slip; dual test ports and single injection port, EPOXY REQ'D

F Series Full-Body, Round Sump Wall

Pipe type	Part #	Description
3/4" galvanized conduit	F-07S-0-R	3/4" galvanized conduit, full-body with duel injection ports, EPOXY REQ'D
3/4" PVC coated conduit	F-07RS-0-R	3/4" PVC coated conduit, full-body with duel injection ports, EPOXY REQ'D
3/4" galvanized conduit	F-07S-0-DR	3/4" galvanized conduit, doublewall full-body, duel injection ports and tertiary boot seal, Round wall FRP, EPOXY REQ'D
3/4" PVC coated conduit	F-07RS-0-DR	3/4" PVC coated conduit, doublewall full-body, duel injection ports and tertiary boot seal, Round wall FRP, EPOXY REQ'D
1" galvanized conduit	F-10S-0-R	1" galvanized conduit, full-body with duel injection ports, EPOXY REQ'D
1" PVC coated conduit	F-10RS-0-R	1" PVC coated conduit, full-body with duel injection ports, EPOXY REQ'D
1" galvanized conduit	F-10S-0-DR	1" galvanized conduit, doublewall full-body, duel injection ports and tertiary boot seal, Round wall FRP, EPOXY REQ'D
1" PVC coated conduit	F-10RS-0-DR	1" PVC coated conduit, doublewall full-body, duel injection ports and tertiary boot seal, Round wall FRP, EPOXY REQ'D
3/4 brass ground- ing rod	F-07-GR-R	3/4" brass grounding rod, full-body with brass conductor and clamps, EPOXY REQ'D
3 x 2" FRP	F-32S-T-R	3x2" FRP, full-body taper by slip; dual test ports and single injection port, EPOXY REQ'D
4 x 3" FRP	F-43S-T-R	4x3" FRP, full-body taper by slip; dual test ports and single injection port, EPOXY REQ'D
6 x 4" FRP	F-64S-T-R	6x4" FRP, full-body taper by slip; dual test ports and single injection port, EPOXY REQ'D
3 x 2" FRP	F-32A-T-R	3x2" FRP, adjustable full-body taper by slip; dual test ports and single injection port, EPOXY REQ'D
4 x 3" FRP	F-43A-T-R	4x3" FRP, adjustable full-body taper by slip; dual test ports and single injection port, EPOXY REQ'D



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

- The corrugated fuel contact layers feature a 25% thicker metal construction and gain flexibility from having more corrugations per foot rather than thinner walls.
- Enclosing the corrugated fuel contact layer is a stainless steel braid that is manufactured from only high-grade stainless steel.
- Available in a multitude of end connections to ensure the right fit for any application - including tees, elbows and FRP transitions
- The EZ FIT union style coupling system is specifically designed to make connections in confined spaces simple and tight.
- 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 with titanium, 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 536 listed for 50psi working pressure
- EZ FIT clamp and gasket are included with each assembly

Certifications

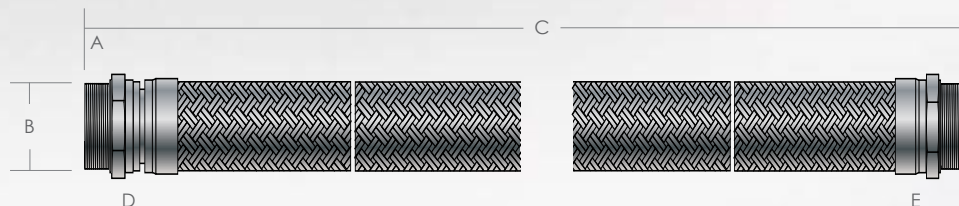
- UL 536 listed for above and below ground installation.

Ordering Information

Use these diagrams below along with the Ordering Guide at the bottom of the page to help you build your flexible connector model numbers.

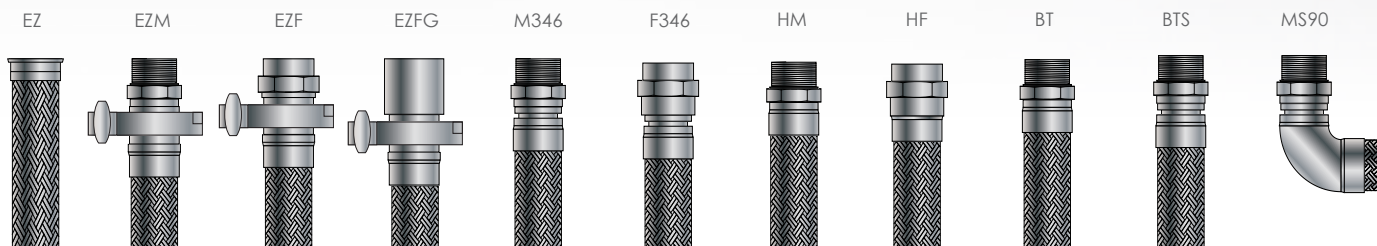
Ordering Options Diagram

Use the options and descriptions in the Ordering Guide along with this diagram to assist in building your model numbers.



End Fitting Options

Use the options and descriptions in the Ordering Guide along with the diagrams below to select your end fitting types (two total).



Ordering Guide

A B X C D X E

A = Product Type

FF = If either of the end connections are any type of swivel, this option must be selected.

FFUL = If both end connections are fixed (non-swivel), this option must be selected.

B = Hose Diameter

07 = ¾"

10 = 1"

15 = 1½"

20 = 2"

30 = 3"

40 = 4"

C = Overall Length in Inches

Use two-digit format

D & E = End Fitting Options

EZ = EZ FIT flange only

EZM = EZ FIT male NPT (Each EZ FIT union style coupling comes complete with couplers and gaskets)

EZF = EZ FIT female NPT (Each EZ FIT union style coupling comes complete with couplers and gaskets)

EZFG = EZ FIT fiberglass glue pipe (Each EZ FIT union style coupling comes complete with couplers and gaskets)

M346 = Male swivel NPT

F346 = Female swivel NPT

HM = Hex male fixed NPT

HF = Hex female fixed NPT

BT = Hex male fixed BSPT

BTS = Male swivel BSPT

MS90 = 90° with male swivel NPT

Example: FF20X18M346XHM = FIREFLEX flexible connector with swivel end fitting(s), 2" hose diameter, 18" overall length, with one male swivel end fitting and one fixed hex male end fitting.

Flexible Connectors with Differing Hose and End Fitting Diameters

All end fittings are, by default, the same diameter as the hose. If you require a flexible connector where the end fitting diameter does not match the hose diameter, the size must be indicated numerically in front of the corresponding fitting as in the following example.

Example : FFUL15X18HMX2HM = FIREFLEX flexible connector with fixed end fittings, 1½" hose diameter, 18" overall length, with one 1½" hex male fixed end fitting and one 2" hex male fixed end fitting.

Rules:

- 1) End fitting diameters can not be smaller than hose diameters.
- 2) Only one hose fitting per flexible connector can be of a different diameter than the hose diameter.
- 3) End fitting diameter must only be one size larger than hose (1" hose could use 1½" fitting, 1½" hose could use 2" fitting, etc.)

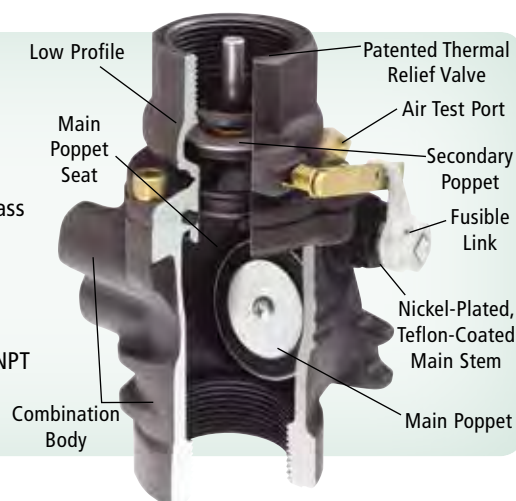
Common Models

You can also select from the following most-common flexible connector model numbers.

Model	Description
FF07X14HMXM346	¾" dia flex w/ ¾" hex male by ¾" male 346 swivel; 14" OAL
FF10X18HMXM346	1" dia flex w/ 1" hex male by 1" male 346 swivel; 18" OAL
FF15X12F346XEZ	1½" dia flex w/ 1½" female 346 swivel by 2" EZ fit flange; 12" OAL
FF15X12HMXM346	1½" dia flex w/ 1½" hex male by 1½" male 346 swivel; 12" OAL
FF15X12M346XF	1½" dia flex w/ 1½" male 346 swivel by 1½" hex female; 12" OAL
FF15X14BTXBTS	1½" dia flex w/ 1½" BSPT hex male by 1½" BSPT male 346 swivel; 14" OAL
FF15X15HMXM346	1½" dia flex w/ 1½" hex male by 1½" male 346 swivel; 15" OAL
FF15X18BTXBTS	1½" dia flex w/ 1½" BSPT hex male by 1½" BSPT male 346 swivel; 18" OAL
FF15X18HMXM346	1½" dia flex w/ 1½" hex male by 1½" male 346 swivel; 18" OAL
FF15X18M346X2F	1½" dia flex w/ 1½" male 346 swivel by 2" hex female; 18" OAL
FF15X24BTXBTS	1½" dia flex w/ 1½" BSPT hex male by 1½" BSPT male 346 swivel; 24" OAL
FF15X24HMXM346	1½" dia flex w/ 1½" hex male by 1½" male 346 swivel; 24" OAL
FF15X30HMXM346	1½" dia flex w/ 1½" hex male by 1½" male 346 swivel; 30" OAL
FF20X12F346XEZ	2" dia flex w/ 2" female 346 swivel by 2" EZ fit flange; 12" OAL
FF20X12HMXM346	2" dia flex w/ 2" hex male by 2" male 346 swivel; 12" OAL
FF20X12M346XF	2" dia flex w/ 2" male 346 swivel by 2" hex female; 12" OAL
FF20X15HMXM346	2" dia flex w/ 2" hex male by 2" male 346 swivel; 15" OAL
FF20X18BTXBTS	2" dia flex w/ 2" BSPT hex male by 2" BSPT male 346 swivel; 18" OAL
FF20X18HMXM346	2" dia flex w/ 2" hex male by 2" male 346 swivel; 18" OAL
FF20X18M346XF	2" dia flex w/ 2" male 346 swivel by 2" hex female; 18" OAL
FF20X24BTXBTS	2" dia flex w/ 2" BSPT hex male by 2" BSPT male 346 swivel; 24" OAL
FF20X24HMXM346	2" dia flex w/ 2" hex male by 2" male 346 swivel; 24" OAL
FF20X24HMXMS90	2" dia flex w/ 2" hex male by 2" 90° male 346 swivel; 24" OAL
FF20X24M346XF	2" dia flex w/ 2" male 346 swivel by 2" hex female; 24" OAL
FFUL15X12HMXHM	1½" dia flex w/ 1½" hex male by 1½" hex male; 12" OAL
FFUL15X15HMXHM	1½" dia flex w/ 1½" hex male by 1½" hex male; 15" OAL
FFUL15X18HMXHM	1½" dia flex w/ 1½" hex male by 1½" hex male; 18" OAL
FFUL15X24HMXHM	1½" dia flex w/ 1½" hex male by 1½" hex male; 24" OAL
FFUL20X15HMXHM	2" dia flex w/ 2" hex male by 2" hex male; 15" OAL
FFUL20X18HMXHM	2" dia flex w/ 2" hex male by 2" hex male; 18" OAL
FFUL20X24HMXHM	2" dia flex w/ 2" hex male by 2" hex male; 24" OAL
FFUL20X30HMXF	2" dia flex w/ 2" hex male by 2" hex female; 30" OAL
FFUL20X48HMXHM	2" dia flex w/ 2" hex male by 2" hex male; 48" OAL
FFUL30X18MXM	3" dia flex w/ 3" male by 3" male; 18" OAL
FFUL30X24MXM	3" dia flex w/ 3" male by 3" male; 24" OAL
FFUL40X15MXM	4" dia flex w/ 4" male by 4" male; 15" OAL
FFUL40X18MXM	4" dia flex w/ 4" male by 4" male; 18" OAL

Materials

Top: Cast iron
Body: Cast iron
Disc: M-19
Carrier: Zinc-plated steel
Stem: Copper-nickel-chrome-plated brass
Poppet Spring: Stainless steel
Seal: M-19 O-Ring
Packing nut: Brass, Teflon®-coated
 Inlet and outlet thread: 1-1/2" (4 cm) NPT
 (British threads available)
 *With black Duragard® E-Coating



Features

- ◆ **High Flow Capacity** – the primary poppet is held out of the flow stream while the secondary poppet is held normally open to minimize head loss across the valve and to protect the poppet seals from damage and erosion. True 1-1/2" (4 cm) and 2" (5 cm) body sizes ensure maximum flow.
- ◆ **Fire Protection** – a fusible link trips the valve closed at 165° F to shut off fuel supply to the dispenser.
- ◆ **Main Poppet Seat Integral to the Top Assembly** – having the main poppet seat as an integral part of the valve top ensures a new, clean seating surface is installed each time the top is replaced. This design also ensures that the integrity of the seal between the valve top and bottom is verified during line testing and allows full inspection of the main poppet when the top is removed.
- ◆ **Duragard®-Coat Finish** – provides superior corrosion resistance.
- ◆ **Reliable Shut-off** – a stainless steel main spring, a teflon-coated brass packing nut and a copper/nickel/ chrome-plated brass stem are designed to prevent tar build-up and corrosion from interfering with poppet operation after long periods of normal service without activation.
- ◆ **Integral Test Port** – a 3/8" (9.5 mm) test port allows the piping system to be air-tested without breaking any piping connections.
- ◆ **Patented Thermal Relief Valve** – relieves excessive pressure over 25 psi caused by thermal expansion of fuel in the dispenser piping system in the event of fire (double-poppet models only).
- ◆ **Low-Profile Tops** – female and union-top double-poppet valves have a low-profile top to allow upgrading from OPW single-poppet valves without changing existing piping.
- ◆ **Multiple Mounting Options** – valves are boss-mounted to stabilizer bars in sumps and pans or mounted to bars embedded in the island with optional U-Bolt kits 10UBK-015 (not included). Versatile Combination Body (boss mount/ U-Bolt mount) models are available to accommodate most mounting applications with one valve style.
- ◆ **Underwriters Laboratories** –  listed for use with gasoline and 85% and 100% methanol. All OPW 10 Emergency Shut-Off Valves meet requirements of UL STANDARD 842.
- ◆ **Compatible with 85% ethanol (E85)**

10 Series Emergency Shut-Off Valves

OPW 10 Series Emergency Shut-off Valves are installed on fuel supply lines beneath dispensers at grade level to minimize hazards associated with collision or fire at the dispenser. If the dispenser is pulled over or dislodged by collision, the top of the valve breaks off at the integral shear groove, activating poppets and shutting off the flow of fuel. Single-poppet models shut off supply flow, while double-poppet models shut off supply as well as prevent release of fuel from the dispenser's internal piping. The base of the emergency valve is securely anchored to the concrete dispenser island through a stabilizer bar system within the dispenser sump or pan to ensure proper shearing action. The valve base is secured to the stabilizer bar using a three-point boss mount system or a U-Bolt Kit (not included) 10UBK-015 (1-1/2") and 10URK-0200 (2 sold separately). Valve inlet (bottom) connections are female pipe threads and outlet (top) connections are available with female threads, male threads or a union fitting. Other options include suction system models with a normally closed secondary poppet which maintains prime, and models with external threads on the inlet body which connect to secondary containment systems.

PA15 Offset Adaptor

The OPW PA15 Offset Adaptor is designed for adjusting misalignment of pipe in dispenser sumps and suction stubs. The PA15 has a low profile feature, and is designed for maximum flow.



