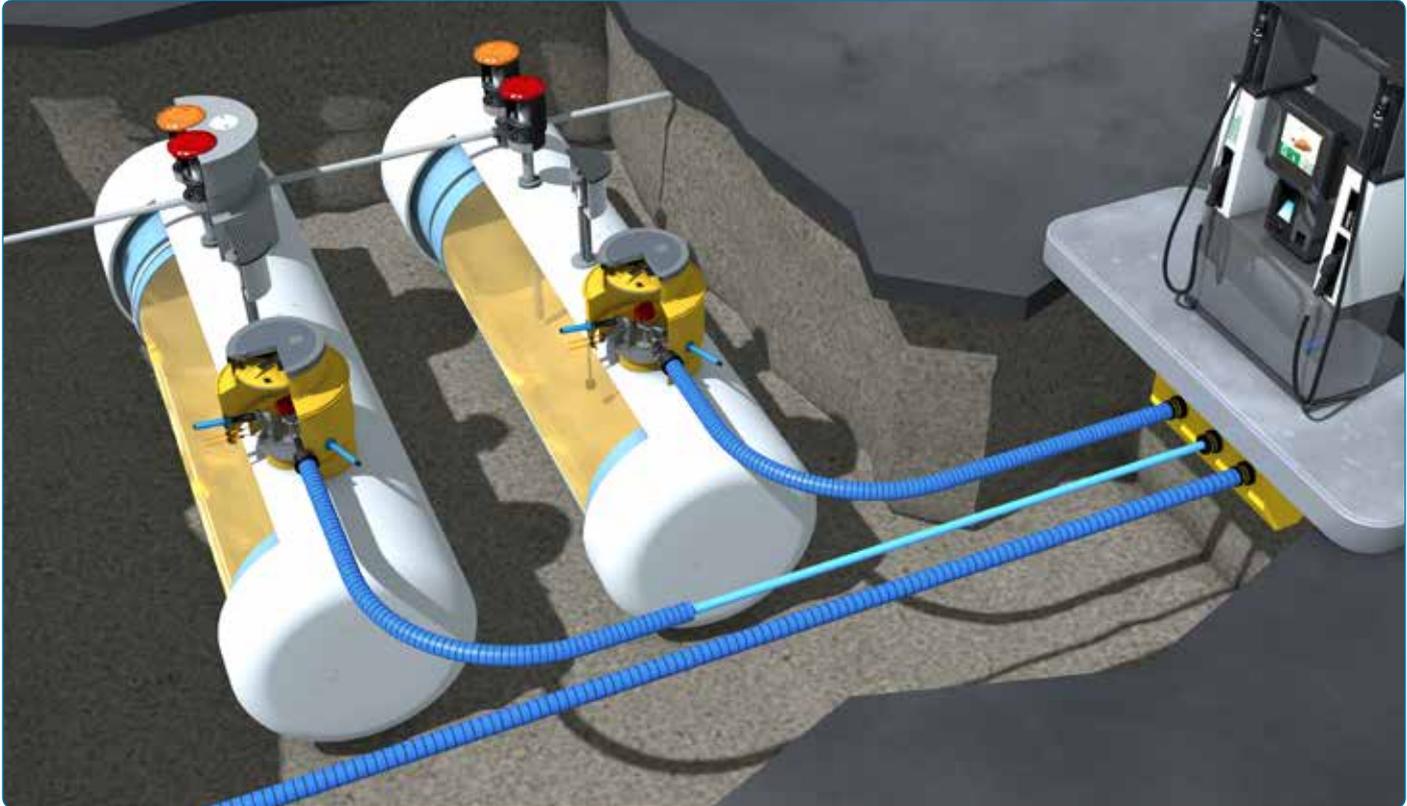


Below Ground Products

Environmental Sustainability by Design



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Piping Layout (Pressure System)

Tank Sumps, Tank Sump Systems and Accessories

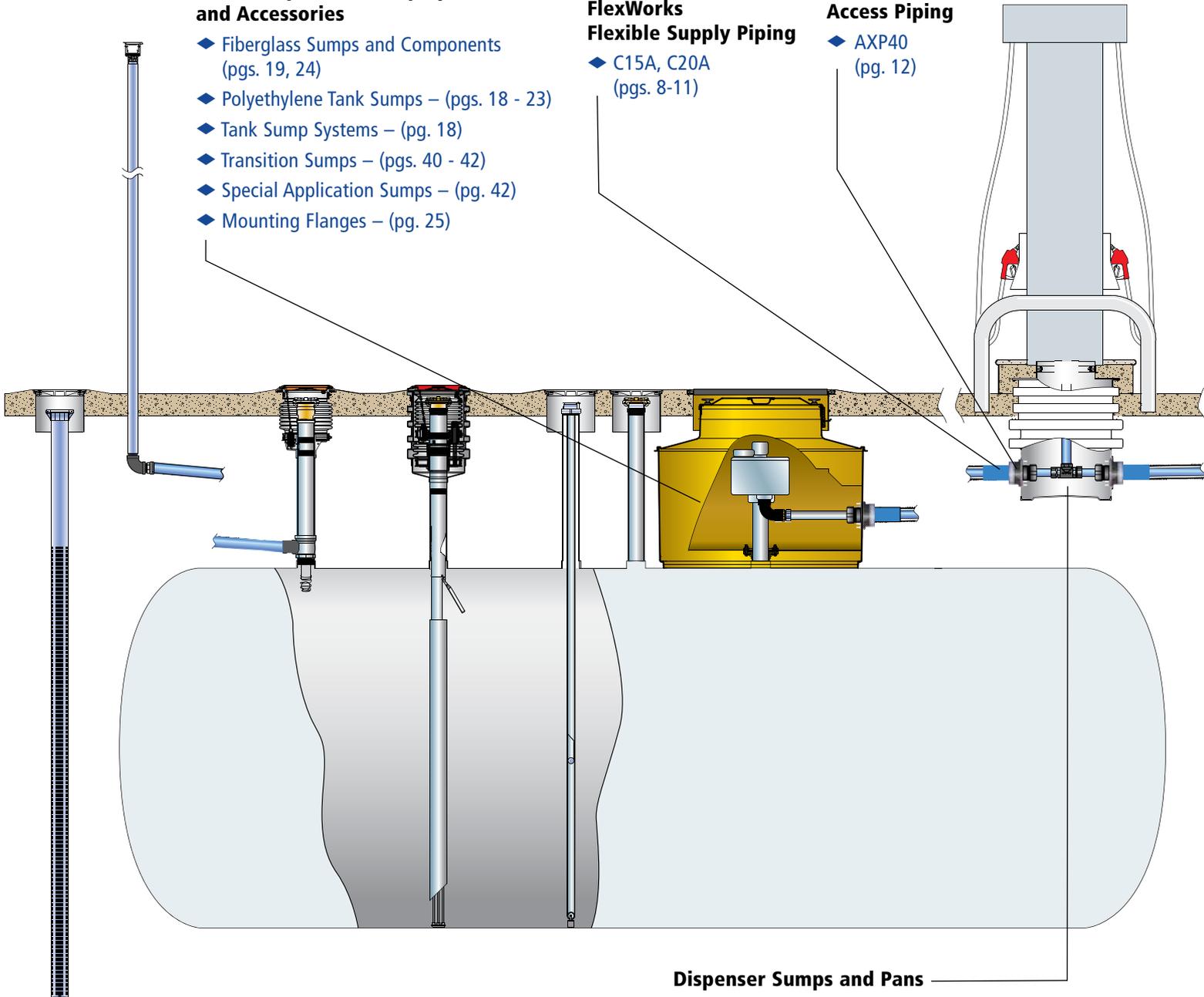
- ◆ Fiberglass Sumps and Components (pgs. 19, 24)
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Dispenser Sumps and Pans

- ◆ Polyethylene Sumps (pg. 26)
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The complete Environmental System for underground fuel transfer and containment for the 21st century.

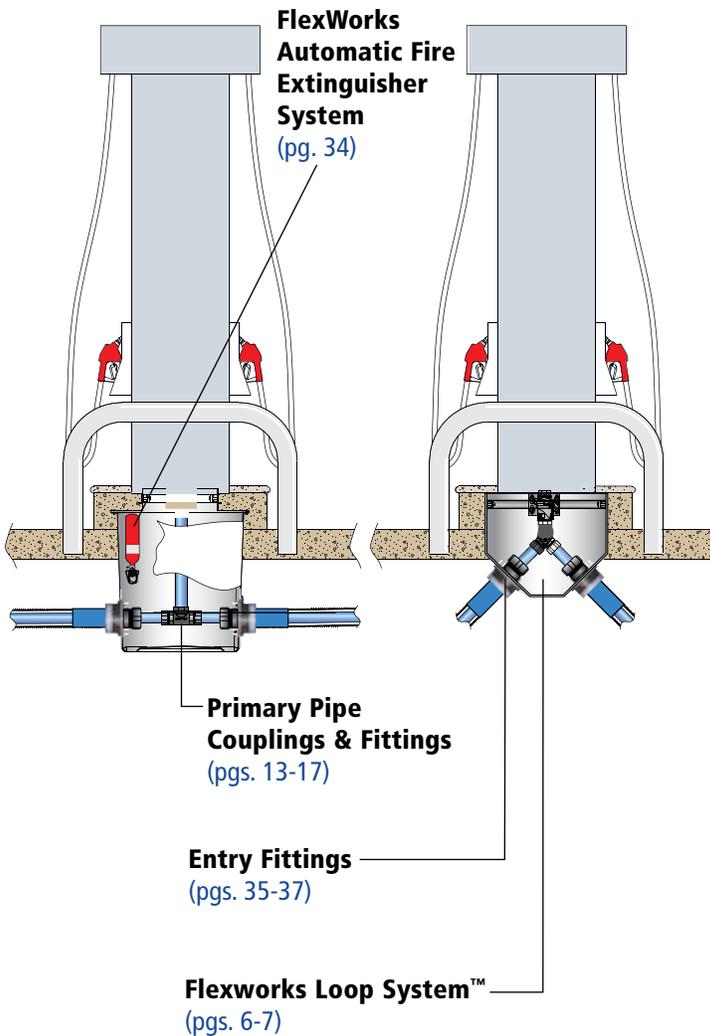
OPW Innovative Fueling Solutions

The heart of FlexWorks is an advanced, flexible piping system that can be installed quickly and easily in a variety of configurations. Flexible piping eliminates the need for buried piping joints, which are notorious leak points in rigid piping systems. In a pressure system, the submersible pump is connected in series directly to the dispensers with a continuous run of flexible pipe. In a suction system, a continuous run of flexible pipe connects the tank to the suction pump dispenser. All piping connections at the tank and dispensers are contained in sumps.

The primary fuel pipe is available with an integral secondary containment pipe, which can be inserted into a dual layer, corrugated access pipe. The crush-resistant access pipe protects the primary pipe from the backfill while serving as an added layer of protection. The access pipe also affords the added advantage of primary pipe retractability. Future inspection, repair or replacement of the primary pipe is achievable without excavation.

The FlexWorks System features highly integrated components that interconnect seamlessly to provide reliable Secondary Containment. FlexWorks dispenser sumps are custom made for each particular dispenser footprint. FlexWorks tank sumps afford raintight containment for and accessibility to submersible pumps and UST equipment. A variety of FlexWorks entry fitting styles and sizes ensure the availability of a custom-designed solution for virtually every piping application.

FlexWorks by OPW is the complete Environmental System for underground fuel transfer and containment for the 21st century.



Listings and
Certifications



Piping Layout (FlexWorks Loop System)

The World's First "Plug & Play" Underground Fuel Delivery & Containment System



LOOP SYSTEM™



Prefabricated Quick-Couple Dispenser Sumps

- ◆ Saves time and money – improves installation reliability
- ◆ Provides for easy visual inspection, access to and replacement of under-dispenser components without removal of the dispenser
- ◆ Shallow design reduces potential problems caused by groundwater forces



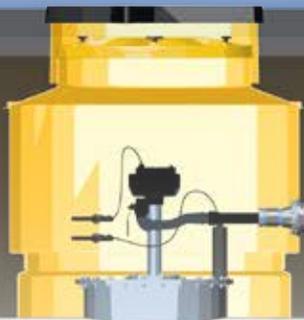
Double-Wall Pipe Couplings

- ◆ Eliminates the need to trim back secondary jackets
- ◆ Eliminates the need for rubber test boots; improves testing reliability and provides reliable means of isolating the coaxial jacket for vacuum, pressure or liquid testing and/or continuous monitoring of the pipe's interstitial space



Dual-Sided Entry Fittings

- ◆ Provides double containment protection at the sump/entry fitting connection points
- ◆ Prevents groundwater intrusion into the sump and eliminates communication so fluid collected in the sump cannot enter the access pipe



OPW 10 PLUS Emergency Valves

- ◆ Patent-pending technology provides an added level of protection against potential leaks caused by low-impact cracks in the shear valve
- ◆ Eliminates health, environmental contamination and fire hazards that could result from fractured valves leaking into sumps



The complete Environmental System for underground fuel transfer and containment for the 21st century.

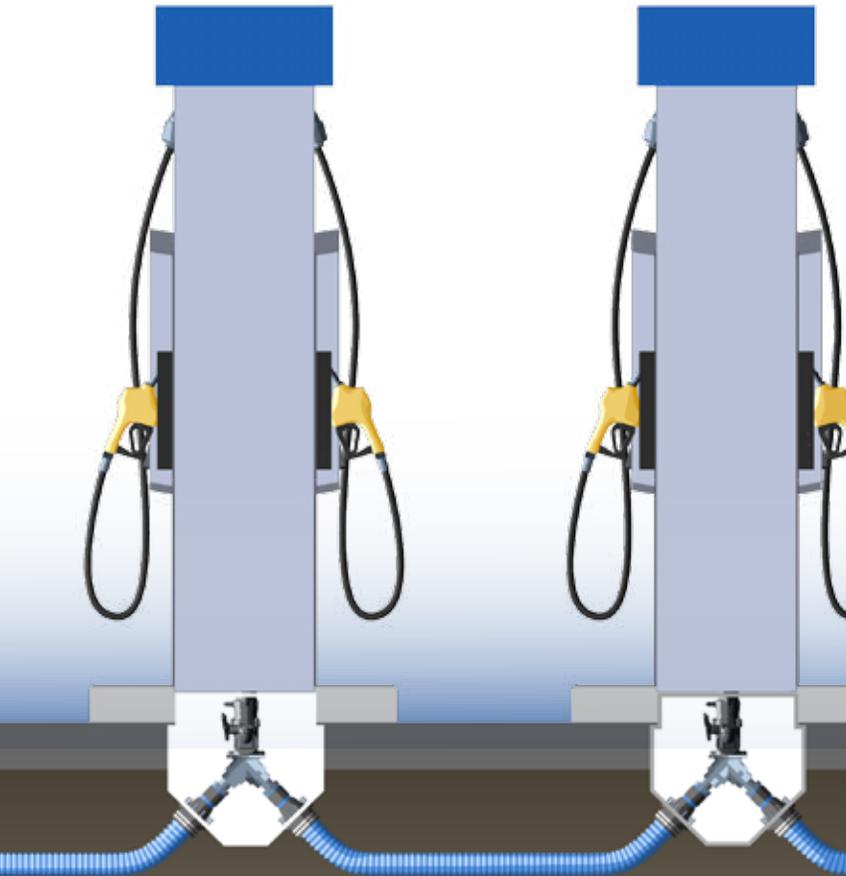
The Loop System™

The Industry's First Plug & Play Underground Fueling System

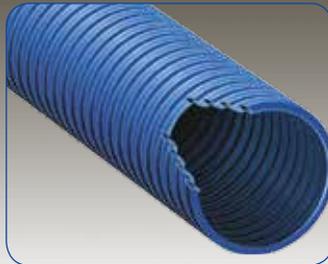
The patented OPW Loop System™, represents the state of the art in a completely integrated, environmentally secure underground fuel delivery system. The system, by design, employs pre-fabricated, factory assembled components, translating into dramatically less field labor and lower associated cost and potential for installation errors. The installed product preserves total underground access to all piping connections, piping runs and containment sumps for hassle-free inspection, maintenance or repair without ever having to excavate or even remove a dispenser. The Loop System™ incorporates field-proven OPW technology into a simplified, completely integrated piping system design that facilitates easy inspection, identification and repair of any problem that may develop and enhances the capability for leak prevention.

The OPW Loop System™: Providing a radically new solution to minimize traditional fuel delivery system problems.

The end result: An exponentially higher level of environmental protection and lower cost of fuel delivery system ownership.



OPW Swivel Bolt-On Coupling



OPW Crush Resistant, Dual Layer Access Pipe



FlexWorks Supply Piping

Why a new pipe?

OPW has developed FlexWorks Pipe in response to the voice of the customer. You asked and we delivered! The new pipe is more flexible, lighter and has reduced memory.

**Lighter, More Flexible,
Easier to Install, UL
Approved for All Fuels**



UL APPROVAL

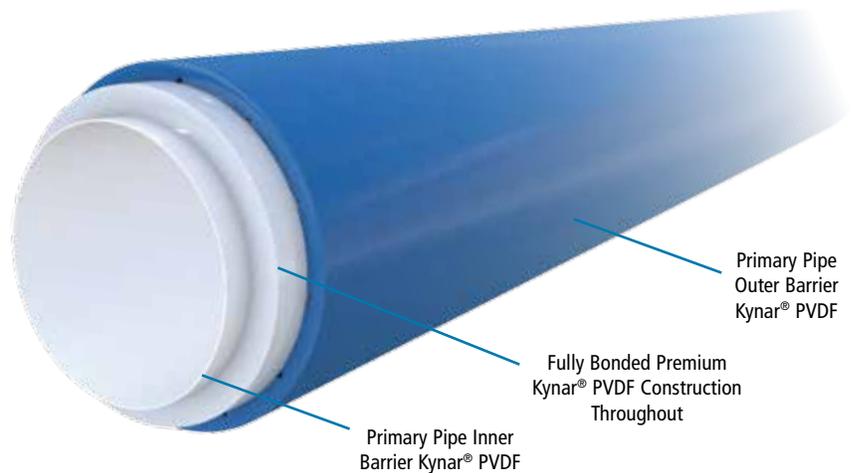
- ✓ Motor Vehicle Fuels
- ✓ High Blend Fuels
- ✓ Concentrated Fuels
- ✓ Aviation and Marine

**3rd PARTY
APPROVED
FOR DEF**

FlexWORKS



Celebrating 20 Years
of **Success** Through
Piping Excellence



What Makes This Pipe Different?

Lower installation costs

- ◆ **Increased Pipe Flexibility** – the force required to bend the pipe has been reduced to facilitate piping layout. This makes installation quicker and easier, especially in cold weather.
- ◆ **Pipe Weight** – has been reduced to facilitate shipping and handling
- ◆ **Pipe Memory** – inherent pipe memory has been reduced significantly to facilitate connection of pipes inside sumps
- ◆ **Redesigned Profile** – enhanced leak detection performance
- ◆ **Enhanced Kynar Pipe Liner** – fluoropolymer chemical structure makes it dense and permeation resistant

Ordering Specifications - Sizing Matrix

New Pipe Part #	ID	Description
C075A-250		Double Wall Primary Pipe, 250'
C075A-1000		Double Wall Primary Pipe, 1000'
C075A-SB	3/4"	Double Wall Primary Pipe 3/4" I.D. Short Box, 1' - 249'
C075A-SR		Double Wall Primary Pipe 3/4" I.D. Short Reel, 260' - 490'
C075A-MR		Double Wall Primary Pipe, Mega Reel, 2000'
C10A-250		Double Wall Primary Pipe, 250'
C10A-1000		Double Wall Primary Pipe, 1000'
C10A-SB	1"	Double Wall Primary Pipe 1.0" I.D. Short Box, 1' - 249'
C10A-SR		Double Wall Primary Pipe 1.0" Short Reel, 20' - 990'
C10A-MR		Double Wall Primary Pipe, Mega Reel, 2000'
C15A-250		Double Wall Primary Pipe, 250'
C15A-500		Double Wall Primary Pipe, 500'
C15A-1000		Double Wall Primary Pipe, 1000'
C15A-1225		Stick Pipe 1 1/2" 12 Pieces At 25', 12 per box
C15A-1233	1 1/2"	Stick Pipe 1 1/2" 12 Pieces At 33', 12 per box
C15A-1240		Stick Pipe 1 1/2" 12 Pieces At 40', 12 per box
C15A-SB		Double Wall Primary Pipe 1.5" I.D. Short Box, 50' - 240', 10' increments
C15A-SR		Double Wall Primary Pipe 1.5" I.D. Short Reel, Less than 500', 10' increments
C15A-MR		Double Wall Primary Pipe, Mega Reel, 1010' - 1400'
C20A-250		Double Wall Primary Pipe, 250'
C20A-500		Double Wall Primary Pipe, 500'
C20A-1225		Stick Pipe 2.0" Double Wall 12 Pieces At 25', 12 per box
C20A-1233	2"	Stick Pipe 2.0" Double Wall 12 Pc @ 33', 12 per box
C20A-SB		Double Wall Primary Pipe, 2.0" I.D. Short Box, 50' - 240', 10' increments
C20A-SR		Double Wall Primary Pipe, 2.0" I.D. Short Reel, 260' - 490', 10' increments
C20A-MR		Double Wall Primary Pipe, Mega Reel, 800', 510' - 800', 10' increments
C30A-200		Call For Availability. 3" Double Wall Primary Pipe, Lengths up to 200'
C30A-MR	3"	3" Double Wall Primary Pipe, 200' to Max 350'
C30A-SR		Call For Availability. 3" Double Wall Primary Pipe, Lengths up to 200'

FlexWorks Next Generation Supply Piping

OPW's Next Generation FlexWorks Pipe is more flexible, lighter and has reduced memory to aid installation and is UL approved for all fuels.

Flexible Supply Piping

OPW FlexWorks flexible piping utilizes fully bonded, premium PVDF construction throughout to offer complete peace-of-mind protection, performance, installation ease and advantages over rigid and semi-rigid pipe.

Features & Benefits:

- ◆ **Lower installation costs**
 - ◆ **Eliminates the hassles** – installation time and potential leak points of rigid pipe installations
 - ◆ **Easy installation** – results in less installation time
 - ◆ **Eliminates burdensome cutting, fitting, and cleaning**
 - ◆ **No adhesives** – heat assists, curing problems or electrofusion welding of joints
 - ◆ **Easy to bend** – no special fittings to install in order to make bends
- Eliminates potential underground leak points:**
- ◆ **No underground** – fittings or joints
 - ◆ **No hand-built field joints**
 - ◆ **All termination points are contained in sumps**
 - ◆ **Termination joints precision swaged to simulate factory-made assemblies**

Double Wall Flexible Piping:

UL 971 Listed, Integral Primary/Secondary, Normal Vent & Vapor Piping, Gasoline, Aviation & Marina Fuels:

A UL-listed, double-wall, flexible supply piping system designed for installation within Access piping. The outer containment pipe includes inner stand-off ribs to create a small interstitial space which allows for optimum fluid migration, continuous monitoring and easy periodic testing. This piping features an enhanced construction that meets the new UL971 standard. OPW's FlexWorks double-wall piping has both the primary and secondary containment pipe UL-listed and is labeled as follows: INTEGRAL PRIMARY/SECONDARY FOR MOTOR VEHICLE FUELS.

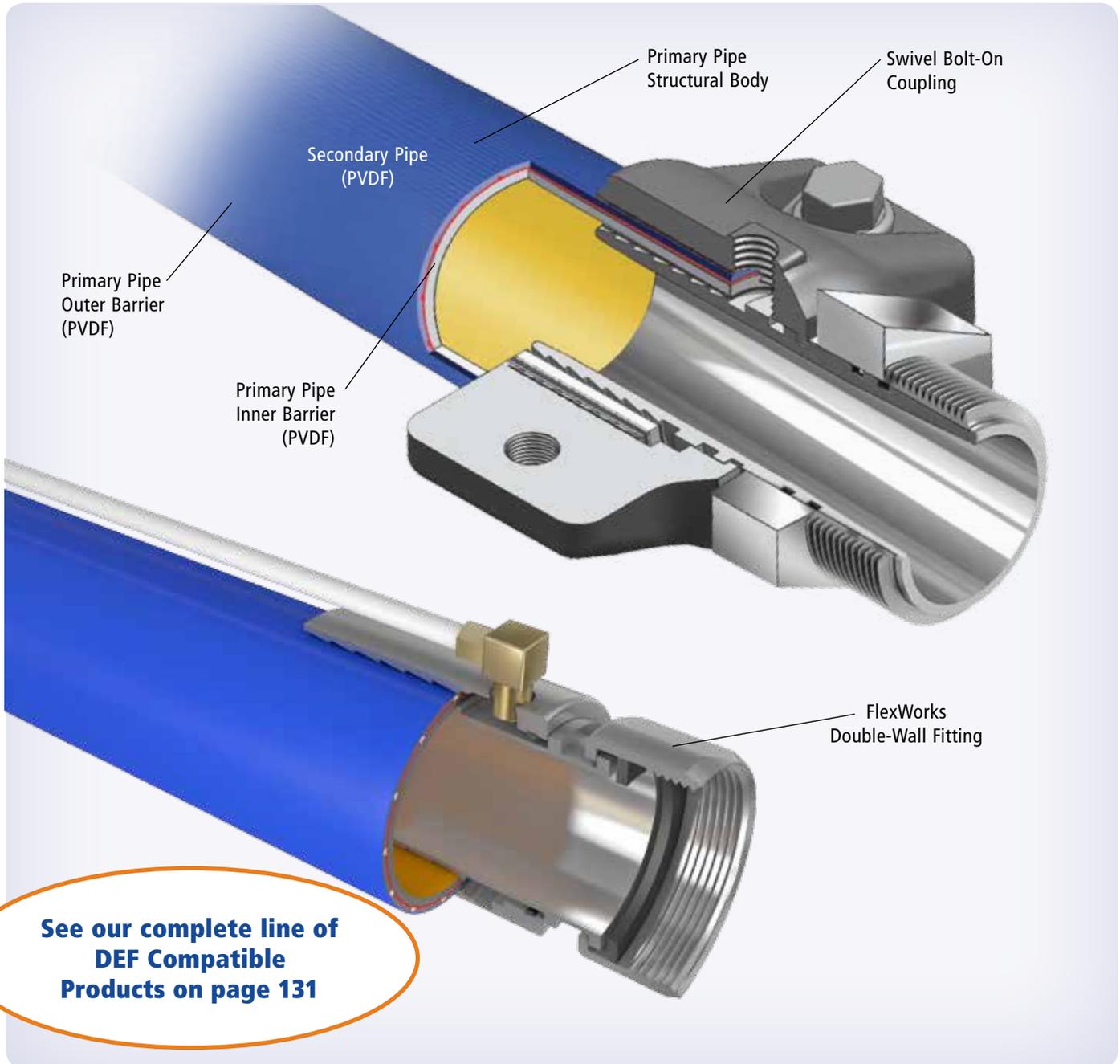
Ordering Specifications* - FlexWorks Dual Layer Access Pipe

Part #	Application	Minimum Bend Radius		Packaging		Dimensions				Box/Reel Size (in.)	Box/Reel Weight	
		in.	mm			I.D. in.	I.D. mm	O.D. in.	O.D. mm		lbs.	kg
C075A-250	Double-Wall Primary Pipe, ¾"	18	457	Box	250 ft	.75	19	1.18	29	44x44x25	134	61
C075A-1000	Double-Wall Primary Pipe, ¾"	18	457	Reel	1000 ft	.75	19	1.18	29	58x58x48	527	239
C10A-250	Double-Wall Primary Pipe, 1"	18	457	Box	250 ft	1.0	25	1.50	38	44x44x25	169	77
C10A-1000	Double-Wall Primary Pipe, 1"	18	457	Reel	1000 ft.	1.0	25	1.50	38	58x58x48	605	274
C15A-250	Double-Wall Primary Pipe, 1.5"	24	610	Box	250 ft.	1.5	38	2.00	51	38x45x30	240	109
C15A-500	Double-Wall Primary Pipe, 1.5"	24	610	Reel	500 ft.	1.5	38	2.00	51	58x58x48	605	274
C15A-1000	Double-Wall Primary Pipe, 1.5"	24	610	Reel	1000 ft.	1.5	38	2.00	51	58x58x48	980	444
C20A-250	Double-Wall Primary Pipe, 2"	36	914	Box	250 ft	2	51	2.50	63.5	63x63x33	192	87
C20A-500	Double-Wall Primary Pipe, 2"	36	914	Reel	500 ft.	2	51	2.50	63.5	68x68x48	770	349
C30A-200	Double-Wall Primary Pipe, 3"	72	1828	Reel	200 ft	3	76	3.50	88	63x63x33	652	296

* OPW also offers short and custom lengths of pipe, as well as pipe packaged and shipped on Mega Reels. Please contact our Customer Service department at 1-800-422-2525, or visit us on the web at www.opwglobal.com for the most up-to-date information.

Flexible Piping Manual
Order Number: UPM-0001

Flexible Supply Piping



See our complete line of DEF Compatible Products on page 131

Product #	Size		Description	Working Pressure		Temperature Rating		Burst Pressure
	in.	cm		PSIG	BAR	F	C	
C075A	3/4	1.9	Double-Wall Primary Pipe	145	10 bar			Exceeds 5X Working Pressure
C10A	1	2.54	Double-Wall Primary Pipe	125	8.6 bar			
C15A	1.5	3.8	Double-Wall Primary Pipe	100	6.9 bar	-20° to +120° F	-29° to +49° C	
C20A	2	5	Double-Wall Primary Pipe	75	5 bar			
C30A	3	7.6	Double-Wall Primary Pipe	75	5 bar			

Listings and Certifications

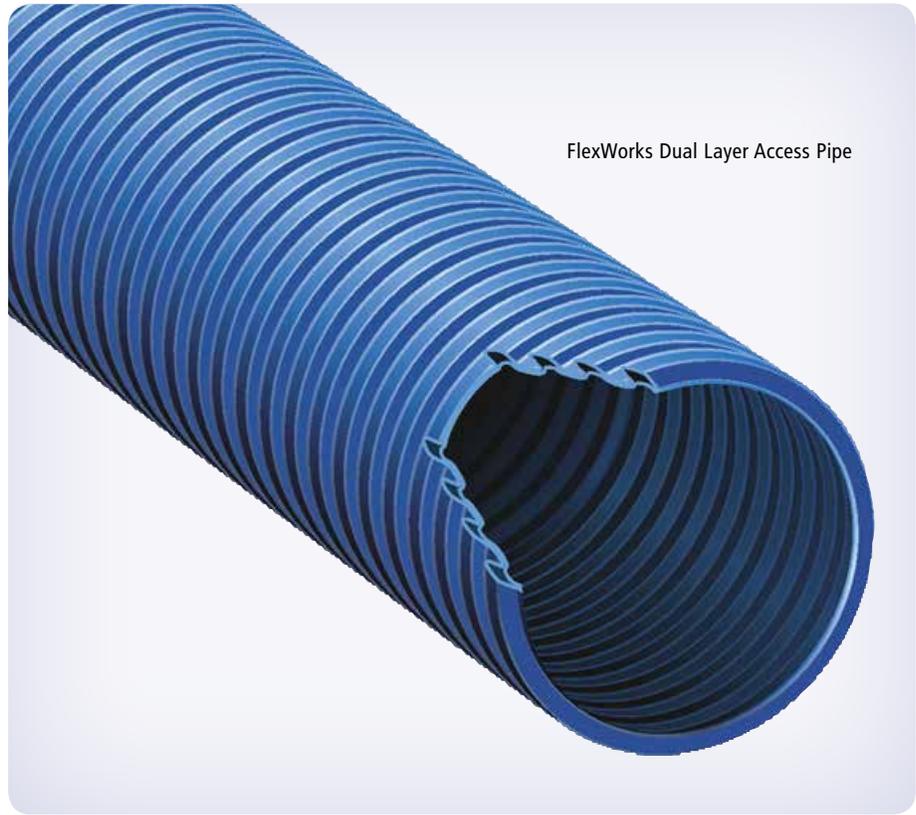


Dual Layer Access Pipe

A 4" diameter corrugated flexible conduit is used to provide access to and permit the future replacement of the Flex piping if desired. This corrugated pipe is strong enough to withstand H-20 loading requirements when properly buried and thick enough to minimize damage from shipping and jobsite handling. Access pipe can accommodate the 3/4", 1", 1-1/2", 2" and 3" FlexWorks supply pipe.

Features & Benefits:

- ◆ Crush and puncture-resistant
- ◆ Semi-smooth liner facilitates ease of installation
- ◆ Saves you time and money
- ◆ No buried joints



Ordering Specifications - FlexWorks Dual Layer Access Pipe

Part #	Application	Minimum Bend Radius		Packaging	Dimensions				Box Size	Weight		
					I.D.		O.D.			in.	lbs.	kg
		in.	mm		in.	mm	in.	mm				
AXP40-100	4" Dual Layer Access Pipe	18"	457	Box 100 ft.	4	102	4.760	121.0	42x42x32	115	52	
AXP40-250	4" Dual Layer Access Pipe	18"	457	Box 250 ft.	4	102	4.760	121.0	60x60x32	218	99	

Access Pipe Installation Instructions Sheet Order Number: **API-0001**

Listings and
Certifications





FlexWorks Double Wall Pipe Coupling (DPC Model)

Swivel Elbow Fitting (SEF Model)

Swivel Male Adaptor (SMA Model)

Swivel Tee Fitting (STF Model)

Swivel Couplings and Fittings for Primary Pipe

FlexWorks swivel couplings and fittings are used to interconnect flexible piping. These UL/ULC-listed stainless steel couplings must be contained within containment sumps and not directly buried. The pipe connection system includes an internally expanded stainless steel coupling attached to the end of a flexible pipe section.

Double-Wall Couplings

Double-wall swivel couplings eliminate the need for cutting back the secondary jacket and rubber test boots. They have an integral interstitial access port for connector and test tubes.

These double-wall couplings permit higher interstitial testing pressures and eliminate added parts and labor costs.

Features & Benefits:

- ◆ UL/ULC-listed for use with Flex piping
- ◆ Quick, easy to install
- ◆ All stainless steel couplings
- ◆ Internally expanded couplings
- ◆ Permanent Interstitial Test Port

3" Double Wall Coupling **NEW**

- ◆ Fully compatible with our 3" FlexWorks Piping
- ◆ Interstice integrated with the pipe secondary

Double-Wall Swivel Pipe Couplings

Double-Wall Swivel Pipe Couplings are a proven coupling and fitting system designed exclusively for use with FlexWorks Piping.

Double-Wall swivel couplings and fittings are of a double-wall design and are used to interconnect FlexWorks flexible piping. These UL/ULC-listed stainless steel couplings must be contained within containment sumps and not directly buried.

This pipe connection system includes an internally expanded stainless steel coupling attached to the end of a FlexWorks pipe section. The swivel coupling has a smooth sealing face fitted with a Viton® ring gasket.

Double-wall swivel couplings eliminate the need for cutting back the secondary jacket and rubber test boots. They have an integral interstitial access port for connector and test tubes.

These double-wall couplings permit higher interstitial testing pressures and eliminate added parts and labor costs.



Double Wall Pipe Coupling (DPC Model)

Double-wall pipe couplings require the use of an OPW Retail Fueling coupling machine to internally expand the stainless steel fitting onto the end of a FlexWorks pipe section.

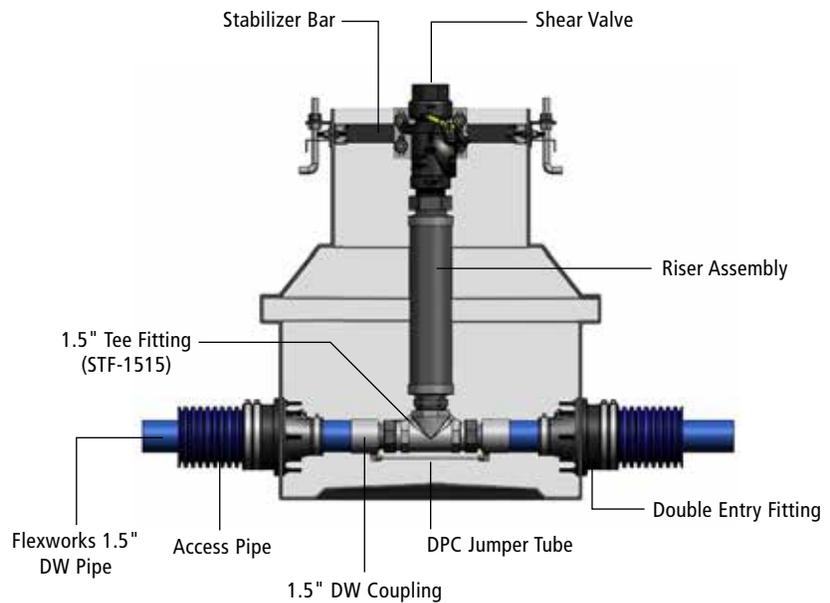
Internally expanded couplings have a long, successful history of reliable performance.

Features & Benefits:

- ◆ Crush and puncture-resistant
- ◆ Semi-smooth liner facilitates ease of installation
- ◆ Saves you time and money
- ◆ No buried joints

NEW 3" Double Wall Coupling

- ◆ Fully compatible with our 3" FlexWorks Piping
- ◆ Interstice integrated with the pipe secondary



Ordering Specifications - FlexWorks Double Wall Swivel Couplings and Fittings

Part #	Application	Packaging
DPC-2150A	1.5" Double-Wall Swivel Pipe Coupling, Flat Gasket	EA
DPC-2200A	2" Double-Wall Swivel Pipe Coupling, Flat Gasket	
DPC-2300A	3" Double Wall Couplings	

Ordering Specifications* - FlexWorks Swedge-On Couplings and Fittings

Model	Application
SPC-0075	3/4" Pipe Coupling, Male NPT*
SPC-0100	1" Pipe Coupling, Male NPT
SPC-0150A	1.5" Swivel Coupling, Flat Gasket
SGP-0150	1.5" Swivel Gasket Pack for SPC-0150 (6 ea)
SGP-0200	2" Swivel Gasket Pack for SPC-0200 (6 ea.)
SGP-0300	3" Swivel for SPC-0300 (6 ea)
SPC-0200A	2" Swivel Coupling, Flat Gasket
SPC-0300	3" Swivel Coupling, Flat Gasket
STC-0150	1.5" Swivel Test Coupling
STC-0200	2" Swivel Test Coupling
STC-0300	3" Swivel Test Coupling
DPC-2150A	1.5" Double Wall Swivel Pipe Coupling, Flat Gasket
DPC-2200A	2" Double Wall Swivel Pipe Coupling, Flat Gasket
DPC-2300A	3" Double Wall Couplings
SFA-7575	3/4" Adaptor, 3/4" Female NPT to 3/4" Female NPT
SMA-7575	3/4" Adaptor, 3/4" Female NPT to 3/4" Male NPT
SFA-1010	1" Adaptor, 1" Female NPT to 1" Female NPT
SMA-1010	1" Adaptor, 1" Male NPT to 1" Female NPT
SMA-1515	1.5" Adaptor, 1.5" NPSH to 1.5" NPT
SMA-1520	1.5" Adaptor, 1.5" NPSH to 2" Male NPT
SMA-2020	2" Adaptor, 2" NPSH to 2" Male NPT
SMA-3030	3" Adaptor, 3" NPSH to 3" NPT
STF-1515	1.5" Tee, 1.5" NPSH x 1.5" NPSH x 1.5" NPT
STF-2020	2" Tee, 2" NPSH x 2" NPSH x 2" NPT
STF-2215	2" Tee, 2" NPSH x 2" NPSH x 1.5" NPT
STF-3030	3" Tee, 3" NPSH x 3" NPSH x 3" NPT
SEF-1515	1.5" Elbow, 1.5" NPSH x 1.5" NPT
SEF-2020	2" Elbow, 2" Female NPT to 2" Male NPSH*
SEF-3030	3" Elbow, 3" NPSH x 3" NPT
SRE-2015	2" Elbow Reducer, 2" NPSH x 1.5" NPT
SCC-2015	2" Reducer, 2" NPSH to 1.5" NPSH
SRT-2151	2" Reducer, 2" NPSH x 1.5" NPSH x 1.5" NPT
SCC-1515	1.5" Connector, 1.5" NPSH to 1.5" NPSH
SCC-2020	2" Connector, 2" NPSH to 2" NPSH
SCC-3030	3" Connector, 3" NPSH to 3" NPSH

NEW



Single Wall Pipe Coupling (SPC Model)



Double Wall Pipe Coupling (DPC Model)



Adaptor (SMA Model)



Tee (STF Model)



Elbow (SEF Model)

*British Fittings are available in Europe. Please contact OPW-EMEA Customer Service at +420-474-624-025.

OPW Retail Fueling Introduces a New Generation of Swivel Bolt-On Couplings

Announcing our revolutionary new SBC Swivel Bolt-On Double Wall Pipe Coupling. The new patent pending technology gives users the same great features as our revolutionary DPC swage on double wall fittings in a Bolt-on design. The SBC eliminates the need to trim back the secondary jacket – and eliminates the need for rubber test boots!

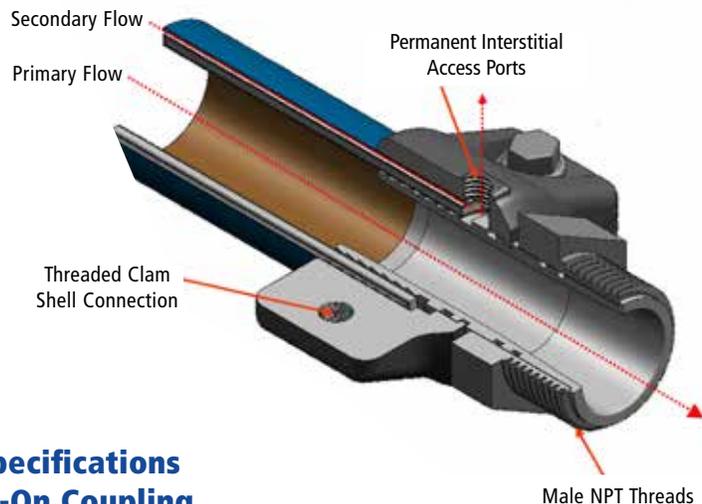
Features and Benefits

- ◆ All Stainless Steel Wetted Surfaces
- ◆ No Jacket Stripping
- ◆ No Test Boots
- ◆ Male NPT Thread allows this coupling to be used with standard plumbing Tees and Elbows
- ◆ Decreased Installation Time
- ◆ Provides quick and effective means to monitor or retest secondary containment
- ◆ State-of-the-Art Clam Shell Interlock Design only available through OPW
- ◆ Double O-Ring Swivel Design for easy and secure connections



New patent-pending Swivel Bolt-On Coupling system simplifies the interstitial connection process for FlexWorks Flexible Piping.

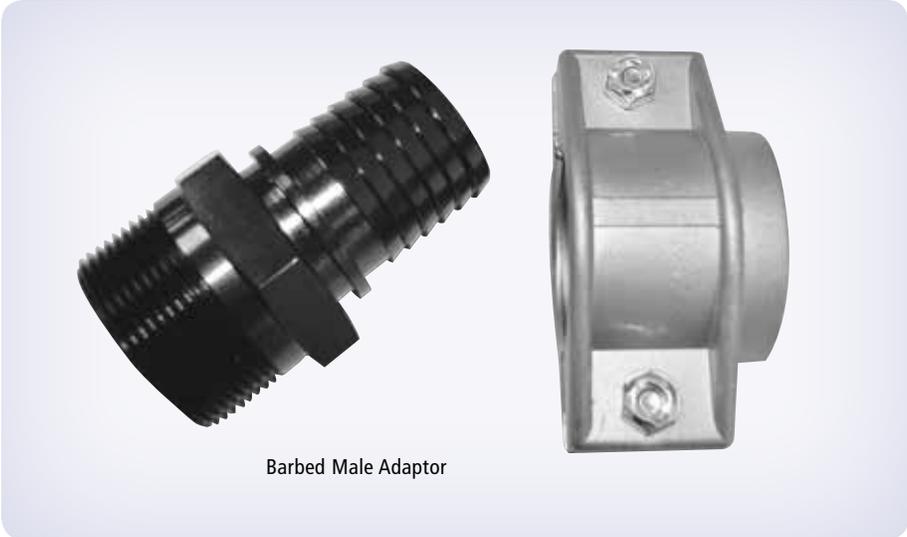
Our new FlexWorks Swivel Bolt-On Coupling features a double wall design that eliminates the need to trim back the secondary jacket. The need for rubber test boots is eliminated. Permanent access to the pipes interstice allows for future integrity testing or continuous interstitial monitoring. Swivel Bolt-On Couplings have an integral interstitial fluid path and a threaded access port located directly on the coupling collar. This state of the art method of connection is a cost effective solution that allows rapid system integrity testing as well as interstitial monitoring capability, at installation and in the future to accommodate new monitoring regulations.



Ordering Specifications Swivel Bolt-On Coupling

Model	Description
SBC-2075	Swivel Bolt-On Coupling, 3/4" NPT
SBC-2100	Swivel Bolt-On Coupling, 1" NPT
SBC-2150	Swivel Bolt-On Coupling, 1.5" NPT
SBC-2200	Swivel Bolt-On Coupling, 2" NPT

Model	Description
SST-1515	Tee Fitting, 1.5" NPT
SST-2020	Tee Fitting, 2" NPT
SSE-1515	Elbow Fittings, 1.5" NPT
SSE-2020	Elbow Fittings, 2" NPT



Barbed Male Adaptor

Barbed Male Adaptors

An adaptor is designed to connect one end of a flexible pipe section to a female NPT threaded coupling or fitting. There is a barbed insert with clamp assembly on one end and male NPT threads on the other. When used with double-wall FlexWorks piping, it is recommended that a reducer test boot be installed. These adaptors are required to be secondarily contained.

Ordering Specifications

Part #	Description
BMA-1515	NPT 1 1/2" to 1 1/2" Flex Pipe Barbed Male Adaptor
BMA-2020	2" Barbed Male Adaptor
BMA-3030	3" Barbed Male Adaptor

Barbed Fittings and Adaptors for FlexWorks Primary Pipe

OPW Retail Fueling’s barbed fittings are a single-wall design and are used to connect Flex or Vent piping. This piping connection system does not require the use of pipe couplings or the OPW Retail Fueling coupling machine. These fittings should be contained within containment sumps or protected in direct bury application.

Features & Benefits:

- ◆ For use with FlexWorks piping
- ◆ No coupling machine required
- ◆ All stainless steel clamps
- ◆ Barbs are offset
- ◆ Interlock design

OPW Offers a Variety of Tank Sump Models Made From Both Polyethylene and Fiberglass

OPW tank sumps function as a liquid-tight isolation container providing secondary containment for the tanks fittings, valves, pumps and FlexWorks pipe fittings.

They also provide surface access to the tank itself, as well as a clean, dry environment for future services and maintenance. All tank sump models have height-adjustable risers to accommodate different tank burial depths. Each sump model has its own specific range of height adjustability and are fabricated and assembled at the job site.

Tank Sump Manual
Order Number: TSM-0001



Polyethylene Tank Sump with Mechanically Fastened Cover



Fiberglass Tank Sump with Latched Lid



Fiberglass Tank Sump with Mechanically Fastened Covers

Complete Fibrelite Fiberglass Tank Sump Systems



Features & Benefits:

- ◆ Watertight – structure will not deform under water pressure
- ◆ Tank Sump bury depths 40" to 60". For depths greater than 60", see extensions below.
- ◆ Vacuum testable – during and after installation
- ◆ Available for both new and retrofit applications



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Fibrelite Tank Sumps

OPW Fibrelite tank sumps function as a liquid-tight isolation container providing secondary containment for tank fittings valves, pumps and Flexworks or Fiberglass pipe fittings.

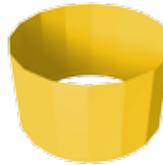
They also provide surface access to the tank itself, as well as a clean, dry environment for future service and maintenance. The height - adjustable risers to accommodate different tank bury depths.

Ordering Specifications - Complete Tank Sump Kits

Part #	Dia.	Overall Height	Base	Reducer Opening	Cover	Weight (lbs)
S8SB-390WT-KIT	45"	39"	Solid	33"	33"	138
S8SBD-390WT-KIT	45"	48"	Solid	33"	33"	146
S8CR-390WT-KIT	45"	48"	Collar Ring	33"	33"	116
S8CRD-390WT-KIT	45"	63"	Collar Ring	33"	33"	93
S14CR-390WT-KIT	52"	48"	Collar Ring	33"	33"	138
S15CR-390WT-KIT	57"	51"	Collar Ring	33"	33"	165

Kit's include Base, Reducer and Cover.
Resin Kit must be ordered separately.

Ordering Specifications - Sump Base



Part #	Application	Dia.	Height	Base	Weight (lbs)
S45	18" Dia. X 18" Deep FRP Solid Base Sump	18"	18"	Solid	33
S8SB	45" Dia. X 24" Deep FRP Sump W/ Solid Structural Base	45"	24"	Solid	90
S8SBD	45" Dia. X 33" Deep FRP Sump W/Solid Structural Base	45"	33"	Solid	98
S8CR	45" Dia. X 33" Deep FRP Sump W/ 42" Collar Ring Attachment	45"	33"	Collar Ring	68
S8CRD	45" Dia. X 45" Deep FRP Sump W/ 42" Collar Ring Attachment	45"	45"	Collar Ring	45
S14CR	52" Dia. X 33" Deep FRP Sump W/48" Collar Ring Attachment	52"	33"	Collar Ring	75
S15CR	57" Dia. X 36" Deep FRP Sump W/54" Collar Ring Attachment	57"	36"	Collar Ring	100

Tank SUMP BASE, TOP-HAT, COVER and RESIN KIT must be ordered separately.

Ordering Specifications - Optional Extensions for Deep Bury



Part #	Application	Dia.	Reducer Opening	Weight (lbs)
S8-EX12	12" Deep Yellow FRP Extension For S8 Sump	45"	12"	18
S14-EX12	12" Deep Yellow FRP Extension For S14 Sump	52"	12"	21
S15-EX12	12" Deep Yellow FRP Extension For S15 Sump	57"	12"	23

Ordering Specifications - Top-Hat



Part #	Application	Dia.	Reducer Opening	Weight (lbs)
S42-3100-TH	42" Dia. Round Sump - 37" Dia. Reducer Opening Other FRP Sumps	42"	37"	36
S8-390-TH	S8 Sump system includes retaining ring	45"	33"	35
S8-3100-TH	S8 Sump system includes retaining ring	45"	37"	37
S14-390-TH	S14 Sump system includes retaining ring	52"	33"	40
S14-3100-TH	S14 Sump system includes retaining ring	52"	37"	49
S15-390-TH	S15 Sump system includes retaining ring	57"	33"	50
S15-3100-TH	S15 Sump system includes retaining ring	57"	37"	52

Ordering Specifications - Turbine Sump Watertight Cover Lids



Part #	Application	Dia.	Weight (lbs)
WT-31	31" Dia. Watertight, Structural Spill Platform	31"	11
WT-33	33" Dia. Watertight, Structural Spill Platform	33"	13
WT-37	37" Dia. Watertight, Structural Spill Platform	37"	17

Ordering Specifications - Sump Accessories

Part #	Application
SL-1100	Urethane Sealant
S-CS-SEALANT	2 Part Self Leveling Sealant - Used to Seal Gap Between the Top-Hat and Skirt
S-CR-FGK	Kit for Bonding Collar Ring to Tank Collar - Includes Resin, Catalyst and Glass Tape.
RK-5000	Epoxy Resin Kit Bonding Collar Ring Sump to Fiberglass Tank Collar
PLEX-TUBE	1 Tube Of Plexus Adhesive
PlexisApplicator	Single Barrel Manual Applicator

Contact OPW for Tank Fittings and Manway Adaptors - 1-800-422-2525

Ordering Specifications - Sump Accessories

Part #	Application
WSP-WTS-OPC	6" Nitrile Observation Port Cap for WSP
WTS-CAP-14	14" Nitrile Container Port Cap for WSP
WS-RING-31	31" Stainless Steel Retaining Ring for Top-Hat
WS-RING-33	33" Stainless Steel Retaining Ring for Top-Hat
WS-RING-37	37" Stainless Steel Retaining Ring for Top-Hat
S-TH-RISER-31	10" Deep Top-Hat Riser for All 31" Dia. Opening
S-TH-RISER-33	10" Deep Top-Hat Riser for All 33" Dia. Opening
S-TH-RISER-37	10" Deep Top-Hat Riser for All 37" Dia. Opening



New Latched Fiberglass Tank Sump Lids

Our new specially designed latched Fiberglass Tank Sump Lid is now available on our Fiberglass Sump Models. Our new lid can also be ordered as a replacement Lid for our Polyethylene Sumps.

This lid is available to replace the "Mechanically Fastened" lids with knobs on retrofit applications.

Features & Benefits:

- ◆ Six latch and cover design to ensure even sealing.
- ◆ Holes in the lid to allow installation on 33" Fiberglass or Polyethylene Tank Sumps.
- ◆ Lid strength is three times stronger than our previous lid.
- ◆ Retrofitable to existing OPW Polyethylene and Fiberglass Tank Sumps that have the Mechanically Fastened Lid.

Ordering Specifications - New Latched Fiberglass Tank Sump Lids

Part #	Description
CLC-33	Latched Fiberglass Tank Sump Lid
LRK-CLC	Latch Replacement Kit for the CLC-33



Fiberglass Two-Piece Tank Sumps and Resin Kits

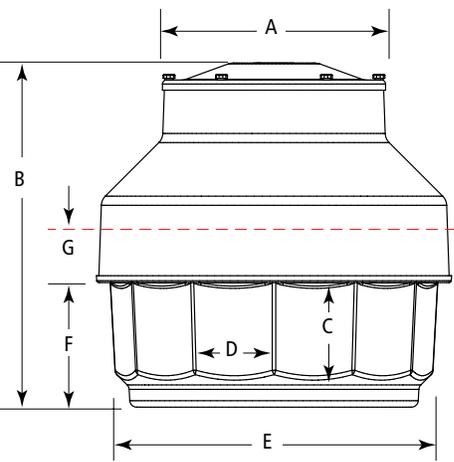
Injection Molded Fiberglass (FRP) Tank Sumps

Features & Benefits:

- ◆ **Structural Integrity** – engineered with thick walls and a structurally efficient geometry to withstand backfill and high water table forces. Precise glass/resin metering throughout the molding process ensures material consistency and maximizes the strength-to-weight ratio.
- ◆ **Smooth/Flat Sealing Surfaces for Leak-Tight Sump Entry Fittings** – male/female mold halves produce a uniform wall thickness while eliminating air entrapment. The result is a flat, smooth finish, both inside and out, which changes the integrity of the pipe entries.
- ◆ **Full Access Working Area** – two-piece design allows full access until top is attached after plumbing is complete.
- ◆ **Flexibility in Mounting** – sump can be mounted directly to a 42" FRP containment collar or with OPW Retail Fueling Sump Mounting Flanges.

Replacement Parts & Accessories

Part #	Description
H13257M	Knob
D02238	Cover
H13214M	Seal
D02223	Sump Top Assembly for TSMF-4536
D02229	Sump Top Assembly for TSDF-4536
E00779	Sump Bottom Assembly
CLC-33	Latched Fiberglass Tank Sump Lid



Ordering Specifications - Fiberglass Two-Piece Tanks Sumps & Resin Kits

Part #	Application	Dimensions										Sump Base Burial Depth				Weight			
		A Cover		B Height		C x D Panel		E Base		F Bottom Sump		G Max. Cutoff		max.	min.				
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg
TSMF-4536	Fiberglass Two-Piece Medium Bury Tank Sump, 36" x 45"	33	838	39	991	14x12	356 x 305	45	1,143	19	483	8.5	216	44	1,118	36	914	104	47
TSMF-4536CL	Fiberglass Medium Bury Tank Sump – Cover Latch	33	838	39	991	14x12	356 x 305	45	1,143	19	483	8.5	216	44	1,118	36	914	109	49
TSDF-4536	Fiberglass Two-Piece Deep Bury Tank Sump, 36" x 45"	33	838	50	1,270	14x12	356 x 305	45	1,143	19	483	10.5	267	55	1,397	45	1,143	108	49
TSDF-4536CL	Fiberglass Deep Bury Tank Sump – Cover Latch	33	838	50	1,270	14x12	356 x 305	45	1,143	19	483	10.5	267	55	1,397	45	1,143	113	51
RK-5000	Fiberglass Resin Kit (qt. size) – One Kit Required to Join Sump Base to Sump Top; One Kit Required to Join Sump Base to 42" FRP Tank Containment Collar.																		

Polyethylene Tank Sumps with Mechanically Fastened Covers

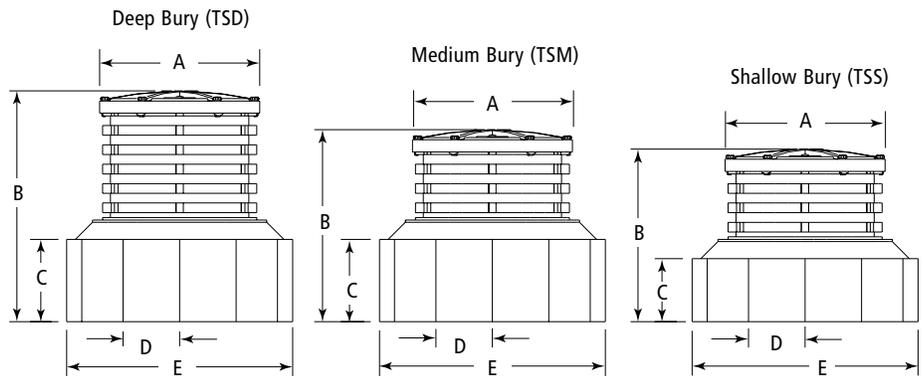
Features & Benefits:

- ◆ **Long-Term Watertight Performance/Strength & Rigidity** – one-piece design provides reliable watertight integrity and long product life. Designed to resist deformation under burial and high water table forces.
- ◆ **Installation Flexibility** – multiple flats provide maximum area for locating pipe entries.
- ◆ **Easy Field Height Adjustability** – the special ribbed height adjustment design makes adjustments to finished grade, if necessary, quick and easy.



