

 **Franklin Fueling Systems**

2012 Product Catalog



Submersible Pumping Systems

Franklin Fueling Systems has contributed many innovative product designs to the petroleum industry, including the highest performing submersible pumping systems available. Franklin Fueling Systems offers 2 hp and 4 hp models to meet the needs of high volume retailers and variable speed technology provides constant flow during peak business times, as well as efficiencies during off peak times. The innovative MagShell™ design is an expanded motor shell option which increases the flow around the motor by 45%, resulting in significantly higher flow rates. For those high-volume dispensing sites, FFS also offers either a 3 or 5 hp high capacity pump. Intelligent pump controllers, like the STP-SCI smart controller and the MagVFC™ variable frequency controller, provide unmatched user interface and fault detection capabilities to keep your station running.

Service Station Hardware

Service station hardware, marketed under the EBW and Phil-Tite brand names, comprise the most comprehensive line of service station hardware in the industry. Products include complete lines of both aboveground and underground components.

Piping & Containment

Franklin Fueling Systems piping and containment products make up the industry's most complete line of installation components, both underground and aboveground. These products carry the APT brand name and include piping, fittings, sumps and boots.

Dispensing Systems

Franklin Fueling Systems manufactures and markets a complete line of Stage II vapor recovery systems globally under the Healy product brand. Since 1983 when Healy introduced the world's first vacuum-assist vapor recovery system, our dispensing systems products have been in service throughout the world. Healy has remained the leader in the design and development of new Stage II vapor recovery technologies, which contribute to cleaner air and a healthier environment. Healy products are proven performers in Stage II vapor recovery, including the first to test and pass all the current Enhanced Vapor Recovery (EVR) and Onboard Refueling Vapor Recovery (ORVR) specifications of the California Air Resource Board (CARB).

Fuel Management Systems

Franklin Fueling Systems manufactures and markets a complete line of fuel management systems globally under the INCON product brand. Automatic tank gauges, electronic line leak detection, magnetostrictive probes and remote monitoring software are just some of the products available.

All are designed and manufactured using state-of-the-art technology to meet all of our customers' fuel management and leak detection compliance needs.

Tank Transport Systems

Franklin Fueling Systems Tank Transport Systems product line is comprised of an extensive line of products for both loading and off loading applications. Connecting to loading terminals and underground storage tanks is made easy with a broad line of FFS adapters, elbows, and valves. FFS has the solution to handle any product drop or vapor recovery situation. Preventing overfills at the loading rack is a top priority to any transporter. The FFS Optic Control Overfill Protection System (OCS) is designed to prevent such overfills and is compatible with all existing racks and monitors. Specialty items including Pressure Relief Valves, Hose Tube Doors and Side Seal Adapters compliment the system. Each component of the Tank Transport System is designed and manufactured to work in even the toughest of environments.

Submersible Pumping Systems

Submersible Turbine Pumps	8	Submersible Turbine Pump Accessories	37
Submersible Turbine Pump Ordering Guide	11	Submersible Turbine Pump Repair Parts	38
Variable Speed Submersible Turbine Pump Specifications	12	High Capacity Submersible Turbine Pumps	42
Intelligent Submersible Turbine Pumps	15	High Capacity Pump Ordering Guide	44
Fixed Speed Submersible Turbine Pumps	18	High Capacity Line Leak Detector	48
2 hp Specifications	19	High Capacity Pump Controllers	50
1 1/2 hp Specifications	22	Three-Phase Smart Controller	50
1/3 and 3/4 hp Specifications	25	STP-CB 3/5 Magnetic Starter	52
Fixed Length Specifications	28	High Capacity Pump Repair Parts	53
Mechanical Line Leak Detector	30		
Submersible Turbine Pump Controllers	32		
Single-Phase Smart Controller	32		
Dispenser Hook Isolation	34		
Single-Phase Control Box	36		

Service Station Hardware

Underground Storage Tank Equipment	56	782 Drop Tubes	75
300 Vapor Check Valve Adapter	56	Probe Cap and Adapter Kit	76
304 4" Vapor Recovery Cap	57	Tank Bottom Protectors	76
306/708 4" Coaxial Vapor Recovery Adapter	58	PV-Zero	77
308 Ball Float Vent Valves	59	Spill Containers	78
300 Series Extractor Vent Valves	60	Defender Series Spill Container	78
Extractor Vent Valve Accessories	61	15 Gallon Secondary Contained Spill Containers	81
362 Vapor Shear Valve	62	Field Replaceable 5 Gallon Direct Bury Spill Containers with Corrugated Gravel Shield	82
662 Emergency Shut-off Valves	63	Field Replaceable 5 Gallon Direct Bury Spill Containers with FRP Gravel Shield	83
Emergency Shut-off Valve Accessories	64	Spill Container Replacement Parts	84
Emergency Shut-off Valve Replacement Tops	64	702, 705 and 715 Grade Level Spill Containers	85
775 4" Side Seal Fill Cap	65	Grade Level Spill Container Accessories and Replacement Parts	87
776 4" Side Seal Fill Adapter	66	702, 705 and 715 Below Grade Level Spill Containers	88
777 4" Top Seal Fill Caps	67		
778 Top Seal Fill Pipe Adapter	68		
SWF-100 Top Seal Swivel Fill Pipe Adapter	69		
SWV-101 Top Seal Swivel Vapor Pipe Adapter	70		
779 3" Top Seal Fill Cap	71		
Autolimiter® II Automatic Shut-off Valve	72		
Remote Fill Kit	74		

Continued on next page...

Table of Contents

Manways	90	Safety-Sever Emergency Breakaways	122
7-1/2", 12" and 18" Round Manways	90	697/698 3/4" Safety-Sever™ Breakaway	122
Steel Manways	91	797 1" Safety-Sever™ Breakaway	122
16" and 24" Square Manways with Knock Down Skirts	93	Suction System Equipment	123
12", 30", 36" and 42" Fiber Reinforced Composite Manways	94	50-201 Brass Foot Valves	123
Containment Manhole	96	320 Foot Valve Extractor	124
Monitoring Test Well Manways	97	325 Product Line Isolation Valve	125
Monitoring Test Well Accessories	98	515 and 516 Brass Vertical Check Valves	126
787 Series Fuel Identification	100	615 and 635 Angle Check Valves	127
Multi-port Containment	101	621 and 622 Under Pump/In-Line Check Valves	128
Multi-port Manways	101	650 Union Check Valve	129
Multi-port Manway Packages	102	Installation Tools	130
Watertight Fiberglass Multi-port Sump Packages	104	Wrenches	130
Watertight Fiberglass Multi-port Sump Package Accessories	105	Flaring Tool	131
EVR Phase I Packages	106	Spill Container Tool Kit	131
Phase I Vapor Recovery Solutions	107	Accessories	132
Aboveground Storage Tank Equipment	108	Debris Buckets	132
605, 606, 616 and 636 Anti Syphon Valves	108	M/F 4x4	132
664 Pressure Regulator Valve	109	Alignment Brackets	132
706 AST Spill Container	110	48-409	132
709 Warden® Aboveground Storage Tank Overfill Prevention Valve	111	Cover Removal Tool	132
Fill Caps	112	Replacement Parts	133
800 Tank Vents	113	Approvals	137
802 Pressure Vacuum Vents	114		
803 Aboveground Emergency Vents	115		
Nozzles	116		
402 Utility Nozzle	116		
410 Fuel Oil Delivery Nozzle	117		
415 Automatic Bulk Fueling Nozzle	117		
490 Dual Poppet Nozzle	118		
498 Manual Nozzle	118		
495 Aircraft Fueling Nozzle	119		
Nozzle Accessories	120		

Continued on next page...

Piping & Containment

Piping	139	Below Grade Transition Tank Sumps	163
XP Pressure and Suction Product Piping	139	Below Grade Intermediate Piping Sumps	165
XP Marina/Aboveground Product Piping	141	Grade Level Transition Sump	166
4" Ducting	143	4542 Series One-Piece Tank Sumps	168
Fittings	144	4736 Series One-Piece Tank Sumps	170
XP Clamshell Swivel Pipe Fittings	144	Watertight Fiberglass Turbine Sump Packages	172
XP Male Swage Swivel Pipe Fittings	145	Large Mouth Dispenser Sumps	174
XP Clamshell Non-Swivel Pipe Fittings	145	Single and Double Wall Fiberglass	
XP Clamshell Non-Swivel Tee and Elbow Pipe Fittings	146	Large Mouth Dispenser Sumps	181
XP Quick Release Fittings	147	Classic Dispenser Pan Sumps	183
End Connections and Fittings	148	Sump Accessories	184
2" Vent Conversion Box Fittings	150	Tank Fitting Adapters	184
Termination Boots	151	Tank Manway Adapters	185
Flexible Entry Boots	151	Stabilizer Bar Kits	185
Flexible Double Entry Boots	153	Accessories	186
Flexible Bulkhead Boots	155	Installation Tools	186
MD-Series Flexible Entry Boots	157	Swage Kits	186
Clamshell Secondary Test Boots	158	UPP Piping	187
Swage Secondary Air Test Boots	159	UPP Fittings	188
Transition Sleeves	161	UPP Termination Fittings	193
Grade Level Transition Sleeve™	161	UPP Entry Boots	195
Wall Transition Sleeve	162	UPP Turbine Sumps	197
Sumps	163	UPP Installation Tools	198

Dispensing Systems

Product Selection Guide	201	Stage II Vapor Recovery Nozzles	208
Enhanced Vapor Recovery - Phase II	202	400 Series ORVR Nozzle	208
9961 Clean Air Separator	202	600 Series Bootless Nozzle	209
Stage II Vapor Recovery		800 Series ORVR Nozzle	210
Dispenser-Mounted Vacuum Sources	203	708 Series ORVR Nozzle	211
VPI1000 Series Dispenser-Mounted Vacuum Source	203	709 Series ORVR Nozzle	212
VPI1000 Replacement Parts	206	900 Series EVR Certified Nozzle	213
VPI200 Series Self-Contained Suction Pump Dispenser-Mounted Vacuum Source	207	Hoses and System Accessories	214
		Standard Healy and Whip Hoses	215
		Metric- and Balance-Ready Hoses	217

Continued on next page...

S7 Series Hoses	219	100 Jet Pump Central Vacuum Source	224
Hose Adapters, Breakaways, Kits and Spare Parts	221	System Monitor	225
Stage II Vapor Recovery Central Vacuum Sources	222	6280 Vapor Recovery Monitoring System	225
9000 Series Mini-Jet Central Vacuum Pump	222	System Test Equipment	226
VP500 Central Vacuum Vane Pump	223		
VP500C/1 or VP500C/2 Cabinet Models	224		

Fuel Management Systems

Fuel Management System Consoles	227	TSP-HIS Hydrostatic Interstitial Brite™ Sensor	259
TS-550 evo Fuel Management System	227	TSP-DIS Discriminating Interstitial Brite™ Sensor	260
TS-5 Fuel Management System	229	TSP-EIS Electro-Optic Interstitial Sensor	261
TS-550 & TS-5000 Fuel Management Systems	231	TSP-HFS Horizontal Float Sensor Switch	261
Console Accessories	233	TSP-ULS Liquid Sensor	262
Environmental & Tank Monitoring	235	TSP-UHS Universal Hydrostatic Sensor	262
Colibri Tank Monitor	235	TSP-DMS Discriminating Magnetostrictive Sensor	263
TS-EMS Environmental Monitoring System	237	TSP-DDS Discriminating Dispenser Sump Brite™ Sensor	264
In-Station Diagnostics	239	TSP-DTS Discriminating Turbine Sump Brite™ Sensor	264
Tank Sentinel® Consoles	240	TSP-DVS Discriminating Vapor Brite™ Sensor	265
TS-1001 Full Feature Compliance Console	240	TSP-MWS Monitoring Well Brite™ Sensor	265
TS-1001/G Fixed Feature Generator Tank Monitoring Console	242	TSP-HLS Level Sensor	266
TS-504 and TS-508 Fixed Feature Inventory Control Consoles	243	DC400 Dispensing Cutoff System	267
TS-750 Fixed Feature Tank Monitoring and Compliance Kits	245	Sensor Installation Kits	269
Tank Sentinel® Console Accessories	247	Sensor Installation Accessories	271
S940 Sensor Alarm Console	248	External Console Hardware	272
Electronic Line Leak Detectors	249	TS-RA1 Remote Audible and Visible Alarm Unit	272
TS-L300 AutoLearn™	249	TS-RA2 Remote Audible and Visible Alarm Unit	273
Line Sentinel™	251	TS-RK Remote Alarm Acknowledge Unit	274
Probes and Sensors	253	TS-DIM Dispenser Interface Module	275
Leak Detection & Inventory Control Probes	253	TS-TPI Turbine Pump Interface	277
Moorman Level Gauge Kit	255		
Float Kits	256		
Density Measurement Float Kit	257		
Probe Installation Kits	258		

Continued on next page...

TS-ROM2 BriteBox™ Relay Output Module	278	Spare Parts	288
TS-EPS Ethernet Port Server	279	TS-5, TS-550, TS-5000, TS-EMS and TS-550	
External Console Hardware Accessories	279	evo Consoles	288
Software	280	Colibri Consoles	288
System Sentinel™ Remote Fuel		TS-504 and TS-750 Consoles	288
Management Software	280	TS-508 Console	289
System Sentinel AnyWare™ Internet Enabled		TS-1001 Console	289
Fuel Management Software	282	TS-2001 Console	289
Get Connected AnyWare™ Remote		DC400	289
Polling Service	283	TS-LLD	290
Accessories	286	TS-LS300	290
Sump Test System Kit	286	TS-LS500	290
		TS-ST5 Sump Test Kit	290
		Accessories	290

Tank Transport Systems

Transport Systems Overview	291	Hose Tube Doors	313
Transport Systems Solutions	291	Product Drop Elbows	314
Fuel and Vapor Transfer Solutions	292	Dual Point Vapor Recovery Elbow	318
API Bottom Loading Adapters	294	Coaxial Delivery Elbow	320
API Bottom Loading Adapters	294	Attachments	322
API Bottom Loading Adapter Spare Parts	295	Gasket Kit	322
Dust Cap	296	Sight Glass Kit	322
Air Interlock Valves	297	3" Cam and Groove Adapter	323
Three-Way Air Valves	297	4" Cam and Groove Adapter	323
Six-Way Air Valves	299	3" NPT Male Adapter	323
Air Interlock with Limit Switch	301	4" NPT Male Adapter	323
Gravity Drop Adapters	302	Cam and Groove Adapters	324
Female Gravity Drop Adapters	302	Emergency Valves	325
Male Gravity Drop Adapters	303	Mechanically Operated 90 Degree (Victaulic™)	325
Vapor Check Valves	304	Mechanically Operated 90 Degree (Flanged)	326
Threaded Vapor Check Valve	304	Air Assisted 90 Degree (Victaulic™)	327
Flanged Vapor Check Valve	306	Air Assisted 90 Degree (Flanged)	328
Vapor Caps	308	3" Emergency Valve	329
Vapor Return Hose Couplers	310	Side Seal Adapter	330
Air-Operated Sequential Vapor Valves	311	Bulk Pneumatic Pressure Relief Valves	331

Continued on next page...

Victaulic™ is a trademark of Victaulic Company of America.

Optic Control System	333
OCS Overfill Protection Solutions	333
Two-Wire Controller	334
Two-Wire Optic Overfill Probes	334
Two-Wire Optic Retained Product Probes	335
OCS Probe Solutions	336
Probe Holder Solutions	336
Single Socket Solutions	337
Installation Kits	338
Wiring Kits	338
Cross Reference Guide	339

Submersible Turbine Pumps

Since the mid-1950s, Franklin Electric, the parent company of Franklin Fueling Systems, has been involved in the design and manufacture of submersible motors for use in pumping liquids. Building on this extensive history, FFS has contributed innovative product designs for submersible pumps into the twenty-first century. Marketers concerned about fueling times, efficiency, serviceability, reliability and overall quality find it an easy choice to specify FE Petro products from FFS.

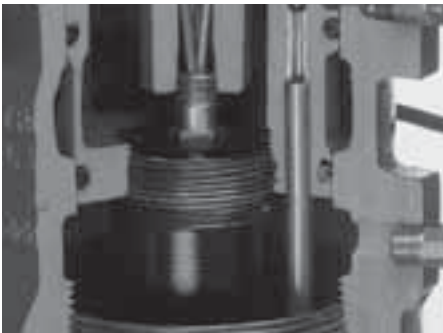
Consider these unique FE Petro product features to improve the profitability of your retail operations:



Faster Fueling



Safety and Ease of Maintenance



Active Air Eliminator



Simple Service

Advantages

Faster Fueling Times - With innovations like MagShell™, FE Petro products set the standard for submersible pump performance.

Active Air Eliminator - FE Petro products come standard with active air elimination, which eliminates air through the highest point in the pump head at all times when the pump is running, assuring air does not pass into discharge piping.

Safety and Ease of Maintenance - FE Petro STPs include a contractor electrical disconnect, which requires loosening only one bolt, allowing motor wiring to be disconnected without venting the dangerous tank vapors into the sump when servicing FE Petro submersible products.

Simple Servicing - If ever required, the pump can be easily removed from the tank by unthreading three bolts. There is no need to disconnect the syphon system or to remove the leak detector from the system to service the STP.

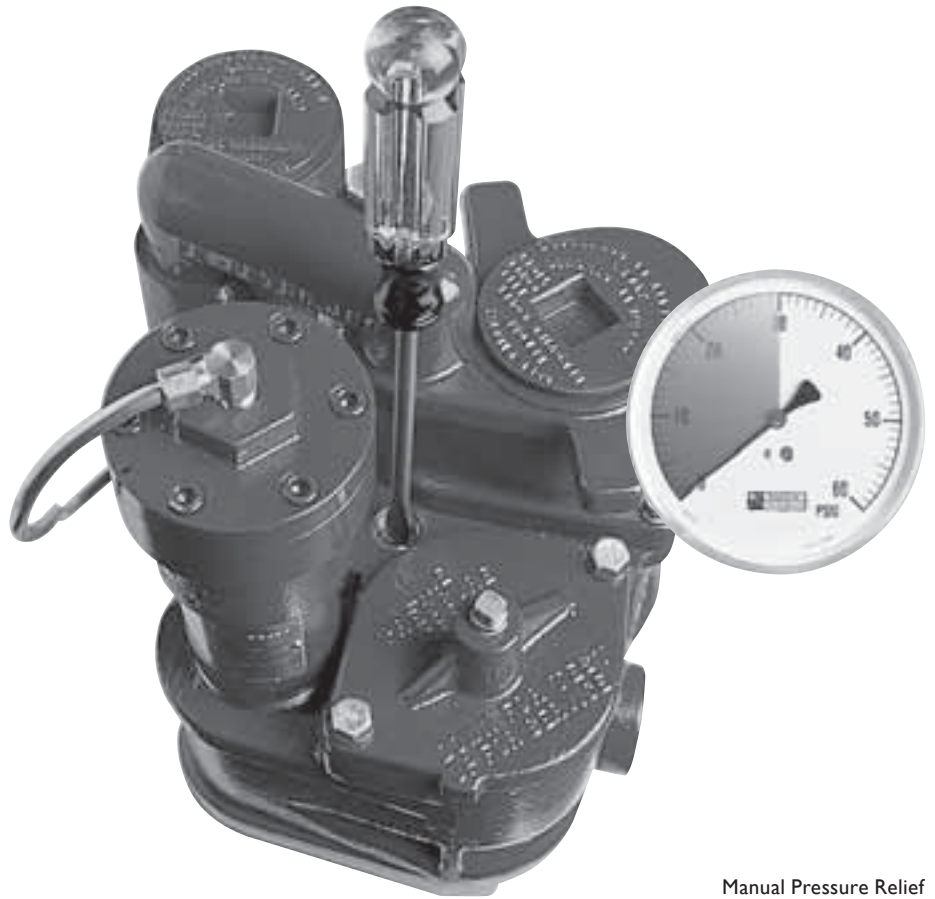
Advantages

Manual Pressure Relief -

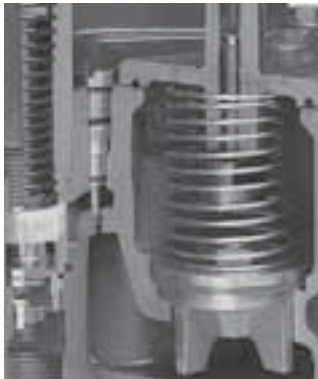
A standard FE Petro feature. A vent screw is provided to bleed line pressure to zero when necessary. By turning this screw, product is diverted back to the tank, dropping line pressure to zero. This reduces fuel discharged into the sump manhole or dispenser pan during servicing, further protecting service technicians and the environment.

Reliable Check Valve - The STP uses FE Petro's proven line check valve. At 2 $\frac{3}{4}$ " in diameter, this valve reduces pressure loss at high flow rates resulting in faster fueling times.

Variable Length - The VL2 pump fits 94% of all known tank diameters and tank bury depth combinations. The VL1 and VL3 are available to handle installations shorter or longer than this range. The telescoping connection is a patented FE Petro feature. Pump length can be set by making one simple measurement and setting the pump length without affecting the UL listing of the pump.



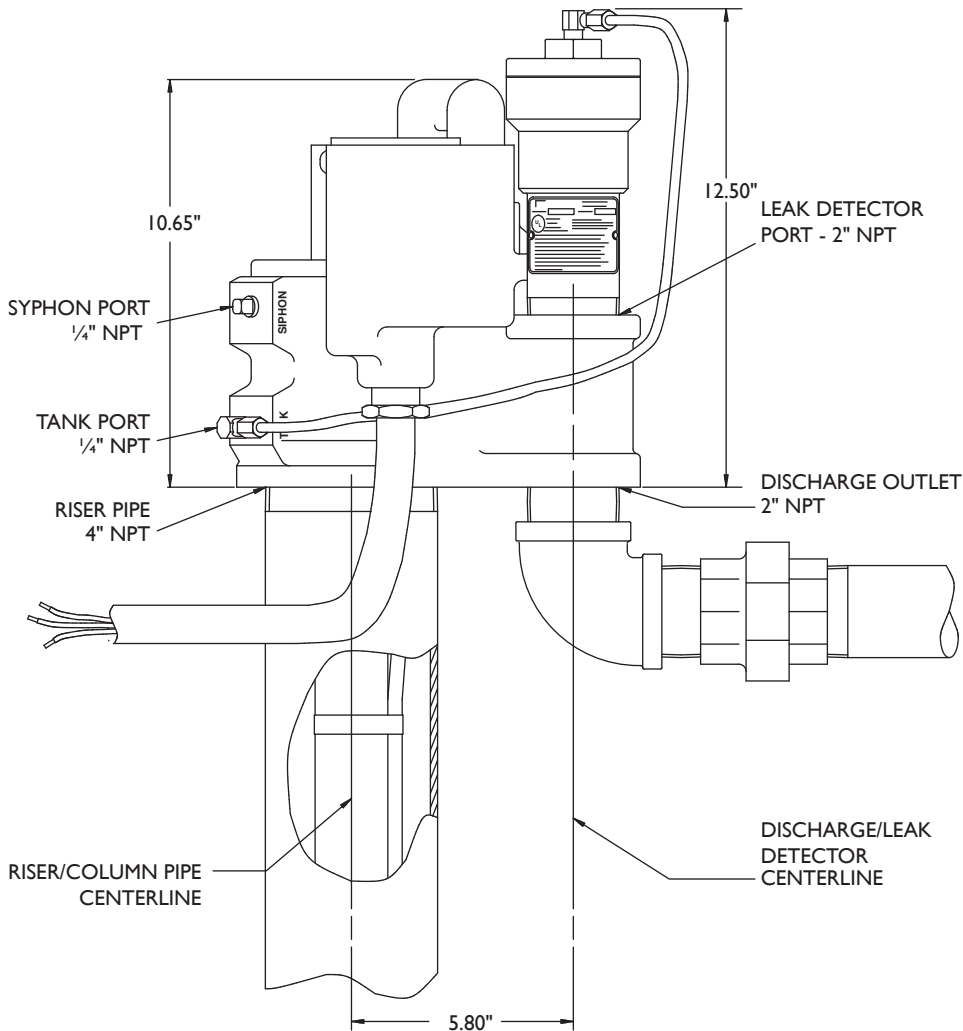
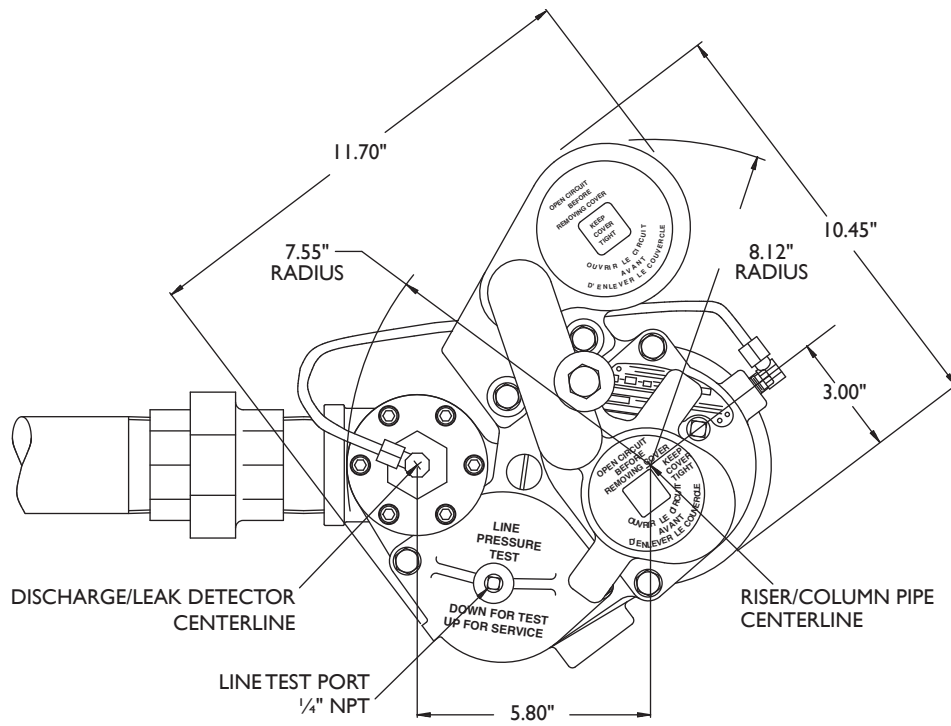
Manual Pressure Relief