Materials

Ductile Iron
 Zinc Chromate

Ordering Specifications

Part #	Thread Size		Offset		Height		Width	
	in.	mm	in.	mm	in.	mm	in.	mm
PA15-10	1 1/2	38.1	1	25	2 1/4	57.2	3 5/8	92.1
PA15-15	1 1/2	38.1	1 1/2	38.1	2 1/4	57.2	4 1/8	104.8
PA15-20	1 1/2	38.1	2	51	2 1/4	57.2	4 5/8	117.5

OPW 10 Series Emergency Shut-Off Valves

Ordering Specifications

Female Threaded Top (Outlet) Connection Valves

Model #	Body Size		Connection Threads	Poppet Configuration	Application	Replacement Top
	in.	cm				
10BF-5725	1½	4	NPT	Single	Pressure	10RFT-5750
10BFP-5726	1½	4	NPT	Double	Pressure	10FTP-5701
10RF-2001	2	5	NPT	Single	Pressure	10RFT-5742
10RFP-2002	2	5	NPT	Double	Pressure	10RFTP-5752

Male Threaded-Top (Outlet) Connection Valves

Model #	Body Size		Connection Threads	Poppet Configuration	Application	Replacement Top
	in.	kg				
10BM-5825	1½	4	NPT	Single	Pressure	10RMT-5850
10BHMP-5830	1½	4	NPT	Double	Pressure	10RMTP-5851
10SBHMP-5830	1½	4	NPT	Double	Suction	10SHMTP-5811
10RM-2003	2	5	NPT	Single	Pressure	10RMT-5842
10RMP-2004	2	5	NPT	Double	Pressure	10RMTP-5852

Union-Top (Outlet) Connection Valves

Model #	Body Size		Connection Threads	Poppet Configuration	Application	Replacement Top
	in.	kg				
10BU-5925	1½	4	NPT	Single	Pressure	10RUTC-5975
10BUP-5926	1½	4	NPT	Double	Pressure	10UTCP-5901
10SBUP-5926	1½	4	NPT	Double	Suction	10SUTCP-5911
10RU-2005	2	5	NPT	Single	Pressure	10RUTC-5962
10RUP-2006	2	5	NPT	Double	Pressure	10RUTCP-5972

NOTE: All BSPP Thread Shear Valves must be ordered through OPW's Europe or Asia office.

IMPORTANT NOTICE:

When mounting the OPW 10 Series Emergency Shut-off Valves, the anchoring system employed must withstand a force greater than 650 ft. pounds per valve. NFPA Code 30A, Automotive and Marine Service Station Code, requires that the automatic closing feature of emergency shut-off valves be checked at least once per year by manually tripping the hold-open linkage. OPW recommends the use of Flexworks Stabilizer Bar Support System for proper mounting of 10 Series Valves.

NOTICE:

As per NFPA 30A, electrical supply to the submersible pump must always be disconnected before servicing meters, dispensers or emergency shut-off valves.

Materials

Body: Cast iron with black Duragard® E-coating

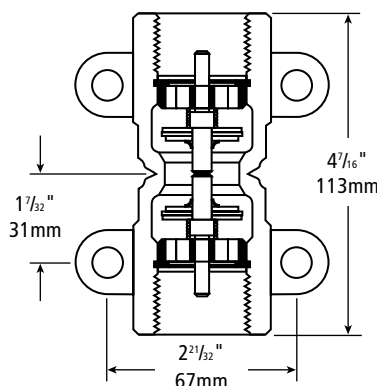
Discs: M-19 Viton®

60VP-1001



Features

- ◆ **1" Female Connection to Both Dispenser and Underground Piping**
- ◆ **Multiple Mounting Methods** – mounting Boss accepts either U-Bolt or Straight Bolt mounting kits.
- ◆ **Duragard® E-Coat Finish** – provides superior corrosion resistance.



OPW 60V Series Vapor Line Shear Valves

OPW 60VP-1001

Poppeted Vapor Saver

- ◆ Double-poppeted design incorporated to help prevent vapor loss in the event dispenser is toppled
- ◆ CARB approved
- ◆ UL-listed 

OPW 60VSP-1001

Poppeted Vapor Saver

- ◆ Double-poppeted design incorporated to help prevent vapor loss in the event the dispenser is toppled
- ◆ CARB approved
- ◆ UL listed 
- ◆ 60VSPC-1001 features additional external threads on valve outlet for connection to a secondary containment system

Ordering Specifications

Product #	Connections	Poppeted
60V-1000	1" x 1" (3 x 3 cm) FNPT	
60VP-1001	1" x 1" (3 x 3 cm) FNPT	•
60VK-1002	U-Bolt Mounting Kit Includes: (2) 3/8" (9.5 mm) U-bolts, (4) washers, (4) nuts	
60VK-1003	Straight Bolt Mounting Kit Includes: (4) 3/8" (9.5 mm) 16 bolts, (4) washers, (4) nuts	

60V Instruction Sheet
Order Number: **H12133M**

OPW 60VS-1000 Line Saver

- ◆ Shear section breaks on impact to minimize damage to underground piping.

OPW 60V-1000 Line Saver

- ◆ Shear section breaks on impact to minimize damage to underground piping.

Materials

Body: Duragard®
Coated Cast Iron

Cage Assembly: ZA12 Zinc/Alloy

(TEE)



Features

- ◆ **Duragard® Coated Cast Iron Body** – helps prevent rust and corrosion for long service life
- ◆ **ZA12 Zinc/Alloy Cage Assembly** – eases installation and removal of ball float vent valves and test plugs
- ◆ **Precision Machined Threads** – help prevent cross threading of the ball float or tank riser pipe
- ◆ **Compatible with 85% Ethanol (E85) or Methanol (M85)**



CROSS



233 VP Test Plug



(H11930 2" CAGE SA)

Ordering Specifications

Product #	Top Thread		Outlet Thread		Bottom Thread		Weight	
	in.	mm	in.	mm	in.	mm	lbs.	kg
233-4420 (Tee)*	4	102	2	51	4	102 Ext.	13.89	6.31
233-4430 (Tee)*	4	102	3	76	4	102 Ext.	14.06	6.39
233-4422 (Cross)*	4	102	2 x 2	51 x 51	4	102 Ext.	15.18	6.90
233-4433 (Cross)*	4	102	3 x 3	76 x 76	4	102 Ext.	15.54	7.06
233-4432 (Cross)*	4	102	3 x 2	76 x 51	4	102 Ext.	17.29	7.86

* Without cage assembly

NOTE: Use OPW89 Extractor Wrenches (See page 119)

Replacement Parts

OPW 233V and 233VM

Part #	Description
H11930	2" Cage SA
H14578M	O-Ring for 233VP-6046

Listings and Certifications



Look for this label for authentic OPW EVR Approved products.

OPW 233 Series Extractor Fittings are EVR Approved for E85

OPW 233 Series Extractor Fittings

OPW 233 Series Extractor Fittings thread into 4 NPT openings on underground storage tanks. A 4" riser pipe threads into the top of the 233 for use in Stage I Vapor Recovery or to access a ball float. The 233 Extractor Fittings have threaded single-outlet connections for attaching tank vent lines or multiple outlets used to manifold tank vents or accommodate Stage II vapor return lines from dispensers. Internal threads on the 233 are designed to install a ball float or test plug in the extractor.

OPW 233

The OPW 233 Extractor Fittings are designed for use with all OPW 53VML Ball Float Vent Valves that include an extractor cage (the OPW 233 does not include an extractor cage). The 233 Extractor incorporates either single-outlet or multiple-outlet threads.

OPW 233VP Extractor Test Plug

The OPW 233VP Extractor Fitting Test Plug is used on all OPW 233 Series Extractor Fittings. The 233VP incorporates an O-Ring above the threads (on the plug) to isolate the tank from the vent piping systems during a tank test.



TECHNICAL BULLETIN

New Husky 5885 Pressure/Vacuum Vent Valve



Husky Corporation is pleased to introduce our new Phase One EVR approved pressure/vacuum vent valve. Three precision valve assemblies are at the core of our vent valve design. The first overpressure valve is diaphragm operated giving 10 times more sealing force than gravity devices. It consistently opens at 2.5-6" of water column (WC) pressure. The safety overpressure valve is designed to handle high pressure/ high flow conditions. This valve will vent at a rate of 7900 SCFH @ 2 psi. The vacuum valve is also diaphragm operated and provides 10 times more sealing force than gravity devices. It consistently opens at 6"-10" of water (WC) vacuum. An internal wire mesh screen is incorporated into the design of the 5885 vent valve to protect the pressure plate in the event of an improper bulk drop.

The Husky 5885 is the only CARB approved Phase One EVR vent valve available for use in California. The valve is identified with yellow colored labels one of which boldly identifies the vent valve as EVR approved.

Our 4885 and 4620 pressure/vacuum vent valves are approved for non-EVR phase one systems and are identified with green colored labels. This color coding method makes vent valve identification easily determined from ground level.



The 5885, 4885 and 4620 pressure/vacuum vent valves meet the new EPA standards outlined in 40 CFR Part 63 [EPA-HQ-OAR-2006-0406, FRL-8684-8] RIN 2060-AM74 National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities.

The 5885, 4885 and 4620 pressure/vacuum vent valves are designed and factory tested to perform at less than 1/3 the allowable leak rate as defined by CARB test method CP-201. This lower leak rate allows up to three pressure vent valves to be installed within one system. It should be noted that during peak fueling hours at high output fueling stations (without phase two vapor recovery) low flow rate issues may be experienced due to an increase in negative pressure in one or more of the UST/AST's. To ensure peak flow rate performance in this situation it is recommended that the UST/AST's be manifold together with three pressure vent valves. This configuration will allow greater responsive venting to the negative pressure that develops within the station's UST/AST's during peak fueling times.

To review the CARB approval letter concerning the new Husky 5885 including the applicable executive orders you can find it here:

<http://www.arb.ca.gov/vapor/approval/cal-08/08-04.pdf>

For further information or questions about this product offering please contact Joe Laschke Husky Technical Service Representative at jlaschke@husky.com or our customer service department at 800-325-3558



Franklin Electric
FUELING SYSTEMS



ENHANCED

**VAPOR
RECOVERY**



Prevent clean air from being pulled back into the storage tank and protect the station's fuel assets.



THE ORIGINAL EVR SYSTEM



EASY, EFFICIENT, RELIABLE PHASE II ENHANCED VAPOR RECOVERY

Since its approval by the California Air Resources Board (CARB) in 2005 as the first Phase II Enhanced Vapor Recovery (EVR) System, the HEALY™ vacuum-assisted system has maintained its position as the world's leading Phase II solution for over 20 years. Driven by a commitment to continuous improvement, Franklin Electric has consistently collaborated with its customers to refine and enhance the system, meeting the demands of an ever-evolving market.

LOW PERMEATION COAXIAL VAPOR RECOVERY HOSE

FASTER FUELING, INCREASE PROFITS

- The inverted coaxial design of HEALY™ vapor recovery hoses reduces overall hose diameter while boosting product flow rates by up to 25% compared to balance system hoses.
- Smaller, easy-to-handle hoses enhance the refueling experience for customers.
- Faster fueling times lead to increased car throughput, boosting station profitability.
- Station owners benefit from enhanced operational efficiency and higher sales due to quicker refueling.

LOW PERMEATION COAXIAL
VAPOR RECOVERY HOSE



HEALY™ 900 SERIES EVR NOZZLE

ENSURE AN EASY & CLEAN REFUELING EXPERIENCE

- The HEALY™ 900 Series EVR/ORVR nozzle offers a sleek, user-friendly design compared to bulkier balance system nozzles.
- Dripless and spitless features prevent unintentional fuel spillage, keeping customers and forecourts clean, encouraging repeat business.
- The smart interface design detects if a vehicle has Onboard Refueling Vapor Recovery (ORVR), preventing overpressurization by avoiding clean air intake into the storage tank.

RECONNECTABLE BREAK AWAYS

PROTECT YOUR STATION ASSETS IN CASE OF A DRIVE-OFF

- Stations experience an average of three drive-off events per month, leading to maintenance costs.
- HEALY™ breakaways are certified for multiple reconnects, allow easy reconnection by the station operator without the need for immediate replacement, and minimize operational interruptions, keeping stations running smoothly.
- Significant cost savings in both equipment and downtime compared to balance system breakaways, which are certified for single use and require complete replacement after each drive-off.



RECONNECTABLE
BREAK AWAYS

CLEAN AIR SEPARATOR

EASY INSTALLATION, EFFICIENT OPERATION

- The Clean Air Separator mechanically and passively manages tank pressure to prevent fugitive emissions and eliminate evaporative product loss.
- With no sensor or electrical wiring required, the Clean Air Separator makes for an easily installed, maintenance-free solution.

VACUUM-ASSISTED VAPOR RECOVERY

MAXIMUM PERFORMANCE, MINIMAL MAINTENANCE

- The HEALY™ VP1000 dispenser-mounted vacuum source provides efficient vapor collection and hose clearing with its 1/8 Hp motor.
- One VP1000 can supply the vapor recovery needs for both sides of a blender or non-blender dispenser application.
- The HEALY™ vacuum-assisted system will automatically remove liquid from a vapor path — saving time and money. By comparison, a balance system relies on a liquid removal device which requires verification testing with special positioning.
- Less time spent dealing with maintenance means more money on a station owner's bottom line.



VACUUM-ASSISTED
VAPOR RECOVERY



HEALY™ 900 SERIES
EVR NOZZLE

TOTAL SYSTEM SOLUTIONS™



Franklin Electric
FUELING SYSTEMS

3760 Marsh Rd. • Madison, WI 53718
www.franklinfueling.com • +1 800 225 9787

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FFS-0637 10-24

VAPOR RECOVERY BREAK AWAY VALVES & HOSE ACCESSORIES

HEALY™ vapor recovery break away valves provide full product and vapor shut-off in the event of a drive-off with 350 lbs of separation force. Reduce damage to the dispenser, vehicle, and forecourt with the immediate sealing of both fuel and vapor pathways. Both in-line and swivel break away valve options are certified to be reconnected in the field to help mitigate the cost of separations.



HIGHLIGHTS

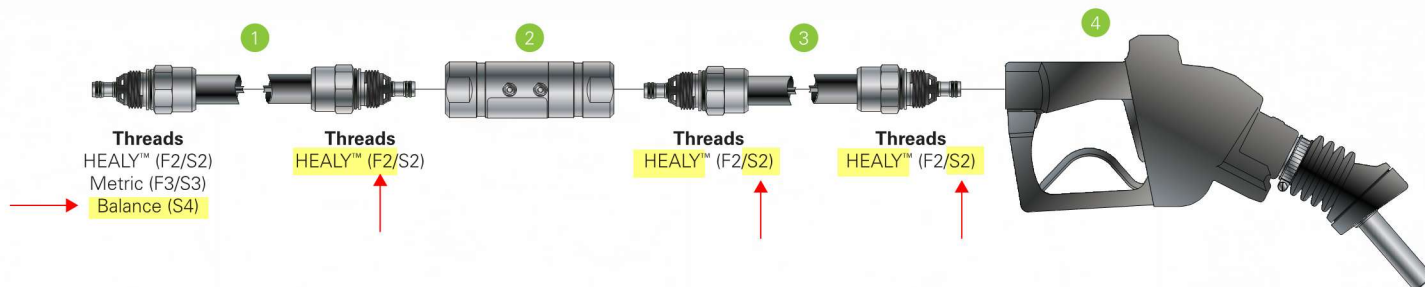
- Provides full-rated product flow of up to 10 GPM.
- Easy on-site reassembly.
- Includes spare shear screw conveniently mounted on the break away valve.
- Reduces fuel spillage and vapor emissions.
- Optional two-piece scuffguard available for in-line option.
- Swivel option includes scuffguard.
- UL listed and CARB VR-201/202 approved.

SPECIFICATIONS

In-Line Break Away Valve Components & Thread Types

For fitting threads F = fixed, S = swivel.