Replacement Parts & Accessories

Part #	Description
H13257M	Knob
H13213M	Bracket
H13214M	Seal 33" (838 mm)
H13215M	Seal 39" (991 mm)
C04420M	Ring 33" (838 mm)
C04432M	Ring 39" (991 mm)
D02025M	Cover 33" (838 mm)
D02034M	Cover 39" (991 mm)
CLC-33	Latched Fiberglass Tank Sump Lid



Ordering Specifications - Polyethylene Tank Sumps (with Mechanically Fastened Covers)

Part #	Application	Dimensions								Sump Base Burial Depth				Weight				
		Manway Dia.		A Cover		B Height		C x D Panel		No. of Panels	E Base		max.		min.		lbs.	kg
		in.	mm	in.	mm	in.	mm	in.	mm		in.	mm	in.	mm	in.	mm		
TSS-4536	Tank Sump Shallow Bury, 36" x 45"	36	914	33	838	34	864	12 x 12	305 x 305	12	45	1,143	39	991	28	711	84	38
TSM-4536	Tank Sump Medium Bury, 36" x 45"	36	914	33	838	39	991	17 x 12	432 x 305	12	45	1,143	44	1,118	33	838	86	40
TSM-4842	Tank Sump Medium Bury, 42" x 48"	42	1,066	39	991	39	991	17 x 11	423 x 279	14	48	1,219	44	1,118	33	838	88	40
TSD-4536	Tank Sump Deep Bury, 36" x 45"	36	914	33	838	51	1,295	17 x 11	423 x 279	14	48	1,219	56	1,422	33	838	90	41
TSD-4842	Tank Sump Deep Bury, 42" x 48"	42	1,067	39	991	51	1,295	17 x 11	432 x 279	14	48	1,219	56	1,422	33	838	92	42

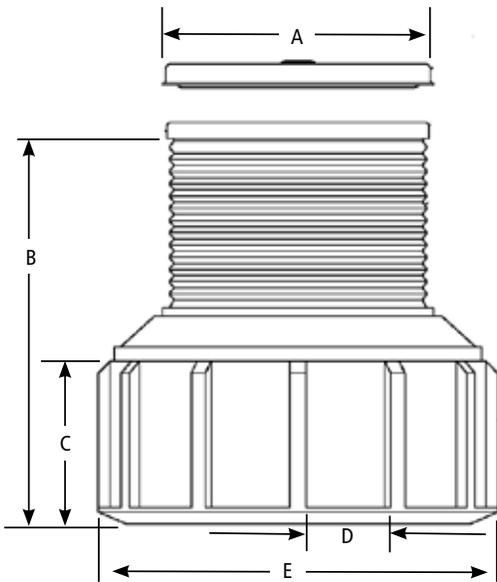


Medium Burial Sumps

A one-piece polyethylene containment sump designed for standard tank burial depths between 24" and 44". Available in sizes to install under 36" and 42" diameter street manholes. (MBS-3645H)

Shallow Burial Sumps

A one-piece polyethylene containment sump designed for shallow tank burial depths between 21" and 37". Available in sizes to install under 36" and 42" diameter street manholes.



Polyethylene Tank Sumps with Compression Fit Covers

OPW one-piece polyethylene tank sumps are listed with Underwriters Laboratories, Inc., (UL), and have passed the requirements for Canada at Underwriters Laboratories of Canada (ULC), KIWA and IP.

Features & Benefits:

- ◆ Liquid-tight covers
- ◆ Liquid-tight riser/base joints and pipe entries
- ◆ Chemically compatible
- ◆ Structurally strong
- ◆ Height adjustable

Replacement Parts & Accessories

Part #	Description
SCS-0030-HW	Sump Cover Seal
TSC-0030	Tank Sump Cover
SCS-0036-HW	Sump Cover Seal
TSC-0036	Tank Sump Cover
SCS-0042-H	Sump Cover Seal
TSC-0042	Tank Sump Cover
WIP-HK-8000	Sump Cover Handle

Ordering Specifications - Polyethylene Tank Sumps (with Compression Fit Covers)

Part #	Application	Manway Dia.		Dimensions						Sump Base Burial Depth				Weight				
				A Cover		B Height		C x D Panel		E Base		max.				min.		
				in.	mm	in.	mm	in.	mm	in.	mm	in.	mm			in.	mm	lbs.
MBS-3645H	Tank Sump Medium Bury 36" x 45"	36	914	33	838	39	990	16 x 9	406 x 229	12	45	1,143	44	1,118	24	610	90	40.8
DBS-3645H	Two-Piece Deep Bury 36" x 45"	36	914	46	1168	48.5	1231	18 x 10	457 x 254	12	49	1,244	55	1,397	33	838	140	63.5

Fibrelite Tank Sump Systems

OPW Fibrelite tank sumps function as a liquid-tight isolation container providing secondary containment for tank fittings valves, pumps and Flexworks or Fiberglass pipe fittings.

They also provide surface access to the tank itself, as well as a clean, dry environment for future service and maintenance. The height adjustable risers accommodate different tank bury depths.

Materials:

Sump: Fiberglass

Resin Kit must be ordered separately. See the Ordering Specifications Chart below.

FIBRELITE 
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Features & Benefits:

- ◆ Watertight – structure will not deform under water pressure
- ◆ Vacuum testable – during and after installation
- ◆ Sump extensions available; extend sump height by 12" per extension
- ◆ For depths greater than 60", use S8CRD "deep bury" sumps or extensions on page 19.
- ◆ Available for both new and retrofit applications

Ordering Specifications - Tank Sump Systems

Tank Sump Systems Include: Tank Sump Base, Top-hat with Stainless Steel Retaining Ring, Water Tight Internal Tank Sump Lid, Manhole Cover and Frame, Skirt Bonded to Frame, Polyurethane Sealant

Part #	Application	Tank Collar	Dia.	Height	Sump		Bonded Manhole	
					Base	WT Cover	Skirt I.D	Color
S8CR-390BL-WT33	45" x 33" Tank Sump with Black MH Cover	42"	45"	33"	Collar Ring	33"	36" FL90	Black
S8CRD-390BL-WT33	45" x 45" Tank Sump with Black MH Cover	42"	45"	45"	Collar Ring	33"	36" FL90	Black
S8SB-390BL-WT33	45" x 33" Solid Tank Sump with Black MH Cover	N/A	45"	33"	Solid	33"	36" FL90	Black
S14CR-390BL-WT33	52" X 33" Tank Sump with Black MH Cover	48"	52"	33"	Collar Ring	33"	36" FL90	Black
S14CR-390BL-WT33	52" X 33" Tank with Gray MH Cover	48"	52"	33"	Collar Ring	33"	36" FL90	Black

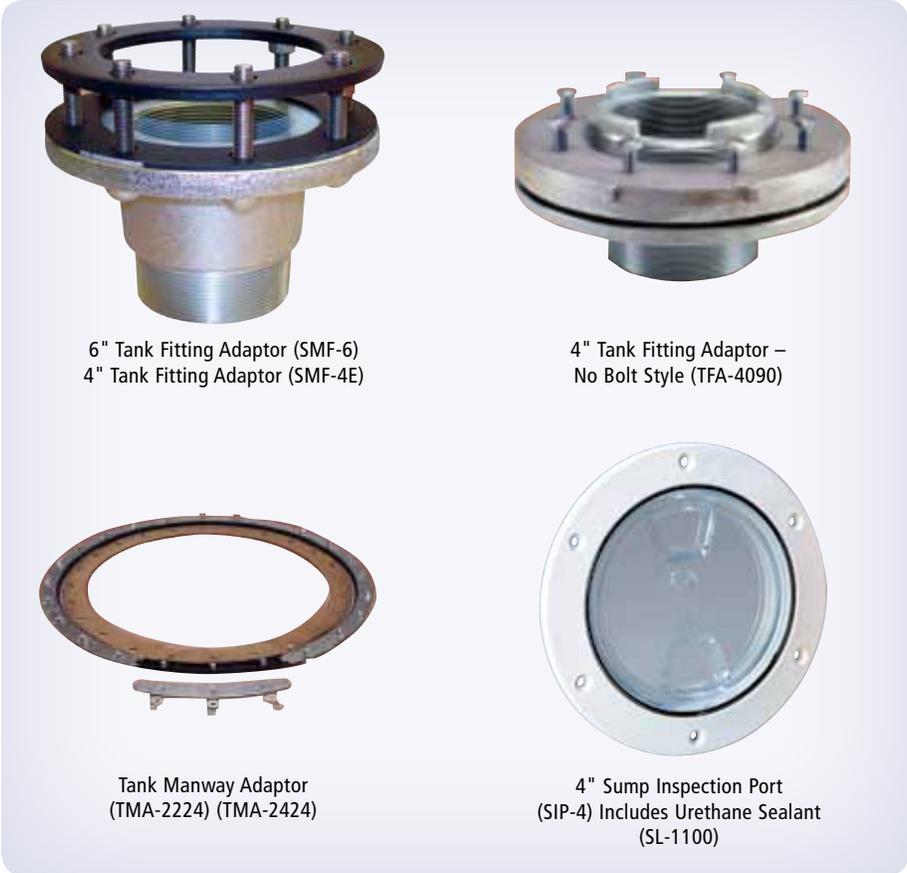
Ordering Specifications - Tank Sump Resin Kits

Part #	Application
S-CR-FGK	FRP Kit Used For Bonding Collar Ring Sump to FRP Tank Collar And Top Hat To Sump Base
RK-5000	Fiberglass Epoxy Kit (Qt. Size)
S-TH-FGK	FRP Kit used for Top Hat to Sump

Tank Sump Resin Kit Matrix

Tank Sump Part #	Collar Ring Attachment to Tank		Top Hat Attachment to Sump Base
	S-CR-FGK (1 gal)	RK-5000	S-TH-FGK (1 qt)
S8SB / S8SBD	n/a	n/a	1
S8CR / S8CRD	1	1	n/a*
S14CR	1	2	n/a*
S15CR	2	3	n/a*

* S-CR-FGK kit covers both Collar Ring and Top Hat application



6" Tank Fitting Adaptor (SMF-6)
4" Tank Fitting Adaptor (SMF-4E)

4" Tank Fitting Adaptor –
No Bolt Style (TFA-4090)

Tank Manway Adaptor
(TMA-2224) (TMA-2424)

4" Sump Inspection Port
(SIP-4) Includes Urethane Sealant
(SL-1100)

Tank Sump Mounting Flanges

FlexWorks tank sump mounting flanges are used to mount FlexWorks tank sumps to 4" and 6" underground storage tank bung fittings. Flange top models (SMF-6) provide added flexibility in positioning of pump or extractor outlets. First, the riser or extractor is threaded into the top flange. The top flange is then oriented and bolted to the mounting flange.

Our No-Bolt style mounting flange, model TFA-4090, is also used to mount FlexWorks tank sumps to 4" underground storage tank bung fittings and attaches to the bottom of the sump base to provide a secure and liquid tight connection. This model has compression studs for added stability and fast and easy installation with a socket wrench.

Tank Manway Adaptors

FlexWorks Tank Manway Adaptors are used to mount tank sumps to a tank's outward flanged manway. This adaptor attaches to the tank's manway and compresses the fabricated sump base and gasket between two steel compression rings.

Sump Inspection Ports

FlexWorks optional sight glass kits include urethane sealant (SL-1100).

Ordering Specifications - Tank Fitting Adaptor

Part #	Application
TFA-4090	4" Tank Fitting Adaptor, No Bolt Style
SMF-4E	4" Tank Fitting Adaptor, Bolt Style
SMF-4EFT	4" Tank Fitting Adaptor, Bolt Style, Extended Flange
SMF-6	6" Tank Fitting Adaptor, Bolt Style

Ordering Specifications - Tank Manway Adaptor

Part #	Application
TMA-2224	Tank Manway Adaptor (22 inch)
TMA-2424	Tank Manway Adaptor (24 inch)

Ordering Specifications - Sump Inspection Port

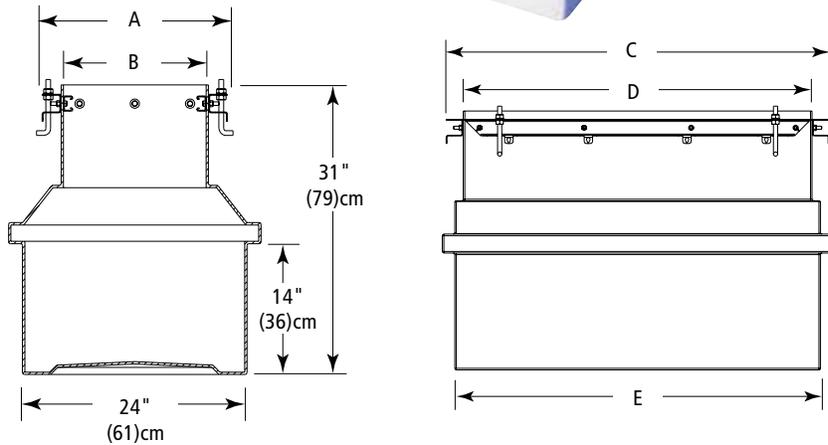
Part #	Application
SIP-4	4" Sump Inspection Port

One-Piece Polyethylene Dispenser Sumps

FlexWorks Dispenser Sumps are installed beneath fuel dispensers to provide access to and secondary containment of dispenser plumbing, emergency shear valves and underground piping connections. Stabilizer Bar Kits are installed in FlexWorks Dispenser Sumps to provide reliable support for boss-mounted emergency shear valves.

Features & Benefits:

- ◆ **Multiple Models** – ensure a custom fit.
- ◆ **Structural Reinforcing on Large MPD Models** – prevents sump deformation from backfill and high water table forces.
- ◆ **Light Color** – preserves rigidity in sunlight before backfill and provides maximum visibility after installation.
- ◆ **Full Perimeter Liquid Collection Channel** – facilitates quick leak detection and allows flexibility in locating leak sensors.
- ◆ **Integral Rain Lip** – protrudes into the dispenser frame to prevent surface water entry.
- ◆ **Easy Installation** – field height adjustment capability and large pipe entry area ensures installation flexibility.
- ◆ **Many Are Available in a Conduitless Model** – eliminates conduit entry fittings and prevents a notorious leak point inside dispenser sumps.



Ordering Specifications* - One-Piece Polyethylene Dispenser Sumps

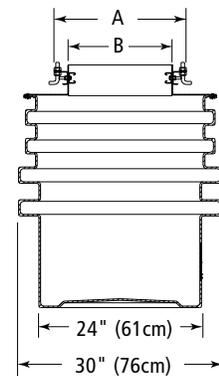
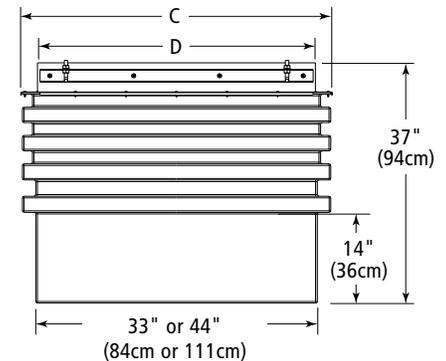
Model #	A		B		C		D		E		Weight	
	in.	cm	in.	cm	in.	cm	in.	cm	in.	cm	lbs.	kg.
DS-1036	14	36	10	25	40	102	36	91	38	97	65	65
DS-1117F**	14.5	37	10.5	27	20.5	52	16.5	42	18.5	47	32	15
DS-1120	15	38	11	28	24	61	20	51	25	64	33	15
DS-1123	15	38	11	28	27	69	23	58	25	64	33	15
DS-1123B	18.5	47	11	28	27	69	23	58	25	64	33	15
DS-1123F **	15	38	11	28	27	69	23	58	25	64	33	15
DS-1229	15.5	39	11.5	29	33	84	29	74	31	79	49	22
DS-1242	15.5	38	11.5	29	46	117	42	107	44	112	84	38
DS-1543A	19	48	15	38	43	109	39	99	41	104	84	38
DS-1630	20	51	16	41	34	86	30	76	32	81	52	23
DS-1630B	20	51	16	41	34	86	30	76	32	81	52	23
DS-1642	20	51	16	41	46	117	42	107	44	112	84	38
DS-1836	21.5	55	17.5	44	40.5	103	36.5	93	39	99	70	32
DS-1928	18	46	14.8	38	30	76	26	66	28.5	72	50	23
DS-1741	21	53	17	43	44.7	114	40.6	103	42.6	108	80	36

* Refer to FlexWorks Dispenser Sump Selection Chart to select sumps for particular dispensers (See pages 32 - 33 of this catalog)

** Flush mount model supplied without rain lip due to dispenser frame clearance limitations; Frame gasket included. Anchor bolts provided, Stabilizer Bar Kits ordered separately; One kit required for each emergency and vapor shear valve.



Wide Access Polyethylene Dispenser Sumps



Features & Benefits:

- ◆ **Contractor-Friendly Installation**
 - open top provides unrestricted access to the inside of the containment chamber to facilitate entry fitting and piping installation. Dispenser mounting frame is attached after plumbing is complete.
- ◆ **Deeper Burial Capability** – 37" burial depth allows piping slope requirements to be met more easily in layouts with long piping runs.
- ◆ **Simple Field Height Adjustment** – the top portion of the chamber can be quickly and easily trimmed along the ribs to ensure maximum installation flexibility.
- ◆ **Full Perimeter Liquid Collection Channel** – facilitates quick leak detection and allows flexibility in locating leak sensors.
- ◆ **Convenient Shipping and Storage** – sump boxes are partially nestable. Two chamber sizes accept multiple frames to accommodate all common dispensers.
- ◆ **Polyethylene Top** – polyethylene Top will not corrode.

Ordering Specifications - Wide Access Polyethylene Dispenser Sumps

Sump Model #	Dimensions								Weight with Top		Box Part #	Top Assembly Part #
	A	B	C		D		lbs.	kg				
	in.	cm	in.	cm	in.	cm	in.	cm				
DSW-1117F *	14½	37	10½	27	37	94	16½	42	94	43	E00590M	D02209
DSW-1120	15	38	11	28	37	94	20	51	94	43	E00590M	D02210
DSW-1123	15	38	11	28	37	94	23	58	94	43	E00590M	D02212
DSW-1123F *	15	38	11	28	37	94	23	58	94	43	E00590M	D02213
DSW-1229	15½	39	11½	29	37	94	29	74	94	43	E00590M	D02215
DSW-1242	15½	38	11½	29	46	117	42	107	95	43	E00591M	D02532
DSW-1543	18½	47	14¾	37	46	117	42½	108	95	43	E00590M	D02550
DSW-1543C	18½	47	14¾	37	46	117	36¾/10	92	95	43	E00591M	201491
DSW-1630	20	51	16	41	37	94	30	76	87	40	E00590M	D02536
DSW-1642	20	51	15½	39	46	117	42	107	95	43	E00591M	D02535
DSW-1836	21	53	17	43	46	117	36	91	95	43	E00591M	D02511
DSW-1836C	21	53	17	43	46	117	36	91	95	43	E00591M	D02511
DSW-1836CL	21.1	53.5	16.7	42.4	41	104	37	94	95	43	206725	206726

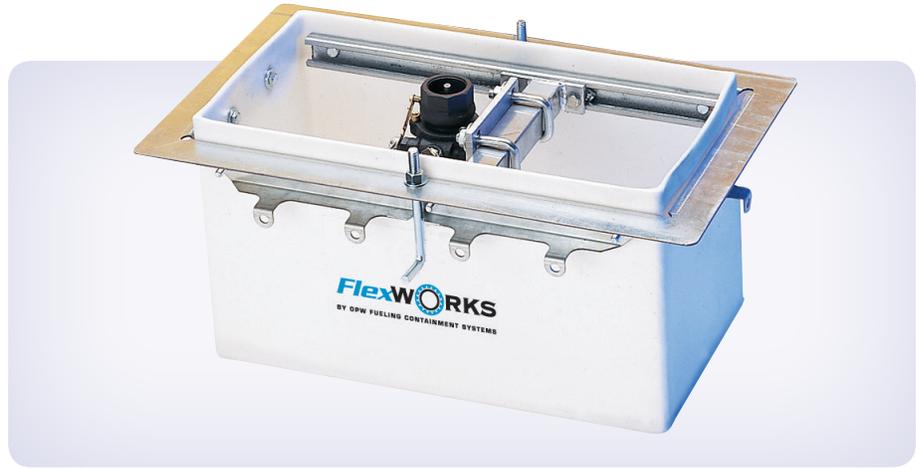
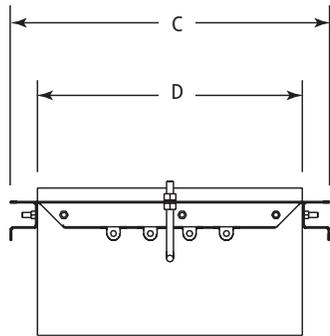
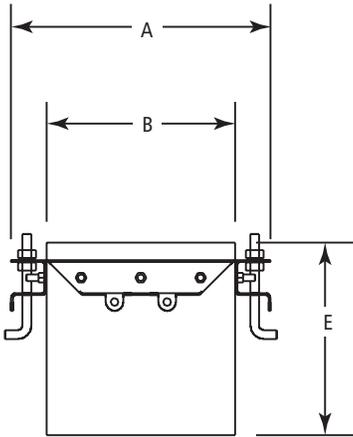
SL-1100 Urethane Sealant - One Tube required per Sump (Packaged 12 tubes/case)

* Flush Mount model supplied without rain lip due to dispenser frame clearance limitations; Frame Gasket Included. Anchor bolts provided, Stabilizer Bar Kits ordered separately; One kit required for each emergency & vapor valve. Refer to FlexWorks Dispenser Sump Selection Chart (See Pages 32 - 33 of this catalog) to select sumps for particular dispensers. **Yellow indicates metal top model.**

** These sumps are designed for Conduitless applications.

FlexWorks Polyethylene Dispenser Pans

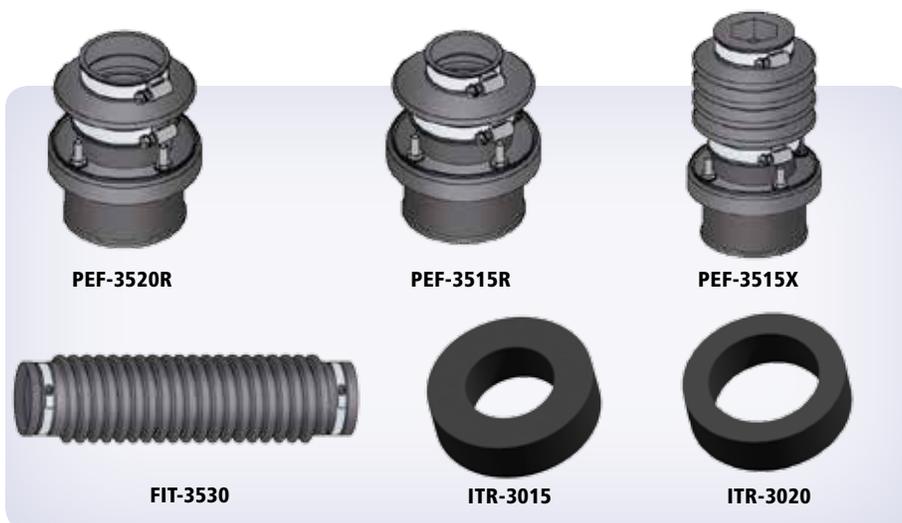
FlexWorks Dispenser Pans are installed beneath fuel dispensers to provide secondary containment of dispenser plumbing and emergency shear valves. Dispenser pans are commonly used with rigid fuel pipe and to retrofit existing dispensers.



Ordering Specifications FlexWorks Polyethylene Dispenser Pan

Model *	Dimensions										Weight	
	A		B		C		D		E		lbs.	kg
	in.	cm	in.	cm	in.	cm	in.	cm	in.	cm		
DP-1117F	14½	37	10½	27	20½	52	16½	42	11	28	20	9
DP-1123	15	38	11	28	27	69	23	58	11	28	23	10
DP-1123F	15	38	11	28	27	69	23	58	11	28	23	10
DP-1543	19	48	15	38	43	109	38.8	99	11	28	44	20
DP-1630	20	51	16	41	34	86	30	76	11	28	38	17
DP-1836	21½	55	17½	44	40	102	36	91	11	28	50	23

*Flush Mount Model (F) Supplied without Rain Lip Due to Dispenser Frame Clearance Limitations; Supplied with Frame Gasket. Anchor Bolts Provided, Stabilizer Bar Kits Ordered Separately; One Kit Required for each Emergency Shut-Off Valve.



Dispenser Pan Fittings and Accessories

FlexWorks Dispenser Pan fittings are installed in the bottom of FlexWorks Dispenser Pans to accommodate Pipe and Flex Connector Entries. "The FIT-3530 is used to isolate and contain Flex Connectors".

Ordering Specifications - Dispenser Pan Fittings & Accessories

Model	Application	Nominal Boot I.D.		Hole Saw Required	Weight	
		in.	cm		lbs.	kg
PEF-3520R	Pan Entry Fitting, 2" (5 cm) FRP Pipe Entry	2 ^{3/8}	6	3" (8 cm)	2.5	1
PEF-3515R	Pan Entry Fitting, 1.5" (4 cm) Pipe Entry	2	5	3" (8 cm)	2.5	1
PEF-3515X	Pan Entry Fitting, 1.5" (4 cm) Flex Connector (Hex Seal)	2 (Hex)	5	3" (8 cm)	2.5	1
FIT-3530	Flexible Isolation Jacket, 30" (76 cm) Long x 3.5" (9 cm) I.D.				2	1
ITR-3015	Isolation Tube Reducer, 3" x 1.5"				1	.5
ITR-3020	Isolation Tube Reducer, 3" x 2"				1	.5

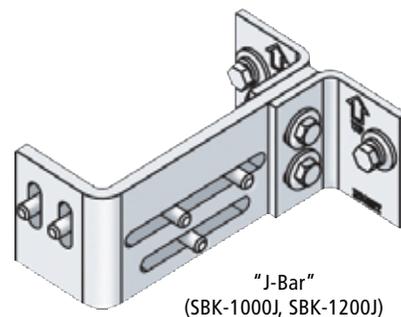
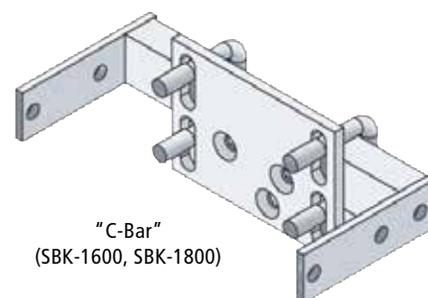
Dispenser Sump Accessories

FlexWorks pipe Stabilizer Bar Kits provide reliable support inside dispenser sumps/pans for boss-mounted emergency shear valves. One kit is required for each emergency valve and vapor shear valve.

Ordering Specifications - Stabilizer Bar Kit

Model #	Application (for Sump/Pan) DS-, DSW, DSF, FDS	Weight	
		lbs.	kg
SBK-1000J	1036	5	2.3
SBK-1100J	1117F, 1123, 1123F, 1120	5	2.3
SBK-1200J	1229, 1242	6	2.8
SBK-1500	Ovation Product Line (DS-1543A, DSW-1543, DSF-1543, 1543C, DS-1928)	7	3
SBK-1500V	Ovation Vapor Line (DSW-1543, DS1543A, DSF-1543, 1543C)	7	3
SBK-1600	1630, 1642	7	3
SBK-1700	DSF-1741	7	3
SBK-1800	1836, FDS-4021	7	3
SBO-0250	Ovation FDS-4319	6	2.8
MPK-10*	Extra Mounting Plate Kit	2	1
C04400M	Stabilizer Bar Mounting Plate Only under the MPK-10*		

* Stabilizer bar is installed widthwise in dispenser sump. One valve mounting plate is included. Additional MPK-10 mounting plate kit is required for additional valves.

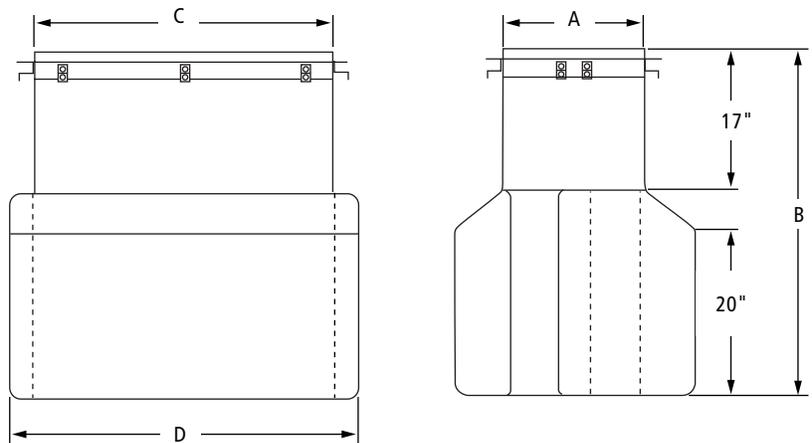


Fiberglass Dispenser Sumps

FlexWorks Fiberglass Dispenser Sumps allow the supply piping to enter and/or exit out of the sidewall of the containment sump at a very low elevation. Ideal for pressure piping systems requiring indirect slope back to the tank.

Features & Benefits:

- ◆ **Structural Integrity** – engineered with thick side walls to withstand backfill and high water table forces.
- ◆ **Full Access Working Area** – frame is attached after plumbing is complete.
- ◆ All three models have an external conduit channel.

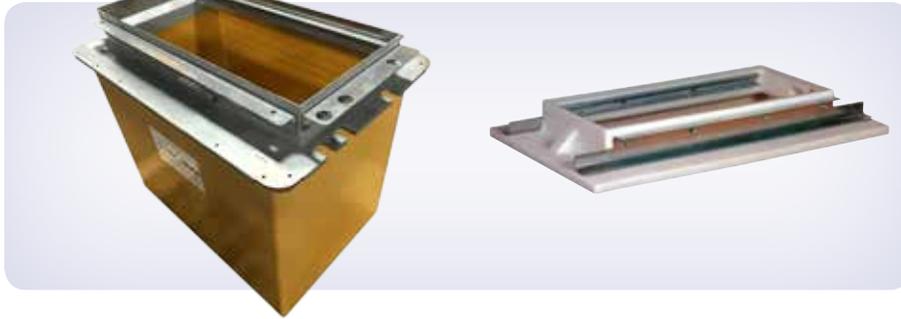


Ordering Specifications* - Fiberglass Dispenser Sumps

Model #	A		B		C		D		Weight	
	in.	cm	in.	cm	in.	cm	in.	cm	lbs.	kg
FDS-4021	17	43	42	106	36	91	42	106	102	46.27
FDS-4319	15	38	42	106	39	99	39	99	107	48.53

Refer to FlexWorks Dispenser Sump Selection Chart (See Pages 32 - 33 of this catalog) to select sumps for particular dispensers.

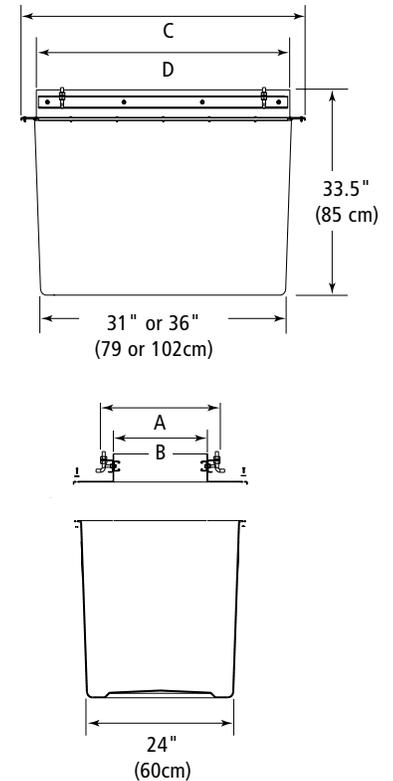
*All models are designed with conduit-less frames. All models have an external conduit channel.



Wide-Access Fiberglass Dispenser Sumps

Features & Benefits:

- ◆ **Conduitless Design** – the fiberglass base and metal cap and frame are designed to direct conduit into the dispenser along the side of the sump to avoid requiring additional entry boot penetrations.
- ◆ **Multi-Product Flexible** – the wide sump surface area is designed to accommodate up to 4 product lines into the sump.
- ◆ **Structural Integrity** – engineered with thick side walls to withstand backfill and high water table forces. Precise glass and resin metering throughout the molding process ensures material consistency and maximizes the strength-to-weight ratio.
- ◆ **Full-Perimeter Liquid Collection Channel** – facilitates quick leak detection and allows flexibility in locating leak sensors.
- ◆ **Smooth Sealing Surfaces For Leak-Tight Sump Entry Fittings** – our fully enclosed molding manufacturing method produces a uniform wall thickness while eliminating air entrapment. The result is a flat, smooth finish, both inside and out, which provides leak-tight pipe entries.
- ◆ **Convenient Shipping and Storage** – sump boxes are nestable. Two sizes accept multiple frames to accommodate all common dispensers.
- ◆ **Full-Access Working Area** – frame is attached after plumbing is complete.
- ◆ **Mounting Flange** – sump rests on island form crossbars for support during installation.



Ordering Specifications - Wide Access Polyethylene Dispenser Sumps

Sump Model #	Dimensions								Weight with Top		Box Part #	Top Assembly Part #
	A		B		C		D		lbs.	kg		
	in.	cm	in.	cm	in.	cm	in.	cm				
DSF-1117F *	14.5	37	10.5	27	37	94	16.5	42	87	40	D02198M	D02209
DSF-1120	15	38	11	28	37	94	20	51	87	40	D02198M	D02210
DSF-1123	15	38	11	28	37	94	23	58	87	40	D02198M	D02212
DSF-1123F *	15	38	11	28	37	94	23	58	87	40	D02198M	D02213
DSF-1229	15.5	39	11.5	29	37	94	29	74	87	40	D02198M	D02215
DSF-1242	15.5	39	11.5	29	46	117	42	107	90	41	D02197M	D02532
DSF-1543C**	18.5	47	14.75	37	40.5	103	39	99	90	41	210034	211351
DSF-1630	20	51	16	41	37	94	30	76	80	36	D02198M	D02536
DSF-1642	20	51	16	41	46	117	42	107	90	41	D02197M	D02535
DSF-1741C	20.7	52.5	16.7	42.4	40.5	103	37	94	90	41	210051	212272
DSF-1836C**	21.5	55	17.25	44	40.5	103	36.5	93	90	41	210051	211350

SL-1100 Urethane Sealant - One Tube required per Sump (Packaged 12 tubes/case)

* Flush Mount model supplied without rain lip due to dispenser frame clearance limitations; Frame Gasket Included. Anchor bolts provided, Stabilizer Bar Kits ordered separately; One kit required for each emergency & vapor valve. Refer to FlexWorks Dispenser Sump Selection Chart (See Pages 33 - 34 of this catalog) to select sumps for particular dispensers. **Yellow indicates metal top model.**

** These sumps are designed for Conduitless applications.

Ordering Specifications - FlexWorks Dispenser Sump Selection Chart

Dispenser Manufacturer & Model	Dispenser Footprint Dimensions		FlexWorks One-Piece Polyethylene Sump	FlexWorks Wide-Access Polyethylene Sump	FlexWorks One-Piece Polyethylene Pan	FlexWorks One-Piece Fiberglass Sump	FlexWorks Wide-Access Fiberglass Sump	Stabilizer Bar Kit
	in.	cm						
GILBARCO								
Commercial 625, 650, 684 Series (21" / 53" cm Frame)	15 ¹¹ / ₁₆ " x 21"	40 x 53	DS-1117F	DSW-1117F	DP-1117F	---	DSF-1117F	SBK-1100J
Salesmaker-2 Series (21" / 53 cm Frame)	15 ¹¹ / ₁₆ " x 21"	40 x 53	DS-1117F	DSW-1117F	DP-1117F	---	DSF-1117F	SBK-1100J
Highline 11B Series (21" Frame / 53 mm)	15 ¹¹ / ₁₆ " x 21"	40 x 53	DS-1117F	DSW-1117F	---	---	DSF-1117F	SBK-1100J
Highline 111B Series (27" / 69 cm Frame)	15 ¹¹ / ₁₆ " x 27"	40 x 53	DS-1123F	DSW-1123F	DP-1123F	---	DSF-1123F	SBK-1100J
Trimline 251, 252, 261, 262 (27" / 69 cm Frame)	15 ¹¹ / ₁₆ " x 27"	40 x 69	DS-1123F	DSW-1123F	DP-1123F	---	DSF-1123F	SBK-1100J
Trimline 154, 164, 251, 262 (27" / 69 cm Frame)	15 ¹¹ / ₁₆ " x 21"	40 x 69	DS-1117F	DSW-1117F	---	---	DSF-1117F	SBK-1100J
Commercial 650 Series (27" / 69 cm Frame)	15 ¹¹ / ₁₆ " x 27"	40 x 69	DS-1123F	DSW-1123F	DP-1123F	---	DSF-1123F	SBK-1100J
Highline Salesmaker Series	15 ¹¹ / ₁₆ " x 21"	40 x 69	DS-1117F	DSW-1117F	DP-1117F	---	DSF-1117F	SBK-1100J
Highline Salesmaker Series (27" / 69 cm Frame)	15 ¹¹ / ₁₆ " x 27"	40 x 69	DS-1123F	DSW-1123F	DP-1123F	---	DSF-1123F	SBK-1100J
Salesmaker-4 Series (27" / 69 cm Frame)	15 ¹¹ / ₁₆ " x 27"	40 x 69	DS-1123F	DSW-1123F	DP-1123F	---	DSF-1123F	SBK-1100J
Legacy Series	15 ¹¹ / ₁₆ " x 27"	40 x 69	DS-1123F	DSW-1123F	DP-1123F	---	DSF-1123F	SBK-1100J
Encore Series 	23 ¹ / ₂ " x 40 ⁹ / ₁₆ "	60 x 103	DS-1836	DSW-1836 DSW-1836CL	DP-1836	FDS-4021	DSF-1836 DSF-1836C	SBK-1800*
Advantage (36" / 91 cm Frame Models)	21 ¹ / ₂ " x 36"	55 x 91	DS-1630	DSW-1630	DP-1630	---	DSF-1630	SBK-1600
Quad or Dual	---	---	---	---	---	---	---	---
Blender X + O (36" / 91 cm)	---	---	---	---	---	---	---	---
Advantage (48" / 122 cm Frame Models)	21 ¹ / ₂ " x 48"	55 x 122	DS-1642	DSW-1642	---	---	DSF-1642	SBK-1600*
Blender Six-Hose	---	---	---	---	---	---	---	---
Blender Single-Hose	---	---	---	---	---	---	---	---
Blender X + O (48" / 122 cm) or X + 1 (48" / 122 cm)	---	---	---	---	---	---	---	---
MPD-1, MPD-2, MPD-3	16" x 48"	41 x 122	DS-1036	---	---	---	---	SBK-1000J
MPD Fixed Blender	16" x 48"	41 x 122	DS-1036	---	---	---	---	SBK-1000J
	---	---	---	---	---	---	---	---
BENNETT								
Bennett Pacific 	19 ¹ / ₂ " x 43 ¹ / ₂ "	49 x 110	DS-1543A	---	---	---	---	SBK-1500
Bennett 3000 Series	20" x 30"	51 x 76	DS-1123B	---	---	---	---	SBK-1100J
PD MCLAREN								
RDR HSx (Single Product, Single Hose)	21" x 17.75"	53 x 45	---	DSW-1922	DSF-1922	---	---	SBK-1900
RDR HSx-D1 (Single Product, Dual Hose)	21" x 17.75"	53 x 45	---	DSW-1922	DSF-1922	---	---	SBK-1900
RDR HSx-D2 (Dual Product, Dual Hose)	21" x 17.75"	53 x 45	---	DSW-1922	DSF-1922	---	---	SBK-1900
RDR HSx-SAT (Master Unit and Satellites)	21" x 17.75"	53 x 45	---	DSW-1922	DSF-1922	---	---	SBK-1900
RDR HSx-X2 (Single Product, Dual Hose, One at a Time)	21" x 17.75"	53 x 45	---	DSW-1922	DSF-1922	---	---	SBK-1900

* For FDS-4021 Models, use Stabilizer Bar SBK-1800.

Ordering Specifications - FlexWorks Dispenser Sump Selection Chart

Dispenser Manufacturer & Model	Dispenser Footprint Dimensions		FlexWorks One-Piece Polyethylene Sump	FlexWorks Wide-Access Polyethylene Sump	FlexWorks One-Piece Polyethylene Pan	FlexWorks One-Piece Fiberglass Sump	FlexWorks Wide-Access Fiberglass Sump	Stabilizer Bar Kit
	in.	cm						
GASBOY								
0215A, 216A (19 ⁷ / ₈ " Frame / 50.5 mm)	17 ¹ / ₄ " x 19 ⁷ / ₈ "	49 x 50.5	DS-1117F	DSW-1117F	DP-1117F	----	DSF-1117F	SBK-1100J
52 and 53 Series	17" x 19 ⁷ / ₈ "	44 x 50.5	DS-1117F	DSW-1117F	DP-1117F	----	DSF-1117F	SBK-1100J
8700, 8800, 9100, 9800 Series	17 ¹ / ₄ " x 25"	44 x 63.5	DS-1120	----	----	----	----	SBK-1100J
25" Frame 63.5 mm	17 ¹ / ₄ " x 25"	44 x 63.5	----	----	----	----	----	----
8700, 8800, 9100, 9800 Series (28 ¹ / ₄ " Frame / 72 mm)	17 ¹ / ₄ " x 28"	44 x 71	DS-1123	DSW-1123	DP-1123	----	DSF-1123F	SBK-1100J
9850A	15 ¹ / ₁₆ " x 21"	40 x 69	DS-1120	DSW-1120	----	----	DSF-1120	SBK-1100J

* Stabilizer bar is installed widthwise in dispenser sump

DRESSER / WAYNE

350, 357, 358, 360, 370 Series	15" x 25 ⁷ / ₈ "	30 x 66	DS-1123F	DSW-1123F	DP-1123F	----	DSF-1123F	SBK-1100J
Vista 380 Series (387, 389)	20" x 35"	51 x 89	DS-1229	DSW-1229	----	----	DSF-1229	SBK-1200J
Vista 590 Series (590, 595)	20" x 48"	51 x 122	DS-1242	DSW-1242	----	----	DSF-1242	SBK-1200J
Vista 390 Series (395, 399)	20" x 48"	51 x 122	DS-1242	DSW-1242	----	----	DSF-1242	SBK-1200J
Vista 490 Series	20" x 48"	51 x 122	DS-1242	DSW-1242	----	----	DSF-1242	SBK-1200J
DL390, 395, 399 Series	20" x 48"	51 x 122	DS-1242	DSW-1242	----	----	DSF-1242	SBK-1200J
HS1 Satellite / 287 Series	20" x 35"	51 x 89	DS-1229	DSW-1229	----	----	DSF-1229	SBK-1200J
Ovation 	19 ¹ / ₂ " x 43 ¹ / ₂ "	50 x 110	DS-1543A**	DSW-1543 DSW-1543C	DP-1543	FDS-4319*	DSF-1543 DSF-1543C	SBK-1500
Select	19 ³ / ₈ " x 32 ⁵ / ₁₆ "	49 x 82	DS-1928	----	----	----	----	SBK-1500
Global Century	19 ³ / ₈ " x 32 ⁵ / ₁₆ "	49 x 82	DS-1928	----	----	----	----	SBK-1500
Reliance	19 ³ / ₈ " x 32 ⁵ / ₁₆ "	49 x 82	DS-1928	----	----	----	----	SBK-1500
HS4 / HS3 / Vista	19 ³ / ₈ " x 32 ⁵ / ₁₆ "	49 x 82	DS-1630	DSW-1630***	DP-1630	----	DSF-1630***	SBK-1600
Narrow Frame Helix (2000, 4000)	20" x 33"	51 x 84	DS-1630	----	----	----	----	SBK-1600
Wide Frame Helix (5000)	26" x 44"	51 x 112	DS-1741	----	----	----	----	SBK-1700

TOKHEIM

1200, 1248, 1250 Series	17 ¹ / ₄ " x 25"	44 x 64	DS-1120	DSW-1120	----	----	DSF-1120	SBK-1100J
330B, 333B Series	17 ¹ / ₄ " x 44"	44 x 112	DS-1642	DSW-1642	----	----	DSF-1642	SBK-1600

* For FDS-4319 Model use Stabilizer Bar SBO-0250.

Automatic Fire Extinguisher System

The FlexWorks Automatic Fire Extinguisher System is a small, non-rechargeable fire extinguisher designed specifically to be installed in a containment sump underneath an above-ground fuel dispenser, and to automatically extinguish a fuel fire in the event of a dispenser knock-over. The FlexWorks Fire Extinguisher System will automatically activate and discharge its extinguishing agent when the surrounding temperature reaches 175°F (79°C). The fire extinguisher comes with its own mounting bracket and can be mounted to a variety of surfaces. The fire extinguisher contains enough extinguishing agent to protect dispenser containment sumps up to a maximum capacity of 50 cubic feet.

Features

- ◆ Charged with a clean agent – HFC-227ea
- ◆ Operating temperatures of 0°F to 130°F
- ◆ One-year replacement warranty
- ◆ Low-cost solution to a potentially expensive problem

Benefits

- ◆ Extinguishes fuel fires quickly
- ◆ Provides year-round fire protection
- ◆ No certified annual testing required
- ◆ May reduce fire insurance premiums



Fire Prevention

Dispenser and UST containment sumps offer significant environmental protection by providing secondary containment and corrosion protection of valves and pipe fittings. Under certain conditions, a potential fire hazard could develop. Should a fire occur inside the containment chamber, the FlexWorks Automatic Fire Extinguisher System automatically extinguishes the fire in a matter of seconds, protecting patrons, underground piping, shear valves and sump.

Application	Dispenser Containment Sump
Agent	HFC-227ea
Coverage Area:	50 ft. ³ (1.42m ³)
Atmospheric Life	Less than one day
Activation Temp:	175°F (79°C)
Operating Temp Range:	0°F to 130°F (-17.7°C to 54.4°C)

Ordering Specifications - FlexWorks Automatic Fire Extinguisher System

Model	Description
FSS-50	FlexWorks Automatic Fire Extinguisher System



The "REF" Rigid Entry Fitting

As a result of OPW's all inclusive development program to bring Next Generation Solutions to the market, OPW is proud to announce the release of our new state-of-the-art Rigid Entry Fitting.

How is this fitting different than other fittings in the industry? Our new Rigid Entry Fitting has minimal exposed rubber, yet still accommodates ground movement. The sealing redundancy throughout the fitting provides maximum containment and unmatched protection from water intrusion.

Features & Benefits:

- ◆ Sealing redundancy throughout – Maximum containment and unmatched protection from water intrusion
- ◆ Preserves total accessibility – For monitoring, maintenance, testing and repair
- ◆ Maintains flexibility to accommodate pipe and ground movement
- ◆ Hard shell exterior – To weather the elements and abuse of the underground environment

Ordering Specifications - REF Rigid Entry Fitting

Model #	Description	Weight	
		lbs.	kg
REF-0075C	Rigid Entry Fitting, 3/4" Rigid Conduit, Nylon	.90	0.40
REF-0100C	Rigid Entry Fitting, 1.0" Rigid Conduit, Nylon	.95	0.43
REF-0150	Rigid Direct Bury Entry Fitting for 1.5" Flexworks	2.35	1.06
REF-0200	Rigid Direct Bury Entry Fitting for 2" Flexworks	2.45	1.11
REF-0200F	Rigid Direct Bury Entry Fitting for 2.0" Smith SW FRP	2.45	1.11
REF-0200X	Rigid Direct Bury Entry Fitting for 2" LCX DW FRP	2.45	1.11
REF-0300F	Rigid Direct Bury Entry Fitting for 3" Smith SW FRP	2.85	1.30
REF-4015	Flexworks Rigid Entry Fitting 4" x 1.5"	2.75	1.25
REF-4020	Flexworks Rigid Entry Fitting 4" x 2.0"	2.85	1.29

Hole Saw Size Table

Entry Fitting Model #	Hole Saw Dimension
REF-0075C, REF-0100C	2.5"
REF-0150, REF-0200, REF-0200F, REF-0200X, REF-4015, REF-4020	4"
REF-0300F	5"

Flexible Entry Boots

FlexWorks Flexible Entry Boots are reliable, safe seals for pipe and conduit entries into underground containment sumps. These entry boots allow for angled pipe entries and have no exposed metal parts to the underground environment. These entry boots are available in a variety of sizes and designs to accommodate rigid and flexible piping, ducting and access pipe.

Features & Benefits:

- ◆ Watertight pipe and conduit entries
- ◆ Installation on flat or round surface
- ◆ Added flexibility permitting angled entries up to 15 degrees
- ◆ Third-Party testing approved

Sump Entry

Flexible entry boots have been tested to withstand a minimum of 6' of liquid head pressure. These seals provide a studded flange connection to create a positive and secure seal where the rubber contacts the sump wall and also around the pipe or conduit. Tightening down on a series of stud fasteners with a compression ring provides a high compression mechanical seal compared to screw on type bulkhead seals.



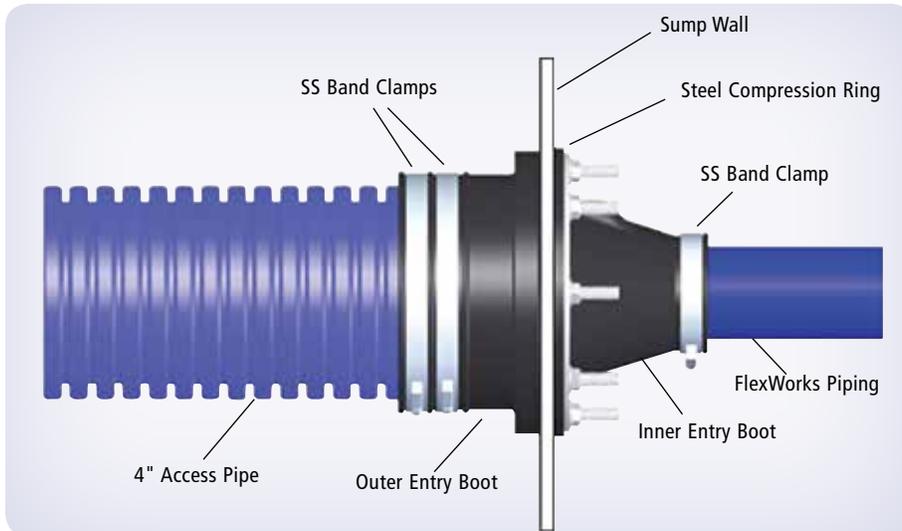
Angled Entries

Primary pipe and access pipe entering the containment sumps may not be perpendicular with the sump wall. Angled entries are generally a result of directional plumbing restrictions on the inside of the containment chamber due to space limitations. Flexible entry boots are flexible enough to permit angled pipe or conduit entries (on two axes) into the sidewall of a containment chamber. All flexible entry boots permit angled entries up to a 15-degree angle off the perpendicular center line in any direction without leaking or putting undue stress on the pipe or conduit seal.

Ordering Specifications - Single Flexible Entry Boot & Fitting

Model #	Application	Weight		Hole Saw	
		lbs.	kg	in.	cm
EBF-0751	1/2", 3/4" and 1" Conduit Entry Boot Fitting	1.2	0.5	2 3/8"	6.03
EBF-0150	1.5" Entry Boot Fitting for 1.5" DW FlexWorks Pipe	1.5	0.7	3 3/4"	9.52
EBF-0200	2" Entry Boot Fitting for 2" DW FlexWorks Pipe or 2" LCX	1.8	0.8	3 3/4"	9.52
EBF-0200F	2" Entry Boot Fitting for 2" Rigid Pipe	1.3	0.6	3 3/4"	9.52
EBF-0300	3" Entry Boot Fitting for 3" DW FlexWorks Pipe or 3" Rigid Pipe/LCX	1.8	0.8	5"	12.7
EBF-0400	4" Entry Boot Fitting for 4" Rigid Pipe/AXP Pipe	2.0	0.9	5 1/2"	13.97
EBF-0600	6" Entry Boot Fitting for 6" Rigid Pipe	Saber Saw			
SAB-7400	4" Sump Access Boot – Can be used as a repair boot plug for EBF fittings	2.0	0.9	5"	12.7

Flexible Entry Boot Manual Order Number: EBM-0001



Double Flexible Entry Boots

FlexWorks Double Flexible Entry Boots are designed to seal the sump penetration. These entry boots incorporate both internal and external band clamps to provide additional sealing in harsh environments. Boots firmly fasten and seal to the sump wall using steel studs, fasteners and a galvanized compression ring. These entry boots are available in a variety of sizes and designs to accommodate rigid and flexible piping, ducting and conduit.

Features & Benefits:

- ◆ Watertight pipe and conduit entries
- ◆ Installation on flat or round surface
- ◆ Added flexibility permitting angled
- ◆ Provides clean dry environment
- ◆ Accommodates various site installations
- ◆ Allows for easy field adjustments
- ◆ Can be repaired if damaged
- ◆ Third-party tested and approved
- ◆ Internal and external clamps for positive seal off

Ordering Specifications - Double Flexible Entry Boot & Fitting

Model #	Application	Hole Saw		Weight	
		in.	cm	lbs.	kg
DEB-0751	1/2", 3/4" and 1" Conduit Double Entry Boot Fitting	2 3/8"	6.03	1.45	0.66
DEB-0150	1.5" Double Entry Boot Fitting for 1.5" DW FlexWorks Pipe	4 1/4"	10.79	2.50	1.13
DEB-0200	2" Double Entry Boot Fitting for 2" DW FlexWorks Pipe or 2" Rigid Pipe	4 1/4"	10.79	2.50	1.13
DEB-0200X	2" LCX Double Entry Boot Fitting for 2" Ameron LCX / MCX Pipe	5 1/2"	13.97	3.90	1.77
DEB-0300	3" Double Entry Boot Fitting for 3" DW FlexWorks or 3" Rigid Pipe	5 1/2"	13.97	3.05	1.38
DEB-0300X	3" LCX Double Entry Boot Fitting for 3" Ameron LCX / MCX Pipe	5 1/2"	13.97	3.50	1.59
DEB-0400	4" Double Entry Boot Fitting for 4" Rigid Pipe/AXP Pipe	5 1/2"	13.97	3.20	1.45
DEB-4015(A)	4" to 1.5" Double Entry Boot Fitting for 4" FlexWorks Access Pipe to 1.5" DW FlexWorks Pipe - (A) with Air Stem	4"	10.79	3.15	1.43
DEB-4020(A)	4" to 2" Double Entry Boot Fitting for 4" FlexWorks Access Pipe to 2" DW FlexWorks Pipe - (A) with Air Stem	4"	10.79	3.20	1.45

Test Boots

FlexWorks Test Boots are used to isolate and air-test the interstitial space between the primary and secondary pipe. One test boot is required for each pipe end.



Models TBA-3015,
TBA-3020, TBA-4015 and TBA-4020



Models TBA-0075,
TBA-0100, TBA-0150, TBA-0200 and TBA-0300



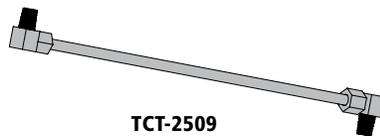
Test Gauge Assembly (TGA-15)



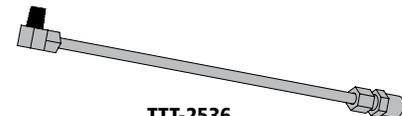
Test Jumper for Air Stems
(TJ-200A)



Test Line Termination Kit for Air Stems
(TLT-36A)



TCT-2509



TTT-2536

Ordering Specifications - Test Boot & Testing Equipment

Model #	Application	Weight	
		lbs.	kg
TBA-0075	3/4" Test Boot with Air Stem	0.20	0.09
TBA-0100	1" Test Boot with Air Stem	0.20	0.09
TBA-0150	1.5" Test Boot with Air Stem	0.35	0.16
TBA-0200	2" Test Boot with Air Stem	0.40	0.18
TBA-0300	3" Test Boot with Air Stem	0.70	0.32
TBA-3015	3" to 1.5" Test Boot with Air Stem	0.35	0.16
TBA-3020	3" to 2" FRP Test Boot with Air Stem	0.40	1.18
TBA-4015	4" to 1.5" Test Boot with Air Stem	0.75	0.34
TBA-4020	4" to 2" Test Boot with Air Stem	0.75	0.34
TBA-4030	4" to 3" FRP Test Boot with Air Stem	0.70	0.32
TJ-200A	Test Jumper for Air Stems		
TLT-36A	Test Line Termination Kit for Air Stems		
TGA-15	Test Gauge Assembly		
TCT-2509	Test Jumper for Double-Wall Coupling (DPC and SBC Series)		
TTT-2536	Test Tube Termination Kit for Double-Wall Coupling (DPC and SBC Series)		

Flexible Piping Systems for Fuel Oil & Generator Applications

The FlexWorks Fuel Oil Piping System is designed to provide a reliable fuel supply system to generators and boilers from remote fuel tanks. Typical applications include both a 3/4" supply and a 1" overflow return line running from a remote AST or UST to a generator engine or boiler day tank. Both lines are typically inserted into a common FlexWorks Access Pipe to provide retractable access to the fuel lines. See page 10 for fuel oil pipe. OPW will cut fuel oil pipe to length at no charge.