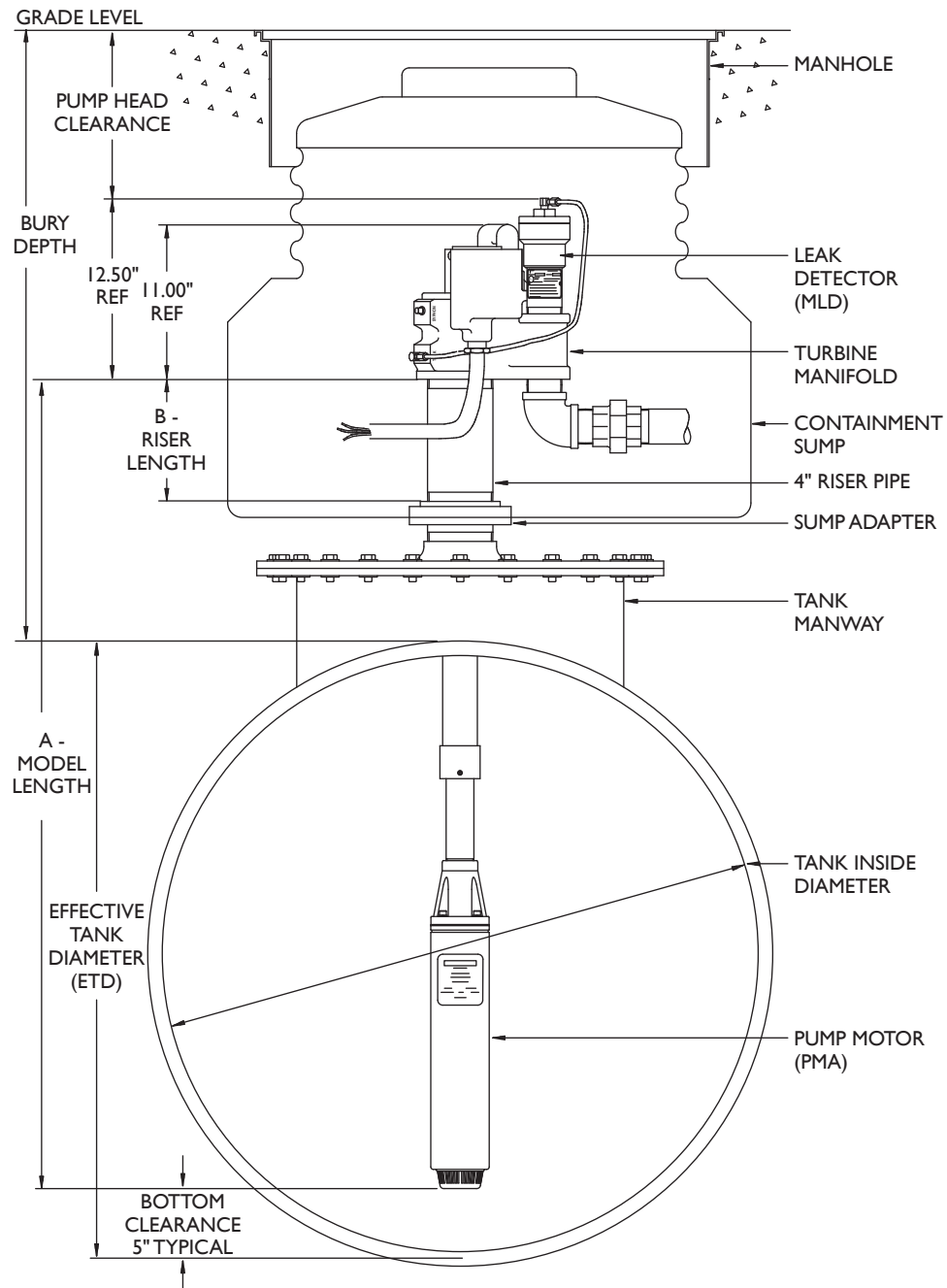
Reliable Check Valve



Variable Length

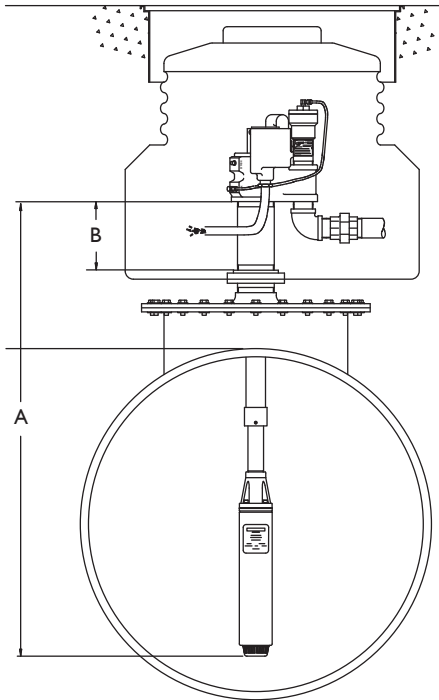


Submersible Turbine Pump Ordering Guide



- Notes:
1. Effective tank diameter (ETD) = Inside tank diameter (to top of 4" bung), including tank manway and/or sump adapter.
 2. Model length (A) = ETD plus riser length minus bottom clearance minus 1" thread engagement.
 3. Riser length (B) = Bury depth (to top of tank) minus pump head clearance minus tank manway and/or minus sump adapter.

Variable Speed Submersible Turbine Pump Specifications



For full diagram see page 11.

Power Requirements

VS models can only be powered by a MagVFC™ controller:

- VS2 models can operate with single- or three-phase incoming power supply to the MagVFC™.
- VS4 models require three-phase incoming power supply to the MagVFC™ for proper operation.
- Incoming power supply to the MagVFC™ can be 200-250 VAC, 50 or 60 Hz.
- MagVFC™ outputs a three-phase, variable frequency signal, valid for FE Petro variable speed pumps only.
- VS2 max. motor draw: 9 Amps.
- VS4 max. motor draw: 15 Amps.
- MagVFC™ max. line draw: 20 Amps.

Pump Motor

- 2 hp or 4 hp, variable speed, two-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Max. flow: VS2 = 110 gpm, VS4 = 140 gpm.
- Max. pressure: selectable operating pressure on MagVFC™ between 24 psi and 42 psi deadhead.
- Available with MagShell™ which results in 45% increased flow area around motor.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- Variable speed models are UL and cUL listed for fuel mixtures containing up to 10% ethanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- Variable speed (non-AG) models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Standard Features

- Variable speed models are available in variable and fixed length options.
- Check valve: 2¾" diameter fluorocarbon seal constructed on cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 40 psi and resets above 35 psi.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.



Variable Speed Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

STP = Basic Model Designation

Note: All STP models include the options for alcohol-gasoline compatibility, variable speed and variable length as part of the base model.

XXXXX = Factory Installed Options

STP model designations may include one or more of the following characters in alphabetical order:

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

M = MagShell™ (flow enhancing, expanded PMA shell)

*R = Model R check valve (24 psi relief/22 psi reset for PLLD)

*W = Model W check valve (16 psi relief/13 psi reset for PPM4000)

*Note: If not otherwise specified, all STP models are supplied with standard model check valve (40 psi relief/35 psi reset for MLD and TS-LS300).

Y = Pump Motor Horsepower Rating

VS2 = 2 hp variable speed

VS4 = 4 hp variable speed

A = Model Length

VL1 = Variable length range #1.

VL2 = Variable length range #2.

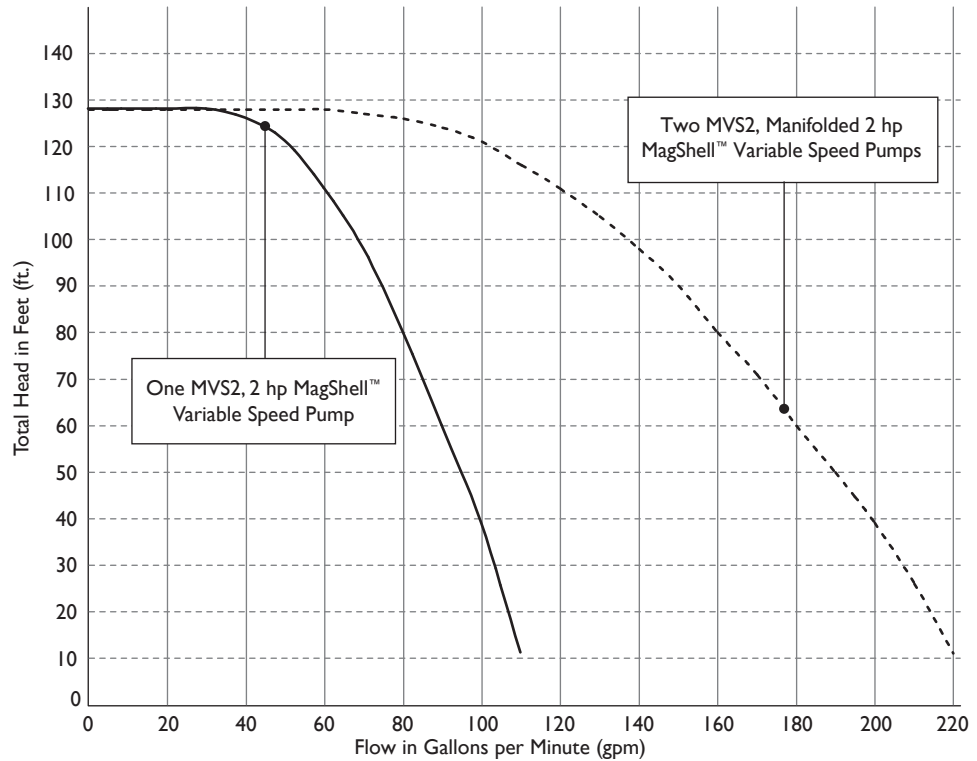
VL3 = Variable length range #3.

Note: VL2 models fit 94% of all known installations.

B = Riser Pipe Length

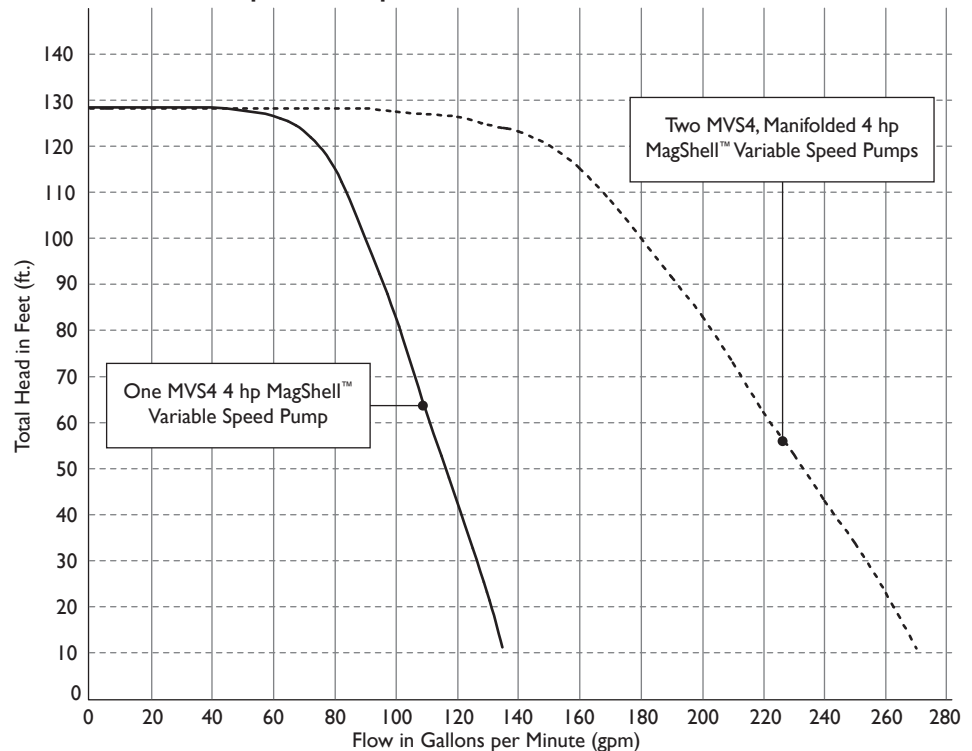
Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 7" to 69" in 1" increments (additional charge for risers 31" or longer).

2 hp Variable Speed Turbine Performance Chart



Note: Performance based on pumping gasoline (0.76 specific gravity). Pressure is taken at the manifold discharge outlet. ISTM and STPMVS2 turbines can only be powered by a MagVFC™ with single- or three-phase incoming power.

4 hp Variable Speed Turbine Performance Chart



Note: Performance based on pumping gasoline (0.76 specific gravity). Pressure is taken at the manifold discharge outlet. ISTMVS4 and STPMVS4 turbines can only be powered by a MagVFC™ with three-phase incoming power.

Variable Speed Submersible Turbine Pumps (variable speed, variable length)

Model	Description	Model Length Range Number	Model Length* Range
STPMVS2-VL1	2 hp variable speed with MagShell™	VL1	59"-87"
STPMVS2-VL2	2 hp variable speed with MagShell™	VL2	90"-151"
STPMVS2-VL3	2 hp variable speed with MagShell™	VL3	122"-213"
STPMVS4-VL1	4 hp variable speed with MagShell™	VL1	64"-92"
STPMVS4-VL2	4 hp variable speed with MagShell™	VL2	95"-156"
STPMVS4-VL3	4 hp variable speed with MagShell™	VL3	127"-218"

Notes: **1. Remove "M" from model number for non-MagShell™ pump motor assembly.**

- All above models are UL and cUL listed for compatibility with fuel mixtures containing up to 10% ethanol with gasoline, diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
- All above models can only be powered by a MagVFC™. 4 hp models require three-phase incoming power supply, 2 hp models can be supplied with single- or three-phase incoming power.
- 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
- For riser pipe lengths 31" to 69", add \$45 to list price.

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Options (specified in model number at time of STP order)

Designation	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
K	IFS (intake filter screen) factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder-Root® PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak

Field Installed Options (intelligent submersible turbine pump specific accessories)

Part Number	Description
5874202800	MagVFC™, 2 hp or 4 hp variable frequency controller, one required per STPMVS2 or VS4
400137908	Syphon check valve, alcohol-gasoline compatible (when ordered with STPMVS2 or VS4)
402459931	Model 65 psi check valve (for slave of manifolded STPMVS2 or VS4 with Veeder-Root® PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STPMVS2 or VS4)
5800300100	STP-DHI dispenser hook isolation for 110 volt dispenser handle switches, up to eight each

Variable Speed Conversion Kits

Part Number	Description
402671901	Kit with 4 hp variable speed non-MagShell™ (PMA VS4)
400693901	Kit with 2 hp variable speed non-MagShell™ (PMA VS2)

Note: Kits include variable speed pump motor assembly, MagVFC™ variable frequency controller, four-wire contractor's plug and installation instructions.

Advantages

Constant Flow - Depending on peak business requirements, marketers now have a choice of either 2 hp or 4 hp variable speed models. 2 hp provides constant 10 gpm (38 lpm) for up to eight fueling positions operating simultaneously, 4 hp for up to 12 positions.

MagVFC™ Design Highlights - The MagVFC™ features a dual seven segment display to show diagnostic faults. A serial interface is standard to connect to INCON System Sentinel™ software for remote reporting of pump alarms and sharing other pump/ATG intelligence. The MagVFC™ detects and displays these system conditions:

- Dry tank (initiates an immediate pump shut-down).
- Continuous pump run.
- Low incoming voltage.
- Pump motor failure.
- Short circuit detection.
- Controller faults.
- Open circuit detection.

For reduced installation cost, a shielded power cable is not required. Pump protection extends pump life and extended run fault alerts a condition that may render line leak detection ineffective. Remote reporting of pump alarms and sharing of IST and ATG intelligence further reduce station operating costs.

Meets EPA Spitback Control - The IST can be adjusted at installation to perform at maximum per nozzle flow rate of 10 gpm (38 lpm) based on the specifications of your piping and dispensing system. This eliminates overpressuring the system, which results in an unnecessarily high hydraulic hammer and need for other control devices.

Intelligent Submersible Turbine Pumps

FE Petro introduced the first variable speed submersible pump for the petroleum industry in 1995. Since that time, high volume marketers around the world have realized the benefits of filling cars faster during peak business periods that only variable speed submersibles can deliver. Station size and volumes have continued to grow. To meet the needs of these high volume retailers, FE Petro offers the intelligent submersible turbine pump, the industry's highest performing 4" diameter submersible pump.



Constant Flow

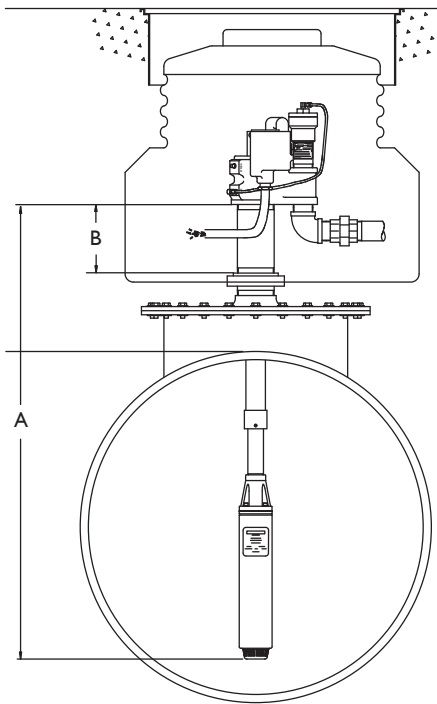


Spitback Control



MagVFC™

Intelligent Submersible Turbine Pump Specifications



For full diagram see page 11.

Power Requirements

IST models can only be powered by a MagVFC™ controller:

- 2 hp models can operate with single- or three-phase incoming power supply to the MagVFC™.
- 4 hp models require three-phase incoming power supply to the MagVFC™ for proper operation.
- Incoming power supply to the MagVFC™ can be 200-250 VAC, 50 or 60 Hz.
- MagVFC™ outputs a three-phase, variable frequency signal, valid for FE Petro variable speed pumps only.
- 2 hp max. motor draw: 9 Amps.
- 4 hp max. motor draw: 15 Amps.
- MagVFC™ max. line draw: 20 Amps.

Pump Motor

- 2 hp or 4 hp, variable speed, two-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Max. flow: 2 hp = 110 gpm, 4 hp = 140 gpm.
- Max. pressure: selectable operating pressure on MagVFC™ between 24 psi and 42 psi deadhead.
- Available with MagShell™, which results in 45% increased flow area around motor.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- IST models imply alcohol-gasoline compatibility for fuel mixtures containing up to 85% ethanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- IST models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Standard Features

- All IST models include variable speed, variable length options and alcohol-gasoline compatibility.
- Check valve: 2¾" diameter fluorocarbon seal constructed on cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 40 psi and resets above 35 psi.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.



Intelligent Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

IST XXXXX Y - A - B

IST = Basic Model Designation

Note: All IST models include alcohol-gasoline compatibility, variable speed and variable length as part of the base model.

XXXXX = Factory Installed Options

IST model designations may include one or more of the following characters in alphabetical order:

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

M = MagShell™ (flow enhancing, expanded PMA shell)

R* = Model R check valve (24 psi relief/22 psi reset for PLLD)

W* = Model W check valve (16 psi relief/13 psi reset for PPM4000)

*Note: If not otherwise specified, all IST models are supplied with standard model check valve (40 psi relief/35 psi reset for MLD and TS-LS300).

Y = Pump Motor Horsepower Rating**

VS4 = 4 hp variable speed

**Note: If not otherwise specified, 2 hp variable speed is implied.

A = Model Length

1 = 2 hp variable length, 59"-87"

2 = 2 hp variable length, 90"-151"

3 = 2 hp variable length, 122"-213"

VL1 = 4 hp variable length, 64"-92"

VL2 = 4 hp variable length, 95"-156"

VL3 = 4 hp variable length, 127"-218"

Note: IST-2 and ISTVS4-VL2 models fit 94% of all known installations.

B = Riser Pipe Length

Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 7" to 69" in 1" increments (additional charge for risers 31" or longer).

Intelligent Submersible Turbine Pumps
(variable speed, variable length, AG compatible)

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

- Notes: **1. Remove "M" from model number for non-MagShell™ pump motor assembly.**
 2. All above models are compatible with fuel mixtures containing up to 85% ethanol with gasoline, diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
 3. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
 4. All above models can only be powered by a MagVFC™. 4 hp models require three-phase incoming power supply, 2 hp models can be supplied with single- or three-phase incoming power.
 5. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Options
(specified in model number at time of IST order)

Designation	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
K	IFS (intake filter screen) factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder-Root® PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak

Field Installed Options
(intelligent submersible turbine pump specific accessories)

Part Number	Description
5874202800	MagVFC™, 2 hp or 4 hp variable frequency controller, one required per IST
400137908	Syphon check valve, alcohol-gasoline compatible (when ordered with IST)
402459931	Model 65 psi check valve (for slave of manifolded ISTs with Veeder-Root® PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one IST)
5800300100	STP-DHI dispenser hook isolation for 110 volt dispenser handle switches, up to eight each

Variable Speed Conversion Kits
(AG compatible)

Part Number	Description
400693905	Kit with AG compatible 2 hp variable speed non-MagShell™ (PMAAGVS2)
400693906	Kit with AG compatible 2 hp variable speed with MagShell™ (PMAAGMVS2)
402671905	Kit with AG compatible 4 hp variable speed non-MagShell™ (PMAAGVS4)
402671906	Kit with AG compatible 4 hp variable speed with MagShell™ (PMAAGMVS4)

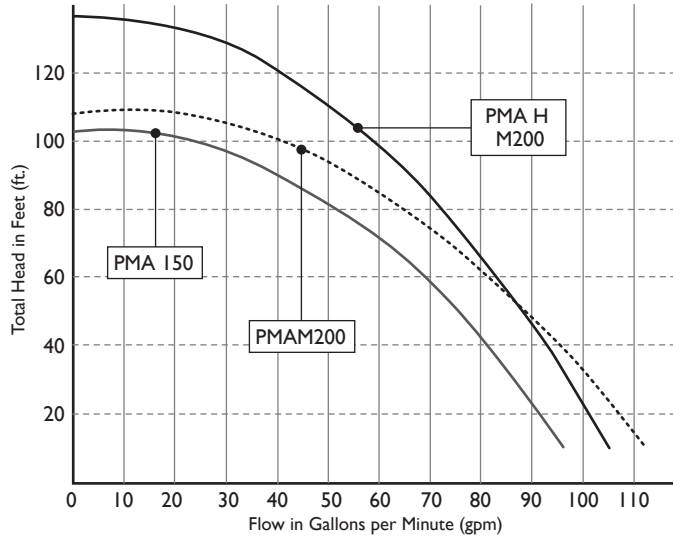
Note: Kits include variable speed pump motor assembly, MagVFC™ variable frequency controller, four-wire contractor's plug and installation instructions.

Fixed Speed Submersible Turbine Pumps

FE Petro has contributed innovative product designs for submersible pumps into the twenty-first century. With the introduction of a 2 hp fixed speed submersible pump, FE Petro also introduced the MagShell™ innovation to improve the profitability of retail operations.



2 hp vs. 1 1/2 hp Pump Performance



Advantages

Highest Flow - The STPM200 with MagShell™ provides flow rates previously unavailable in 4" fixed speed submersible turbine pumps. One pump can provide good flow rates for up to 10 retail nozzles flowing simultaneously. FE Petro offers the 2 hp performance in both standard and high pressure models to fit any application.

MagShell™ - MagShell™ is a feature on our 2 hp models. The pump motor shell is expanded to increase the flow area around the motor by 45%, resulting in significantly higher flow rates. MagShell™ is constructed of 304 stainless steel and is the highest performing 2 hp fixed speed submersible ever offered.

Faster Fueling Times - FE Petro 1 1/2 and 2 hp turbines fuel cars faster during peak business hours due to the higher pump performance.

Easy Upgrade - If you have existing STPs in your stations and want faster flow rates, consider upgrading to a 2 hp MagShell™ pump motor from FE Petro. The pump motor is compatible with existing FE Petro and competitive-make submersible pumps and can increase flow rates (1 to 2 gpm per nozzle with 5-8 nozzles operating) and go easy on your budget at the same time. FE Petro pump motors sell for about one-third the cost of a complete pump change-out.

2 hp Fixed Speed Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

STP = Basic Model Designation

XXXXX = Factory Installed Options

STP model designations may include one or more of the following characters in alphabetical order:

AG = Alcohol-gasoline compatible (85% ethanol or 100% biodiesel capable)
 Note: Standard models 0% to 10% ethanol capable.

F = Floating suction adapter (1½" NPT female adapter)

H = High pressure (45 psi deadhead output)

K = Intake filter screen (IFS, factory installed to PMA)

M = MagShell™ (flow enhancing, expanded PMA shell)

*R = Model R check valve (24 psi relief/22 psi reset for PLLD)

*W = Model W check valve (16 psi relief/13 psi reset for PPM4000)

*Note: If not otherwise specified, all STP models supplied with standard model check valve (40 psi relief/35 psi reset for MLD and TS-LS300).

Y = Pump Motor Horsepower Rating

200 = 2 hp fixed speed

A = Model Length

VL1 = Variable length range #1.

VL2 = Variable length range #2.

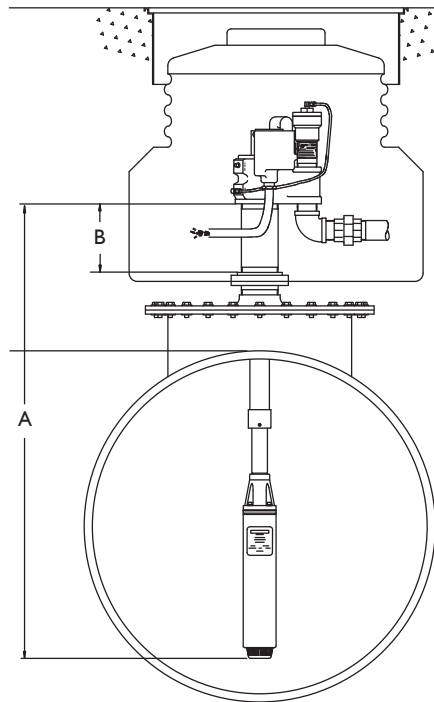
VL3 = Variable length range #3.