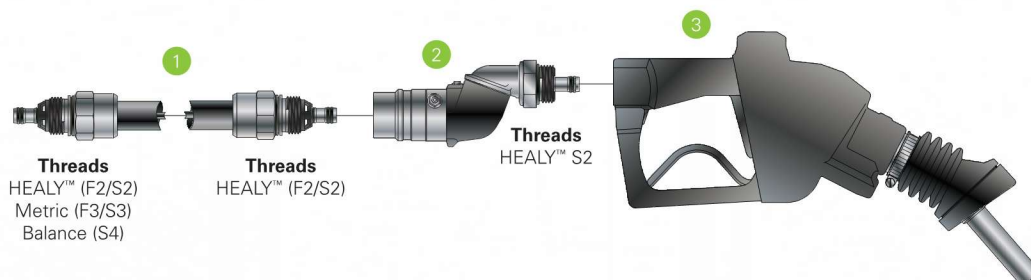
- 1 Whip hose
- 2 In-line break away valve
- 3 Curb hose
- 4 All HEALY™ nozzles



Swivel Break Away Valve Components & Thread Types

For fitting threads F = fixed, S = swivel.

- 1 Curb hose
- 2 Swivel break away valve
- 3 All HEALY™ nozzles



ORDERING INFORMATION

In-Line Break Away Valves



Model	Description
8701VV	In-line break away valve with vapor path shut-off, 350 lbs strength, installed between whip hose and hose, includes one spare shear screw
762	In-line break away scuffguard top (dispenser end)
761	In-line break away scuffguard bottom (nozzle end)
715VV	Repair kit for in-line break away, includes valves and O-rings
787	Replacement shear screw for in-line break away valve, nickle-plated brass
Z055	O-ring kit for in-line break away with nickel-plated shear screw

In-Line Break Away Valves



Model	Description
807	Swivel break away valve with vapor path shut-off, 350 lbs strength, installed between hose and nozzle, includes scuffguard
405417001	Replacement swivel break away scuffguard
787-1	Replacement shear screw for 807 swivel break away valve, nickle-plated

Break Away Valve Reconnection Tool



Model	Description
795	Clamp repair tool for in-line and swivel break away valves

Flow Limiter



Model	Description
1301	Hose flow limiter for 8701VV standard breakaway, installed between breakaway and main hose(CARB and UL Listed)

Hose Adapters



Model	Description
CX6-A	Hose Adapter, non-vapor ready, NPT
CX6-AE	Hose adapter, non-vapor ready, BSP, international only



This Diesel Nozzle is the Cleaner, Greener Choice



Because the OPW 14C diesel-capture nozzle keeps your hands and the environment clean.



14C

Patented
Diesel Capture
Technology

The New OPW 14C Nozzle with patented diesel-capture technology sets a whole new consumer standard and expectation in diesel fueling.

The 14C, with patented diesel-capture technology, allows excess diesel fuel to drain into a uniquely engineered chamber located in the body of the nozzle at the base of the spout to keep the nozzle, dispenser, ground and your customers clean. This excess diesel fuel is then introduced back into the fuel stream.

Visit opwclean14.com to learn **WHY** OPW is the right choice for ensuring a cleaner, greener fueling experience.

OPW 
RETAIL FUELING
a **DOVER** company

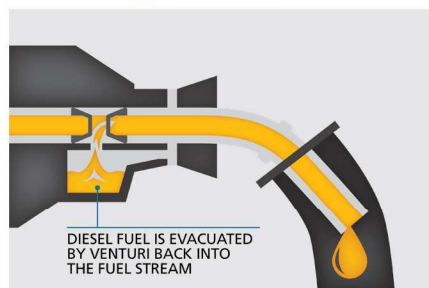
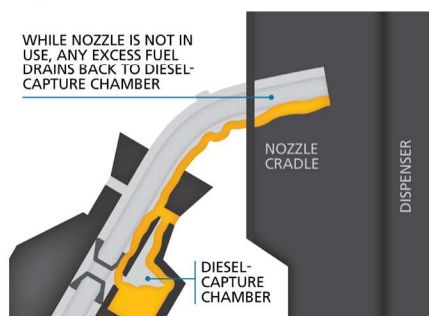
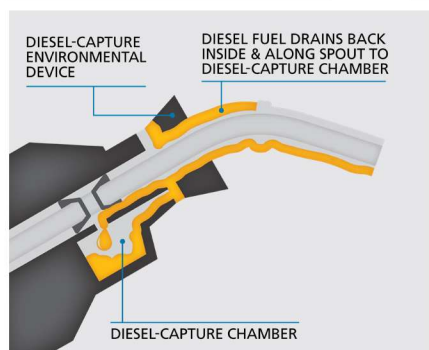
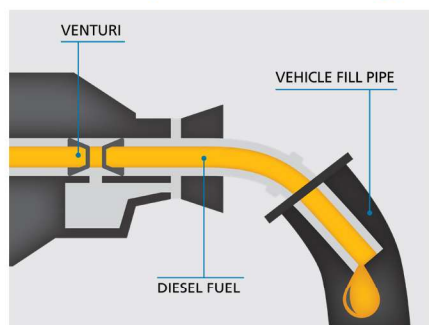
opwglobal.com

DEFINING | WHAT'S NEXT

OPW 14C Diesel Capture Technology Nozzle

The OPW 14C is part of the new OPW 14 Series cleaner fueling experience nozzles, featuring innovative patented* diesel-capture technology. This innovation is designed to provide a cleaner, greener fueling experience for customers while keeping diesel fuel off their hands and off the ground.

Diesel Capture Technology



MATERIALS

- Body:** Aluminum
- Lever & Lever Guard:** Duratuff®
- Packing:** Graphite with Teflon®
- Disc:** Viton®
- Spout:** Aluminum
- Inlet Size:** 3/4" NPT
- Weight:** 2.73 lbs. each
1.25 kg each



14C Series shown with permanently installed Splash Guard

FEATURES & BENEFITS

Safe for Use

- ◆ Diesel Fuel Capture Technology* – the patented technology allows excess diesel fuel to drain into a uniquely engineered chamber located in the body of the nozzle located at the base of the spout. This excess diesel fuel is then introduced back into the fuel stream.
- ◆ Drip Guard – designed to capture any fuel that runs out onto the outside of the nozzle.
- ◆ Compatible for diesel-fuel blends up to B20.
- ◆ Rugged Durability – designed to meet the rigorous demands of high-volume sites.
- ◆ FlowLock™ allows nozzle to shut off when falling out of a vehicle or is tipped up, limiting spillage and unsafe conditions.

Durable and Long-Lasting Design

- ◆ Cycle tested and proven to last longer than 1 million cycles.

- ◆ Durable lever guard that won't scratch your customers' vehicles – made from Duratuff®.

Cleaner Fueling Experience for the Customer

- ◆ Easy to use – utilizing Accu-Stop® to-the-penny Flow Control Technology.
- ◆ Attractive two-piece hand insulator which includes NEWGARD™ barrel cover and colored scuff guard, is the most comfortable nozzle in the industry to use.
- ◆ Convenient – one-finger hold-open clip that is easy to set the flow rate.

Design Working Pressure

- ◆ 50 psi (3.45 bar) maximum pressure.

LISTINGS & CERTIFICATIONS

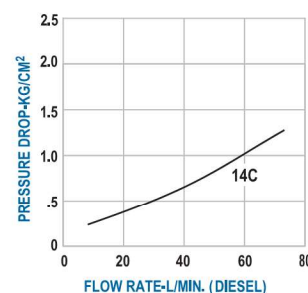


*US PATENTS 7,134,580 AND 9,126,820.
OTHER PATENTS-PENDING

ORDERING SPECIFICATIONS

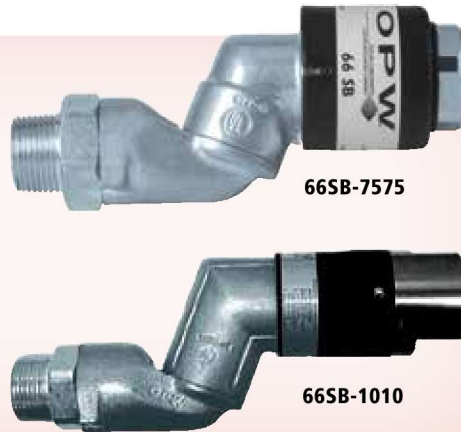
Scuff Guard Color	14C Diesel Nozzles
Green	14C-0100
Silver	14C-0200
Red	14C-0300
Black	14C-0400
Blue	14C-0500
Gold	14C-0750
Orange	14C-0800
Yellow	14C-0900

GPM FLOW CHART



Materials

Body: Aluminum
Sleeve: Nylon, HDPE
Seals: Viton®
Spring: Stainless steel
Poppet: Aluminum
Packed: 20 per Case



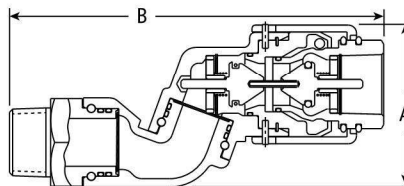
Features

- ◆ UL and ULC listed for use in gasoline, diesel and up to 10% ethanol blends. Specific listings available at www.opwglobal.com.
- ◆ Pull Force – the 66SB will break away with a pull force of no more than 350 lbs.
- ◆ Easily Reconnected at Waist Height – after relieving line pressure, simply push coupling halves together until latched. Reconnection force is approximately 15 lbs.
- ◆ Protected Coupling and Poppet – the breakaway's poppet and sealing surface are protected from impact during separation by a plastic sleeve.

- ◆ Reduces Connections – the single-unit design replaces the standard swivel, breakaway and whip hose, eliminating possible leak points.
- ◆ Double O-Ring Seal – both swivel joints are protected by a double O-Ring design.

Design working pressure

- ◆ 50 psi (3.45 bar) maximum pressure.



Ordering Specifications

Product #	Size	Weight	
		lbs.	kg
66SB-7575	3/4" x 3/4" (NPT)	1	0.45
66SB-1010	1" x 1" (NPT)	1.82	0.83

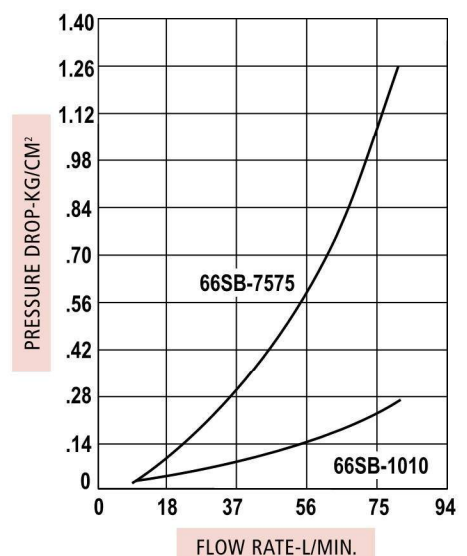
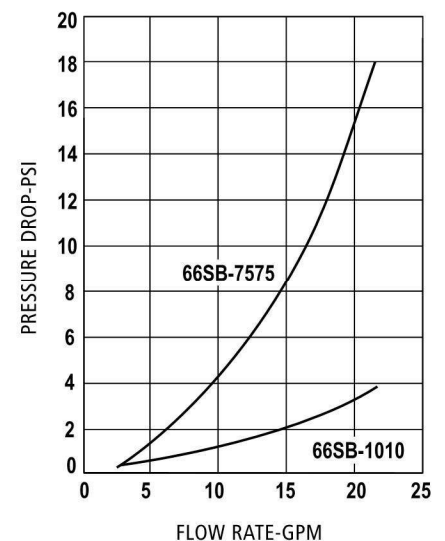
Dimensions

Product #	A		B	
	in.	mm	in.	mm
66SB-7575	2 1/2"	64	5 29/32"	150
66SB-1010	3 11/32"	85	8 1/2"	216

66SB Instruction Sheet Order Number: **F-69**

OPW 66SB Swivel Breakaway

The OPW 66SB Swivel Breakaway is intended for easy installation at the nozzle inlet. The compact, lightweight design incorporates a 360° swivel rotation at both the male end and middle joint, with a simple and easily-reconnectable breakaway on the opposite end.



Listings and Certifications



FLEXSTEEL® FUTURA

Flexsteel® Futura™ with Futurin™ cover resists cracking and fading, designed to dispense a wide range of fuels, up to E10 and B5, with extreme durability. The wire braid construction provides excellent kink resistance, low computer creep and long service life. UL 330 and CUL approved.

Performance + Specs

Construction Tube Nitrile (NBR)	Cover Futurin™ (ORS)				
Reinforcement Wire Braid	Temperature Range -40°F / -40°C ~ 140°F / 60°C				
Packaging <table><tr><td>5/8" and 3/4"</td><td>Reels or coupled lengths, 10 pieces per box</td></tr><tr><td>1"</td><td>Reels or coupled lengths, 5 pieces per box</td></tr></table>	5/8" and 3/4"	Reels or coupled lengths, 10 pieces per box	1"	Reels or coupled lengths, 5 pieces per box	Branding CONTINENTAL 3/4" (19.0MM) CRUUS FLEXSTEEL FUTURA GASOLINE HOSE 559N MADE IN USA
5/8" and 3/4"	Reels or coupled lengths, 10 pieces per box				
1"	Reels or coupled lengths, 5 pieces per box				
Coupling Available as factory coupled assemblies only	Non Stock / Sizes For special production run minimum requirements, Contact Customer Service				

Branding

CONTINENTAL 3/4" (19.0MM) CRUUS FLEXSTEEL FUTURA GASOLINE HOSE 559N MADE IN USA

FLEXSTEEL® FUTURA #MAINIMAGE#

Order Codes: 532-327 (Black), 532-331 (Green), 532-332 (Red), 532-333 (Blue), 532-335 (Yellow)

Product Numbers

ID (in)	ID (mm)	OD (in)	OD (mm)	Length (ft)	Color	Notes	WP (PSI)	WP (MPa)	Weight (lbs/ft)	Weight (kg/m)	Part Number
5/8	15.88	1.00	25.40	9'	Black	M x MS	50	0.34	0.40	0.60	20022028
				9'	Black	M x MS	50	0.34	0.40	0.60	20022029
				14'	Black	M x MS	50	0.34	0.40	0.60	20022039
				8"	Black	M x M	50	0.34	0.40	0.60	20021926
				9"	Black	M x M	50	0.34	0.40	0.60	20021927
				8"	Blue	M x M	50	0.34	0.40	0.60	20024755
				14'	Red	M x M	50	0.34	0.40	0.60	20022147
				8"	Yellow	M x M	50	0.34	0.40	0.60	20024783
3/4	19.10	1.13	28.70	9'	Black	M x M	50	0.34	0.45	0.67	20021938
				8'	Black	M x M	50	0.34	0.45	0.67	20021937
				8"	Black	M x M	50	0.34	0.45	0.67	20021965
				8' 6"	Black	M x MS	50	0.34	0.45	0.67	20022089
				45'	Black	M x M	50	0.34	0.45	0.67	20655291
				9'	Black	M x MS	50	0.34	0.45	0.67	20022068
				8' 6"	Black	M x M	50	0.34	0.45	0.67	20021962
				20'	Black	M x M	50	0.34	0.45	0.67	20021948
				8' 6"	Black	M x MS	50	0.34	0.45	0.67	20113260
				9'	Blue	M x M	50	0.34	0.45	0.67	20754404
				10'	Blue	M x M	50	0.34	0.45	0.67	20175325
				9'	Green	M x M	50	0.34	0.45	0.67	20022118
				4'	Green	M x MS	50	0.34	0.45	0.67	20030066
				5'	Green	M x M	50	0.34	0.45	0.67	20287188
				8"	Red	M x M	50	0.34	0.45	0.67	20297758
				10'	Red	M x M	50	0.34	0.45	0.67	20022151
				10'	Yellow	M x M	50	0.34	0.45	0.67	20113657
				9'	Yellow	M x M	50	0.34	0.45	0.67	20099746
1	25.40	1.38	35.10	8'	Black	M x M	50	0.34	0.61	0.91	20021980
				20'	Black	M x M	50	0.34	0.61	0.91	20021991
				10'	Black	M x M	50	0.34	0.61	0.91	20021982
				12'	Black	M x M	50	0.34	0.61	0.91	20021984
				8"	Black	M x M	50	0.34	0.61	0.91	20022010
				10'	Green	M x MS	50	0.34	0.61	0.91	20046211

Red Thread™ IIA Primary Fittings

(Product Data)



90° and 45° Elbow, Flange and Tee

Pipe Size		A		B		C		D		E		F		O		X ₁ ⁽¹⁾		X ₂ ⁽¹⁾	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
2	50	3 3/8	86	2 1/4	57	3/4	19	4 3/4	121	3/4 D-4 Holes	19 D-4 Holes	2 5/8	67	6	152	1 3/8	35	1 1/2	38
3	80	4 5/8	117	2 5/8	67	1 3/8	35	6	152	3/4 D-4 Holes	19 D-4 Holes	3 3/4	95	7 1/2	191	1 5/8	41	1 7/8	48
4	100	5 1/8	130	2 5/8	67	1 3/8	35	7 1/2	191	3/4 D-4 Holes	19 D-4 Holes	3 7/8	98	9	229	1 1/2	38	1 7/8	48

⁽¹⁾ X dimension is a nominal makeup dimension for layout only. Do not use for assembly dimensions.