DEB-4175 Double Entry Boot Fitting



3/4" Primary Pipe with SBC Fitting



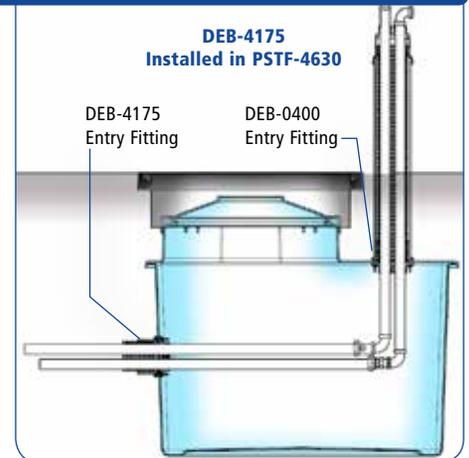
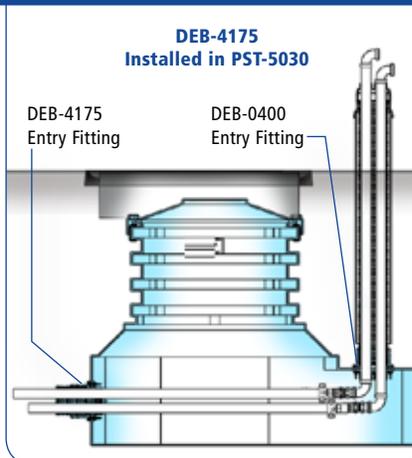
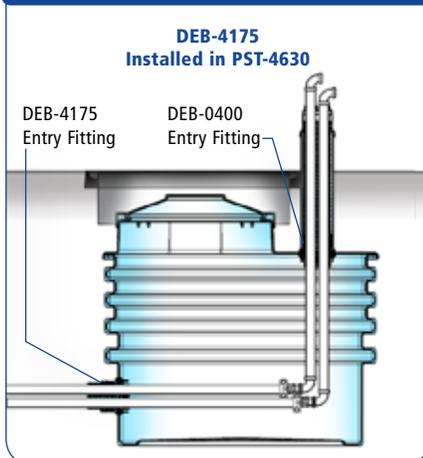
1" Primary Pipe with SBC Fitting

Ordering Specifications Specialty Fittings

Model #	Application	Weight	
		lbs.	kg
PDT-411	4" x 1" x 1" Double Tap Bushing	12	5
PJK-4175	4" x 1" x 3/4" Pipe Joining Kit	10	4.5
PTA-4175	Transition Assembly	8	3.5
TBA-4175	4" Fuel Oil Boot Transition Assembly	1	0.5
TBA-4175A	4" Fuel Oil Boot Transition Assembly with Air Stem	1	0.5

Model #	Application	Weight	
		lbs.	kg
SBC-2075	Swivel Bolt-On Coupling 3/4" NPT		
SBC-2100	Swivel Bolt-On Coupling 1" NPT		
DEB-4175	3/4" and 1" Double Entry Boot Fitting	3.25	1.47

AST APPLICATIONS



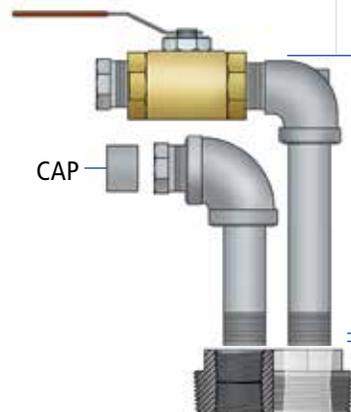
Transition Assembly Specialty Fittings - 3/4" and 1"



TBP-100
Plug for the Port on TBA-4175 Series Test Boots: For use when running only one fuel line inside AXP Pipes.



PTA-4175
FlexWorks Fuel Oil Piping Pipe Above/Below Ground Transition Assembly –
For slab penetration of 4" (10 cm) access pipe with 3/4" (2 cm) or 1" (3 cm) Fuel Oil Pipes
Includes Rigid Pipe



PDT-411 FlexWorks Double-Tapped Tank Bung Fitting, 4" (10 cm) MNPT w/Dual 1" (3 cm) FNPT Taps - Used in 4" (10 cm) Tank Bung to accommodate FOP Supply and Return Lines

PJK-4175 FlexWorks Fuel Oil Piping Pipe Joint Kit – includes nipples, ball valve and fittings used to connect 3/4" (2 cm) or 1" (3 cm) FOPs to PDT-411 Tank Bung Fitting

Transition Sumps

FlexWorks Above-Grade / Below-Grade Transition Sumps

Model PSTF-4630 Transition Sump (Fiberglass Sump/Fiberglass Top)

- ◆ Large, injection-molded FRP containment chambers are stackable for convenient shipping and storage
- ◆ Removable FRP top allows maximum access during installation of fittings and equipment, and provides a rigid entry fitting area adjacent to the cover for vertical entry of above-grade piping
- ◆ The PSTF-4630 is not adjustable, but FRP Sump Height Extenders (DSFE-4612) are available for the PSTF-4630 to accommodate deeper bury applications

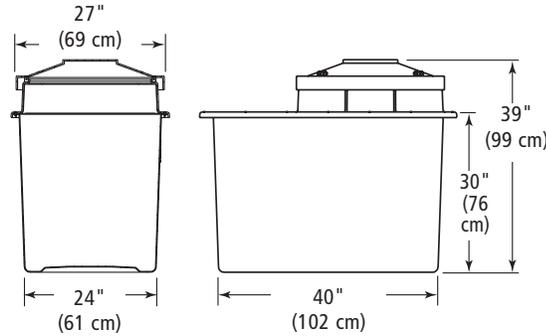
Model PST-4630 Transition Sump (Polyethylene Sump/Fiberglass Top)

- ◆ Large, heavily ribbed polyethylene containment chamber provides structural rigidity
- ◆ Adjustable to a minimum of 26"

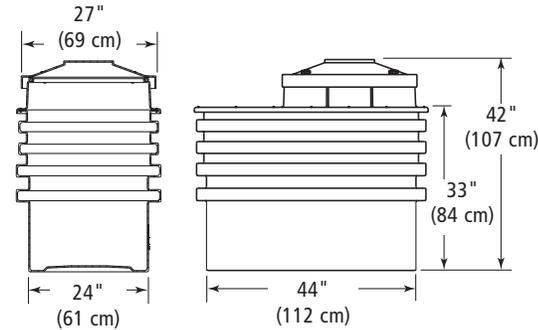
Model PST-5030 One-Piece Polyethylene Transition Sump

- ◆ Flat entry fitting area extending from the sump base accommodates vertical pipe entries
- ◆ Heavily ribbed riser provides strength and rigidity
- ◆ Adjustable to a minimum of 29"

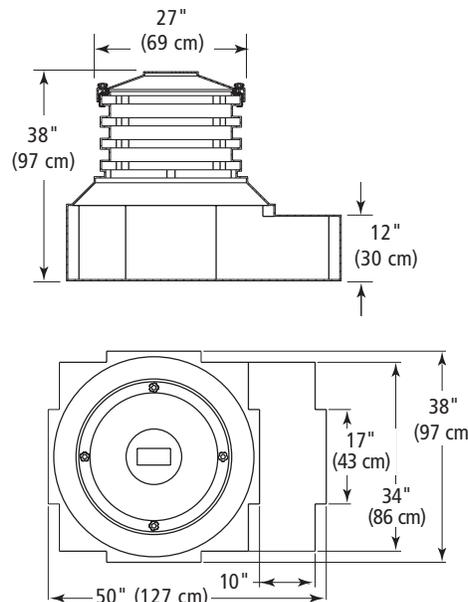
Model PSTF-4630 Transition Sump (Fiberglass Sump/Fiberglass Top)



Model PST-4630 Transition Sump (Polyethylene Sump/Fiberglass Top)

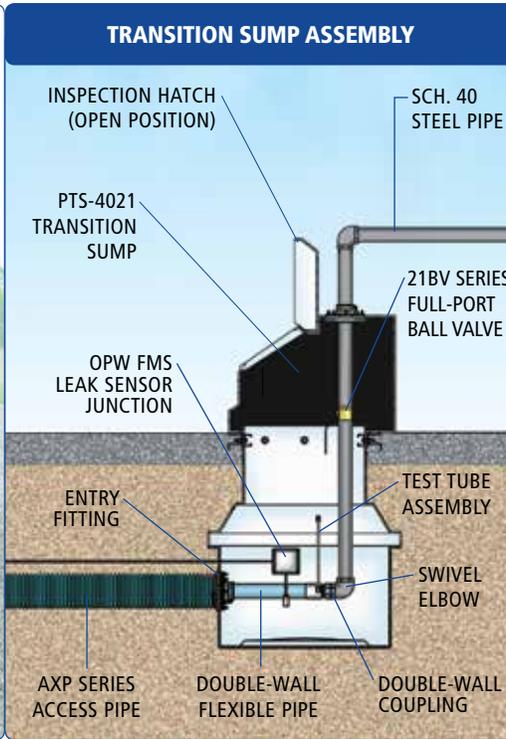
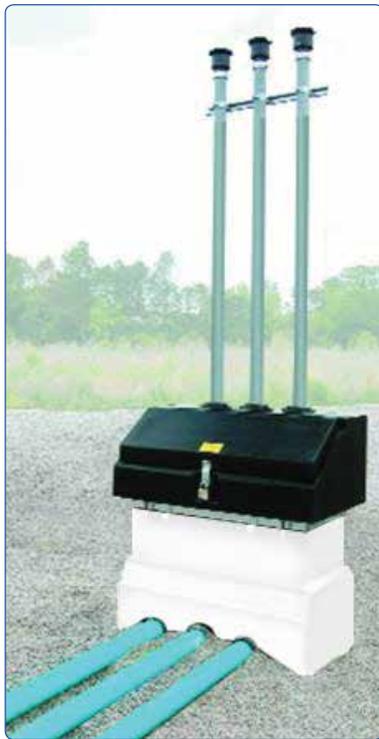


Model PST-5030 One-Piece Polyethylene Transition Sump



Ordering Specifications - Specialty Fitting

Model #	Application	Height		Weight	
		in	cm	lbs	kg
PSTF-4630	Fiberglass Transition Sump with Fiberglass Top	39	99	90	41
PST-4630	Poly Transition Sump with Fiberglass Top	42	107	100	45
PST-5030	One-Piece Poly Transition Sump with Poly Top, 38" x 50"	38	97	100	45
PTS-4021	Two-Piece Poly Transition Sump with Poly Top	46.5	118	110	49



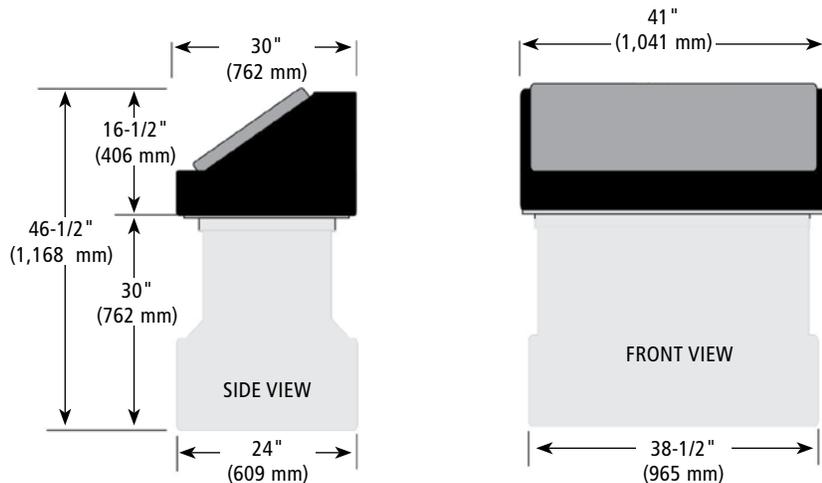
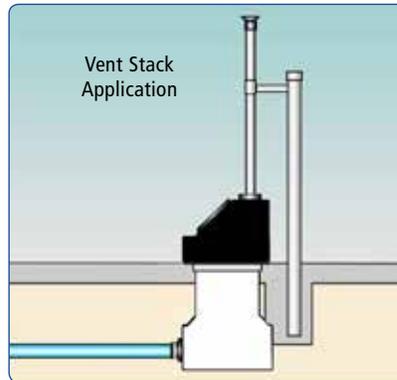
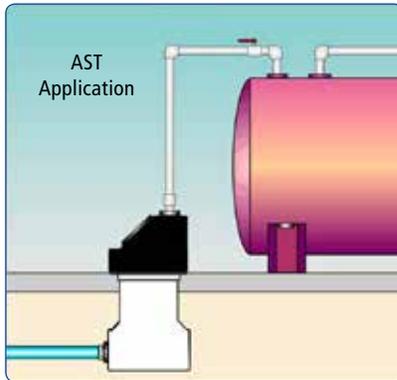
Transition Sumps

Model PTS-4021 Transition Sump (2 Piece - Polyethylene Sump/ Polyethylene Top)

- ◆ Non-corroding, polyethylene sump container
- ◆ Weatherproof lockable cover
- ◆ Exterior anchoring system

AST Application: Provides secondary containment and accessibility to the fittings that connect the underground supply piping to the rigid supply piping that leads from an above ground storage tank.

Vent Stack Application: Transition sump is used for containment and accessibility to the fittings. At the vent stack, where the underground vent piping connects to the rigid vent stack piping.



The complete Environmental System for underground fuel transfer and containment for the 21st century.

Special Application Sumps & Extensions

FlexWorks Special Application Sumps are installed below-grade and provide a convenient means of housing a multitude of underground piping connections and equipment, including valves, filters, meters and pumps. The PSL-3830 Line Connection Sump has large horizontal flats to accommodate multiple piping entries. The PSL-3630 Tall Mini-Sump has long vertical flats to accommodate applications with varying pipe entry heights. The PSL-2430 Mini Sump is ideal for connecting long pipe runs in a contained area.



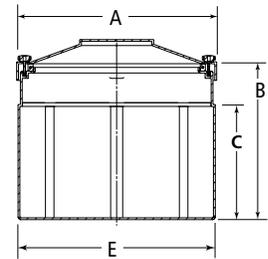
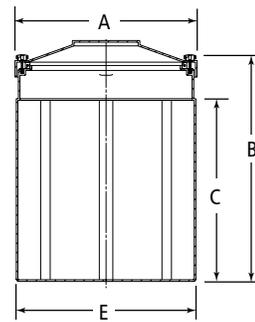
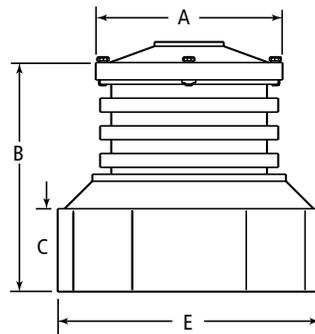
PSL-3830



PSL-3630



PSL-2430

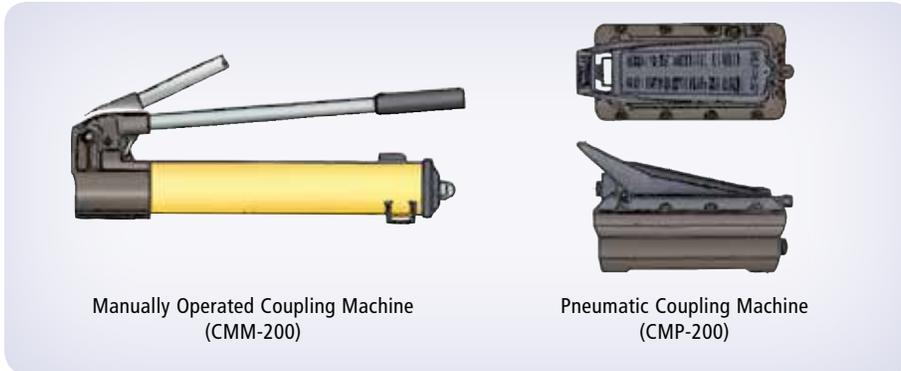


Ordering Specifications - Polyethylene Tank Sumps (with Compression Fit Covers)

Model #	Application	Dimensions								# of Panels	Burial Depth				Weight			
		Manway Dia.		A Cover		B Height		Dimesions CXE			E Base		max.		min.		lbs.	kg
		in.	mm	in.	mm	in.	mm	in.	mm		in.	mm	in.	mm	in.	mm		
PSL-2430	Special Application Sump, 24" x 30"	30	762	27	686	24	914	16 x 10	406 x 254	8	26	660	36	914	26	660	36	16
PSL-3830	In-Line Sump, 38" x 30"	30	762	27	686	63	914	12 x 38	305 x 965	12	38	965	41	1041	29	737	85	38
PSL-3630	Special Application Sump, 36" x 30"	30	762	27	686	36	914	28 x 20	711 x 254	8	26	660	48	1219	40	1016	42	19

Installation Tools Coupling Machines

The OPW Coupling Machine is required for the installation of both coax and swivel pipe couplings. The Coupling Machine is designed to internally expand the metal pipe insert installed at the end of a flexible pipe section. Coupling machines are available in both 110 and 220 volt models. Coupling swage kits are available to couple both coax and swivel couplings for a variety of pipe sizes.

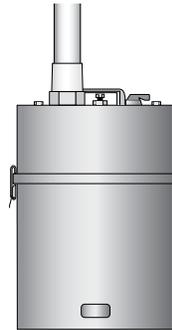


Manually Operated Coupling Machine
(CMM-200)

Pneumatic Coupling Machine
(CMP-200)

Electronic Coupling Machine (CME-0110, CME-0220 and CME-0110R)

The OPW Electronic Coupling Machine can couple the entire swivel and coax fitting line. Swage kits are required. The CME-0110R model is our Remote Electronic Coupling Machine. This machine comes with the hydraulics on the outside of the machine so pipe can be coupled in tight areas like inside a sump. All of the functions of the CME-0110 apply to this unit as well.



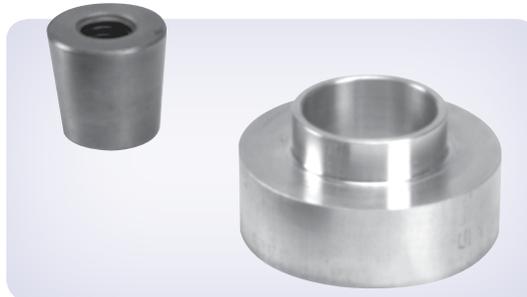
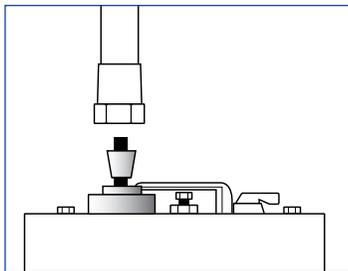
Electronic Coupling Machine
220 Volt: (CME-0220)
110 Volt: (CME-0110)
110 Volt, Remote (CME-0110R)

Manually Operated and Pneumatic Coupling Machines (CMM-200 and CMP-200)

The OPW Manually Operated and Pneumatic Coupling Machines can couple Stainless Steel (SSPFC), Swivel (SPC) and Double-Wall (DPC) fittings for 1.5" and 2" only. Swage kits are required.

Ordering Specifications Coupling Machine

Model	Application
CME-0110R	Coupling Machine, 110 Volt, Remote
CME-0110	Coupling Machine, 110 Volt
CME-0220	Coupling Machine, 220 Volt
CMM-200	Coupling Machine, Manual
CMP-200	Coupling Machine, Pneumatic



Swage Kits

Swages are used with the OPW Coupling Machine to internally expand the coupling onto the end of the flexible pipe section. There are a variety of coupling swage kits available to accommodate a variety of coupling types and sizes. NOTE: 3/4" and 1" swage kits adapt to the 1-1/2" swivel faceplate that comes standard with each coupling machine.

Ordering Specifications - Swage Kit

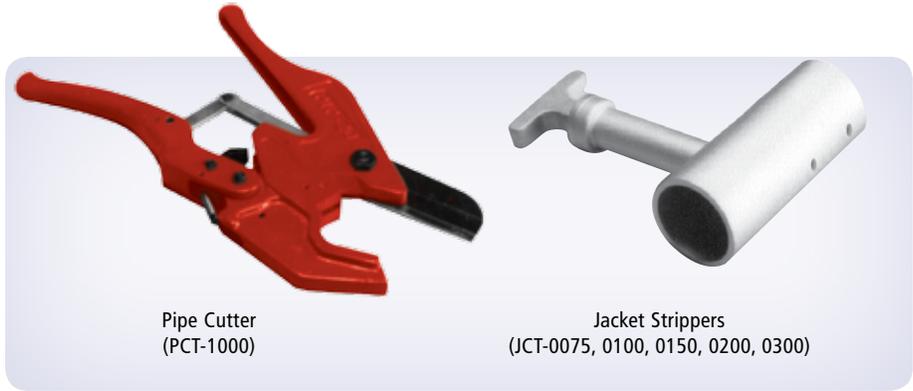
Fitting Type & Model #	Coupling Machine Model				
	CME-0110	CME-0110R	CME-0220	CMM-200	CMP-200
3/4" Swivel (SPC-0075) *	CSK-0075S	CSK-0075S	CSK-0075S	N/A	N/A
1" Swivel (SPC-0100) *	CSK-0100S	CSK-0100S	CSK-0100S	N/A	N/A
1.5" Swivel (SPC-0150A)	CSK-0150S	CSK-0150S	CSK-0150S	SBA2-0150	SBA2-0150
1.5" DW Swivel (DPC-2150A)	CSK-0150S	CSK-0150S	CSK-0150S	SBA2-0150	SBA2-0150
1.5" SS Fittings (SSPFC2-150)	SSSBE-150	SSSBE-150	SSSBE-150	SSSBA-150	SSSBA-150
2" Swivel (SPC-0200A)	CSK-0200S	CSK-0200S	CSK-0200S	SBA2-0200	SBA2-0200
2" DW Swivel (DPC-2200A)	CSK-0200S	CSK-0200S	CSK-0200S	SBA2-0200	SBA2-0200
2" SS Fittings (SSPFC2-200)	SSSBE-200	SSSBE-200	SSSBE-200	SSSBA-200	SSSBA-200
3" Swivel (SPC-0300)	CSK-0300S	CSK-0300S	CSK-0300S	N/A	N/A

***IMPORTANT:** When coupling 3/4" and 1" pipe, use the faceplate for the CSK-0150S swage kit as a base for the CSK-0075S and the CSK-0100S swage kits.

Pipe Cutters & Jacket Strippers

The FlexWorks pipe cutter is designed to produce a clean and even pipe cut, which is necessary for proper coupling attachment. The FlexWorks Jacket Stripper is a tool used to remove a section of the secondary outer jacket of the FlexWorks Double-Wall piping. This is required for installation of swivel pipe couplings.

NOTE: When using double wall pipe couplings, do not trim piping secondary.



Pipe Cutter
(PCT-1000)

Jacket Strippers
(JCT-0075, 0100, 0150, 0200, 0300)

Ordering Specifications - Pipe Cutter and Jacket Stripper

Model #	Application
SPC-400	4" Access Pipe Cutter
PCT-1000	Pipe Cutter
PCB-2000	Pipe Cutter Blade for PCT-1000
JCT-0075	3/4" Jacket Cutter
JCT-0100	1" Jacket Cutter
JCT-0150	1.5" Jacket Cutter
JCT-0200	2" Jacket Cutter
JCT-0300	3" Jacket Cutter
JCB-1000	Jacket Cutter Blades for JCT-0075, JCT-0100, JCT-0150, JCT-0200 and JCT-0300

Fishing Bullnose

An attachment for the end of a flexible pipe section, used to aid in fishing the flexible pipe section through the access pipe. There are a variety of bullnoses available to connect to swivel couplings.

NOTE: 3/4" and 1" fishing bullnose are female threaded to accommodate 3/4" or 1" couplings.



Ordering Specifications - Fishing Bull Nose

Model #	Application	Model #	Application
FBN-2075	3/4" Fishing Bullnose	FBN-2200	2" Fishing Bullnose
FBN-2100	1" Fishing Bullnose	FBN-3200	2" Bullnose Plug
FBN-2150	1.5" Fishing Bullnose		

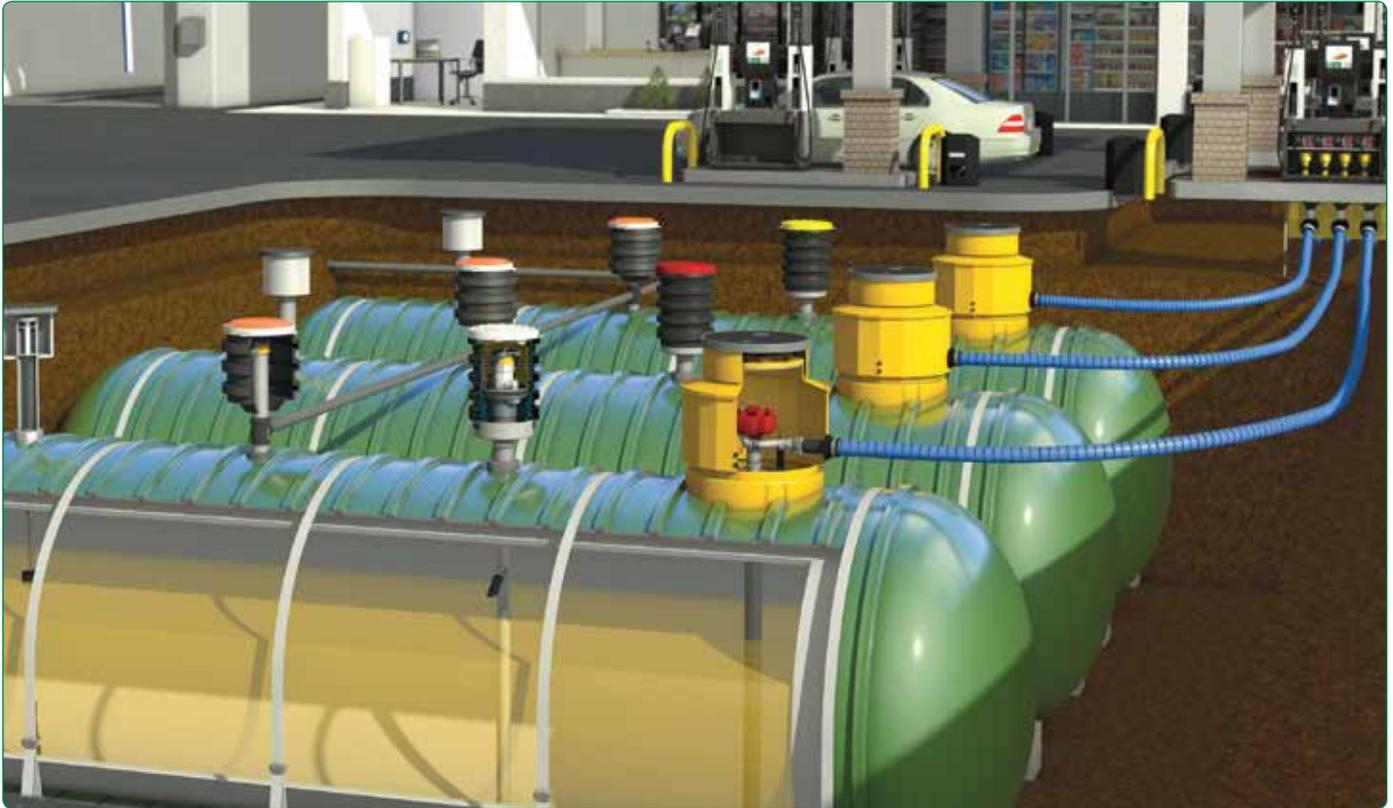
Urethane Sealant

An all-purpose sealant. Can be used as an entry fitting sealant as well as to bond dispenser tops.

Ordering Specifications - Urethane Sealant

Model #	Application
SL-1100	Urethane Sealant (10.3 oz. Cartridge)

Underground Storage Tank Equipment



- Phase I CARB Certified Enhanced Vapor Recovery (EVR) Product Overview46 - 47
- 40CFR 63 Compliance Overview.....48 - 49
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Listings and Certifications

CARB
California Air Resources Board



Look for this label for Authentic OPW EVR Approved products.



MOPETP
MISSOURI

MEXICO
FLORIDA
WISCONSIN
kiwa

OPW Underground Storage Tank Equipment

Tank Venting Equipment

- ◆ Pressure Vacuum – 523V and 623V Series (pgs. 114 & 115)
- ◆ Open Atmospheric – 23 Series (pg. 116)

Spill Containment Manholes

1-2200 Series 1-2100-EVR, EDGE™, EDGE 1™ and 101BG Series (pgs. 52-83)

- ◆ Thread-On
- ◆ Slip-On
- ◆ Below Grade
- ◆ Sealable Cover
- ◆ Secondary Contained
- ◆ Replaceable Direct Bury
- ◆ Multiport

Monitoring Well Manholes

- ◆ 104AOW (pg. 83)

Vapor Recovery Caps and Adaptors

- ◆ 1711T (pg. 97)
- ◆ 61VSA (pg. 95)
- ◆ 1611AV (pg. 96)
- ◆ 633TC (pg. 91)
- ◆ 1711LPC (pg. 97)

Tight-Fill Caps and Adaptors

- ◆ 634TT (pg. 92)
- ◆ 633T (pg. 90)
- ◆ 61SALP (pg. 90)
- ◆ 634LPC (pg. 93)
- ◆ 634TE (pg. 93)

Small Diameter Manholes

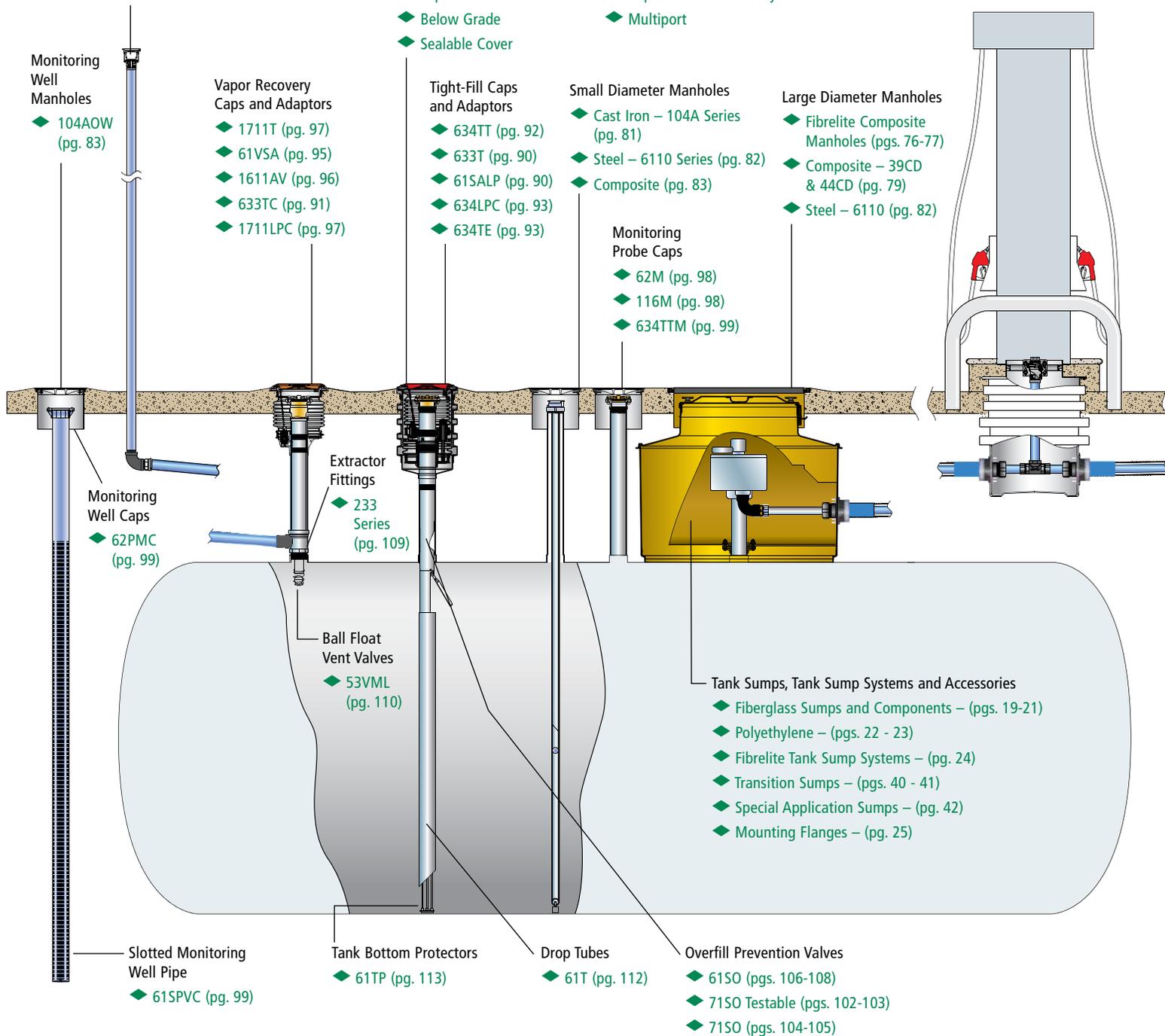
- ◆ Cast Iron – 104A Series (pg. 81)
- ◆ Steel – 6110 Series (pg. 82)
- ◆ Composite (pg. 83)

Large Diameter Manholes

- ◆ Fibrelite Composite Manholes (pgs. 76-77)
- ◆ Composite – 39CD & 44CD (pg. 79)
- ◆ Steel – 6110 (pg. 82)

Monitoring Probe Caps

- ◆ 62M (pg. 98)
- ◆ 116M (pg. 98)
- ◆ 634TTM (pg. 99)



- Monitoring Well Caps
- ◆ 62PMC (pg. 99)

- Extractor Fittings
- ◆ 233 Series (pg. 109)

- Ball Float Vent Valves
- ◆ 53VML (pg. 110)

- Slotted Monitoring Well Pipe
- ◆ 61SPVC (pg. 99)

- Tank Bottom Protectors
- ◆ 61TP (pg. 113)

- Drop Tubes
- ◆ 61T (pg. 112)

- Overfill Prevention Valves
- ◆ 6150 (pgs. 106-108)
- ◆ 7150 Testable (pgs. 102-103)
- ◆ 7150 (pgs. 104-105)

- Tank Sumps, Tank Sump Systems and Accessories
- ◆ Fiberglass Sumps and Components – (pgs. 19-21)
- ◆ Polyethylene – (pgs. 22 - 23)
- ◆ Fibrelite Tank Sump Systems – (pg. 24)
- ◆ Transition Sumps – (pgs. 40 - 41)
- ◆ Special Application Sumps – (pg. 42)
- ◆ Mounting Flanges – (pg. 25)

Listings and Certifications



Look for this label for Authentic OPW EVR Approved products.

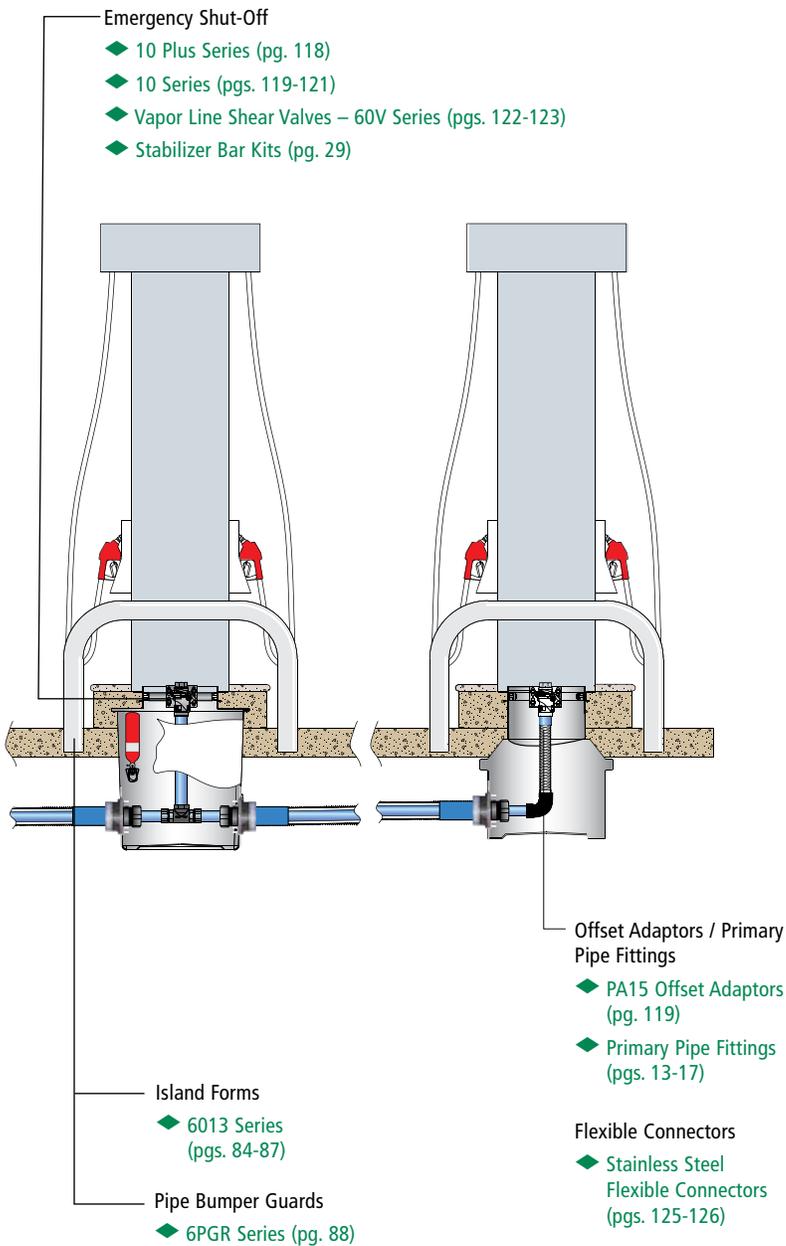
OPW Underground and Aboveground Storage Tank Fuel Transfer and Containment Systems

OPW offers a wide selection of underground storage tank equipment. This equipment is designed to help protect the environment by providing fuel operations with spill containment manholes, manholes and monitoring equipment, fill pipe connection equipment, overfill prevention equipment and tank venting equipment.

OPW offers a wide variety of different spill containment products, including innovative double-wall spill containment and Phase 1 Enhanced Vapor Recovery (EVR) products, designed to prevent spilled product from entering the soil near the fill and vapor return riser connections on USTs during normal tank filling operation, or in the event of tank overfill. OPW spill containers are designed to catch spillage to help prevent soil contamination and groundwater pollution.

OPW manholes provide access from grade level to underground equipment including tank sumps, tank riser pipes, monitoring equipment, submersible pumps, valves and piping connections. OPW also offers a wide selection of tight-fill adaptors and caps, Stage 1 adaptors and caps and monitoring probe and well caps.

OPW overfill prevention valves are designed to help prevent the overfill of USTs during product drops. OPW offers a wide selection, including 6150 and vaportight and testable 7150 positive shut-off valves, and ball float vent valves.



DEF Piping, Containment and Filling Solution

(pgs. 131-134)

NOTE: See OPW's Website at www.opwglobal.com for product instruction sheets, trouble-shooting guides, how-to-use guide and to view the Do's & Don'ts at the Gas Pump video.

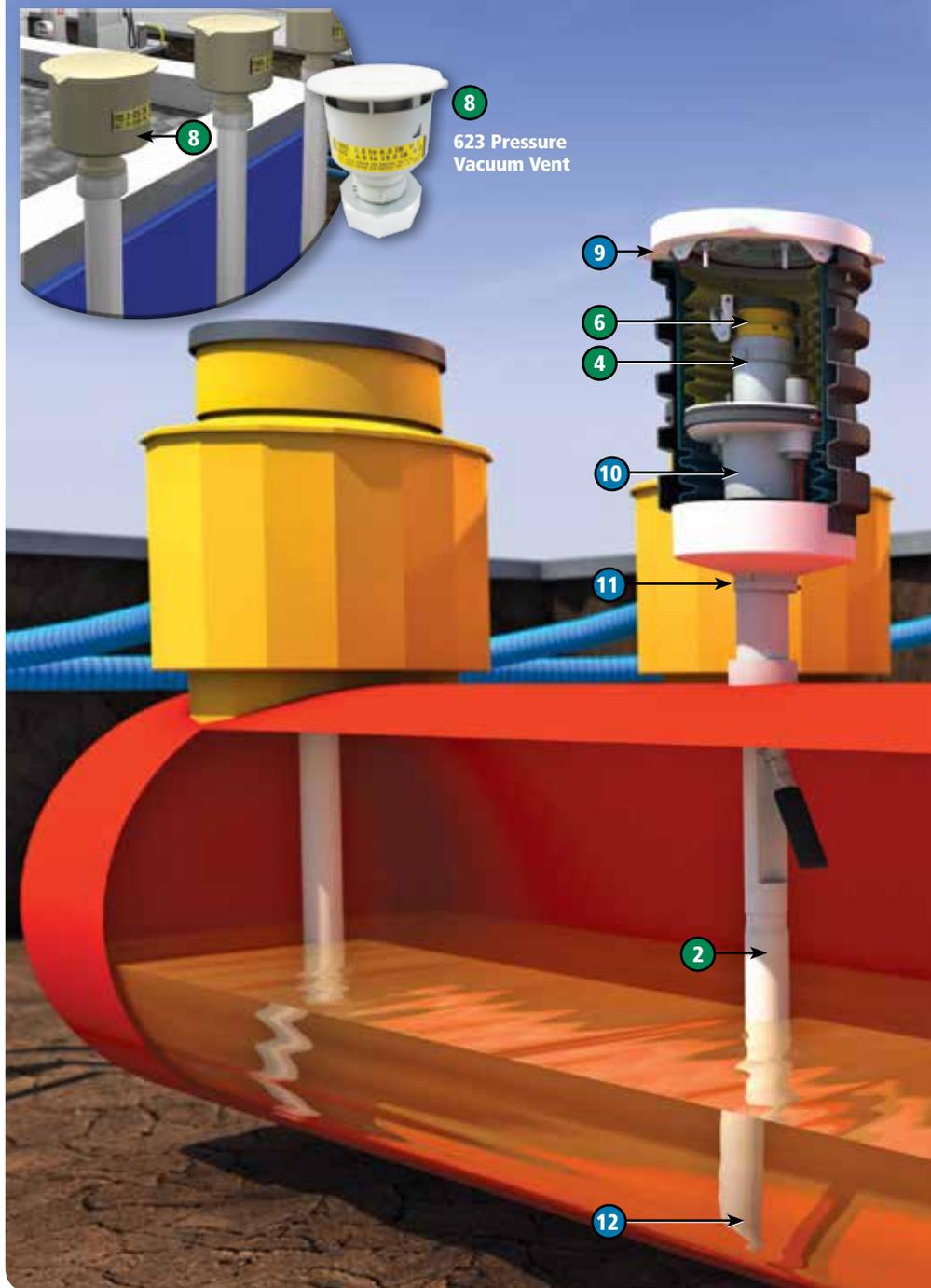
Leading the Way in 40 CFR 63-Compliant

The U.S. Environmental Protection Agency (EPA) created 40 CFR 63 to establish national emission limitations and management practices for hazardous air pollutants (HAP) emitted from the loading of gasoline storage tanks at gasoline-dispensing facilities (GDFs). These new standards went into effect on Jan. 10, 2008.

All of OPW's standard-setting UST equipment meets the 40 CFR 63 requirements for GDFs, from spill containment and pressure/vacuum vents to overfill protection. This enables OPW to offer retail petroleum marketers the most complete solution for meeting the new EPA standards for reducing and eliminating HAPs at GDFs.

The 40 CFR 63 EPA rule applies to existing or new GDFs that have a monthly throughput of 100,000 gallons of gasoline or more. In order to meet the 40 CFR 63 requirements, these facilities must demonstrate that their underground connections and lines are equipped with seal closures; demonstrate no leak in the vapor line between storage and cargo tanks; keep cargo-tank pressure below a specified setting; prevent over-tight or loose fittings; gauge wells with a submerged drop tube extending a specified distance from the tank bottom; use vapor-tight caps for liquid fill connections; install pressure/vacuum vent valves on tank vent pipes at specified settings and test initially and every three years thereafter; install a vapor-balance system that passes a static-pressure test every three years; and install dual-point (no coaxial) vapor-balance systems in new facilities or tanks and reconstructed facilities.

To meet these stringent EPA regulations, OPW offers the industry's most complete line of 40 CFR 63-compliant UST products. Site operators around the world are incorporating these products into their UST systems as they look to comply with the 40 CFR 63 regulations.



REQUIRED PRODUCTS

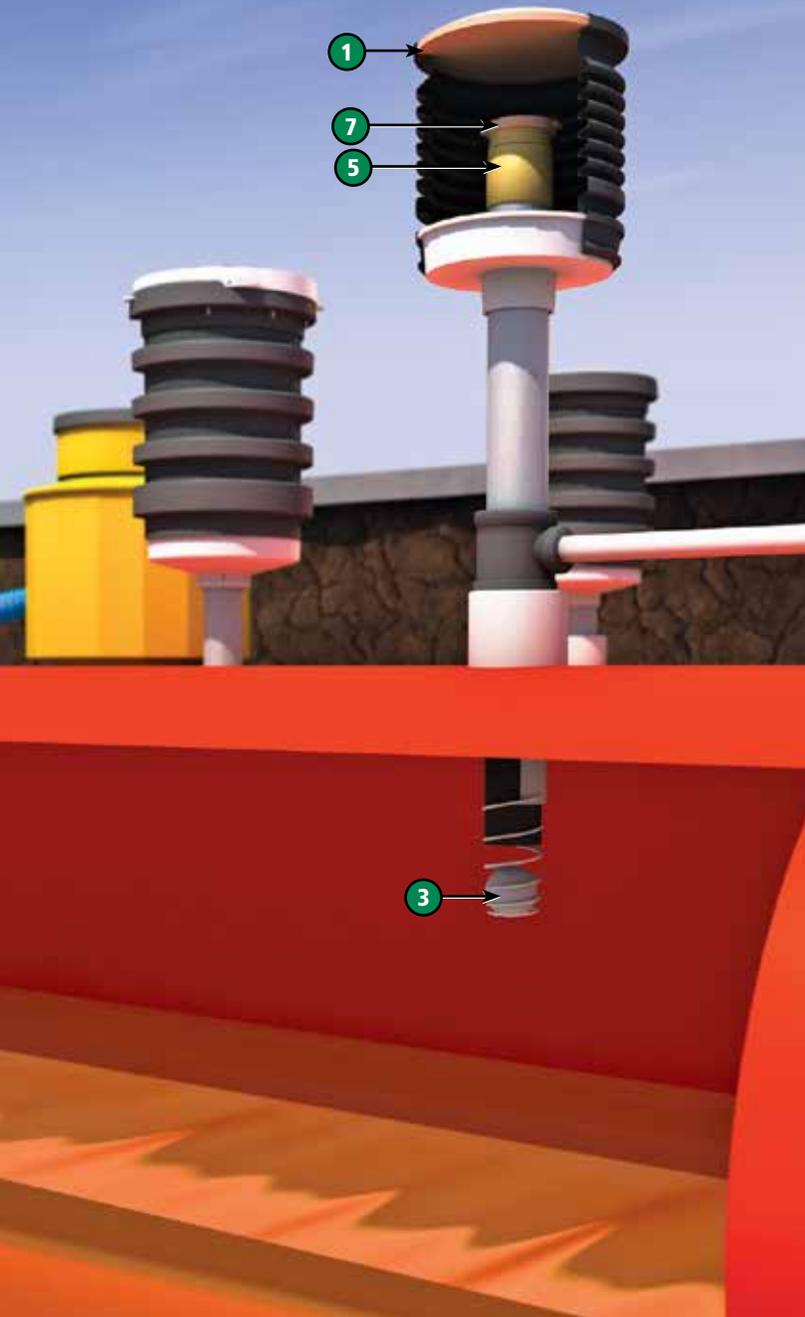
- 1** **2100 Series Spill Containers (Fill)** – Certified for installation on gasoline-dispensing systems that must meet the EPA's 40 CFR 63 requirements. Product fill containers feature an enhanced vapor-tight drain valve. Vapor recovery containers feature a permanent plug in the drain port as per requirements.
- 2** **7150 Overfill Prevention Valve** – This dual-point valve is certified for installation on gasoline-dispensing systems that must meet the EPA's 40 CFR 63 requirements. The vapor-tight 7150 provides positive shutoff of product delivery before an overfill condition occurs.
- 3** **61T Drop Fill Tube, Ball Float and 233 Extractor Configuration*** – The OPW 53VML Ball Float, 233 Extractor and 61T Fill Drop Tube configuration can be installed as an alternative to the 7150 Overfill application on gasoline-dispensing systems that must meet the EPA's 40 CFR 63 requirements.
- 4** **5** **Rotatable Swivel Adaptors (Fill and Vapor)** – Certified for installation on the fill and vapor ports on gasoline-dispensing systems that must meet the EPA's 40 CFR 63 requirements. The adaptors mate with 4" top-seal delivery elbows and feature a top section that rotates with hose movement while the bottom section remains securely in place, maintaining seal integrity.

- 6** **7** **Vapor-Tight Caps (Fill & Vapor)** – Certified for installation on OPW Rotatable Adaptors and feature enhanced ribbed seals and increased sealing forces to provide a bubble-tight seal, per EPA requirements.
- 8** **623 Pressure Vacuum Vent** – Certified for installation on the top of vent pipes on USTs or ASTs. Designed to minimize hydrocarbons from leaking into the air and to control tank pressure, it has a maximum allowable vapor-leak rate of 0.05CFH at 2.0 inches of water.

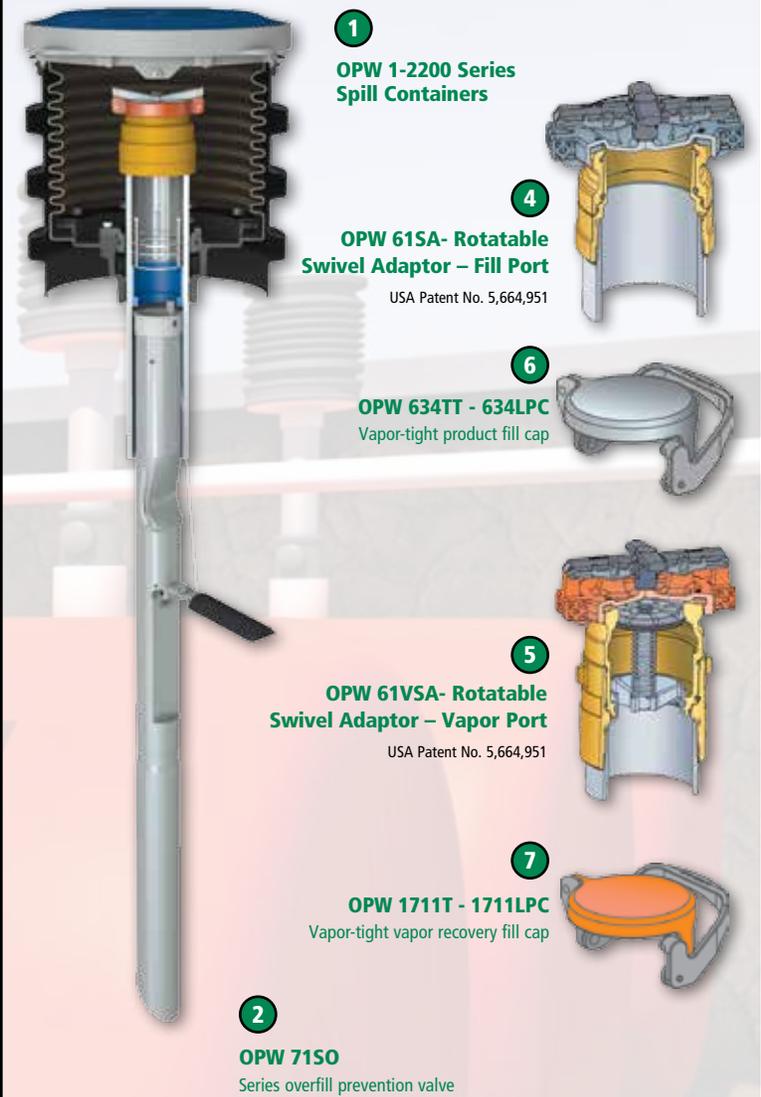
RECOMMENDED PRODUCTS

- 9** **EDGE™ Double Wall Spill Container** – A Double-Wall Spill Container that installs into the same space as a Single-Wall Spill Container. Thread-on base for both primary and secondary spill buckets.
- 1-2200 Single Wall Spill Container** – Never break concrete again with our new EPA Compliant UST Solution for today, tomorrow and the future.
- 10** **61JSK Jack Screw** – Connects the 7150 to the base of the spill container, allowing liquid in the spill container to drain directly into the drop tube. This isolates the drain valve from tank ullage, eliminating a notorious leak point in previous systems.

Underground Storage Tank Equipment



REQUIRED PRODUCTS



1
OPW 1-2200 Series
Spill Containers

4
OPW 61SA- Rotatable
Swivel Adaptor – Fill Port

USA Patent No. 5,664,951

6
OPW 634TT - 634LPC
Vapor-tight product fill cap

5
OPW 61VSA- Rotatable
Swivel Adaptor – Vapor Port

USA Patent No. 5,664,951

7
OPW 1711T - 1711LPC
Vapor-tight vapor recovery fill cap

2
OPW 7150
Series overflow prevention valve

- 11** **Threaded Riser Adaptor (Face Seal Adaptor)** – An OPW FSA-400 Threaded Riser Face Seal Adaptor provides a flat, true sealing surface on threaded pipes for the drop-tube flange on the 7150 Overflow Prevention Valves. This Face Seal Adaptor is not needed for the EDGE™ Double-Wall Spill Container.
- 12** **6111-1400 Tank Bottom Protector** – Installed at the bottom of the overflow prevention valve drop tube to keep the UST from sustaining damage from erosion or tank-gauging sticks.
- 13** **62M Monitoring Probe Cap** – OPW 62M Monitor Probe Cap & Adaptor Kit is installed on tank riser pipes to prevent vapors from escaping or water from entering the tank.
- 14** **Monitoring/Observation Well Manhole** – Designed to be installed at grade level over a slotted PVC monitoring well where limited access and clear identification are essential. (Not shown)
- 15** **Conquistador™ Composite Cover Manhole** – Lightweight and extremely durable, this composite cover manhole makes sump accessibility safer and easier than ever before. (Not shown)

RECOMMENDED PRODUCTS



9
EDGE™
Double-wall spill
container

1-2200
Single-wall spill
container

10
OPW 61JSK
Jack Screw
USA Patent No. 6,523,581

11
OPW FSA
Threaded riser
adaptor

13 OPW 62M
Monitor probe cap
& adaptor kit

OPW Phase 1 Enhanced Vapor Recovery / Torque Specifications

In March 2000, The California Air Resources Board adopted new, more stringent vapor recovery requirements for gasoline dispensing facilities. The new program, titled "Enhanced Vapor Recovery" (EVR), was developed to promote enhanced vapor recovery system reliability and to seek further reductions to meet both California and Federal Air Quality Requirements. Phase I EVR is now enforced in California.

On September 17, 2003, OPW received a second EVR certification for the Phase I Enhanced Vapor Recovery System. The new approval provides the option of using the ball float with a straight drop tube or the positive shut-off overfill prevention valve. OPW can offer the flexibility for installing an appropriate certified EVR system to meet the regulations in any jurisdiction for virtually any Phase I UST application. To review the EVR requirements visit: www.arb.ca.gov/vapor/vapor.htm

For the purpose of reducing fugitive vapor emissions at gasoline dispensing facilities, the California Air Resources Board has formally adopted new compliance requirements and certification procedures for vapor recovery equipment. These new requirements, know as Enhanced Vapor Recovery (EVR), define the most stringent and comprehensive performance and reliability requirements for Phase I Vapor Recovery Systems. Some important new requirements for a certified EVR Phase I system include:

- ◆ **EVR System Certification Test Protocol** – all components must now be installed and tested as a complete integral Phase I system.
- ◆ **EVR System Efficiency** – must now exceed 98% versus 95% previously allowed.
- ◆ **EVR System Performance** – allowable leak rates for components such as spill container drain valves, overfill valves, and pressure vacuum vents have been cut by 50%.
- ◆ **EVR System Reliability** – operating test period for a complete system increased from 90 days to 180 days.

EVR Phase I Components Installation Torque Specifications (Oct 26, 2004)

Component	Torque Specification Foot Pounds (Inch Pounds)
All 4" NPT pipe See note 1	125 to 250 ft.lb.
FSA-400, FSA-400-S See note 1	125 to 250 ft.lb.
Spill containment bucket See note 1	125 to 250 ft.lb.
Spill bucket cover perimeter bolts/nuts	20 to 25 ft.lb.
Drain valve retaining bolts/nuts	11 to 13 ft.lb.
61SO Inlet adaptor	11 to 13 ft.lb.
61JSK-4400	3 to 4 ft.lb. (36 to 52 in.lb.)
61JSK-4410	3 to 5 ft.lb. (42 to 60 in.lb.)
61JSK-44CB	3 to 5 ft.lb. (42 to 60 in.lb.)
61VSA Swivel Vapor Adaptor	90 to 110 ft.lb.
61SALP Low Profile Swivel Fill Adaptor	90 to 110 ft.lb.
623V Pressure Vacuum Vent base	30 to 35 ft.lb.
233V Extractor Fitting. See note 1	125 to 250 ft.lb.
3" NPT	125 to 300 ft.lb.
2" NPT	100 to 150 ft.lb.
53VML Ball Float Vent Valve and extractor cage - 3 3/4" threads	75 to 150 ft.lb.