Note: VL2 models fit 94% of all known installations.

B = Riser Pipe Length

Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 7" to 69" in 1" increments (additional charge for risers 31" or longer).

2 hp Fixed Speed Submersible Turbine Pump Specifications



For full diagram see page 11.

Power Requirements

- 2 hp fixed speed models require single-phase, 208-230 VAC, 60 Hz incoming power.
- 2 hp fixed speed models incorporate a starting and running capacitor, with internal bleed resistor, rated 370 Volt, 40 microfarad.
- STP-SCI single-phase smart controllers and STP-CBS single-phase control boxes are available for 2 hp pump control.
- Max. motor draw: 12 Amps.

Pump Motor

- 2 hp fixed speed, 3450 rpm, multi-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Standard pressure (two-stage) model, max. flow = 120 gpm, max. pressure = 36 psi.
- High pressure (H200, three-stage) model, max flow = 105 gpm, max. pressure = 45 psi.
- Available with MagShell™ for 45% increased flow area around motor.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- Standard STP models are UL and cUL listed for fuel mixtures containing up to 10% ethanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG (AG compatible) models are for fuel mixtures containing up to 85% ethanol or 100% biodiesel, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- 2 hp fixed speed models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Standard Features

- 2 hp fixed speed models are available in variable length and fixed length options.
- Check valve: 2¾" diameter fluorocarbon seal constructed on cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 40 psi and resets above 35 psi.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Approvals

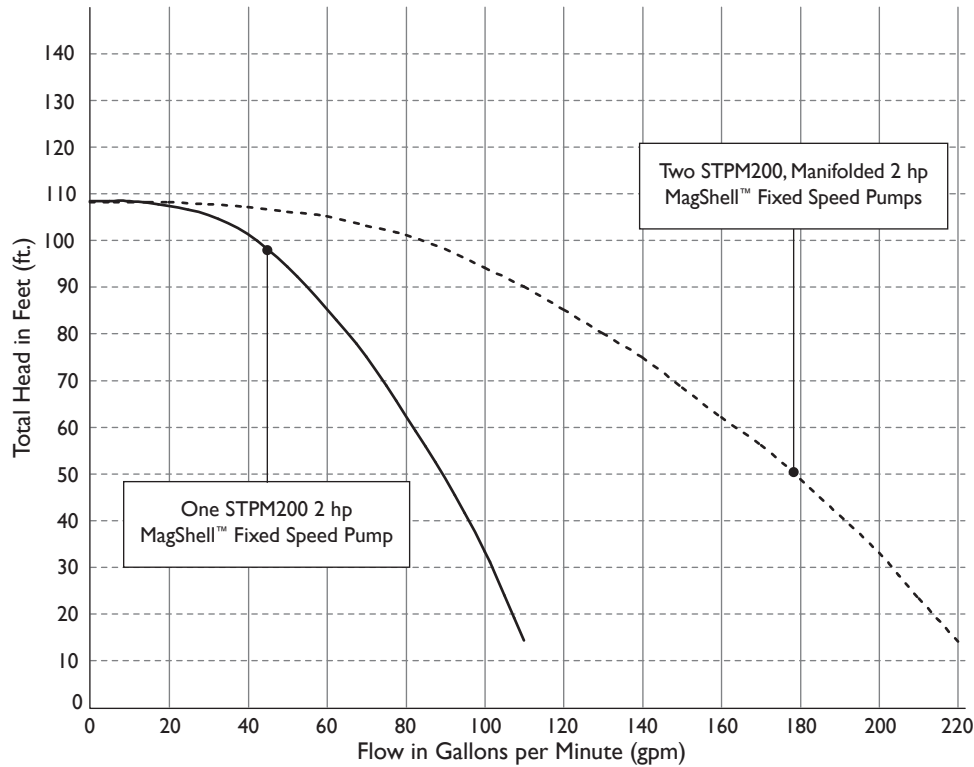
- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

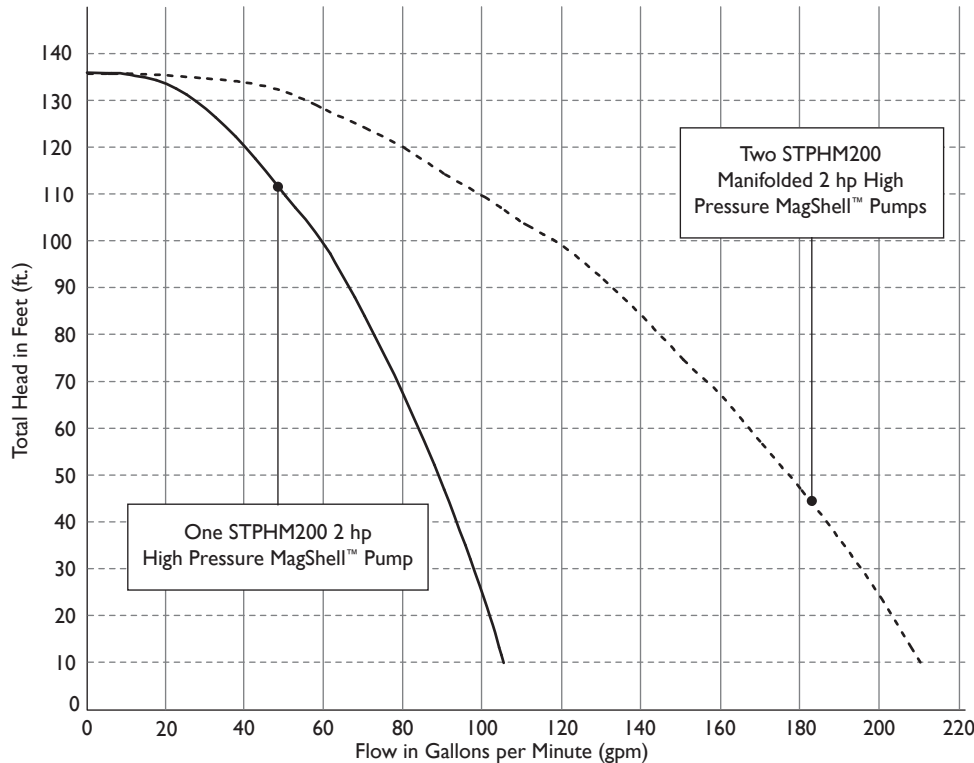


2 hp Fixed Speed Turbine Performance Chart



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. STPM200 models are powered by a single-phase, 60 Hz, 208/230 Volt power supply.

2 hp High Pressure Fixed Speed Turbine Performance Chart



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. STPHM200 models are powered by a single-phase, 60 Hz, 208/230 Volt power supply.

2 hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length* Range
STPM200-VL1	2 hp fixed speed with MagShell™	VL1	63"-91"
STPM200-VL2	2 hp fixed speed with MagShell™	VL2	94"-154"
STPM200-VL3	2 hp fixed speed with MagShell™	VL3	126"-217"
STPHM200-VL1	2 hp high pressure fixed speed with MagShell™	VL1	63"-92"
STPHM200-VL2	2 hp high pressure fixed speed with MagShell™	VL2	94"-155"
STPHM200-VL3	2 hp high pressure fixed speed with MagShell™	VL3	126"-218"
Alcohol-Gasoline Model	Description	Model Length Range Number	Model Length* Range
STPAGM200-VL1	2 hp AG fixed speed with MagShell™	VL1	63"-91"
STPAGM200-VL2	2 hp AG fixed speed with MagShell™	VL2	94"-154"
STPAGM200-VL3	2 hp AG fixed speed with MagShell™	VL3	126"-217"
STPAGHM200-VL1	2 hp AG high pressure fixed speed with MagShell™	VL1	63"-92"
STPAGHM200-VL2	2 hp AG high pressure fixed speed with MagShell™	VL2	94"-155"
STPAGHM200-VL3	2 hp AG high pressure fixed speed with MagShell™	VL3	126"-218"

- Notes: **1. Remove "M" from model number for non-MagShell™ pump motor assembly.**
 2. STP models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
 STPAG models are compatible with fuel mixtures containing: up to 100% biodiesel or 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
 3. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
 4. All above models require single-phase, 208-230 VAC, 60 Hz incoming power.
 5. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Options (specified in model number at time of STP order)

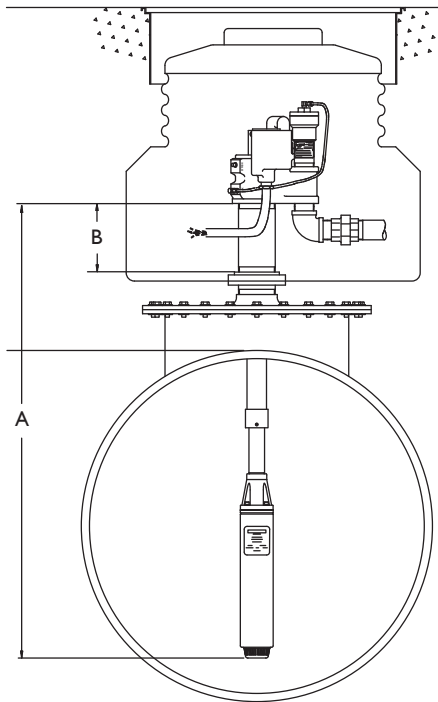
Designation	Description
F	Floating suction adapter, 1 ½" NPT female, must be factory installed
K	IFS (intake filter screen) factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder-Root® PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak

Field Installed Options (2 hp fixed speed specific accessories)

Part Number	Description
400137908	Syphon check valve, alcohol-gasoline compatible (when ordered with STP)
400818921	STP-CBS, single-phase control box with lockout switch, 110 Volt coil
402312921	STP-DHI-SCI, combo DHI with factory wired STP-SCI (when purchased with a 4" STP)
402312921	STP-DHI-SCI, combo DHI with factory wired STP-SCI (when purchased without a 4" STP)*
402313921	STP-DHI-CBS, combo DHI with factory wired STP-CBS
402459931	Model 65 psi check valve (for slave of manifolded STPs with Veeder-Root® PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP)
5800100215	STP-SCI, single-phase smart controller (when purchased without a 4" STP)
5800100215	STP-SCI, single-phase smart controller (when purchased with a 4" STP)*
5800300100	STP-DHI, dispenser hook isolation for 110 Volt dispenser handle switches, up to eight each

*When purchasing STP-SCI or STP-DHI-SCI in equal quantities of fixed speed 4" STPs, the STP-SCI or STP-DHI-SCI will be invoiced at special discount pricing.

1 1/2 hp Fixed Speed Submersible Turbine Pump Specifications



For full diagram see page 11.

Power Requirements

- 1 1/2 hp fixed speed models require single-phase, 208-230 VAC, 60 Hz incoming power.
- 1 1/2 hp fixed speed models incorporate a starting and running capacitor, with internal bleed resistor, rated 370 Volt, 15 microfarad.
- STP-SCI single-phase smart controllers and STP-CBS single-phase control boxes are available for 1 1/2 hp pump control.
- Max. motor draw: 11 Amps.

Pump Motor

- 1 1/2 hp fixed speed, 3450 rpm, multi-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Standard pressure (two-stage) model, max. flow = 100 gpm, max. pressure = 34 psi.
- High pressure (H150, three-stage) model, max. flow = 65 gpm, max. pressure = 46 psi.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- Standard models are UL and cUL listed for fuel mixtures containing up to 10% ethanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG models are compatible for fuel mixtures containing up to 85% ethanol or 100% biodiesel, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- 1 1/2 hp fixed speed models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Standard Features

- 1 1/2 hp fixed speed models are available in variable and fixed length options.
- Check valve: 2 3/4" diameter fluorocarbon seal constructed on cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 40 psi and resets above 35 psi.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.



1 1/2 hp Fixed Speed Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

STP = Basic Model Designation

XXXXX = Factory Installed Options

STP model designations may include one or more of the following characters in alphabetical order:

AG = Alcohol-gasoline compatible (85% ethanol or 100% biodiesel capable)
Note: Standard models 0% to 10% ethanol capable.

F = Floating suction adapter (1 1/2" NPT female adapter)

H = High pressure (46 psi deadhead output)

K = Intake filter screen (IFS, factory installed to PMA)

*R = Model R check valve (24 psi relief/22 psi reset for PLLD)

*W = Model W check valve (16 psi relief/13 psi reset for PPM4000)

*Note: If not otherwise specified, all STP models supplied with standard model check valve (40 psi relief/35 psi reset for MLD and TS-LS300).

Y = Pump Motor Horsepower Rating

150 = 1 1/2 hp fixed speed

A = Model Length

VL1 = Variable length range #1.

VL2 = Variable length range #2.

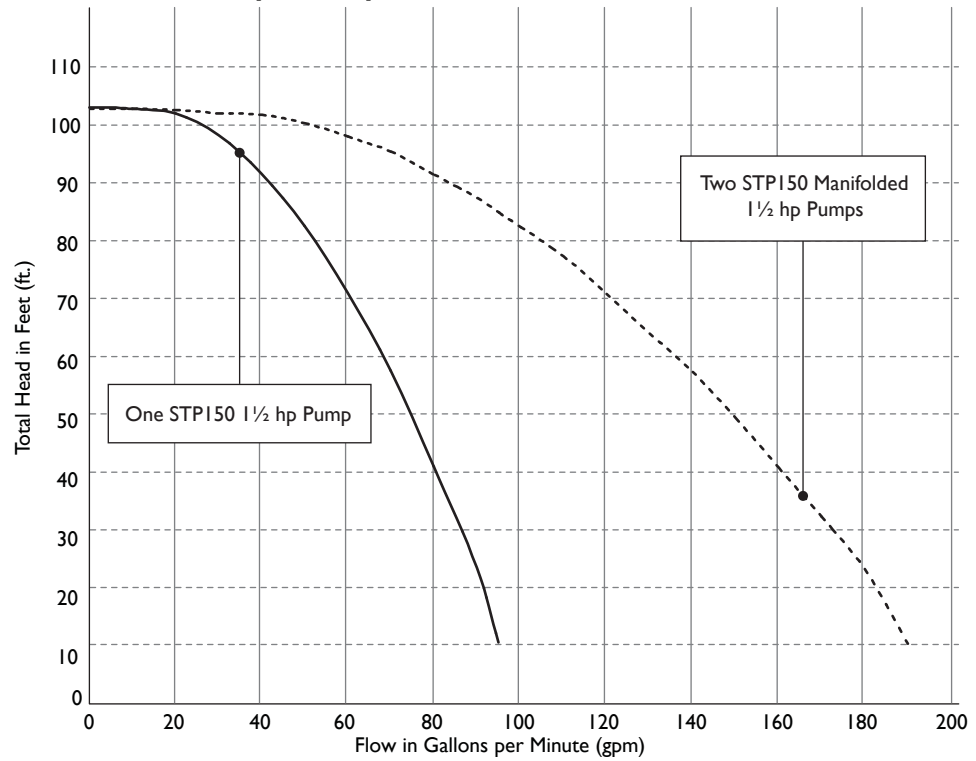
VL3 = Variable length range #3.

Note: VL2 models fit 94% of all known installations.

B = Riser Pipe Length

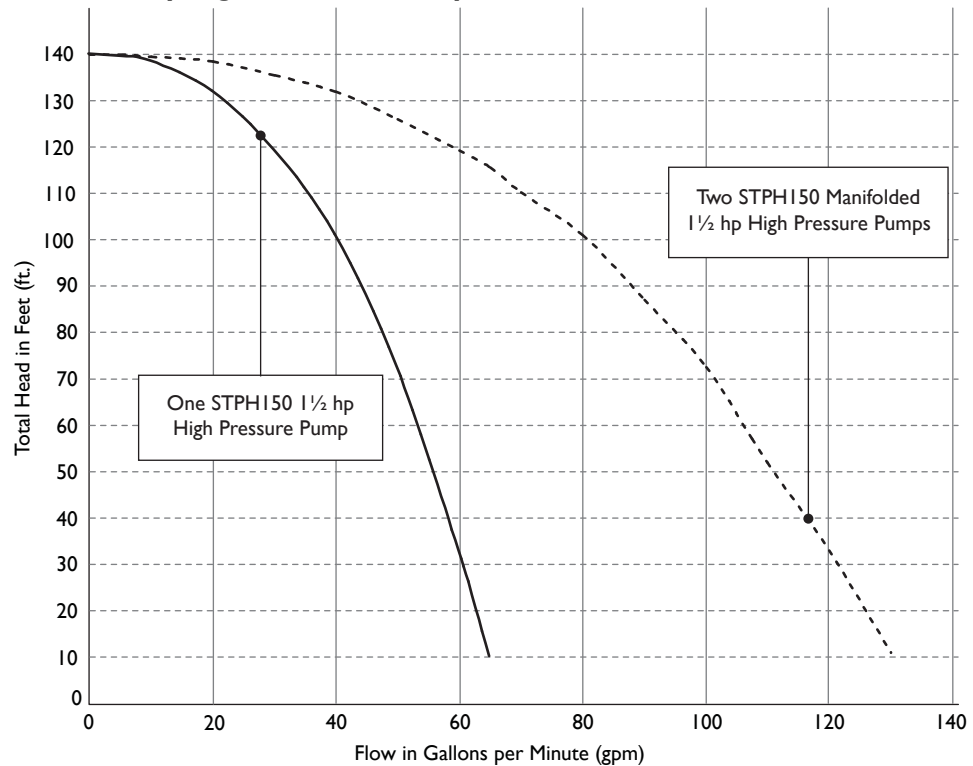
Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 7" to 69" in 1" increments (additional charge for risers 31" or longer).

1 ½ hp Fixed Speed Turbine Performance Chart



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. STPI150 models are powered by a single-phase, 60 Hz, 208/230 Volt power supply.

1 ½ hp High Pressure Fixed Speed Turbine Performance Chart



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. STPH150 models are powered by a single-phase, 60 Hz, 208/230 Volt power supply.

1 1/2 HP Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length* Range
STPI50-VL1	1 1/2 hp fixed speed	VL1	60"-88"
STPI50-VL2	1 1/2 hp fixed speed	VL2	91"-152"
STPI50-VL3	1 1/2 hp fixed speed	VL3	123"-214"
STPHI50-VL1	1 1/2 hp high pressure fixed speed	VL1	61"-89"
STPHI50-VL2	1 1/2 hp high pressure fixed speed	VL2	92"-152"
STPHI50-VL3	1 1/2 hp high pressure fixed speed	VL3	124"-215"
Alcohol-Gasoline Model	Description	Model Length Range Number	Model Length* Range
STPAGI50-VL1	1 1/2 hp AG fixed speed	VL1	60"-88"
STPAGI50-VL2	1 1/2 hp AG fixed speed	VL2	91"-152"
STPAGI50-VL3	1 1/2 hp AG fixed speed	VL3	123"-214"
STPAGHI50-VL1	1 1/2 hp AG high pressure fixed speed	VL1	61"-89"
STPAGHI50-VL2	1 1/2 hp AG high pressure fixed speed	VL2	92"-152"
STPAGHI50-VL3	1 1/2 hp AG high pressure fixed speed	VL3	124"-215"

Notes: 1. STP models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.

STPAG models are compatible with fuel mixtures containing up to 100% biodiesel or 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.

2. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.

3. All above models require single-phase, 208-230 VAC, 60 Hz incoming power.

4. *4" riser pipe, if supplied locally, must be 4 1/2" OD by 3/16" WT tubing.

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Options

(specified in model number at time of STP order)

Designation	Description
F	Floating suction adapter, 1 1/2" NPT female, must be factory installed
K	IFS (intake filter screen), factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder-Root® PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak

Field Installed Options

(1 1/2 hp fixed speed specific accessories)

Part Number	Description
400137908	Syphon check valve, alcohol-gasoline compatible (when ordered with STP)
400818921	STP-CBS, single-phase control box with lockout switch, 110 Volt coil
402312921	STP-DHI-SCI, combo DHI with factory wired STP-SCI (when purchased with a 4" STP)
402312921	STP-DHI-SCI, combo DHI with factory wired STP-SCI (when purchased without a 4" STP)*
402313921	STP-DHI-CBS, combo DHI with factory wired STP-CBS
402459931	Model 65 psi check valve (for slave of manifolded STPs with Veeder-Root® PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP)
5800100215	STP-SCI, single-phase smart controller (when purchased without a 4" STP)
5800100215	STP-SCI, single-phase smart controller (when purchased with a 4" STP)*
5800300100	STP-DHI, dispenser hook isolation for 110 Volt dispenser handle switches, up to eight each

*When purchasing STP-SCI or STP-DHI-SCI in equal quantities of fixed speed 4" STPs, the STP-SCI or STP-DHI-SCI will be invoiced at special discount pricing.

1/3 and 3/4 HP Fixed Speed Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

STP = Basic Model Designation

XXXXX = Factory Installed Options

STP model designations may include one or more of the following characters in alphabetical order:

AG = Alcohol-gasoline compatible (85% ethanol or 100% biodiesel capable)
Note: Standard models 0% to 10% ethanol capable.

F = Floating suction adapter (1 1/2" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

*R = Model R check valve (24 psi relief/22 psi reset for PLLD)

*W = Model W check valve (16 psi relief/13 psi reset for PPM4000)

*Note: If not otherwise specified, all STP models supplied with standard model check valve (40 psi relief/35 psi reset for MLD and TS-LS300)

Y = Pump Motor Horsepower Rating

33 = 1/3 hp fixed speed

75 = 3/4 hp fixed speed

A = Model Length**

VL1 = Variable length range #1.

VL2 = Variable length range #2.

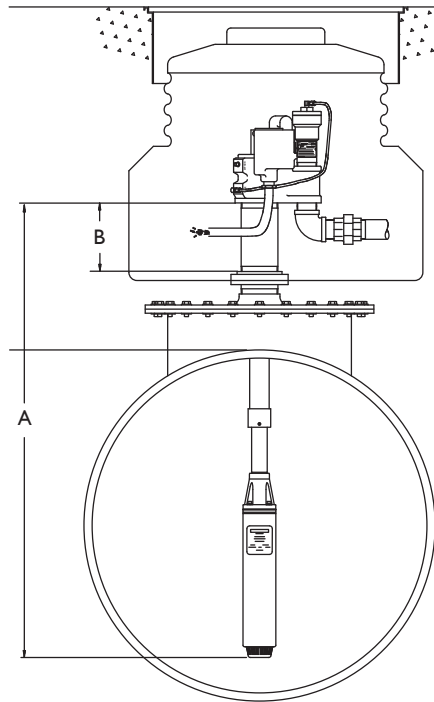
VL3 = Variable length range #3.

Note: VL2 models fit 94% of all known installations.

B = Riser Pipe Length

Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 7" to 69" in 1" increments (additional charge for risers 31" or longer).

1/3 and 3/4 HP Fixed Speed Submersible Turbine Pump Specifications



For full diagram see page 11.

Power Requirements

- 1/3 and 3/4 hp fixed speed models require single-phase, 208-230 VAC, 60 Hz incoming power.
- 1/3 and 3/4 hp fixed speed models incorporate a starting and running capacitor, with internal bleed resistor, rated 370 Volt, 15 microfarad.
- STP-SCI single-phase smart controllers and STP-CBS single-phase control boxes are available for 1/3 and 3/4 hp pump control.
- 1/3 hp max. motor draw: 4 Amps.
- 3/4 hp max. motor draw: 7 Amps.