90° Elbow

(Belled Ends)

Part	Part Number
2" 90° Elbow	012020-360-4
3" 90° Elbow	012030-360-4
4" 90° Elbow	012040-360-4

45° Elbow

(Belled Ends)

Part	Part Number
2" 45° Elbow	012020-310-4
3" 45° Elbow	012030-310-4
4" 45° Elbow	012040-310-4

Flange

(Belled Ends)

Part	Part Number
2" Flange	012020-170-4
3" Flange	012030-170-4
4" Flange	012040-170-4

Tee

(Belled Ends)

Part	Part Number
2" Tee	012020-410-4
3" Tee	012030-410-4
4" Tee	012040-410-4

Sleeve Coupling, End Cap and Nipple

Pipe Size		Sleeve Coupling				End Cap				Nipple (Overall Length "A")				
		A		X ₁ ⁽¹⁾		A		X ₁ ⁽¹⁾		4"	6"	8"	10"	12"
in	mm	in	mm	in	mm	in	mm	in	mm	102 mm	152 mm	203 mm	254 mm	305 mm
2	50	6	152	2 1/8	54	2 3/4	70	1 3/8	35	†	†	†	†	†
3	80	6	152	2 3/8	60	3 1/4	83	1 3/4	44	-	†	†	†	†
4	100	7	178	2 7/8	73	3 3/4	95	1 5/8	41	-	†	†	†	†

⁽¹⁾ X dimension is a nominal makeup dimension for layout only. Do not use for assembly dimensions.

† Available from stock.

Sleeve Coupling

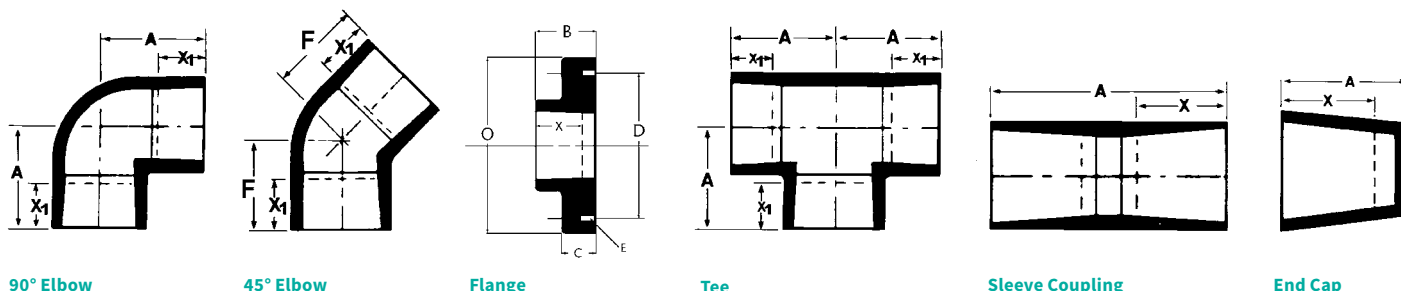
(Belled Ends)

Part	Part Number
2" Sleeve Coupling	012020-101-8
3" Sleeve Coupling	012030-101-8
4" Sleeve Coupling	012040-101-4

End Cap

Part	Part Number
2" End Cap	012020-180-4
3" End Cap	012030-180-4
4" End Cap	012040-180-4

View of Fitting Illustrations



90° Elbow

45° Elbow

Flange

Tee

Sleeve Coupling

End Cap

Threaded Adapter⁽²⁾ - NPT Thread

Pipe Size		Bell x Male						Spigot x Male				Bell x Female				Spigot x Female			
		A		B		X ₁ ⁽¹⁾		A		B		A		X ₁ ⁽¹⁾		A		B	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
2	50	4 ¼	108	2	51	1 ¾	35	3 ⅝	92	2	51	3 ½	89	1 ¾	35	3 ⅞	98	2 ⅛	54
3	80	5 ½	140	3	76	1 ⅝	41	4 ⅝	117	3	76	4 ½	114	1 ⅝	41	4 ¾	121	3 ⅛	79
4	100	5 ½	140	4	102	1 ½	38	4 ⅞	124	4	102	4 ½	114	1 ½	38	4 ⅞	124	4 ⅛	105

⁽¹⁾X dimension is a nominal makeup dimension for layout only. Do not use for assembly dimensions.

Bell x Male (BxM)

Part	Part Number
2" BxM	012020-191-4
3" BxM	012030-191-4
4" BxM	012040-191-4

Bell x Female (BxF)

Part	Part Number
2" BxF	012020-194-4
3" BxF	012030-194-4
4" BxF	012040-194-4

Spigot x Male (SxM)

Part	Part Number
2" SxM	012020-192-4
3" SxM	012030-192-4
4" SxM	012040-192-4

Spigot x Female (SxF)

Part	Part Number
2" SxF	012020-195-4
3" SxF	012030-195-4
4" SxF	012040-195-4

Reducer Bushing

Pipe Size		A		X ⁽¹⁾	
in	mm	in	mm	in	mm
2 x 1	50 x 25	1 ¾	44	*	*
2 x 1 ¼	50 x 32	2	51	*	*
2 x 1 ½	50 x 40	1 ¾	44	*	*
3 x 2	80 x 50	2 ¼	57	1 ½	38
4 x 3	100 x 80	2 ¾	60	1 ⅞	48

⁽¹⁾X dimension is a nominal makeup dimension for layout only. Do not use for assembly dimensions.

* Also available with British Standard Threads. Specify when ordering.

Part	Part Number
2" x 1" Female NPT	012020-233-4
2" x 1 ¼" Female NPT	012020-232-4
2" x 1 ½" Female NPT	012020-231-4
3" x 2" Red. Bushing	012030-231-4
4" x 3" Red. Bushing	012040-231-4

Saddle

Pipe Size		A		B		X ⁽¹⁾	
in	mm	in	mm	in	mm	in	mm
2 x 1 ½	50 x 40	2 ⅞	73	4	102	1	25

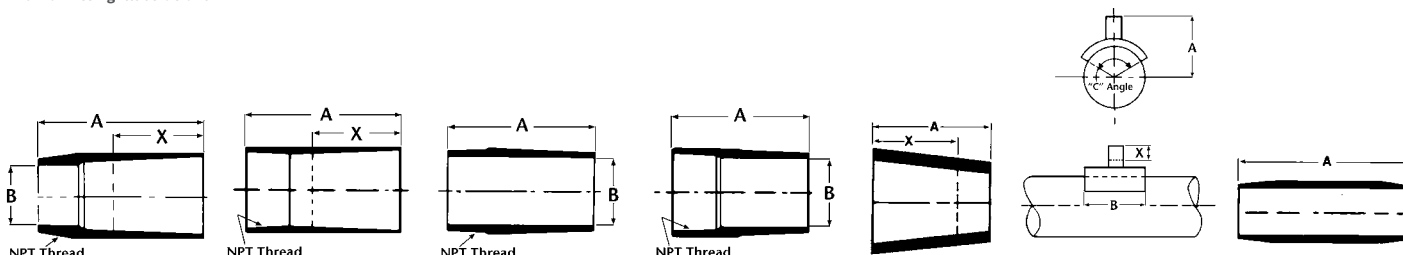
Part	Part Number
2" x 1 ½" Female NPT	012020-516-4

Nipple

Part	Part Number
2" x 4"	012020-004-5
2" x 6"	012020-006-5
2" x 8"	012020-008-5
2" x 10"	012020-010-5
2" x 12"	012020-012-5
3" x 6"	012030-006-5
3" x 8"	012030-008-5
3" x 10"	012030-010-5
3" x 12"	012030-012-5

Part	Part Number
4" x 6"	012040-006-4
4" x 8"	012040-008-4
4" x 10"	012040-010-4
4" x 12"	012040-012-4

View of Fitting Illustrations



Threaded Adapter - BxM

Threaded Adapter - BxF

Threaded Adapter - SxM

Threaded Adapter - SxF

Reducer Bushing

Saddles

Nipple

Secondary Containment Fittings

90°, 45° Elbow, Tee, Sleeve Coupling, Termination Fitting

Pipe Size		A		B		C		D		E		F		G	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
3	80	6	152	7	178	14	356	3	76	2 ½	64	2 ½	64	8	203
4	100	7 ½	191	8	203	14	356	3	76	3	76	2 ½	64	8 ½	216
6	150	8	203	9	229	16	406	4	102	4	102	3	76	11	279

90° Elbow

Part	Part Number
3" 90° SC Elbow	012030-360-3
4" 90° SC Elbow	012040-360-3
6" 90° SC Elbow	012060-360-9

45° Elbow

Part	Part Number
3" 45° SC Elbow	012030-310-3
4" 45° SC Elbow	012040-310-3
6" 45° SC Elbow	012060-310-9

Tee

Part	Part Number
3" SC Tee	012030-410-3
4" SC Tee	012040-410-3
6" SC Tee	012060-410-9

Sleeve Coupling

Part	Part Number
3" SC Sleeve Coupling	012030-101-3
4" SC Sleeve Coupling	012040-101-3
6" SC Sleeve Coupling	012060-101-9

Termination Fitting

(with NPT TAP)

Part	Part Number
3" x 2" WITH ¾ NPT Tap	012030-236-3
4" x 3" WITH ¾ NPT Tap	012040-236-3
6" x 4" WITH ¾ NPT Tap	012060-234-7

Termination Fitting

(without TAP)

Part	Part Number
3" x 2" Without Tap	012030-235-3
4" x 3" Without Tap	012040-235-3
6" x 4" Without Tap	012060-235-9

Sleeve Coupling

(One-peice, scarfed O.D.)

Pipe Size		A		X ⁽¹⁾	
in	mm	in	mm	in	mm
2	50	5	127	2 ½	54
3	80	6	152	2 ¾	60
4	100	6	152	2 ¾	73

Part	Part Number
2" SC Sleeve Coupling	012020-101-9
3" SC Sleeve Coupling	012030-101-9
4" SC Sleeve Coupling	012040-101-9

Threaded Adapter

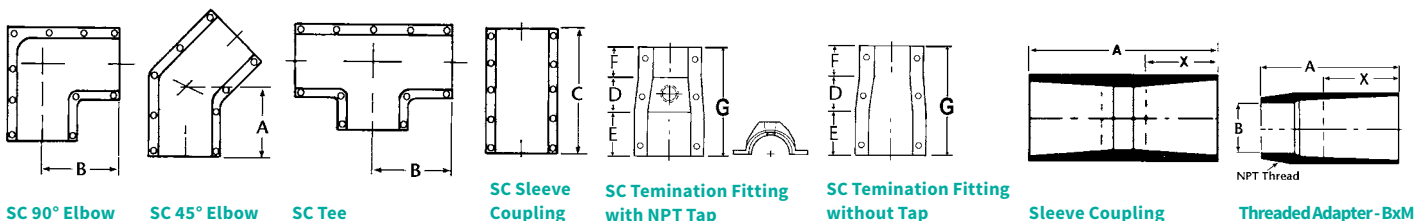
(Bell x Male, scarfed O.D.)

Pipe Size		A		B		X ⁽¹⁾	
in	mm	in	mm	in	mm	in	mm
2	50	4 ¼	108	2	51	1 ¾	35
3	80	5 ½	140	3	76	1 ¾	41
4	100	5 ½	140	4	102	1 ½	38

Part	Part Number
2" B x M Threaded Adapter	002020-191-7
3" B x M Threaded Adapter	002030-191-7
4" B x M Threaded Adapter	002040-191-7

⁽¹⁾ X dimension is a nominal makeup dimension for layout only. Do not use for assembly dimensions.

View of Fitting Illustrations



Crossover 45° Elbow, Crossover Tee, Crossover Nipple

Pipe Size		Crossover 45				Crossover Tee				Crossover Nipple (Overall Length "C")	
		A1		A2		B1		B2		6"	8"
in	mm	in	mm	in	mm	in	mm	in	mm	152 mm	203 mm
3	80	6	152	4 ¾	121	7	178	5 ½	140	†	-
4	100	7 ½	191	5 ½	140	8	203	6 ¾	162	†	-
6	150	-	-	-	-	-	-	-	-	-	†

† Available from stock.

Crossover 45° Elbow

Part	Part Number
3" 45° SC Crossover	012030-311-3
4" 45° SC Crossover	012040-311-3

Crossover Tee

Part	Part Number
3" SC Crossover Tee	012030-411-3
4" SC Crossover Tee	012040-411-3

Crossover Nipple

(Scarf both ends)

Part	Part Number
3" x 6" Crossover Nipple	012030-006-7
4" x 6" Crossover Nipple	012040-006-7
6" x 8" Crossover Nipple	012060-008-7

Ruducer Bushing

(Scarfed O.D.)

Pipe Size		A		X ⁽¹⁾	
in	mm	in	mm	in	mm
3 x 2	80 x 50	2 ¼	57	1 ½	38
4 x 3	100 x 80	2 ¾	60	1 ⅞	48

⁽¹⁾ X dimension is a nominal makeup dimension for layout only. Do not use for assembly dimensions.

Part	Part Number
3" x 2" Reducer Bushing	012030-231-7
4" x 3" Reducer Bushing	012040-231-7

Saddle

Pipe Size		A		B		X ⁽¹⁾	
in	mm	in	mm	in	mm	in	mm
3 x 2	80 x 50	4	102	6	152	1 ⅜	35
4 x 2	100 x 50	4 ½	114	6	152	1 ⅜	35
4 x 3	100 x 80	5 ¼	133	6	152	1 ⅝	41
3 x 1	80 x 25	3 ½	89	6	152	*	*
3 x 1 ¼	80 x 32	3 ½	89	6	152	*	*
3 x 1 ½	80 x 38	3 ½	89	6	152	*	*
4 x 1	100 x 25	4	102	6	152	*	*
4 x 1 ¼	100 x 30	4	102	6	152	*	*
4 x 1 ½	100 x 40	4	102	6	152	*	*

* NPT threads.