Note 1: All 4" NPT threads are to be torqued progressively lower from the tank up.

Listings and Certifications



NOTE: See OPW's Website at www.opwglobal.com for product instruction sheets, trouble-shooting guides, how-to-use guide and to view the Do's & Don'ts at the Gas Pump video.

OPW Multi-Ports and Spill Containment Manholes

OPW Spill Containment Manholes are designed to prevent spilled product from entering the soil near the fill and vapor return riser connections on underground storage tanks during normal tank filling operation, or in the event of tank overflow. The spill containers catch spillage to help prevent soil contamination and groundwater pollution.

Single-Wall Spill Containment Manholes

The new OPW 1-2200 Series Single-Wall Spill Containers are advanced, rugged, easier to install and service, upgrades to a double-wall and is more reliable than current single-wall spill containers available today. Never break concrete again with our new EPA Compliant UST Solution for today, tomorrow and the future.

Double-Wall Spill Containment Manholes

The new OPW EDGE™ 3100 Series Double-Wall Spill Container is leading-edge spill containment technology. Designed to help prevent spilled product from entering the backfill in the event the primary spill container is damaged, the new OPW EDGE™ is dimensionally identical to single-wall spill buckets (from riser to grade), making single-to-double-wall upgrades quick, easy and affordable. No need to break concrete or replace riser pipes. Florida and North Carolina compliant.

Thread-On Spill Containment Manholes

OPW Thread-On Spill Containment Manholes are generally used on new tank or riser pipe installations. The spill bucket is threaded directly onto 4" NPT fill and vapor return riser pipes. An integral drain valve allows contained product to be drained into the tank. OPW Thread-On Spill Containers are available in 5, 10 and 15-gallon capacities. Thread-On Double-Wall spill containers are also available in 5-gallon capacities.

Sealable Cover Spill Containment Manholes

OPW Sealable Cover Spill Containment Manholes are designed to eliminate problems associated with water entering grade level spill containers, and are ideal for areas with poor drainage, areas subject to tropical rain and standing water, and cold regions where melting snow and road salt can enter standard spill containers. An expandable cover seal is latched down, sealing against the I.D. of the mounting ring and preventing ingress of surface water. Sealable spill containers are available in thread-on and slip-on configurations in 5 and 15-gallon capacities.

Slip-On Spill Containment Manholes

OPW Slip-On Spill Containment Manholes are used on new or existing UST riser pipes. The spill bucket slides onto 3" or 4" fill and vapor return riser pipes and is then secured in place. Slip-on spill containers provide a fast, economical way to replace uncontained manholes or fill boxes. An optional suction hand pump allows contained product to be evacuated into the tank. OPW Slip-On Spill Containers are available in 5, and 15-gallon capacities.

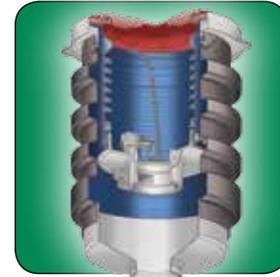
Below-Grade Spill Containment Manholes

OPW Below-Grade Spill Containment Manholes are used in new tank or riser pipe installations. The watertight spill containment chamber is installed completely below grade level. A grade level manhole cover lies flush with the driveway grade to reduce a tripping hazard and the potential for damage from snow plows and traffic. Surface water drains into the backfill between the manhole skirt and the exterior of the containment bucket. Below-grade spill containers are available in thread-on and slip-on configurations in 5 and 15-gallon capacities.

Fibrelite Multi-Port Spill Containment Manholes

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

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



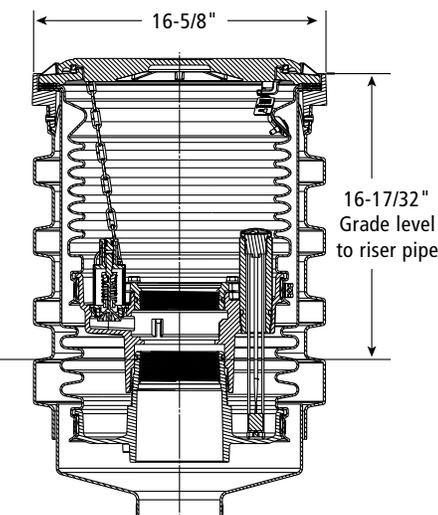
OPW EDGE™ Double-Wall Spill Containers

Designed in collaboration with contractors and end-users, the OPW EDGE™ Double-Wall Spill Container installs in the same space as single-wall buckets. The EDGE™ delivers best-in-class features that significantly improve reliability, installation, testing and ease of serviceability. The EDGE™ exceeds the performance levels of all other double-wall spill containers.

- ◆ Unbeatable installation ease
- ◆ Uses existing riser pipe
- ◆ Unparalleled serviceability
- ◆ Superior quality
- ◆ Significantly reduces installation time and labor costs



Sealable Cover Option Available



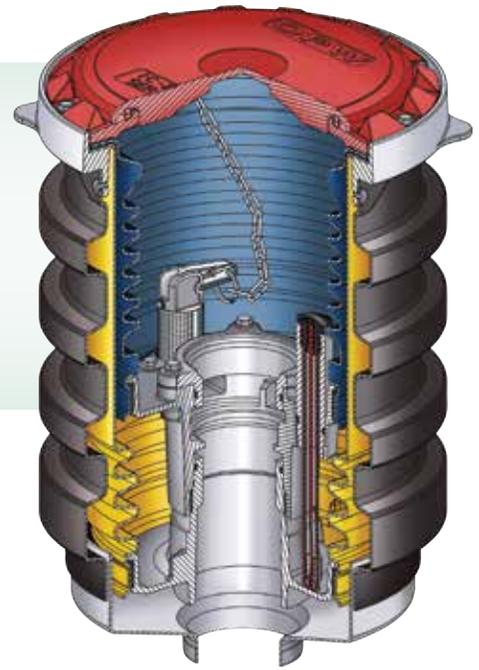
Weight: 120 lbs. (54.5 kg.)

Materials

- Cover:** Cast iron
- Mounting Ring:** Duragard® coated ductile iron
- Bellows:** Polyethylene
- Base:** Cast iron E-coating
- Clamps:** Stainless steel
- Seals:** Buna-N

Features

- ◆ **Top Mounted Vacuum Test Port**
 - For quick and easy access
- ◆ **Superior Visual Gauge**
 - No messy dipsticks to contend with
 - Significantly simplifies and reduces testing time
- ◆ **Ease of Access to the Electronic Sensor for Testing**
 - Easy access for testing
 - Located to eliminate damage potential during product drops
- ◆ **Roto-Molded Primary & Secondary Buckets**
 - Thicker walls for greater durability and reliability
- ◆ **Ribbed Polyethylene Skirt Design**
 - Roto-molded for long-life durability
 - Provides rigidity for added durability
 - Provides handles on all sides for ease of installation
- ◆ **Patent-Pending Socket Design**
 - Enables the EDGE™ to install into the space of a single-wall spill container
 - Helps to align bucket on riser
- ◆ **Patent-Pending Ledge Design**
 - Provides machined sealing face for drop tube
 - Improves overall drop tube sealing integrity
 - Eliminates face seal adaptors or de-burring of the riser pipe to obtain a flat surface for the drop tube
- ◆ **Patent-Pending Removable Adaptor**
 - Allows for quick and easy access to drop tube
 - Eliminates the need for cumbersome chain wrenches
- ◆ **Bellow Seals**
 - Improves overall sealing integrity
 - Eliminates mess and curing time found in sealants
 - Reduces service time and costs



Listings and Certifications



Ordering Specifications

The Edge™ Double-Wall Models - Fill Ports with Drain Valves

Part #	Gal.	liter	Cover	Gauge / Sensor	lbs.	kg.
1C-3112D	5	19	Cast Iron	Float Gauge	127	58
1C-3122D	5	19	Cast Iron	Port Only (sensor not included)	127	58
1C-3132D	5	19	Cast Iron	Electronic Sensor; 2 Stage, Normally Closed	127	58
1C-3142D	5	19	Cast Iron	Electronic Sensor; Tri-State	127	58
1C-31512D	15	57	Cast Iron	Float Gauge	185	84
1C-31532D	15	57	Cast Iron	Electronic Sensor; 2 Stage, Normally Closed	185	84
1C-31542D	15	57	Cast Iron	Electronic Sensor; Tri-State	185	84
1SC-3112D	5	19	Sealable	Float Gauge	127	58
1SC-3122D	5	19	Sealable	Port Only (sensor not included)	127	58
1SC-3132D	5	19	Sealable	Electronic Sensor; 2 Stage, Normally Closed	127	58
1SC-3142D	5	19	Sealable	Electronic Sensor; Tri-State	127	58
1SC-31512D	15	57	Sealable	Float Gauge	185	84
1SC-31532D	15	57	Sealable	Electronic Sensor; 2 Stage, Normally Closed	185	84
1SC-31542D	15	57	Sealable	Electronic Sensor; Tri-State	185	84

Installation Tools & Testing Equipment

1-3100-TOOL	Installation Tool for the EDGE™ DW Spill Container
DW-VAC-TEST	Double-Wall Vacuum Tester

The Edge™ Double-Wall Models - Vapor Ports with Plug

Part #	Gal.	liter	Cover	Gauge	lbs.	kg.
1C-3112P	5	19	Cast Iron	Float Gauge	127	58
1C-3122P	5	19	Cast Iron	Port Only (sensor not included)	127	58
1C-3132P	5	19	Cast Iron	Electronic Sensor; 2 Stage, Normally Closed	127	58
1C-3142P	5	19	Cast Iron	Electronic Sensor; 2 Stage, Tri-State	127	58
1C-31512P	15	57	Cast Iron	Float Gauge	185	84
1C-31532P	15	57	Cast Iron	Electronic Sensor; 2 Stage, Normally Closed	185	84
1C-31542P	15	57	Cast Iron	Electronic Sensor; Tri-State	185	84
1SC-3112P	5	19	Sealable	Float Gauge	127	58
1SC-3122P	5	19	Sealable	Port Only (sensor not included)	127	58
1SC-3132P	5	19	Sealable	Electronic Sensor; 2 Stage, Normally Closed	127	58
1SC-3142P	5	19	Sealable	Electronic Sensor; Tri-State	127	58
1SC-31512P	15	57	Sealable	Float Gauge	185	84
1SC-31532P	15	57	Sealable	Electronic Sensor; 2 Stage, Normally Closed	185	84
1SC-31542P	15	57	Sealable	Electronic Sensor; Tri-State	185	84

Add the following to part number for colored powder coated covers and Rings. Example 1C-3XXXD-W

<input type="checkbox"/> White	-W	<input type="checkbox"/> Orange	-O	<input type="checkbox"/> Yellow	-Y
<input type="checkbox"/> Red	-R	<input type="checkbox"/> Blue	-B	<input type="checkbox"/> Bronze	-BZ

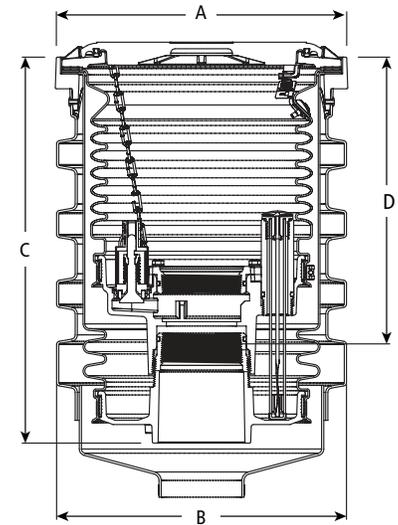
Replacement Parts/Accessories

Part #	Description	Part #	Description	Part #	Description
1-21CC	5 Gallon Cast Iron RT cover	SCR Series	15 Gallon Sealable Cover Replacement Snow-Plow Ring	202135-KIT	5 Gallon Primary Bucket with Drain Valve
1-21AC	5 Gallon Aluminum RT Cover	211465	Float Gauge S/A	202136-KIT	5 Gallon Primary Bucket with Plug
H12229M	5 Gallon Cover Seal for 1-21AC and 1-21CC	206017	Sensor Adaptor S/A (Primary)	205987-KIT	15 Gallon Primary Bucket with Drain Valve
201530	5 Gallon Snow-plow Ring	211064	Visigauge	206215-KIT	15 Gallon Primary Bucket with Plug
201689	5 gallon Seal for Snow-Plow Ring	201972	O-Ring, Visigauge Adaptor	202137-KIT	5 Gallon Secondary Replacement Kit for Float Gauge
RTR Series	15 Gallon Rain Tight Rings	202013	O-Ring, Visigauge	206010-KIT	5 gallon Secondary Replacement Kit for Sensor Buckets
H15187M	15 gallon RT Cover Seal	1DK-2100-EVR	Drain Valve Sub Assembly	206011-KIT	5 Gallon Secondary Replacement Kit for Electronic Sensor
SC-XXXX (XXX =Color)	5 or 15 Gallon Sealable Covers powder Coated	201692	O-ring Nipple Adaptor	205988-KIT	15 Gallon Secondary Bucket Assembly
203035	5 Gallon Sealable Cover Replacement Snow-Plow Ring	C05446M	15 Gallon Main cover Seal	203269	Replacement 2 Stage, Normally Closed Sensor and Sealed Base Plug; Used in 1C-xx32x series Edge
1DP-2100	Plug Kit	201686	S/A Secondary Gravel Guard	210490	Replacement Tri-State Sensor and Sealed Base Plug, Used in 1C-xx42x Series Edge

Float Gauge & Sensor Adaptor not included with replacement buckets

EDGE™ Replacement Cartridge Kit

Original Edge Model	Original Product Description	Primary Containment Replacement Kit	Secondary Containment Replacement Kit	Primary and Secondary Containment Replacement Kit / EDGE 1 Upgrade Kits
1C-3112D / 1SC-3112D	DW EDGE: Drain Valve + Gauge	202135-KIT	202137-KIT	202135-KIT + 202137-KIT + 206016
1C-3112P / 1SC-3112P	DW EDGE: Plug and Gauge	202136-KIT	202137-KIT	202136-KIT + 202137-KIT + 206016
1C-3122D / 1SC-3122D	DW EDGE: Drain Valve and Sensor Access Port	202135-KIT	206010-KIT	202135-KIT + 206010-KIT + 206017
1C-3122P / 1SC-3122P	DW EDGE: Plug and Sensor Access Port	202136-KIT	206010-KIT	202136-KIT + 206010-KIT + 206017
1C-3132D / 1SC-3132D	DW EDGE: Drain Valve & 2 Stage Norm. Closed Sensor	202135-KIT	206011-KIT	202135-KIT + 206011-KIT + 206017
1C-3132P / 1SC-3132P	DW EDGE: Plug & 2 Stage Norm. Closed Sensor	202136-KIT	206011-KIT	202136-KIT + 206011-KIT + 206017
1C-3101D / 1SC-3101D	EDGE 1: Drain Valve	203193-KIT		
1C-3101P / 1SC-3101P	EDGE 1: Plug	203194-KIT		
1C-31512D / 1SC-31512D	DW Edge: 15 Gallon Drain Valve + Gauge	205987-KIT	205988-KIT	205987-KIT + 205988-KIT + 206016
1C-31512P / 1SC-31512P	DW Edge: 15 Gallon Plug + Gauge	206215-KIT	205988-KIT	206215-KIT + 205988-KIT + 206016
1C-3142D / 1SC-3142D	DW Edge: Drain and Tri-State Sensor	202135-KIT	210493-KIT	202135-KIT + 210493-KIT + 206017
1C-3142P / 1SC-3142P	DW Edge: Plug and Tri-State Sensor	202136-KIT	210493-KIT	202136-KIT + 210493-KIT + 206017



EDGE™

Dimensions 5-gallon EDGE™

	in.	cm
A	16 ⁵ / ₈	42
B	16 ¹⁹ / ₃₂	42
C	22 ¹ / ₈	56
D	16 ⁷ / ₁₆	42

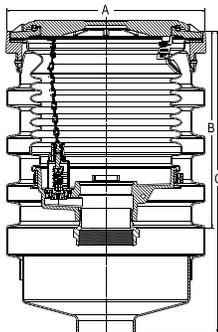
Dimensions 15-gallon EDGE™

	in.	cm
A	24 ⁷ / ₈	63
B	24 ¹ / ₂	62
C	24 ¹ / ₂	62
D	18	46

OPW EDGE 1™ Single-Wall Spill Container

Introducing an advanced single-wall spill container – the new EDGE 1™ by OPW. The new EDGE 1™ is rugged, easier to install and service, upgrades to a double-wall and is more reliable than current single-wall spill containers available today. Leading-EDGE design features and superior materials of construction combine with expert spill containment engineering excellence to deliver more benefits than any other single-wall spill container, making the EDGE 1™ number one in:

- ◆ Installation & upgradeability ease
- ◆ Serviceability ease
- ◆ Durability & long-life reliability



A = 16 5/8"
B = 16 15/32"
C = 25 1/4"

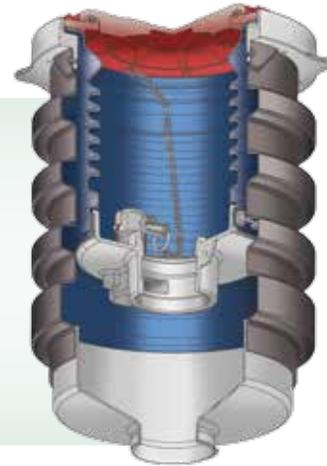


Replacement Parts/Accessories

Part #	Description
201689	Mounting ring seal
201530	Snow-plow ring
201692	O-ring, nipple adaptor
1-21CC	Cover
203035	Sealable Cover Ring
H12229M	Cover seal
SC-xxxx	(xxxx=color) Sealable Cover
1DK-2100-EVR	Drain valve sub assembly
203193-KIT	Replacement 5-gallon with Drain Valve
203194-KIT	Replacement 5-gallon with Drain Plug
IP-2105	Hand Pump

Materials

- Cover:** Cast iron
- Mounting Ring:** Duragard® coated ductile iron
- Bellows:** Polyethylene
- Base:** Cast iron E-coating
- Clamps:** Stainless steel
- Seals:** Buna-N



Features

- ◆ Upgradeable to a double-wall bucket without breaking concrete
- ◆ Quick, easy replacement of spill bucket and mounting ring without breaking concrete – significantly reduces labor time and cost
- ◆ High-quality materials of construction
 - Roto-molded technology - provides for thicker, more robust bellows
 - Heavy-duty ductile iron mounting ring - provides superior long-term reliability and damage protection against traffic drive-over and snow plows
 - The integral pull-to-open drain valve uses non-corrosive and stainless-steel materials, unlike our competitors, which have corrosive materials in their design (a drain plug version is also available)
- ◆ Thread-on bucket design - ensures leak-free integrity, especially in the event of ground movement
- ◆ Corrosion-resistant polyethylene skirt – increased rigidity and durability, superior reliability over corrosive metallic skirts
- ◆ Unique concrete anchoring ring – wide-lip and four (4) convenient anchoring ears provide for better anchoring and longevity

Ordering Specifications

Model #	Description	Weight	
		lbs.	kg
1C-3101D	The EDGE 1™ SW Spill Container, 5 gallon capacity, with Cast Iron Cover and Drain Valve	117	53
1C-3101P	The EDGE 1™ SW Spill Container, 5 gallon capacity, with Cast Iron Cover and Drain Plug	117	53

NOTE: Any model can be purchased with a sealable cover option by using part number 1SC-XXXXD or 1SC-XXXXP.

NOTE: FSA-400-S must be installed with the EDGE 1™ to be upgraded to a double-wall spill bucket.

Add the following to part number for colored powder coated covers and Rings. Example 1C-3XXXX-W

<input type="checkbox"/> White	-W	<input type="checkbox"/> Orange	-O	<input type="checkbox"/> Yellow	-Y
<input type="checkbox"/> Red	-R	<input type="checkbox"/> Blue	-B	<input type="checkbox"/> Bronze	-BZ

Installation Tool

Model #	Description
61SA-TOOL	Wrench for Installation of the EDGE 1™ SW Spill Container

Listings and Certifications

CARB
California Air Resources Board



Materials

Cover: Black Epoxy Coated Cast Iron

Mounting ring: Duragard® coated ductile iron

Bellows: Polyethylene

Base: Cast iron E-coating

Seals: Buna-N



OPW 1-2200 Series Replaceable Single-Wall Spill Container

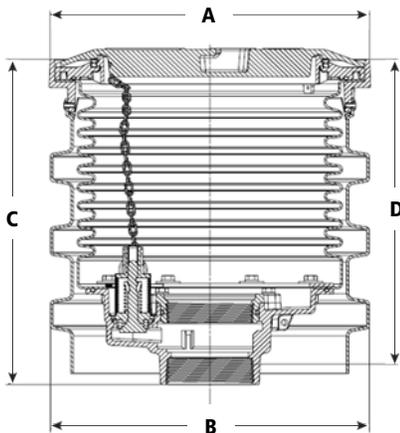
Introducing an affordable, all-accessible, all-replaceable and all-maintainable spill container from OPW. Never break concrete again with our new EPA Compliant UST Solution for today, tomorrow and the future.

Features

- ◆ **Designed for proposed 2014 EPA Regulations and beyond**
- ◆ **Prepares you for future compliance**
- ◆ Removable Bellows and Ring
- ◆ **Unique Flange Adaptor Feature-**
Allows quick and easy removal of overfill valve without torquing base
- ◆ Built-In Face Seal Adaptor
- ◆ Innovative Snowplow Ring-less, Liquid-Tight Cover with Integrated Lift Handle design
- ◆ Easy access for overfill prevention valve testing and inspection
- ◆ Replaceable bucket without breaking concrete
- ◆ **ULC Approved**

Ordering Specifications

Model #	Description
1C-2200D	Single-Wall, Field Replaceable Spill Container with Drain Valve
1C-2200P	Single Wall, Field Replaceable Spill Container with Drain Plug
1-3100-TOOL	Installation Tool, Used for Edge and 1-2200 Spill Containers



Dimensions

	in.	cm	lbs.	kg
A	16 ⁵ / ₈	42	77	34.9
B	16 ¹⁹ / ₃₂	42	77	34.9
C	17 ² / ₃	45	77	34.9
D	16 ⁷ / ₁₆	42	77	34.9

Listings and Certifications



Replace Bellows in 3 Easy Steps



1 Remove Upper Bolts and Ring



2 Remove Lower Bolts and Ring and Remove Bellows

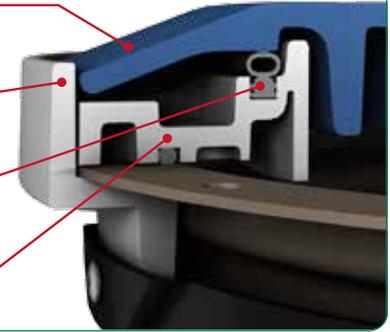


3 Replace Bellows, Reinstall Upper and Lower Rings

No Need to Remove Base in order to Replace Bellows

Liquid-Tight Cover

- Special Cover and Ring Design
Seals Out Water and Debris
- Eliminates Need for Snow Plow Ring
Flush with Finish Grade
- Proven "Bubble Seal"
- Removable Compression Ring

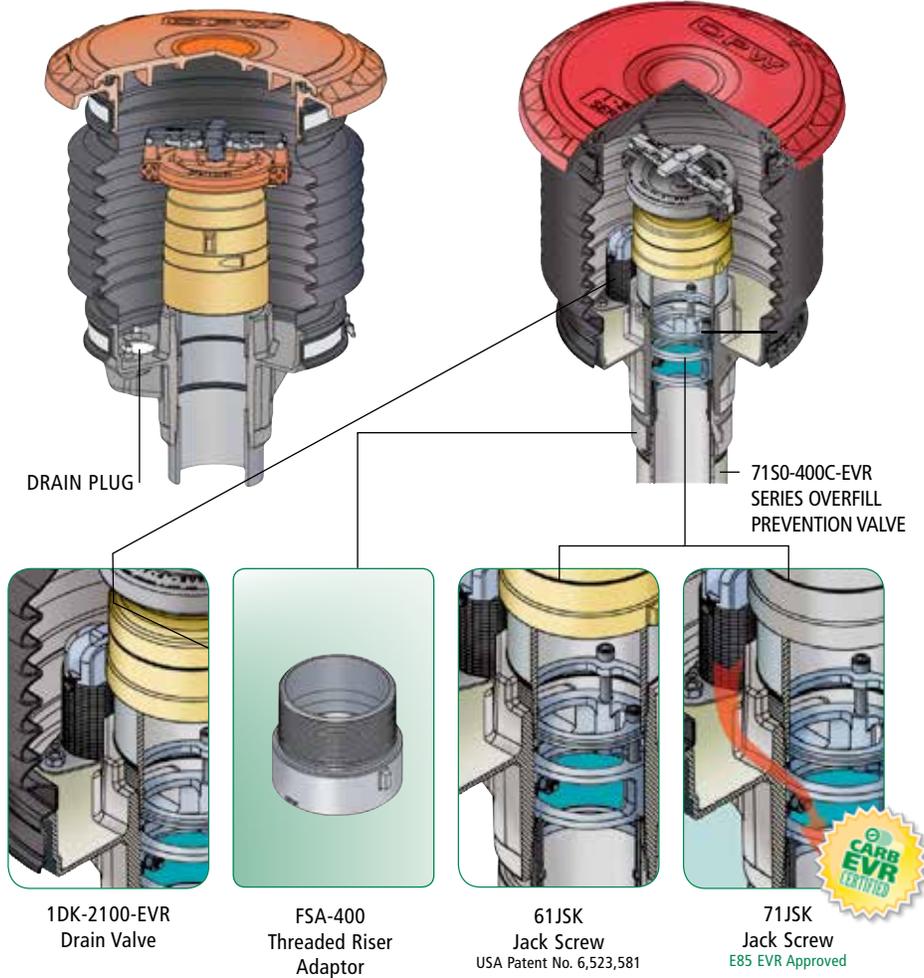


1-2200 Series Replacement Parts

Part/Kit Number	Description
1	207235 Cover
2	H12229M Cover Seal
3	201739 Flange Adaptor
4	201692 Flange Adaptor O-ring
5	1DK-2100-EVR Drain Valve Sub Assembly
6	1DP-2100 Drain Plug Kit
7	208951 Upper Ring Replacement Kit (Includes; O-ring and Hardware)
8	207243 Upper Ring O-ring
9	208952 Bellows Replacement Kit (Includes; O-rings, Split Rings, and Hardware)
10	207212 Lower Split Ring, Each (2 Required per Spill Container)
11	207211 Lower Bellows O-ring
	208197 Installation Instructions

**1-2100-PEVR Series
Vapor Recovery Spill Container**

**1-2100-DEVR Series
Product Fill Spill Container**



**OPW 1-2100-EVR
Series Direct Bury
Spill Containment
For CARB/EVR**

The OPW Thread-On 1-2100-EVR Series Spill Containers are certified for installation on OPW Phase I EVR Systems. All Fill Port Spill Containers feature an enhanced 1DK-2100-EVR vapor tight drain valve (DEVR Models). The Vapor Return Spill Containers (PEVR Models) feature a permanent plug in the drain port as per EVR requirements. The 1-2100-EVR Series Thread-On Spill Containers are available in Composite or Cast Iron bases with either 5 or 15-gallon buckets.

The FSA-400 Threaded Riser Face Seal Adaptor is installed on the fill pipe below the spill container to provide a true sealing surface for the drop tube flange on the 61SO and 71SO overfill prevention valve. The 61SO and 71SO series valves are installed in the base of the OPW EVR spill container with the patent-pending 61JSK Jack Screw device. This configuration allows liquid in the spill container to be drained directly into the drop tube thereby isolating the drain valve from the tank ullage, eliminating a notorious leak point in previous systems.

OPW Threaded Riser Adaptor (Face Seal Adaptor)

An OPW FSA-400 Threaded Riser Face Seal Adaptor provides a flat, true sealing surface on threaded pipes where a gasket seal exists per EVR requirements. The FSA-400 is installed on the fill pipe riser below the spill container to provide a true sealing surface for the drop tube flange on the overfill prevention valves. The FSA-400 is also required on tank gauging risers and optional on vapor risers and rotatable adaptors.

**61JSK, 71JSK (Jack Screw Device)
Ordering Specifications**

Product #	Description
FSA-400	4" Face Seal Adaptor
FSA-400-S	4" Short Face Seal Adaptor for Cast Iron Base Only
61JSK-4410	Jack Screw Kit for Composite Base Spill Bucket
61JSK-44CB	Jack Screw Kit for Cast Iron Base Spill Bucket
71JSK-4RMT	Remote Fueling Jack Screw Kit E85 EVR Approved
71JSK-44MA	Jack Screw Kit for Cast Iron Base Spill Buckets E85 EVR Approved

OPW 1-2100 Series Thread-On Spill Containers

OPW Spill Containment Manholes are designed to prevent spilled product from entering the soil near the fill and vapor return riser connections on underground storage tanks during normal tank filling operation, or in the event of tank overflow. The spill containers catch spillage to help prevent soil contamination and groundwater pollution. OPW Thread-On Spill Containment Manholes are generally used on new tank or riser pipe installations.

Materials

Cover: Cast aluminum or cast iron
Mounting Ring: Cast iron E-coating
Bellows: Polyethylene
Base: Cast iron E-coating or Duratuff II
Clamps: Stainless steel
Seals: Nitrile



1-2115,
15-Gallon

Features

- ◆ **Easy Installation** – reduces job-site time and installation costs. OPW Thread-On Spill Containers screw directly onto 4" NPT riser. No external connections to make; adjust the final grade height and support the unit with backfill.
- ◆ **Integral Pull-to-Open Drain Valve** – allows high-speed drainage of excess product into the tank. Designed with a convenient self-cleaning seal and removable screen for easier component cleaning.
- ◆ **Capacity** – available in a true 5-gallon capacity as well as 15-gallon capacity.
- ◆ **Rain-Shedding Cover** – available in either cast aluminum or cast iron, this unique design incorporates a seal in the underside of the cover. The seal seats between two dams on the mounting ring to prevent surface water from entering the spill container.
- ◆ **Fuel Compatibility** – designed to accommodate the fuels of the future, including methanol, ethanol and fuels with MTBE additives.
- ◆ **Product Identification Tags** – available for both the cover and bucket to positively identify the product contained in the UST with standard API symbols. (See product I.D. tag specification page for more information: page 74.)
- ◆ **Heavy-Duty Mounting Ring** – the angled ramp design offers superior protection against snow plow and traffic damage, and provides for secure concrete anchoring.
- ◆ **Corrugated Bellows** – can be adjusted +/- 1 inch for desired grade level.
- ◆ **Duratuff® II or Cast Iron Base** – composite Duratuff® II material is lightweight, durable, and conductive. A rugged, optional, cast-iron base is also available.
- ◆ **Highway 20 Rated (H20)** – all OPW spill containers and manholes exceed the requirements of the Highway 20 rating.

Listings and Certifications



Look for this label for authentic OPW EVR Approved products.

DEVR Models – Fill Port with Drain Valve

Duratuff® II Base with Drain Valve Models

Model #	Gal.	Liter	Cover	lbs.	kg
1-2100-DEVR	5	19	Aluminum	40	18
1C-2100-DEVR	5	19	Cast Iron	53	24
1-2115-DEVR	15	57	Aluminum	47	21
1C-2115-DEVR	15	57	Cast Iron	60	27

Cast Iron Base with Drain Valve Models

Model #	Gal.	Liter	Cover	lbs.	kg
1-2100C-DEVR	5	19	Aluminum	40	18
1C-2100C-DEVR	5	19	Cast Iron	53	24
1-2115C-DEVR	15	57	Aluminum	47	21
1C-2115C-DEVR	15	57	Cast Iron	60	27

PEVR Models – Vapor Port with Plug

Duratuff® II Base with Plug Models

Model #	Gal.	Liter	Cover	lbs.	kg
1-2100-PEVR	5	19	Aluminum	40	18
1C-2100-PEVR	5	19	Cast Iron	53	24

Cast Iron Base with Plug Models

Model #	Gal.	Liter	Cover	lbs.	kg
1-2100C-PEVR	5	19	Aluminum	40	18
1C-2100C-PEVR	5	19	Cast Iron	53	24



4" Threaded Nipples for Mating Spill Bucket to Adaptor

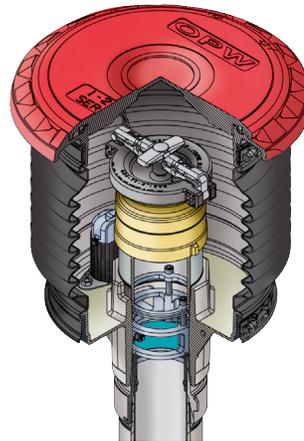
Part #	Description
TC-400	4" Torque Cap
H15144M	4" NPT Nipple, 4" Length
H12806M	4" NPT Nipple, 5" Length
VPN4X7	4" NPT Nipple, 7" Length
H15271M	4" NPT Nipple, 8" Length
H15268M	4" NPT Nipple, 10" Length

Replacement Parts

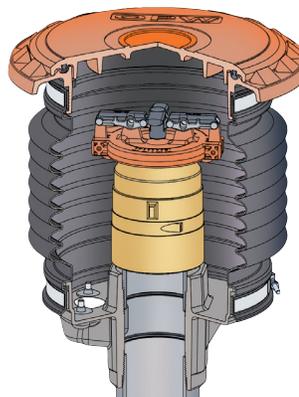
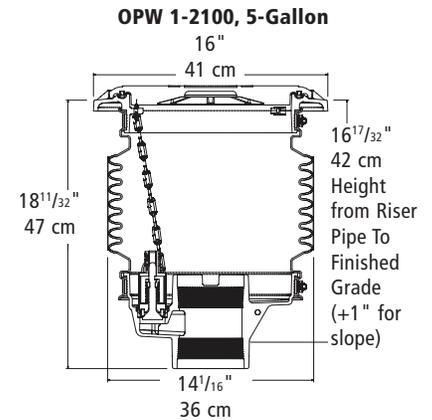
Part #	Description
1DK-2100-EVR	Drain Valve Kit
1-21AC	Aluminum Cover w/ Seal
1-21CC	Cast Iron Cover w/ Seal
H12229M	Cover Seal
1PPK-2100	Hand Pump & Plug Kit for 1-2100
1DP-2100	Replacement Drain Plug Kit for 1-2100

The following products are in compliance with California Water Resources Control Board (W.R.C.B.) for coating of buried metal components, such as stainless steel clamps or entire Spill Containment Bucket bottoms.

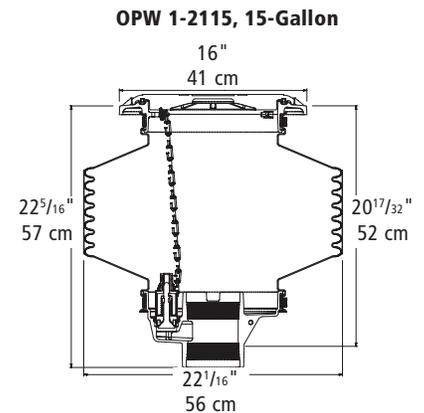
Part #	Description
SL-1100	Urethane Sealant (10.3 oz.)
H15002M	Black Rubberized Undercoating (19.75 oz.)
W.R.C.B. approved CCR Title 23, Div. 16, Sec. 1631 & 2636	



1-2100-DEVR Series
Product Fill Spill Container

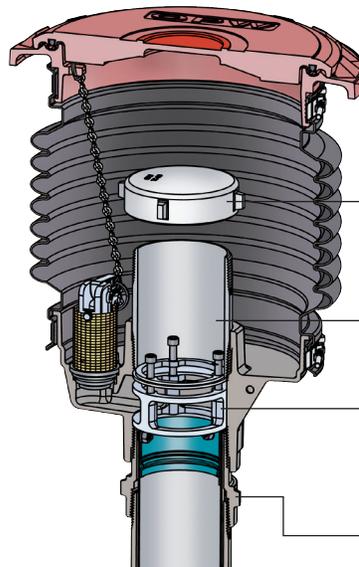


1-2100-PEVR Series
Vapor Recovery Spill Container



*Subtract 2" from height dimension for Cast Iron Base Models.

NOTE: 20¹⁷/₃₂" dimension is height from riser pipe to finish grade (+1" for slope)



TC-400 Torque Cap

Provides an easy means of threading a 4" NPT nipple into a spill container. The OPW TC-400 coupled with the OPW 61SA-TOOL can provide the necessary torque requirements for installing adaptor nipples for spill containers. The TC-400 can easily be removed without disturbing the installed threaded nipple. The TC-400 also eliminates the need for a strap or chain wrench.

4" Threaded Pipe Nipple

OPW pipe nipples are CNC machined, providing a smooth sealing surface where a gasket seal exists. Available in various lengths to custom fit the necessary height requirements for Fill and Vapor Adaptors.

61JSK Jack Screw Device

See page 57 for detailed information.

FSA-400 Face Seal Adaptor

See page 57 for detailed information.

OPW 1SC-2100-EVR Series Sealable Cover Spill Containers

OPW Spill Containment Manholes are designed to prevent spilled product from entering the soil near the fill and vapor return riser connections on underground storage tanks during normal tank filling operation, or in the event of tank overflow. The spill containers catch spillage to help prevent soil contamination and groundwater pollution. The OPW 1SC-2100-EVR Series Sealable Cover Spill Containers are designed to eliminate the problems associated with water entering grade level spill containers. The operation of the cover is similar to that of a "plumbers plug." When the lever is latched down, the plates are drawn together, expanding the seal against the machined mounting ring wall. The 1SC-2100-EVR spill containers are ideal for areas with a high water table, areas subject to tropical rain and standing water, and cold regions where melting snow and road salt can enter standard spill containers.

Materials

- Cover:** Cast aluminum
- Cover Seal:** Low swell nitrile
- Lever:** Bronze
- Mounting Ring:** Teflon® plasma-coated cast iron
- Bellows:** Polyethylene
- Base:** Duratuff® II or cast iron E-coating
- Clamps:** Stainless steel
- Seals:** Low swell nitrile



Lid Features

- ◆ **Simple "Plumbers Plug" Operation** – cover seal is expanded against mounting ring wall.
- ◆ **Vertical Sealing Surface** – prevents gravel and debris from damaging or interfering with the cover seal.
- ◆ **Machined Sealing Surface** – ensures watertight seal. Teflon coated stainless steel.
- ◆ **Field Replaceable Seal** – designed for all-weather performance.
- ◆ **Clear Anodized Aluminum Top Plate** – deters cover theft.
- ◆ **Potted Hinge Mechanism** – prevents ice and debris from hindering lever operation.

Additional Features

- ◆ **Product Identification Tags** – available for both the spill container cover and bucket to positively identify the product contained in the UST with standard API symbols. (See product I.D. tag specification page for more information: page 74.)
- ◆ **Capacities** – 5 and 15-gallon
- ◆ **Fuel Compatibility** – designed to accommodate all fuels, including methanol, ethanol and MTBE.
- ◆ **Highway 20 Rated (H20)** – all OPW spill containers and manholes exceed the requirements of the Highway 20 rating.

Listings and Certifications



Look for this label for authentic OPW EVR Approved products.

Ordering Specifications

Plug or Drain Valve Models

Model	Gal.	Liter	Base	Drain Valve or Drain Plug	Cover	lbs.	kg
1SC-2100-DEVR	5	19	Composite	Drain Valve	Aluminum	47	21
1SC-2115-DEVR	15	57	Composite	Drain Valve	Aluminum	47	21
1SC-2100-PEVR	5	19	Composite	Drain Plug	Aluminum	47	21
1SC-2115-PEVR	15	57	Composite	Drain Plug	Aluminum	47	21
1SC-2100C-DEVR	5	19	Cast Iron	Drain Valve	Aluminum	53	24
1SC-2115C-DEVR	15	57	Cast Iron	Drain Valve	Aluminum	53	24
1SC-2100C-PEVR	5	19	Cast Iron	Drain Plug	Aluminum	53	24
1SC-2115C-PEVR	15	57	Cast Iron	Drain Plug	Aluminum	53	24

Dimensions

Slip-On Models (see drawing on right)

	1SC-2105		1SC-2155	
	in.	cm	in.	cm
A	16	41	16 ⁷ / ₃₂	41
B	14	36	22	56
C	1 ⁵ / ₃₂	3	1 ⁵ / ₃₂	3
D*	10 ¹ / ₁₆	26	14 ¹ / ₈	36
E*	17	43	21	53

*Subtract 2" from "E" dimension for Cast Iron Base Models.

Thread-On Models (see drawing on right)

	1SC-2100		1SC-2115	
	in.	cm	in.	cm
A	16	40	16 ⁷ / ₃₂	41
B	14 ¹ / ₁₆	36	22	56
C	1 ⁵ / ₃₂	3	1 ⁵ / ₃₂	3
D	16 ³ / ₈	42	20 ¹ / ₂	52
E*	18 ⁵ / ₁₆	47	22 ¹ / ₂	57

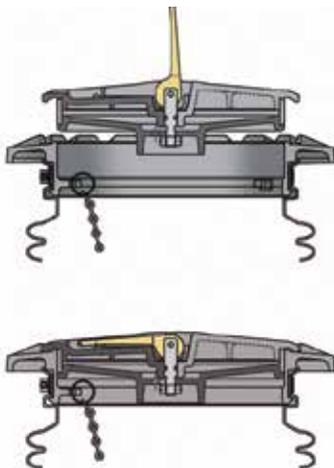
Replacement Parts

Part #	Description
SC-PLAIN	Replacement Cover
H13931M	Cover Gasket
C04101B	Bronze Lever Arm
D01874M	Lower Plate
C04141M	Rubber Insert
H12927M	Adjustment Nut
1SC-TOOL	Optional Easy Opening Tool
1DK-2100-EVR	Drain Valve Kit

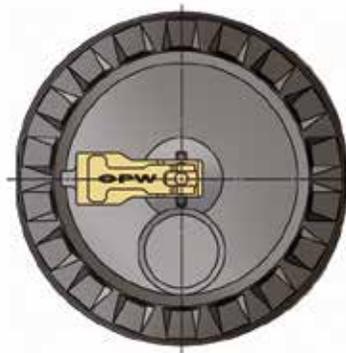
4" Threaded Nipples for Mating Spill Bucket to Adaptor

Part #	Description
TC-400	4" Torque Cap
H15144M	4" NPT Nipple, 4" Length
H12806M	4" NPT Nipple, 5" Length
VPN4X7	4" NPT Nipple, 7" Length
H15271M	4" NPT Nipple, 8" Length
H15268M	4" NPT Nipple, 10" Length

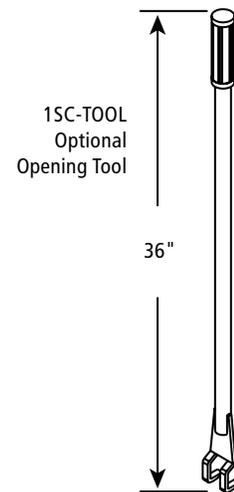
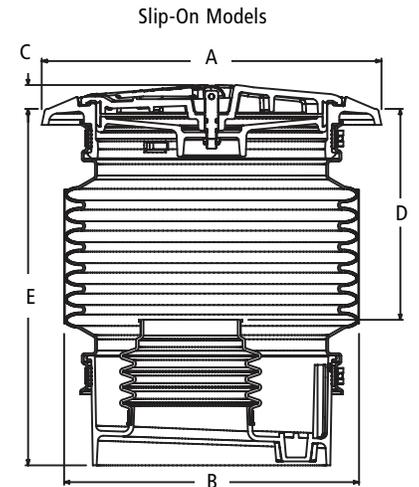
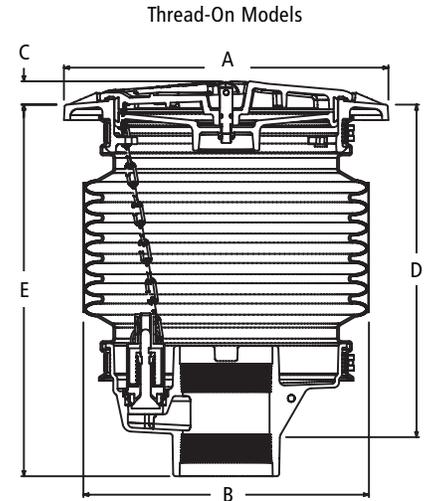
Sealable Cover Operation



Lid in Closed Position



1DK-2100 Drain Valve Kit
Instruction Sheet Order
Number: H11471M



OPW 1-2105 Series Slip-On Spill Containers

OPW Slip-On Spill Containment Manholes are used on new or existing UST riser pipes. The spill bucket slides onto 3" or 4" fill and vapor return riser pipes and is then secured in place. Slip-on spill containers provide a fast, economical way to replace uncontained manholes or fill boxes.

Materials

Cover: Cast aluminum or cast iron

Mounting Ring: Duragard® coated cast iron

Bellows: Polyethylene

Base: Duratuff®

Clamps: Stainless steel

Seals: Nitrile

1-2105, 5-Gallon
Slip-On Spill Container



Features

- ◆ Easy Installation – clamps directly onto a 4" riser pipe. Reduces job-site time and installation costs; no need to remove, cut or thread riser pipe.
- ◆ Capacity – available in a true 5-gallon capacity as well as a 15-gallon capacity.
- ◆ Rain-Shedding Cover – available in either cast aluminum or cast iron, this unique design incorporates a seal in the underside of the cover. The seal seats between two dams on the mounting ring to prevent surface water from entering the spill container.
- ◆ Fuel Compatibility – designed to accommodate the fuels of the future, including methanol, ethanol and fuels with MTBE additives.
- ◆ Optional Suction Hand Pump – 8 oz. per stroke capacity for high-speed evacuation of excess liquid. Allows user to pump product back into the tank or out of the spill container for proper disposal.
- ◆ Product Identification Tags – available for both the spill container cover and bucket to positively identify the product contained in the UST with standard API symbols. (See product I.D. tag specification page for more information: page 74.)
- ◆ Offset Base Pipe Entry – 1" offset allows for proper clearance with close fill/vapor riser spacing on tanks.
- ◆ Heavy-Duty Mounting Ring – the angled ramp design offers superior protection against snow plows and provides for secure concrete anchoring.
- ◆ Highway 20 Rated (H20) – all OPW spill containers and manholes exceed the requirements of the Highway 20 rating.

Spill Container Slip-on Model
Instruction Sheet Order Number:
H12262M

Listings and Certifications



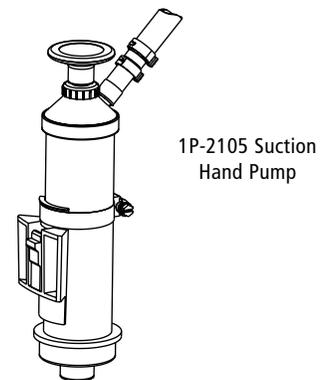
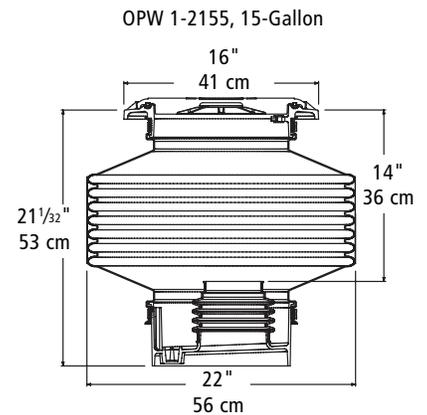
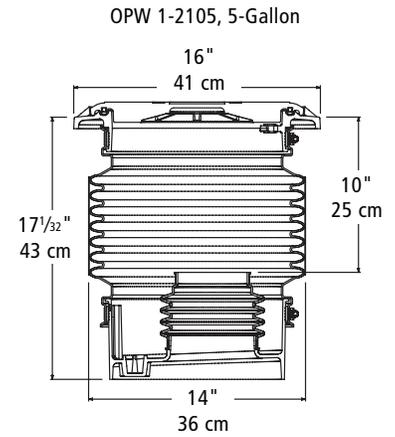
Ordering Specifications

Model	Gal.	Liter	Cover	lbs.	kg
1-2105	5	19	Aluminum	39	18
1C-2105	5	19	Cast Iron	53	24
1-2155	15	56	Aluminum	45	21
1SC-2105	5	19	Sealable	39	18
1SC-2105	15	56	Sealable	45	21

Replacement Parts/Accessories

Part #	Description	Part #	Description
1-21AC	Aluminum Cover w/ Seal	H12229M	Cover Seal
1-21CC	Cast Iron Cover w/ Seal	201567	Inner Bellows
1P-2105	Optional Hand Pump Kit	201759	4 x 3 Reducer Insert

OPW 1-2105 Series Slip-On Spill Containers



OPW 101BG-2100 Series Below-Grade Spill Containers

OPW Below-Grade Spill Containment Manholes are used in new tank or riser pipe installations. The watertight spill containment chamber is installed completely below grade level. A grade level manhole cover lies flush with the driveway grade to reduce a tripping hazard and the potential for damage from snow plows and traffic. Surface water drains into the backfill between the manhole skirt and the exterior of the containment bucket. Below-grade spill containers are available in thread-on and slip-on configurations in 5 and 15-gallon capacities.

101BG Slip-on Model Instruction Sheet Order Number: **H12579M**

101BG-2100 Instruction Sheet Order Number: **H12260M**

Important Notice: The OPW101BG-2100 Spill Container Series does not prevent contamination of the soil or backfill resulting from spills flowing between the spill container and the outer shell. Ground contamination may result if the spill container is filled beyond capacity, or if a spill occurs outside the spill containment cell.

- ◆ Highway 20 Rated (H20) – all OPW spill containers and manholes exceed the requirements of the Highway 20 rating.

Materials

Grade Cover: Fiberglass reinforced composite (steel optional)
Lid: Glass reinforced composite
Lever, top case: Polyethylene
Outer shell: Polyethylene, powder-coated steel
Containment cell: Polyethylene
Base: Duratuff® II or cast iron



Features

- ◆ Pull-to-Open Drain Valve – allows high-speed drainage of excess product into the tank. Designed with a convenient self-cleaning seal and removable screen for easier component cleaning. (CARB Approved)
- ◆ Capacity – 5-gallon and 15-gallon capacities.
- ◆ Outer Shell – the outer shell isolates the containment vessel from the surrounding concrete and gravel. This high-density polyethylene shell is designed to provide space between the outer shell and the containment vessel to allow any surface water that enters to flow into the backfill, not the containment vessel. Elimination of water in the spill container reduces product contamination and ice formation during cold winter months.
- ◆ Vapor-Tight Lid – a unique, hinged and sealed containment vessel lid provides a vapor-tight seal, designed to prevent vapors from escaping at ground level while eliminating the accumulation of dirt and water that contaminate fuel. Incorporating a special lid interlock design, the grade level cover cannot be replaced on the outer shell without the lever being in the closed and locked position.
- ◆ Composite Grade Level Cover – made of sturdy fiberglass-reinforced composite, the grade cover is less prone to theft than aluminum covers, and lighter in weight than cast iron. In addition, the cover lies flush with the actual grade so no ramps are required to support the cover, eliminating snow plow hazards and “speed bumps.” (Optional steel plate cover is also available)
- ◆ Fuel Compatibility – designed to accommodate the fuels of the future, including methanol, ethanol and fuels with MTBE additives.
- ◆ Easy Installation – reduces job-site time and installation costs. Simply thread the Duratuff® II base (cast iron base is optional) onto a standard 4" schedule 40 pipe. Guides are provided to assure proper positioning of the spill container. The hinged lid orientation is adjustable during installation for site-specific placement.
- ◆ Product Identification Tags – available for both the spill container cover and bucket to positively identify the product contained in the UST with standard API symbols. (See product I.D. tag specification page for more information: page 74.)

Listings and Certifications

CARB Certifications and Listings

101BG(S)-2100
101BG(S)-2115

Approval Letter #93-26



Ordering Specifications

Duratuff® II Base Models

Model	Gal.	Liter	Drain Valve	lbs.	kg
101BG-2100	5	19	Pull	60	27
101BG-2105**	5	19	None	60	27
101BG-2115	15	57	Pull	65	29

**Slip-on Base

Cast Iron Base Models

Model	Gal.	Liter	Drain Valve	lbs.	kg
101BG-2100C	5	19	Pull	72	33
101BG-2115C	15	57	Pull	77	35

Dimensions

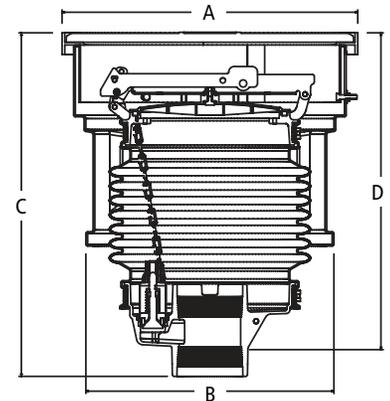
	101BG-2100		101BG-2115	
	in.	cm	in.	cm
A	20 ⁹ / ₁₆	52	20 ⁹ / ₁₆	52
B	17 ¹ / ₄	44	25 ¹ / ₂	65
C*	23 ²⁹ / ₃₂	76	27 ³¹ / ₃₂	71
D	22 ¹ / ₁₆	56	26 ⁵ / ₃₂	66

*Subtract 2" from "C" dimension for Cast Iron Base Models.

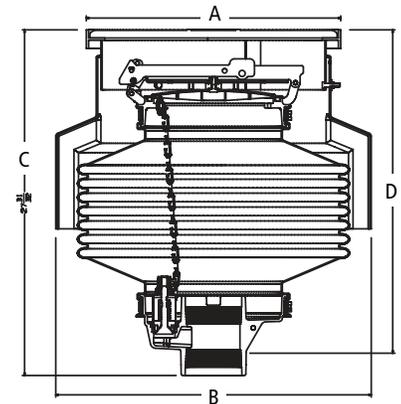
Replacement Parts/Accessories

Part #	Description	Part #	Description
1DK-2100-EVR	Pull Drain Valve	101BG-COVER	Composite Manhole Cover
101BG-21AR	Inside Hatch Height Extender	E00491	Complete Replacement Top Assembly
101BG-21LA	Red Lever & Crossarm Assembly	H11671M	Steel Manhole Cover
101BG-LATCH	Latch Kit; Yoke, Cotterpin & Spring	H12280M	Ring Seal
101BG-BUCKET	5 Gallon Replacement Spill Container	H12620	Inside Hatch
C04785M	5 Gallon Insert Support	P110-20LID	Steel Manhole Cover w/ID Tag System
C04476M	15 Gallon Insert Support		

101BG-2100, 5-Gallon

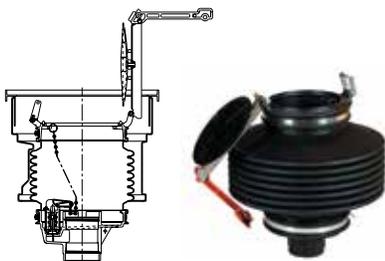


101BG-2115, 15-Gallon

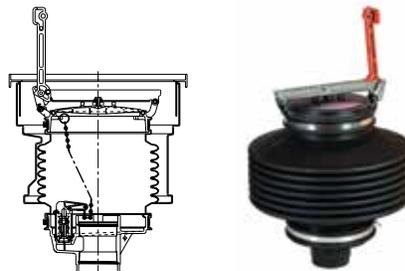


NOTE: "D" dimension is height from riser pipe to finish grade (+1" for slope)

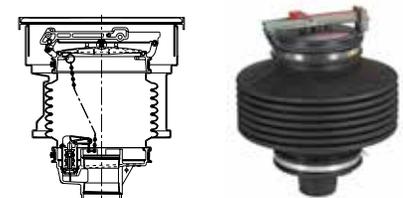
Operation of 101BG Lid



Lid and lever in open position.



Lid down, but not closed. Lever still in upright position preventing replacement of grade cover.



Lid and lever in closed and locked position. Grade cover now easily replaced on rim.