Pump Motor

- 1/3 and 3/4 hp fixed speed, 3450 rpm, two-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- 1/3 hp models have a max. flow of 40 gpm and a max. pressure of 28 psi.
- 3/4 hp models have a max. flow of 65 gpm and a max. pressure of 31 psi.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- Standard models are UL and cUL listed for fuel mixtures containing up to 10% ethanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG models are compatible with fuel mixtures containing up to 85% ethanol or 100% biodiesel, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- 1/3 and 3/4 hp fixed speed models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Standard Features

- 1/3 and 3/4 hp fixed speed models are available in variable and fixed length options.
- Check valve: 2 3/4" diameter fluorocarbon seal constructed on cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 40 psi and resets above 35 psi.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Approvals

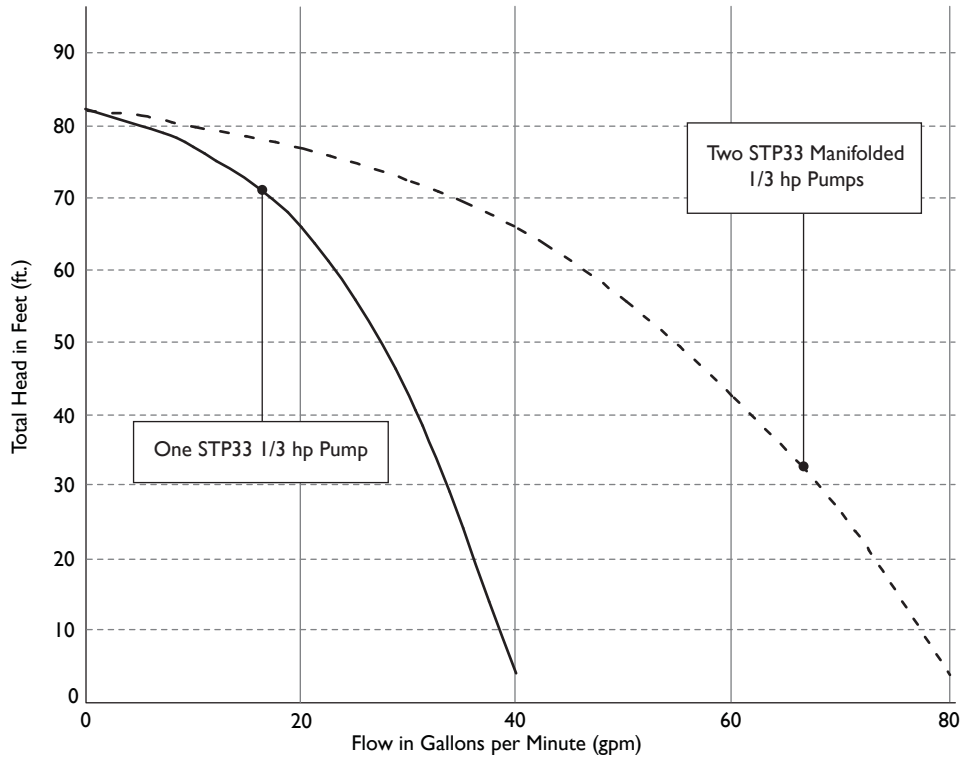
- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

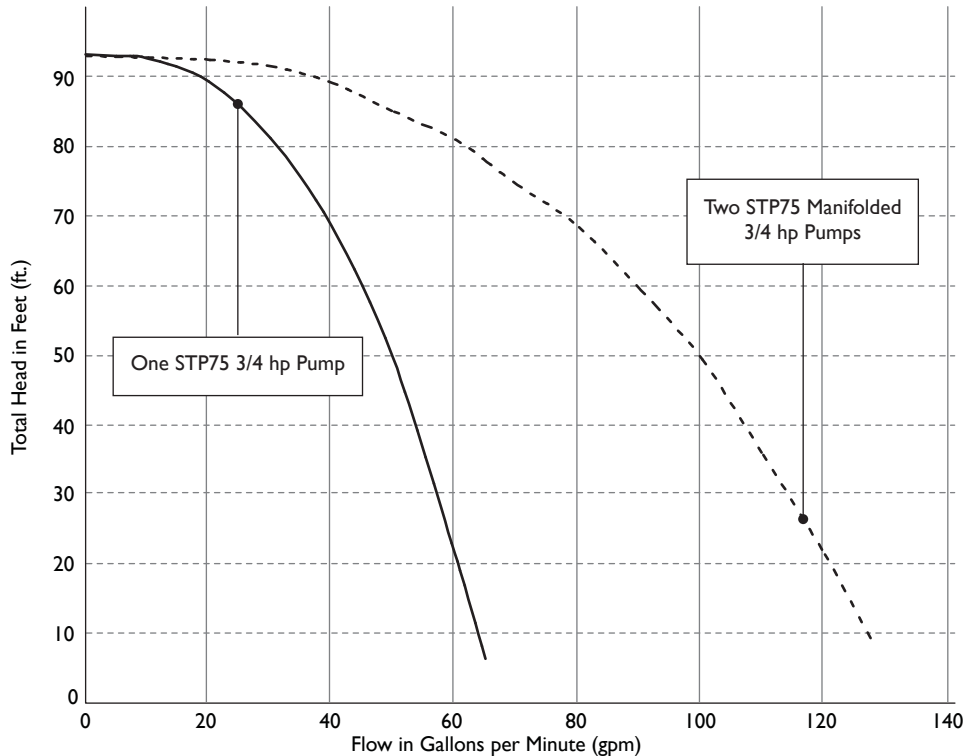


1/3 hp Fixed Speed Turbine Performance Chart



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. STP33 models are powered by a single-phase, 60 Hz, 208/230 Volt power supply.

3/4 hp Fixed Speed Turbine Performance Chart



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. STP75 models are powered by a single-phase, 60 Hz, 208/230 Volt power supply.

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

Model	Description	Model Length Range Number	Model Length* Range
STP33-VL1	1/3 hp fixed speed	VL1	55"-83"
STP33-VL2	1/3 hp fixed speed	VL2	86"-147"
STP33-VL3	1/3 hp fixed speed	VL3	118"-209"
STP75-VL1	3/4 hp fixed speed	VL1	57"-86"
STP75-VL2	3/4 hp fixed speed	VL2	88"-149"
STP75-VL3	3/4 hp fixed speed	VL3	120"-212"
Alcohol-Gasoline Model	Description	Model Length Range Number	Model Length* Range
STPAG33-VL1	1/3 hp AG fixed speed	VL1	55"-83"
STPAG33-VL2	1/3 hp AG fixed speed	VL2	86"-147"
STPAG33-VL3	1/3 hp AG fixed speed	VL3	118"-209"
STPAG75-VL1	3/4 hp AG fixed speed	VL1	57"-86"
STPAG75-VL2	3/4 hp AG fixed speed	VL2	88"-149"
STPAG75-VL3	3/4 hp AG fixed speed	VL3	120"-212"

- Notes: 1. STP models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
 STPAG models are compatible with fuel mixtures containing up to 100% biodiesel or 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
 2. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
 3. All above models require single-phase, 208-230 VAC, 60 Hz incoming power.
 4. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
 *Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Options
 (specified in model number at time of STP order)

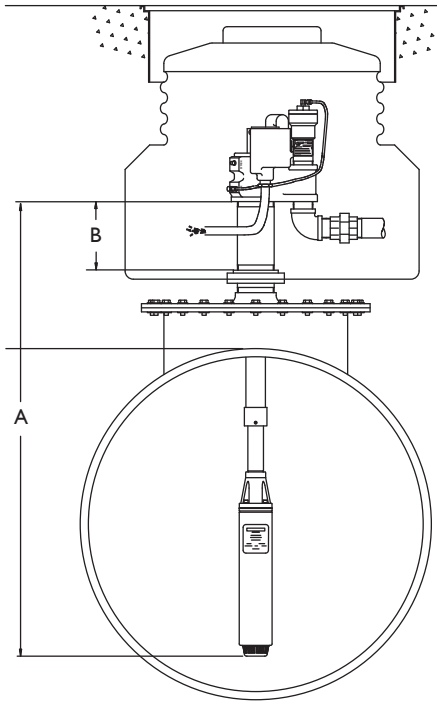
Designation	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
K	IFS (intake filter screen), factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder-Root® PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak

Field Installed Options(1/3 and 3/4 hp fixed speed specific accessories)

Part Number	Description
400137908	Syphon check valve, alcohol-gasoline compatible (when ordered with STP)
400818921	STP-CBS, single-phase control box with lockout switch, 110 Volt coil
402312921	STP-DHI-SCI, combo DHI with factory wired STP-SCI (when purchased with a 4" STP)
402312921	STP-DHI-SCI, combo DHI with factory wired STP-SCI (when purchased without a 4" STP)*
402313921	STP-DHI-CBS, combo DHI with factory wired STP-CBS
402459931	Model 65 psi check valve (for slave of manifolded STPs with Veeder-Root® PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP)
5800100215	STP-SCI, single-phase smart controller (when purchased without a 4" STP)
5800100215	STP-SCI, single-phase smart controller (when purchased with a 4" STP)*
5800300100	STP-DHI, dispenser hook isolation for 110 Volt dispenser handle switches, up to eight each

*When purchasing STP-SCI or STP-DHI-SCI in equal quantities of fixed speed 4" STPs, the STP-SCI or STP-DHI-SCI will be invoiced at special discount pricing.

Fixed Length Submersible Turbine Pump Specifications



For full diagram see page 11.

Power Requirements

- Fixed length, fixed speed models require single-phase, 208-230 VAC, 60 Hz incoming power.
- Fixed length, fixed speed models are available in 1/3, 3/4, 1 1/2 and 2 hp versions.
- Fixed length, fixed speed models incorporate a starting and running capacitor with internal bleed resistor.
- A 370 Volt, 15 microfarad rated capacitor is used with 1/3, 3/4 and 1 1/2 hp fixed length, fixed speed versions.
- A 370 Volt, 40 microfarad rated capacitor is used with 2 hp fixed length, fixed speed versions.
- STP-SCI single-phase smart controllers and STP-CBS single-phase control boxes are available for fixed speed pump control.

Pump Motor

- Fixed speed, 3450 rpm, multi-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- 1/3 and 3/4 hp fixed speed models are available as two-stage versions.
- 1 1/2 and 2 hp fixed speed models are available in standard pressure (two-stage) versions and high pressure (H option, three-stage) versions.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- Fixed length STP models are UL and cUL listed for fuel mixtures containing up to 10% ethanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- AG (alcohol-gasoline) models are compatible with fuel mixtures containing up to 85% ethanol or 100% biodiesel, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- Fixed length models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Standard Features

- Check valve: 2 3/4" diameter fluorocarbon seal constructed on cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 40 psi and resets above 35 psi.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.



Fixed Length Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

STP = Basic Model Designation

XXXXX = Factory Installed Options

STP model designations may include one or more of the following characters in alphabetical order:

AG = Alcohol-gasoline compatible (85% ethanol or 100% biodiesel capable)
 Note: Standard models 0% to 10% ethanol capable.

F = Floating suction adapter (1 1/2" NPT female adapter)

H = High pressure (1 1/2 hp and 2 hp models only)

K = Intake filter screen (IFS, factory installed to PMA)

M = MagShell™ (2 hp models only)

*R = Model R check valve (24 psi relief/22 psi reset for PLLD)

*W = Model W check valve (16 psi relief/13 psi reset for PPM4000)

*Note: If not otherwise specified, all STP models supplied with standard model check valve (40 psi relief/35 psi reset for MLD and TS-LS300).

Y = Pump Motor Horsepower Rating

33 = 1/3 hp fixed speed

75 = 3/4 hp fixed speed

150 = 1 1/2 hp fixed speed

200 = 2 hp fixed speed

A = Model Length

Model length is expressed as three numeric characters that indicate the length of the STP from the turbine manifold bottom to the pump motor inlet in inches, available from 37" to 211" (additional charge for models 133" and longer).

B = Riser Pipe Length

Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 7" to 69" in 1" increments (additional charge for risers 31" or longer).

Fixed Length Submersible Turbine Pumps

Model	Description	Model Length* Range
STP33	1/3 hp fixed speed	37"-132"
STP75	3/4 hp fixed speed	37"-132"
STP150	1 1/2 hp fixed speed	37"-132"
STPH150	1 1/2 hp high pressure fixed speed	37"-132"
STPM200	2 hp fixed speed with MagShell™	37"-132"
STPHM200	2 hp high pressure fixed speed with MagShell™	37"-132"

- Notes: 1. Remove "M" from model number for non-MagShell™ pump motor assembly.
 2. STP models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
 STPAG models are compatible with fuel mixtures containing up to 100% biodiesel or 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
 3. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
 4. All above models require single-phase, 208-230 VAC, 60 Hz incoming power.
 5. 4" riser pipe, if supplied locally, must be 4 1/2" OD by 3/16" WT tubing.

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet. Model length (A) can be a minimum of 37" to a maximum of 211".

Factory Installed Options (specified in model number at time of STP order)

Designation	Description
F	Floating suction adapter, 1 1/2" NPT female, must be factory installed
K	IFS (intake filter screen), factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder-Root® PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak
AG	Alcohol-gasoline compatible

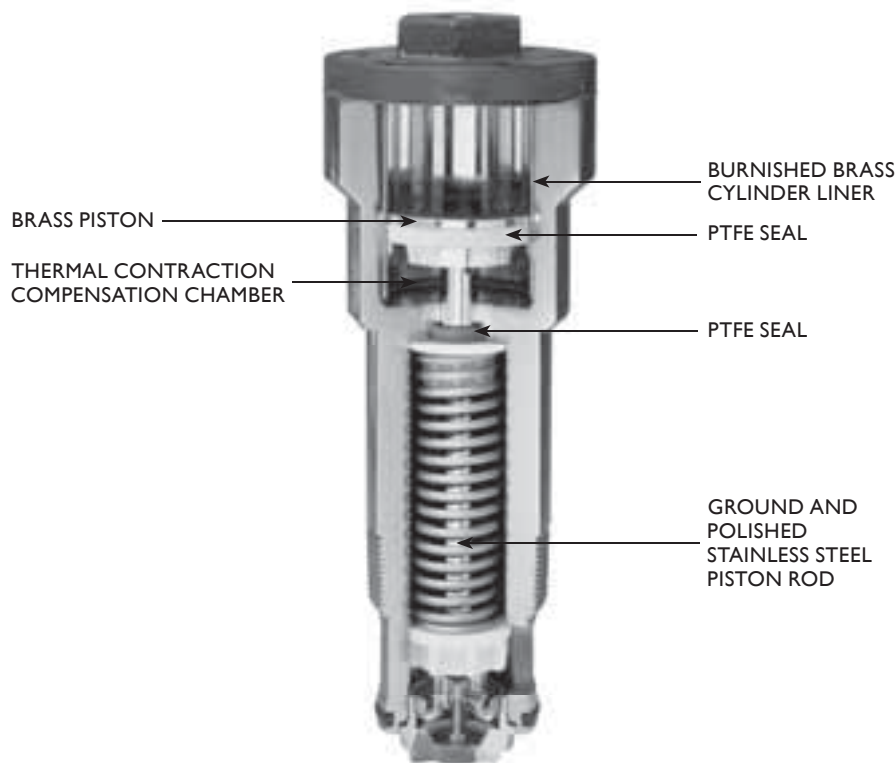
Field Installed Options (fixed speed specific accessories)

Part Number	Description
400137908	Syphon check valve, alcohol-gasoline compatible (when ordered with STP)
400818921	STP-CBS, single-phase control box with lockout switch, 110 Volt coil
402312921	STP-DHI-SCI, combo DHI with factory wired STP-SCI (when purchased with a 4" STP)
402312921	STP-DHI-SCI, combo DHI with factory wired STP-SCI (when purchased without a 4" STP)*
402313921	STP-DHI-CBS, combo DHI with factory wired STP-CBS
402459931	Model 65 psi check valve (for slave of manifolded STPs with Veeder-Root® PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP)
5800100215	STP-SCI, single-phase smart controller (when purchased without a 4" STP)
5800100215	STP-SCI, single-phase smart controller (when purchased with a 4" STP)*
5800300100	STP-DHI, dispenser hook isolation for 110 Volt dispenser handle switches, up to eight each

*When purchasing STP-SCI or STP-DHI-SCI in equal quantities of fixed speed 4" STPs, the STP-SCI or STP-DHI-SCI will be invoiced at special discount pricing.

Mechanical Line Leak Detector

For use with 4" STPs, the MLD product line is precision built, with unique construction features that provide busy stations with maximum flow rates and long service life. The MLD is offered in three models to match your exact application, ensuring accurate, nuisance-free operation critical to profitable station operation.



Advantages

- All models are capable of detecting line leaks equivalent to 3 gph at 10 psi when installed properly with the appropriate fuels. All models will signal detection of leaks by restricting product delivery to less than 3 gpm and taking more than 4 seconds to open.
- All models require 2 to 3 seconds to make a line test when no line leaks exist and air is purged from piping between the discharge of the MLD and the dispenser solenoid.
- All models will remain in the "open" position during product delivery to manifold, with discharge pressures as low as 1 psi. All models will reset to "tripped" when line pressure delay is below 3 psi with pump off.
- All models will detect leaks up to 10 feet above the MLD installation point.



Specifications:

- Three models: STP-MLD (blue) for gasoline, STP-MLD-D (tan) for diesel and STP-MLD-E (grey) for some expandable pipe applications.
- Solid brass piston has 1-5/8" of travel to move the leak detection poppet fully out of the flow, offering minimum flow restriction and maximum flow rates.
- Burnished brass cylinder liner and polished stainless steel piston rod ensure smooth operation and long life from the PTFE seal.
- Thermal compensation chamber of 5¾ cubic inches helps minimize thermal contraction nuisance tripping.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- STP-MLD and STP-MLD-E models are compatible with fuel mixtures containing up to 10% ethanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline, as well as diesel fuels, fuel oils, kerosene, Avgas and jet fuels.
- STP-MLD-D models are listed for diesel fuels or kerosene only.

Approvals

- Third party certified to comply with US EPA requirements 280.41 (B) and 280.44 (A) for continuous monitoring of pressurized piping.
- Consult factory for other applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

Mechanical Line Leak Detector
(for use with 4" STPs)*

Single Pack

Part Number	Description
400500901	STP-MLD for gasoline, blue
400501901	STP-MLD-D for diesel or kerosene, tan
400502901**	STP-MLD-E for expandable piping, grey

Three Pack

Part Number	Description
400500903	STP-MLD for gasoline
400501903	STP-MLD-D for diesel or kerosene
400502903**	STP-MLD-E for expandable piping
400503903	COMBO, contains two STP-MLDs and one STP-MLD-D

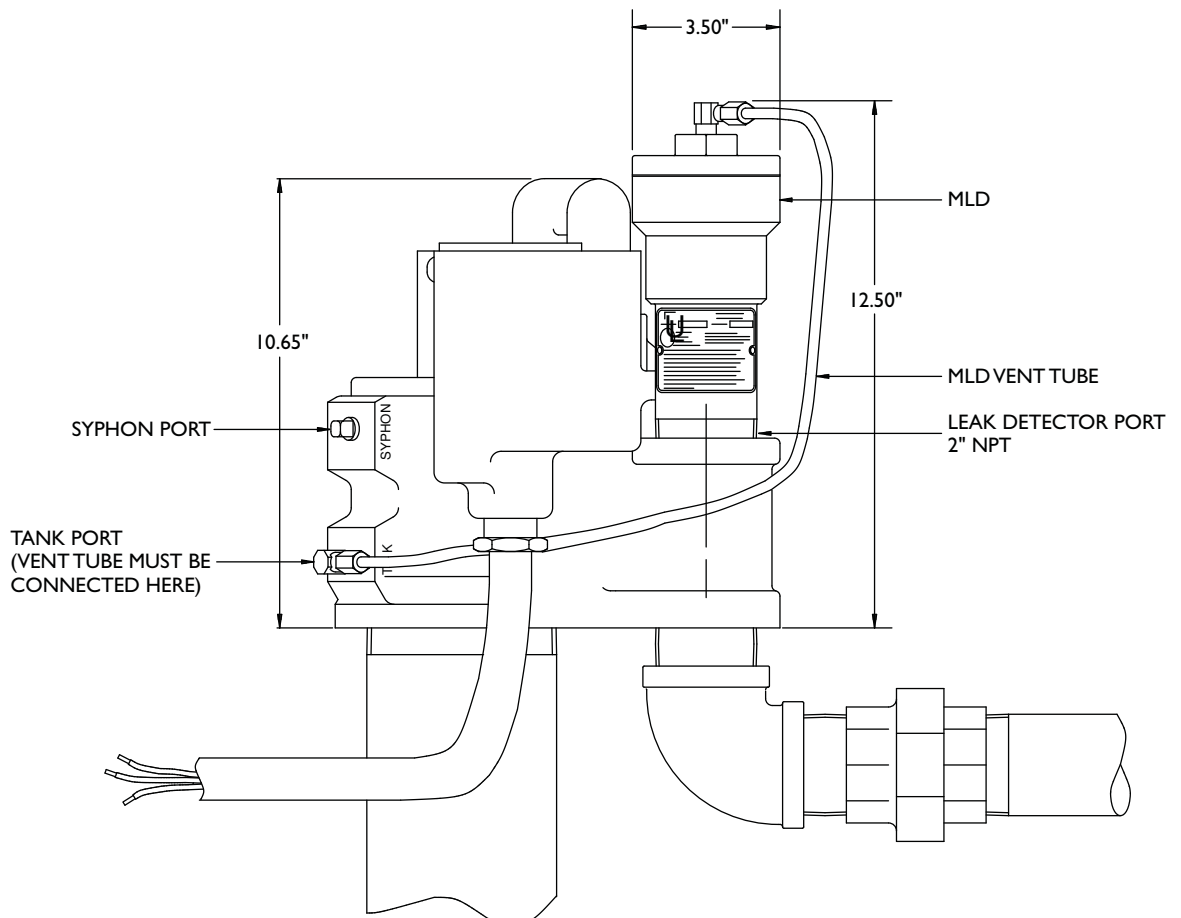
- Notes: 1. MLD and MLD-E models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
 2. MLD-D models are listed for compatibility with diesel fuels and kerosene applications only.
 3. All above models will only mount in the 2" NPT leak detector port of a 4" submersible turbine, including competitive models, or in a leak detector adapter tee (sold separately below).

*Designed for limited flexible piping systems with low bulk modulus, consult factory before ordering.

**Refer to STP-MLD installation manual for complete compatibility specifications.

MLD Repair Parts and Accessories

Part Number	Description
400440101	MLD vent tube
400449901	MLD hardware pack, fittings and documentation
400518001	Leak detector adapter tee



Single-Phase Smart Controller

Designed to replace standard control boxes in both new and existing installations. The STP-SCI provides valuable pump protection and performance features never before offered in one economical controller.



Feature	STP-SCI	Standard Control Box
Dry run protection with automatic reset	Yes	No
Low voltage detection	Yes	No
Pump motor failure detection	Yes	No
Open circuit detection	Yes	No
Extended pump run detection	Yes	No
Slave pump auto start operation	Yes	No
Auto sequencing of manifold pump	Yes	No
Fault diagnostic lights	Yes	No
Pump operating light	Yes	Yes
High voltage surge protection	Yes	No
Fault history storage	Yes	No
Power "ON" light	Yes	No
External run light provision	Yes	Yes
Compatible with 1/3 through 2 hp	Yes	Yes
30 Amp line relay	Yes	Yes

Specifications:

- Controller size: 8½" × 5" × 3" (215 mm × 127 mm × 76 mm).
- Relay amperage rating: 30 Amps.
- Relay/hook signal voltage: 120/240 Volt.
- Compatible with all FE Petro single-phase submersibles and competitive makes.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

Advantages

Easy Retrofit - The STP-SCI is compatible with single-phase 1/3 through 2 hp STPs from FE Petro or other competitive models. Retrofitting an existing station requires replacing an existing control box with the STP-SCI and pressing the reset button to allow the controller to automatically "learn" the electrical characteristics of the pump.

History Storage of Pump Conditions - The STP-SCI automatically logs the last five abnormal conditions seen in the pumping system. This data is retained in non-volatile memory. Service technicians can then quickly view a history of abnormal conditions, particularly useful when troubleshooting intermittent conditions.



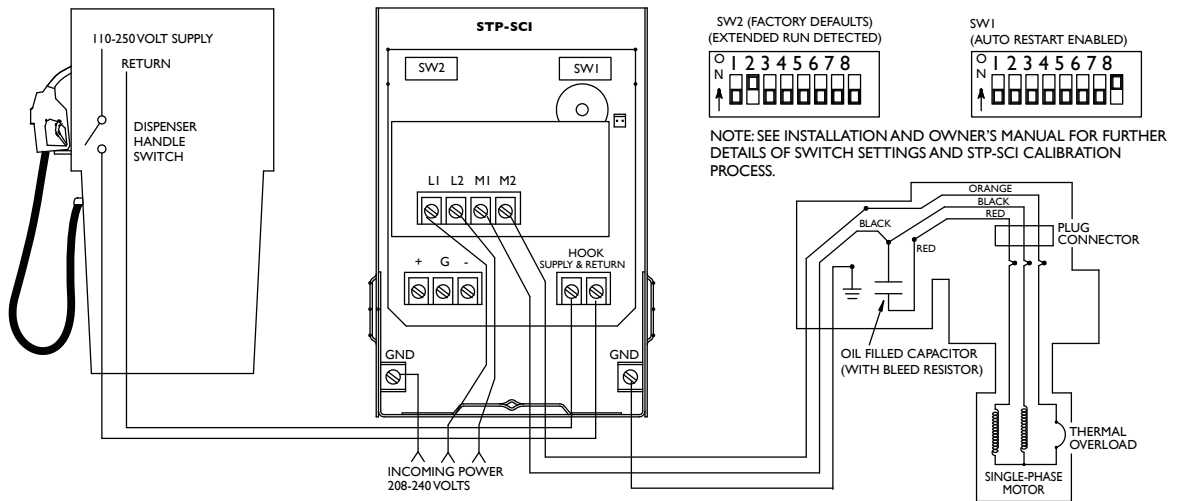
STP-SCI Single-Phase Smart Controller

Part Number	Description
40231292I	STP-DHI-SCI, combo DHI with factory wired STP-SCI (when purchased with a 4" STP)
40231292I	STP-DHI-SCI, combo DHI with factory wired STP-SCI (when purchased without a 4" STP)*
5800100215	STP-SCI, single-phase smart controller (when purchased with a 4" STP)*
5800100215	STP-SCI, single-phase smart controller (when purchased without a 4" STP)

- Notes: 1. SCI models are compatible with all single-phase FE Petro submersibles and competitive makes.
 2. One SCI required per submersible. Relay rated for 30 Amps (up to 2 hp).
 3. SCI models are not compatible for use in master/slave configurations with STP-SC models.

*When purchasing STP-SCI or STP-DHI-SCI in equal quantities of fixed speed 4" STPs, the STP-SCI or STP-DHI-SCI will be invoiced at special discount pricing.

STP-SCI Single-Phase Smart Controller Standalone Wiring Diagram



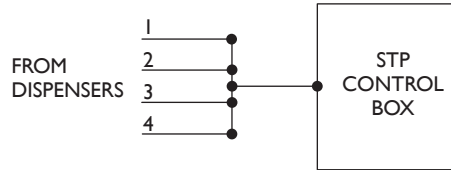
Note: See product installation instructions for further details. Wiring must conform to all federal, state and local codes. Control panels are for non-hazardous indoor use only.

Dispenser Hook Isolation

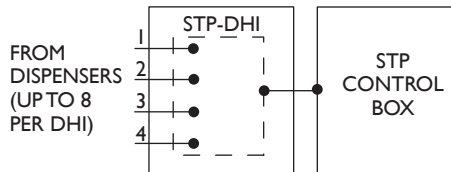
The FE Petro dispenser hook isolation device prevents electrical feedback between dispenser hook circuits as required by most electrical codes.



Conventional



STP-DHI



Advantages

- Optically isolates inputs from up to eight dispensers preventing damage to dispenser relay boards caused by cross-phasing.
- Prevents electrical feedback between dispenser hook circuits during periods of maintenance and service as required by NEC 514-6, 1999 and other international codes.
- Can be supplied factory-wired in tandem with the FE Petro Smart Controller or the FE Petro standard control box.
- Eliminates false STP run due to voltage leakage of multiple dispensers connected in parallel.
- Fuse-protected output to submersible pump controller.
- The STP-DHI can retrofit to any existing site.