Centralizer

Part	Part Number
2" x 3" Centralizer	013020-650-3
3" x 4" Centralizer	013030-651-4
4" x 6" Centralizer	013040-650-6

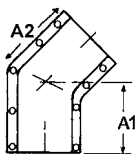
Belled Outlet

Part	Part Number
3" x 2" Saddle	012030-521-4
4" x 2" Saddle	012040-521-4
4" x 3" Saddle	012040-531-4

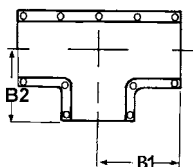
Female NPT Outlet

Part	Part Number
3" x 1" Saddle	012030-511-4
3" x 1 ¼" Saddle	012030-512-4
3" x 1 ½" Saddle	012030-516-4
4" x 1" Saddle	012040-511-4
4" x 1 ¼" Saddle	012040-512-4
4" x 1 ½" Saddle	012040-516-4

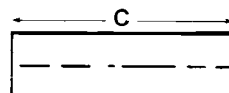
View of Fitting Illustrations



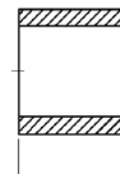
Crossover 45° Elbow



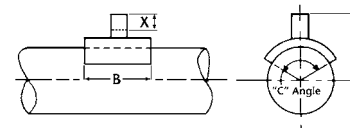
Crossover Tee



Crossover Nipple



Reducer Bushing



Saddle

Sump Fittings

Double Wall Bonded Sump Entry/ Termination Fitting

Pipe Size		A		B		C	
in	mm	in	mm	in	mm	in	mm
3 (3 x 2)	80 (80 x 50)	6 $\frac{7}{8}$	175	4	102	4	102
4 (4 x 3)	100 (100 x 80)	6 $\frac{7}{8}$	175	4	102	5	127

Part	Part Number
3" Bonded Fitting	012030-626-0
4" Bonded Fitting	012040-626-0

Double Wall Gasketed Sump Entry/ Termination Fitting

Pipe Size		A		B		C	
in	mm	in	mm	in	mm	in	mm
3 (3 x 2)	80 (80 x 50)	6 $\frac{7}{8}$	175	4	102	4	102
4 (4 x 3)	100 (100 x 80)	6 $\frac{7}{8}$	175	4	102	5	127

Part	Part Number
3" Gasketed Fitting	012030-620-0
4" Gasketed Fitting	012040-620-0

Bonded Sump Entry Fitting

Pipe Size		A		C	
in	mm	in	mm	in	mm
2	50	6	152	2 $\frac{9}{16}$	65
3	18	6	152	3 $\frac{3}{4}$	95
4	100	6	152	4 $\frac{3}{4}$	121
6	150	6	152	6 $\frac{7}{8}$	175

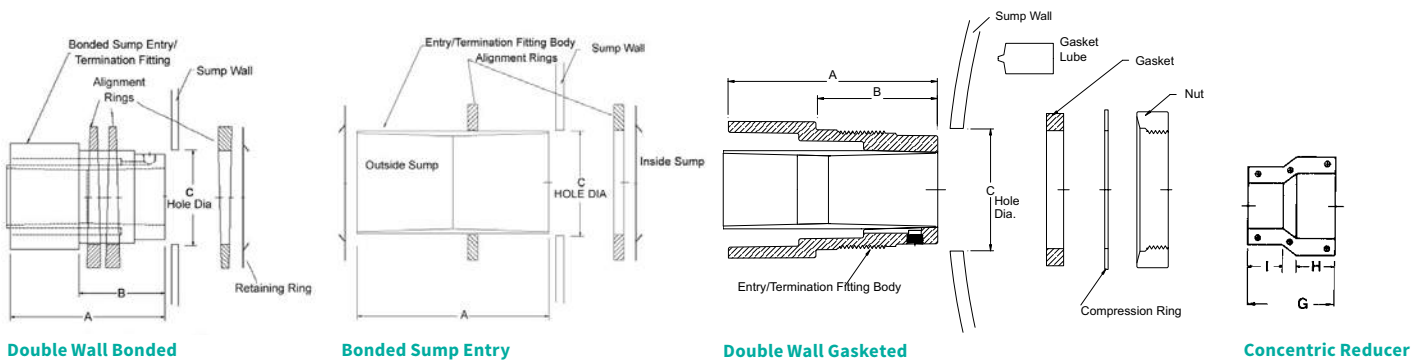
Part	Part Number
2" Bonded Fitting	012020-622-0
3" Bonded Fitting	012030-622-0
4" Bonded Fitting	012040-622-0
6" Bonded Fitting	012060-622-0

Concentric Reducer

Pipe Size		G $\pm \frac{1}{8}$		H $\pm \frac{1}{8}$		I $\pm \frac{1}{8}$	
in	mm	in	mm	in	mm	in	mm
4 x 3	100 x 80	6	152	2 $\frac{1}{2}$	64	2 $\frac{1}{2}$	64
5 x 4	125 x 100	7	178	2 $\frac{1}{2}$	64	2 $\frac{1}{2}$	64
6 x 4	150 x 100	7	178	3 $\frac{1}{4}$	83	2 $\frac{3}{4}$	70

Part	Part Number
4" x 3" Concentric Reducer	012040-238-3
5" x 4" Concentric Reducer	012050-238-3
6" x 4" Concentric Reducer	012060-238-3

View of Fitting Illustrations



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Fiber Glass Systems

17115 San Pedro Avenue, Ste 200

San Antonio, Texas 78232 USA

Phone: 210 477 7500

Fax: 210 477 7560

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FH1250ENG September 2016

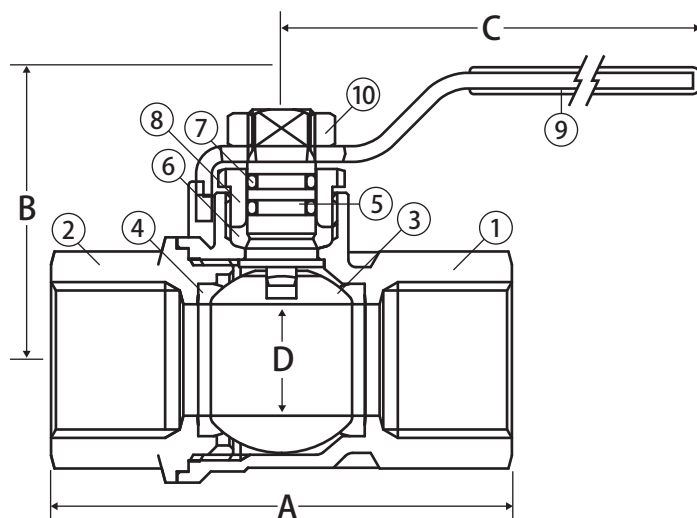
Brass Ball Valve

2 Piece • Full Port • Threaded Connections • 600 WOG



T-100NE

CRN# 0C16887.5469870YTN



Features

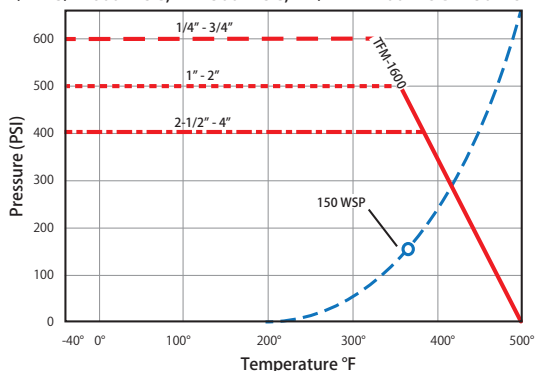
- Blow-out proof stem
- Triple sealing stem with 2 Viton® o-rings and Hostaflon® seal
- 100% leak tested
- 100% Made in Italy
- Leakproof stem - Lifetime Warranty
- 29 in-HG vacuum rating
- Accessories available

Approvals

- UL Listed (1/4" - 2")
 - VQGU - Trim & drain
 - MHKZ - Manual valves
 - YQNZ - Compressed gas shut-off valves
 - YRBX - Flammable liquid shut-off valves
 - YRPV - Gas shut-off valves
 - YSDT - LP gas shut-off valves
 - SFJQ - Valves, refrigerant
- CSA Certified
 - ANSI Z21.15 (.5 PSIG) (1/4" - 3")
 - ASME B16.33 (125 PSIG) (1/2" - 2")
 - ASME B16.38 (125PSIG) (2-1/2" - 4")
 - CGA 3.16 (125 PSI) (1/4" - 4")
 - CGA 9.2 (1/4" - 3")
 - Delta C (3/8" - 3/4")
- MSS SP-110
- ANSI B1.20.1
- FM Approval (1/4" - 3/4" 600 WOG, 1" - 2" 500 WOG)

Valve Seat Rating

1/4" - 3/4" 600 WOG, 1-2" 500 WOG, 2-1/2" - 4" 400 WOG - 150 WSP



Material Specifications

No.	Part	Materials
1	Body	Brass - CW617N
2	End Connection	Brass - CW617N
3	Ball	T.E.A. Coated Brass - CW617N
4	Seat (2)	Hostaflon® TFM 1600
5	Stem	Brass - CW614N
6	Packing	Hostaflon® TFM 1600
7	Stem O-ring (2)	Viton®
8	Packing Gland	Brass - CW614N
9	Handle	Steel - Geomet® Plated
10	Handle Nut	Steel - Geomet® Plated

Dimensions

Part No.	Size	A	B	C	D	Cv
100-701	1/4"	1.86	1.41	2.95	0.39	7.66
100-702	3/8"	1.86	1.41	2.95	0.39	7.77
100-703	1/2"	2.45	1.53	2.95	0.59	16.82
100-704	3/4"	2.71	1.95	3.74	0.79	34.80
100-705	1"	3.30	2.40	4.75	0.97	52.20
100-706	1-1/4"	3.80	2.59	4.75	1.23	112.52
100-707	1-1/2"	4.16	3.22	6.00	1.49	174.00
100-708	2"	5.00	3.40	6.00	1.99	255.20
100-709	2-1/2"	6.06	4.60	8.00	2.46	350.32
100-710	3"	7.08	4.90	8.00	2.99	563.76
100-711	4"	8.57	5.90	9.88	4.00	879.28



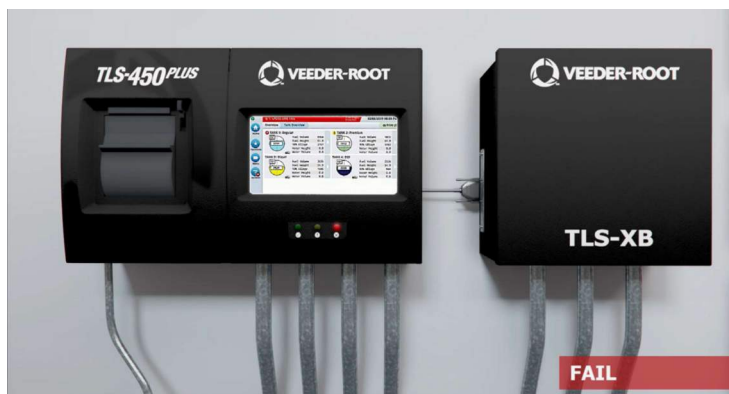
WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer, and lead, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



Electronic Pressurized Line Leak Detection (PLLD)

Why Electronic PLLD for Detecting Line Leaks?

The Veeder-Root Electronic Pressurized Line Leak Detection (PLLD) system is designed to meet your everyday compliance needs. Our patented technology performs precision line leak testing at full pump pressure for 0.1 and 0.2 gallons per hour (gph) and a pressure decay test to meet the U.S. EPA 3.0 gph test requirements. The Veeder-Root Electronic PLLD system works in a variety of pressurized line applications, and offers flexible testing and digital reporting options, helping to detect catastrophic leaks. When paired with a TLS-450PLUS Automatic Tank Gauge (ATG), customers can monitor up to 1178 gallons of fuel line volume.



If the pressure is out of normal range, the TLS-450PLUS will record a failing result and generate an audible and visual alarm for the store operator.

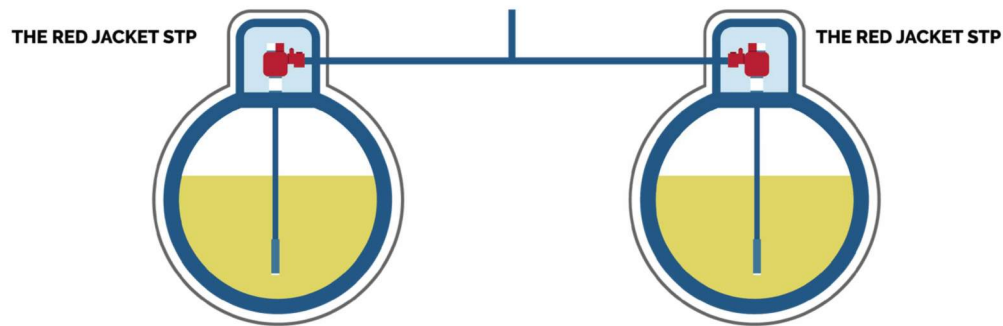


SYSTEM FEATURES

- **Pressure sensor is installed without breaking piping or adding a new sump**, and is constructed with stainless steel to meet the challenges of a highly corrosive environment.
- **Test lines at full pressure** for quick and accurate results, without restricting fuel flow rate.
- **Conducts a 3.0 gph test**, which meets EPA and NFPA 30 release detection requirement for pressurized line systems, once all dispensing is completed to ensure the integrity of the line.
- **Standard 3.0 gph and optional 0.1 and 0.2 gph tests** can be manually performed to reset alarms.
- **Monitors line pressure during dispensing activity** to ensure a catastrophic leak is not occurring during a dispense. If a leak is detected at a pre-set pressure threshold, the system will shutoff power to the Submersible Turbine Pump (STP) to minimize environmental damage and prevent a public safety issue.
- **Built-in calibration verification** to notify the site operator when the pressure transducer is not operating properly.
- **Auto-Confirm function**, when enabled, runs a second line leak test, if an initial test failure occurs, to verify and reduce false alarms due to mechanical issues that may be occurring in other parts of the fueling system.
- **Provides two alarm shutdown options when failure occurs:** Standard Dispenser Shutdown (Alarm and Shutdown) and Optional No Shutdown (Alarm Only).
- **Not impacted by thermal contraction of fuel in the line** due to changes in temperature.

► SUPPORTS MANIFOLDED LINES

One transducer per manifolded line is required



STPs and Piping

Supports a wide-range of pump and pipe types.

Utilizes Swiftcheck Valve on early generation Red Jacket Standard STPs.

For further details, [click here for the Line Leak Application Guide](#)

Line Leak Transducer Specifications

Operating Temperature	-25 °F to +130 °F	
Compatible Fuel Types	• Unleaded Gasoline • Leaded Gasoline • 5% Methanol • Up to 100% Ethanol • 15% MTBE • Diesel	• Biodiesel (Up to B100) • Kerosene • Jet Fuel • Aviation Gasoline • DEF
Line Flow Rate	120 GPM Max w/ Swiftcheck Valve	
Operating Range	0 – 70 PSI	
Proof Pressure	200 PSI	
Maximum Vertical Pipeline Height Above Transducer	11 ft	
Minimum Pump Output Pressure	23 PSI	
Maximum Volume of Fuel Monitored	• TLS-450PLUS – 1178 gallons • TLS-350 – 212 gallons	

TLS-450PLUS Line Leak Digital Transducer Ordering Information

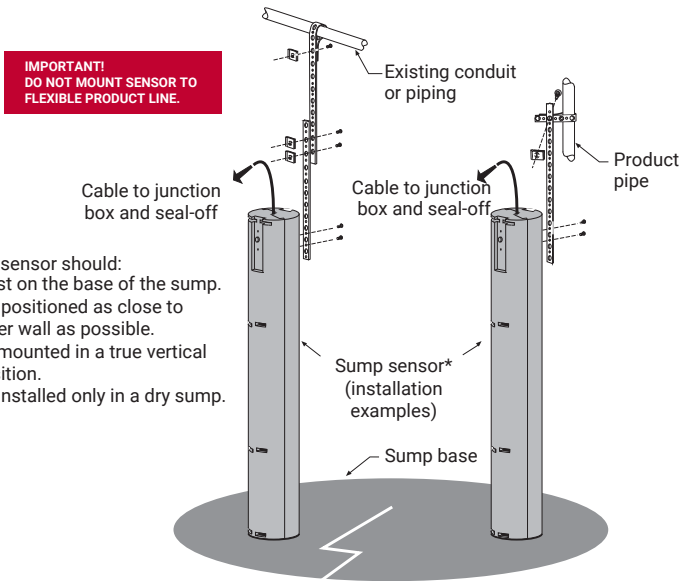
Part Number	Description
859080-001	Digital Pressurized Line Leak Detector (DPLLD) without SwiftCheck Valve, UL
859080-002	Digital Pressurized Line Leak Detector (DPLLD) with SwiftCheck Valve, UL
332812-001	16 Input Universal Sensor Module (USM)
332813-001	5 Universal Input/Output Interface Module (UIOM), Relay Control and Input Signal Monitoring
332972-007	Ultimate Testing: Digital Line Leak Detection*
332972-008	Risk Management: Digital Line Leak Detection*
332972-009	Base Compliance: Digital Line Leak Detection*

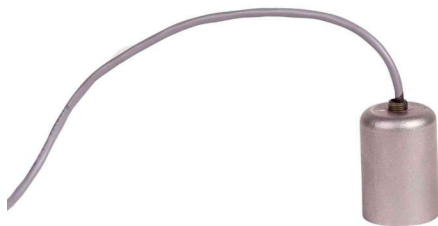
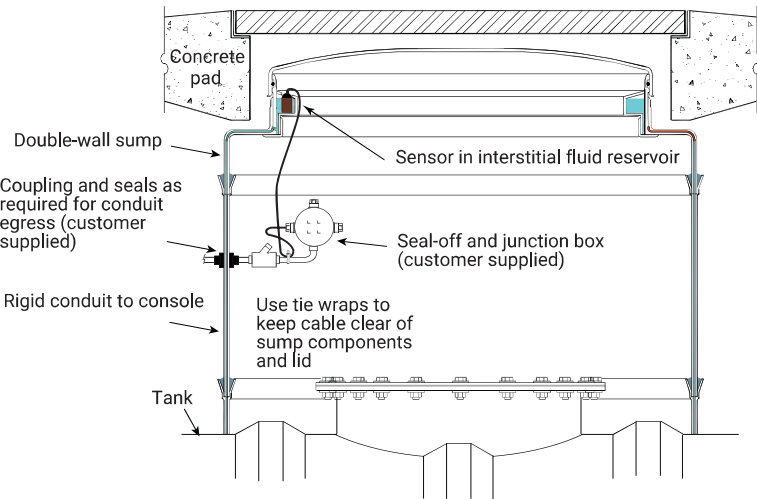
TLS-350 Line Leak Analog Transducer Ordering Information

Part Number	Description
848480-001	Pressurized Line Leak Detector (PLLD) without SwiftCheck Valve, UL
848480-003	Pressurized Line Leak Detector (PLLD) with SwiftCheck Valve, UL
330843-001	6 Input Pressurized Line Leak Interface for use with PLLD Module
330374-001	3 Output Pressurized Line Leak Controller
330160-010	Ultimate Testing: Pressurized Line Leak Detection (PLLD)*
330160-060	Risk Management: Pressurized Line Leak Detection (PLLD)*
330160-050	Base Compliance: Pressurized Line Leak Detection (PLLD)*

* One per system required for precision line leak detection capability.