1DK-2100 Drain Valve Kit Instruction Sheet Order Number: H11471M



OPW FibreTite Multi-Port Spill Containment

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

Multi-Ports 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 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 Multi-Port and Sump System Kit

Includes:

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

Ordering Specifications

Part Number	Application	Tank Collar	Dia.	Height	Sump		Bonded Manhole		
					Base	WT Cover	Skirt ID	FRP Cover	Fill & Vapor Cover
S8CR-3100G-MP3716S-W	5 Gallon Regular Gasoline MP System	42"	45"	48"	Collar Ring	37" WSP37-16S	40"	Gray	White/Orange
S8CR-3100G-MP3716S-R	5 Gallon Premium Gasoline MP System	42"	45"	48"	Collar Ring	37" WSP37-16S	40"	Gray	Red/Orange
S8CR-3100G-MP3716S-BU	5 Gallon Mid-Grade Gasoline MP System	42"	45"	48"	Collar Ring	37" WSP37-16S	40"	Gray	Blue/Orange
S8CR-3100G-OF378S-Y	5 Gallon Diesel Offset System	42"	45"	48"	Collar Ring	37" WSP37-8S	40"	Gray	Yellow
S8CRD-3100G-MP3716S-W	5 Gallon Regular Gasoline MP System	42"	45"	63"	Collar Ring	37" WSP37-16S	40"	Gray	White/Orange
S8CRD-3100G-MP3716S-R	5 Gallon Premium Gasoline MP System	42"	45"	63"	Collar Ring	37" WSP37-16S	40"	Gray	Red/Orange
S8CRD-3100G-MP3716S-BU	5 Gallon Mid-Grade Gasoline MP System	42"	45"	63"	Collar Ring	37" WSP37-16S	40"	Gray	Blue/Orange
S8CRD-3100G-OF378S-Y	5 Gallon Diesel Offset System	42"	45"	63"	Collar Ring	37" WSP37-8S	40"	Gray	Yellow
S8SB-3100G-MP3716S-W	5 Gallon Regular Gasoline MP System	48"	45"	39"	Solid	37" WSP37-16S	40"	Gray	White/Orange
S8SB-3100G-MP3716S-R	5 Gallon Premium Gasoline MP System	48"	45"	39"	Solid	37" WSP37-16S	40"	Gray	Red/Orange
S8SB-3100G-MP3716S-BU	5 Gallon Mid-Grade Gasoline MP System	48"	45"	39"	Solid	37" WSP37-16S	40"	Gray	Blue/Orange
S8SB-3100G-OF378S-Y	5 Gallon Diesel Offset System	48"	45"	39"	Solid	37" WSP37-8S	40"	Gray	Yellow
S8SBD-3100G-MP3716S-W	5 Gallon Regular Gasoline MP System	48"	45"	48"	Solid	37" WSP37-16S	40"	Gray	White/Orange
S8SBD-3100G-MP3716S-R	5 Gallon Premium Gasoline MP System	48"	45"	48"	Solid	37" WSP37-16S	40"	Gray	Red/Orange
S8SBD-3100G-MP3716S-BU	5 Gallon Mid-Grade Gasoline MP System	48"	45"	48"	Solid	37" WSP37-16S	40"	Gray	Blue/Orange
S8SBD-3100G-OF378S-Y	5 Gallon Diesel Offset System	48"	45"	48"	Solid	37" WSP37-8S	40"	Gray	Yellow

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



New Style OPW FibreTite Multi-Port 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 MULTI-PORT

Ordering Specifications

Part Number	Application	WT Cover	Round Sump Riser Diameter	Bonded Manhole		
				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

Part Number	Application	WT Cover	Bonded Manhole		
			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

Multi-Port Kit Only, No Sump Includes Spill Containers

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

Ordering Specifications

Part Number	Application	Skirt ID	Bonded Manhole	
			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

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" Multi-Port 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 FGRP 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



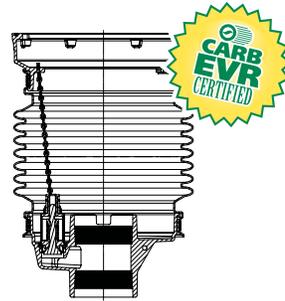
Replacement Fill Cover



Replacement 2-Port Cover

Old Style Fibrelite Multiport without Inspection Port Replacement Parts/Accessories

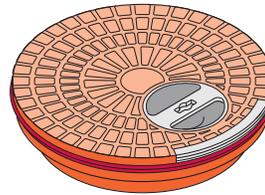
Part Number	Description
P711-EVRDV	5 Gal. Spill Bucket, Composite Base, Drain Valve
P711-EVRPL	5 Gal. Spill Bucket, Composite Base, Plug
P761C-EVRDV	5 Gal. Spill Bucket, Cast Iron Base, Drain Valve
P761C-EVRPL	5 Gal. Spill Bucket, Cast Iron Base, Plug
P511-15-EVRDV	15 Gal. Bucket W/Drain Valve, Composite Base
ID-D	ID Plate-Diesel
ID-M	ID Plate-MidGrade
ID-P	ID Plate-Premium
ID-R	ID Plate-Regular
ID-E85	ID Plate-E85
ID-U	ID Plate-Unleaded
ID-T	ID Plate-Turbine
ID-MW	ID Plate-Monitoring Well
FC-10-BLACK	10" Black Fill Cover
FC-10-BLUE	10" Blue Fill Cover
FC-10-GRAY	10" Gray Fill Cover
FC-10-ORANGE	10" Orange Fill Cover
FC-10-RED	10" Red Fill Cover
FC-10-WHITE	10" White Fill Cover
FC-10-YELLOW	10" Yellow Fill Cover
FC-10-SEAL	Replacement Gasket For FC -10 Covers
FL90GRAY-MP16	36" Gray Replacement Cover 2 Ports, with 16" Centers
FL90GRAY-OF	36" Gray Replacement Cover 1 Port, with 8" Offset
FL100GRAY-MP16	40" Gray Replacement Cover 2 Ports, with 16" Centers
FL100GRAY-OF8	40" Gray Replacement Cover 1 Port, with 8" Offset



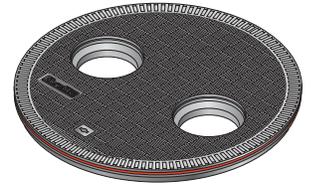
5 Gallon Fill or Vapor Spill Bucket



ID Plate 6" square fiberglass, adhesive backed product ID plates to fit into the cover recess area.



Replacement Fill-Port Covers



Replacement 2-Port Covers

Ordering Specifications

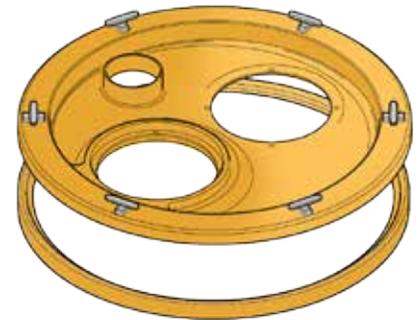
Multi-Port Watertight Spill Platform

Part #	Application	Dia.	Height	Base	Weight (lbs)
WSP33-16	Duel Access Ports 16" Centers Slope to Fill bucket	33"	(2) 5 Gallon	16" Center	13
WSP33-8	Single Access Port At 8" Off Center Slope to Fill bucket	33"	(1) 5 Gallon	8" Offset	13
WSP37-16	Duel Access Ports At 16" Center Slope to Fill bucket	37"	(2) 5 Gallon	16" Center	17
WSP37-8	Single Access Port At 8" Off Center Slope to Fill bucket	37"	(1) 5 Gallon	8" Offset	17
WTS37-16	Duel Access Ports At 16" Center No Slope to Fill bucket	37"	(2) 5 Gallon	16" Center	17
WTS37-8	37" Dia Single Access Port At 8" Center No Slope to Fill bucket	37"	(1) 5 Gallon	8" Offset	17
WSP37-550	Duel Access Ports At 21.5" Center Slope To Fill Bucket	37"	(2) 15 Gallon	21.5" Center	17
WSP37-275	Single Access Port At 11" Off Center Slope To Fill Bucket	37"	(1) 15 Gallon	11" Offset	17

All Multi-Port Platforms include WSP/CRK bucket clamping Kits

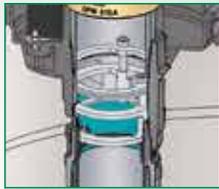
Replacement Parts

Part #	Description
WSP-NTS-OPC	6" Observation Port Cap
WTS-CAP-14	14" Container Port Cap



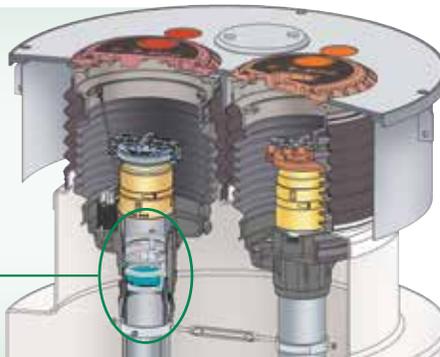


FSA400



61JSK

See page 57 for ordering specifications on the FSA-400 & 61JSK



OPW 400 and 500 Series Multi-Port Spill Containment Manholes

OPW Multi-Port Spill Containment Manholes provide spill containment for underground storage tank (UST) fill pipes and vapor recovery risers in a completely integrated single manhole package. Multi-ports 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 offers a vast array of standard multi-port configurations and options, in addition to an almost unlimited ability to provide custom solutions for virtually any spill containment application.

Model Descriptions

- ◆ **OPW 411 Series** – features a flush-mounted manhole lid and raised dual dam and groove spill container rings, with P2105 Buckets using OPW 1-2105 Style Slip-On 5-gallon containers. Base is standard 1" offset from center and can be used for 12", 14", 16" or wider riser spacing. Optional 1P-2105 Hand Pump available.
- ◆ **OPW 500 Series (511 / 521) EVR Multi-Port** – features a flush-mounted manhole lid and raised dual dam and groove spill container ring, with P511-EVR Buckets using OPW 1-2100 Style Thread-On Spill Containers. All Fill Ports in these spill containers feature an enhanced 1DK-2100-EVR vapor tight drain valve. The Vapor Return Spill Container features a permanent plug in the drain port as per EVR requirements. EVR

Multi-Port Thread-On Spill containers are available in Composite or Cast Iron bases with 5 gallon buckets. Drain Valve Spill Bucket & Plug Spill Bucket standard on Dual Ports, Drain Valve Spill Bucket standard on Single Port.

- ◆ **Required for EVR APPLICATIONS** – the FSA-400 Threaded Riser Face Seal Adaptor is installed on the fill pipe below the spill container to provide a true sealing for the drop tube flange on the 7150 overflow prevention valve. The 6150 and/or 7150 series valve is installed in the base of the OPW EVR spill container with the patent pending 61JSK jack screw device. This configuration allows liquid in the spill container to be drained directly into the drop tube, thereby isolating the drain valve from the tank ullage, eliminating a notorious leak point in previous systems.

- ◆ **Spill Container Cover Options** – standard spill container options include the patented OPW dam and groove raintight (RT) design and the watertight Sealable Cover (SC) "plumber's plug" design. The raintight cover features a finger-grip lifting facility and an integral seal. The sealable cover features a cam-operated mechanism that expands the seal against the vertical wall of the mounting ring. Both of these water-shedding covers are protected by raised mounting rings.
- ◆ **Fastener Options** – two types of fasteners are available to secure the manhole lid and monitoring port to mounting rings. Standard are 5/16"-18 hex head bolts. Optional are OPW Roto-Lock Fasteners. The OPW Roto-Lock system enables a secure, watertight connection without the need to locate threaded bolt holes on the mounting ring.
- ◆ **Powder Coated Rings & Covers** – available upon request.
- ◆ **Replacement Covers** – see Part Number Configurations at www.opwglobal.com.

Features

- ◆ **Contractor-Friendly Installation** – studded mounting ring simply bolts together inside the spill containment bucket. No need to align bolt holes in the manhole cover.
- ◆ **Raintight Service** – nitrile gaskets on the manhole and spill bucket mounting rings help prevent contamination of the sump area from surface water intrusion.
- ◆ **Highway 20 Load Rating** – the rugged diamond plate steel manhole covers, as well as the ductile iron (RT) or aluminum (SC) spill container covers meet H20 Load Rating requirements.
- ◆ **Spill Container and Manhole Positive I.D. System** – special recesses cast into spill container covers allow product I.D. tags to be attached to the lids. Matching bucket tags can be affixed to the inside of the spill container to prevent covers from getting switched.
- ◆ **Fill/Vapor Ports** – configurations are available to accommodate a single fill riser, dual ports for both a fill and vapor riser, and triple and quad ports for multiple fill and vapor risers. Ports can be supplied with or without containment buckets.
- ◆ **Port Configurations** – standard port locations match the popular riser spacings (16" or 24") and bung configurations on underground storage tanks. Custom port locations are easily accommodated. For riser spacings less than 16", old style buckets must be used.
- ◆ **CARB Certified** – 500 Series CARB EVR Approved Executive Order #VR-102
- ◆ **Manhole Cover Sizes** – standard bolt-down manhole cover diameters of 30" (76 cm), 37" (94 cm), 42" (107 cm) and 48" (122 cm) allow ample access to the sump area. Heavy-duty reinforced lid options are also available upon request.

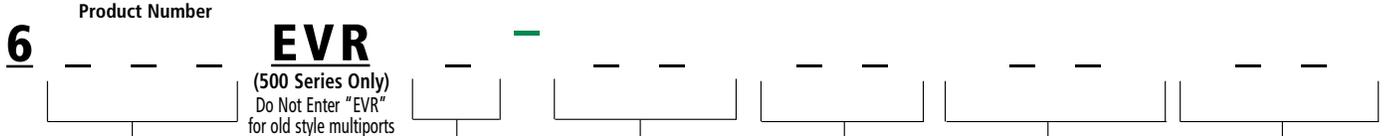
Listings and Certifications



Look for this label for authentic OPW EVR Approved products.

CARB EVR Executive Order #VR-102
NYCFD Certified (6571 Series) #5053
Florida EQ-145

OPW Multi-Port Spill Containment Ordering Specifications



Bolt Down Model Number

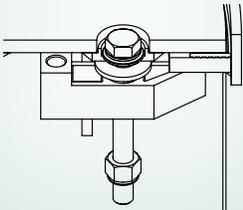
- 511EVR - HDPE Bellows, Thread-On Composite Base, Bolt-Down
- 561EVR - HDPE Bellows, Thread-On Cast Iron Base, Bolt-Down
- 411- HDPE Bellows, Slip-On Composite Base

Roto-Lock Model Number

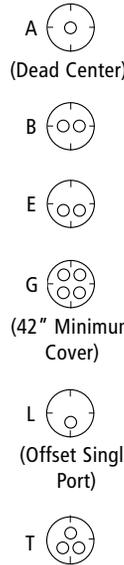
- 521EVR - HDPE Bellows, Thread-On Composite Base, Roto-Lock
- 571EVR - HDPE Bellows, Thread-On Cast Iron Base, Roto-Lock
- 421- HDPE Bellows, Slip-On Composite Base with Roto-Lock Fasteners

Optional Roto-Lock Fastener System

The OPW Roto-Lock system enables a secure raintight connection without the need to locate threaded bolt holes on the mounting ring.



Fill/Vapor Port Configurations



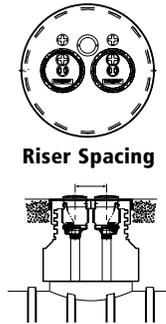
NOTE: 43 or 49 style Gauge Port must be used if a water shroud is to be used with L style

Replacement / Retrofit Manhole RP* - (No Ring / Skirt)

*RP cover orders must be accompanied by an up-to-date OPW field survey form.

Riser Spacing

- 00 - Single Port (A Configurations)
- 16 - 16" Centers
- 24 - 24" Centers (42" Minimum Cover)
- Old Style - 14" Centers Available



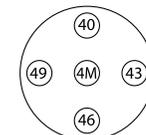
Riser Spacing

Dimensions

O.D.		I.D.		Thickness	
in.	cm	in.	cm	in.	cm
30	76	26 ⁵ / ₈	68	³ / ₈	0.952
37	94	34 ⁵ / ₈	88	³ / ₈	0.952
42	107	39 ⁵ / ₈	101	¹ / ₂	1.27
48	122	44 ⁵ / ₈	113	¹ / ₂	1.27

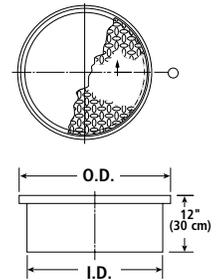
Gauge Port Location

- 00 - No Gauge Port
- 40 - Port at 12 o'clock
- 43 - Port at 3 o'clock
- 46 - Port at 6 o'clock
- 49 - Port at 9 o'clock
- 4M - Port in Center
- 7X - Flush Mount



Port Location Example

NOTE: 3M Style gauge port must be used with port in the center of "G" Style



- ### Manhole Cover Size*
- 30" (Configurations)
 - 36 - 36" Retrofit Only
 - 37 - 37"
 - 39 - 39" Retrofit Only
 - 42 - 42"
 - 48 - 48"
 - * 42" is standard

EVR Multi-Ports

Thread-On Spill Containers are available in composite or cast iron bases with either 5 or 15-gallon buckets. (1) Drain Valve Spill Bucket & (1) Plug Spill Bucket standard on Dual Ports. Drain Valve Spill Bucket standard on Single Port.

Optional Accessories

Part #	Description
6511-RB16	12" to 18" Riser Spacer
6511-RB24	20" to 26" Riser Spacer
H15144M	4" NPT Nipple, 4" Length
H12806M	4" NPT Nipple, 5" Length
VPN4X7	4" NPT Nipple, 7" Length
H15271M	4" NPT Nipple, 8" Length
H15268M	4" NPT Nipple, 10" Length
TC-400	4" Torque Cap for 4" Nipples
6521-XAR37	36", 37" OR 38" Roto-Lock Adaptor Ring to convert from Bolt Down
6521-XAR42	39" OR 42" Roto-Lock Adaptor to convert from Bolt Down
6521-XAR48	48" OR 52" Roto-Lock Adaptor to convert from Bolt Down



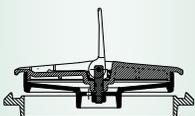
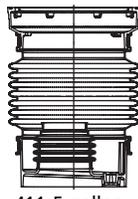
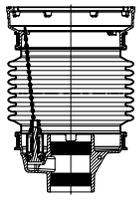
6511-RB16 Riser Spacer

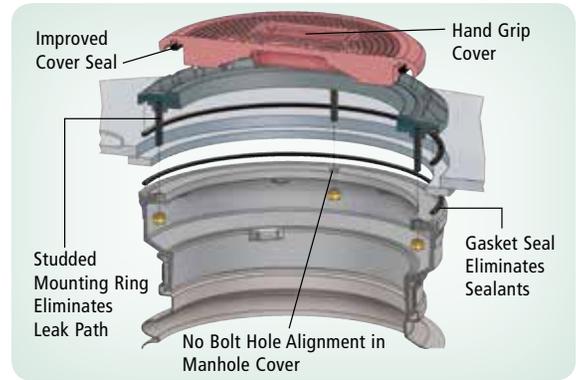


Torque Cap



4" Nipple

<p>Spill Container Cover Style**</p> <p>RT - Raintight SC - Sealable Cover 00 - No Ring or Cover</p>  <p>RT - Raintight</p>  <p>SC - Sealable Cover (Lid in open position)</p> <p>** Raintight cover is standard</p>	<p>Spill Container Capacity***</p> <p>00 - No Containment 05 - 5-Gallon 15 - 15-Gallon *** 5-Gallon bucket is standard</p>  <p>411-5-gallon (Slip-On)</p>  <p>511-5-gallon (Thread-On)</p>	<p># Of Ports With Containment</p> <p>0 1 2 3 4</p>	<p>Powder Coated Manhole Covers</p> <p>R - (1) Red (1) Orange W - (1) White (1) Orange Y - (1) Yellow</p>
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Current Replacement Parts

For New 500 Series EVR Multi-Ports 6511/6521, 6561/571 made post 11/2003

Part #	Description
P711-EVRDV	Replacement 5-Gallon Bucket, w/ Drain Valve
P711-EVRPL	Replacement 5-Gallon Bucket, w/Plug (Vapor)
P761C-EVRDV	Replacement 5-Gallon Bucket, C.I. Base w/Drain Valve
P761C-EVRPL	Replacement 5-Gallon Bucket, C.I.
P411-EVRPL	Replacement 5-Gallon Slip-On Bucket
P511-15-EVRDV	Replacement 15-Gallon Bucket, Comp Base, W/ Drain Valve
C05170M	Gasket, Spill Bucket & Mounting Ring
H15187M	Replacement Seal for New Rain Tight Cover

Note: New P711 & P761 EVR buckets will only work with New "EVR" Multi-Port covers. (made post 11/2003)

See page 73 for replacement rings and covers part numbers.

Old Style Replacement Parts	
311/411/511/521 Series Multi-Ports	
Note: 511/521 parts are for Multi-Ports made prior to Nov. 2003	
Part #	Description
1DK-2100-EVR	511/521 Series Drain Valve
H13931M	Replacement Seal for SC Cover
P110-37G	34" - 37" Manhole Gasket
P110-42G	42" Manhole Gasket
P110-48G	48" Manhole Gasket
PROTO-LOCK	(1) Roto-Lock
P40-ROTOLID	Replacement 40 Style Gauge Port Roto-Lock Lid
H15240M	Replacement Gasket for 40 Style Gauge Port
P511-BK	Steel Cover Bolt & Gasket Kit, (4 each) for complete cover
203148	Replacement 3M Style Bolt Down Gauge Port, 4.8" diameter
205322	Replacement 30 Style Bolt Down Gauge Port, 6.5" diameter
P311-G	Bucket Top Flange Gasket
P511BUCKETBOLT	Spill Bucket RT Ring Kit (4) Bolts, Washers & Gaskets
H15238M	Replacement Gasket, 30 Style (Bolt Down)
1-2100-DSH	5 Gallon Fill Bucket with Composite Base & Drain Valve
1-2100-PSH	5 Gallon Vapor Bucket with Composite Base & Plug

Part #	Description
411 P2105BUCKET	411 Replacement Bucket 5-Gallon
Parts 1P-2105	H& Pump Kit for 411/P2105
P111-WTL	Replacement Cover (RT)
P111WTL-S	Replacement Seal for RT Cover
P311-1R	Replacement RT Ring
P311-14	RT Ring for 14" Riser
P511YBUCKET	Replacement Waste Oil Bucket
P511-DEVRBUCKET	Replacement 5-Gallon Bucket with Drain Valve
P511-G14	Bucket Top Flange Gasket for Notched Gasket Set
P511-PEVRBUCKET	Replacement 5-Gallon Bucket with Plug
P511C-DEVRBUCKET	Replacement 5-Gallon Bucket With C.I. Base & Drain Valve
511/521 P511C-PEVRBUCKET	Replacement 5-Gallon Bucket With C.I. Base & Plug
Parts P511-DEVRB-14	Replacement 5-Gallon Bucket with Drain Valve 12" & 14" Risers
P511-PEVRB-14	Replacement 5-Gallon Bucket with Plug - 12" & 14" Risers
P511C-DEVRB-14	Replacement 5-Gallon Bucket W/ C.I. Base, Drain Valve for 12" & 14" Risers
P511C-PEVRB-14	Replacement 5-Gallon Bucket W/ C.I. Base, Plug, for 12" & 14" Risers
P521-GKIT	521 Multi-Port Complete Gasket Kit
P511-GKIT	511 Multi-Port Complete Gasket Kit

See page 73 for additional cover options.

Multi-Port Manhole Water Shroud System Option

The new OPW Multi-Port Manhole Water Shroud System (MPWS) is designed to completely isolate surface water and condensation from the tank sump. The MPWS features an injection-molded fiberglass Water Shroud lid that mates to a standard tank sump top hat reducer. This new bolt down design allows even compression to facilitate water-tight sump access. Shroud Boots isolate the spill container buckets using stainless steel band clamps, which provide a tight seal between the water shroud top hat and the underside of the spill container mounting rings. A 6" Sump Inspection Port is provided on each FRP Cover, allowing full inspection access through the Multi-Port Gauge Port. The OPW Water Shroud system is available in 33" and 36" models. The MPWS Water Shroud is sold separately.



Rubber Shroud Cap



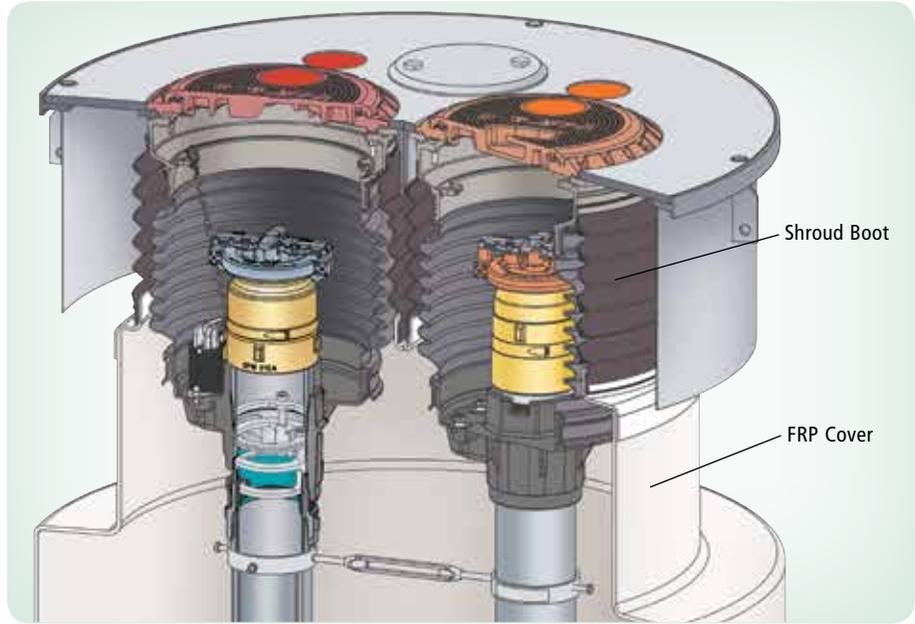
Shroud Boots Vinyl Plastisol



Sump Inspection Port (SIP) – Clear ABS Construction Inspection Port



FRP Cover Injection Molded Fiberglass Cover



Ordering Specifications

Part #	Description
MPWS-33	33" FRP Cover with (2) 5-gallon Water Shroud Boots & Clamps
MPWS-33BD	33" Bolt Down Water Shroud
MPWS-33BDD	33" Bolt Down Water Shroud for Diesel
MPWS-36	36" FRP Cover with (2) 5-gallon Water Shroud Boots & Clamps
MPWS-39BD	39" Bolt Down Water Shroud

Replacement Parts

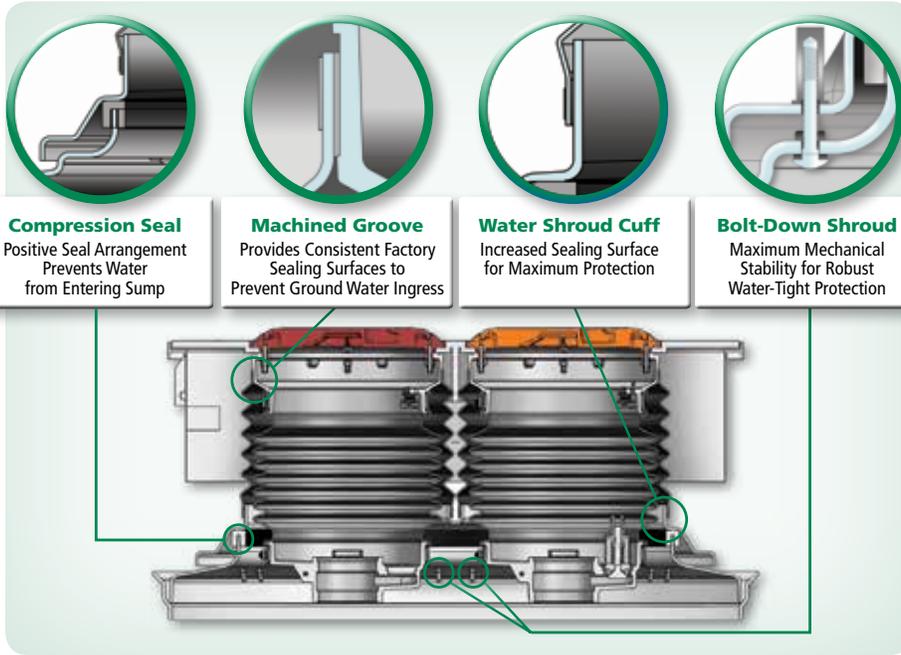
Part #	Description
C05223M	Shroud Boot Cap to Isolate One FRP Cover Port
D02571M	33" FRP Replacement Cover
D02586M	36" FRP Replacement Cover
D02575M	5-gallon Shroud Boot
H15188M	Lower Clamp for 5-gallon Shroud Boot
H15190M	Upper Clamp for 5 or 15-gallon Shroud Boot
SIP-6	6" Sump Inspection Port Sight Glass
SLPK	Gasket and Sealant Kit for Shroud
205181	Lower Clamp for 5 Gallon Shroud
205183	Upper Clamp for 5 Gallon Shroud

Listings and Certifications

**Florida EQ-145
NY Approval**



NOTE: Part numbers do not include rings or covers. Rings and Covers must be ordered separately.



Bolt Down Manhole Water Shroud System Option

The Bolt Down Multi-Port Water Shroud (MPWS-BD) is designed to mate with the OPW Multi-Port. The MPWS-BD isolates surface water and condensation from Tank Sumps.

Shroud boots isolate the spill container buckets using stainless steel band clamps, providing a tight seal between the water shroud top hat and the underside of the spill container-mounting ring. Bolts on the outer edge of the shroud cover secure it to the top hat. Available in 33" and 39" Diameter Covers.

Ordering Specifications

Part #	Description
Bolt-Down FRP Top Hat Options	
203246	42" x 33" FRP Bolt-Down Top Hat
203272	42" x 39" FRP Bolt-Down Top Hat

New Ring and Cover Part Numbers

Raintight Covers		Raintight Cover Rings		Sealable Covers		Sealable Cover Rings	
RTC-WHITE		RTR-WHITE		SC-WHITE		SCR-WHITE	
RTC-RED		RTR-RED		SC-RED		SCR-RED	
RTC-YELLOW		RTR-YELLOW		SC-YELLOW		SCR-YELLOW	
RTC-GREEN		RTR-GREEN		SC-ORANGE		SCR-ORANGE	
RTC-ORANGE		RTR-ORANGE		SC-BLACK		SCR-BLACK	
RTC-BLACK		RTR-BLACK		SC-PLAIN			

Replacement Parts

Part #	Description
C05223M	Shroud Boot Cap to Isolate One FRP Cover Port
D02571M	33" FRP Replacement Cover
D02586M	36" FRP Replacement Cover
D02575M	5-gallon Shroud Boot
H15187M	Raintight Cover Replacement Gasket
H15188M	Lower Clamp for 5-gallon Shroud Boot
H15190M	Upper Clamp for 5 or 15-gallon Shroud Boot
SIP-6	6" Sump Inspection Port Sight Glass
SLPK	Gasket and Sealant Kit for Shroud
205181	Lower Clamp for 5 Gallon Shroud
205183	Upper Clamp for 5 Gallon Shroud

OPW 106 Identification Marker

OPW 106 Identification Markers are used to identify the grade product stored in underground tanks. These markers are easily set in concrete, and once set, are permanent. The letter plate is recessed into the face of the base and fastened with two screws. The raised letters are easy to change when the product is changed. Letters available are P, R, U, SU, X, DL. Numbers 1, 2, 3, 4.

OPW 107 Nameplate Holder

OPW 107 Nameplate Holders, when secured to storage tank fill pipes, provide a method to permanently identify the product in the tanks.

Spill Container Product Identification Tags

OPW Color-Coded Spill Container Tags positively and conspicuously identify tanks, preventing costly and dangerous product drop mistakes. Simply "peel and stick" the high-visibility color inserts into the special recesses cast into the spill container cover.

Matching bucket tags, supplied with tie wraps, are permanently affixed inside the spill container to help prevent covers from getting switched.

Materials

Base and anchor shank: Aluminum
Letter Plate: Cast aluminum
Screws (2): Brass



Ordering Specifications

Product #	Fuel Type	lbs.	kg
106DL-0095	Diesel	.43	.20
106P-0150	Premium	.41	.19
106R-0175	Regular	.44	.20
106SU-0185	Super Unleaded	.43	.20
106U-0125	Unleaded	.44	.20

Product #	Fuel Type	lbs.	kg
106UP-0125	Unleaded "Plus"	.44	.20
106N-1100	I.D. Marker #1	.44	.20
106N-2200	I.D. Marker #2	.44	.20
106N-3300	I.D. Marker #3	.44	.20
106N-4400	I.D. Marker #4	.44	.20

Replacement Parts

Part #	Description
H01629M	Screw
H02211M	106DL Letter Plate
H11775M	106FL Letter Plate
H01780M	106P Letter Plate
H01781M	106R Letter Plate

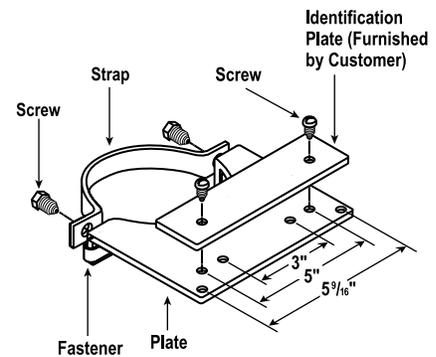
Part #	Description
H10122M	106SU Letter Plate
H07084M	106U Letter Plate
H10899M	106UP Letter Plate

Materials

Plate: Plated steel
Straps: Plated steel

Ordering Specifications

Product #	in.	mm	lbs.	kg
107-0300	4	102	.39	.18



Features

- ◆ Unique Fiberglass Embedment Process - ensures that the color identifiers won't scratch, crack, peel, weather or fade, even in gasoline and the harshest of environments.
- ◆ Compatible - with all OPW 1-2100 Series Spill Containers, including aluminum, cast iron, sealable cover and 101BG Composite Cover models. Also compatible with 111 Series, Multi-Port Spill Containers and OPW 104FG/104C Manhole Covers.
- ◆ Available in All API Product I.D. Designations.



Product	Product Designations	Cover I.D. Tag Product #	Bucket I.D. Tag Product #
Regular Unleaded	White w/Black Cross	1TAG-1000	1TAG-1010
Mid-Grade Unleaded	Blue w/White Cross	1TAG-2000	1TAG-2010
Premium Unleaded	Red w/White Cross	1TAG-3000	1TAG-3010
Diesel	Yellow Hex	1TAG-4000	1TAG-4010
Vapor Recovery	Solid Orange	1TAG-7000	1TAG-7010
85% Ethanol (E85)	Bronze Diamond Black letters (E85)	1TAG-CE85	1TAG-BE85
Ultra Low Sulfur	Yellow Hex/Black letter (U)	1TAG-4200	

Fibrelite Composite Access Covers

Fibrelite manufactures the widest range of composite manhole covers for the Retail Fueling industry. After 30 years Fibrelite remains number one in the market, supplying globally innovative new designs.

Manholes & Monitoring Well Equipment

OPW Manholes are designed for use in a wide variety of service station, commercial and industrial driveway applications. They provide access from grade level to underground equipment including tank sumps, tank riser pipes, monitoring equipment, submersible pumps, valves and piping connections.

Composite Manholes

Lightweight and extremely durable, composite cover manholes make sump accessibility safer and easier than ever before. Designed for use in many service station, commercial and industrial driveway applications, these manholes offer a wide variety of features to ensure the ultimate in safety, user-friendly convenience and long-lasting performance.

Cast Iron Manholes and Fill Boxes

Heavily ribbed cast iron covers and body rings ensure maximum load-bearing capacity on cast iron manholes and fill boxes. These manholes are ideal for connecting underground tank lines directly to the surface without sump enclosures. A variety of features available on cast iron manholes and fill boxes make them the perfect choice for many applications.

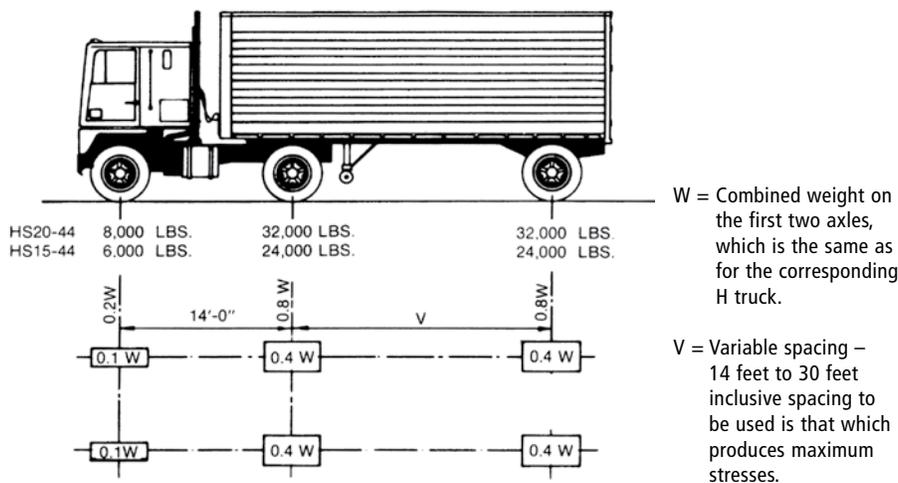
Steel Manholes

Steel manholes are designed for use in a variety of service station driveway, industrial and commercial applications, and are used to provide access to all types of underground equipment, including vapor recovery connections, UST monitoring equipment, submersible pumps and tank gauging equipment.

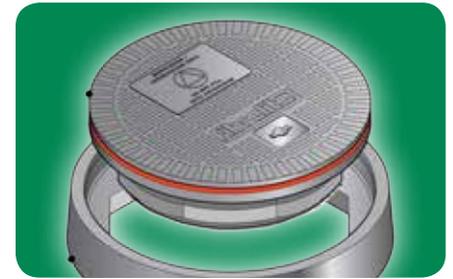
Monitoring Well Manholes

OPW Monitoring Well Manholes are designed for monitoring and observation well applications where limited access and clear identification are essential. Rugged cast iron covers meet H20 load rating requirements for long-lasting and reliable performance. The covers feature a permanently cast-in "Do Not Fill" warning statement and a black equilateral triangle inset into a white background in accordance with API Recommended Practice 1615.

OPW Manhole Covers Exceed Highway Specification-20 (H20)



Manholes & Monitoring Well Equipment



Highway Specification-20 (H20) is contained in the "Standard Specifications for Highway Bridges" and is intended to serve as a standard or guide of preparation of state specifications.

H20 incorporates rear axle loading of 32,000 lbs. over rear axle (4 wheel or single axle) or wheel loading of 8,000 lbs. per tire.

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**



Features & Benefits:

- ◆ UV resistant
- ◆ Round, square and rectangular (wide range of sizes)
- ◆ Anti-slip surface - no costly injury claims
- ◆ Will not corrode
- ◆ Watertight, sealed design
- ◆ No bolts required
- ◆ Monolithic structure eliminates delaminating
- ◆ Ergonomic, single person removal and replacement with Fibrelite lifting handle
- ◆ Locks available for all covers
- ◆ Available in any color
- ◆ Heavy Duty (HD40) covers available for truck stops, bus depots and industrial applications

Complete Cover Assemblies

Ordering Specifications - Complete Grade Level "Flat" Composite Manholes

Part #	Description	Color	Skirt I.D.	Cover O.D.	Skirt Length	Wt.
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
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



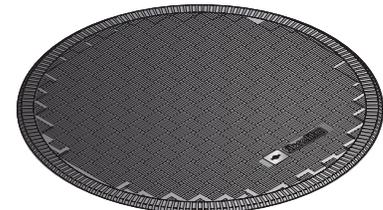
Complete Grade Level "Flat" Composite Manholes

Contact OPW for custom length skirts, heavy duty or colored covers 1-800-422-2525.

Replacement Parts - Replacement Covers

Part #	Description	Color	Skirt I.D.	Cover O.D.	Cover Ht.	Wt.
FL120BLACK	12" Dia. Black Flat Sealed Composite Cover	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

* Add HD to Part Numbers above to specify Heavy-Duty H40 Rated Covers



Ordering Specifications

Frames "Mounting Frame"

Part #	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

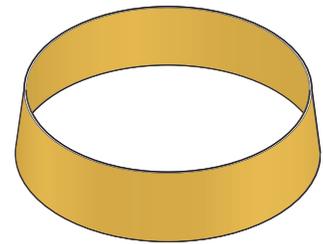


Frames - Flat Fiberglass Mounting Ring

Ordering Specifications

Skirts

Part #	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-SK10-46	10" Deep FRP Stepped Skirt To Fit FL100	40"	Flat	10"	15



Skirt

Ordering Specifications

Cover Accessories

Part #	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-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

Replacement Gasket



FL7A-ENCL Enclosure

OPW Conquistador™ Plus Composite Cover Manholes

Lightweight and extremely durable, composite cover manholes make sump accessibility safer and easier than ever before. Designed for use in many service station, commercial and industrial driveway applications, these manholes offer a wide variety of features to ensure the ultimate in user-friendly convenience and long-lasting performance.

The Conquistador™ Duratuff® helps put an end to the risk of back, foot and hand injuries with a slip-resistant tread pattern and lightweight, low-profile construction for easier and safer access to tank sumps and other underground equipment.



Replacement Parts

Product #	Description
New Recessed Handle Replacement Parts	
205749	Handle
203174	Screw
Recessed Handle Replacement Parts	
RPHK	Replacement Handle Kit
H13439M	Handle
H13441M	Weld Nut
H14462M	Screw
H11620M	Washer
Key-Lift Kit Replacement Parts	
203541	Keylift
203569	Screw
Key-Lift Kit 2 Replacement Parts	
RPKLK	Replacement Key-Lift Kit
D02677M	Key Lift Plate
H13441M	Weld Nut
H14463M	Screw



Features

- ◆ Slip-resistant tread pattern
- ◆ Easy removal and replacement
- ◆ Two lifting options; stainless steel recessed handle or key-lift provision
- ◆ Reduced risk of back, foot and hand injuries
- ◆ Unmatched deflection performance
- ◆ Outstanding long-term durability in rigorous cycle tests
- ◆ Three mounting options
- ◆ Unique structural fiberglass reinforcement matrix
- ◆ Water-resistant models available
- ◆ Roto-Lock and Bolt-down models available
- ◆ Interchangeable with other manufacturers' covers
- ◆ Painted ring and brass bolts help to prevent rust and corrosion
- ◆ Ribbed gasket peel and stick design for easy replacement
- ◆ Roto-Lock Models – for securing a raintight connection without the need to locate threaded bolt holes on the mounting ring. The Roto-Lock offers quick and easy access, while maintaining a secure sump application.
- ◆ H20 Rating – Exceeds Highway Specification - 20 (H20) Rating.

Lifting Options



NEW Recessed Handle
203666



Recessed Handle
RPHK



Key-Lift
203541



Key-Lift
RPKLK

Key-Lift Provision (90K-KLS Stick Not Included)

Replacement Handles and Keylifts by Model Year

Item	Part #	Conquistador Model Years	Description
Replacement Handle	RPHK	2000-2008	2 Thru Hole Bolt Pattern Design Handle
Replacement Handle	203666	2009-Present	2 Threaded Hole Bolt Pattern Design Handle
Replacement Keylift	RPKLK	2000-2008	4 Thru Hole Bolt Pattern Design Keylift
Replacement Keylift	203667	2009-Present	2 Threaded Hole Bolt Pattern Design Keylift

Materials

- Cover: Fiberglass
- Ring: Painted steel
- Skirt: Galvanized steel
- Key Lift / Recessed Handles: Stainless steel
- Bolts: Stainless steel
- Roto-lock: Brass



Dimensions

Cover	A (Ring I.D.)		B (Skirt I.D.)		Cover Wt.		Assembly Wt.	
39 1/2"	36 1/8"	92 cm	38 5/8"	98 cm	76 lbs.	34.4 kg	134 lbs.	60.8 kg
44 1/4"	40 29/32"	104 cm	43 3/8"	110 cm	89 lbs.	40.4 kg	163 lbs.	74 kg

Ordering Specifications

Plain Cover-Grey

Product #	Description	Cover Only
39CD-PL10	39 1/2" Plain Cover w/Recess Handle	E00618
39CD-PLKL	39 1/2" Plain Cover w/Key-Lift Provision	E00620
44CD-PL10	44 1/4" Plain Cover w/Recess Handle	E00626
44CD-PLKL	44 1/4" Plain Cover w/Key-Lift Provision	E00628

Bolt-Down Cover-Grey

Product #	Description	Cover Only
39CD-WT10	39 1/2" Bolt Down Cover w/Recess Handle	E00622
39CD-WTKL	39 1/2" Bolt Down w/Key-Lift Provision	E00624
44CD-WT10	44 1/4" Bolt Down Cover w/Recess Handle	E00630
44CD-WTKL	44 1/4" Bolt Down w/Key-Lift Provision	E00632

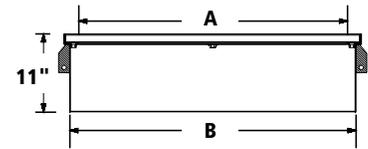
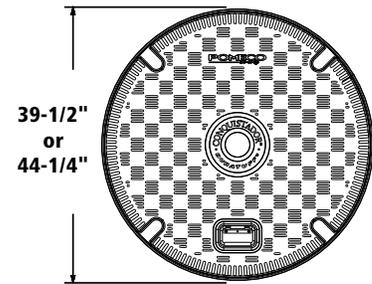
Roto-Lock Cover-Grey

Product #	Description	Cover Only
39CD-RL10	39 1/2" Roto-Lock w/Recess Handle	E00714
39CD-RLKL	39 1/2" Roto-Lock w/Key-Lift Provision	E00715
44CD-RL10	44 1/4" Roto-Lock w/Recess Handle	E00713
44CD-RLKL	44 1/4" Roto-Lock w/Key-Lift Provision	E00712

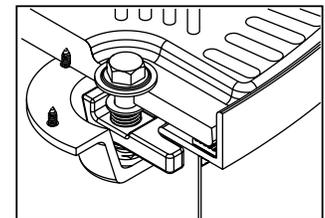
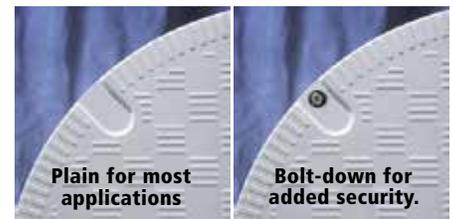
Steel Cover Only

Product #	Description
P110-3950L	39 1/2" Plain Cover Only
P110-4425L	44 1/4" Plain Cover Only

OPW Conquistador™ Plus Composite Cover Manholes

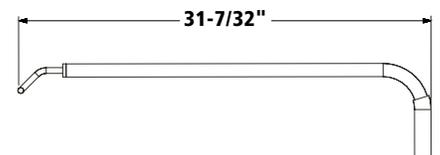


Mounting Options:



Roto-Lock Fastening System

Key Lift Provision Stick

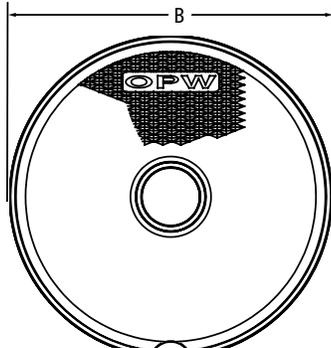


Replacement Parts

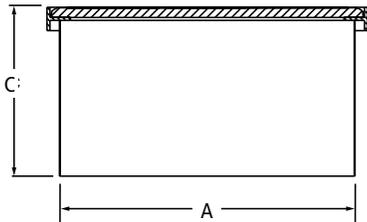
Product #	Description
90K-KLS	Key-Lift Provision Stick
H14858	Replacement Gasket for 39CD and 44CD
H14460M	Replacement Bolts
H14461M	Replacement Washers
1RL-KIT	Replacement Roto-Lock Kit

OPW 104C Composite Cover Manholes

The OPW 104C 20" (500mm) Composite Cover Manholes allow easy access to UST monitoring equipment and provide additional space for electrical junction boxes.

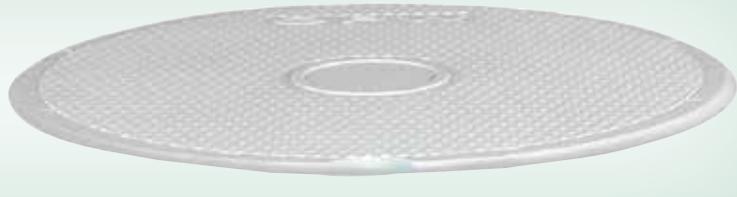


OPW 104C Cover



OPW 104C Composite Cover Manholes

20" Cover



Features

- ◆ **Lightweight Cover** – provides safe, easy removal and replacement.
- ◆ **Durable Composite Construction** – never rusts, fades or needs to be painted.
- ◆ **Spark-Free Cover Design** – fiberglass construction eliminates the possibility of sparks caused by replacing cover on mounting ring.
- ◆ **Flush-Mount, Rolled Steel Mounting Ring** – eliminates the need for sloping concrete to reduce snow plow and traffic hazards.
- ◆ **Highway 20 Rated (H20)** – all OPW spill containers and manholes exceed the requirements of the Highway 20 rating.

Ordering Specifications

Product #	ID (in.)	ID (mm)	lbs.	kg
104C-2000	20	500	22	10.0

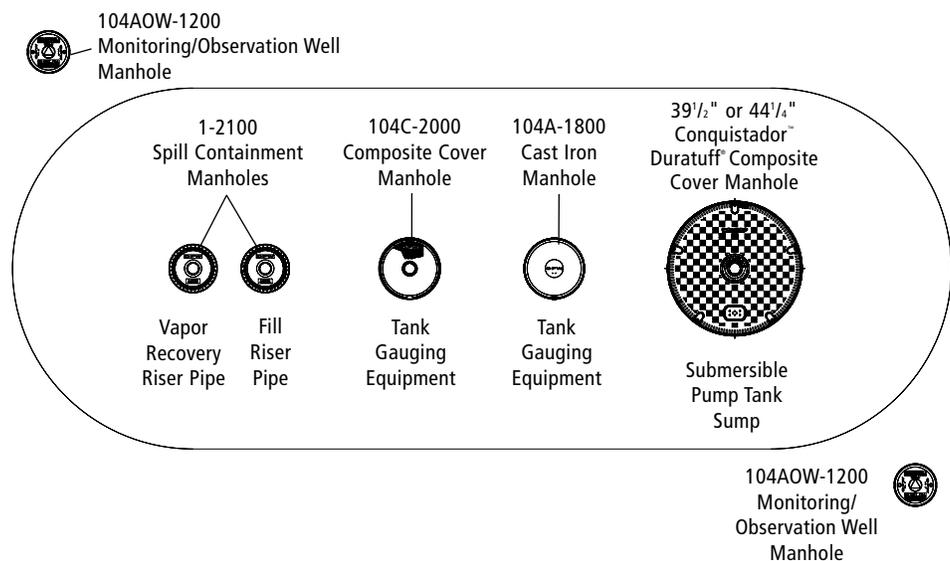
Replacement Parts

Part #	Description
101BG-Cover	Cover for 104C-2000

Dimensions

Product #	A		B		C	
	in.	cm	in.	cm	in.	cm
104C-2000	19	48.26	20 ³ / ₄	52.7	11	27.9

Typical Underground Storage Tank Manhole Layout



Materials

Body Ring: Cast iron
Cover: Cast iron
Skirt: Galvanized steel



OPW 104A Cast Iron Manhole

A sturdy steel skirt on the standard 104A extends nearly a foot below grade to ensure trouble-free installation in deep concrete, and optional skirts that extend a full 19-1/4" below grade are available in 12" and 18" diameters for sandy soil locations.

OPW 104FG Cast Iron Manhole

The 104FG provides a convenient finger grip feature on the cover to facilitate cover removal.

Features

- ◆ Full-size internal diameters for maximum access and working area
- ◆ Highway 20 Rated (H20) – All OPW spill containers and manholes exceed the requirements of the Highway 20 rating
- ◆ Rugged cast iron covers and body rings
- ◆ Cast-in, non-skid finish on covers
- ◆ Sturdy, extra long steel skirts
- ◆ Individually boxed for ease of handling

Ordering Specifications

Product #	ID (in.)	ID (mm)	lbs.	kg
104A-0800	8	203	15	6.8
104A-0800WT	8	203	15	6.8
104A-1200	12	305	28	12.7
104A-1200WT	12	305	33	15.0
104A-1219	12	305	33	15.0
104FG-1200*	12	305	28	12.7
104FG-1219*	12	305	33	15.0
104A-1800	18	457	50	22.7
104A-1800WT	18	457	50	22.7
104A-1819	18	457	57	25.9
104A-1819WT	18	457	57	25.9
104A-12WT	12	305	28	12.7

* Finger Grip Cover Manhole

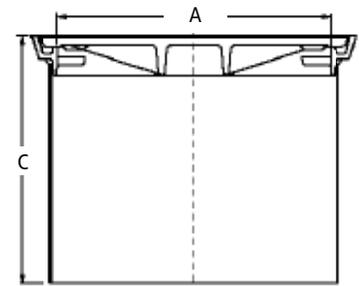
Replacement Parts

Part #	Description
E00508M	Cover for 8" 104A-0800
E00510M	Cover for 12" 104A-1200
E00584M	Cover for 12" 104FG-1200
E00512M	Cover for 18" 104A-1800
206118	Cover for 8" 104A-0800WT
206119	Cover for 12" 104A-1200WT
206120	Cover for 18" 104A-1800WT

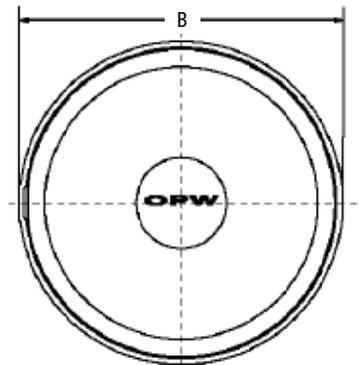
Obsolete Bucket	Replacement Lid	Cover O.D.
104A-1066	D00173M	13 ¹ / ₈ "

OPW 104 Series Cast Iron Manholes

Heavily ribbed cast iron covers and body rings ensure maximum load bearing capacity on cast iron manholes and fill boxes. These manholes are ideal for connecting underground tank lines directly to the surface without sump enclosures. A variety of features available on cast iron manholes and fill boxes make them the perfect choice for many applications.



OPW 104A/FG Cast Iron Cover Manholes



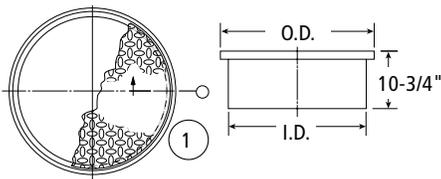
OPW 104A & 104FG Cover

Dimensions

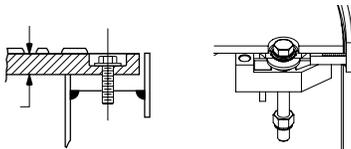
Product #	A		B		C	
	in	cm	in	cm	in	cm
104A-0800	8	20.3	10 ¹ / ₈	25.7	11 ¹ / ₄	28.6
104A/FG-1200	12	30.5	14 ¹ / ₄	36.2	11 ¹ / ₄	28.6
104A/FG-1219	12	30.5	14 ¹ / ₄	36.2	19 ¹ / ₄	48.9
104A-1800	18	45.7	20 ¹ / ₈	51.1	11 ¹ / ₄	28.6
104A-1819	18	45.7	20 ¹ / ₈	51.1	19 ¹ / ₄	48.9

OPW 110/120 Series Steel Round Manholes

OPW 110/120 Series Round Manholes are designed for use in a wide range of service station driveway, industrial and commercial applications. The 110s and 120s are used to provide access to all types of underground equipment, including vapor recovery connections, UST monitoring equipment and submersible pumps. The 120 Series includes Roto-Lock fasteners on 24" and larger manholes.



Section 1
(See Lid Thickness Dimensions)



Hex Head Detail
5/16" Bolt

Roto-Lock Detail
3/4" Hex

Replacement Parts

Part #	Description
P110-8G	8" Replacement Gasket
P110-12G	12" Replacement Gasket
P110-16G	16" Replacement Gasket
P110-18G	18" Replacement Gasket
P110-24G	24" Replacement Gasket
P110-30G	30" Replacement Gasket
P110-37G	37" Replacement Gasket
P110-40G	40" Replacement Gasket
P110-42G	42" Replacement Gasket
P110-48G	48" Replacement Gasket
PROTO-LOCK	(1) Replacement Roto-Lock
P110-8L	Replacement Cover 8"
P110-12L	Replacement Cover 12"
P110-16L	Replacement Cover 16"
P110-18L	Replacement Cover 18"
P110-24L	Replacement Cover 24"
P110-37L	Replacement Cover 37"
P110-40L	Replacement Cover 40"
P110-42L	Replacement Cover 42"
P110-48L	Replacement Cover 48"
P110-48WJL	Replacement Cover 48" Bolt Down
P120-37L	Replacement Cover 37" Roto-Lock
P120-42L	Replacement Cover 42" Roto-Lock
RPHK	Replacement Handle

Materials

- Skirt:** Galvanized steel
- Cover:** Steel diamond plate
- Ring:** Cast iron or fabricated steel
- Gasket:** Nitrile



Features

- ◆ **Standard and Raintight Models Available** – raintight models include Buna-N gaskets and recessed hex-head bolts or Roto-Lock fasteners to help prevent water intrusion.
- ◆ **Wide Range of Sizes** – sizes range from 24" to 48" (61 to 122 cm) to accommodate a wide range of applications. Custom sizes and configurations are also available.
- ◆ **Easy Cover Removal** – an integral recessed handle is included on all raintight and plain manholes 24" and larger. Manholes 42" and larger include dual recessed handles and provision for centered 1/2" - 13 threaded allen head blind plug for easy removal so that a 1/2" - 13 eyebolt can be threaded into the hole for easier removal of covers.
- ◆ **Highway 20 Rated (H20)** – all OPW spill containers and manholes exceed the requirements of the Highway 20 rating.