Specifications:

- Enclosure size: 8½" x 5" x 3" (215 mm x 127 mm x 76 mm).
- Eight optically isolated inputs from dispenser.
- One STP-DHI required per product grade for up to eight dispensers.
- STP-DHI: 120V 30VA input from supply, eight 120V 10mA inputs from dispensers.
- Output fuse rating: 250V 1A, fast-acting.
- 300 Volt surge protection.
- Maximum ambient temperature rating: 120 °F.
- LEDs indicate when source power is applied and dispenser hook signals are present.
- Compatible with any submersible pump controller.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

STP-DHI Dispenser Hook Isolation

Part Number	Description
402312921	STP-DHI-SCI combo DHI with factory-wired STP-SCI (when purchased with a 4" STP)*
402312921	STP-DHI-SCI, combo DHI with factory-wired STP-SCI (when purchased without a 4" STP)
402313921	STP-DHI-CBS, combo DHI with factory-wired STP-CBS single-phase control box
5800300100	STP-DHI, isolates up to eight, 120 Volt dispenser handles

Notes: 1. DHI models are compatible with FE Petro submersible pump controllers and competitive pump controller makes accepting 120 Volt dispenser hook signal.
 2. DHI models can be connected together for products with more than eight dispenser handle inputs.

*When purchasing STP-DHI-SCI in equal quantities of fixed speed 4" STPs, the STP-DHI-SCI will be invoiced at special discount pricing.



STP-DHI-SCI

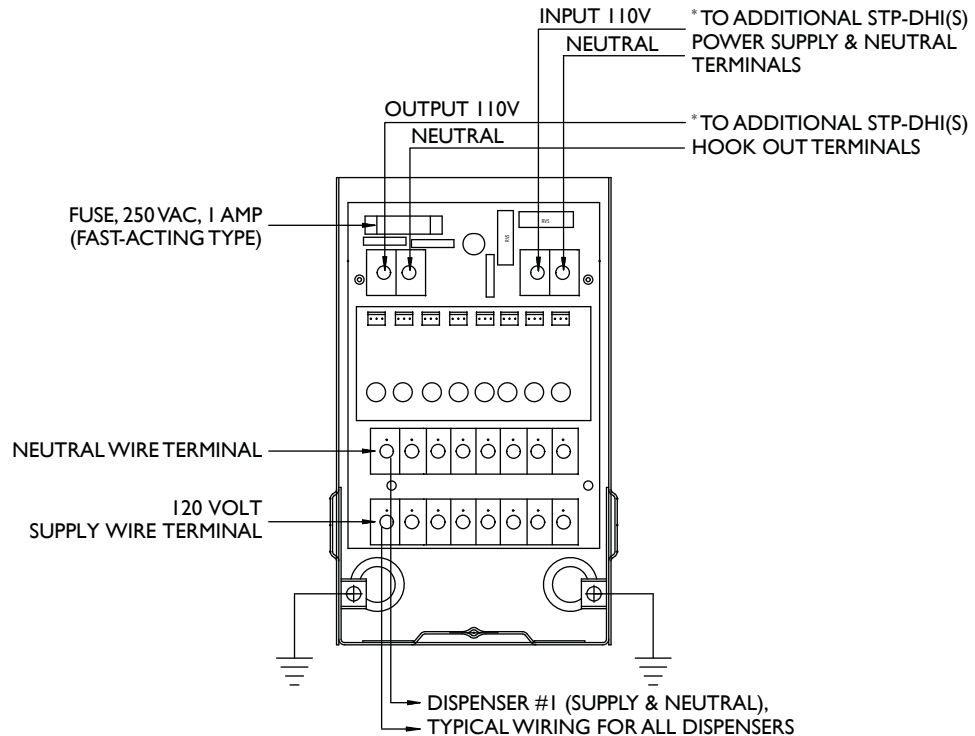


STP-DHI-CBS

DHI Repair Parts and Accessories

Part Number	Description
223243103	DHI fast-acting fuse, 250 VAC, 1 Amp
223885901	DHI circuit board, 120 Volt dispenser hook signal

DHI with 120 VAC Dispenser Hook Signal Wiring Diagram



*Wiring is polarity-sensitive when multiple units are connected together.

Single-Phase Control Box

The FE Petro standard single-phase control box latches line power to the submersible when the relay is energized by a dispenser signal. Compatible with FE Petro and competitive makes of single-phase, fixed speed submersible turbines up to 2 hp.



Part Number	Description
400818921	STP-CBS, single-phase control box, with switch and lockout, 120 Volt coil
402313921	STP-DHI-CBS, combo dispenser hook isolation with factory wired STP-CBS

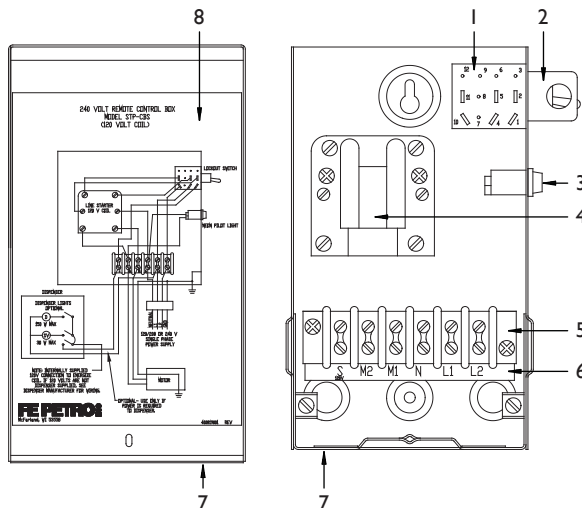
- Notes:
1. CBS models are compatible for use on all single-phase FE Petro submersibles and competitive makes.
 2. One CBS required per submersible, relay rated for 30 Amps up to 2 hp.
 3. Incorporates pump "ON" indicator light.
 4. Relay rated for 220 Volt pumps up to 2 hp, 30 Amps.

Advantages

- Incorporates an "ON/OFF" lockout switch.
- Relay energized with 110 Volt dispenser/hook signal.
- Franklin Fueling Systems is an ISO 9001 certified manufacturer.
- Consult factory for applicable approvals.



STP-CBS Repair Parts and Accessories



Item	Part Number	Description
1	400575001	Power switch for CBS and CBBS models
2	400574001	Power switch bracket
3	400158901	Light assembly, 120 Volt
4	400215931	Relay, 30A, 120 Volt coil
5	400278005	Six position terminal strip
6	402410001	CBS terminal strip label
7	400817901	Cover and enclosure
8	400819001	CBS wiring diagram

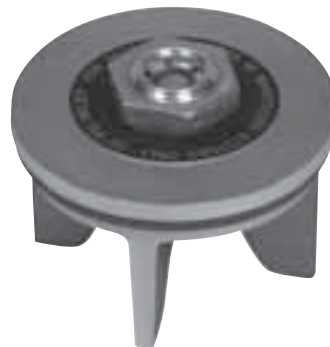
Intake Filter Screen



Part Number	Description
400660901	Intake filter screen single pack
400660912	Intake filter screen 12 pack carton

Model 65 PSI Relief Check Valve

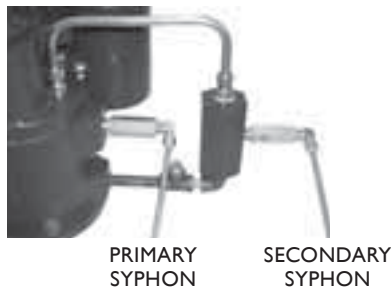
For use in slave(s) STP in manifolded multiple pump installations using Veeder-Root® Line Leak Detection. Not available factory installed.



Part Number	Description
402459931	Model 65 psi relief check valve

Secondary Syphon Kit

For use when two syphon primers are required for one STP. One to syphon for condensate pod, one for syphoning two or more tanks of like product.



Part Number	Description
402507930	Secondary syphon kit

Replacement Pump Motor Assemblies*

Model	Description
PMA33	1/3 hp 16" pump motor assembly
PMA75	3/4 hp 18 1/4" pump motor assembly
PMA150	1 1/2 hp 21" pump motor assembly
PMAH150	1 1/2 hp 21 3/4" high pressure pump motor assembly
PMA200	2 hp 23 3/4" pump motor assembly
PMAM200	2 hp 23 3/4" pump motor assembly with MagShell™
PMAH200	2 hp 24 1/2" high pressure pump motor assembly
PMAHM200	2 hp 24 1/2" high pressure pump motor assembly with MagShell™

Note: Remove "M" from model number for non-MagShell™ pump motor assemblies.

*For pump motor assemblies (PMAs) with floating section adapters (1 1/2" NPT female connections), specify "F" in the number; adder charge applies when ordering PMA.

Replacement Alcohol-Gasoline (AG) Pump Motor Assemblies*

Model	Description
PMAAG33	1/3 hp 16" AG pump motor assembly
PMAAG75	3/4 hp 18 1/4" AG pump motor assembly
PMAAG150	1 1/2 hp 21" AG pump motor assembly
PMAAGH150	1 1/2 hp 21 3/4" AG high pressure pump motor assembly
PMAAG200	2 hp 23 3/4" AG pump motor assembly
PMAAGM200	2 hp 23 3/4" AG high pressure pump motor assembly with MagShell™
PMAAGH200	2 hp 24 1/2" AG high pressure pump motor assembly
PMAAGHM200	2 hp 24 1/2" AG high pressure pump motor assembly with MagShell™

Note: Remove "M" from model number for non-MagShell™ pump motor assemblies.

*For pump motor assemblies (PMAs) with floating section adapters (1 1/2" NPT female connections), specify "F" in the number; adder charge applies when ordering PMA.

Replacement Variable Speed Pump Motor Assemblies*

Model	Description
PMAMVS2	2 hp 20" variable speed pump motor assembly with MagShell™
PMAAGMVS2	2 hp 20" AG variable speed pump motor assembly with MagShell™
PMAMVS4	4 hp 25" variable speed pump motor assembly with MagShell™
PMAAGMVS4	4 hp 25" variable speed pump motor assembly with MagShell™

Note: Remove "M" from model number for non-MagShell™ pump motor assemblies.

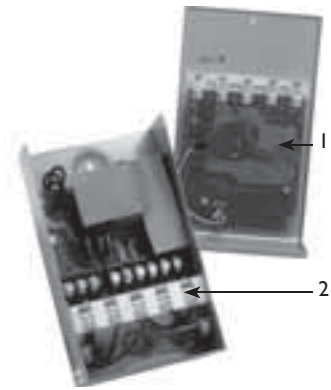
*For pump motor assemblies (PMAs) with floating section adapters (1 1/2" NPT female connections), specify "F" in the number; adder charge applies when ordering PMA.

4" STP Extractable Sections (less manifold, riser and PMA)

Model	Description
STPEXT-XXX	Fixed length extractable
STPEXT-VL1	Variable length #1 extractable
STPEXT-VL2	Variable length #2 extractable
STPEXT-VL3	Variable length #3 extractable
STPAGEXT-VL1	AG variable length #1 extractable
STPAGEXT-VL2	AG variable length #2 extractable
STPAGEXT-VL3	AG variable length #3 extractable

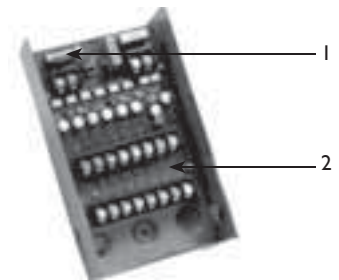
Smart Controller (STP-SC and STP-SCI)

Item	Part Number	Description
1	223835931	SC upper board cover
2	223840930	SC lower relay board, limited availability
Not Shown	225000930	SCI lower board control
Not Shown	225005930	SCI upper board relay



STP-DHI Dispenser Hook Isolation Box

Item	Part Number	Description
1	223243103	250 AC fast-acting fuse
2	223885901	120 Volt circuit board (includes fuse)



MagVFC™ and IST-VFC

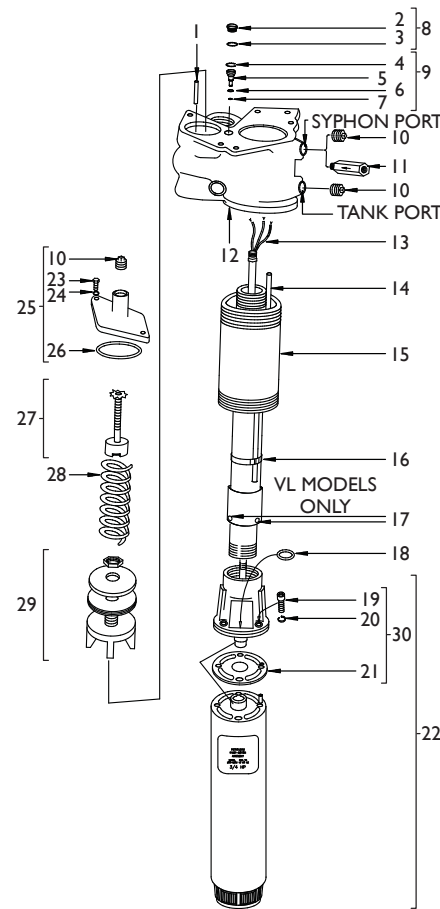
Part Number	Description
223919930	MagVFC™ fan assembly
225040930	MagVFC™ user interface board
228289930	MagVFC™ normally open relay
400992930	IST-VFC harness, limited availability
402500930	IST-VFC software upgrade kit, rev. 1.5
5874202400	IST-VFC



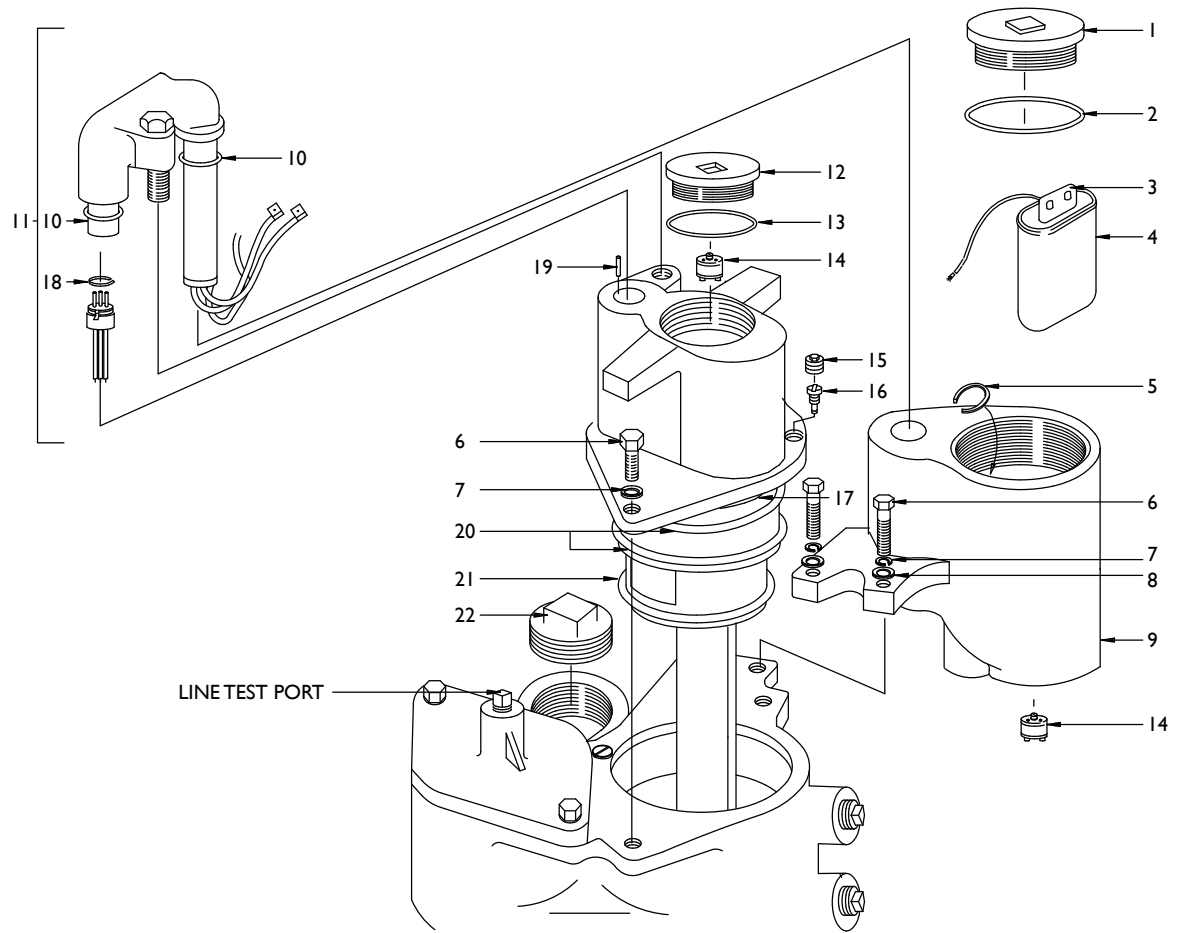
MagVFC™

PMA, Riser and Check Valve for Variable Length and Fixed Length Pumps

Item	Part Number	Description	Qty
1	400125001	3/16" x 1-5/8" spiral pin	1
2	400615001	Manual relief plug	1
3	400211114	O-ring, plug	1
4	400627001	Retaining ring	1
5	400616001	Manual relief screw	1
6	400333012	Relief screw, top O-ring	1
7	400333007	Relief screw, bottom O-ring	1
8	400628901	Manual relief plug assembly, includes items #2 and #3 (400628902 AG compatible)	1
9	400629901	Manual relief screw assembly, includes items #4, #5, #6 and #7 (400629902 AG compatible)	1
10	400259001	1/4" NPT pipe plug, may be purchased locally	3
11	400137937	Syphon check valve	-
12	400221930	Discharge manifold, includes #1, #8, #9 and two #10	1
13	151213930 151213932	156" lead assembly 240" lead assembly	1
14	Purchase locally	Stationary vapor tube, 3/8 OD x 7/20 WT	-
15	4001689XX (XX = length)	Riser, 4-1/2" OD x 3/16" WT steel tubing 7"-19" 20"-30" 31"-49" 50"-69"	1
16	Purchase locally	1/2" steel banding	-
17	400600002	5/16-24 x 7/16" set screw for variable lengths only	3
18	400333015	Lead assembly O-ring	4
19	400264009	5/16-18 x 1-1/8" socket head cap screw, may be purchased locally	4
20	400263004	5/16" high-collar lock washer, may be purchased locally	1
21	402449001	PMA gasket (402449002 AG compatible)	1
22	PMA XXX	Pump motor assembly, includes item #30 (XXX indicates options and horsepower)	2
23	400981001	3/8-16 x 1" Hex head screw	2
24	400285002	3/8" standard lock washer, may be purchased locally	1
25	400197930	Manifold assembly cover, includes #10, #26, two #23 and two #24	1
26	400333238	AG compatible O-ring	1
27	400147930	Clamp valve assembly	1
28	400174930	Check valve spring	1
29	400988931 400988932 400988933	Standard check valve, includes item #26 (400988934 AG compatible) Model R check valve, includes item #26 (400988935 AG compatible) Model W check valve, includes item #26 (400988936 AG compatible)	1
30	152350902	PMA hardware pack, includes #21, and four #19 and #20	-
Not shown	400216905	AG compatible O-ring kit, includes items #3, #6, #7 and #26 on this page and items #2, #10, #13, #17, #20 and #21 on page 35	-



Discharge Manifold Assembly



Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.
1	400192930	Junction box cover, includes item #2	1	12	400589930	Cover, includes item #13	1
2	400210233	O-ring	1	13	400210229	O-ring	1
3	400655001	Capacitor boot	1	14	400236903	Contractor's plug	2
4	400170931	Capacitor assembly for 1/3 to 1 1/2 hp, 60 Hz, 15µfd, 380 Volt single-phase; includes one black lead	1	15	400259002	3/8" NPT pipe plug, may be purchased locally	2
	400170934	Capacitor assembly for 2 hp, fixed speed, 60 Hz, 40µfd, 370 Volt single-phase; includes one black lead		16	400562901	Syphon jet assembly (400562903 AG compatible)	1
	5	400257001		Retaining ring	1	17	400211046
6	400258002	3/8-16 x 1-1/4 Hex head bolt, may be purchased locally	4	18	400249001	Retaining ring	1
7	400285002	3/8 standard lock washer, may be purchased locally	4	19	400250002	1/8" dia. x 1/2" roll pin	1
8	400280001	3/8 standard flat washer, may be purchased locally	2	20	400333343	AG compatible O-ring	2
9	400651930	Junction box assembly, includes two #6, #7 and #8	1	21	400333340	AG compatible O-ring	1
10	400210212	O-ring	2	22	400259005	2" NPT square head plug	1
11	400200930	Wire connector kit, includes male/female connectors, two #10, one #5, and #18	1				

High Capacity Submersible Turbine Pumps

Available with either 3 or 5 hp, the FE Petro high capacity pump delivers efficient, reliable and quiet performance when high volumes or high speed deliveries of gasoline or diesel fuel are required.



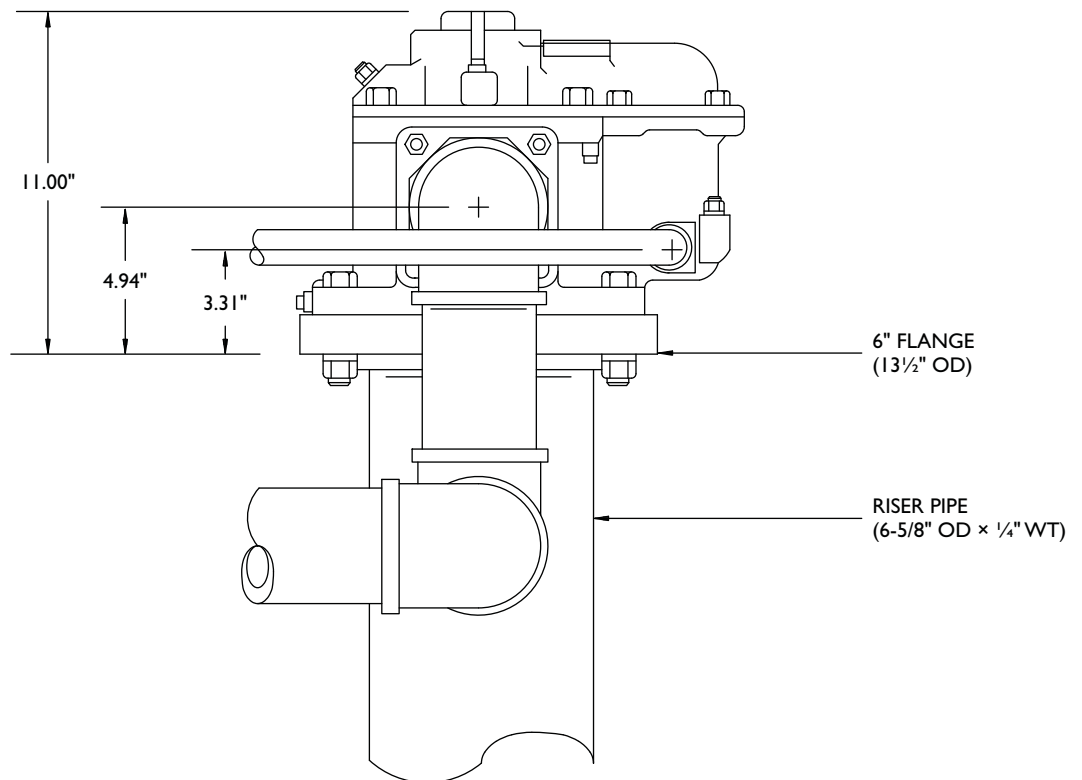
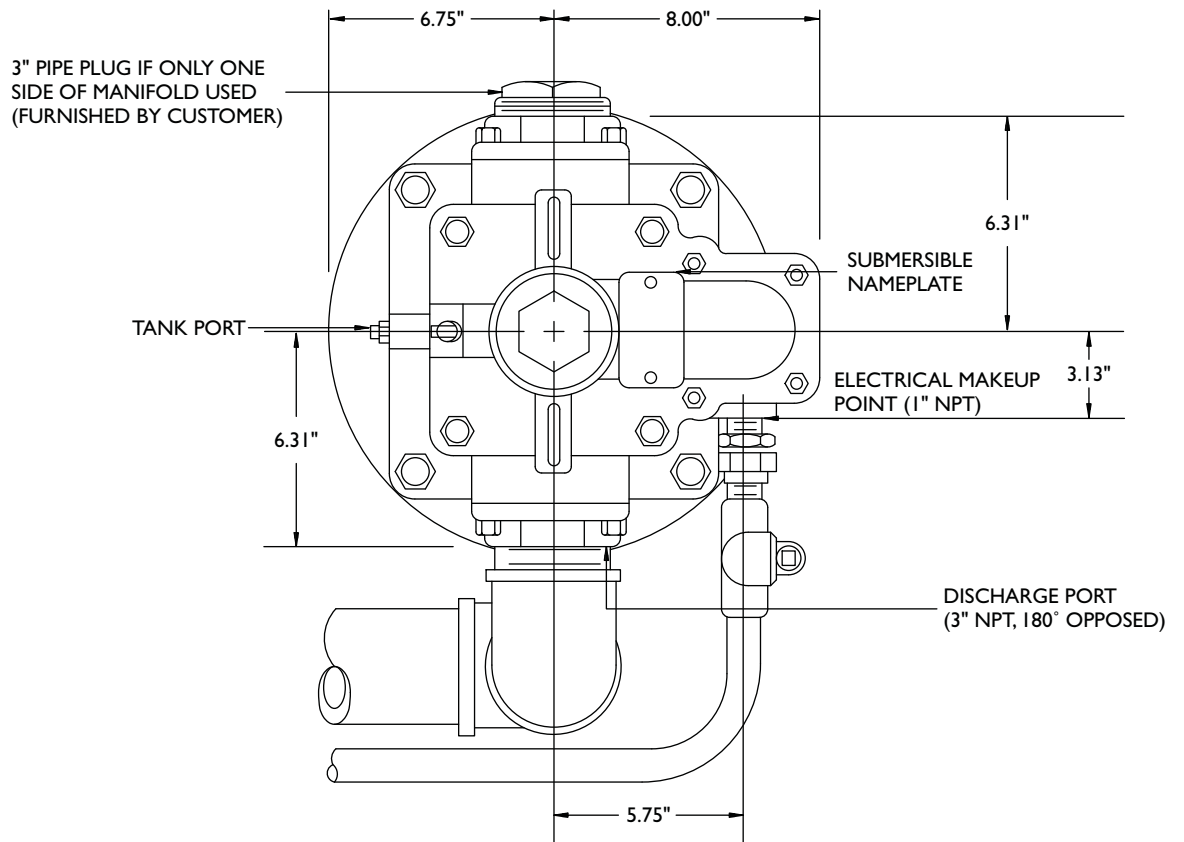
Advantages

High Performance - FE Petro's two-stage centrifugal pump is coupled with a dependable Franklin Electric motor to provide higher heads, faster fuel delivery and lower cost operation. Motors are all three-phase for smooth operation and are available in various voltages. Units come standard with a 6" diameter riser pipe to mount the pump to the tank.