NOTE: The TLS-350 analog transducer is not compatible with the TLS-450PLUS ATG.

Sensor Description	Piping Sump Sensor	The Piping Sump Sensor is installed in a tank piping sump (STP Containment Sump) and will detect the presence of a liquid.					
Part Number	794380-208						
Category	☐ Discriminating ☒ Non-Discriminating ☐ Position Sensitive			☐ Level Sensing ☐ Static Testing ☐ Hydrostatic			
Fuel Compatibility	☒ Gas ☒ Diesel ☒ Kerosene ☒ Jet Fuel ☒ Aviation Gas			☒ E-15 ☐ E-85 ☐ E-100 ☒ Bio-Diesel 20 ☐ Bio-Diesel 100			
Console Compatibility (*International Only ¹)	Recommended Min. Console Software	Sensor Interface Modules					
		Module Part #	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					
	TLS4 (8601 Series) ¹	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
	TLS4i (8601 Series)						
	TLS4B (8601 Series) ¹		330020-751			6	
	TLS4c (8601 Series)						
	TLS-350/R/PLUS	124/324 or Higher	329358-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
	TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module		1	4
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 detected					
	Fuel Alarm	Liquid detected at a minimum of 1.84" (4.67cm)					
	Sensor Out	Sensor not communicating to ATG/Console					
Installation Kit	330020-076	Piping Sump Sensor Mounting Kit is included (see example installation below).					
Specifications			Example Installation				
Operating Principle	Float/magnetic reed switch		 IMPORTANT! DO NOT MOUNT SENSOR TO FLEXIBLE PRODUCT LINE. Existing conduit or piping Product pipe Cable to junction box and seal-off Cable to junction box and seal-off Sump sensor* (installation examples) Sump base				
Product Activation Height	Liquid 1.84" (4.67cm)						
Operating Temp	+32 to +140°F (0 to +60°C)						
Dimensions	12" (30.5cm) high, 1.9" (4.8cm) dia.						
Miscellaneous/Notes	Standard Cable Length: 12ft (3.66m) Installation kit 330020-076 included (see example installation).						
Third Party Evaluation Links	TLS-3XX/TLS-450 Series Consoles TLS4 (8601 Series) Consoles						
Product Link	Piping Sump Sensor						
Warranty with System	1 Yr Parts & Labor						
Warranty (When purchased separately)	1 Yr Parts Only						
Where Used (Typical)							
☒ Dispenser Pan ☒ Spill Containment ☒ STP Sump ☐ Convault Tank			☐ Annular Space ☐ Monitoring Well ☐ Oil/Water Separator Tank				

Sensor Description	Single-Point Mini-Hydrostatic Sensor for Double-Wall Sumps		The Single-Point Mini-Hydrostatic Sensor accurately detects fluid level change in the interstice reservoir of a double-wall sump. If a leak occurs in the sump interstice, the brine seeps out of the reservoir triggering a low level alarm.			
Part Number	794380-304					
Category	☐ Discriminating ☐ Non-Discriminating ☐ Position Sensitive ☐ Level Sensing ☐ Static Testing ☒ Hydrostatic					
Fuel Compatibility	☒ 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)	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	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					
TLS4 (8601 Series) ¹	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series) ¹		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329958-001	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	Float is in UP position (correct amount of brine in reservoir)				
	Fuel Alarm	Float is in DOWN position (low brine level in reservoir)				
	Sensor Out	Sensor not communicating to ATG/Console				
Specifications			Example Installation			
Operating Principle	Reed Switch/Float					
Product Activation Height	0.79" (2cm)					
Operating Temperature	-13 to +122°F (-25 to +50°C)					
Dimensions	2.5" (6.4cm) high, 1.5" (3.8cm) dia.					
Miscellaneous/Notes	Standard Cable Length: 8ft (2.43m); up to 50% ethylene glycol in water; up to 50% propylene glycol in water; salt brine solution of up to 30% CaCl.					
Third Party Evaluation Links	TLS-3XX/TLS-450 Series Consoles TLS4 (8601 Series) Consoles					
Product Link	Single-Point Mini-Hydrostatic Sensor					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					
Where Used (Typical)	☐ Convault Tank ☒ Annular Space ☐ Monitoring Well ☐ Oil/Water Separator Tank ☐ Dispenser Pan ☐ Spill Containment ☐ STP Sump					

All Up To 10% Off >

 Search

ACCOUNT



Home/ Business & Industrial/ Fuel & Energy/ Oil & Gas/ NEW----- Veeder Root 857390-102 2 to 1 Sensor Input Kit



NEW----- Veeder Root 857390-102 2 to 1 Sensor Input Kit

sku: 252839190363

Qty

1

Details

Brand:

Veeder

Installation

Sensor Input Box Dimensions

The Sensor Input Box housing dimensions are shown in Figure 1.

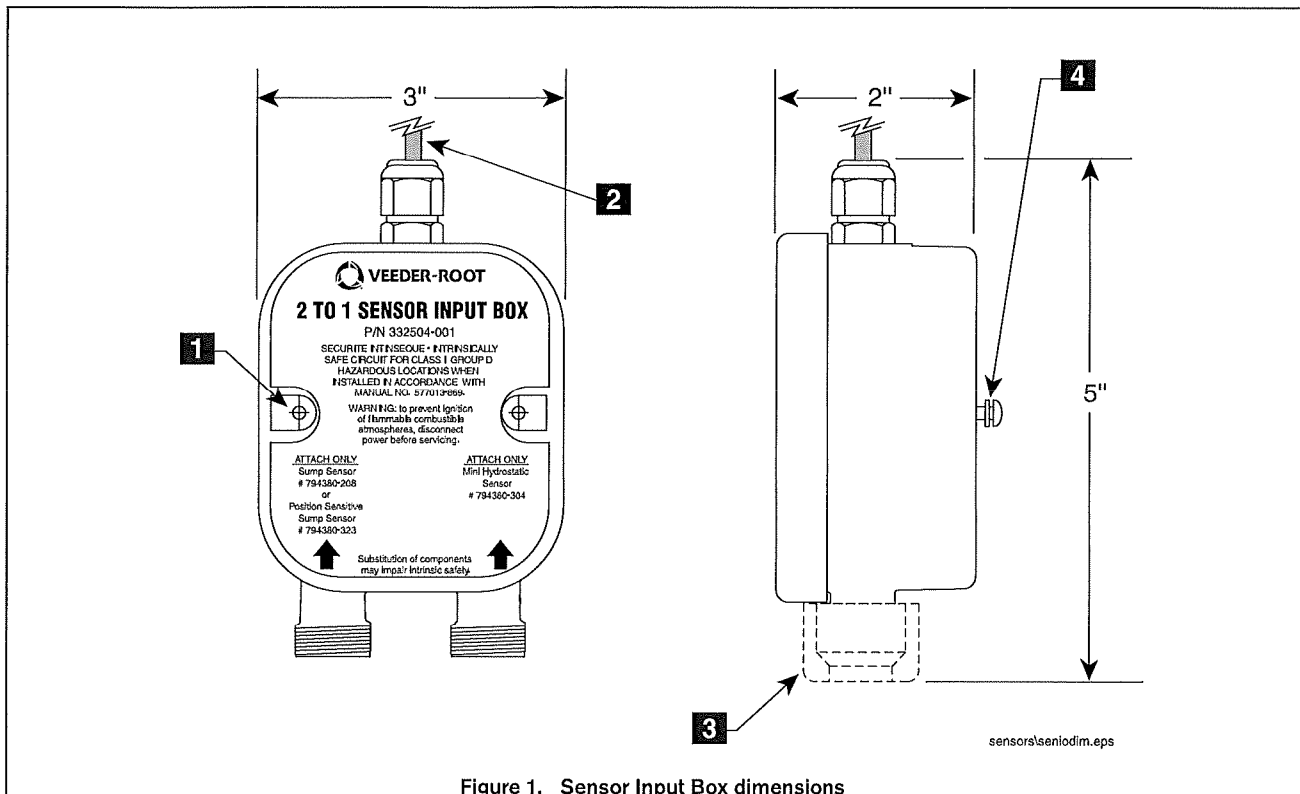


Figure 1. Sensor Input Box dimensions

Legend for numbered boxes in Figure 1

1. Cover screws Tx10 (2)
2. 2 conductor (#22 AWG), PVC jacketed cable (6 ft.)
3. Cord grips bushings and nuts from sensor kits (2 ea.)
4. #10-32 taptite, Phillips head mounting screws (2)

Installation Procedure

Caution! The total length of cable from the console to the sump junction box and from the junction box to both sensors cannot exceed 1000 feet.

1. From the installation kit, install the mini-hydrostatic sensor in the brine sump and either a position sensitive or sump sensor (as ordered) in the base of the sump as per instructions in the manuals included with those sensors. Do not attach the sensor cables at this time.
2. Figure 2 shows an example installation of the Sensor Input Box. Attach the unit where practical to a rigid support member using appropriate fittings from the universal sensor mounting kit.

3. Note which sensor cord grip entry is marked for the mini-hydrostatic Sensor on the label then remove the cover of the Sensor Input Box and set it aside. Keep the o-ring in its groove in the inside of the cover.
4. Attach the connector end of the mini-hydrostatic Sensor's cable to the top of the sensor. Coil up and tie wrap any excess cable. Get the cord grip bushing and nut from the sensor kit and slide them over the end of the sensor cable (tapered end of bushing toward unit).