Ordering Specifications

Model #	Description	Cover O.D.		Skirt I.D.		Thickness		Weight		Ring
		in.	cm	in.	cm	in.	cm	lbs.	kg	
6110-24WT	Raintight*	24	61	21 ⁵ / ₈	55	³ / ₈	9	88	40	Fab. Steel
6110-2410	Standard*	24	61	21 ⁵ / ₈	55	³ / ₈	9	88	40	Fab. Steel
6110-30WT	Raintight*	30	76	27 ⁵ / ₈	70	¹ / ₂	13	160	73	Fab. Steel
6110-3010	Standard*	30	76	27 ⁵ / ₈	70	³ / ₈	9	160	73	Fab. Steel
6110-37WT	Raintight*	37	94	34 ⁵ / ₈	88	¹ / ₂	13	178	81	Fab. Steel
6110-3710	Standard*	37	94	34 ⁵ / ₈	88	³ / ₈ **	9	178	81	Fab. Steel
6110-4010	Standard*	40	102	37 ⁵ / ₈	96	³ / ₈	9	198	90	Fab. Steel
6110-42WT	Raintight*	42	107	39 ⁵ / ₈	101	¹ / ₂ **	13	290	132	Fab. Steel
6110-4200	Standard	42	107	39 ⁵ / ₈	101	¹ / ₂ **	13	290	132	Fab. Steel
6110-48WT	Raintight*	48	122	45 ⁵ / ₈	116	¹ / ₂ **	19	390	177	Fab. Steel
6110-42WT18	Raintight with 18" skirt*	42	107	39 ⁵ / ₈	101	¹ / ₂ **	13	290	132	Fab. Steel
6120-24WT	Roto-Lock Raintight 24WT*	24	61	22 ⁵ / ₈	55	³ / ₈	9	88	40	Fab. Steel
6120-30WT	Roto-Lock Raintight 30WT*	30	76	28 ⁵ / ₈	70	¹ / ₂	13	160	73	Fab. Steel
6120-37WT	Roto-Lock Raintight 37WT*	37	94	35 ⁵ / ₈	88	³ / ₈	13	178	81	Fab. Steel
6120-42WT	Roto-Lock Raintight 42WT*	42	107	40 ⁵ / ₈	101	¹ / ₂ **	13	290	132	Fab. Steel
6120-48WT	Roto-Lock Raintight 48WT*	48	122	46 ⁵ / ₈	116	¹ / ₂ **	19	390	177	Fab. Steel

* Recessed Handle

** Reinforced Cover

Standard - Plain No Bolts

Raintight - Bolt Down

Deep skirts available upon request

Materials:

Cover: Fiberglass
Frame: Fiberglass
Skirt: Fiberglass

Cover Includes Frame and Skirt

Monitoring Well Manholes



Fibrelite Composite Monitoring 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.

Features & Benefits:

- ◆ UV resistant
- ◆ Round, square and rectangular (wide range of sizes)
- ◆ Anti-slip surface - no costly injury claims
- ◆ Will not corrode
- ◆ Watertight, sealed design
- ◆ No bolts required
- ◆ Ergonomic, single person removal and replacement with Fibrelite lifting handle

Ordering Specifications - Monitoring Well Manholes

Part #	Description	Color	Skirt I.D.	Cover O.D.	Skirt Length	Wt.
FL120BLACK-MW	Flat Sealed Composite Cover - Labeled	Black	12"	15"	3.91"	13 lbs
FL120BLACK-MW-SK12	Bonded	Black	12"	15"	12"	26 lbs

Bonded - Assembled Cover, Ring And Skirt

Replacement Covers

FL120BLACK-MW

Sealed - Labeled Monitoring Well Cover

Color	Skirt I.D.	Cover O.D.	Cover Ht.	Wt.
Black	12"	15"	3.91"	13 lbs



Brine Monitoring Reservoir

Deep solid base sump, with a spill container, integrated drainback system to the tank

Ordering Specifications

Part #	Description	Weight (lbs)
S45-1180BL	18" dia. x 18" DP FRP Sump w/ FL180F & FL180BLACK Cover	76
S45-1180G	18" dia. x 18" DP FRP Sump w/ FL180F & FL180GRAY Cover	76

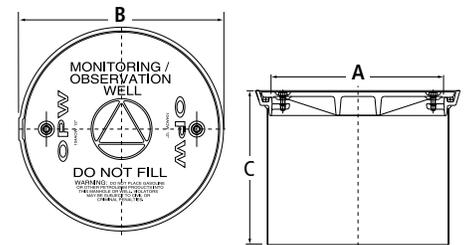
OPW Monitoring/Observation Well Manholes

Designed to be installed at grade level over a slotted PVC monitoring well where limited access and clear identification are essential. Ring gasket prevents water contamination.

Materials

Body Ring: Cast iron
Cover: Cast iron
Skirt: Steel (104 AOW)
Gasket: Neoprene

104AOW-1200



Ordering Specifications

Product #	ID (in.)	ID (mm)	lbs.	kg
104AOW-0800	8	203	15	6.8
104AOW-1200	12	305	28	12.7
104AOW-1219	12	305	33	15.0
104AOW-1800	18	457	50	22.7
104AOW-1819	18	457	57	25.9

Replacement Parts

Part #	Description
E00514I	Cover for 8" 104AOW-0800
E00515I	Cover for 12" 104AOW-1200
E00514I	Cover for 8" 104MW-0800
E00516I	Cover for 18" 104AOW-1800
H12872M	Gasket for 104AOW 8"
H12873M	Gasket for 104AOW 12"
H12874M	Gasket for 104AOW 18"

Dimensions

Product #	A		B		C	
	in.	mm	in.	mm	in.	mm
104AOW-0800	8	203	10 ¹ / ₈	257	11 ¹ / ₄	286
104AOW-1200	12	305	14 ¹ / ₄	362	11 ¹ / ₄	286
104AOW-1219	12	305	14 ¹ / ₄	362	19 ¹ / ₄	489
104AOW-1800	18	457	20 ¹ / ₈	511	11 ¹ / ₄	286
104AOW-1819	18	457	20 ¹ / ₈	511	19 ¹ / ₄	489

OPW Island Forms and Protective Curbing

OPW is the world leader in commercial and industrial protective curbing products. The company designs, engineers and manufactures island forms, curb fascia, pipe and bumper guards to meet virtually any protective curbing application.

OPW Island Forms Feature:

- ◆ **Variety of End Sections, Lengths, Widths and Styles** – allows for a customized fit to site constraints and requirements.
- ◆ **Spacious Mid-Section** – provides ample room to install standard and wide-access dispenser sumps from the top of the island.
- ◆ **Unique Sump Mounting System** – ensures the dispenser sump is anchored to the Island Form and adjustable to accommodate various width sumps.
- ◆ **Convenient Shipping and Storage** – revolutionary threaded-stud bracing system allows forms to stack together and enables boxing of the island assembly.
- ◆ **Easy Installation** – cross braces bolt onto threaded studs. Field welding is not required.
- ◆ **Attractive Appearance** – link plates impart a crisp, clean exterior joint between sections for a smooth, finished presentation.
- ◆ **Material** – Standard models are steel and stainless steel models are 304 stainless.

OPW Island Forms

Designed to protect gasoline dispensers, electronic equipment, kiosks, bank teller and ATM equipment, as well as to restrict or route material handling equipment in warehouses, OPW Island Forms and Protective Curbing streamline traffic flows in toll booths and quick-serve restaurants and various other commercial traffic management applications.

ADA-compliant island forms now available!
In order to meet both the 2010 ADA Regulations as well as NFPA Regulations without the need for bollards, use one of our two-level island forms.



Listings and Certifications



2005 UL Standard for safety for non-metallic underground piping for flammable liquids, UL971.

Build Your Own Island Form Or Curbing From Individual Sections

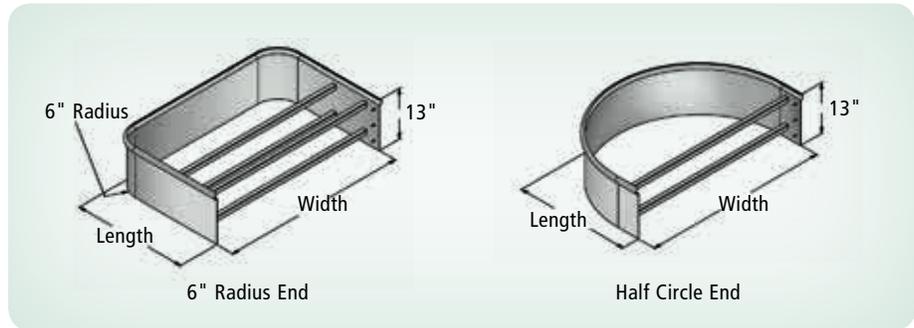
Build your own Island Forms and Protective Curbing to fit your particular application from standard sections. Standard models are steel and stainless steel models are 304 stainless.

Standard Island Form End Sections

End Sections are available to build customized Island Forms from standard OPW Island Form components. Sections are available in Half Circle or 6" Radius configurations. Each End Section is pre-braced and includes all required hardware for assembly.

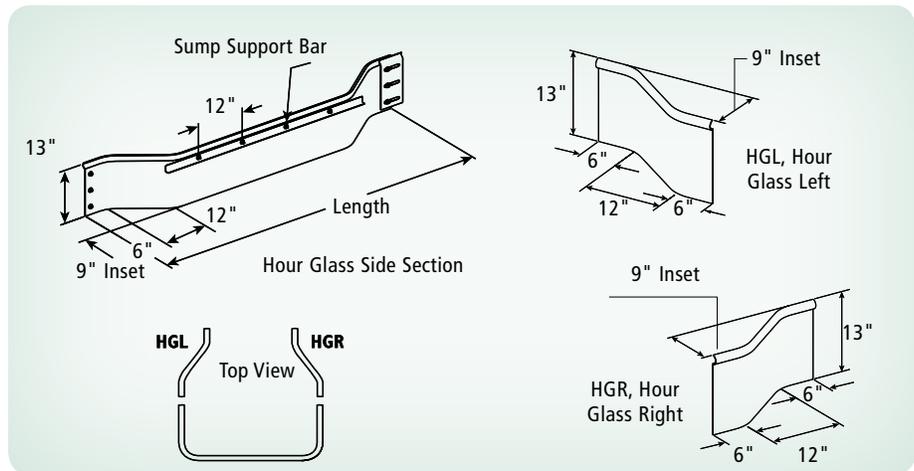
Hour Glass Sections

Hour Glass Sections are designed with double-reverse 9" tapers to provide easy access to multi-product gasoline dispensers. One-piece Hour Glass Sections are available from 5' through 9'. Sump Support Bars are included with individual Hour Glass Sections. HGL and HGR sections can be used in conjunction with Straight Sections when designing longer Hour Glass Islands, or for use in Protective Curbing applications.



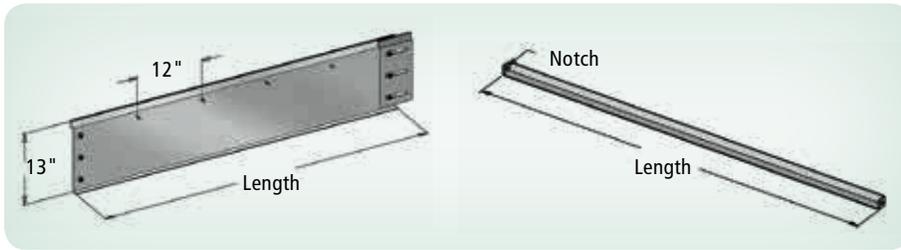
Ordering Specifications (Standard End Sections)

Model #	Radius (in.)	Width (ft)	Length	Weight
6013P-EHCW3L30	Half Circle	3	2' 6"	37 lbs.
6013P-EHCW4L30	Half Circle	4	2' 6"	40 lbs.
6013P-ER6W3L18	6	3	1' 6"	37 lbs.
6013P-ER6W3L30	6	3	2' 6"	45 lbs.
6013P-ER6W4L12	6	4	1'	35 lbs.
6013P-ER6W4L18	6	4	1' 6"	40 lbs.
6013P-ER6W4L30	6	4	2' 6"	52 lbs.



Ordering Specifications (Hour Glass)

Model #	Length	Comments	Wgt (lbs.)
6013P-HGL	2'	Hour Glass Left Side Section	13
6013P-HGR	2'	Hour Glass Right Side Section	13
6013P-HG05	5'	Hour Glass Side Section	35
6013P-HG06	6'	Hour Glass Side Section	40
6013P-HG07	7'	Hour Glass Side Section	45
6013P-HG08	8'	Hour Glass Side Section	50



Straight Sections

Straight Sections are designed with a 1" bottom flange to add rigidity for accurate alignment of sections. Island Form End Sections are easily extended with various-length Straight Sections. Sump Support Bars are not included with individual Straight Sections. Straight Sections are key to the design of Protective Curbing.

Ordering Specifications

Model #	Length	Weight
6013P-S01	1'	6 lbs.
6013P-S015	1' 6"	9 lbs.
6013P-S02	2'	12 lbs.
6013P-S025	2' 6"	15 lbs.
6013P-S03	3'	18 lbs.
6013P-S035	3' 6"	21 lbs.
6013P-S04	4'	24 lbs.
6013P-S05	5'	30 lbs.
6013P-S06	6'	36 lbs.
6013P-S07	7'	42 lbs.

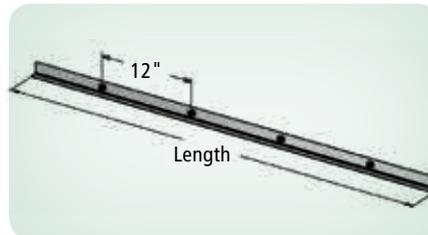
13" Mounting Plate
(Includes Hardware)

Cross Braces

Cross Braces are notched on both ends for use with Sump Support Bars. Holes punched in both ends slide over threaded studs to bolt the brace to the island. Bracing is recommended every 2 feet along the inside of Hour Glass and Straight Sections.

Ordering Specifications

Model #	Length (in.)	Weight
6000P-B24	24	1 lbs.
6000P-B30	30	2 lbs.
6000P-B36	36	2 lbs.
6000P-B42	42	2 lbs.
6000P-B48	48	3 lbs.
6000P-B60	60	3 lbs.



Sump Support Bars

Sump Support Bars are designed to allow OPW Island Forms to accept various-width sumps. The bars are positioned to locate the top of OPW Dispenser Sump Frames 1/2" above finished island grade to direct water drainage away from the sump. Sump Support Bars must be specified when designing Island Forms from individual Straight Sections.

Ordering Specifications

Model #	Length (in.)	Weight
6000P-SMP	54	3 lbs.

Build Your Own Island Form Or Curbing

Build your own Island Forms and Protective Curbing to fit your particular application from standard sections.

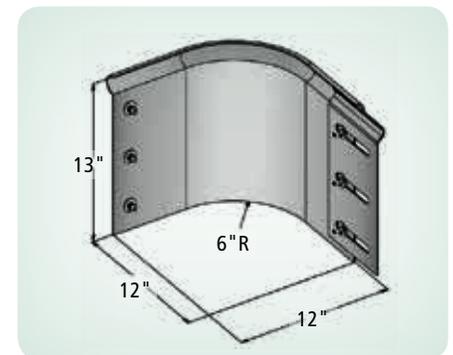
Standard models are steel and stainless steel models are 304 stainless.

Corner Sections

Corner Sections are designed for use in various Island Form widths, or for use in Protective Curbing applications.

Ordering Specifications

Model #	Length (in.)	Weight
6013P-R6C	12	10 lbs.



Curb Fascia Brackets

Curb Fascia Brackets replace cross braces and are designed to brace sections when utilized as protective curb fascia. The brackets are hole-punched for bolting to threaded studs, and allow for 1/2" diameter #4 reinforcement bars to secure the sections in place.

Ordering Specifications

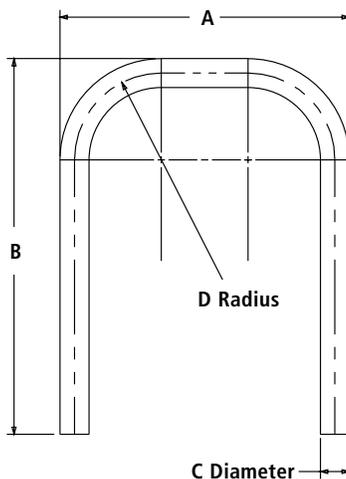
Model #	Length (in.)	Weight
6000P-CFB	11	1 lbs.
6013P-Link Steel (12K Plate)		
6013SSP-Link Stainless Steel Link		

OPW Pipe Guards

Pipe Guards help protect gasoline dispensers, light poles and other equipment or property from damage.

Features:

- ◆ **Choice of Styles** – OPW Pipe Guards are available in straight, half circle and double radius bends.
- ◆ **Variety of Sizes Available** – 28", 36", 40" and 48" widths for mounting inside or outside of island forms.
- ◆ **Various Lengths Available** – for deeper, more secure anchors in islands and concrete slabs.
- ◆ **Sturdy Construction** – OPW Pipe Guards are manufactured from 4" O.D. and 3.5" O.D. schedule 40 steel pipe.
- ◆ **Aesthetically-Pleasing Appearance** – OPW Pipe Guards are primer-finished.



Double Radius Pipe Guards



Ordering Specifications

Double Radius Pipe Guards

Model #	Material	Units (inches)			
		A	B	C	D
6PGR3-4153	Steel	41	53	3.5	14
6PGR3-4850	Steel	48	50	3.5	15.75
6PGR3-4859	Steel	48	59	3.5	15.75
6PGR3SS-3672	Stainless	36	72	3.5	14
6PGR3SS-4350	Stainless	43	50	3.5	19.5
6PGR3SS-5445	Stainless	54	45	3.5	19.5
6PGR4-4153	Steel	41	53	4	14
6PGR4-4174	Steel	41	74	4	14
6PGR4-4951	Steel	49	51	4	16
6PGR4-4972	Steel	49	72	4	16

For more information contact OPW Customer Service at 1-800-422-2525; International call 1-513-870-3315.

UST Fill Pipe Connection Equipment

Tight-Fill Adaptors and Caps

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

Stage 1 Vapor Recovery Adaptors and Caps

Stage I Vapor Recovery Adaptors are installed in spill containment manholes on the vapor recovery riser pipe from an underground gasoline storage tank. They mate with the vapor recovery elbow on the delivery transport truck when recovery of gasoline vapors is required. Stage I Caps are installed on adaptors, when not in use, to prevent gasoline vapors from escaping and to prevent water, dust and debris from entering the tank.

Monitor Probe and Monitoring Well Caps

Monitoring Probe Caps are installed on tank riser pipes to help prevent vapors from escaping or water from entering the tank. Monitoring Probe Caps include a wire grommet fitting to accommodate the electric tank gauge probe. Lockable Monitoring Well Caps are installed on slotted PVC pipe monitoring wells to help prevent contamination from surface water intrusion or inadvertent fuel deliveries.

OPW Adaptor & Cap Height Profiles

The adaptor and cap dimensions below reflect the overall height and installed height of OPW adaptors and adaptor and cap combinations. The installed height is from the gasket seal to the top of the component. For example, the 61VSA height is 6 1/2", but only adds 4-7/8" to the overall height when added to the riser.



61VSA Vapor Recovery Swivel Adaptors

Overall Height Installed Height
6-1/2" 4-7/8"



1611AV Standard Vapor Adaptors

Overall Height Installed Height
5 7/16" 4-3/4"



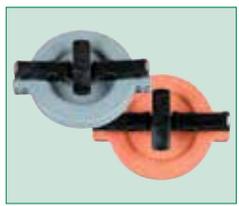
61SALP Fill Swivel Adaptor

Overall Height Installed Height
4-3/8" 2-7/8"



633T Standard Fill Adaptor

Overall Height Installed Height
3" 2"



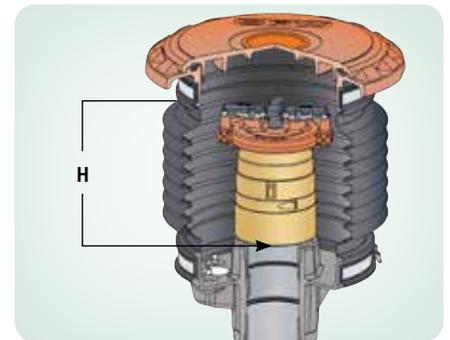
634TT Fill and 1711T Vapor Caps

Overall Height Installed Height
2-9/16" 1-1/2"



634LPC Fill and 1711LPC Low Profile Caps

Overall Height Installed Height
7/8" 1/2"



Dimensions

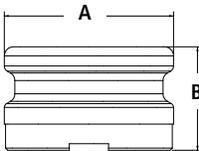
Product Combinations	H = Total Installed Height	
	in	mm
61VSA & 1711T	6 ³ / ₈	162
61VSA & 1711LPC	5 ³ / ₈	137
1611AV & 1711T	6 ¹ / ₄	159
1611AV & 1711LPC	5 ³ / ₈	136
61SALP & 634TT	4 ³ / ₈	111
61SALP & 634LPC	4 ⁷ / ₈	124
633T & 634TT	4 ¹ / ₂	114
633T & 634LPC	3 ¹ / ₂	89

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.



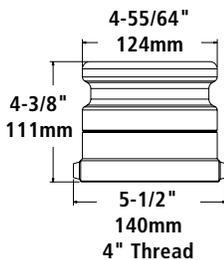
633T-8076



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	Replacement Parts	
			in.	mm	in.	mm	lbs.	kg		Part #	Description
633T-8060	3"	3"	3 ¹⁹ / ₃₂	41	1 ⁵ / ₈	92	0.96	.44	Bronze	H05289M	Gasket
633T-8070	3"	4"	3 ¹⁹ / ₃₂	68	2 ¹¹ / ₁₆	92	0.71	.32	Hardcoated Al.	H04150M	Gasket
633T-8075	4"	4"	4 ⁵⁵ / ₆₄	75	2 ³¹ / ₃₂	124	0.82	.37	Hardcoated Al.	H04150M	Gasket
633T-8076	4"	4"	4 ⁵⁵ / ₆₄	75	2 ³¹ / ₃₂	124	2.70	1.23	Bronze	H04150M	Gasket

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

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 91.

Materials

Retaining Ring: Conductive nylon

Set Screws: Stainless steel

Seals: Buna-N

Listings and Certifications



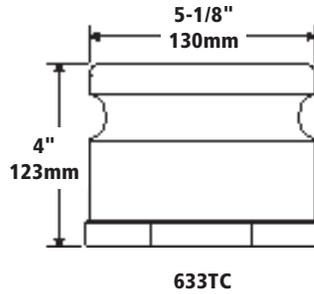
Look for this label for authentic OPW EVR Approved products. **61SALP-1020 & 61SALP-MA** are EVR Approved for E85 USA Patent No. 5,664,951



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

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 popped 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

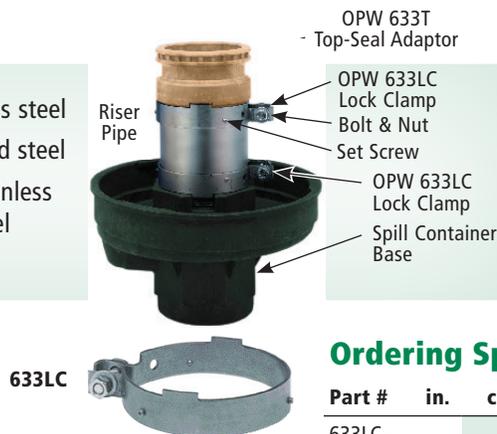
OPW 633LC Lock Clamp is designed to lock the OPW adaptor onto the riser pipe, preventing any potential vapor leaks from pressurized systems. The locking clamp slips over the riser pipe. The 633T, 633TE, or 1611 Adaptor is then threaded onto the riser pipe. Next, the lock clamp should be slid up the riser 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**

Materials

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



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 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.



Look for this label for authentic OPW EVR Approved products.
EVR Approved for E85

Materials

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

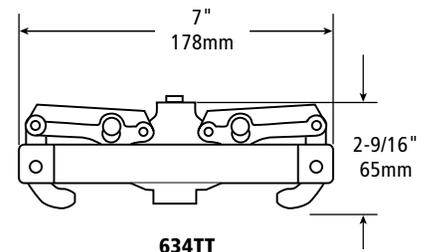


Ordering Specifications

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.

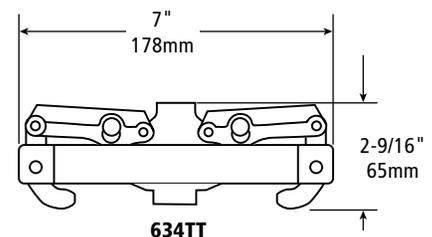
Materials

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



Listings and Certifications



Look for this label for authentic OPW EVR Approved products.
OPW 634TT & 634LPC
are EVR Approved for E85



Materials

Cap: Cast zinc alloy
(powder coated
yellow or grey)

Lever: Ductile iron

Gasket: Nitrile

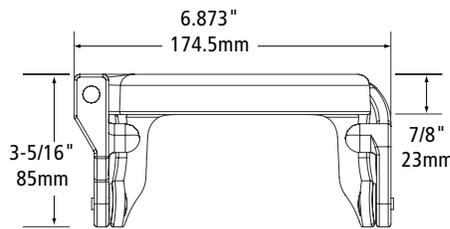


Ordering Specifications

Product #	in.	mm	lbs.	kg
634LPC-0400	4	102	3.5	1.59
634LPC-0400D	4	102	3.5	1.59

Replacement Parts

Part #	Description
H15005M	Buna-N Gasket



634LPC

Note: Effective height above adaptor: 1/2"

OPW 634LPC Low Profile Top-Seal Fill Cap

The OPW 634LPC Low Profile Top-Seal Fill Cap is designed for tight installations where the clearance between the top of the fill adaptor and the underside of the spill container cover is limited. The rugged iron lever provides a positive cam-action that seats the cap firmly in the adaptor groove for a water and vapor-tight seal. When engaged, the lockable cap adds only 1/2" to the final height of the adaptor. The 634LPC can be used with the 4" OPW 633T, 633TE, 633TC, and 61SA series top-seal fill adaptors.



Look for this label for authentic OPW EVR Approved products. EVR Approved for E85

Materials

Cap: Duratuff®

Lever: Brass

Gasket: Nitrile

Pivot pin: Stainless steel

Color: Grey

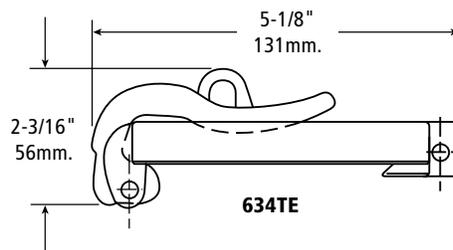


Ordering Specifications

Product #	in.	mm	lbs.	kg
634TE-7085	3	76	1.11	.50

Replacement Parts

Part #	Description
C01094RB	Lever
H10765M	Gasket
H10731RE	Pivot Pin



634TE

OPW 634TE Single Lever Action Top-Seal Cap

The OPW 634TE is a Single Lever Action Top-Seal Cap designed to mate with 3" OPW 633T Top-Seal Adaptors.

The locking lever seats in the groove in the adaptor, providing a cam-down action on the cap for a positive water and vapor-tight seal. The 634TE can be locked with a padlock or wire seal. Patent #3,118,561.

OPW Tight-Fill Side-Seal Adaptors

OPW 61AS Side-Seal Adaptors thread onto the fill pipe of underground storage tanks, and are designed to mate with side-seal delivery elbows.

Materials

Body: Bronze
Gasket: Nitrile

61AS



Ordering Specifications

Part #	Elbow Size		Riser Thread		lbs.	kg
	in.	mm	in.	mm		
61AS-2477	4	102	4	102	1.99	.90

NOTE: Maximum height of adaptor is 2" (51 mm).

Replacement Parts

Part #	Size		Description
	in.	mm	
H04145M	3 x 3	76 x 76	Gasket
H09039M	4 x 4	102 x 102	Gasket

OPW Tight-Fill Side-Seal Caps

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

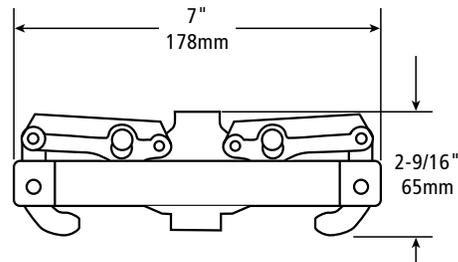
OPW 62TT

The OPW 62TT Side-Seal Cap is designed to mate with the 61AS Side-Seal Adaptor. The cap has a lever and gasoline-resistant Buna-N gasket to help assure a positive seal. The 62TT is constructed of Duratuff®, a high-impact composite that helps eliminate rust and oxidation to assure a long, maintenance-free life.

Materials

Cap & Links: Duratuff®
Pins: Stainless steel
Color: Black

62TT



Ordering Specifications

Product #	in.	mm	lb.	kg
62TT-7085	4	102	1.15	.52

Replacement Parts

Part #	Description
C03485M	Gasket

Materials

Adaptor: Bronze
Base: Bronze
Retaining Ring:
 Conductive nylon
Set Screws:
 Stainless steel
Seals: Nitrile



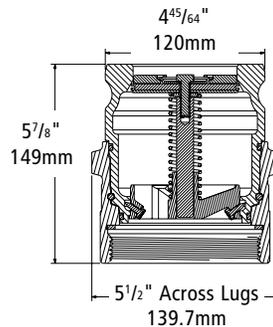
61VSA-1020-EVR
 USA Patent No. 5,664,951

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.
- ◆ **Self Guiding Poppet** – for consistent tight seal.

Ordering Specifications

Product #	Base Material	Adaptor Material	Weight	
			lbs.	kg
61VSA-1020-EVR	Bronze	Bronze	10.5	4.8
61SA-TOOL	Wrench		11.0	5.0
H09039M	Replacement Gasket			



OPW Stage I Vapor Recovery Adaptors and Caps

Stage I Vapor Recovery Adaptors are installed in spill containment manholes on the vapor recovery riser pipe from an underground gasoline storage tank. They mate with the vapor recovery elbow on the delivery transport truck when recovery of gasoline vapors is required.

OPW 61VSA Vapor Swivel Adaptor

The OPW 61VSA Vapor Swivel Adaptor is a poppeted adaptor, designed to mate with a vapor recovery elbow, featuring a top section that rotates with hose movement while the bottom section remains securely sealed to the 4-inch tank riser.



61SA-TOOL

OPW 61VSA-MA Vapor Recovery Swivel Adaptor

Adaptor: Nickel coated brass
Base: Nickel coated brass
E85 EVR Approved

Ordering Specifications

Product #	Base Material	Adaptor Material	Weight	
			lbs.	kg
61VSA-MA	Nickel Coated Brass	Nickel Coated Brass	10.5	4.8
H09039M	Replacement Gasket			



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.

Listings and Certifications



Look for this label for authentic OPW EVR Approved products.
OPW 61VSA Series Adaptors are EVR Approved for E85



OPW 1611 Series Vapor Recovery Adaptor

The OPW 1611AV and 1611AVB are poppeted adaptors, designed to mate with a vapor recovery elbow, for returning gasoline vapor to the tank truck during a fuel delivery to an underground tank.

Materials

- Body:** Clear anodized aluminum or cast bronze
- Stem:** Chrome-plated steel
- Stem Guide:** Acetal resin
- Spring:** Stainless steel
- Gasket:** Nitrile



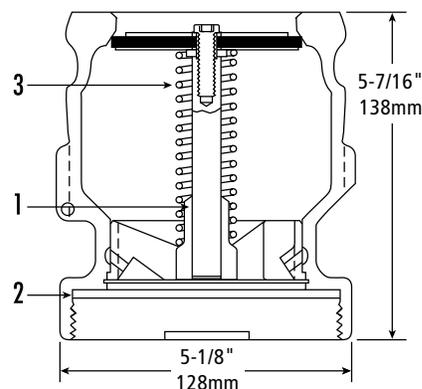
1611AV 3" x 4"
(76 x 102mm)

Ordering Specifications

Product #	Elbow Size		Riser Thread		lbs.	kg	Body Material
	in.	mm	in.	mm			
1611AV-1605	3	76	3	76	2.91	1.32	Clear Anodized Aluminum
1611AV-1620	3	76	4	102	3.25	1.48	Clear Anodized Aluminum
1611AVB-1625	3	76	4	102	7.97	3.62	Cast Bronze

Replacement Parts

Key	Part #	Description
1	C02642M	Bridge Guide
Not Shown	H15294M	Screw (3") (76mm)
2	H04145M	Gasket (3") (76mm)
	H04150M	Gasket (3" x 4") (76 x 102mm)
3	H08989M	Spring
61VSA-KIT Complete Replacement Kit		



Materials

Body: Duratuff®
 Pins: Stainless steel
 Links: Duratuff®
 Gasket: Nitrile
 Color: Orange



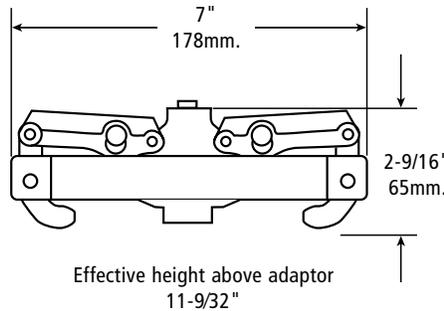
1711T Cap

Ordering Specifications

Product #	in.	mm	lbs.	kg
1711T-7085-EVR	3	76	1.1	.50

Replacement Parts

Part #	Description
H10886M	Nitrile Gasket



OPW Stage 1 Vapor Recovery Caps

OPW 1711T

The OPW 1711T Vapor Recovery Cap is for use with the OPW 1611AV, 61VSA, 1611AVB and 1611VR Adaptors. The 1711T is installed on the vapor recovery adaptor, when not in use, to prevent vapors from escaping and to prevent water, dust and debris from entering the tank. Constructed of Duratuff® to help prevent corrosion, the OPW 1711T will couple to Civacon/OPW 4" Kamlocks, and features a center post that allows an even distribution of force when coupling to the adaptor. The 1711T can be locked with a padlock.

OPW 1711LPC Low Profile Vapor Cap

The OPW 1711LPC Low Profile Top-Seal Vapor Cap is designed for tight installations where the clearance between the top of the vapor adaptor and the underside of the spill container or manhole cover is limited. The rugged iron lever provides a positive cam-action that seats the cap firmly in the adaptor groove for a water and vapor-tight seal. When engaged, the lockable cap adds only 1/2" to the final height of the adaptor. The cap is powder-coated API Orange to signify vapor recovery. The 1711LPC can be used with the OPW 3" 1611AV, 1611AVB and 61VSA series vapor adaptors.

Materials

Cap: Cast zinc alloy (powder-coated orange)
 Lever: Ductile iron
 Gasket: Nitrile



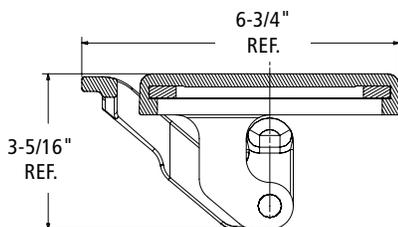
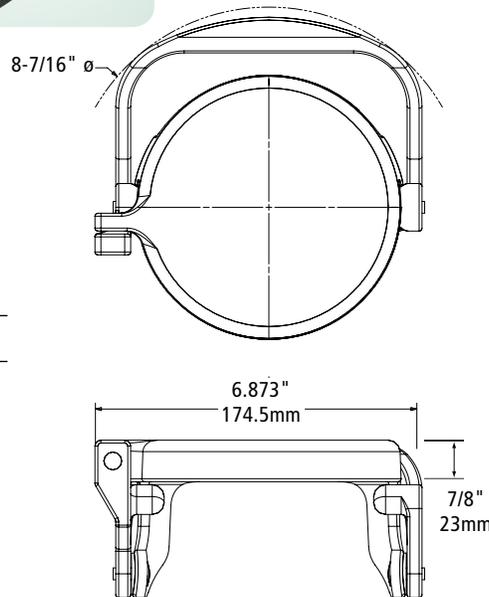
1711LPC Cap

Ordering Specifications

Product #	in.	mm	lbs.	kg
1711LPC-0300	3	76	3.5	1.59

Replacement Parts

Part #	Description
H15005M	Nitrile Gasket



Listings and Certifications



Look for this label for authentic OPW EVR Approved products.

OPW 1711 Series Caps are EVR Approved for E85



OPW Monitoring Well/Pipe/ Probe Caps

Monitoring Probe Caps are installed on tank riser pipes to help prevent vapors from escaping or water from entering the tank. Monitoring Probe Caps include a wire grommet fitting to accommodate the electronic tank gauge probe.

OPW 62M Monitor Probe Cap & Adaptor Kit

The 62M Monitoring Probe & Adaptor Kit includes a 4" side-sealing adaptor, 4" side-sealing cap (tapped), and a 3/8" or 1/2" wire grommet to secure the cable from an electronic tank gauge probe in the tank riser pipe. A bracket, located on the underside of the cap, is provided to install a tension wire to relieve strain on probe cables. The 62M is gasketed to seal against water and debris entering, or vapors from escaping the tank. The cap includes provisions for a padlock to secure entry.

OPW 116M

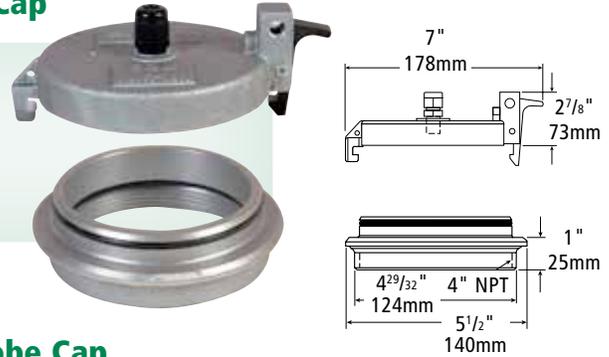
The OPW 116M Monitor Probe Cap is a standard 116 4" threaded pipe cap, drilled and tapped to accept a 3/8" or 1/2" wire grommet to secure an electronic tank gauge probe in a tank riser pipe. The 116M is gasketed for vapor and watertight service.

OPW 116

The OPW 116 Pipe Cap threads onto 4" riser pipes and provides access to ball float extractor fittings and underground storage tank bung openings. The 116 is constructed of composite Duratuff® to prevent rusting or corroding of steel riser pipes.

62M Monitor Probe Cap

Body: Cast aluminum
Cap: Cast aluminum
Seals: Nitrile
Latch: Duratuff®



62M-MA Monitor Probe Cap

Body: Anodized aluminum
Cap: Anodized aluminum
E85 EVR Approved



Ordering Specifications

Product #	Body	Cap	Grommet		Riser Thread		lbs.	kg	
			in.	mm	in.	mm			
62M-0375	Alum.	Alum.	3/8	9.5	4	102	1.3	.59	Accepts .069" - .178" diameter wire
62M-0500	Alum.	Alum.	1/2	13	4	102	1.3	.59	Accepts .170" - .470" diameter wire
62M-MA	Nickel	Nickel	3/8	9.5	4	102	1.3	.59	Accepts .170" - .470" diameter wire
201478	Alum.	Alum.	N/A	N/A	4	102	1.3	.59	No Grommet

Materials

OPW 116M

Body: 4" Duratuff®
Cross bar: Zinc-plated steel



116M Cap

OPW 116

Body: 4" Duratuff®
Seal: Nitrile



116-7085

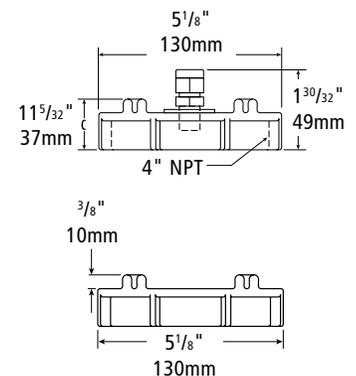
Ordering Specifications

OPW 116M

Product #	Description	Riser Thread	lbs.	kg
116M-0375	3/8" grommet	4" (102mm)	.45	.2
	Accepts .069" - .178" diameter wire			
116M-0500	1/2" grommet	4" (102mm)	.45	.2
	Accepts .170" - .470" diameter wire			
H11199M	Replacement Gasket			

OPW 116

116-7085			.40	.18
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62M Series Instruction Sheet Order Number: **H14491PA**

Materials

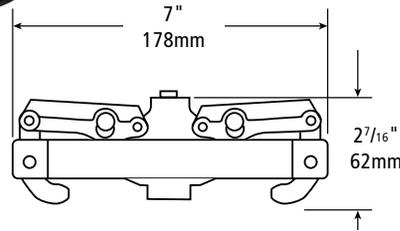
Cap: Duratuff®
 Adaptor Ring:
 Cast aluminum



634TTM

Ordering Specifications

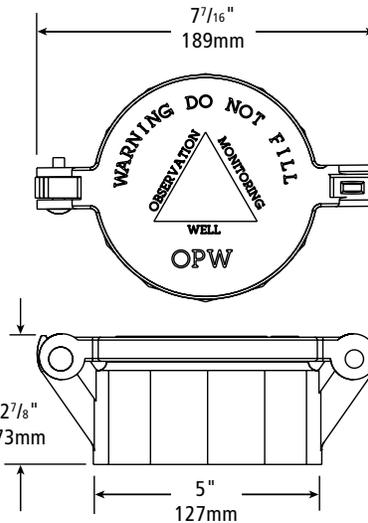
Product #	lbs.	kg
634TTM-7087	1.42	.65



62PMC

Ordering Specifications

Product #	Description	lbs.	kg
62PMC-0400	Monitoring Cap	1.3	.59



61SPVC



Ordering Specifications

Product #	Description	Length		Slotted Section		Weight	
		ft.	m	ft.	m	lbs.	kg
61SPVC-4000	4" x 13' Slotted PVC Pipe	13	3.96	10	3.04	26.5	12.0
61SPVC-4015	4" x 15' Slotted PVC Pipe	15	4.97	12	3.65	30.5	13.8
61SPVC-4020*	4" x 20' Slotted PVC Pipe	20	6.09	18	5.48	41.0	18.6

*20 ft. Models come in two (2) 10 ft. pieces.

OPW Monitoring Well / Pipe Caps

OPW 634TTM Well Cap Kit

The OPW 634TTM Well Cap Kit is designed to install onto a 4" slotted PVC monitoring well. The cap is marked "Do Not Fill" to clearly identify the monitoring well. A cast aluminum adaptor ring is set-screwed to the top of the slotted PVC well, and the cap mates with the ring. The 634TTM can be locked with a padlock or a wire seal.

OPW 62PMC Lockable Monitoring Cap

The OPW 62PMC is designed to thread or solvent-weld to a 61SPVC 4" slotted PVC monitoring well pipe. The 62PMC is constructed of durable PVC with a stainless steel hinge pin for resistance to rust and corrosion. An API warning statement, "Monitoring Well... Do Not Fill," is permanently molded into the cap. The 62PMC can be locked with a long-shank padlock.

OPW 61SPVC Slotted PVC Pipe

The OPW 61SPVC Slotted PVC Pipe is designed for monitoring well applications. The 61SPVC is constructed of durable schedule 40 PVC pipe, PVC bottom plug with slot thickness of .020".

634TTM-7087 Instruction Sheet Order Number: H10772PA

OPW Loose-Fill Pipe Cap Assemblies

Loose-Fill Pipe Cap Assemblies are installed in spill containment manholes on fill riser pipes from an underground fuel storage tank. They are used when a tight-fill connection is not required.

OPW 83

The OPW 83 Fill Cap Assembly threads onto the fillpipe of an underground or aboveground tank. The screw-on cap is gasketed to ensure a tight seal against air, water, dust and debris. The 83 can be locked with a padlock or wire seal.

Materials

Body: ZA alloy
Cap: Cast iron
Gasket: Nitrile



83 Fill Cap

Ordering Specifications

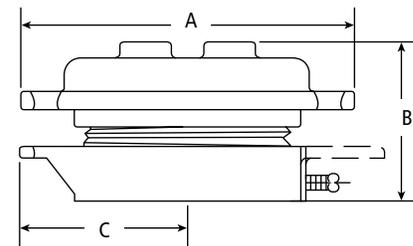
Product #	Riser Thread		lbs.	kg
	in.	mm		
83-0022	2	51	2.46	1.12

Replacement Parts

Part #	in.	mm	Description
H04898M	2	51	Cap
H01608M	2	51	Gasket

Dimensions

	2" (51mm)	
	in.	mm
A	4 ⁵ / ₈	118
B	2 ⁷ / ₁₆	62
C	2 ¹¹ / ₃₂	60



OPW 269 Sanitary Tank Hatch

The OPW 269 Sanitary Tank Hatch threads onto the fill pipe of an underground sanitary waste disposal tank. The 269 is foot-operated and quick-opening/closing for clean emptying of sanitary waste from RVs, campers and travel trailers. The non-recessed design provides straight-through flow to eliminate entrapment of waste materials.

Materials

Body: Coated ductile iron
Cap: Zinc

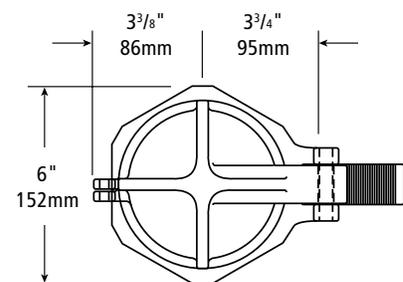
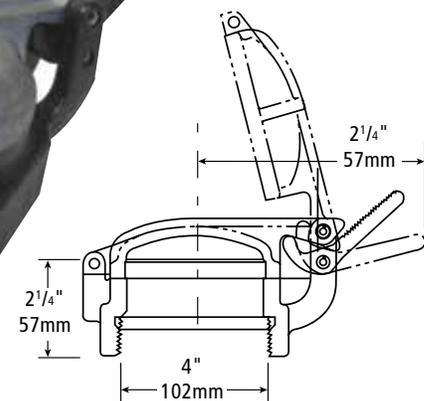


Ordering Specifications

Product #	Riser Thread		lbs.	kg
	in.	mm		
269-0085	4	102	10.92	4.91

Replacement Parts

Part #	Description
D00800B	Cap
H05783DI	Treadles
H05784M	Pin



Overfill Prevention and Venting Equipment

7150 Testable Overfill Valve

The OPW new patent-pending Testable 7150-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 7150-T Testable Overfill Prevention Valve is the only UST Overfill Prevention Valve that is testable from the surface without removal from the tank.

6150 & 7150 Overfill Prevention Valves

The OPW 6150 and 7150 vapor-tight Overfill Prevention Valves are two-stage shut-off valves designed to prevent the overfill of underground storage tanks by providing a positive shut-off of product delivery. Models of the 6150 and 7150 are available to meet virtually any UST application, including two-point, coaxial, poppeted coaxial and remote fill. The 7150 vapor-tight model is designed for enhanced vapor recovery (EVR) applications. Both the 6150 and 7150 are designed for use on tight-fill gravity drop applications only, and can be installed in the fill riser of both new and existing underground storage tanks.

Ball Float Vent Valves and Extractor Fittings

OPW Ball Float Vent Valves protrude into underground storage tanks from the Stage I vapor return riser pipe. As the tank becomes full during a product drop, the ball seats – restricting the flow of vapors back to the transport truck or through the tank vent. As the vapors are compressed in the tank, product flow into the tank is severely restricted.

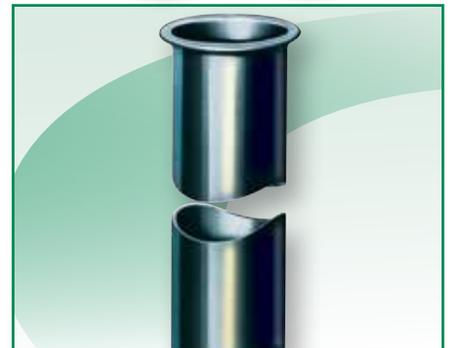
OPW ball floats are mounted in OPW extractor fittings to maintain access through grade-level manholes.

Drop Tubes and Accessories

OPW drop tubes are installed inside tank fill risers to prevent fuel from contacting riser joints. Drop tubes extend close to the bottom of the tank to minimize turbulence and vapor production. Tank bottom protectors are installed on the bottom of drop tubes to prevent tank erosion at the fill point.

Pressure Vacuum Vents and Adaptors

Pressure Vacuum Vents are installed on the top of vent pipes from underground or aboveground fuel storage tanks. The vent cap and internal wire screen are designed to protect the tank vent lines against intrusion and blockage from water, debris or insects. A normally closed poppet in the valve opens at a predetermined pressure or vacuum setting to allow the tank to vent.



Patent Pending

Testable 7150 Overfill Prevention Valve

Are you Prepared
for New EPA
Overfill Valve Test
Requirements?

*Spend 60 Seconds vs
60 Minutes per Tank!*



NEW!

**Now you can be with the
New OPW Testable 7150
Overfill Prevention Valve**

*The easiest, most affordable way
to ensure overfill compliance*

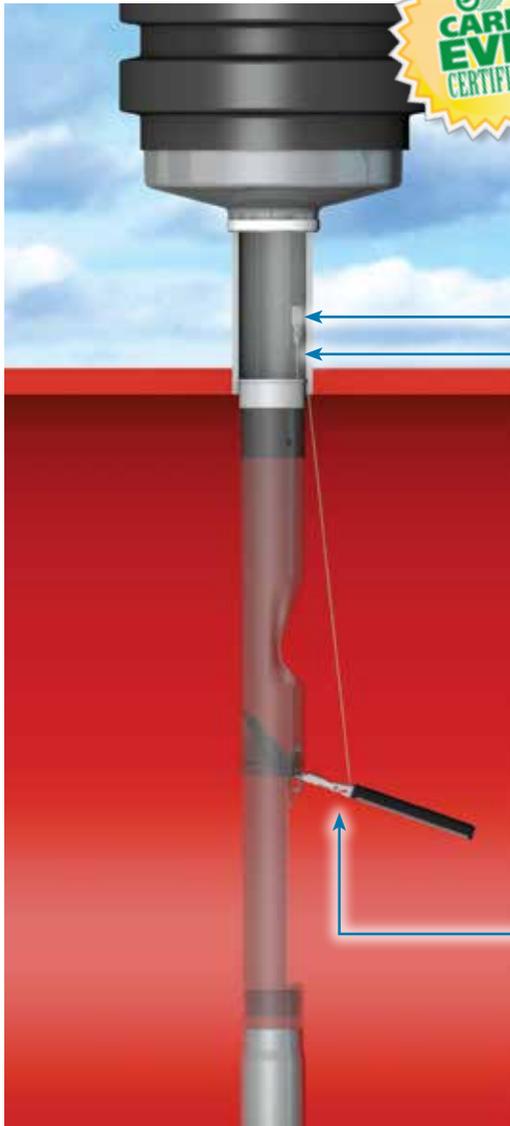
- ◆ UST systems (drop tube, overfill prevention valve, spill containers) must be tested for vapor tightness
- ◆ Overfill prevention valves shut off devices must be manually inspected

Testable 7150 Overfill Prevention Valve

Patent Pending



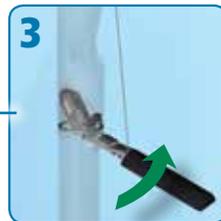
Testing & Verification Easy as 1·2·3



Loosen test plug



Lift float with cable to simulate fill



Validate proper poppet operation

The OPW Testable 7150 helps you prepare for these regulations

- ◆ The Only UST Overfill Prevention Valve that 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 the valve operation from the inside of 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 7150 uses the same industry leading overfill prevention technology for strong vapor tight compliance

NOTE: The OPW 7150 is designed for use on tight-fill gravity drop applications only. Do not use for pressure fill applications.

Ordering Specifications

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
7150-400CT	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
7150-410CT	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
7150-420CT	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

Listings and Certifications



Look for this label for authentic OPW EVR Approved products.

OPW 7150 Overfill Prevention Valves

The CARB-certified OPW 7150 vapor-tight Overfill Prevention Valve is designed to prevent 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 7150 allows easy installation (without breaking concrete) and requires no special manholes.

The OPW 7150 is a vapor-tight two-stage shut-off valve. When the liquid level rises to about 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 may then stop the filling process and disconnect and drain the delivery hose. As long as the 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 about 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.

NOTE: The 7150 Overfill Prevention Valve can be adjusted to shutoff at any desired tank capacity. Please contact the Authority Having Jurisdiction (AHJ) and review local, state, and national codes to determine the regulatory requirements governing shut-off capacity in your region, as well as take into account other considerations such as extreme tank tilt. In all cases, the upper tube must protrude into the tank at least 6 1/2" to ensure that the valve can shut off flow into the tank completely before the top of the tank is wetted as per EPA requirements.

7150 Instruction Sheet Order Number: H15524PA

Listings and Certifications



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

Features

- ◆ **Simple, Easy and Quick Installation** – no excavation or special manholes required.
- ◆ **Economical** – costs a fraction of expensive, complicated and difficult-to-install valves.
- ◆ **Furnished Complete** – supplied with new upper and lower drop tubes, mounting hardware and thorough instructions for quick job site time.
- ◆ **Completely Automatic Operation** – no prechecks to perform, no resets and no overrides to be broken or abused.
- ◆ **No Pressurization of the Tank** – operates directly from liquid level.
- ◆ **Will Accept a Dipstick for Gauging**

Advantages of Overfill Prevention Compared to Overfill Warning Systems:

- ◆ **Completely Automatic Operation** – does not rely on the alertness or speed of response of the delivery attendant for certainty of overfill prevention.
- ◆ **Keeps the Top of UST "Dry," per EPA Requirements** – eliminating possible leaks at loose bung fittings and the need for double containment on vent lines.
- ◆ **Does Not Rely on Pressure in the UST to Stop Flow** – allowing faster fill times and reducing spill risk.
- ◆ **Speeds Delivery Operations** – product flows unimpeded into the tank until the hose "kick" that accompanies the valve shut-off provides a clear signal that the liquid has reached the shut-off level.
- ◆ **Simple and Inexpensive Installation** – in both two-point and coaxial fill applications, no additional excavation, manholes or vent piping are required.



Look for this label for authentic OPW EVR Approved products.
OPW 7150 is EVR Approved for E85



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 7150 closes, causing a hazard and environmental contamination.

NOTE: The OPW 7150 is designed for use on tight-fill gravity drop applications only. Do not use for pressure fill applications.

Raising The Standard In Overfill Prevention

From the company that brought you the industry standard OPW 6150, OPW raises the standard with the introduction of the **7150 Overfill Prevention Valve** – breakthrough innovation that takes overfill prevention to a whole new level of overfill perfection.

- **Eliminates curing issues due to hot or cold temperatures**
- **Easier, quicker, installation**
- **Higher quality, more reliable installation**
- **Lower costs**
- **Greater protection against fugitive emissions and pressure decay**

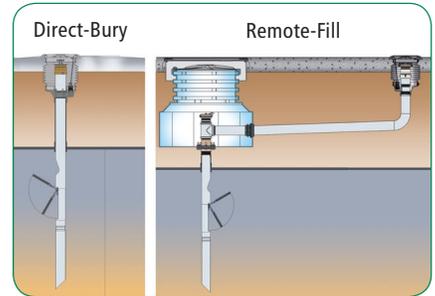
The new 7150 is a two-stage, positive shut-off valve, providing completely automatic operation with no pre-checks to perform, no resets, and no overrides to be broken or abused. The valve closes when the tank level rises to 95% capacity and provides a special bypass valve so the tank can be filled to a maximum capacity of 98%. The 7150 is available for direct-bury and remote applications.



All Vapor-Tight Overfill Valves are CARB EVR Certified



No Epoxy Sealants Required!



Replacement Parts

Part #	Description
61SOK-0001	Replacement Float Kit
H11931M	Drop Tube Seal
H14840M	Lower Tube Seal

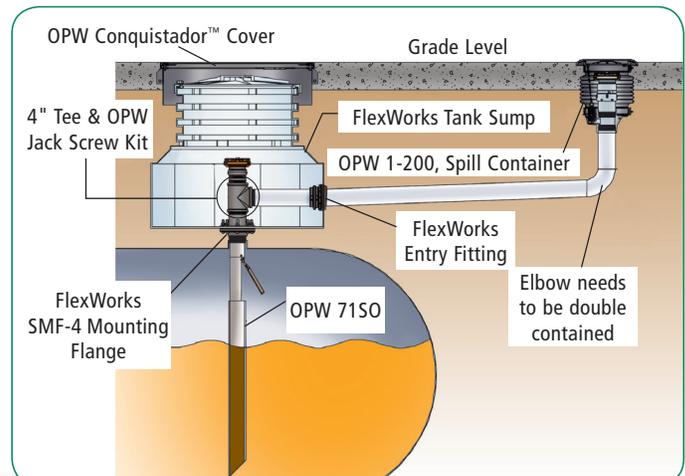
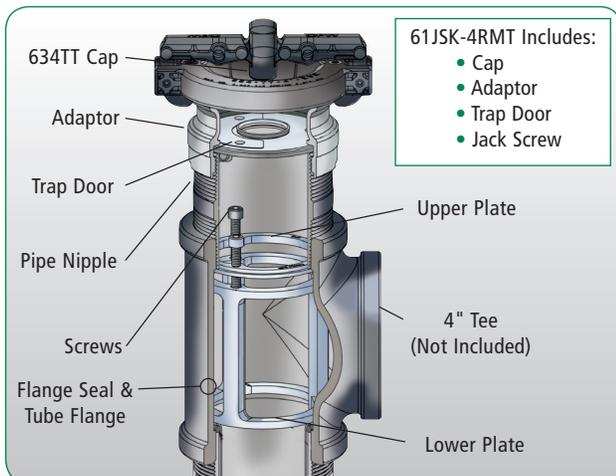
7150 Ordering Specifications

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
7150-400C	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
7150-410C	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
7150-420C	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
7150-4000	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
7150-4010	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
7150-TOOLCT	7150 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 Bucketst																	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**

7150 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 7150 overfill valve is installed in the sump through a riser pipe directly over the tank.



OPW 6150 Overfill Prevention Valves

The OPW 6150 Overfill Prevention Valve is designed to prevent 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 6150 allows easy installation (without breaking concrete) and requires no special manholes.

The OPW 6150 is a two-stage shut-off valve. When the liquid level rises to about 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 may then stop the filling process and disconnect and drain the delivery hose. As long as the 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 about 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.