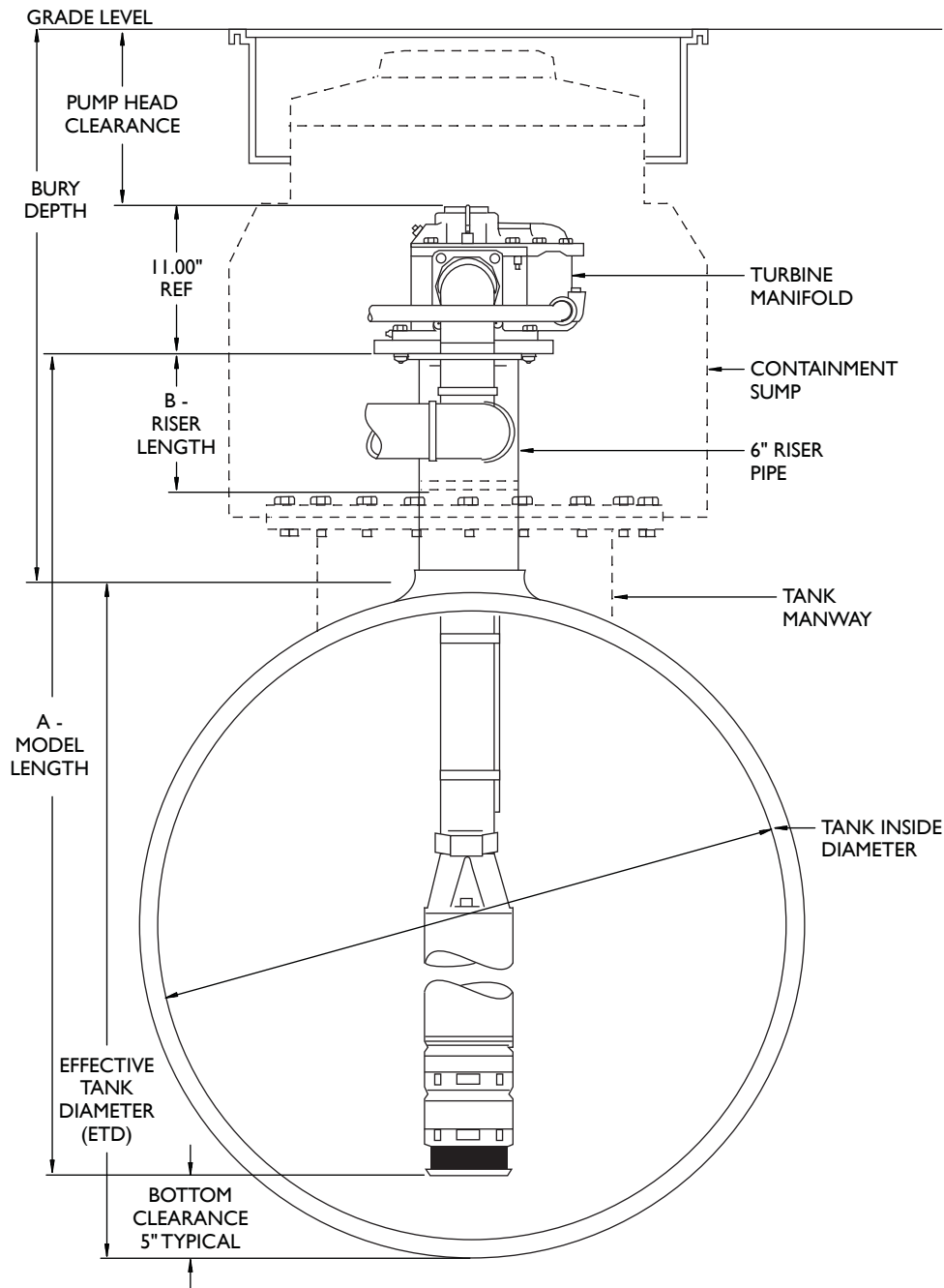
Ease of Maintenance - If service is required, FE Petro products are designed to put the operator back in business fast. Maintenance on the pump motor assembly can be performed without having an electrician on site. Large diameter pins and sockets provide automatic open circuits and disconnecting of the wiring when the extractable portion of the pump is removed. Properly spaced lifting eyes facilitate the removal of the unit without disturbing the discharge piping. The pump motor assembly is easily removed from the discharge head by removing four bolts and using standard pusher bolts. Replacement pump motor assemblies are available for comparably sized competitive pumps.

Reliability - Quality engineering and simplicity of design work to ensure years of reliable performance from every high capacity unit. The continuous duty, three-phase Franklin Electric motor with carbon bearings and stainless steel journals is FE Petro's standard. The impellers, made of molded acetal, and diffusers of hard coated aluminum, with a stainless steel pump shaft, assure trouble-free operation in motor fuels. Dual (180° opposed) 3" horizontal discharge ports provide easy installation, and two built-in line check valves reduce installation costs. Two line pressure relief valves protect the dispensers, meters and piping from abnormal pressures due to thermal expansion. The mesh screen on the pump inlet prevents large particles from entering the unit and the unit is compatible with existing high capacity leak detector technology. New units are easily connected to field wiring without disassembly.

Satisfaction - Each and every high capacity pump is built to your tank and bury specifications and the complete assembly is performance tested to ensure that your needs are met. All high capacity pumps are UL listed and meet the requirements of UL 79.



High Capacity Pump Ordering Guide



- Note:
1. Effective tank diameter (ETD) = Inside tank diameter (to top of 4" bung), including tank manway and/or sump adapter.
 2. Model length (A) = ETD plus riser length minus bottom clearance minus 1" thread engagement.
 3. Riser length (B) = Bury depth (to top of tank) minus pump head clearance minus tank manway and/or minus sump adapter.

High Capacity Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

STP = Basic Model Designation

XXXXX = Factory Installed Options

HCP model designations may include one or more of the following characters in alphabetical order:

AG = Alcohol-gasoline compatible (85% ethanol or 100% biodiesel capable)
 Note: Standard models 0% to 10% ethanol capable

F = Floating suction adapter (3" NPT male adapter)

*R = Model R check valve (24 psi relief/22 psi reset for PLLD)

*Note: If not otherwise specified, all HCP models supplied with standard model check valve (40 psi relief/35 psi reset for MLD and TS-LS300).

Y = Pump Motor Horsepower/ Electrical Rating

3 = 3 hp fixed speed, 208-230 VAC

5 = 5 hp fixed speed, 208-230 VAC

5H = 5 hp fixed speed, 460 VAC

5G = 5 hp fixed speed, 575 VAC

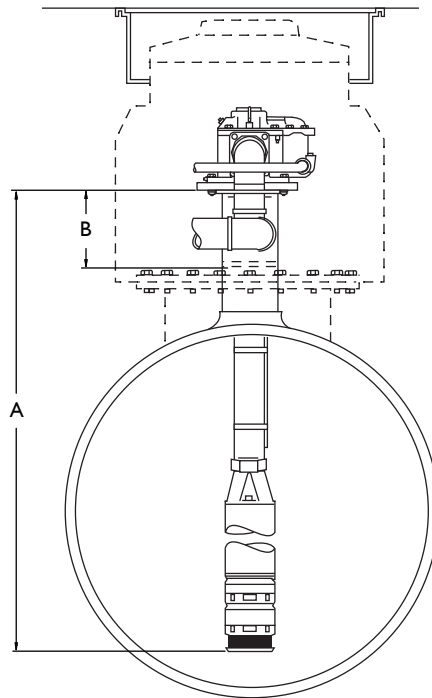
A = Model Length

Model length is expressed as three numeric characters that indicate the length of the HCP from the turbine manifold bottom to the pump motor inlet in inches, available from 60" to 200" (additional charge for models 132" and longer).

B = Riser Pipe Length

Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 6" to 60" in three inch increments (additional charge and lead time for risers 33" or longer).

High Capacity Submersible Turbine Pump Specifications



For full diagram see page 44.

Power Requirements

- High capacity pump models require three-phase, 60 Hz incoming power.
- High capacity pump models are available as 208-230 VAC, 460 VAC or 575 VAC versions.
- High capacity pump models are available in 3 hp and 5 hp versions.
- STP-SCIII three-phase smart controllers and STP-CB3/5 three-phase control boxes are available for high capacity pump control.

Pump Motor

- Fixed speed, 3450 rpm, multi-stage centrifugal type pump motor with built-in, automatic, thermal overload protection.
- High capacity pump 60 Hz models are available as two-stage versions only.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- Standard models are UL and cUL listed for fuel mixtures containing up to 10% ethanol and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG models are compatible with fuel mixtures containing up to 85% ethanol and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- HCP models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Standard Features

- Pressure relief valve: cartridge design available in two pressure relief settings, external to check valve. Standard model relieves at 40 psi and resets above 35 psi.
- Syphon: external venturi-type syphon primer supplied as submersible accessory.
- Air eliminator: every submersible includes tank return path to provide active air elimination.

Approvals

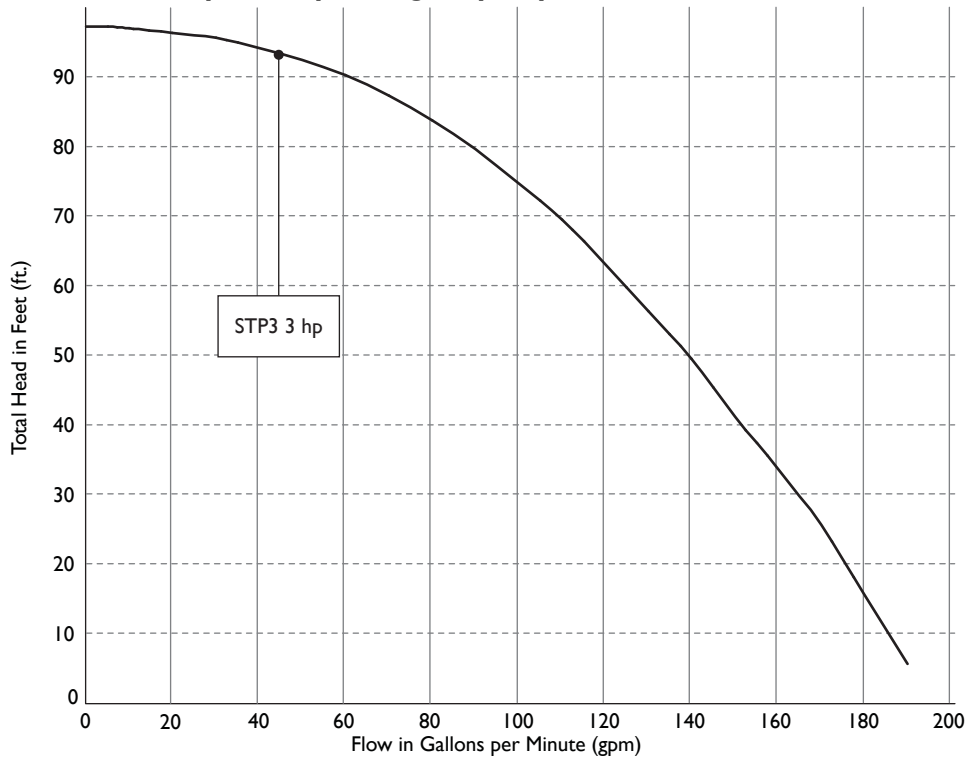
- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

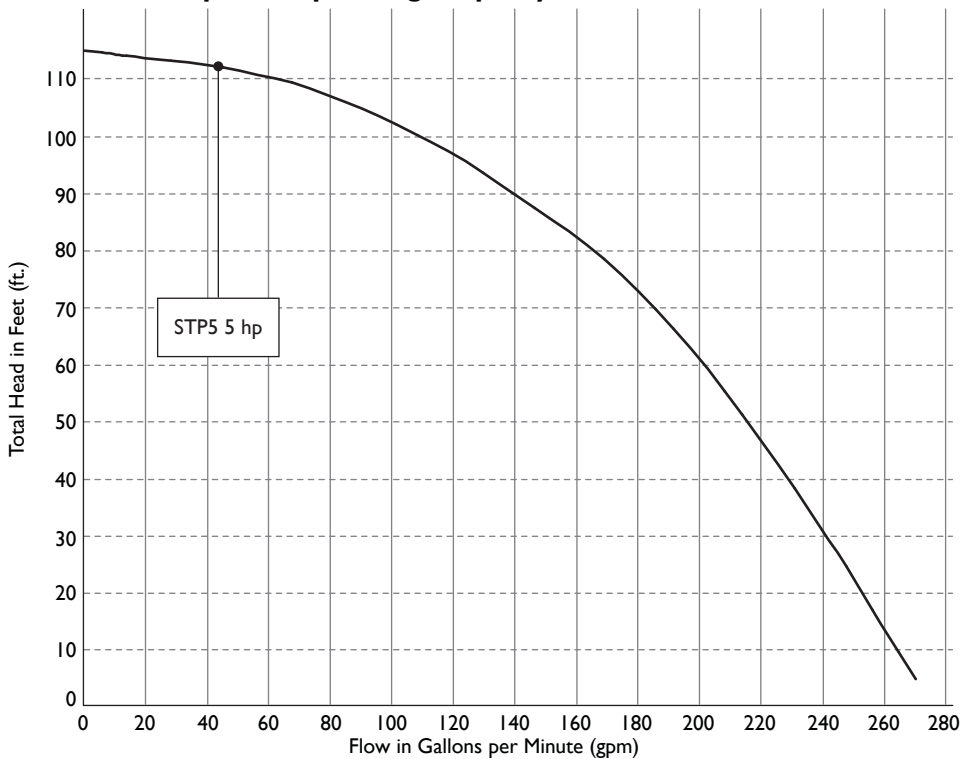


3 hp Fixed Speed High Capacity Performance Chart



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. STP3 models are powered by a three-phase, 60 Hz, 208/230 Volt power supply.

5 hp Fixed Speed High Capacity Performance Chart



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. STP5 models are powered by a three-phase, 60 Hz, 208/230 Volt power supply.

High Capacity Turbine Pumps

Model	Description
STP3	3 hp 6" STP, three-phase 208-230 VAC
STP5	5 hp 6" STP, three-phase 208-230 VAC
STP5H*	5 hp 6" STP, three-phase 460 VAC
STP5G*	5 hp 6" STP, three-phase 575 VAC

*Please call customer service for lead time on this item.

Alcohol-Gasoline Units

Model	Description
STPAG3	3 hp AG 6" STP, 208-230 VAC
STPAG5	5 hp AG 6" STP, 208-230 VAC
STPAG5H*	5 hp AG 6" STP, 460 VAC
STPAG5G*	5 hp AG 6" STP, 575 VAC

*Please call customer service for lead time on this item.

Length Adder

Part Number	Description
401190911	Additional charge for pump lengths (A) from 132" to 170"
401190914	Additional charge for pump lengths (A) from 171" to 200"

Note: Model length (A) is defined on page 38. Model length (A) can be a minimum of 60" to a maximum of 200".

Factory Installed Options

Designation	Description
401165905	Syphon system (when purchased with STP)
401227001	Floating suction adapter, 3" male NPT (must be ordered with STP)
R	Model R relief valve factory installed, for Veeder-Root® PLLD

Field Installed Options

Model	Description
STP-CB3	3 hp, 208-230 VAC, 60 Hz, three-phase motor starter, 120 VAC coil
STP-CB5	5 hp, 208-230 VAC, 60 Hz, three-phase motor starter, 120 VAC coil
STP-CB5G	5 hp, 575 VAC, 60 Hz, three-phase motor starter, 120 VAC coil
STP-CBB5H	5 hp, 460 VAC, 60 Hz, three-phase motor starter, 220 VAC coil
STP-SCIII	Three-phase smart controller, 120VAC coil (when ordered with a 6" high capacity STP)*
STP-SCIII	Three-phase smart controller, 120VAC coil (when ordered without a 6" high capacity STP)

Note: Three-phase smart controller is compatible with FE Petro 208/230 Volt 3 and 5 hp high capacity STPs and like competitive makes. Not available for 460 or 575 Volt models.

*When purchasing STP-SCIII in equal quantities of fixed speed 6" STPs, the STP-SCIII will be invoiced at special discount pricing.

6" STP Extractable (less manifold, riser and PMA)

Model	Description
HCPEXT-XXX	6" fixed length extractable
HCPAGEXT-XXX	AG compatible 6" fixed length extractable

High Capacity Line Leak Detector

The High Capacity MLD product line is based on our standard STP-MLD unit design. The High Capacity MLD's compact design allows installation in the same containment sump as the submersible pump, greatly reducing the amount of unprotected leak points between the submersible and the MLD.



Specifications:

- Detects leaks of 3 gph (11.4 lgp) or greater at 10 psi (69 kpa).
- Third party evaluated to comply with US EPA requirements 280.41 (B) and 280.44 (A) for continuous monitoring of pressurized piping systems with maximum of 396.60 gallons for rigid pipelines, maximum of 95.50 gallons for flexible pipelines, maximum of 492.10 gallons for combination of rigid and flexible pipelines.
- Size: 7 $\frac{3}{4}$ " x 15" (197 mm x 381 mm).
- Weight: 28 pounds (12.7 kg).
- The MLD-HC will remain in the open flow position with dynamic line pressure at 2 psi (13.8 kpa) at the outlet.
- Maximum static head pressure without affecting operation is 12' (3.7 m) from MLD-HC to dispensing point.
- Minimum height required from 3" (76.2 mm) NPT port centerline for top clearance is 9 $\frac{1}{2}$ " (241 mm). Not position sensitive. Can be installed horizontally to reduce clearance to 3" (76.2 mm).
- Compatible with all blends of motor fuels including alcohol blends from 0 to 10% ethanol, 20% MTBE or ETBE with 80% gasoline, or 17% TAME with 83% gasoline as well as diesel, fuel oil, Avgas, jet fuel or kerosene.
- Two models available: STP-MLD-HC for gasoline, STP-MLD-HCD for diesel.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

Advantages

Low Line Restriction - Piston design offers the maximum flow rate possible by keeping flow restriction through the leak detector at an absolute minimum. Piston has a full 1-7/8" (47.6 mm) of travel to move the leak detector poppet fully out of the flow path when product is being pumped.

Faster Installation - MLD-HC can be installed after purging air on new installations.

Piston Design - Piston cylinder has 5 $\frac{3}{4}$ cubic inches (94.22 cc) of volume to help minimize nuisance tripping due to thermal contraction during cold weather.

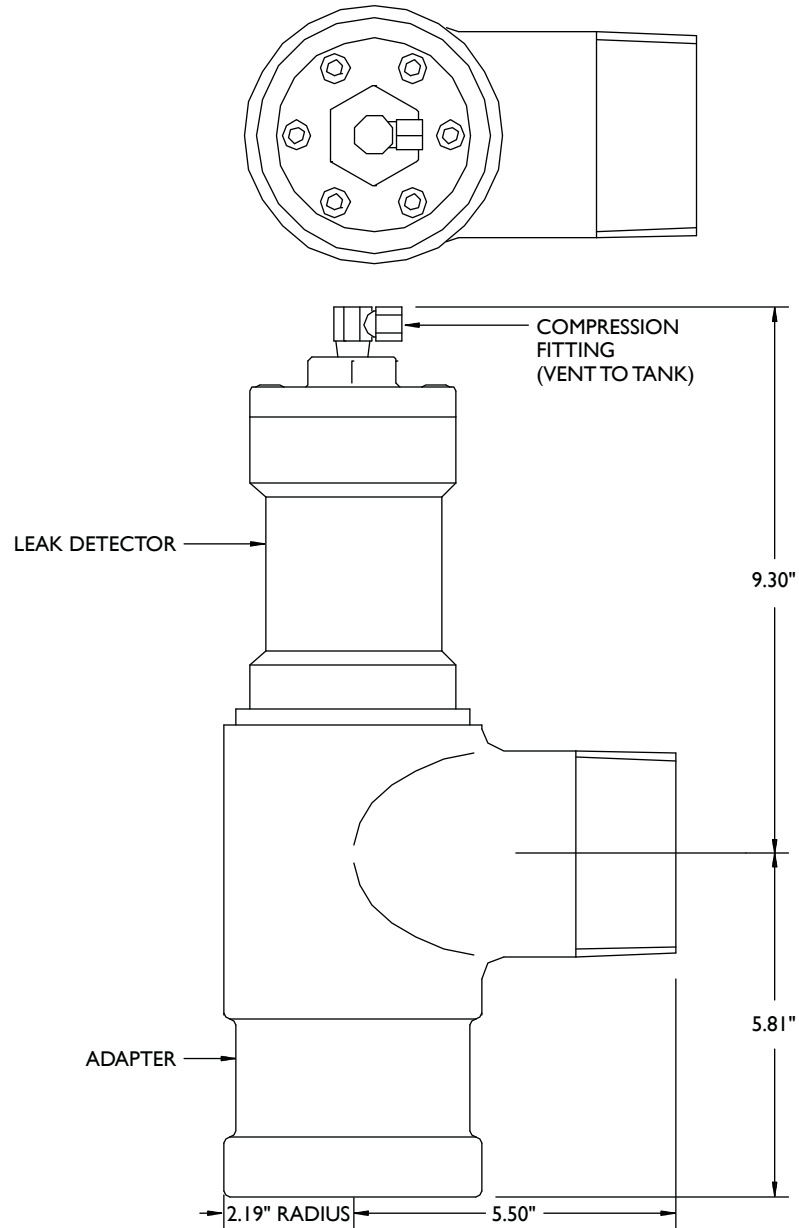
MLD-HC Seal - Threads seal using O-rings instead of thread sealant. This seal design makes for simple installation and removal of MLD-HC without large wrenches in the tight working environment of the containment sump.



High Capacity Mechanical Leak Detectors*

Model	Description
401315902	STP-MLD-HC leak detector complete with adapter, for gasoline
401320902	STP-MLD-HCD leak detector complete with adapter, for diesel
401315901	Replacement high capacity leak detector for gasoline only
401320901	Replacement high capacity leak detector for diesel only
401316930	Replacement cover assembly
401325901	Replacement "T" housing and cover assembly
400449902	MLD-HC hardware pack, includes fittings and documentation

*Refer to high capacity MLD installation manual for complete fuel compatibility specifications.



Three-Phase Smart Controller

STP-SCIII is designed to replace three-phase motor starters in both new and existing locations. The STP-SCIII controller provides valuable pump protection and performance features for an economical price.



Specifications:

- Enclosure size: 9-1/16" x 7-6/8" x 5 1/2" (230 mm x 196 mm x 140 mm).
- Compatible with three-phase FE Petro 3 and 5 hp submersibles and most competitive makes.
- Relay rating: 5 hp.
- Relay coil Amp consumption when pump is operating: 80 mA.
- Relay coil (hook) signal rating: 120 VAC.
- Pump "ON" indication is provided by flashing green light.
- Power "ON" indication is provided by steady green light.
- Flashing red light indicates fault condition. Number of flashes indicates specific fault.
- Audible alarm alerts operator of fault.
- Built-in voltage surge protection.
- Flashing yellow light indicates RS 485 is communicating.
- RS 485 com port.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

Advantages

Easy Retrofit - The STP-SCIII is compatible with most existing three-phase submersibles from 3 to 5 hp. Retrofitting existing stations is as simple as replacing the existing three-phase motor with the STP-SCIII. No additional wiring is required.

Continuous Diagnostics - The STP-SCIII constantly monitors for abnormal conditions that reduce motor life or cause down-time. When any of these conditions exists, the STP-SCIII will alert the service technician to the source of the problem: dry run, extended run, overvoltage, undervoltage, relay fault, voltage/current unbalance, locked rotor, phase loss or open circuit.

Pump Auto-Start - Provides "on demand" automatic pump start of up to eight submersible pumps manifolded to the same discharge line. Lead pump starts to satisfy initial demand and additional pumps are started as demand increases, reducing power consumption and extending pump life.



STP-SCIII Three-Phase Smart Controller*

Part Number	Description
5800103200	STP-SCIII three-phase smart controller (when purchased with a 6" STP)
5800103200	STP-SCIII three-phase smart controller (when purchased without a 6" STP)

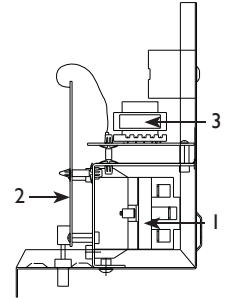
Notes: 1. One STP-SCIII required per submersible, relay rated for 30 Amps.