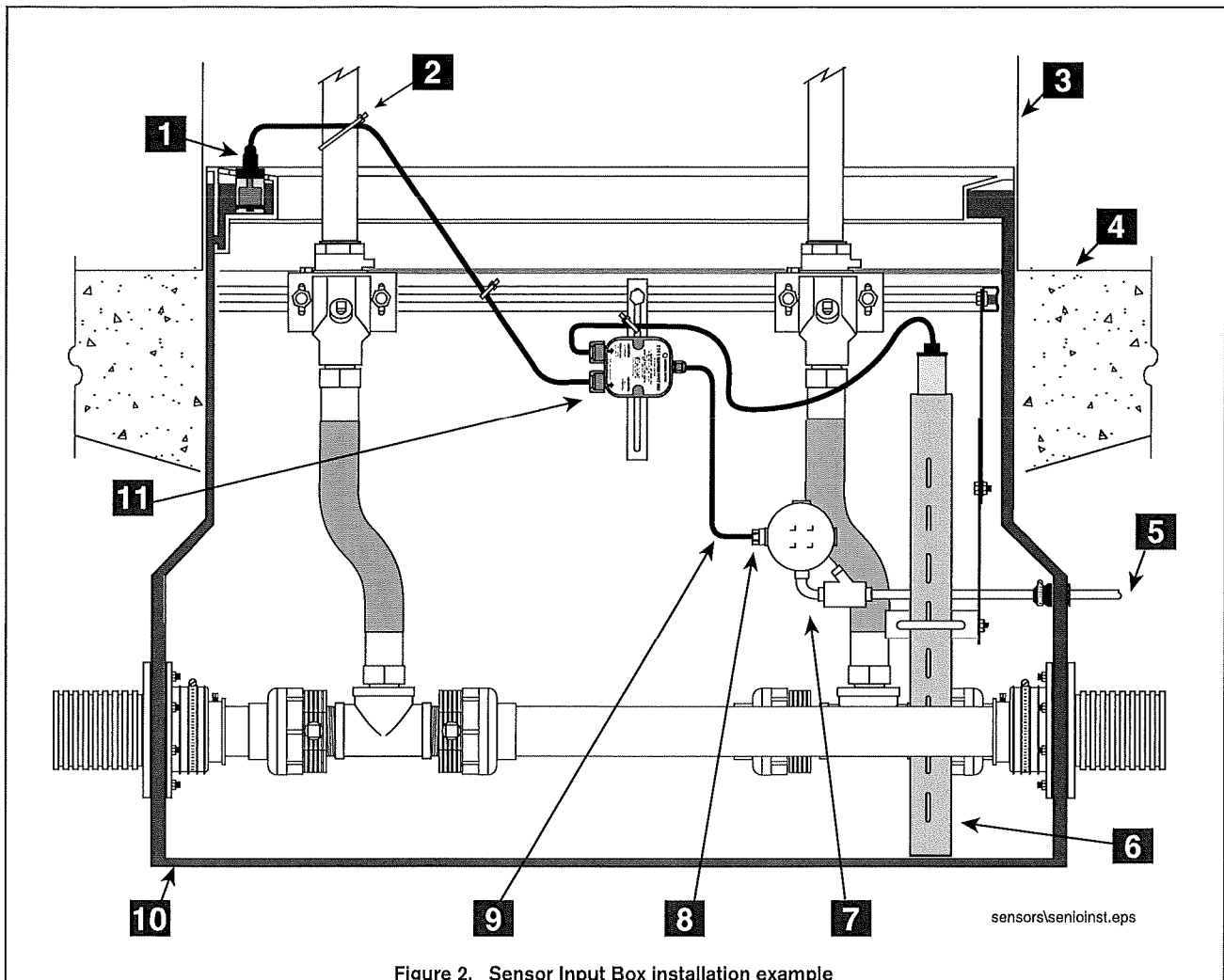


Figure 2. Sensor Input Box installation example

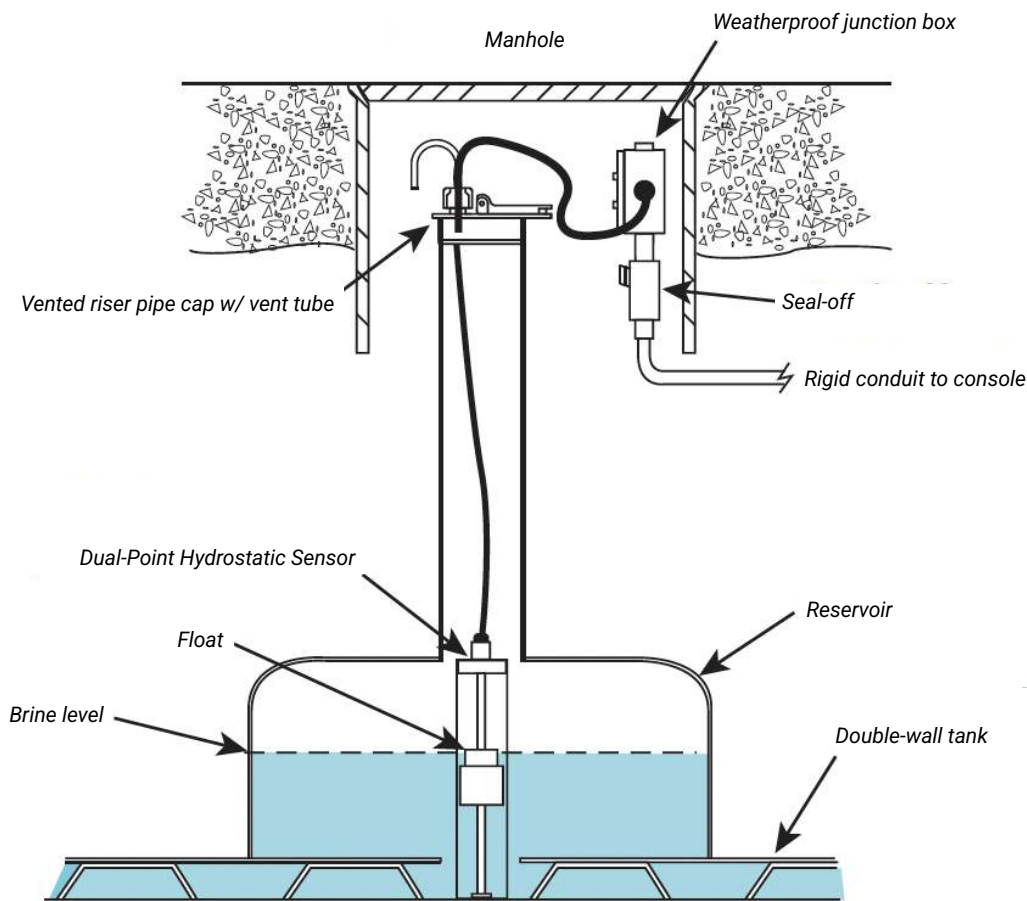
Legend for numbered boxes in Figure 2

1. Mini-hydrostatic sensor
2. Use tie wraps to keep cables clear of sump components
3. Dispenser hydraulics cabinet
4. Top of pedestal island
5. Electrical conduit to TLS (customer supplied)
6. Position sensitive or sump sensor
7. Seal off and junction box (customer supplied)
8. Cord grip from install kit
9. 2 conductor shielded cable
10. Brine filled double wall dispenser sump
11. 2 to 1 Sensor Input Box

Sensor Description	Dual-Point Hydrostatic Reservoir Sensor (Brine-Filled Double-Wall Tank Sensor)		The Hydrostatic Reservoir Sensor accurately detects fluid level change in the reservoir and interstice of a double wall storage tank. The Dual-Point version is ideal for high groundwater areas, and can differentiate between a high level alarm condition and a low level alarm condition. If an inner-wall leak occurs, the brine seeps into the tank triggering a low level alarm. If an outer wall leak occurs, fluid seeps into the interstice triggering a high level alarm.			
Part Number	0794380-303					
Category	☐ Discriminating ☐ Non-Discriminating ☐ Position Sensitive		☐ Level Sensing ☐ Static Testing ☒ Hydrostatic			
Fuel Compatibility	☒ Gas ☒ Diesel ☒ Kerosene ☒ Jet Fuel ☒ Aviation Gas ☒ E-15 ☒ E-85 ☐ E-100 ☒ Bio-Diesel 20 ☒ Bio-Diesel 100 (All blends up to B100) ☒ Green Diesel ☐ DEF ☒ Waste Oil ☒ Motor Oil					
Console Compatibility	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6.A or Higher	0332812-001	Universal Sensor Module (USM)	Up to 4 – TLS-4xx Up to 8 – TLS-4xx w/ opt. TLS-XB	16	Sold Separately
TLS-450	4.A or Higher					
TLS4 (8601 Series)	6.A or Higher	0330020-750	Universal Sensor Input/Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)		0330020-751			6	
TLS4B (8601 Series)						
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	0329358-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		0329356-003	4 Probe / 4 Sensor Interface Module	1	4	Sold Separately
TLS-300i		0330230-001	4 Probe / 8 Sensor Interface Module		8	Included
Alarm Notification	Normal	Float is in the Center position (correct amount of brine in reservoir)				
	Low Liquid	Brine drops below 1.2" (3cm)				
	High Liquid	Brine rises above 13.13" (33.4cm)				
	Sensor Out	Sensor not communicating to ATG/Console				
Specifications						
Operating Principle	Reed Switch / Float					
Product Activation Height	Low: 1.2" (3cm), High: 13.13" (33.4cm)					
Operating Temp	-13°F to +122°F (-25°C to +50°C)					
Dimensions	17.3" (43.9cm) high, 2.5" (6.4cm) diameter					
Miscellaneous/Notes	• Standard Cable Length: 12' (3.65m) • Vented riser cap assembly included • Reservoir solutions: Up to 50% ethylene glycol in water; up to 50% propylene glycol in water; salt brine solution of up to 30% CaCl.					

Specifications (Continued)	
Third Party Evaluation Links	TLS-3XX/TLS-450 Series Consoles TLS4 (8601 Series) Consoles
Product Link	Dual-Point Hydrostatic Reservoir Sensor
Warranty with System	1 Year Parts & Labor
Warranty (When purchased separately)	1 Year Parts Only
Where Used (Typical)	☐ Dispenser Pan ☒ Annular Space ☐ Spill Containment ☐ Monitoring Well ☐ STP Sump ☐ Oil/Water Separator Tank ☐ Convault Tank

Example Installation



Mag Plus Probe For Leak Detection

Third party certification
exceeds EPA
performance standards

**Certified performance for
Inventory control and In-tank
leak detection in gasoline,
diesel and a wide variety of
other approved fluids.**

- Highly accurate Magnetostrictive measurement technology.
- Fast, accurate leak tests.
- MAG Plus Probe third-party certified to exceed U.S. EPA performance standards for 0.1 GPH Volumetric Tank Tightness Testing as well as 0.2 GPH monthly and continuous testing.
- MAG Plus Probe is compatible with all TLS consoles. (Software Version 11 or higher for TLS-350/300)
- Compatible with gasoline, diesel and other approved fluids.
- 2", 3" and 4" float kits available.
- MAG Plus Probe is available in standard and custom lengths up to 12'.

Features

- MAG Plus Probe provides highly accurate trouble free performance in gasoline, diesel and a wide variety of approved fluids.
- Magnetostrictive technology and five-point temperature sensing make it capable of extremely accurate inventory control and in-tank leak testing.



Standard Models:

Mag Plus Probe Form No.	Probe Length	Mag Plus Probe Form No.	Probe Length
846390-101	4'	846390-110	10' 6"
846390-102	5'	846390-111	11'
846390-103	5' 4"	846390-112	12'
846390-104	6'	846390-113	2.0 M
846390-105	7'	846390-114	2.5 M
846390-106	7' 6"	846390-116	2.667 M
846390-107	8'	846390-115	3.0 M
846390-108	9'	*Float hits for the specific fuel application must be ordered separately. Kits are available for 4", 3" and 2" floats. See the Veeder-Root price list for availability.	
846390-117	9' 6"		
846390-109	10'		

Leak test performance (Third Party Certified)

4", 3", and 2" floats supported; 1" floats not supported.

Probe	Test Type	P (D)	P (FA)	Minimum Test Time
MAG Plus	0.1 GPH	99%	1%	3 Hours
MAG Plus	0.2 GPH	99%	<0.1%	2 Hours
MAG Plus with CSLD	0.2 GPH	99%	<0.1%	Continuous

Mag Plus Magnetostrictive probe console compatibility**

Probe	TLS-350R*	TLS-350Plus*	TLS-350*	TLS-350J	TLS-300I	TLS-300C
MAG Plus	•	•	•	•	•	•

• = Standard Feature

* A Four-Input Probe Interface Module is required for use of magnetostrictive probes with the TLS-350 or TLS-350R system.

** Software Version 11 or higher

Probe Improved Specs

Standard	Min. Temp.	Max. Temp.	Min. Fuel*	Min. Water*
MAG	-20° C	+50° C	8"	0.750
MAG Plus	-40° C	+50° C	3.1"	0.630

* With 4" floats

For more information call

1-888-561-7942



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VR P/N 0576047-128 Rev. B VR 7/2011 Printed in USA

VEEDER-ROOT PHASE-TWO WATER DETECTOR

THE FIRST AND ONLY SOLUTION TO DETECT AND MONITOR FOR PHASE SEPARATION

Be Aware of Phase Separation

The use of ethanol-blended fuels in North America has increased dramatically over the past several years. It is known that ethanol/gasoline blends will absorb water that enters the tank. Once the ethanol-blended fuel becomes water-saturated, an ethanol-water layer, known as *phase separation*, drops to the bottom of the tank.

Understand the Risks

Phase separation pumped into your customers' vehicles will shut their engines down on your forecourt. And when their engines stop, your problems have just started. Their vehicles will need costly repairs. But the thing that's even harder to repair is your reputation.

With phase separation, your biggest problem may be lurking out of sight. Now you'll have to deal with purging your system, replacing dispenser filters, and disposing of contaminated fuel—which can easily run more than \$10,000. Given the corrosive nature of phase separation, you may also be faced with expensive repairs and remediation.

Detect Phase Separation

Veeder-Root's Phase-Two Water Detector is the first true solution for phase separation detection. The Phase-Two provides you with early detection and continuous monitoring of in-tank phase separation and delivers alarms to your Veeder-Root automatic tank gauge. It offers you the peace of mind that comes from knowing that you are delivering quality fuel to your customers, that your equipment is safe, and that your brand will not be tarnished.

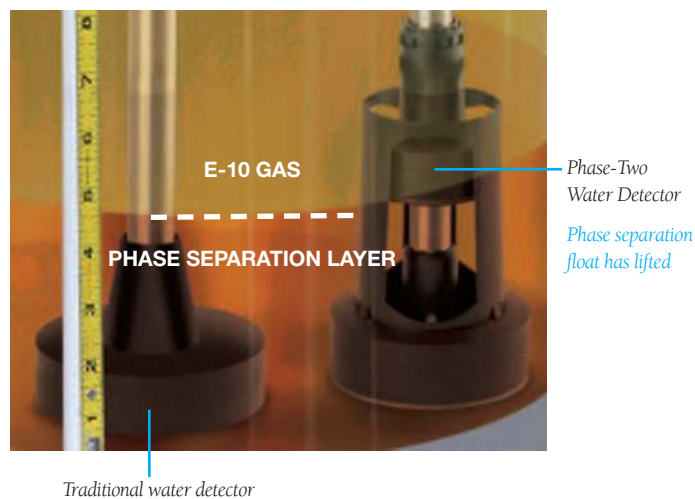
More educational materials are available at
www.detectphaseseparation.com

*Veeder-Root's new standard for
water detection in gasoline tanks*



Protect Your Stations. Switch to the New Standard.

Given the increased reliability of the Phase-Two Water Detector versus traditional water detection float kits in ethanol-blended fuels, Veeder-Root believes UST owners/operators should replace their existing water floats with the Phase-Two Water Detector to avoid the risks of phase separation. This float kit is Veeder-Root's new standard for water detection in gasoline tanks.



Additional Advantages

- Improved minimum water detection, even in pure gasoline
- Detect cross-drops of diesel fuel in gasoline tanks
- Easily retrofittable to existing Veeder-Root TLS tank gauges

PHASE-TWO WATER DETECTOR

THE NEW INDUSTRY STANDARD



Part Description

Part Number

Phase-Two Float Kit, 5' cable	886100-000
Phase-Two Float Kit, 10' cable	886100-010
Phase-Two Float Kit, 20' cable	886100-020

Specifications

Fuel compatibility:	All gasoline blends up to 15% ethanol (E15)
Minimum detectable water height:	0.38"
Minimum detectable fuel height:	7.0"
Accuracy in water:	± 0.10"
Accuracy in phase separation:	+ 0.75"

Equipment Compatibility

Tank opening:	4"
Consoles:	Veeder-Root TLS-450 (v3A or higher); TLS-350/300 (v30B or higher)
Probes:	Veeder-Root Mag Plus (Type = Mag7-9)

How to Identify Current Equipment

From the TLS-450 Console:

Software Version: Select *Diagnostics*, then select *About*
Software Part # should be at least xxxxx3.A

Probe Type: Select *Diagnostics*, then select *Probe*,
then select *General*
Type must be MAG7, MAG8, or MAG9



TLS-450 Console

From the TLS-350 Console:

Software Version: Print out the *System Diagnostic* Report
Software revision level must be at least x30.01

Probe Type: Print out the *In-Tank Diagnostic* report
Probe Type must be MAG7, MAG8, or MAG9



TLS-350 Console



TLS-300 Console

Intended Use

Use in any gasoline storage tank containing up to 15% ethanol. The new Phase-Two Float Kit replaces the traditional gasoline float kit. The float kit also works in pure gasoline with better performance for water detection than existing float kits by having a lower minimum detectable water height, allowing station owners to respond to a potential problem more quickly.

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



125 Powder Forest Drive, P.O. Box 2003, Simsbury, CT 06070 USA
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TLS Overfill Alarm

Early alert and backup protection for overfill conditions

SPECIFICATIONS

Alarm Unit

Form No. 790091-001

Actuation: From TLS alarm contact, individually programmable alarm levels for each tank (when used with a Veeder-Root ATG)

Audible Alarm: Noise level from 78 – 103dB at 10 ft
Adjustable "Time On" 0 – 60 sec

Visual Alarm: Lamp Rating – 25 watt, 120 VAC
Lens – Red Polycarbonate Flashing Rate – 75 per minute

Dimensions: Box: 10.3"L x 8"W x 4"D
Lens – 4"Ø x 3.5"D

Operating Temperature Range:
-40F to +150F (-40C to +65C)

Supply Voltage: 120 VAC, 50/60 Hz

Alarm Acknowledgement Switch

Form No. 790095-001

Function: Turns off alarm unit while actuating acknowledgement lamp

Acknowledgment Lamp: 120 VAC, amber lens

Box Dimensions: 6.8"L x 4.3"W x 3"D

Operating Temperature Range:
-40F to +150F (-40C to +65C)

Supply Voltage: 120 VAC, 50/60 Hz

Compatibility: TLS-450PLUS, TLS4 series, TLS-350 series, TLS-300 series automatic tank gauges

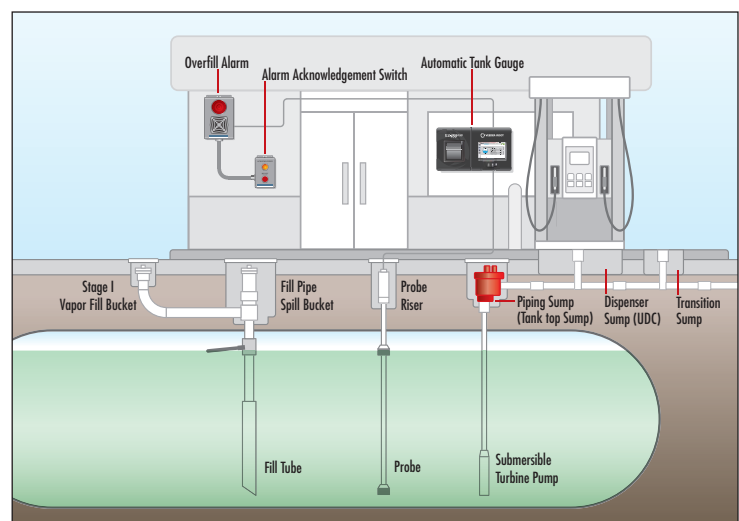
Regulatory: listed for use with Veeder-Root TLS systems for use in non-hazardous location

*This represents Veeder-Root's sole interpretation of the latest UST regulations. Check your local, state and federal authorities for compliance and enforcement policies in your area.