The 6150 Overfill Prevention Valve can be adjusted to shutoff at any desired tank capacity. Please contact the Authority Having Jurisdiction (AHJ) and review local, state, and national codes to determine the regulatory requirements governing shut-off capacity in your region, as well as take into account other considerations such as extreme tank tilt. In all cases, the upper tube must protrude into the tank at least 6-1/2" to ensure that the valve can shut off flow into the tank completely before the top of the tank is wetted as per EPA requirements.

Models of the 6150 are available to meet virtually any UST application including two-point, coaxial, poppeted coaxial and remote fill. Methanol approved models are also available.

The OPW 6150 is approved by the New York City Fire Department. (Approval #4902).

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

Features

- ◆ **Simple, Easy and Quick Installation** – no excavation or special manholes required.
- ◆ **Economical** – costs a fraction of expensive, complicated and difficult-to-install valves.
- ◆ **Furnished Complete** – supplied with new upper and lower drop tubes, mounting hardware and thorough instructions for quick job site time.
- ◆ **Completely Automatic Operation** – no prechecks to perform, no resets and no overrides to be broken or abused.
- ◆ **No Pressurization of the Tank** – 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.
- ◆ **Best Flow Rate in The Industry***

* Test-witnessed by Bowser-Morner, Inc., an independent laboratory. Results available upon request.

Advantages of Overfill Prevention Compared to Overfill Warning Systems:

- ◆ **Completely Automatic Operation** – does not rely on the alertness or speed of response of the delivery attendant for certainty of overfill prevention.
- ◆ **Keeps the Top of UST "Dry," per EPA Requirements** – eliminating possible leaks at loose bung fittings and the need for double containment on vent lines.
- ◆ **Does Not Rely on Pressure in the UST to Stop Flow** – allowing faster fill times and reducing spill risk.
- ◆ **Speeds Delivery Operations** – product flows unimpeded into the tank until the hose "kick" that accompanies the valve shut-off provides a clear signal that the liquid has reached the shut-off level.
- ◆ **Simple and Inexpensive Installation** – in both two-point and coaxial fill applications, no additional excavation, manholes or vent piping are required.

Listings and Certifications



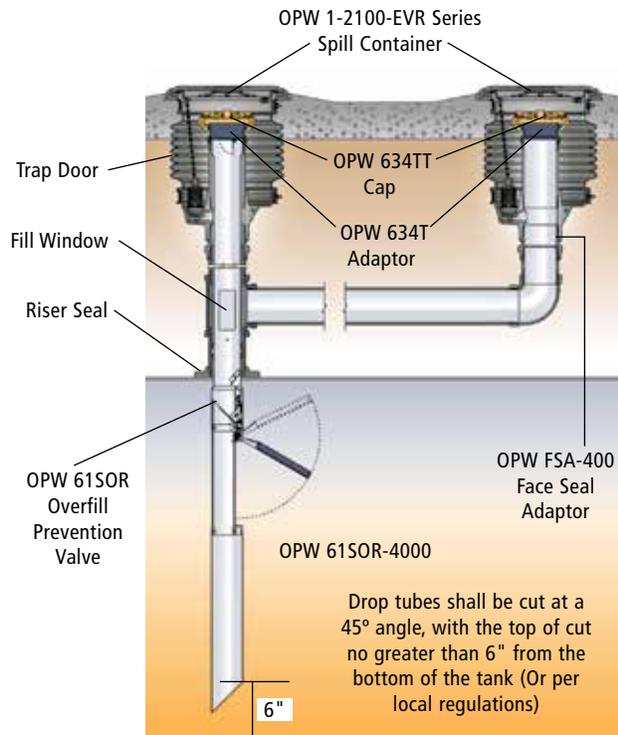
Look for this label for authentic OPW EVR Approved products.



Important

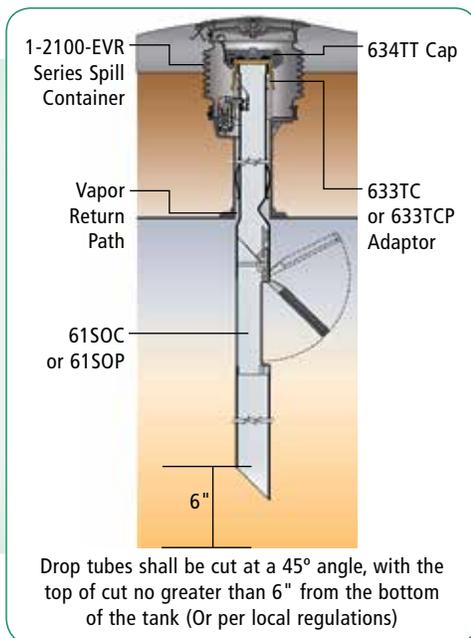
In order to prevent product spillage from the Underground Storage Tank (UST), properly maintained delivery equipment and a proper connection at the tight-fill adaptor are essential. Delivery personnel should be managed and trained to inspect delivery elbows and hoses for damaged and missing parts. They 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 6150 closes, causing a hazard and environmental contamination.

NOTE: The OPW 6150 is designed for use on tight-fill gravity drop applications only. Do not use for pressure fill applications.



61SOR Remote-Fill

The OPW 61SOR is designed for two-point remote-fill applications, where the fill point is not directly over the UST. The valve is installed in the tank through a riser pipe directly over the tank. A window in the drop tube is aligned with the entrance of the fill pipe from the remote-fill location to allow product to flow into the drop tube and down through the valve. A riser seal prevents product from flowing into the tank from outside the drop tube. A "trap door" assembly installed in the riser above the tank provides access for a gauging stick. Trap door, adaptor and cap are included with 61SOR.



61SOC Coaxial

The OPW 61SOC is used for coaxial fill applications, tanks equipped with a single product/vapor return connection. The 61SOC replaces the standard coaxial fill drop tube in a 4" riser fill pipe.

61SO-4000 Series Instruction Sheet Order Number: **H11764M**

61SOC Coaxial Fill Tube Instruction Sheet Order Number: **C03634PA**

61SOR Remote Fill Tube Instruction Sheet Order Number: **H11964M**

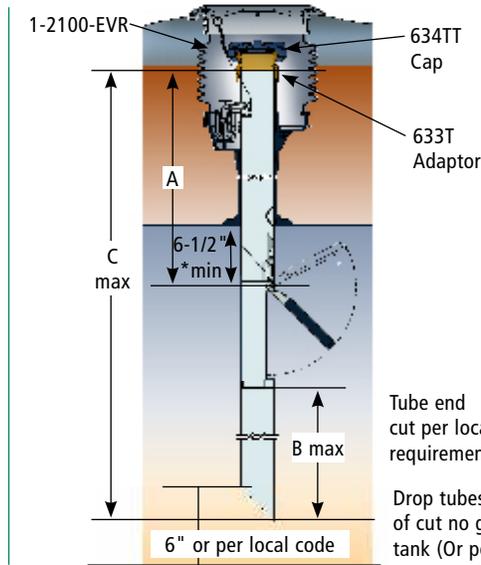
Typical Application Assembly

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

61SO-4000

* From inside wall of tank to bottom of upper tube

61SOK Float Kit Instruction Sheet Order Number: **H11403PA**



Replacement Parts

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

Tube end cut per local requirements

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

Ordering Specifications

Product/ Suffix #	Description	A-Upper Tube Length		B-Lower Tube Length		C-Overall Length		Max. Riser Length		Max. Nominal Tank Dia.		Max. Actual Tank Dia.		Weight	
		in.	m	in.	m	in.	m	in.	m	in.	m	in.	m	lbs.	kg
61SOC-4001	Coaxial	60	1.5	83	2.1	154 ³ / ₈	3.9	53 ¹ / ₂	1.4	96	2.4	107	2.7	16	7
61SOC-4011	Coaxial	120	3.1	102	2.6	233 ³ / ₈	5.9	113 ¹ / ₂	2.9	120	3.1	126	3.2	25	11
61SOP-4002	CARB, pop. coaxial	60	1.5	83	2.1	154 ³ / ₈	3.9	53 ¹ / ₂	1.4	96	2.4	107	2.7	20	9
61SOP-4012	CARB, pop. coaxial	108	2.7	102	2.6	221 ³ / ₈	5.6	101 ¹ / ₂	2.6	120	3.1	126	3.2	27	12
61SOR-4000**	Remote	72	1.8	83	2.1	166 ³ / ₈	4.2	65 ¹ / ₂	1.7	96	2.4	107	2.7	19	9

**Remote fill applications

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 111)

Replacement Parts

OPW 233V and 233VM

Part #	Description
H11930	2" Cage SA
233VP-6046	Test Cap

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.

Listings and Certifications



Look for this label for authentic OPW EVR Approved products.

OPW 233 Series Extractor Fittings are EVR Approved for E85

OPW 53VML (30MV) Ball Float Vent Valves

The OPW 53VML Ball Float Vent Valves protrude into underground storage tanks from OPW 233 Series Extractor Fittings at the Stage I vapor return riser pipe or tank vent line. During a product delivery, as the tank level rises, a counterweight stainless steel ball seats on the valve body and restricts flow of vapors back to the transport truck. As the vapors become compressed in the tank (ullage), product flow into the tank is severely restricted. The 53VML Series Ball Float meets the U.S. EPA 90% requirement for product flow restriction into underground storage tanks. The 53VML-0060 and 53VML-0065 are designed as "back-up" overfill protection for overfill prevention valves, and to minimize product mixing with underground manifold vent lines.

Ordering Specifications and Dimensions

Product #	Pipe Dia.	Length (A)		Weight	
		in.	mm	lbs.	kg
53VML-0060	2*	6 ¹ / ₈	157	2	0.9
53VML-2070	2	7	178	3	1.5
53VML-0120	2	12	305	4	1.8
53VML-0160	2	16	407	5	2.3
53VML-0180	2	18	457	6	2.7
53VML-3050	3	5	127	5	2.3
53VML-3110	3	11	279	7.6	3.5
53VML-3120	3	12	305	7.7	3.5

* 1/16" Vapor Flow Orifice

30MV-KIT Ordering Specifications

Part #	Description
30MV-KIT	O-Ring 1/16" Brass orifice insert

Materials

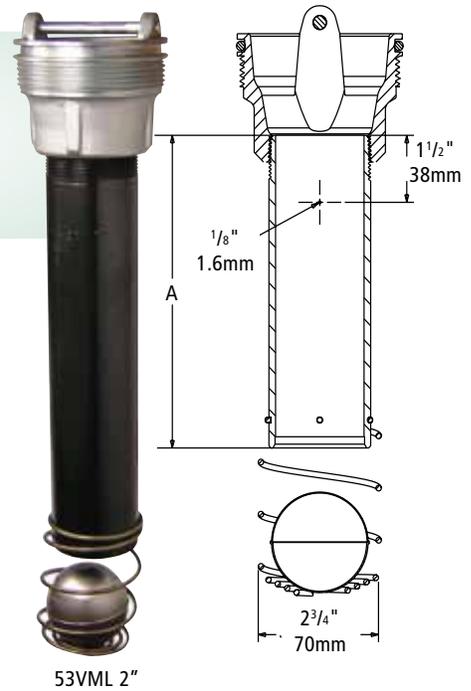
- Pipe Nipple:** Steel
- Coating:** Black Duragard®
- Basket:** Stainless steel
- Ball:** Stainless steel

Features

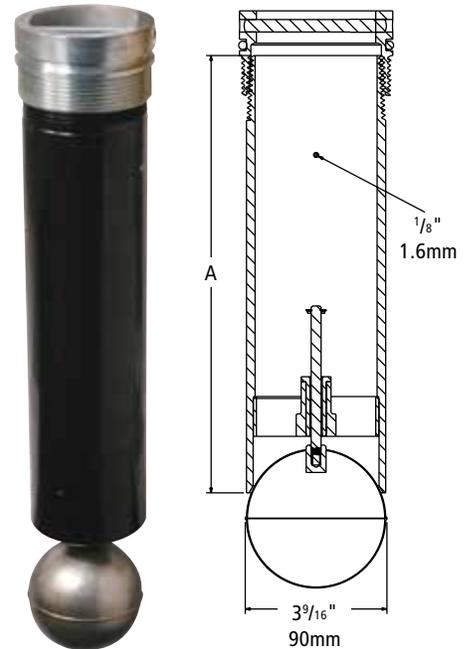
- ◆ Stainless Steel Counterweight Ball Float – corrosion-resistant for a long service life. Counterweight ensures proper seating of the ball for precision "slow-down" of product flow into the tank.
- ◆ Vapor Flow Orifice – a "bleed" hole machined into the body of the valve, sized to properly "slow-down" the delivery flow rate.
- ◆ Duragard® Body Coating – helps prevent rust and corrosion build-up for a smooth seating surface and long service life.
- ◆ Various Body Lengths – accommodate virtually any size tank.
- ◆ 2" and 3" Body Sizes – 3" size increases vapor flow to reduce product delivery time.
- ◆ Easy Installation, Service and Testing – both 2" and 3" valves install in OPW 233 Series Extractor Fittings and are easily removed for inspection or tank testing with OPW 89 Extractor Wrench.
- ◆ Compatible with 85% Ethanol (E85) or Methanol (M85)

Convert your 53VML into the 30MV Ball Float

The 30MV Series ball float has the same function as the 53VML, but allows for higher storage capacity in larger volume tanks. The 30MV meets the U.S. EPA 30-minute warning requirement for product flow restriction in the underground storage tank. Using the Tank Ullage calculation on page 111, convert your desired length 53VML by adding the 30MV-KIT.



53VML 2"



53VML 3"

53VML/30MV Instruction Sheet
Order Number: H14111PA

Warning OPW Overfill Warning Systems should only be used on submerged pumping systems, not suction pump systems. For special applications, contact OPW Fueling Components. OPW Overfill Warning Systems should only be used on gravity drop systems. DO NOT use where Pump-Off Unloading or coax fills are used.

Specifying the Proper Length 53VML or 30MV Series Ball Float

Step 1: Determine Dimension "X": Consult the tank chart (provided by the tank manufacturer) to determine the distance that corresponds to 10% of the total tank capacity for 53VML or 308 gallons for 30MV.

Step 2: Determine Dimension "Y": Measure the dimension from the inside top of the tank to the top of the 4" threaded tank "bung" fitting.

Step 3: Add measurements "X" and "Y". Then subtract 1/4" and round up to the nearest length ball float.

Tank Ullage Calculator

- ◆ 30 minutes x 5GPM = 150 gallons
- ◆ Ullage compression rate* is 27% after the ball seats
- ◆ 150 gallons ÷ .73 (1- ullage compression rate) = 205.48 gallons
- ◆ 205.48 x 1.5 (OPW recommended safety factor) = 308.22 gallons
- ◆ Approximately 308 gallons required ullage

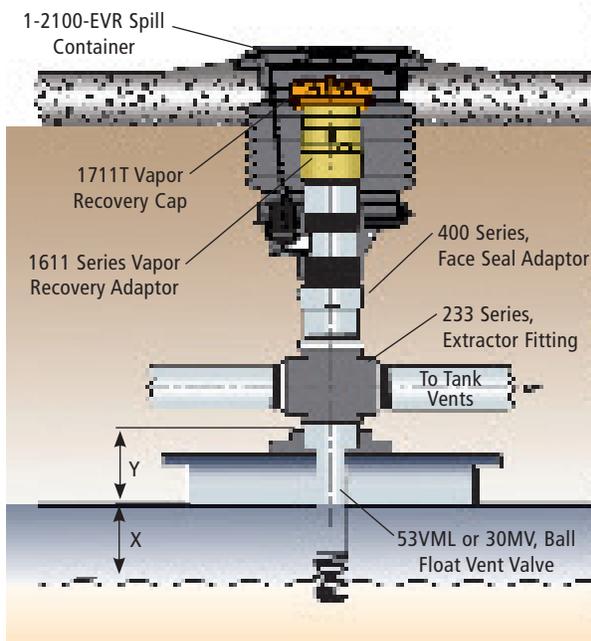
*Ullage compression rate will vary with head pressure.

OPW 53VML and 30MV Ball Float Sizing / OPW 89 Extractor Wrench

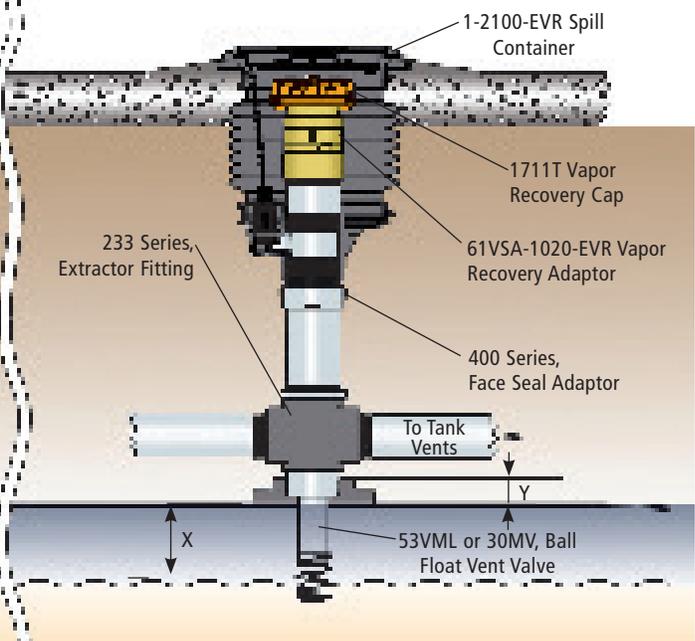
IMPORTANT:

Installing the incorrect length OPW 53VML or 30MV Ball Float Vent Valve for your specific application may result in delivery flow restriction at unacceptable levels. Always consult the appropriate tank charts and determine the specifics of your tank installation to determine the appropriate length OPW 53VML or 30MV. The illustration and instructions below are intended to serve as a guide in this determination.

Tank Manway Mounted Extractor



Tank Top Mounted Extractor



Materials

Pipe: Extra heavy black iron
Handle and Hook: Ductile iron



Ordering Specifications

Product #	in.	mm	lbs.	kg
89-0044	2	51	3	6.84

Size	Wrench	Product Compatible
2"	89-0044	233E, 88E Series

OPW 89 Extractor Wrench

The OPW 89 Extractor Wrench is designed to install or remove OPW 53VML and 30MV Ball Float Vent Valves or OPW 233VP and 233VMP Test Plugs in OPW 233, 233V, and 233VM Extractor Fittings. The 89 is also designed to work with the cage assemblies on the 233E Suction Tube Extractor Fitting and 88E Extractable Angle Check Valve in suction system applications. The 89 wrench consists of a 4 foot section of pipe welded to a "T" handle with a 2" hook section. The 2" hook section mates with current OPW ball floats and extractable cages.

OPW 61T Drop Tube

The OPW 61T Drop Tube is installed in the fill riser pipe to an underground storage tank. It is designed to transfer product from the fill connection point (between the delivery drop elbow and tight-fill adaptor) to within 6" (or per local requirements) of the bottom of the tank. This allows for submerged filling of the tank, resulting in a more efficient delivery flow rate while reducing the build-up of vapors or foam in the tank.

OPW 61TC Coaxial Fill Drop Tubes

The OPW 61TC Coaxial Drop Tube is designed to replace an OPW 61T Conventional Drop Tube when Stage I Vapor Recovery is required and a vapor recovery riser pipe is not available on the tank or would require excavation to the top of the tank. The 61TC is used in conjunction with OPW 633TC Coaxial Vapor Recovery Adaptors to return vapors to the tank truck through one riser pipe during a fuel delivery to an underground storage tank. The upper section of the 61TC is tapered to allow vapors to return to the tank truck through the interstitial space between the riser pipe and outside wall of the drop tube. Simultaneously, product is delivered to the tank through the center of the 61TC.

OPW 61TCP Poppeted Coaxial Fill Drop Tubes

The OPW 61TCP Poppeted Coaxial Fill Drop Tube is similar to the 61TC, but is spring-loaded. When used in conjunction with the OPW 633TCP, the 61TCP acts as a poppet to close off the vapor return side of the coaxial fill tube.



Features

- ◆ **.062" Thick Drop Tube Walls** – deter denting and damage to the tube upon installation or removal for long service life.
- ◆ **Various Lengths and Diameters** – accommodate a variety of tank diameters and fill riser pipe sizes.

Ordering Specifications

Product #					Drop Tube Length	
	in.	mm	lbs.	kg	ft.	m
61T-7268	4	102	6.18	2.80	12	3.66
61T-7368	4	102	7.65	3.48	15	4.57
61T-7468	4	102	13	5.9	17	5.19
E85 EVR Approved:						
61T-SS-0412	4	102	6.18	2.80	12	3.66
61T-SS-0417	4	102	13	5.9	17	5.19

Replacement gaskets for the 61T-4" and the 61SO Series are available. Order the OPW 61TG (4000).

Features

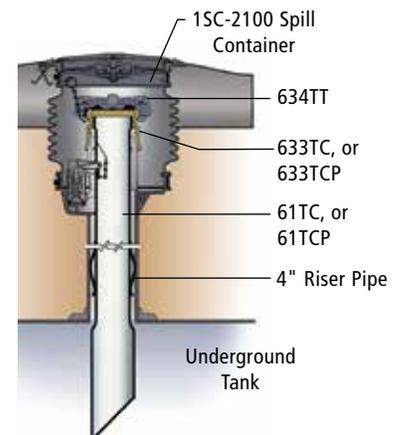
- ◆ **.052" Thick Drop Tube Walls** – deter denting and damage to the tube upon installation or removal for long service life.
- ◆ **Various Lengths and Diameters** – accommodate a variety of tank diameters and fill riser pipe sizes.
- ◆ **Fully Welded Retaining Brackets** – ensure a secure installation in the riser pipe.
- ◆ **Three Centering Springs** – enable even flow of vapors back to the tank truck.

Ordering Specifications

Product #	Diameter		Length		Weight	
	in.	mm	ft.	m	lbs.	kg
61TC-7270	4	102	13	3.05	8.64	3.93
61TC-7272	4	102	16	4.88	13.82	6.28
61TCP-3800	4	102	13	3.96	8.96	4.07

61T Drop Tube Instruction Sheet Order Number: **200652**

61TCP-3800 Instruction Sheet Order Number: **H12064M**

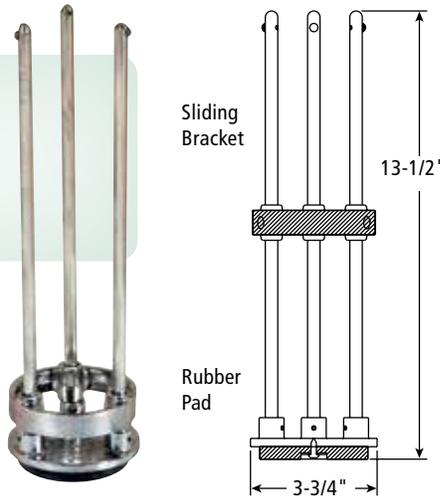


Materials

Aluminum and stainless steel components.

Viton Base Pad

6111-1400



Features

- ◆ **Viton® Base Pad** – ensures compatibility with current fuel formulations and absorbs impact of wooden gauge sticks to protect the bottom of the tank from punctures.
- ◆ **Corrosion-Resistant** – aluminum and stainless steel components provide for a long service life.
- ◆ **Unencumbered Vertical Movement** – assures the pad rests on the bottom of the tank and absorbs shock evenly.
- ◆ **CARB Approved** – approval Letter #98-12.
- ◆ **EVR Approved**

Ordering Specifications

Product #	Height		Diameter		Weight	
	in.	mm	in.	mm	lbs.	kg
6111-1400	13½	333	3¾	96	3	1.4

OPW Tank Bottom Protectors

OPW Tank Bottom Protectors are installed at the bottom of overflow prevention valves or drop tubes to help prevent the underground storage tank from damage or leakage at the fill point due to manual tank gauging with wooden sticks and erosion from dirt or debris.

OPW 6111-1400 Tank Bottom Protector

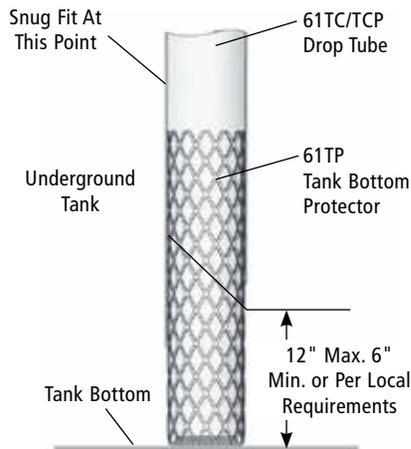
The OPW 6111-1400 incorporates a sliding bracket that is pop-riveted to the bottom of the drop tube. This secures the tank bottom protector to the drop tube for easy, reliable installation and removal for servicing the tank.

Features

- ◆ **Zinc-Plated Steel Cage** – ensures corrosion resistance for a long service life.
- ◆ **Mesh Screen Design** – helps prevent debris or other foreign matter from obstructing the submersible pump or suction line foot valve.

Ordering Specifications

Product #	Height		Weight	
	in.	mm	lbs.	kg
61TP-2398	4	102	1.02	.46



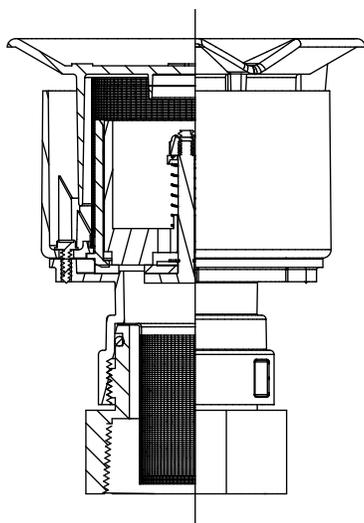
OPW 61TP Tank Bottom Protector

The OPW 61TP is a flanged, mesh screen design that slides to the bottom of the drop tube. The 61TP is held in place by the flanged spring action of the mesh screen. The mesh screen helps keep debris or other foreign matter from obstructing the submersible pump or suction line foot valve.

6111-1400 Tank Bottom Protector Instruction Sheet
Order Number: **H14977PA**

OPW 623V Pressure Vacuum Vent

Pressure Vacuum Vents are installed on the top of vent pipes from underground or above ground fuel storage tanks. The vent cap and internal wire screen are designed to protect the tank vent lines against intrusion and blockage from water, debris or insects. A normally closed poppet in the valve opens at a predetermined pressure or vacuum setting to allow the tank to vent.



Materials

- Top/Body:** Polypropylene
- Base:** Anodized aluminum
- Poppet:** Anodized aluminum
- Screen:** Stainless steel mesh
- Gasket:** Closed cell foam

623V
Vent Must Be Mounted Vertically



Features

- ◆ **Pressure/Vacuum Setting** – 2.5" to 6" water column pressure settings and -6" to -10" water column vacuum settings are factory preset and tested.
- ◆ **Reliable Service** – cycle tested to the equivalent of 80 years of service in the most severe environment without leakage problems.
- ◆ **Corrosion-Resistant Construction** – a Duratuff® composite body ensures a long service life.
- ◆ **Easy Installation** – the 623V is available in 2" and 3" threaded versions.
- ◆ **Complies with NFPA 30 Requirements** – for venting gasoline vapors upward.
- ◆ **Manifold Vent Pipes** – vent pipes may be manifolded to produce a single Pressure Vacuum Vent line. The 623V is designed to exceed California's requirements of a maximum vapor leak rate of 0.17 SCFH at 2.00 inches H2O.
- ◆ **High Maximum Flow Rate** – 6450 SCFH at 2 psi (0.1 bar) pressure drop.
- ◆ **Leak Rate** – multiple pressure vacuum vents may be installed on a single site. The 623V exceeds California standards with a leak rate of 0.05 SCFH or less at 2.00 inches H2O.
- ◆ **Maintenance** – no tools required. A removable snap fit top allows for easy maintenance (recommended yearly).
- ◆ **100-Mesh Stainless Steel Wire Screens** – helps prevent debris and insects from entering the tank vent lines. An added screen installed at the base prevents debris from intruding from the vent stack.
- ◆ **Adaptor Bushing** – removable hex threaded bushing designed for easy installation on NPT threaded risers. Allows easy access to lower screen.
- ◆ **ATEX Approved** – for flame arrester applications

Ordering Specifications

Product #	Description	Identification Label Color	lb.	kg
623V-2203	2.5" to 6" WC Pres., -6" to -10" WC Vac. Thread-On	Yellow	1.55	.70
623V-3203	2.5" to 6" WC Pres., -6" to -10" WC Vac. Thread-On	Yellow	2.20	1.00

Replacement Parts

Part #	Description
C05086M	Lower Screen
H14895M	Upper Screen
C05089	2" Threaded Base Adaptor
C05122	3" Threaded Base Adaptor

Conversion Table						
Measurement Units		Oz.	PSI	In H ₂ O (WC)	In Hg (Merc)	Bar
Bar	=					
	x	236.0	14.5	401.4	29.53	
In. Hg (Mercury)	x	7.843	0.49	13.6		0.034
	x					
In H ₂ O (WC)	x	0.578	0.04		0.074	0.002
	x					
PSI	x	16.00		27.68	2.04	0.069
	x		0.063	1.73	0.128	0.004

623V Instruction Sheet
Order Number: H14898M

Listings and Certifications



OPW 623V
& 523V



ATEX Approved

Patent No.
WO2004/036096AZ

Features

- ◆ **A Variety of Pressure/Vacuum Settings** – 3" water column, 1 oz., 8 oz., 12 oz. pressure settings and 8" water column or 1/2 oz. vacuum settings are factory preset and tested.
- ◆ **Reliable Service** – self-guided poppet assembly ensures consistent seating of the pressure/vacuum valve.
- ◆ **Corrosion-Resistant Construction** – Duratuff® composite body assures a long service life.
- ◆ **Easy Installation** – 523V is available in 2" and 3" threaded versions or slip-on models that provide for attachment to the vent line with allen head screws and radial sealing O-ring.



- ◆ **Complies with NFPA 30 Requirements** – for venting gasoline vapors upward.
- ◆ **High Maximum Flow Rate** – 7000 SCFH at 2 psi pressure drop.
- ◆ **40-Mesh Stainless Steel Wire Screen** – helps prevent debris and insects from entering the tank vent lines.

Ordering Specifications

Product #	Description	Identification Label Color	lb.	kg
523V-1100	2" 8 oz Pres., 1/2 oz. vac. thread-on	Red	1.65	.75
523V-1150	2" 8 oz Pres., 1/2 oz. vac. slip-on	Red	1.65	.75
523V-3100	3" 8 oz Pres., 1/2 oz. vac. thread-on	Red	3.2	1.45
523V-3150	3" 8 oz Pres., 1/2 oz. vac. slip-on	Red	3.2	1.45
523V-2200	2" 1 oz Pres., 1/2 oz. vac. thread-on	Silver	1.65	.75
523V-2250	2" 1 oz Pres., 1/2 oz. vac. slip-on	Silver	1.65	.75
523V-3200	3" 1 oz Pres., 1/2 oz. vac. thread-on	Silver	3.2	1.45
523V-2203	2" 3" WC Pres., 8" WC vac. thread-on	Yellow	1.65	.75
523V-2253	2" 3" WC Pres., 8" WC vac. slip-on	Yellow	1.65	.75
523V-3203	3" 3" WC Pres., 8" WC vac. thread-on	Yellow	3.2	1.45
523V-3253	3" 3" WC Pres., 8" WC vac. slip-on	Yellow	3.2	1.45

Materials

Body: Aluminum
O-Ring: Nitrile



523SA
(Bottom View)

523SA
(Top View)

Ordering Specifications

Product #	Description	in.	mm	lb.	kg
523A-1003	3" Thread-On Adaptor for use with 523V Pressure / Vacuum Vents	2x3	51x76	.47	.213
523SA-1003	3" Slip-On Adaptor for use with 523V Pressure / Vacuum Vents	2x3	51x76	.63	.286
523SA-1002	2" Slip-On Adaptor for use with 523V Pressure / Vacuum Vents	2x2	51x51	.31	.141

OPW 523V Pressure Vacuum Vent

Pressure Vacuum Vents are installed on the top of vent pipes from underground or above ground fuel storage tanks. The vent cap and internal wire screen are designed to protect the tank vent lines against intrusion and blockage from water, debris or insects. A normally closed poppet in the valve opens at a predetermined pressure or vacuum setting to allow the tank to vent.

Conversion Table

Measurement Units	=	In H ₂ O		In Hg		
		Oz.	PSI	(WC)	(Merc)	Bar
Bar In. Hg (Mercury)	x	236.0	14.5	401.4	29.53	
	x	7.843	0.49	13.6		0.034
In H ₂ O (WC)	x	0.578	0.04		0.074	0.002
PSI Oz.	x	16.00		27.68	2.04	0.069
	x		0.063	1.73	0.128	0.004

Replacement Parts

Part #	Description
H11432M	O-Ring for 2" Thread
H11456M	O-Ring for 3" Thread

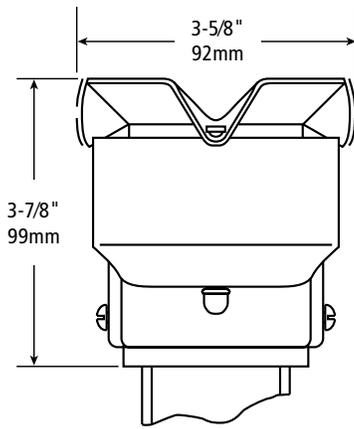
523V Instruction Sheet
Order Number: **H11972M**

OPW 523V Series Adaptor Bushings

The 523V Series Adaptor Bushings are designed to thread into the base of 2" threaded 523V vents. The adaptor bushings convert a 2" 523V to 3" threaded, 2" slip-on or 3" slip-on connection.

OPW 23 Series Open Atmospheric Vent

Open Atmospheric Vents are installed on the top of vent pipes from underground or above ground fuel storage tanks. The vent cap and internal wire screen are designed to protect the tank vent lines against intrusion and blockage from water, debris or insects. These vents are always open to atmosphere and allow any pressure or vacuum in the tank to vent. The OPW 23 Series is a perfect choice for many applications.



Materials

Body: Aluminum
Screen: 40-mesh brass
Set Screws: Brass



23

Features

- ◆ **Reliable Service** – vent cap drain spouts extend outward to deter rainwater entry.
- ◆ **Corrosion-Resistant Construction** – aluminum body and cap assure a long service life.
- ◆ **Easy Installation** – the 23 is available in 2" and 3" slip-on models that provide for attachment to the vent line with set screws.
- ◆ **Complies with NFPA 30 Requirements** – for venting gasoline vapors upward.
- ◆ **High Maximum Flow Rate** – 7000 SCFH at 2 psi (0.1 bar) pressure drop.
- ◆ **40-Mesh Brass Wire Screen** – helps prevent debris and insects from entering the tank vent lines.

Ordering Specifications

Product #	Description	in.	mm	lbs.	kg
23-0044	Open Vent	1½	38	.25	.11
23-0033	Open Vent	2	51	.25	.11
23-0055	Open Vent	3	76	1.6	.73

Replacement Parts

Part #	Description
H00122M	Screw
H01967M	Nut
H01969M	Screen

Emergency Shut-Off & Vapor-Line Shear Valves



- Emergency Shut-off Valves 118 - 121
- Vapor Line Shear Valves..... 122 - 124
- DEF Shear Valve..... 124
- Flex Connectors 125 - 126

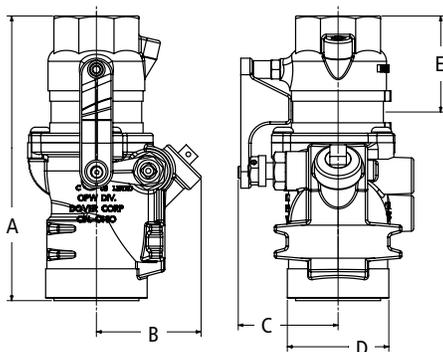
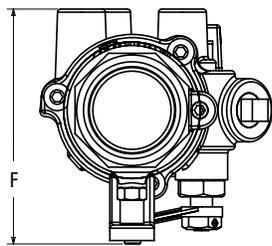


10 Plus Series Emergency Shut-Off Valves

OPW raised the protection standard in emergency valves when it introduced the first double-poppet valve back in 1989. This industry-changing OPW innovation helped to significantly reduce the risk of fire, explosion, personal injury, property damage and environmental contamination at sites around the world. Major oil companies and jobbers agreed that providing added protection for their customers, investments and the environment were the three most convincing reasons for switching to the innovative new valves.

Dimensions

	in.	cm
A	7 ⁹ / ₁₆	4
B	2 ²⁵ / ₃₂	4
C	2 ²¹ / ₃₂	4
D	2 ¹¹ / ₁₆	4
E	2 ⁹ / ₁₆	4
F	4 ²¹ / ₃₂	4



Materials

Top: Cast iron
Body: Cast iron



UL Listed
for up to
85%
Ethanol

10 PLUS

Features

- ◆ The ONLY emergency shut-off valve in the world designed to protect your customers, investments, and the environment against the potential hazards of undetected shear groove leaks caused by low-impact incidents.
- ◆ The patent-pending SmartGuard™ design contains shear groove leaks, preventing fuel from leaking into sumps to help reduce the risk of fire, explosion, personal injury, property damage, environmental contamination, product loss and costly clean-up.
- ◆ Superior shear groove design and engineering results in reliable valve shut-off in the event of a pull-over or dislodged dispenser. The 10 Plus utilizes the same time-tested field-proven design of the OPW 10 Series Emergency Shut-off Valve – the most specified emergency shut-off valve in the world.
- ◆ Fusible link releases to automatically close the valve to reduce fire hazard.
- ◆ Rigorously tested to meet OPW's rigid quality standards.

Ordering Specifications

Model #	Body Size		Body Weight		Connection Threads	Poppet Configuration	Application	Mounting System
	in.	cm	lb.	kg				
10P-0150	1 1/2	4	6.7	3.05	NPT	Single	Pressure	Combination
10P-0152	1 1/2	4	6.8	3.10	NPT	Double	Pressure	Combination
E85 10P-0152E85	1 1/2	4	6.8	3.10	NPT	Double	Pressure	Combination



10 Plus Replacement Parts

Part #	Description
10RPLUS-0150	10 Plus Single Poppet Replacement Top
10RPLUS-0152	10 Plus Double Poppet Replacement Top
202950	1 1/2" Tetra Seal
200143	Safety Hub/Fusible Link
H11361M	2" Tetra Seal

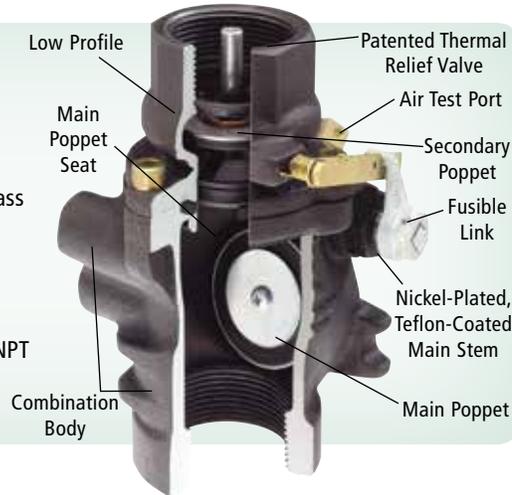
Listings and Certifications



10 Plus Series Instruction Sheet Order Number: 201614

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
 Black Duragard
 E-Coating

Ordering Specifications

Part #	Thread Size		Offset		Height		Width		Body Weight	
	in.	mm	in.	mm	in.	mm	in.	mm	lb.	kg
PA15-10	1 1/2	38.1	1	25	2 1/4	57.2	3 5/8	92.1	2	.9
PA15-15	1 1/2	38.1	1 1/2	38.1	2 1/4	57.2	4 1/8	104.8	2	.9
PA15-20	1 1/2	38.1	2	51	2 1/4	57.2	4 5/8	117.5	2	.9

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:

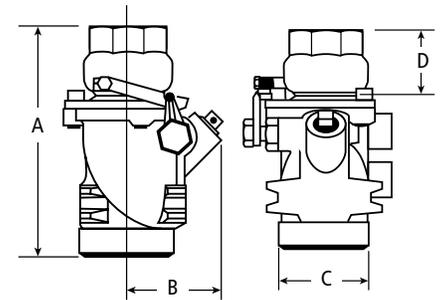
As per NFPA 30A, electrical supply to the submersible pump must always be disconnected before servicing meters, dispensers or emergency shut-off valves.

Replacement Valve Tops

Model #	Body Size		Connection Threads	Poppet Configuration	Application	Top Connection	Profile
	in.	cm					
10RFT-5750	1½	4	NPT	Single	Pressure	Female	
10RFTP-5751	1½	4	NPT	Double	Pressure	Female	
10FTP-5701	1½	4	NPT	Double	Pressure	Female	Low Profile
10RMT-5850	1½	4	NPT	Single	Pressure	Male	
10RMTP-5851	1½	4	NPT	Double	Pressure	Male	
10SHMTP-5811	1½	4	NPT	Double	Suction	Male	
10RUTC-5975	1½	4	NPT	Single	Pressure	Complete Union	
10UTCP-5901	1½	4	NPT	Double	Pressure	Complete Union	Low Profile
10RFT-5742	2	4	NPT	Single	Pressure	Female	
10RFTP-5752	2	5	NPT	Double	Pressure	Female	
10RMT-5842	2	5	NPT	Single	Pressure	Male	
10RMTP-5852	2	5	NPT	Double	Pressure	Male	
10RUTC-5962	2	5	NPT	Single	Pressure	Complete Union	
10RUTCP-5972	2	5	NPT	Double	Pressure	Complete Union	

1½" Dimensions

	10BF		10BFP 10SBFP		10BM		10BHMP 10SBHMP		10BU		10BUP 10SBUP	
	in.	mm										
A	6 ²¹ / ₆₄	161	6 ²¹ / ₆₄	161	6 ¹³ / ₁₆	173	7 ¹¹ / ₁₆	195	7 ¹ / ₄	184	7 ¹ / ₄	184
B	2 ³ / ₄	70										
C	2 ¹¹ / ₁₆	69										
D	1 ³ / ₄	44	1 ³ / ₄	44	2 ¹ / ₄	57	3 ¹ / ₈	79	2 ¹¹ / ₁₆	69	2 ¹¹ / ₁₆	69



2" Dimensions

	10RF 10RFS		10RM 10RMS		10RU 10RUS		10RFP 10RFSP		10RMP 10RMSP		10RUP 10RUSP	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
A	8 ³ / ₈	213	9 ²⁷ / ₃₂	250	9 ¹³ / ₃₂	239	8 ³ / ₈	213	9 ²⁷ / ₃₂	250	9 ¹³ / ₃₂	239
B	3 ⁷ / ₆₄	79	3 ⁷ / ₆₄	79	3 ⁷ / ₆₄	79	3 ⁷ / ₆₄	79	3 ⁷ / ₆₄	79	3 ⁷ / ₆₄	79
C	3 ¹ / ₄	83	3 ¹ / ₄	83	3 ¹ / ₄	83	3 ¹ / ₄	83	3 ¹ / ₄	83	3 ¹ / ₄	83
D	3 ¹ / ₁₆	78	4 ⁹ / ₁₆	116	3 ⁷ / ₈	98	3 ¹ / ₁₆	78	4 ⁹ / ₁₆	116	3 ⁷ / ₈	98

Other Replacement Parts

Part #	Description
202950	1½" Tetra Seal
H11361M	2" Tetra Seal
H07659M	Link Spring
H07643RB	Link Retaining Screw
H04788M	Hold-Open Link (Brass)
H05361	Safety Hub S/A-Fusible Link
10UBK-015	U-Bolt Kit for 1½"
10URK-020	U-Bolt Kit for 2"

OPW 60VS Series Vapor Line Shear Valves

OPW 60 Series Vapor Line Shear Valves are installed on vapor return 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 free at the integral shear groove to minimize damage to the dispenser piping. Poppeted models afford additional protection by preventing the release of vapors from the dispenser's internal piping and the vapor line to the tank. The base of the Vapor Line Shear Valve is securely anchored to the concrete dispenser island through a stabilizer bar system within the dispenser sump or pan while the valve top is secured to the dispenser structure to ensure proper shearing action. OPW Vapor Line Shear Valves are designed to meet the requirements of NFPA-30A Section 4-3.7. Poppeted models are UL and CARB-approved.

Materials

Body: Cast iron with black Duragard® E-Coating

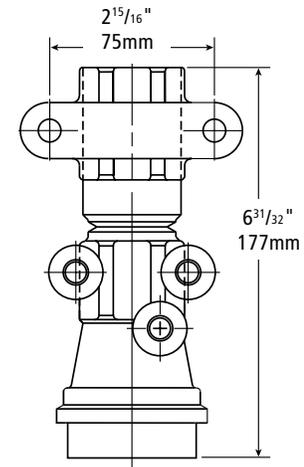
Discs: M -19 Viton®

60VSPC-1001



Features

- ◆ 1-1/2" female connection to underground piping.
- ◆ 1" female connection to dispenser piping.
- ◆ Air-test port to enable vapor line testing without breaking pipe connections.
- ◆ Choice of top or side inlet connection.
- ◆ Three-Point Boss Mount stabilizer bar lower mounting connection; U-Bolt upper mounting connection.



Ordering Specifications

Product #	Connections	Poppeted	Containment Threads
60VS-1000	1" x 1 1/2" (3 x 4 cm) FNPT		
60VSP-1001	1" x 1 1/2" (3 x 4 cm) FNPT	•	
60VSPC-1001	1" x 1 1/2" (3 x 4 cm) FNPT	•	•
60VSK-1002	Mounting Kit Includes: (2) Lockwashers, (2) Nuts, (3) Hex Screws, (3) Washers		

60VS Instruction Sheet
Order Number: H12291M

Listings and Certifications



Materials

Body: Cast iron with black Duragard® E-coating

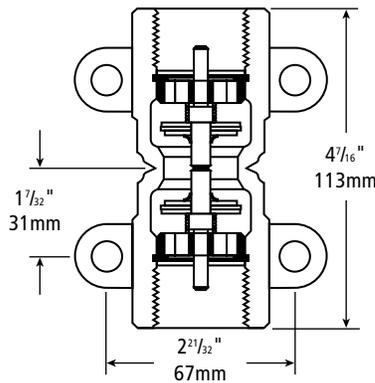
Discs: M-19 Viton®

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.



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	

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.

OPW 60V Series Vapor Line Shear Valves

OPW 60VP-1001

Poppeted Vapor Save

- ◆ 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

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

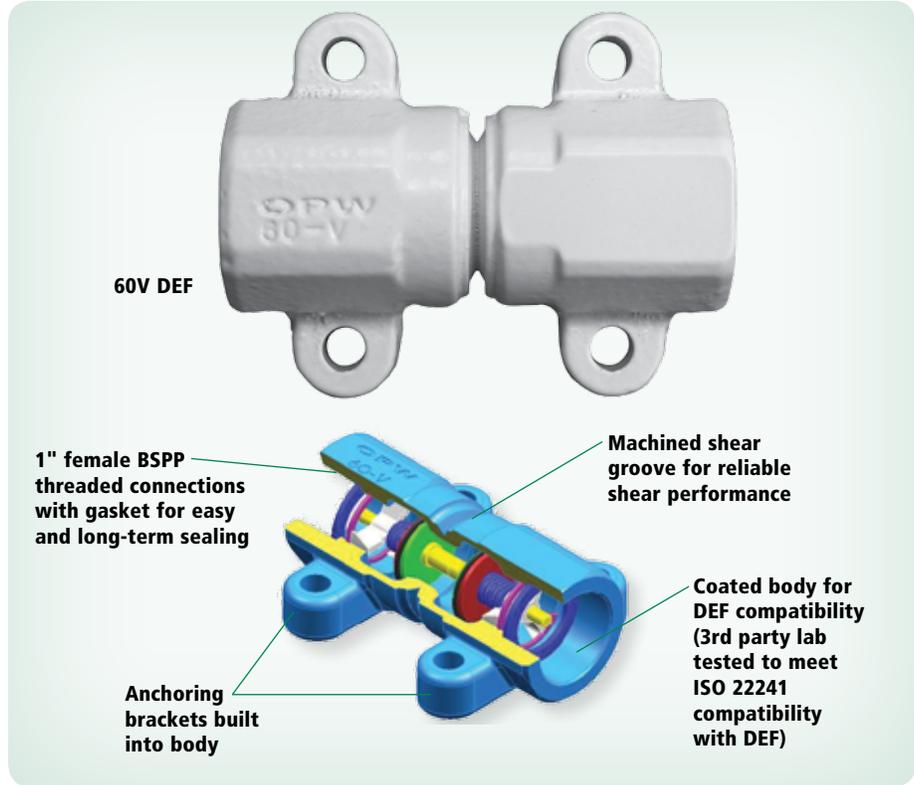
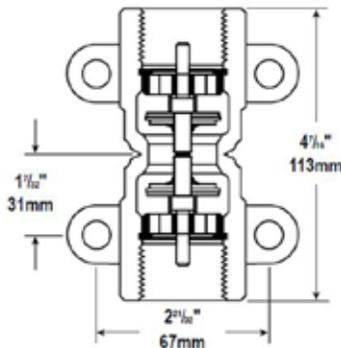
60V-DEF Shear Valve

Starting with 2010 Models, DEF was required in diesel-powered trucks utilizing Selective Catalytic Reduction (SCR) to meet federal emissions standards. The dispensing infrastructure at travel centers and fleet refueling sites continues to evolve as DEF compatible equipment is installed.

OPW's 60V-DEF Shear Valve has a unique coating that allows for DEF compatibility while maintaining the reliable shear performance of cast iron. Third-party tested to ensure compatibility with the ISO 22241 Standard, our new 60V-DEF Shear Valve provides peace of mind and minimizes damage to your DEF Dispensing Equipment in the case of impact collision while preventing product loss.

Features & Benefits:

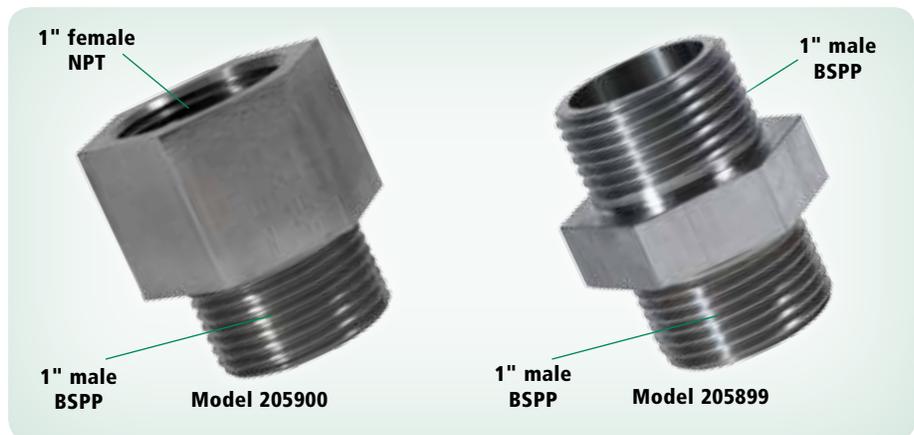
- ◆ Utilizes DEF Industry Standard BSPP Connections for Easy and Long-Term Sealing
- ◆ Machined Shear Groove for Reliable Shear Performance
- ◆ Versatile to other tread types with DEF compatible stainless steel adaptors
- ◆ Anchoring Brackets Built into Body



Ordering Specifications - 60V-DEF Shear Valve

Model #	Description
60V-DEF	60V DEF Shear Valve
205900	1" Female NPT Adaptor
205899	1" Male BSPP Adaptor

Adaptors Available For Installation Flexibility



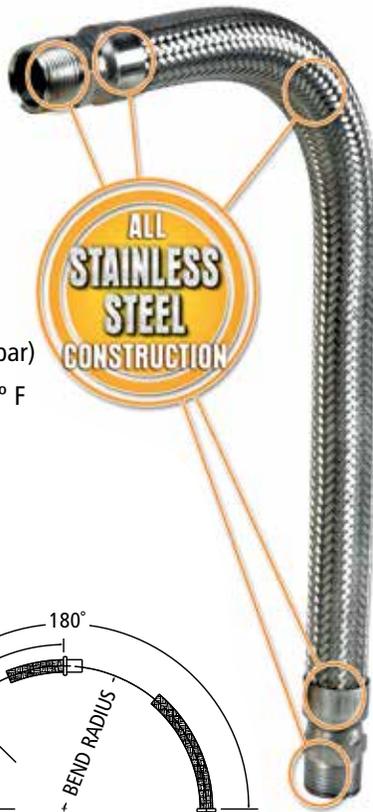
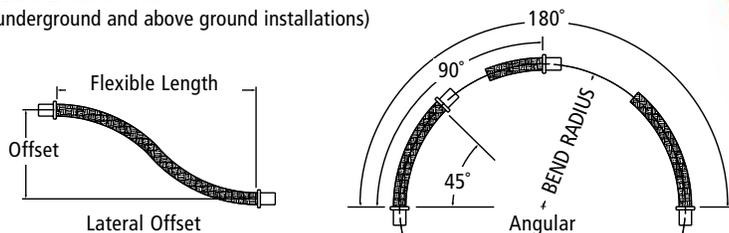
Materials:

Hose: 322 Stainless Steel
Wire Braid: 304 Stainless Steel
Pipe Nipples: SCH. #80 Stainless Steel
Swivel: Viton®/Buna Seals

Features:

- ◆ Maximum working pressure: 150 PSIG (10 bar)
- ◆ Service temperature range: -320° F to 1500° F
- ◆ Minimum burst pressure 750 PSIG (52 bar)
- ◆ Inherent hoop strength of convoluted hose allows full vacuum service

ULC/ORD-C536-1998
 (underground and above ground installations)



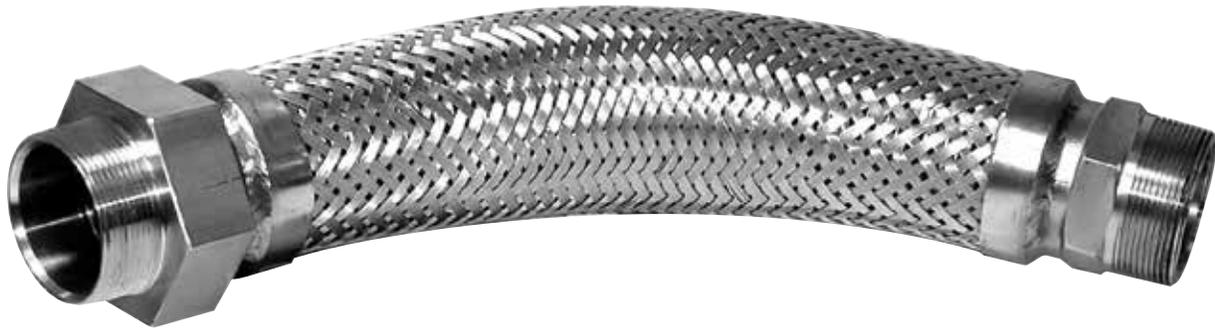
OPW Stainless Steel Flexible Connectors

Stainless Steel Flexible Connectors provide flexibility in the installation and operation of fuel piping systems. Flexible Connectors can be used as a convenient means of connecting piping to pumps and dispensers and throughout the piping systems where connections and changes of direction are necessary. Flexible Connectors dampen the effect of ground and/or piping movement. All stainless steel construction ensures long service life and corrosion protection. Flexible Connectors are rated for 150 psig (10 bar) working pressure, as well as for full vacuum service. Compatible with diesel, gasoline, methanol, ethanol and MTBE. Available as Male by Male and Male Swivel by Male, Male 90° and Easy Clamp Connectors.

NAFTA approved, can be used in any country.