2. STP-SCIII models do not utilize the pump motor thermal overload wiring (blue leads).

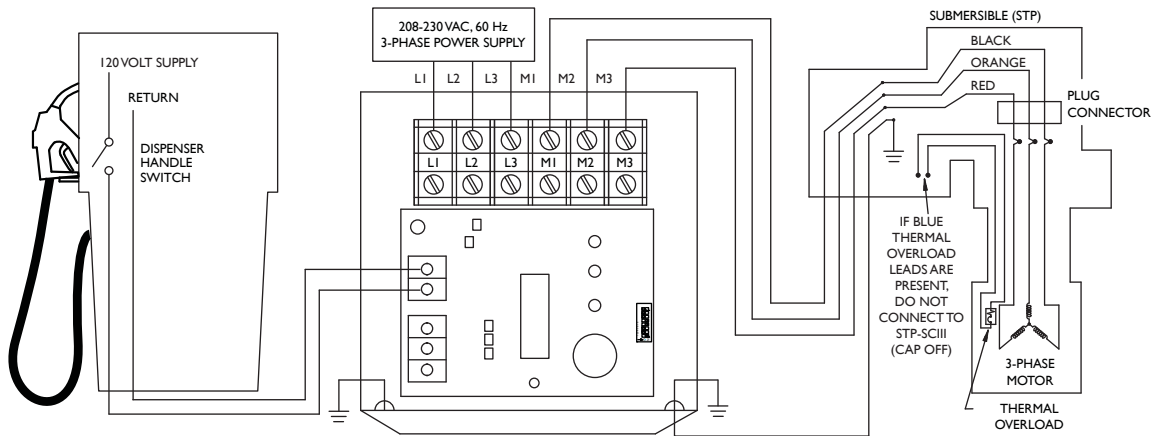
*STP-SCIII is compatible with FE Petro 3 and 5 hp submersibles and competitive makes except the 460 and 575 Volt models. When purchasing STP-SCIII in equal quantities of fixed speed 6" STPs, the STP-SCIII will be invoiced at special discount pricing.

STP-SCIII Repair Parts

Item	Part Number	Description
1	223878101	Three-phase relay, 120 Volt coil
2	223905901	Logic board assembly
3	223910901	208-230 Volt power board assembly



STP-SCIII Three-Phase Smart Controller Standalone Wiring Diagram



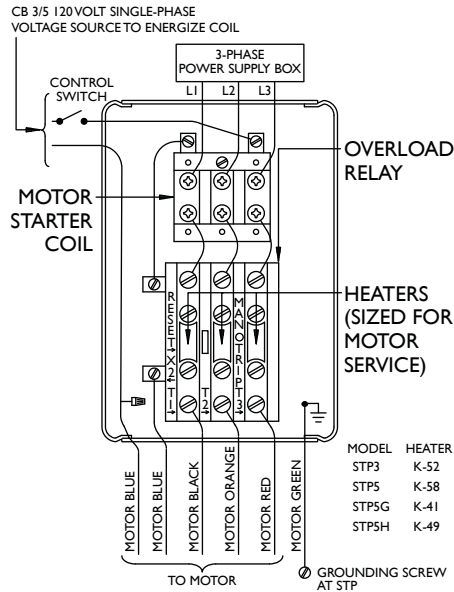
Note: See product installation instructions for further details. Wiring must conform to all federal, state and local electrical codes. Motor control panel is for non-hazardous location use only.

STP-CB 3/5 Magnetic Starter

The FE Petro magnetic starter incorporates ambient compensated relays with quick trip heaters and three leg protection to assure proper pump motor protection.



STP-CB 3/5 Wiring Diagram



Specifications:

- Compatible with three-phase FE Petro 3 and 5 hp submersibles and most compatible models.
- Relay rating: 5 hp.
- Relay coil Amp consumption when pump is operating: 80 Amps.
- Relay coil hook signal rating: 120 Volts for all versions except CBB5H, which is energized by 220 Volt dispenser signal.
- Incorporates ambient compensation quick-trip, three-leg protection circuitry with test and reset button.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.



CB 3/5 Repair Parts

Part Number	Description
401220901	STP-CB3 three-phase control box, 120 Volt relay, 3 hp, 208-230 Volt, 60 Hz pump control
401220902	STP-CB5 three-phase control box, 120 Volt relay, 5 hp, 208-230 Volt, 60 Hz pump control
401220992	STP-CB5G three-phase control box, 120 Volt relay, 5 hp, 575 Volt, 60 Hz pump control
401220932	STP-CBB5H three-phase control box, 220 Volt relay, 5 hp, 460 Volt, 60 Hz pump control

Part Number	Description
401222001	STP-CB5 heater, three required per control box
401222004	STP-CB3 heater, three required per control box
401222003	STP-CBB5H heater, three required per control box
401222012	STP-CB5G heater, three required per control box



Replacement Pump Motor Assemblies*

Model	Description
PMA3	3 hp 208-230 Volt 6" pump motor assembly
PMA3RJ	3 hp 208-230 Volt 6" pump motor assembly, replaces competitive model UMP300J4-2HB
PMAAG3	3 hp 208-230 Volt 6" AG pump motor assembly
PMA5	5 hp 208-230 Volt 6" pump motor assembly
PMA5RJ	5 hp 208-230 Volt 6" pump motor assembly, replaces competitive model UMP500J4-2K
PMAAG5	5 hp 208-230 Volt 6" AG pump motor assembly
PMA5H**	5 hp 460 Volt 6" pump motor assembly
PMAAG5H**	5 hp 460 Volt 6" AG pump motor assembly
PMA5G**	5 hp 575 Volt 6" pump motor assembly
PMA5GRJ**	5 hp 575 Volt 6" pump motor assembly, replaces competitive model UMP500J6-2K
PMAAG5G	5 hp 575 Volt 6" AG pump motor assembly

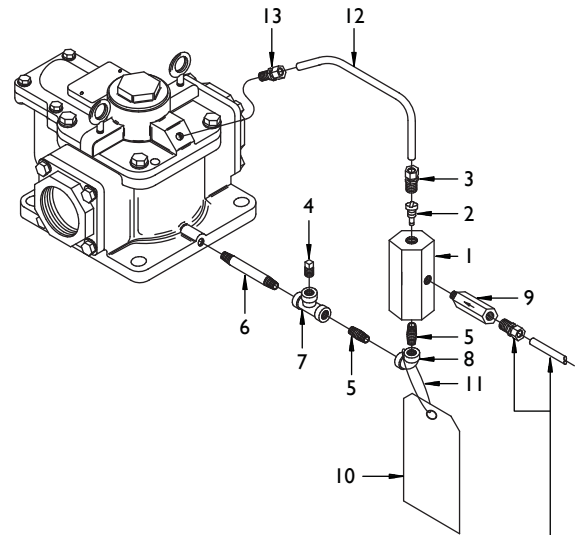
Note: Alcohol-gasoline pumps are compatible with fuel mixtures containing 10% ethanol and gasoline and 20% MTBE, 20% ETBE or 17% TAME with gasoline.

*For pump motor assemblies with floating suction adapters (3" male NPT connections), specify "F" in the model number and adder charge applies (must be ordered with PMA).

**Please call customer service for lead time on these items.

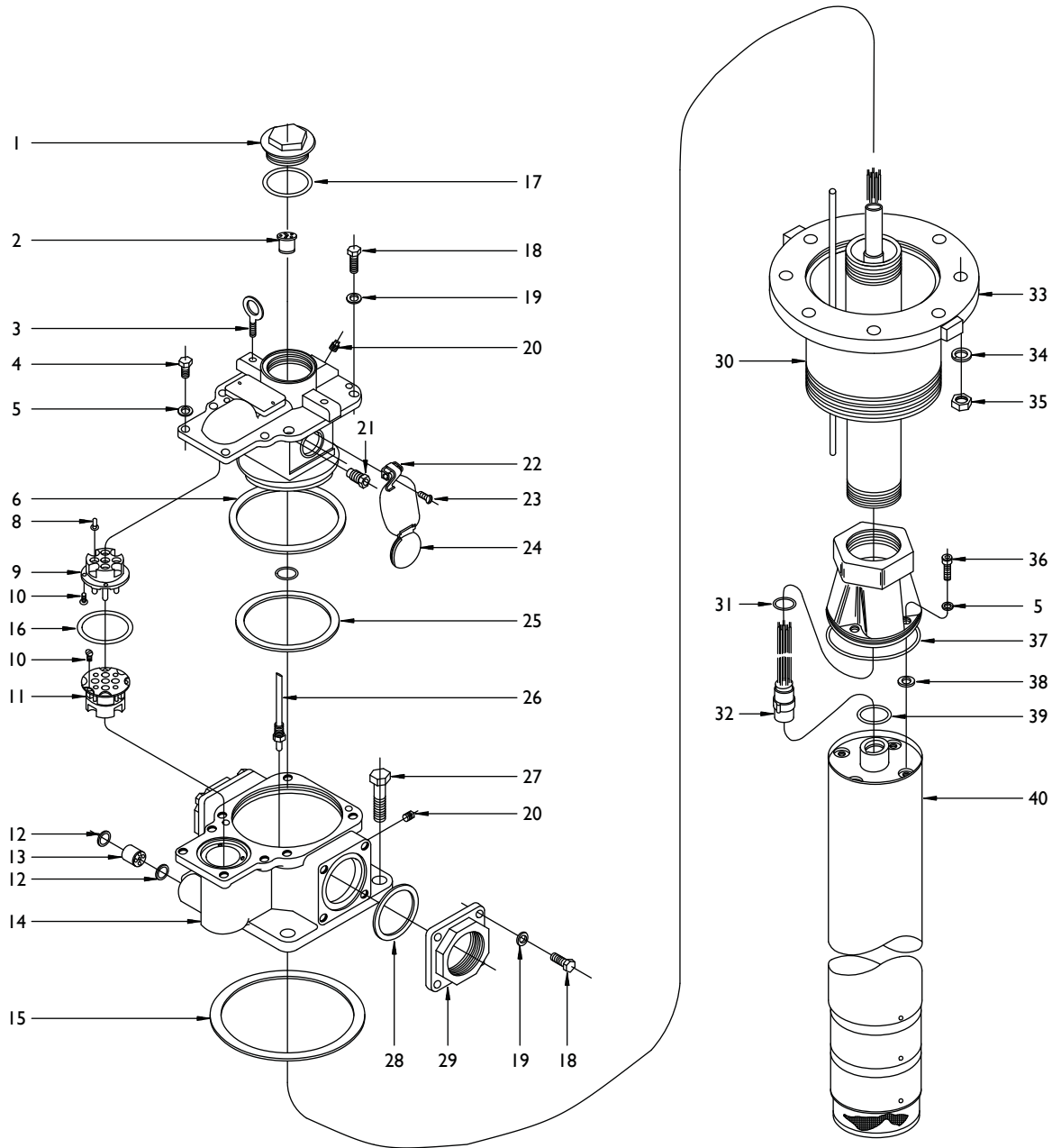
Syphon System

Item	Part Number	Description
1	402505001	Syphon block
2	400562901	Syphon jet assembly
3	400430004	3/8"P × 3/8"T compression fitting
4	400259001	1/4" pipe plug
5	400114001	1/4" close nipple, two required per system
6	400114003	1/4" nipple × 3" long
7	402510001	1/4" threaded tee
8	402511001	1/4" threaded elbow, 90°
9	400137937	Syphon check valve
10	402544001	Caution tag
11	400982001	Security seal
12	402553902	Copper tube (HC pump)
13	400430003	1/4"P × 3/8"T compression fitting
NS	401165930	Syphon unit complete, includes all items above



CONNECT 1/4" NPT × 3/8" TUBE FITTING TO CHECK VALVE AND 3/8" OD COPPER TUBING TO HIGHEST POINT IN SYPHON LINE (FURNISHED BY CUSTOMER)

High Capacity General Assembly



STP3 and STP5

(Tokheim™ Model 550 6" Submerged Pump general assembly)

Item	Part Number	Qty	Description
1	401148101	1	Connection box cover
2	400236909	1	Seal off plug assembly
3	401149001	2	Eye bolt
4	400258002	4	3/8-16 × 1" large Hex head cap screw
5	400285002	8	3/8" lock washer
6	401236002	1	Upper AG compatible manifold seal
8	400273004	6	12 gauge wire terminal
	400273006	4	14 gauge wire terminal
9	401142901	1	Plug assembly
10	401091001	6	6-32 × 3/8" large round head machine screw, three required per connector
11	401137901	1	Receptacle assembly
12	401238001	2	Bushing ring
13	401239001	1	Seal plug
14	401112101	1	Discharge manifold
15	401163001	1	6" flange gasket
16	400333235	1	AG compatible O-ring
17	400210234	1	O-ring
18	400258005	12	1/2-13 × 1/4" large Hex head cap screw
19	400285005	12	1/2" lock washer
20	400259001	2	1/4" pipe plug
21	401032901	2	Pressure relief valve (old standard relief, tire valve)
	401330901	1	Standard relief (units built since S/N 0302XXXX)
	401330902	1	Model "R" relief (units built since S/N 0302XXXX)
22*	401154001	2	Valve spring and bracket
23	400523001	4	10-24 × 3/8" long Sems fastener, two required per bracket
24*	401150101	2	Inset valve assembly (check valve)
25	401236001	1	AG compatible lower manifold seal
26	401158903	1	Air eliminator assembly
27	400258006	4	3/4-10 × 3" large Hex head cap screw
28	401162001	2	3" flange gasket
29	401113101	2	3" companion flange
30	4011910XX 6-5/8" OD × 1/4" WT (XX = length)	1	6" riser pipe 9" riser pipe 12" riser pipe 15" riser pipe 18" riser pipe 21" riser pipe 24" riser pipe 27" riser pipe 30" riser pipe
31	400333218	1	AG compatible O-ring
32	151593906	1	192" lead assembly
33	401161101	1	6" flange
34	400285006	4	3/4" lock washer
35	400274004	4	3/4-10 Hex nut
36	400264011	4	3/8-16 × 1-1/4" large SHCS
37	400333255	1	AG compatible O-ring
38	402406001	4	Rubber washer
39	400333225	1	O-ring
40	PMA XXX	1	Pump motor assembly, includes #37, #39, and four #5, #36, and #38 (XXX indicates options and horsepower)

*401154001 and 401150101 must be ordered together

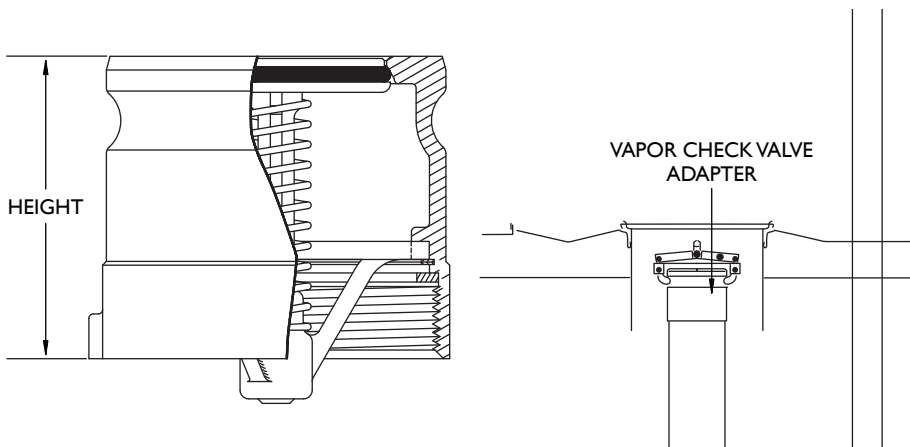
300 Vapor Check Valve Adapter

The vapor check valve adapter permits coupling to the vapor return line from the underground tank in dual point systems. The poppet design seals off the vapor path when not coupled.



Advantages

- Constructed of anodized aluminum or brass body.
- Fits all 4" vapor recovery elbows.



Model	Elbow Size	Riser Thread	Height		Body Material	Weight	
			In.	mm		Lbs.	Kg
300-210-01	4"	4"	4.19	107.00	Anodized aluminum	4.30	1.95
300-220-01	4"	4"	4.19	107.00	Brass	12.50	5.66
300-300-01	4"	3"	5.44	139.00	Anodized aluminum	4.30	1.95
300-300-31	4"	3"	5.44	139.00	Anodized aluminum	4.30	1.95
Model	Description						
770-201-02	3" replacement gasket						
770-201-03	4" replacement gasket						

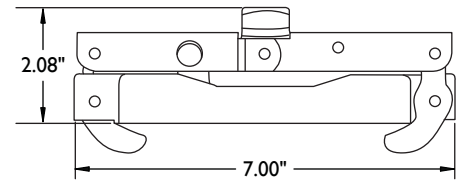


Advantages

- Two body styles to choose from, glass-filled nylon and epoxy coated aluminum.
- Padlock capability.
- Iron-copper infiltrated 4" cams.
- Corrosion-resistant steel hatches.
- Orange body for easy identification.
- Construction is cast brass and stainless steel for long life.

304 4" Vapor Recovery Cap

The vapor cap secures the vapor check valve preventing dust and debris buildup. It also protects the vapor poppet of a dual point fill system. Orange in color to indicate vapor recovery lines and lockable to prevent misuse, our vapor cap fits all 4" male quick couplings. The cam action creates a solid push down and pull up movement for fast, easy removal and replacement of cap.



304-200-01

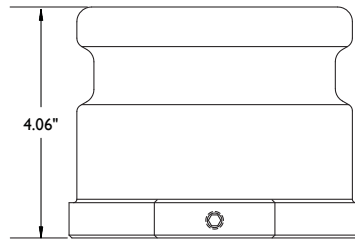
Model	Material	Weight	
		Lbs.	Kg
304-200-01	Glass-filled nylon	1.19	0.53
304-301-01*	Epoxy coated aluminum	1.38	0.63
304-301-03**	Biofuel cap	1.38	0.63
304-200-02	Glass filled nylon w/chain	1.19	0.53
304-301-02	Epoxy coated aluminum w/chain	1.38	0.63
Model	Description		
777-111-01	Replacement gasket for 304-200-01		
950-215-01	Replacement gasket for 304-301-01		

*CARB: EVR Phase I Certification VR-101 and VR-103 and Missouri MOPETP APCP-002-001-99.

**Biofuel approved model (E85 and biodiesel), CARB: EVR Phase I Certification VR-101.

306/708 4" Coaxial Vapor Recovery Adapters/Drop Tubes

The EBW coaxial vapor recovery adapter provides an inexpensive way to convert conventional underground storage tank fill risers to coaxial vapor recovery for Stage I vapor recovery requirements where the cap can remain on the adapter during vapor testing. When used in conjunction with EBW coaxial drop tubes, the coaxial vapor recovery adapter allows product to flow through the center while vapors escape around the edge of the drop tube back to the delivery truck.



Advantages

- Constructed of hard coated aluminum.
- Set screw on the adapter prevents movement on the riser pipe ensuring a tight seal.
- Bodies constructed of hard-coat anodized aluminum for compatibility with E-85 and Biodiesel.

Model	Description	Weight	
		Lbs.	Kg
306-300-01	Non-Poppeted Coax V.R. Adaptor-NPT	1.52	0.69
306-300-21	Non-Poppeted Coax V.R. Adaptor-BSPT	1.59	0.69
708-335-901	Poppeted Coax V.R. Adaptor	3.30	1.50
708-336-901	Poppeted Coax & Drop Tube Kit	Call	Call

708-335-901 Poppeted Coaxial Vapor Recovery Adaptor must use 708-332-901 Drop Tube.



EBW coaxial drop tube is designed to replace conventional EBW drop tubes when coaxial single point Stage I vapor recovery is required and no other vapor fill risers are available.

Coaxial drop tubes contain aluminum centering tabs welded to the tube, allowing vapors to return to the delivery truck through the space between the drop tube and the fill riser pipe.

For use with the EBW 306-300 coaxial adapter (order separately).

New Poppeted Coaxial Vapor Recovery Adaptor and Drop Tube kit seals off vapor path of ullage space through drop tube when not in use.

Model	Description	Weight	
		Lbs.	Kg
708-226-04-2	4" x 13' Coaxial drop tube, two per box	24.00	10.89
708-332-901	4" x 6.5' Coaxial drop tube for Poppeted Adaptor	40.00	18.18
708-336-901	Poppeted Coax Adaptor & Drop Tube Kit	45.00	20.45



2" Ball Float Advantages

- Epoxy coated steel nipple to prevent dissimilar metals from contacting each other.
- Stainless steel ball float is corrosion-resistant for long life.

3" Ball Float Advantages

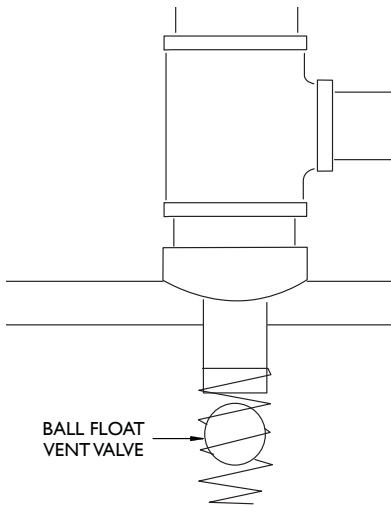
- Both 2" and 3" now include E-coated steel installation cage.
- Stainless steel ball float is corrosion-resistant for long life.

308 Ball Float Vent Valves

The EBW ball float vent valves are used in conjunction with extractor vent valves in the Stage I vapor riser or tank vent line on underground storage tanks. The ball float vent valve will restrict vapor venting should a full tank condition occur and protects against product mixing and vapor locks due to vent pipe flooding. The bleed hole allows for delivery hose drainage after an overfill.

EBW 3" ball float vent valves are designed to comply with the California Enhanced Vapor Recovery program CP-201 requirements for 3" nominal vapor return piping. When used with an overfill alarm, this valve provides recognized overfill protection for a UST. The valve includes a brass installation cage and will fit all EBW extractor vent fittings. All ball floats are made of materials fully compatible with alcohol/gas blends and biofuels (E-85, Biodiesel, B-20)

WARNING: EBW 308 Series float vents should not be used with suction pump systems. For use on gravity drop systems only. Do not use with pump-off unloading. Do not use with coaxial Stage I vapor recovery drop tubes.



2" Ball Floats

Model	Nipple Length	Bleed Hole	Thread
	In.	In.	
308-020-003	3.00	0.06	NPT
308-020-205	5.12	0.06	NPT
308-020-107	7.00	0.06	NPT
308-020-112	12.00	0.06	NPT
308-020-116	16.00	0.06	NPT
308-020-216	16.00	0.13	NPT
308-023-003	3.00	0.06	BSPT
308-023-107	7.00	0.06	BSPT
308-023-112	12.00	0.06	BSPT
308-023-116	16.00	0.06	BSPT
308-023-115*	15.00	0.06	BSPT
308-024-119*	19.00	0.06	BSPT

*Does not include Installation Cage.

3" Ball Floats

Model	Nipple Length	Bleed Hole	Thread
	In.	In.	
308-030-005	5.00	0.06	NPT
308-030-008	8.00	0.06	NPT
308-030-011	11.00	0.06	NPT
308-030-012	12.00	0.06	NPT
308-030-014	14.00	0.06	NPT
308-030-018	18.00	0.06	NPT
308-030-021	21.00	0.06	NPT

Installation Cages

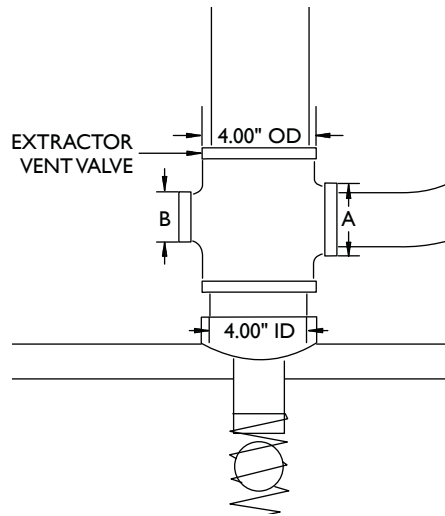
Model	Size	Thread
	In.	
308-228-02	2.00	NPT
308-228-03	3.00	NPT
308-228-04	2.00	BSPT

300 Series Extractor Vent Valves

EBW extractor vent valves are designed to fit into a 4" tank opening on an underground storage tank. Models with a brass cage assembly are used in conjunction with EBW 2" float vent valves offering easy removal for maintenance or testing. Several outlet sizes are available to accommodate manifolded tank lines and Stage II vapor recovery installations.

Advantages

- E-coated bodies are fully compatible for alcohol/gas blends and biodiesel.



Model	Description	A		B		Weight	
		In.	mm	In.	mm	Lbs.	Kg
310-400-11	Without cage-NPT	2.00	51.00	n/a	n/a	13.00	5.90
311-400-11	Without cage-NPT	3.00	76.00	n/a	n/a	13.00	5.90
330-400-11	Without cage-NPT	3.00	76.00	2.00	51.00	18.00	8.16
331-400-11	Without cage-NPT	3.00	76.00	3.00	76.00	15.00	6.80
340-400-11	Without cage-NPT	2.00	51.00	2.00	51.00	17.00	7.71
340-400-41	Without cage-BSP	2.00	51.00	2.00	51.00	17.00	7.71



Extractor Vent Valve Accessories

Plug used for isolating vent piping from tank during testing.

Model	Description	Weight	
		Lbs.	Kg
391-201-01	4" test plug	3.60	1.63



Insert cage for use with EBW 2" float vent valves.

Model	Description	Weight	
		Lbs.	Kg
310-200-01	Insert cage	1.00	0.45



Model	Description	Weight	
		Lbs.	Kg
760-201-01	4" pipe cap	4.60	2.09



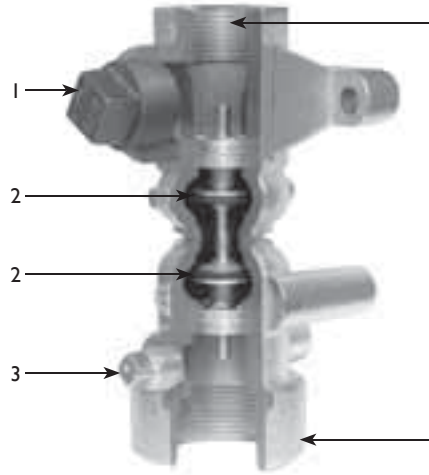
Five-foot extractor wrench works on all EBW extractor vent valves for removing extractor cage assemblies and inserting test plugs.