FEATURES

- Meets revised 2015 EPA UST regulations for Overfill Protection Equipment when used alone or in conjunction with an automatic shutoff device*
- Designed to give driver and backoffice instant visibility to an overfill condition
- Light and horn provide a clear and distinct signal for overfill alarm condition
- Provides protection against flapper valve failure or compromise
- A single alarm unit monitors all tanks at a site
- Test button simplifies inspections while ensuring overfill prevention equipment is operational
- Built-in noise level adjustment and alarm expiration timer allows alert customization for your site environment
- May also be used as a remote alarm unit or general purpose alarm based on the console programming



Typical installation

125 Powder Forest Drive • PO Box 2003 • Simsbury, CT 06070

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All information contained in this document is subject to change without notice.

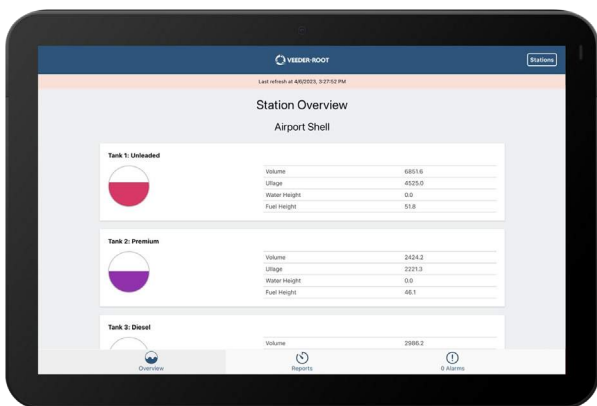


TLS-450PLUS Automatic Tank Gauge

The Fuel Management System to Grow Your Business

Why the TLS-450PLUS?

The TLS-450PLUS Automatic Tank Gauge (ATG) provides the most comprehensive site data for advanced fuel asset management. Combining industry leading algorithms with enhanced security, real-time notification, and anywhere anytime access, the TLS-450PLUS keeps your customer's site running profitably. The TLS-450PLUS is ideal for retail and commercial/industrial applications that have multiple tanks, requiring more than 12 probe and sensor inputs.



► MAINTAIN CONTROL OF YOUR FUELING OPERATIONS

- **Inspection ready compliance** – easy access to all federal, state, and local agency reports
- **Remote connectivity** – monitor your site performance, receive real-time alerts, and access compliance data via web-enabled devices – anytime, anywhere, with a wide range of options including THE PLUS VIEW app, Web-Enabled Interface, and Managed Services, with cloud-based fuel management through Insite360
- **Data protection** – store up to 3 years data and protect it from power outages, battery replacements, or software upgrades
- **Security controls** – partitioned Ethernet networks, customized user access, and Secure Socket Layer (SSL) encrypted connectivity to keep your network safe

► OPERATE AT PEAK EFFICIENCY

- **Remote software download** – hassle-free access to software updates
- **Logistics visibility** – increase inventory management awareness to avoid runouts and haulbacks
- **Faster problem resolution** – diagnose and troubleshoot issues remotely to understand ongoing situations better and avoid unnecessary dispatch
- **Customized alarms** – preprogram alarm alerts to provide scenario-specific information to predetermined individuals
- **Graphical User Interface (GUI)** – designed with features for ease of use, including workflow wizard, context sensitive help, and user-defined favorites



TLS-450PLUS Automatic Tank Gauge

CAPABILITIES

- **AccuChart™ 3.0 Tank Calibration** – utilizes enhanced geometric tank chart modeling for the TLS-450PLUS with optional restricted tank ranges to perform calibration. Chart volumes are calculated using adjustable geometry parameters: diameter, capacity, end shape, tilt, and probe offset.
- **Business Inventory Reconciliation (BIR)** – improves business decisions by combining meter transaction sales with AccuChart 3.0 Tank Calibration to better understand the site variance. It includes automated reporting on: throughput thresholds, delivery thresholds, capacity thresholds, custom thresholds.
- **Digital Pressurized Line Leak Detection (DPLLD)** – provides advanced line leak detection to meet the capacity of growing fuel sites, certified up to 1,178 gallons (4,459 liters) of capacity. The DPLLD equipment performs a 3.0 Gallons Per Hour (GPH) line leak test following each dispense. With the proper software enhancement feature installed, the DPLLD equipment will also perform 0.2 and/or 0.1 GPH line tests to meet your regulatory needs, eliminating the need for separate annual line leak testing.
- **Built-in Data Logging** – enables approved data transfer for wet stock management
- **Timed Sudden Loss Detection** – monitors unexpected changes in inventory, exposing possible issues including theft during quiet periods
- **Diesel Exhaust Fluid (DEF) Recirculation** – provides a recirculation and/or Temperature Control heat trace system to prevent DEF product from freezing or overheating in lines that utilize DEF in bulk dispensing systems
- **Intelligent Pump Control (IPC)** – allows the TLS-450PLUS to display and report Submersible Turbine Pump (STP) activity through a direct communication link between a STP pump controller and the TLS-450PLUS via a RS-485 connection. This software feature is available only in the TLS-450PLUS platform.
- **Vapor Monitoring** – the TLS-450PLUS supports a wide variety of vapor monitoring solutions, including In-Station Diagnostics (ISD)

TLS-450PLUS (UL/cUL) Part Numbers	
Application Software	
0333545-001	TLS-450PLUS Application Software
Hardware *	
0860091-302	TLS-450PLUS 8" Color Touch Screen Console with Printer
Interface Modules	
0332812-001	Universal Sensor/Probe Interface Module
0332813-001	Universal Input/Output Interface Module
0333564-001	10-Amp Controller Module
Communication Modules	
0332812-006	USM/ATM Module Group for TLS-450PLUS (For SCVS Installations Only)
0332818-001	SiteFax™ Interface Module
0332866-001	Single RS-232 Interface Module
0332867-001	Single RS-485 Interface Module
0332868-001	RS-232 Dual Interface Module
0332869-001	Dual RS-485 Interface Module
0332870-001	RS-232/RS-485 Dual Interface Module
Feature Enhancement Software	
0332972-006	Continuous Statistical Leak Detection (CSLD)
0332972-007	Ultimate Testing Line Leak Detection for DPLLD
0332972-008	Risk Management Line Leak Detection for DPLLD
0332972-009	Base Compliance Line Leak Detection for DPLLD
0332972-018	Timed Sudden Loss Detection
0333149-001	BIR/AccuChart TLS-450PLUS EDIM Factory Installed
0333580-001	BIR/AccuChart TLS-450PLUS CDIM Factory Installed
0333581-001	BIR/AccuChart TLS-450PLUS LVDIM Factory Installed
0333582-001	BIR/AccuChart TLS-450PLUS MDIM Factory Installed
0332972-101	Vapor Pressure Management Control (PMC for Carbon Canister Only) for TLS-450PLUS Console
0332972-102	In-Station Diagnostics (ISD)/PMC for TLS-450PLUS Console

* Includes a 2-port RS-232 Module, a 3-port Ethernet Module and a 2-port USB Module

INTEGRATED SITE SOLUTIONS

The TLS-450PLUS ATG and STP control boxes act as the interface between the STP and the dispenser, while numerous sensors and probes monitor various conditions to ensure the fueling system remains healthy. If an abnormal state is detected, the TLS-450PLUS ATG will record a condition result and generate an audible and visual alarm to notify the store operator. Remote connectivity options for the TLS-450PLUS ATG ensure that critical site statuses, such as inventory and alarm activity are available to site managers when they are not on-site. Stay connected, secure, and compliant with Veeder-Root's Integrated Site Solutions.



Secondary Containment Vacuum Sensing System

Simplify compliance and maximize protection with a vacuum monitored secondary containment.

The Importance of SCVS

The Secondary Containment Vacuum Sensing System (SCVS) for the TLS-450PLUS Automatic Tank Gauge (ATG) is designed to detect leaks in double-walled fuel tank, sump and piping systems. It helps contain the release of product while under vacuum.



► SYSTEM REQUIREMENTS

- Vacuum Sensors connect to tank, sump and piping interstices. Each Vacuum Sensor must have an associated Liquid Sensor, which is included in the pre-assembled Vacuum Sensor Monitoring Kits.
- Vacuum source - Submersible Turbine Pump (STP) to create suction.
- Atmospheric Pressure Sensor (ATM) for measuring ambient pressure.
- Universal Sensor Module (USM) for sensor inputs.
- Universal Input / Output Module (UIOM) for pump control.

In certain markets, monthly inspections and three-year sump integrity tests are not required when the Veeder-Root Secondary Containment Vacuum Sensing System is used.

The Vacuum Sensors are connected to a TLS-450PLUS ATG, via intrinsically safe (IS) wiring. The TLS-450PLUS provides system status, replenish rates, alarms and diagnostic information.

The Vacuum Sensors are manufactured in mountable kits of 1 to 4 sensors available for monitoring:

- Double-walled sump and piping interstices
- Double-walled steel tanks
- Double-walled fiberglass tanks

An inline kit mounted Liquid Sensor is used for Vacuum Sensors monitoring sumps and piping. An external Liquid Sensor (to be installed at the bottom of the tank interstice) is provided with Vacuum Sensors for steel and fiberglass tank kits.

► FEATURES AND BENEFITS

SATISFY REGULATIONS

- Certified to meet California's requirement for secondary containment monitoring for tanks and lines as required by AB 2481
- Satisfies the requirements for Class 1 Leak Detection as defined by the European Standard EN 13160-2

REDUCE EXPOSURE TO RISK

- TLS-450PLUS alarms when the vacuum cannot be maintained or when replenish rates exceed 85 liters per hour
- The system alarms when liquid is detected in the secondary space
- Facilitates periodic operability testing



LEVERAGE EXISTING VEEDER-ROOT SYSTEMS

- Uses Red Jacket® STP as the vacuum source
- Installs in the STP sump
- Able to share wiring conduit with other Veeder-Root intrinsically safe (IS) probes and sensors, including sump and line leak sensors
- Provides for positive shutdown of pressurized lines when required
- Simple installation, no need to mess with brine

SPECIFICATIONS

Secondary Containment Vacuum Sensing System

Secondary Containment Vacuum Sensing System Specifications

Description	Measurement
Operating Temperature Rating	-25 °C to +70 °C
Cable Length	8'
Sensor Dimensions	5" H x 5" W x 2" D
Console Capability	TLS-450PLUS
Software Version	Supported with Version 9.A and higher software
Vacuum Sensors are sold in kits with 1, 2, 3 or 4 sensors. The following table outlines the kits and sensor groupings by number of tanks, sumps/pipes.	

Vacuum Sensor Monitoring Kits (Pre-Assembled)

Vacuum Sensor Kit P/Ns begin with 330020-, followed by the 3-digit grouping ID (i.e. 330020-467)

Description	Sensors	Tanks	Sumps & Pipes	No Tank	Steel	Fiberglass
4 Vacuum Sensor Kit With Tank	4	1	3		-467	-471
4 Vacuum Sensor Kit Without Tank	4	0	4	-486		
3 Vacuum Sensor Kit With Tank	3	1	2		-472	-476
3 Vacuum Sensor Kit Without Tank	3	0	3	-485		
2 Vacuum Sensor Kit With Tank	2	1	1		-479	-484
2 Vacuum Sensor Kit Without Tank	2	0	2	-480		
1 Vacuum Sensor Kit With Tank	1	1	0		-549	
Vacuum Sensor Kit Without Tank	1	0	1	-495		

Vacuum Sensor Modules (Unassembled)

Description	Part Number
Vacuum Sensor for 1 Sump or 1 Pipe	857280-100
Vacuum Sensor for 1 Steel Tank	857280-200
Vacuum Sensor for 1 Fiberglass Tank up to 10' Dia.	857280-304
Vacuum Sensor Mounting Kit (Cage Holds up to 4 Sensors)	330020-448
Vacuum Sensor Relief Valve Assembly (Required for Fiberglass Tanks)	332217-002

Vacuum Sensor Accessories

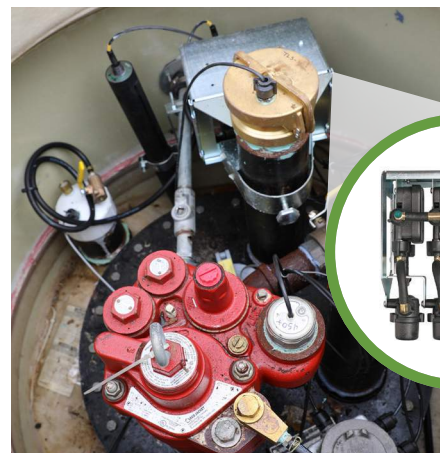
Description	Part Number
Fittings, NPT Barbed, 1/4" (Qty. 3)	330020-487
Fittings, NPT Barbed, 1/4" (Qty. 15)	330020-488
Fittings, NPT Barbed, 1/4" (Qty. 25)	330020-489
Elbow, 90 Degree 1/4" Barbed (Qty. 1)	576008-656
Tee, Barbed (Qty. 1)	576008-657
Hose, Vacuum, 25'	332310-001
Hose, Vacuum, 50'	332310-002
Hose, Vacuum, 100'	332310-003
Valve, 3-Way Brass Ball (Qty. 1)	576008-649
Valve, 3-Way Plastic Ball (Qty. 1)	332367-001
Schraeder Valve Barbed Fitting (Qty. 3)	330020-496
Schraeder Valve Barbed Fitting (Qty. 15)	330020-497

TLS-450PLUS USM and UIOM Modules

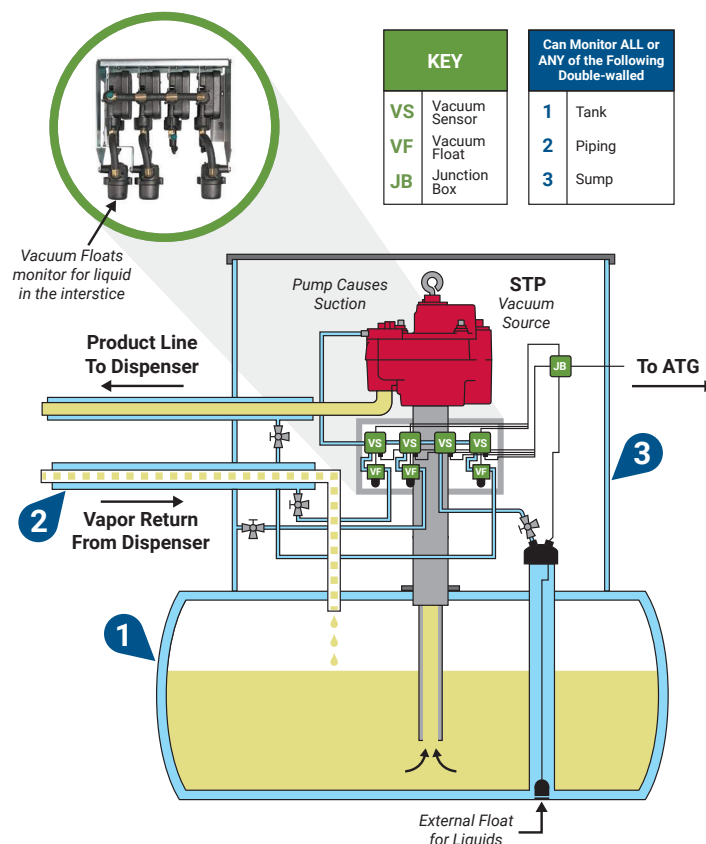
Description	Part Number
USM/ATM Module Group for TLS-450PLUS	332812-006
Kit - USM/ATM Module	330020-846
Kit - ATM Pressure Board	330020-847
Universal Input/Output Interface Module (UIOM)	332813-001

Software Enhancement

Description	Part Number
Software Enhancement Feature - Secondary Containment Vacuum Monitoring (SCVS)	332972-029



Secondary Containment Vacuum Sensing System



A USM is required to connect the Vacuum Sensors and Liquid Sensors.

A UIOM is required to connect Red Jacket pump relays for pump control and the hook-off signal.