Ordering Specifications and Dimensions

Model #	NPT Thread Size		Length		Hose O.D.		Max. Angular Bending (Degree)		Max. Lateral Offset				Min. Bend Radius			
	in.	mm	in.	mm	in.	mm	Static Position	Intermittent Flexing	Static Installation		Intermittent Flexing		Static Installation		Intermittent Flexing	
									in.	mm	in.	mm	in.	mm	in.	mm
FC075-MM12	.75	19.1	12	304.8	1.0	25.4	100°	55°	2.0	50.8	1.2	30.5	4.5	114.3	8	203.2
FC10-MM12	1	25.4	12	304.8	1.3	33.0	70°	45°	1.4	35.6	0.9	22.9	5.5	139.7	9	228.6
FC10-MM18	1	25.4	18	457.2	1.3	33.0	135°	85°	4.5	114.3	2.1	53.3	5.5	139.7	9	228.6
FC10-MM24	1	25.4	24	609.6	1.3	33.0	180°	125°	8.6	218.4	2.1	53.3	5.5	139.7	9	228.6
FC15-MM12	1.5	38.1	12	304.8	2.25	57.2	90°	35°	1.5	38.1	.75	19.1	4	101.6	11	279.4
FC15-MM14	1.5	38.1	14	355.6	2.25	57.2	90°	35°	1.5	38.1	.75	19.1	4	101.6	11	279.4
FC15-MM18	1.5	38.1	18	457.2	2.25	57.2	150°	55°	4.0	101.6	1.5	38.1	4	101.6	11	279.4
FC15-MM24	1.5	38.1	24	609.6	2.25	57.2	180°	85°	8.0	203.2	2.75	69.9	4	101.6	11	279.4
FC15-MM30	1.5	38.1	30	762.0	2.25	57.2	180°	115°	12.0	304.8	2.75	69.9	4	101.6	11	279.4
FC20-MM12	2	50.8	12	304.8	2.72	69.1	75°	30°	1.5	38.1	0.60	15.2	5	127.0	12	304.8
FC20-MM14	2	50.8	14	355.6	2.72	69.1	75°	30°	1.5	38.1	0.60	15.2	5	127.0	12	304.8
FC20-MM18	2	50.8	18	457.2	2.72	69.1	120°	50°	3.0	76.2	1.5	38.1	5	127.0	12	304.8
FC20-MM24	2	50.8	24	609.6	2.72	69.1	180°	75°	7.0	177.8	3.0	76.2	5	127.0	12	304.8
FC20-MM36	2	50.8	36	914.4	2.72	69.1	180°	105°	12.0	304.8	3.0	76.2	5	127.0	12	304.8
FC30-MM18	3	76.2	18	457.2	3.97	100.8	70°	35°	2.0	50.8	1.0	25.4	8	203.2	16	406.4
FC30-MM24	3	76.2	24	609.6	3.97	100.8	110°	55°	4.8	121.9	2.5	63.5	8	203.2	16	406.4



Integral Swivel Flex Connector

Ordering Specifications and Dimensions

Model #	MALE SWIVEL x MALE		NPT Thread Size				Length		Hose O.D.		Max. Angular Bending (Degree)		Max. Lateral Offset				Min. Bend Radius			
	NPT Thread Size		Length		Hose O.D.		Max. Angular Bending (Degree)		Max. Lateral Offset		Min. Bend Radius		Static Installation		Intermittent Flexing		Static Installation		Intermittent Flexing	
	in.	mm	in.	mm	in.	mm	Static Position	Intermittent Flexing	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
FC15-SWM12	1.5	38.1	12	304.8	2.25	57.2	90°	35°	1.5	38.1	0.75	19.1	4	101.6	11	279.4				
FC15-SWM14	1.5	38.1	14	355.6	2.25	57.2	90°	35°	1.5	38.1	0.75	19.1	4	101.6	11	279.4				
FC15-SWM18	1.5	38.1	18	457.2	2.25	57.2	150°	55°	4.0	101.6	1.50	38.1	4	101.6	11	279.4				
FC15-SWM24	1.5	38.1	24	609.6	2.25	57.2	180°	85°	8.0	203.2	2.75	69.9	4	101.6	11	279.4				
FC20-SWM12	2	50.8	12	304.8	2.72	69.1	75°	30°	1.5	38.1	0.60	15.2	5	127.0	12	304.8				
FC20-SWM14	2	50.8	14	355.6	2.72	69.1	75°	30°	1.5	38.1	0.60	15.2	5	127.0	12	304.8				
FC20-SWM18	2	50.8	18	457.2	2.72	69.1	120°	50°	3.0	76.2	1.50	38.1	5	127.0	12	304.8				
FC20-SWM24	2	50.8	24	609.6	2.72	69.1	180°	75°	7.0	177.8	3.0	76.2	5	127.0	12	304.8				

Contact customer service for special sizes or other applications such as female threads, swivels and elbow fittings.

In North America call 800-422-2525.
International call 513-870-3315.

Stainless Steel Flexible Connector models listed above are for use in NAFTA Countries only, such as Canada and Mexico.

Suction System Accessories

OPW 70 Vertical Check Valves (with Shear Groove)

Materials

Body: Cast iron with black Duragard® E-coating

Disc: M-19 Viton

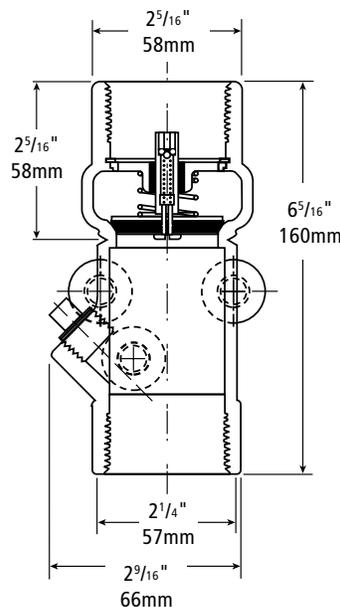
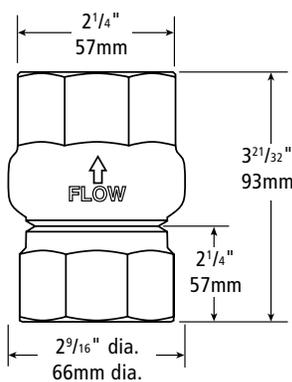
Features

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



Additional Features (70S Model)

- ◆ **Stabilizer Mounting Bosses** – three bosses in the lower portion of the valve body allow for rigid mounting to stabilizer bars. Use FlexWorks mounting plate with appropriate stabilizer bar kit.
- ◆ **Built-In Air-Test Port** – allows air testing of the entire pumping system without breaking the line. Also allows line to be drained from the valve to the tank (assuming there are no other check or foot valves below the 70S).



OPW Vertical Check Valves

OPW Vertical Check Valves are installed on suction system fuel lines directly below the inlet to the pump in the dispenser island to maintain prime. The 70 Series Valves feature a built-in shear groove, which helps minimize piping damage if the dispenser is pulled over or dislodged by collision. The single-poppet provides redundant protection from losing prime and are also available without shear grooves. OPW Vertical Check Valves are recommended for use on suction lines where the pressure does not exceed 34 feet of head (approximately 15 psi [1 bar]). 70 Series valves need 1/2" of mercury to activate the poppet.

Ordering Specifications

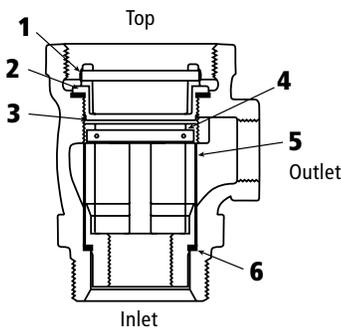
Model #	in.	mm	lbs.	kg
70-0070	1 1/2" NPT	38 mm	1.80	.8
70S-0075	1 1/2" NPT	38 mm	2.9	1.3

70 and 70S Vertical Check Valve Instruction Sheet
Order Number: H11055PA

Warning: The valve body must be rigidly anchored to a structural member within the island to ensure breakage at the shear groove in the event of severe impact. The shear groove must be at the same level or a maximum of 1/2" above or below the top of the pedestal island. Failure to provide rigid mounting or install the shear groove at the proper level may result in a failure of the valve to close or shear, resulting in an excessive loss of product and a hazardous condition.

OPW 233E Suction Tube Extractor Fittings

The OPW 233E is installed on top of fuel storage tanks to facilitate the extraction of the suction tube/foot valve assembly from the tank in a suction system. The OPW 233E is for use with any foot valve with a maximum outside diameter of 2 1/2", and has a 4" male thread for connection to a 4" tank bung fitting.



Materials

Body: Zinc-plated cast iron
Cap and suction stub adaptor: Bronze
Gasket: Nitrile



233E

Ordering Specifications

Model #	Top Thread	Outlet Thread	Inlet Male Thread	Inlet Female Thread	Max. Clear I.D. Through Valve	Weight lbs.	kg
233E-4040	4" (102 mm)	1 1/2" (38 mm)	4" (102 mm)	1 1/2" (38 mm)	2 7/8" (73 mm)	20.2	9.2
233E-4240	4" (102 mm)	2" (51 mm)	4" (102 mm)	1 1/2" (38 mm)	2 7/8" (73 mm)	12.7	5.8

Replacement Parts

Key	Part #	Description
1	H07071M	Cap Lift Pin
Not Shown	H04981M	Cotter Pin
2	H11961M	Gasket
3	H01500B	Cap
4	H00390RS	Cage Lift Pin
5	C01566B	Cage
6	H11960M	Gasket

OPW 53 Bushings

OPW 53 Bushings are general-purpose bushings for use on tank vent lines, fill lines, suction lines or other lines where it is necessary or desirable to bush up or bush down.

Materials

Bushing: Iron

53



Ordering Specifications

Model #	Threads (MNPT x FNPT)	lbs.	kg
53-0012	2" x 1 1/2" (51 x 38 mm)	.9	.4
53-0020	3" x 2" (76 x 51 mm)	1.9	.9
53-0034	4" x 1 1/2" (102 x 38 mm)	2.5	1.1
53-0036	4" x 2" (102 x 51 mm)	2.5	1.1
53-0038	4" x 3" (102 x 76 mm)	3.4	1.5
53-0062	6" MNPT x 2" FNPT (152 x 51 mm)	4.75	2
53-0063	6" MNPT x 2" FNPT (152 x 51 mm)	4.75	2

Replacement Spill Container Covers (Old & New)

Product #	Replacement Cover	Cover O.D.
84D-4000	Obsolete - No Replacement	N/A
1-4000, 1C-4000 C.I.	E00355I	13 ¹ / ₄ "
1-4500, 1C-4500 C.I.	E00355I	13 ¹ / ₄ "
501 SERIES	E00355I	13 ¹ / ₄ "
1-2100 Alum.	1-21AC	13 ²⁷ / ₃₂ "
1C-2100 C.I.	1-21CC	13 ²⁷ / ₃₂ "
1SC-2100	SC-PLAIN	12 ⁷ / ₁₆ "
1-0561	Obsolete - No Replacement	—
1-0563	Obsolete - No Replacement	—
6111- Series New	P211-L	13 ³ / ₁₆ "
6111- Series Old pre-1994	P111-L	12 ¹ / ₄ "

OPW Reference Guide Replacement Covers



Replacement Spill Container Cover Assemblies

Replacement Covers	Description	Color	Key Lift or Recessed Handle	Plain / Bolt Down / Roto-Lock	Diameter (inches)
E00618	Plain-Cover, Recessed-Handle, Ring Assembly	Grey	Recessed Handle	Plain	39 ¹ / ₂
E00620	Plain-Cover, Key-Lift, Ring Assembly	Grey	Key Lift	Plain	39 ¹ / ₂
E00714	Replacement Cover, 39 ¹ / ₂ " Roto Lock with Recessed Handle	Grey	Recessed Handle	Roto-Lock	39 ¹ / ₂
E00715	39 ¹ / ₂ " Roto Lock with Key Lift, Ring & Skirt	Grey	Key Lift	Roto-Lock	39 ¹ / ₂
E00622	Bolt-Down Cover, Recessed-Handle, Gasket & Ring Assembly	Grey	Recessed Handle	Bolt-Down	39 ¹ / ₂
E00624	Bolt-Down Cover, Key-Lift, Gasket & Ring Assembly	Grey	Key Lift	Bolt-Down	39 ¹ / ₂
E00626	Plain-Cover, Recessed-Handle, Ring Assembly	Grey	Recessed Handle	Plain	44
E00628	Plain-Cover, Key-Lift Provision, Ring Assembly	Grey	Key Lift	Plain	44
E00713	44 ¹ / ₄ " Roto Lock with Recess Handle Ring & Skirt	Grey	Recessed Handle	Roto-Lock	44
E00712	44 ¹ / ₄ " Roto Lock with Key Lift Ring & Skirt	Grey	Key Lift	Roto-Lock	44
E00630	Bolt-Down Cover, Recessed-Handle, Ring & Gasket Assembly	Grey	Recessed Handle	Bolt-Down	44
E00632	Bolt-Down Cover, Key-Lift Handle, Ring & Gasket Assembly	Grey	Key Lift	Bolt-Down	44



Replacement Manhole Covers (Old & New)

Product #	Replacement Cover	Cover O.D.
104A-1066	D00173M	13 ¹ / ₈ "
104A-0800	E00508M	9 ¹ / ₂ "
104A-1200 & 1219	E00510M	13 ¹ / ₂ "
104A-1800 & 1819	E00512M	19 ¹ / ₂ "
104AOW-0800	E00514M	9 ¹ / ₂ "
104AOW-1200 & 1219	E00515I	13 ¹ / ₂ "
104AOW-1800 & 1819	E00516I	19 ¹ / ₂ "
104AOW-1218	Obsolete E00319I – No Replacement	13"
104MW-0018	Obsolete C03436RS – No Replacement	16 ⁷ / ₈ "
6310-37" COMPOSITE	Obsolete – Pomeco can make Steel	37"
6310-42" COMPOSITE	Obsolete – Pomeco can make Steel	42"
39CD-39"	P110-3950L	39 ¹ / ₂ "
44CD-44"	P110-4425L	44 ¹ / ₄ "

Replacement Fill Boxes (Old & New)

Product #	Replacement Cover	Cover O.D.
122-0033	Obsolete – No Replacement	NA
122-0055	Obsolete – No Replacement	NA
122-0077	Obsolete – No Replacement	NA
126A-1044	Obsolete – No Replacement	4 ⁷ / ₈ "

LEADING THE WAY IN DEF PIPING, CONTAINMENT & FILLING SOLUTIONS

From one end to
the other we've
got you covered:

- ◆ The industry's most complete DEF-filling solution
- ◆ Unique mis-filling prevention device (MFPD)
- ◆ Industry-leading piping & containment
- ◆ Emergency shut-off
- ◆ Remote fill spill containment
- ...and more

OPW 
A DOVER COMPANY

THE MOST COMPREHENSIVE DEF-HA

As diesel fleets rapidly adopt Diesel Exhaust Fluid (DEF), OPW is leading the way in providing you the most reliable, efficient and comprehensive DEF filling solution in the industry. Beginning with our unique Mis-Filling Prevention Device that provides affordable insurance against the risks of DEF mis-filling to our revolutionary, industry-standard DEF nozzle, hose, swivel/breakaways, secondary containment, emergency shear valve and DEF transfer piping – we've got you covered from one end to the other.

OPW Fuel Control Solutions

- Provides for accurate accounting of fuel 24/7/365
- Helps eliminate fuel theft
- Solutions for everything from a single, private fuel site to a multi-truck or complex national commercial network



Unique Mis-Filling Prevention Device (MFPD)

The heart of the 21Gu DEF Mis-Filling Prevention System. DEF mis-filling can be expensive. The OPW 21Gu MFPD offers the industry's most effective and affordable insurance policy against mis-filling mishaps – actually stopping them before they happen. There is no better way to protect your investment and the environment.



NOTE: MFPD sold separately. Some models will not function without it. MFPD may be required for testing W & M or other testing.

DEF Fill-Point Slogan Badge

Meets ISO 22241 Compatibility Testing for DEF Contamination

- Distinctively styled and strikingly attractive
- Comes with Integral Contaminant Prevention Filter
- The DEF filling standard in Europe
- Durable, streamlined design provides for optimum form and function

OPW 21Gu Integral Contaminant Prevention Filter (Comes with Nozzle)

OPW 21Gu Reconnectable Swivel/Breakaway (21Gu-SSB) (Note: Swivel Only Option Available)

21Gu BCS Swivel/Breakaway Cover Sleeve (Comes with Swivel Breakaway)

OPW Conquistador™ Composite Cover Manholes



OPW 60V DEF Shear Valves

- Double-poppeted design incorporated to help prevent DEF loss in the event dispenser is toppled
- 1" Female connection to both dispenser and underground piping
- BSPP to NPT thread adaptors available



OPW Stainless Steel Flexible Connectors

- All stainless-steel construction
- No coated or plated end connectors or swivels (also no Teflon™)
- 25% thicker wall on ribbed hose
- Rated for 150 psig (10 bar) working pressure



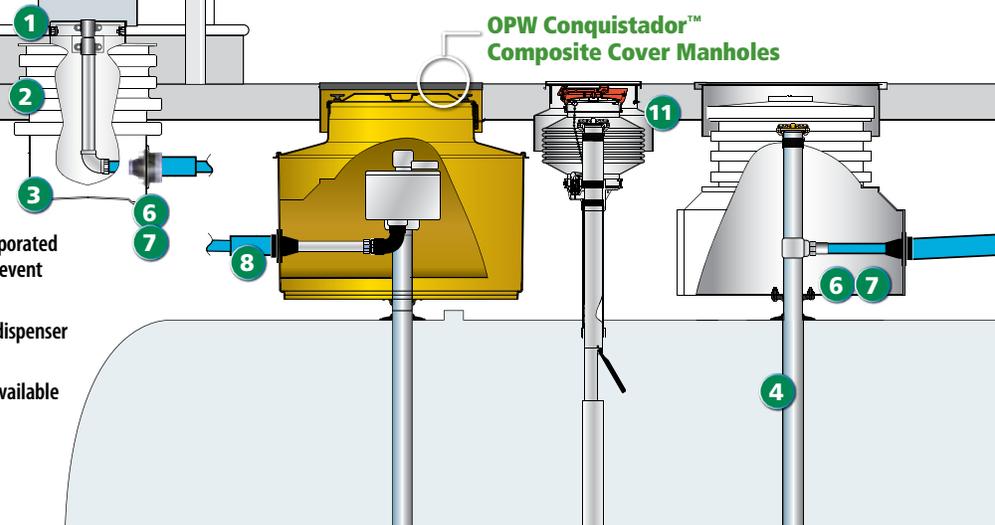
OPW FlexWorks Dispenser Sumps

- Available in fiberglass and polyethylene, one and two-piece models, and optional DEF skirt
- Multiple Models – ensure a custom fit
- Structural Reinforcing on Large MPD Models – prevents sump deformation from backfill and high water table forces
- Integral Rain Lip – protrudes into the dispenser frame to prevent surface water entry



OPW 61T-SS Stainless Steel Drop Tube

- Available in 12 and 17 ft. lengths
- Fully Welded Retaining Brackets – ensure a secure installation in the riser pipe
- Three Centering Springs – enable even flow of vapors back to the tank truck



HANDLING SOLUTION IN THE INDUSTRY

OPW 21Gu Reconnectable Swivel/Breakaway

- Ensures a smooth nozzle rotation for easy customer handling and reduced hose wear
- Featuring premium seals and all stainless steel construction to provide long-life durability
- Reconnectable – minimize downtime after an event



OPW 623V Emergency Vent

- Reliable Service – vent cap drain spouts extend outward to deter rainwater entry
- Corrosion-Resistant Construction – Duratuff® composite body ensures long service life



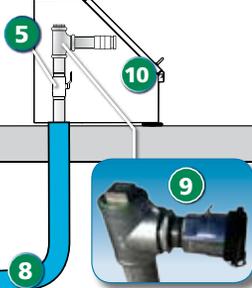
OPW 21Gu Hose Assembly

- Specially designed for DEF-flow applications
- Lightweight and highly flexible for easy customer handling
- Smooth bore, seamless fluoropolymer lining for exceptional flow performance
- Swivel end couplings provide for easy installation



1-2100-EVR Series Spill Container

- Available in 5 or 15 gallon
- Designed for fuel blends, including methanol, ethanol and fuels with MTBE additives.
- With Composite Base – cast iron base not compatible with DEF



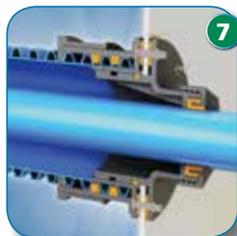
OPW FlexWorks Double Flexible Entry Boots

- Watertight pipe and conduit entries
- Installation on flat or round surface
- Added flexibility permitting angled pipe entries
- Provides clean, dry environment



OPW FlexWorks "REF" Rigid Entry Fitting

- Sealing Redundancy Throughout – maximum containment and unmatched protection from water intrusion
- Preserves Total Accessibility – for monitoring, maintenance, testing and repair
- Maintains flexibility to accommodate pipe and ground movement
- Hard Shell Exterior – to weather the elements and abuse in the underground environment



OPW FlexWorks Crush Resistant Access Pipe & Retractable Primary Pipe with Bolt-On Coupling

- Fully-bonded, premium PVDF primary pipe construction
- All Stainless Steel Wetted Surfaces to avoid excessive rust and degradation
- Complete peace-of-mind protection, performance and installation or replacement ease
- No Jacket Stripping
- No Test Boots



Stainless-Steel Remote-Fill Storage Tank Spill Container



Pomeco/OPW 211-RMOT Stainless-Steel Remote-Fill Storage Tank Spill Container

- Accommodates various fill pipe configurations – available in 15, 20 and 30-gallon container capacity. Custom sizes available upon request.
- 12-Gauge stainless steel construction, compatible with DEF for long service life

Optional Remote-Fill Storage Tank Spill Container



OPW FlexWorks Transition Sumps

- Two-piece, non-corroding, polyethylene sump container
- Weatherproof lockable cover
- Exterior anchoring system



OPW 144/444TA Tank Alarm

- Protection against costly overfills
- Provides liquid level sensing of one to four tanks
- Long life (10-Year) lithium battery (Located inside facility or near the remote spill container)



OPW Poppeted Kamvalok® Couplers & Fill Adaptors

- 1672AN SS20, 2" and 1672AN SS30, 3" Stainless Steel Kamvalok® Adaptors – designed to mate with OPW Kamvalok® Dry Disconnect Couplings
- Internal spring-loaded valve assembly automatically closes to help prevent spillage of DEF

21BV Full Port, Stainless Steel Two-Way Ball Valve



NOTE: For the hose end, OPW also offers the 1772DL-SS20, 2" and 1772DL-SS30, 3" Stainless Steel Kamvalok® Dry Disconnect Couplings to enable dry connection and disconnection to prevent accidental spillage of DEF

OPW DEF Solution – Key Points of Value

Need / Want	Benefit / Value	OPW DEF Solution
Eliminate the Risk of Accidental DEF Filling	<ul style="list-style-type: none"> Affordable insurance in the prevention of costly engine damage due to mis-filling 	<ul style="list-style-type: none"> Mis-Filling Prevention Device (MFPD)
Reduce the Chances of Environment Contamination and Fines	<ul style="list-style-type: none"> Reliable means of ensuring environmental compliance; keeps the environment safe and clean 	<ul style="list-style-type: none"> FlexWorks sumps, entry fittings, primary and secondary piping Overfill prevention valves, remote spill containers, and tank alarms Tight-fill Kamvalok™ connectors
Reliable, Durable Filling Method Customers can Count on	<ul style="list-style-type: none"> Problem-free performance ensures customer satisfaction and repeat business 	<ul style="list-style-type: none"> OPW 21Gu Nozzle OPW 21Gu Hose
Provides for Maximum Customer and Equipment Safety	<ul style="list-style-type: none"> Time-tested, field-proven means of protecting customers and equipment investments in the event of accidents 	<ul style="list-style-type: none"> OPW Swivel Breakaway and 60V Emergency Valves
Compliance and /or Compatibility Assurance	<ul style="list-style-type: none"> Certified OPW DEF products designed to work in unison DEF compatible, CARB certified AST products 	<ul style="list-style-type: none"> The industry's most complete DEF liquid transfer and handling system designed to provide affordability, reliability from a single source

Product Specifications

Part #	Description	
21GU-0400	Wayne® / Bennett® / Gasboy® Nozzle designed for use WITHOUT Mis-Filling Prevention Device	 
21GU-040G	Gilbarco® Nozzle designed for use WITHOUT Mis-Filling Prevention Device	
21GU-0500	Wayne® / Bennett® / Gasboy® Nozzle designed for use WITH Mis-Filling Prevention Device	<p>BENNETT®, SEPARATION BY DESIGN®, WAYNE® GUARD (STANDARD)</p> <p>Gilbarco® Guard</p>
21GU-050G	Gilbarco® / Gasboy® (Model 9862KX-Z) Nozzle designed for use WITH Mis-Filling Prevention Device	
21GU-MFPD	21Gu Mis-Filling Prevention Device (MFPD) - Sold Separately	
21GU-SSB	DEF Stainless Steel Reconnectable Breakaway/Swivel (1 per nozzle required, or equivalent)	
21GU-HXX	DEF Hose Assembly (XX= ft. required. Contact OPW Customer Service for available lengths)	
6211SS	211-RMOT Stainless Steel, Remote Fill Above Ground Spill Container	
144TA-0100 or 444TA-0100	Single Channel Liquid Level Tank Alarm or Four Signal Tank Alarm	
44TA-LLFS	36" Liquid Level Float Switch Sub-Assembly	
1772DL-SS20 and 1772DL-SS30	2" and 3" Stainless-steel Poppeted Kamvalok® Dry Disconnect Couplings	
1672AN SS20 and 1672AN SS30	2" and 3" Stainless-steel Kamvalok® Adaptors	
FIT500, C/OPT or K800 Hybrid	OPWFMS Fuel Control System (OPWFMS Fuel Site Controller sold separately)	
DSK-DEF-1836	DEF Skirt for DS-1836, DSF-1836, DSF-1836C, and FDS-4021 sumps. Does not fit on DSW sumps	
DSK-DEF-1630A	DEF Skirt for DS-1630 and DSF-1630 sumps. Does not fit on DSW sumps	
FDS, DEF, DS, DSW or PST	FlexWorks Dispenser and Transition Sumps in Fiberglass or Polyethylene, one and two-piece models	
C10, C15A and C20A	FlexWorks Double-Wall Primary Supply Piping (1", 1.5" and 2")	
AXP40	FlexWorks Double-Layer Access Pipe 4"	
REF-4015 and 4020	Rigid Entry Fitting (4" x 1.5" and 4" x 2")	
DEB Series	Double Flexible Entry Boots (1.5" to 4" and 1/2" Conduit Double Entry Boots)	
60V-DEF	Shear Valve 1" x 1" BSPP Female	
205900	1" Female NPT 60V Shear Valve Adaptor	
205899	1" Male BSPP 60V Shear Valve Adaptor	
FCXX-XXXX Series	Stainless Steel Series Flex Connectors	
39CD-XXXX or 44CD-XXXX Series	Conquistador™ Composite Cover Manholes	
21BV-XXXXSS Series	Full Port Stainless Steel Two-Way Ball Valves	
623V-2203 or 623V-3203	Pressure Vacuum Vents	

Metric Conversion Chart

When you know Length	Multiply by	To find
millimeters (mm)	0.04	inches (in)
inches (in)	25.4	millimeters (mm)
centimeters (cm)	0.4	inches (in)
inches (in)	2.54	centimeters (cm)
meters (m)	3.3	feet (ft)
feet (ft)	0.304 8	meters (m)
meters (m)	1.1	yards (yd)
yards (yd)	0.914 4	meters (m)
kilometers (km)	0.6	miles (mi)
miles (mi)	1.609 344	kilometers (km)
Area		
square centimeters (cm ²)	0.16	square inches (in ²)
square meters (m ²)	1.2	square yards (yd ²)
square kilometers (km ²)	0.4	square miles (mi ²)
hectares (ha) (10,000 m ²)	2.5	acres
Mass		
grams (g)	0.035	ounces (oz)
ounces (oz)	28.349 523 125	grams (g)
kilograms (kg)	2.2	pounds (lb)
pounds (lb)	.453 592 37	kilograms (kg)
metric ton(1,000 kg) (t)	1.1	short tons
Volume		
milliliters (mL)	0.03	fluid ounces (fl oz)
milliliters (mL)	0.06	cubic inches (in ³)
liters (L)	2.1	pints (pt)
liters (L)	1.06	quarts (qt)
liters (L)	0.26	gallons (gal)
cubic meters (m ³)	35.0	cubic feet (ft ³)
cubic meters (m ³)	1.3	cubic yards (yd ³)
Temperature (exact)		
degrees Celsius(°C)	multiply by 9/5 (1.8), add 32	degrees Fahrenheit (°F)
degrees Fahrenheit (°F)	divide by 1.8, subtract 32	degrees Celsius(°C)
Pressure		
psia	.0689476	bar
psia	6,984.76	pascal
psia	.068046	atmosphere
psia	51.71496	torr
bar	14.50376	psia
pascal	.000146	psia
atmosphere	14.69594	psia
torr	.0193367	psia

Conversion Data

The following pages provide Engineering Data for:

- ◆ Metric Conversion
- ◆ Volume and Capacity Equivalents
- ◆ Pressure Equivalents
- ◆ Head Equivalents of Various Liquids
- ◆ Pressure of Water at Different Heads
- ◆ Pressure Conversion Table for 60 Degree Gasoline
- ◆ Specific Gravity and Viscosity Table
- ◆ Approximate Weights of Petroleum Oil
- ◆ Flow vs. Velocity vs. Pressure Loss
- ◆ Friction Loss in Pipe Fittings
- ◆ Standard Pipe Data
- ◆ Circumferences and Areas of Circles
- ◆ Standard Pipe Thread
- ◆ Loss in Pounds pressure per 100 feet of Smooth Bore Rubber Hose

Volume and Capacity Equivalents

U.S. Gallons	Imperial Gallons	Cubic Inches	Cubic Feet	Cubic Meters	Liters
1.000000	0.832700	231.00	0.1337000	0.00378500	3.78500
1.201000	1.000000	277.41	0.1605000	0.00454500	4.54500
0.004329	0.003603	1.00	0.0005787	0.00001639	0.01639
7.481000	6.229000	1728.00	1.000000	0.02832000	28.32000
264.200000	220.000000	61023.00	35.3140000	1.00000000	1000.00000
0.264200	0.220000	61.02	0.0353100	0.00100000	1.00000

Conversion Tables Pressure Equivalents

Ozs. per Sq. In.	Lbs. per Sq. In.	Atmospheres	Cols. of Mercury at 32 degrees Farenheit		Cols. of Water at 60 degrees Farenheit		
			Meters	Inches	Meters	Inches	Feet
1.0000	0.06250	0.004253	0.003232	0.12730	0.4403	1.734	0.14450
16.0000	1.00000	0.06805	0.051720	2.03600	0.7045	27.74	2.31100
235.1000	14.70000	1	0.760000	29.92000	10.3500	407.60	33.97000
309.4000	19.34000	1.316	1.000000	39.37000	13.6200	536.40	44.70000
7.8590	0.49120	0.03342	0.025400	1.00000	0.3460	13.62	1.13500
22.7100	1.41900	0.09658	0.073400	2.89000	1.0000	39.37	3.28100
0.5768	0.03605	0.002453	0.001864	0.07340	0.0254	1.00	0.08333
6.9220	0.43260	0.02944	0.022370	0.8309	0.3048	12.00	1.00000

Mercury at 32 degrees Farenheit = 13.5951 grams per cubic centimeter = .491156 pounds per cubic inch.

Water at 60 degrees Farenheit = 62.2994 pounds per cubic foot in air.

1 Atmosphere = 760.0 millimeters of mercury at 32 degrees Farenheit.

Head Equivalents of Various Liquids

Inches of Mercury	Pounds Per Sq. In.	FT. OF LIQUID	Water SG - 1.0	Gasoline SG - .72	Kerosene SG - .82	FUEL OILS SG - .85	SG - .9	SG - .95
1	0.49	1.13	1.57	1.38	1.30	1.25	1.19	
2	0.98	2.26	3.14	2.66	2.66	2.51	2.38	
3	1.47	3.39	4.70	3.98	3.98	3.76	3.57	
4	1.95	4.52	6.28	5.31	5.31	5.02	4.76	
5	2.40	5.65	7.85	6.65	6.65	6.28	5.95	
6	2.93	6.78	9.41	7.97	7.97	7.53	7.14	
7	3.42	7.91	10.98	9.30	9.30	8.79	8.32	
8	3.91	9.04	12.55	10.63	10.63	10.04	9.51	
9	4.40	10.17	14.12	11.96	11.96	11.30	10.70	
10	4.89	11.30	15.69	13.29	13.78	12.55	11.89	

Pressure of Water at Different Heads

Feet Head of Water and Equivalent Pressure

Pressure and Equivalent Feet Head of Water

Feet Head	Lbs. per Sq. In.	Feet Head	Lbs. per Sq. In.	Feet Head	Lbs. per Sq. In.	Lbs. per Sq. In.	Feet Head	Lbs. per Sq. In.	Feet Head	Lbs. per Sq. In.	Feet Head
1	0.43	60	25.99	200	86.62	1	2.31	40	92.36	170	392.52
2	0.87	70	30.32	225	97.45	2	4.62	50	115.45	180	415.61
3	1.30	80	34.65	250	108.27	3	6.93	60	138.54	190	438.90
4	1.73	90	38.98	275	119.10	4	9.24	70	161.63	200	461.78
5	2.17	100	43.31	300	129.93	5	11.54	80	184.72	225	519.51
6	2.60	110	47.64	325	140.75	6	13.85	90	207.81	250	577.24
7	3.03	120	51.97	350	151.58	7	16.16	100	230.90	275	643.03
8	3.40	130	56.30	400	173.24	8	18.47	110	253.98	300	692.69
9	3.90	140	60.63	500	216.55	9	20.78	120	277.07	325	750.41
10	4.33	150	64.96	600	259.85	10	23.09	150	288.62	350	808.13
20	8.66	160	69.29	700	303.16	15	34.63	130	300.16	375	865.89
30	12.99	170	73.63	800	346.47	20	46.18	140	323.25	400	922.58
40	17.32	180	77.96	900	389.78	25	57.72	150	346.34	500	1154.48
50	21.65	190	82.29	1000	433.09	30	69.27	160	369.43	1000	2308.00

Flow Rate vs. Velocity Rate vs. Pressure Loss

Flow US Gal. per Min.	2 in. 2.067" inside dia.			Flow US Gal. per Min.	2 1/2 in. 2.469" inside dia.			Flow US Gal. per Min.	3 in. 3.068" inside dia.			Flow US Gal. per Min.	4 in. 4.026" inside dia.			Flow US Gal. per Min.	6 in. 6.065" inside dia.		
	Veloc. ft. per sec.	Veloc. Head ft.	Head Loss ft. per 100 ft.		Veloc. ft. per sec.	Veloc. Head ft.	Head Loss ft. per 100 ft.		Veloc. ft. per sec.	Veloc. Head ft.	Head Loss ft. per 100 ft.		Veloc. ft. per sec.	Veloc. Head ft.	Head Loss ft. per 100 ft.		Veloc. ft. per sec.	Veloc. Head ft.	Head Loss ft. per 100 ft.
5	0.48	0.00	0.120	8	0.54	0.00	0.120	10	0.43	0.00	0.063	20	0.50	0.00	0.061	50	0.56	0.00	0.045
6	0.57	0.01	0.167	10	0.67	0.01	0.182	15	0.65	0.01	0.134	30	0.76	0.01	0.128	60	0.67	0.01	0.063
7	0.67	0.01	0.223	12	0.80	0.01	0.254	20	0.87	0.01	0.227	40	1.01	0.02	0.219	70	0.78	0.01	0.084
8	0.77	0.01	0.285	14	0.94	0.01	0.338	25	1.09	0.02	0.344	50	1.26	0.03	0.330	80	0.89	0.01	0.107
9	0.86	0.01	0.355	16	1.07	0.02	0.433	30	1.30	0.03	0.481	60	1.51	0.04	0.463	90	1.00	0.02	0.133
10	0.96	0.01	0.431	18	1.21	0.02	0.538	35	1.52	0.04	0.640	70	1.76	0.05	0.615	100	1.11	0.02	0.162
12	1.15	0.02	0.60	20	1.34	0.03	0.654	40	1.74	0.05	0.820	80	2.02	0.06	0.788	120	1.33	0.03	0.227
14	1.34	0.03	0.80	22	1.47	0.03	0.780	45	1.95	0.06	1.020	90	2.27	0.08	0.980	140	1.56	0.04	0.302
16	1.53	0.04	1.030	24	1.61	0.04	0.917	50	2.17	0.07	1.240	100	2.52	0.1	1.190	160	1.78	0.05	0.387
18	1.72	0.05	1.280	26	1.74	0.05	1.060	55	2.39	0.09	1.470	110	2.77	0.12	1.420	180	2	0.06	0.481
20	1.91	0.06	1.550	28	1.88	0.05	1.220	60	2.60	0.11	1.740	120	3.02	0.14	1.670	200	2.22	0.08	0.584
22	2.10	0.07	1.850	30	2.01	0.06	1.390	65	2.82	0.12	2.010	130	3.28	0.17	1.930	220	2.44	0.09	0.697
24	2.29	0.08	2.180	35	2.35	0.09	1.840	70	3.04	0.14	2.310	140	3.53	0.19	2.220	240	2.67	0.11	0.819
26	2.49	0.10	2.520	40	2.68	0.11	2.360	75	3.25	0.16	2.620	150	3.78	0.22	2.530	260	2.89	0.13	0.950
28	2.68	0.11	2.890	45	3.02	0.14	2.930	80	3.47	0.19	2.960	160	4.03	0.25	2.840	280	3.11	0.15	1.090
30	2.87	0.13	3.290	50	3.35	0.17	3.560	85	3.69	0.21	3.310	170	4.29	0.29	3.180	300	3.33	0.17	1.240
35	3.35	0.17	4.370	55	3.69	0.21	4.240	90	3.91	0.24	3.670	180	4.54	0.32	3.530	320	3.56	0.2	1.390
40	3.82	0.23	5.600	60	4.02	0.25	4.990	95	4.12	0.26	4.060	190	4.79	0.36	3.900	340	3.78	0.22	1.560
45	4.30	0.29	6.960	65	4.36	0.3	5.790	100	4.34	0.29	4.470	200	5.05	0.40	4.290	360	4	0.25	1.730
50	4.78	0.36	8.460	70	4.69	0.34	6.640	110	4.77	0.35	5.330	220	5.55	0.48	5.120	380	4.22	0.28	1.920
55	5.26	0.43	10.10	75	5.03	0.39	7.550	120	5.21	0.42	6.260	240	6.05	0.57	6.010	400	4.44	0.31	2.110
60	5.74	0.51	11.90	80	5.36	0.45	8.500	130	5.64	0.49	7.260	260	6.55	0.67	6.970	450	5	0.39	2.620
65	6.21	0.60	13.70	85	5.70	0.5	9.510	140	6.08	0.57	8.320	280	7.06	0.77	8.000	500	5.56	0.48	3.190
70	6.69	0.70	15.80	90	6.03	0.57	10.600	150	6.51	0.66	9.480	300	7.51	0.89	9.090	550	6.11	0.58	3.800
75	7.17	0.80	17.90	95	6.37	0.63	11.700	160	6.94	0.75	10.700	320	8.07	1.01	10.200	600	6.66	0.69	4.460
80	7.65	0.91	20.20	100	6.70	0.70	12.800	180	7.81	0.95	13.200	340	8.58	1.14	11.500	650	7.22	0.81	5.170
85	8.13	1.03	22.60	110	7.37	0.84	15.300	200	8.68	1.17	16.100	360	9.08	1.28	12.700	700	7.78	0.94	5.930
90	8.61	1.15	25.10	120	8.04	1.00	18.000	220	9.55	1.42	19.200	380	9.59	1.43	14.100	750	8.34	1.08	6.740
95	9.08	1.28	27.70	130	8.71	1.18	20.900	240	10.40	1.70	22.600	400	10.10	1.6	15.500	800	8.9	1.23	7.600
100	9.56	1.42	30.50	140	9.38	1.37	23.900	260	11.30	2.00	26.200	420	10.60	1.7	16.900	850	9.45	1.39	8.500
110	10.5	1.7	36.40	150	10.00	1.60	27.300	280	12.20	2.30	30.100	440	11.10	1.90	18.500	900	10.1	1.6	9.440
120	11.5	2.1	42.70	160	10.70	1.80	30.700	300	13.00	2.60	34.100	460	11.60	2.10	20.000	950	10.5	1.7	10.200
130	12.4	2.4	49.60	170	11.40	2.00	34.300	320	13.90	3.00	38.400	480	12.10	2.30	21.700	1000	11.1	1.9	11.500
140	13.4	2.8	56.90	180	12.10	2.30	38.100	340	14.80	3.40	43.000	500	12.60	2.50	23.400	1100	12.2	2.3	13.700
150	14.3	3.2	64.70	190	12.70	2.50	42.100	360	15.60	3.80	47.800	550	13.90	3.00	27.900	1200	13.3	2.7	16.100
160	15.3	3.6	72.80	200	13.40	2.80	46.300	380	16.50	4.20	52.800	600	15.10	3.50	32.800	1300	14.4	3.2	18.600
170	16.3	4.1	81.40	220	14.70	3.40	55.300	400	17.40	4.70	58.000	650	16.40	4.20	38.000	1400	15.6	3.8	21.400
180	17.2	4.6	90.50	240	16.10	4.00	66.400	420	18.20	5.10	63.500	700	17.60	4.80	43.600	1500	16.7	4.3	24.300
190	18.2	5.1	100.00	260	17.40	4.70	75.300	440	19.10	5.70	69.200	750	18.90	5.60	49.500	1600	17.8	4.9	27.400
200	19.1	5.7	110.00	280	18.80	5.50	86.300	460	20.00	6.20	75.300	800	20.20	6.30	55.800	1700	18.9	5.6	30.600
220	21	6.8	131.00	300	20.10	6.30	98.100	480	20.80	6.70	81.300	850	21.40	7.10	62.400	1800	20	6.2	34.000
240	22.9	8.2	154.00	350	23.50	8.60	130.000	500	21.70	7.30	87.700	900	22.70	8.00	69.300	1900	21.1	6.9	37.600
260	24.9	9.6	179.00	400	26.80	11.20	167.000	550	23.90	8.90	105.000	950	24.00	9.00	76.600	2000	22.2	7.7	41.400
280	26.8	11.2	205.00	450	30.20	14.20	208.000	600	26.00	10.50	123.000	1000	25.20	9.90	84.300	2200	24.4	9.3	49.400
300	28.7	12.8	233.00	500	33.50	17.40	252.000	650	28.20	12.40	143.000	1100	27.70	11.90	101.000	2400	26.7	11.1	58.000

Pressure Conversion Table for 60 Degree Gasoline

Head of Gasoline and Pounds Per Square Inch (SP. GR - .72)

Head Gasoline in Ft.	Lbs. per Sq. In.	Lbs. per Sq. In.	Head Gasoline In Ft.	Head Gasoline In In.	Lbs. per Sq. In.
1	0.31155	1	3.20976	1	0.02596
2	0.62310	2	6.41952	2	0.05192
3	0.93465	3	9.62928	3	0.07788
4	1.24620	4	12.83904	4	0.10384
5	1.55775	5	16.04880	5	0.1298
6	1.86930	6	19.25856	6	0.15576
7	2.18085	7	22.46832	7	0.18172
8	2.49240	8	25.67808	8	0.20768
9	2.80395	9	28.88784	9	0.23364
10	3.11550	10	32.09760	10	0.25960
				11	0.28556
				12	0.31152

Specific Gravity and Viscosity Table

Liquid	Specific Gravity	VISCOSITY S. S. U. 60 degrees F.	100 degrees F.	160 degrees F.
WATER	1.00	31.5	30.5	-
GASOLINE	.71 - .74	30.9	30.4	-
JET FUEL	.74 - .85	31.5 to 36	30.9 to 33.3	-
KEROSENE	.78 - .82	36	33	-
NO. 1 FUEL OIL	.82 - .95	34 - 37	33	-
NO. 2 FUEL OIL	.82 - .95	37 - 52	33 - 40	-
NO. 3 FUEL OIL	.82 - .95	52 - 69	40 - 45	34 - 45
NO. 5A FUEL OIL	.82 - .95	600 - 5600	150 - 850	55 - 140
NO. 5B FUEL OIL	.82 - .95	600 - 5600	150 - 850	55 - 140
NO. 6 FUEL OIL	.82 - .95	8000 - 100000	1050 - 8400	165 - 650
S.A.E. 10	.88 - .94	630 - 860	170 - 220	60 - 67
S.A.E. 20	.88 - .94	860 - 3000	220 - 550	67 - 115
S.A.E. 30	.88 - .94	3000 - 4400	550 - 800	115 - 155
S.A.E. 60	.88 - .94	11000 - 17000	1850 - 2500	285 - 370

Approximate Weights of Petroleum Oil

Deg. Baum	Specific Gravity	Lbs. in 1 Gal.	Deg. Baum	Specific Gravity	Lbs. in 1 Gal.	Deg. Baum	Specific Gravity	Lbs. in 1 Gal.	Deg. Baum	Specific Gravity	Lbs. in 1 Gal.
10	1.0000	8.33	27	0.8927	7.42	44	0.8046	6.70	60	0.7368	6.13
11	0.9929	8.27	28	0.8861	7.38	45	0.8000	6.66	61	0.7330	6.10
12	0.9859	8.21	29	0.8805	7.33	46	0.7954	6.62	62	0.7292	6.07
13	0.9790	8.16	30	0.875	7.29	47	0.7910	6.58	63	0.7254	6.04
14	0.9722	8.10	31	0.8696	7.24	48	0.7865	6.55	64	0.7216	6.01
15	0.9655	8.04	32	0.8642	7.20	49	0.7821	6.51	65	0.7180	5.98
16	0.9589	7.99	33	0.8589	7.15	50	0.7778	6.48	66	0.7143	5.94
17	0.9523	7.93	34	0.8537	7.11	51	0.7735	6.44	67	0.7137	5.92
18	0.9460	7.88	35	0.8485	7.06	52	0.7692	6.40	68	0.7071	5.89
19	0.9396	7.82	36	0.8434	7.03	53	0.7650	6.37	69	0.7035	5.86
20	0.9333	7.77	37	0.8383	6.98	54	0.7609	6.33	70	0.7000	5.83
21	0.9272	7.72	38	0.8333	6.94	55	0.7568	6.30	75	0.6829	5.68
22	0.9210	7.67	39	0.8284	6.90	56	0.7527	6.27	80	0.6667	5.55
23	0.9150	7.62	40	0.8235	6.86	57	0.7487	6.23	85	0.6512	5.42
24	0.9091	7.57	41	0.8187	6.82	58	0.7447	6.20	90	0.6364	5.30
25	0.9032	7.52	42	0.814	6.78	59	0.7407	6.17	95	0.6222	5.18
26	0.8974	7.47	43	0.8092	6.74						

Friction Loss in Pipe Fittings in Terms of Equivalent Feet of Straight Pipe

Nominal Pipe Size Inches	Actual Inside Diameter Inches	Gate Valve FULL OPEN	45 degree Elbow	Long-Sweep Elbow or Run of Tee Reduced 1/2	Standard Elbow or Run of Tee Reduced 1/2	Standard Tee Thru Side Outlet	Close Return Bend	Swing Check Valve FULL OPEN	Angle Valve FULL OPEN	Global Valve FULL OPEN
Resistance Factor	0.20	0.42	0.60	0.9	1.8	2.2	2.3	5	10	
1/2	0.662	0.36	0.77	1.11	1.70	3.3	4.1	4.3	9.2	18.6
3/4	0.824	0.45	0.96	1.41	2.10	4.1	5.1	5.3	11.5	23.1
1	1.049	0.57	1.22	1.80	2.70	5.3	6.6	6.9	14.7	29.3
1 1/4	1.380	0.75	1.59	2.32	3.50	7.2	8.5	8.9	19.4	38.6
1 1/2	1.610	0.87	1.89	2.70	4.10	8.1	10.0	10.4	22.6	45.1
2	2.067	1.11	2.40	3.48	5.30	10.4	12.8	13.5	29	58
2 1/2	2.469	1.33	2.91	4.20	6.20	12.5	15.3	15.9	35	69
3	3.068	1.62	3.60	5.20	7.70	15.5	18.9	19.8	44	85
4	4.026	2.11	4.70	6.30	10.20	20.3	24.8	26	57	113
5	5.047	2.71	5.90	8.40	12.60	25.4	31	33	70	143
6	6.065	3.20	7.20	10.20	15.30	32	37	40	85	170
7	7.024	3.71	8.30	11.80	17.80	35	42	45	98	197
8	7.981	4.31	9.40	13.40	20.20	40	49	53	114	224
10	10.020	5.30	11.70	16.90	25.20	52	61	65	140	281
12	12.000	6.40	14.00	20.20	30	61	75	78	168	336

Standard Pipe Data

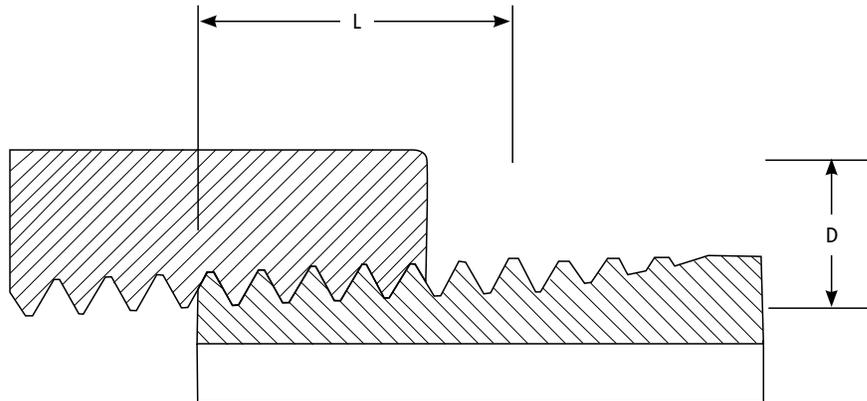
Nominal Dia., In.	Actual Outside Dia., In.	Actual Inside Dia., In.	Inside Area, Sq. In.	Weight Per Ft., Lbs.	Length in Ft. Containing One U.S. Gal.	Length in Ft. Containing 1 Cubic Ft.	U.S. Gal. in 1 Lineal Ft.	Lbs. of H2O in 1 Lineal Ft.
1/2	0.840	0.622	0.304	0.850	63.322	473.910	0.0158	0.1316
3/4	1.050	0.824	0.533	1.130	36.116	270.030	0.0277	0.2309
1	1.315	1.049	0.864	1.678	22.28	166.620	0.0449	0.3742
1 1/4	1.660	1.38	1.496	2.272	12.867	96.275	0.0777	0.6477
1 1/2	1.900	1.61	2.036	2.717	9.454	70.733	0.1058	0.8816
2	2.375	2.067	3.356	3.652	5.736	42.913	0.1743	1.4530
2 1/2	2.875	2.469	4.788	5.790	4.02	30.077	0.2487	2.0732
3	3.500	3.068	7.393	7.570	2.593	19.479	0.3840	3.2012
3 1/2	4.000	3.548	9.887	9.110	1.947	14.565	0.5136	4.2812
4	4.500	4.026	12.73	10.790	1.512	11.312	0.6613	5.5125
5	5.563	5.047	20.006	14.620	0.962	7.198	1.0398	8.6629
6	6.625	6.065	28.89	18.970	0.666	4.984	1.5008	12.5101
8	8.625	7.981	50.027	28.550	0.384	2.878	2.5988	21.6627

Circumferences and Areas of Circles

Dia.	Circum.	Area	Dia.	Circum.	Area	Dia.	Circum.	Area	Dia.	Circum.	Area	Dia.	Circum.	Area
1/64	0.0491	0.0002	15/16	2.9452	0.6903	3/4	8.6394	5.9396	5/8	14.5299	16.800	10	31.4159	78.540
1/32	0.0982	0.0008	31/32	3.0434	0.7371	13/16	8.8357	6.2126	11/16	14.7262	17.257	1/4	32.2013	82.516
1/16	0.1964	0.0031	1	3.1416	0.7854	7/8	9.0321	6.4918	3/4	14.9226	17.721	1/2	32.9867	86.590
3/32	0.2945	0.0069	1/16	3.3379	0.8866	15/16	9.2284	6.7771	13/16	15.1189	18.190	3/4	33.7721	90.763
1/8	0.3927	0.0123	1/8	3.5343	0.9940	3	9.4248	7.0686	7/8	15.3153	18.665	11	34.5575	95.033
5/32	0.4909	0.0192	3/16	3.7306	1.1075	1/16	9.6211	7.3662	15/16	15.5116	19.147	1/4	35.3429	99.402
3/16	0.5890	0.0276	1/4	3.9270	1.2272	1/8	9.8175	7.6699	5	15.7080	19.635	1/2	36.1283	103.870
7/32	0.6872	0.0376	5/16	4.1233	1.3530	3/16	10.0138	7.9798	1/8	16.1007	20.629	3/4	36.9137	108.430
1/4	0.7854	0.0491	3/8	4.3197	1.4849	1/4	10.2102	8.2958	1/4	16.4934	21.648	12	37.6991	113.100
9/32	0.8836	0.0621	7/16	4.516	1.6230	5/16	10.4065	8.6179	3/8	16.8861	22.691	1/4	38.4845	117.860
5/16	0.9817	0.0767	1 1/2	4.7124	1.7671	3/8	10.6029	8.9462	1/2	17.2788	23.758	1/2	39.2699	122.720
11/32	1.0799	0.0928	9/16	4.9087	1.9175	7/16	10.7992	9.2806	5/8	17.6715	24.850	3/4	40.0553	127.680
3/8	1.1781	0.1105	5/8	5.1051	2.0739	1/2	10.9956	9.6211	3/4	18.0642	25.967	13	40.8407	132.730
13/32	1.2763	0.1296	11/16	5.3014	2.2365	9/16	11.1919	9.9678	7/8	18.4569	27.100	1/4	41.6261	137.890
7/16	1.3745	0.1503	3/4	5.4978	2.4053	5/8	11.3883	10.3210	6	18.8496	28.274	1/2	42.4115	143.140
15/32	1.4726	0.1726	13/16	5.6941	2.5802	11/16	11.5846	10.6800	1/4	19.3650	30.680	3/4	43.1969	148.490
1/2	1.5708	0.1964	7/8	5.8905	2.7612	3/4	11.7810	11.0450	1/2	20.4204	33.183	14	43.9823	153.940
17/32	1.6690	0.2217	15/16	6.0868	2.9483	13/16	11.9773	11.4160	3/4	21.2058	35.785	1/4	44.7677	159.480
9/16	1.7672	0.2485	2	6.2832	3.1416	7/8	12.1737	11.7930	7	21.9911	38.485	1/2	45.5531	165.130
19/32	1.8653	0.2769	1/16	6.4795	3.3410	15/16	12.3700	12.1770	1/4	22.7765	41.282	3/4	46.3385	170.870
5/8	1.9635	0.3068	1/8	6.6759	3.5466	4	12.5664	12.5660	1/2	23.5619	44.179	15	47.1239	176.710
21/32	2.0617	0.3382	3/16	6.8722	3.7583	1/16	12.7627	12.9620	3/4	24.3473	47.173	1/4	47.9093	182.650
11/16	2.1598	0.3712	1/4	7.0686	3.9761	1/8	12.9591	13.3640	8	25.1327	50.265	1/2	48.6947	188.690
23/32	2.2580	0.4057	5/16	7.2649	4.2000	3/16	13.1554	13.7720	1/4	25.9181	53.456	3/4	49.4801	194.830
3/4	2.3562	0.4418	3/8	7.4613	4.4301	1/4	13.3518	14.1850	1/2	26.7035	56.745	16	50.2655	201.060
25/32	2.4544	0.4794	7/16	7.6576	4.6664	5/16	13.5481	14.6070	3/4	27.4889	60.132	1/4	51.0509	207.390
13/16	2.5525	0.5185	1/2	7.8540	4.9087	3/8	13.7445	15.0330	9	28.2743	63.617	1/2	51.8363	213.820
27/32	2.6507	0.5591	9/16	8.0503	5.1572	7/16	13.9408	15.4660	1/4	29.0597	67.201	3/4	52.6217	220.350
7/8	2.7489	0.6013	5/8	8.2467	5.4119	1/2	14.1372	15.9040	1/2	29.8451	70.882			
29/32	2.8471	0.6450	11/16	8.4430	5.6727	9/16	14.3335	16.3490	3/4	30.6305	74.662			

Standard Pipe Thread

Nominal Pipe Size In.	Threads Per In.	Outside Diameter of Pipe (D) In.	Effective External Thread Length (L) In.	Thds.	Handtight Engagement In.	Thds.	Top Drill or Bore In.	Tight Joint Engagement In.
1/8	27	0.405	0.2639	7.12	0.1615	4.36	0.345	1/4
1/4	18	0.540	0.4018	7.23	0.2278	4.10	0.442	3/8
3/8	18	0.675	0.4078	7.34	0.24	4.32	0.578	3/8
1/2	14	0.840	0.5337	7.47	0.32	4.48	0.715	1/2
3/4	14	1.050	0.5457	7.64	0.339	4.75	0.937	4/7
1	11 1/2	1.315	0.6828	7.85	0.4	4.60	1.171	2/3
1 1/4	11 1/2	1.660	0.7068	8.13	0.42	4.83	1.510	2/3
1 1/2	11 1/2	1.900	0.7235	8.32	0.42	4.83	1.750	2/3
2	11 1/2	2.375	0.7565	8.70	0.436	5.01	2.218	3/4
2 1/2	8	2.875	1.1375	9.10	0.682	5.46	2.614	1
3	8	3.500	1.2000	9.60	0.766	6.13	3.272	1
4	8	4.500	1.3000	10.40	0.844	6.75	4.272	1 1/8
6	8	6.625	1.5125	12.10	0.958	7.66	6.381	1 5/16



Loss in Pounds Pressure Per 100 Feet of Smooth Bore Rubber Hose

Multiply pounds pressure by 2.31 to obtain friction loss in feet

U.S. Gallons Per Minute	Actual Inside Diameter In Inches							
	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
15	30.0	8.9	2.5	1.1	0.4	0.1		
20	53.0	14.0	4.3	1.8	0.7	0.2		
25	79.0	22.0	6.5	2.9	1.0	0.3		
30	112.0	31.0	9.2	4.0	1.4	0.4	0.1	
40		53.0	15.0	6.7	2.4	0.6	0.3	
50		80.0	24.0	10.0	3.6	1.0	0.5	
60		101.0	35.0	14.0	5.1	1.4	0.6	
70			45.0	19.0	6.6	1.8	0.8	
80			58.0	24.0	8.6	2.3	1.1	
90			71.0	30.0	11.0	3.0	1.4	0.3
100			88.0	37.0	12.5	3.5	1.7	0.4
125			132.0	55.0	20.0	5.3	2.5	0.6
150			183.0	78.0	27.0	7.5	3.5	0.7
175				100.0	37.0	10.0	4.6	1.1
200				133.0	46.0	13.0	5.9	1.4
250					70.0	19.0	9.1	2.1
300					95.0	27.0	12.0	2.9
350					126.0	36.0	17.0	4
400						46.0	21.0	5.1
500						70.0	32.0	7.4
600						105.0	46.0	10.0
700						148.0	62.0	13.0
800						190.0	79.0	17.0
900							97.0	22.0
1000							116.0	27.0
1250							170.0	43.0
1500							226.0	61.0
1750								80.0
2000								100.0