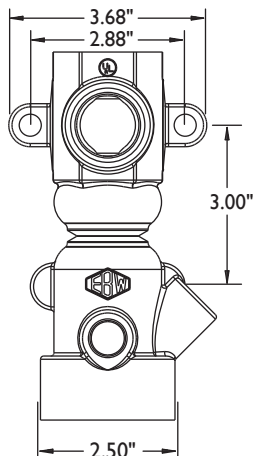
Model	Description	Weight	
		Lbs.	Kg
321-100-01	5' extractor wrench	14.00	6.35

362 Vapor Shear Valve

The EBW 362 vapor shear valve is designed for use as an emergency breakaway on Stage II vapor recovery lines in fuel dispensers. The double poppet design allows spring-loaded poppets inside the valve to seal vapors within both the dispenser riser and vapor piping in the event of dispenser displacement, providing maximum environmental protection.



Number	Description
1	1" test plug
2	Double poppet design
3	3/8" test plug
4	1" dispensing side opening
5	Boss mount
6	U-bolt mount
7	1-1/2" female



Advantages

- Dual poppets seal vapors in dispenser riser and in vapor line for maximum environmental protection.
- One 1" test port and two 3/8" test ports eliminate extra T-joints in vapor line which reduces potential leak points and provides more flexibility for Stage II vapor recovery installation.
- Durable zinc plated body is resistant to corrosion.
- Standard U-bolt and boss mount allow for quick and easy installation.
- Base thread includes 1-1/2" female.
- Biofuel approved model (E85 and biodiesel).
- California State Fire Marshal approved.



Model	Description
362-206-03	1" x 1-1/2" NPT thread vapor shear valve



Advantages

- Fusible link closes poppet in the event of a fire (165.0 °F and 73.9 °C).
- Single and double poppet.
- Main poppet seals in valve body, preventing accidents when replacing adapters.
- Zinc plated body corrosion protection.
- Solid 3/8" test plug area prevents body from cracking if plug is over-tightened.
- Meets NFPA 30A requirements.



Materials

- Top: zinc plated cast iron.
- Body: zinc plated cast iron.
- Poppet: fluorocarbon.
- Carrier: zinc plated steel.
- Stem: stainless steel.
- Poppet spring: stainless steel.
- O-ring: fluorocarbon.
- Packing nut: brass.
- Inlet and outlet thread.

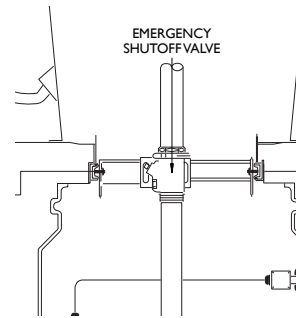
662 Emergency Shut-off Valves

EBW emergency shut-off valves immediately stop product flow in the event of fire or collision at the dispenser. A patented adapter shears clean upon impact, causing the poppet to seal on the valve body preventing fuel spillage. When fire occurs, a fusible link releases the fulcrum arm, engaging the poppet. Standard 1-1/2" NPT openings allow minimal flow restriction and a pre-drilled test plug is included for line pressure testing. The valve can be boss or U-bolt mounted. Easy-to-replace adapters slide on and off valve base without lifting the dispenser. Adapters are available in male, female or union connections.

Single poppet models stop product flow from the pump. Double poppet models stop flow from the pump and dispenser piping.

Note: The closing feature of an automatic shut-off valve must be checked at least once per year by manually tripping and holding linkage.

NFPA WARNING: Annually test auto shut-off. Electrical supply to the submersible pump must always be disconnected before servicing meters, dispensers or emergency shut-off valves. Do not apply more than 50 psi to valve with poppet in its closed position. Valve seat and disc damage may occur.



Model	Size	Poppet	Application	Replacement Adapter
662-410-01	1-1/2" NPT	Single	Pressure	662-118-01
662-440-01	1-1/2" NPT	Double	Pressure	662-241-01

Model	Size	Poppet	Application	Replacement Adapter
662-410-02	1-1/2" NPT	Single	Pressure	662-118-02
662-410-12*	1-1/2" NPT	Single	Pressure	662-118-22
662-420-22	1-1/2" BSPT	Single	Pressure	662-128-02
662-440-02	1-1/2" NPT	Double	Pressure	662-242-01
662-440-12*	1-1/2" NPT	Double	Pressure	662-242-21
662-450-22	1-1/2" BSPT	Double	Pressure	662-242-12
662-450-28*	1-1/2" BSPT	Double	Pressure	662-242-22
662-461-02	1-1/2" NPT	Double	Suction	662-252-01

*Biofuel approved model (E85 and biodiesel). May require three week lead time.

Model	Size	Poppet	Application	Replacement Adapter
662-410-03	1-1/2" NPT	Single	Pressure	662-118-03
662-420-23	1-1/2" BSPT	Single	Pressure	662-128-03
662-440-03	1-1/2" NPT	Double	Pressure	662-240-01
662-440-13	1-1/2" NPT	Double	Pressure	Call
662-450-23	1-1/2" BSPT	Double	Pressure	662-240-02

*Biofuel approved model (E85 and biodiesel).

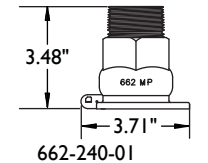
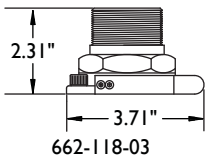
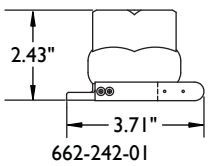
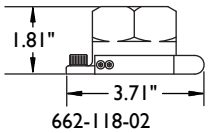
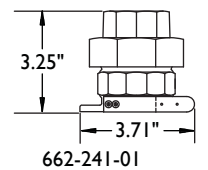
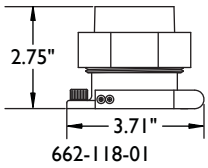
Emergency Shut-off Valve Accessories

Holds the single or double poppet shut-off valve rigidly in place, ensuring proper shearing.

Model	Description	Weight	
		Lbs.	Kg
662-138-01	U-bolt kit	0.30	0.14

Model	Description	Weight	
		Lbs.	Kg
662-185-01	Fulcrum arm with Hex	0.10	0.05
662-250-01	Fusible link assembly	0.10	0.05

Emergency Shut-off Valve Replacement Tops



Model	Poppet	Application	Shear Valve Adapter Used
662-118-01	Single	Pressure	662-410-01
662-241-01	Double	Pressure	662-440-01

Model	Poppet	Application	Shear Valve Adapter Used
662-118-02	Single	Pressure	662-410-02
662-128-02	Single	Pressure	662-420-22
662-242-01	Double	Pressure	662-440-02
662-242-02	Double	Pressure	662-450-22
662-252-01	Double	Suction	662-461-02

Model	Poppet	Application	Shear Valve Adapter Used
662-118-03	Single	Pressure	662-410-03
662-128-03	Single	Pressure	662-420-23
662-240-01	Double	Pressure	662-440-03
662-240-02	Double	Pressure	662-450-23

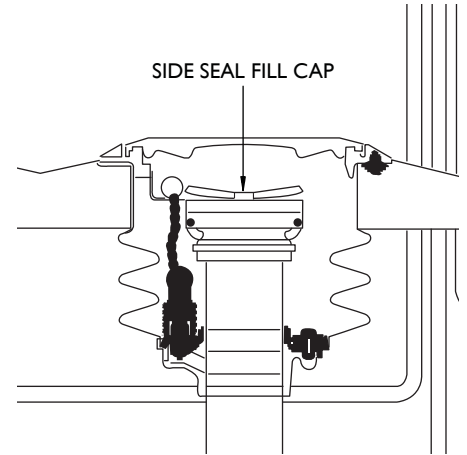


Advantages

- Padlock capability for positive locking.
- Stainless steel latches.
- Cap body made from corrosion-resistant epoxy coated aluminum.
- Iron-copper infiltrated cams.

775 4" Side Seal Fill Cap

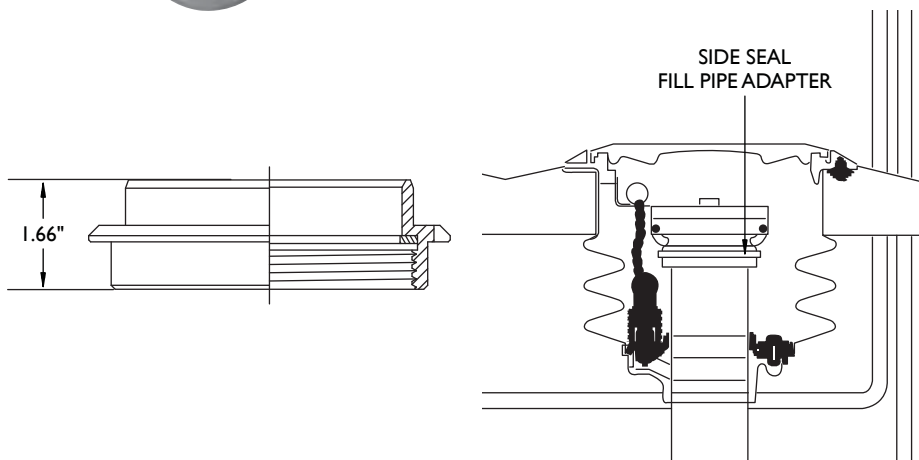
The EBW side seal fill cap is used to prevent vapors from escaping from the fill riser pipe on the underground storage tank when it is not being filled. The easy-to-operate T-handle provides a convenient method of removal and replacement — simply pull to remove and push to replace.



Model	Description	Weight	
		Lbs.	Kg
775-202-01	4" side seal fill cap	2.00	0.90
Model	Description		
775-104-01	4" replacement gasket		

776 4" Side Seal Fill Adapter

The EBW side seal fill pipe adapter is installed on the fill riser pipe in spill containment manways on underground storage tanks. The adapters are used to connect delivery drop elbows to the fill pipe for fuel deliveries. The EBW side seal adapter fits all 4" side seal drop elbows and side seal fill caps.



Advantages

- Constructed of ASTM B62 corrosion-resistant brass.
- Nitrile gasket provides a secure seal onto the fill riser pipe.

Model	Description	Weight	
		Lbs.	Kg
776-300-01	4" side seal fill adapter-NPT	2.00	0.90
776-300-31	4" side seal fill adapter-BSPT	2.00	0.90
Model	Description		
770-201-03	4" replacement gasket		

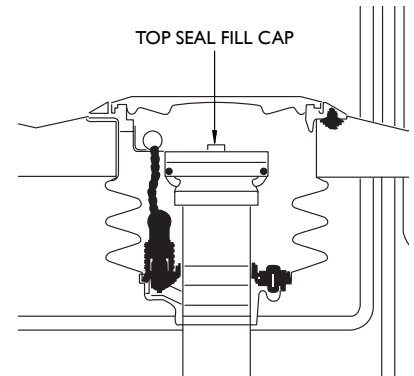
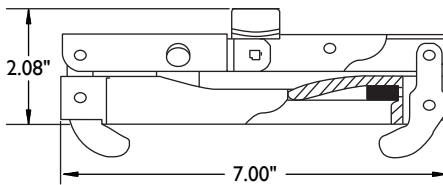


Advantages

- Glass-filled nylon and aluminum body styles available.
- Stainless steel latches.
- Padlock capability.
- Form fitting replaceable gasket, molds itself to the contour of the adapter to form a positive seal for added protection.

777 4" Top Seal Fill Caps

EBW top seal fill caps are used to prevent vapors from escaping the fill riser pipe on the underground storage tank when it is not being filled. The geometry of the linkage provides self-centering characteristics for dependable sealing. The easy-to-operate T-handle provides a convenient method of removal and replacement — simply pull to remove and push to replace.



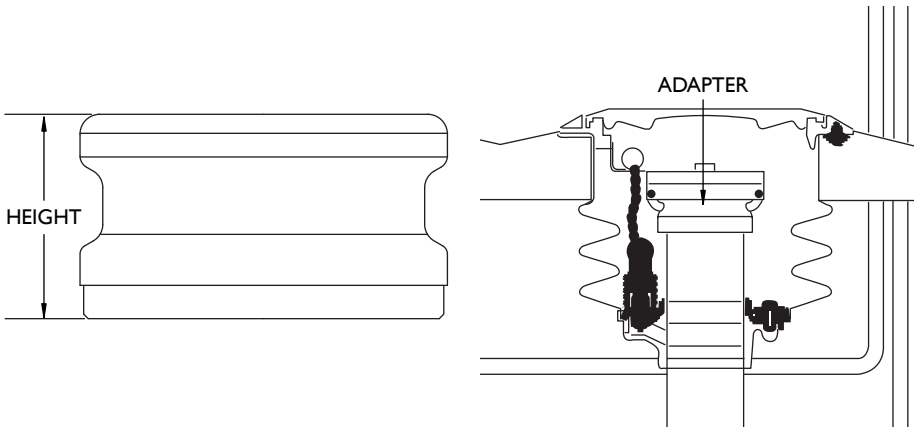
Model	Description	Weight	
		Lbs.	Kg
777-201-02*	CARB EVR glass filled nylon Gas/E85	1.00	0.45
777-202-01	Aluminum, epoxy coated grey	1.12	0.51
777-202-02	Aluminum, epoxy coated grey AGB	1.12	0.51
777-1111-01	Replacement nitrile gasket	0.20	0.90
950-215-01	Replacement gasket for 777-201-02	0.20	0.90

*Biofuel approved model (E85 and biodiesel), CARB: Phase I Certification VR-101.

Note: 777-201-02 replaces 777-201-01

778 Top Seal Fill Pipe Adapter

Top seal fill pipe adapters are installed on the fill riser pipe in spill containment manways on an underground storage tank. The adapters are used to connect delivery drop elbows to the fill pipe for fuel deliveries. Adapters can be ordered with or without wrenching lugs to suit your installation preference. EBW top seal fill pipe adapters fit all top seal drop elbows and top seal fill caps.



Advantages

- Constructed of ASTM B62 corrosion-resistant brass.
- Nitrile gasket for a secure seal onto the fill pipe.

Model	Height		Description	Weight	
	In.	mm		Lbs.	Kg
778-301-01*	2.69	68.27	4" with lugs- NPSM	2.00	0.90
778-301-02*	2.69	68.27	4" without lugs- NPSM	2.00	0.90
778-301-05**	2.69	68.27	4" with lugs- NPSM	2.00	0.90
778-301-06*	2.69	68.27	4" with lugs Stainless Steel- NPSM	2.08	0.95
778-301-32	2.69	68.27	4" without lugs- BSPP	2.00	0.90
778-302-01	2.25	57.15	3" with lugs- NPSM	2.00	0.90
778-302-31	2.25	57.15	3" with lugs- BSPP	2.00	0.90
778-303-02	2.69	68.27	4" composite with gasket- NPSM	2.00	0.90
778-303-30	2.69	68.27	4" composite- BSPP	0.49	0.22
778-303-32	2.69	68.27	4" composite with gasket- BSPP	0.49	0.22
780-200-01	1.75	44.45	3" without lugs- NPSM	2.00	0.90

Model	Description
770-201-02	3" replacement gasket
770-201-03	4" replacement gasket

*Missouri #99-08

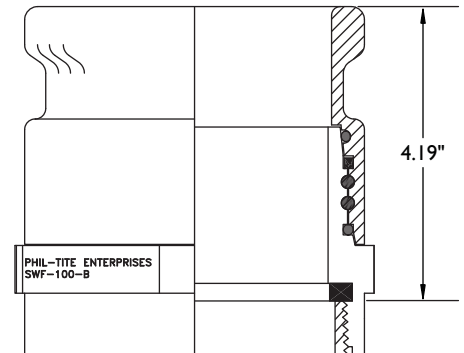
**Biofuel compatible model (E85 and biodiesel).

Advantages

- Prevents vapor leaks from loosening on 4" riser during tank fills.
- Adds approximately 4" to riser height to fit under most existing fill and vapor manway covers.
- Swivels on two rows of corrosion-resistant chromium steel ball bearings for long life in high volume stations.
- All vapor seals are fluorocarbon and inert in motor fuels.
- Stainless steel models provide additional durability while also making the site future fuels ready and are CARB State I EVR approved under executive order VR-101.

SWF-100 Top Seal Swivel Fill Pipe Adaptor

The top seal swivel fill pipe adaptor helps prevent leaks caused by constant fill delivery elbow movement on the fill adapter. The top section rotates during normal deliveries, preventing the bottom section from loosening on the fill riser pipe, causing a vapor leak around the adaptor. The top seal swivel fill adaptor fits all 4" top seal delivery elbows.



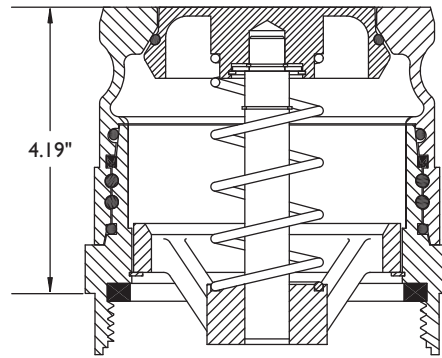
Model	Thread	Weight	
		Lbs.	Kg
SWF-100-SS**	NPT	7.00	3.18
SWF-100-B*	NPT	7.00	3.18
Model	Description		
SWFV-PKGSS**	Includes one SWF-100-SS and one SWV-101-SS swivel adapter		
SWFV-PKG*	Includes one SWF-100-B* and one SWV-101-B* swivel adapter		
85039	Replacement gasket for all swivel adapter models.		
705-412-01	RCA SS Swivel Fill Kit (Includes one 705213305 5" nipple, one 77720102 4" TOP SEAL CAP and one SWF100SS swivel fill adaptor)		

*EVR Phase I Certification VR-101 and VR-103 and Missouri MOPETP APCP-0002-001-99.

**EVR Phase I Certification VR-101 for gas and E85.

SWV-101 Top Seal Swivel Vapor Pipe Adaptor

The vapor swivel adapter helps prevent vapor leaks caused by constant elbow movement on the vapor riser pipe. The top section rotates during normal deliveries, preventing the bottom section from loosening on the vapor riser, which can cause a vapor leak around the adapter. The poppet design seals off the vapor path when not coupled.



Advantages

- Prevents vapor leaks from loosening on 4" riser during tank fills.
- Adds approximately 4" to riser height under most existing fill and vapor manway covers.
- Swivels on two rows of corrosion resistant chromium steel ball bearings for long life in high volume stations.
- Vapor poppet's 5/8" diameter stainless steel stem is virtually impossible to cock open, preventing vapor loss from mechanical misalignment.
- All vapor seals are fluorocarbon and inert in motor fuels.
- Stainless steel models provide additional durability while also making the site future fuels ready and are CARB State I EVR approved under executive order VR-101.

Model	Description	Weight	
		Lbs.	Kg
SWV-101-SS**	4" stainless steel vapor swivel adapter	10.25	4.64
SWV-101-B*	4" vapor swivel adapter	10.65	4.83
Model	Description		
SWFV-PKGSS**	Includes one SWF-100-SS and one SWV-101-SS swivel adapter		
SWFV-PKG**	SWF-100-B* and one SWV-101-B* swivel adapter		
85039	Replacement gasket		
705-413-01	RCA SS Vapor SWIVEL Kit (includes one 70521305 5" nipple, one 77720102 4" TOP SEAL and one SWV-101-SS vapor swivel adapter)		

*EVR Phase I Certification VR-101 and VR-103, tracer tight approved and Missouri MOPETP APCP-0002-001-99.

**EVR Phase I Certification VR-101 for gas and E85.

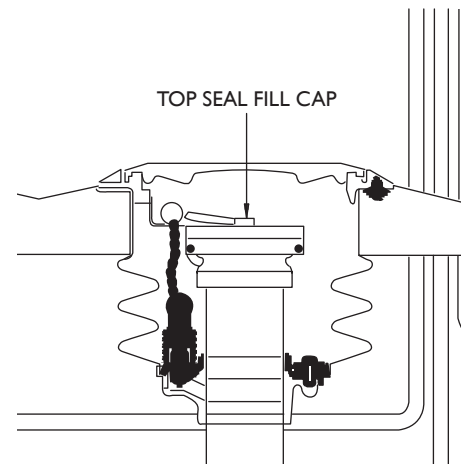
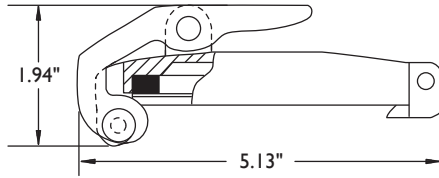


Advantages

- Extruded brass cam arm.
- Cap body made of corrosion-resistant epoxy coated aluminum.

779 3" Top Seal Fill Cap

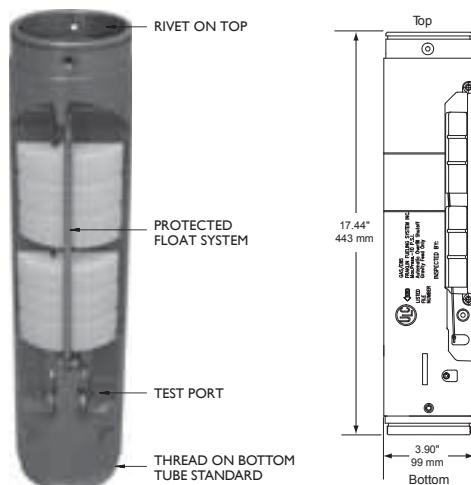
This durable 3" top seal single lever cap provides a tight positive seal on all 3" adapters.



Model	Description	Weight	
		Lbs.	Kg
779-200-01	3" top seal fill cap	1.00	0.45
Model	Description		
774-202-03	Replacement Buna-N gasket		

Autolimiter® II Automatic Shut-off Valve

The Autolimiter® overfill prevention valve is a self contained two-stage positive shut-off valve designed to prevent the overfill of an underground storage tank (UST) during a gravity fed product delivery. When the liquid level of the UST reaches about 92% of the tank capacity during a fill, the product in the tank raises the lower float of the valve. The primary poppet of the valve is then released and reduces flow to about 10% of normal flow. The sudden reduction in flow created by the closing of the primary poppet provides “line shock” to the fill hose notifying the transport delivery driver the tank is nearing 95% capacity. The transport delivery driver can then stop filling the tank, disconnect and drain the delivery hose. The upper float will close off the product flow when the product level reaches 95% of the tank capacity.



Advantages

- Two-stage, spring-loaded shut-off flapper reduces line shock.
- Vertical float design allows for valve to be removed even when tank is full.
- Inspection test port.
- Bottom tube threads on (except for -04 models).



Installation

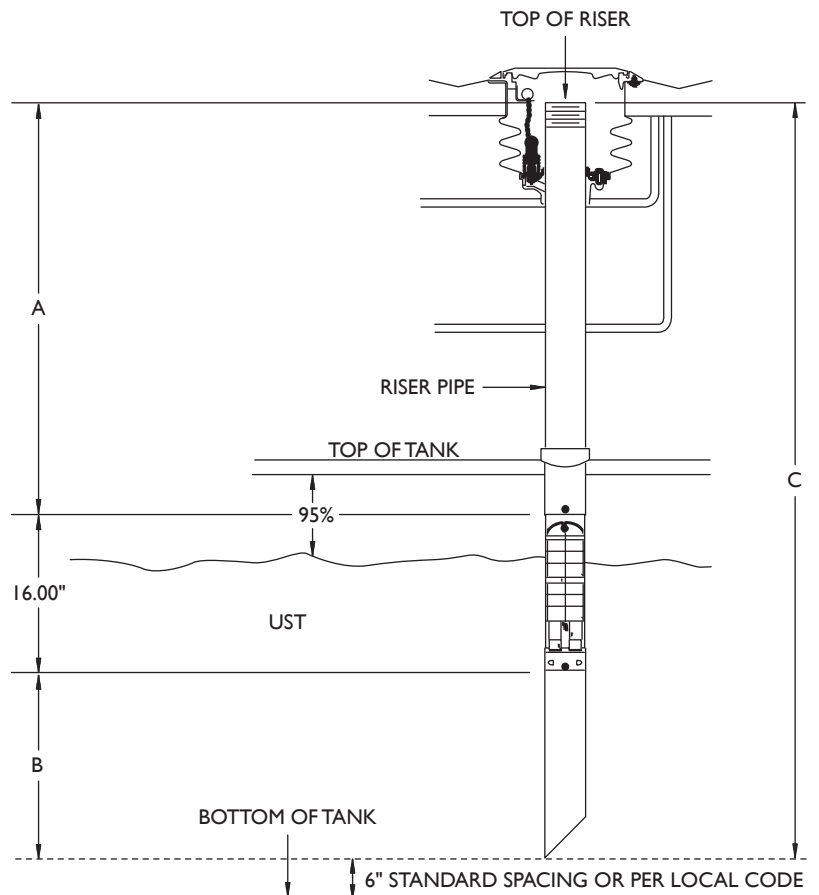
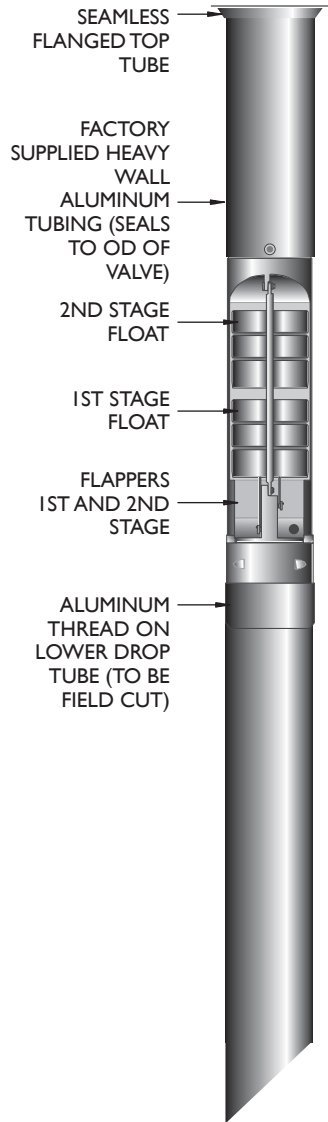
- The Autolimiter® II is designed solely for use in underground storage tanks. For gravity drops only. No attempt should be made to utilize this product with aboveground storage tanks. The valve would not function, creating a very dangerous condition.
- This product is for use in tight fill applications only.
- EVR Phase I models require T-6100-FT installation tool.

Model	Application	Overall Length
708-491-01	Dual point	172.00 in. / 4368.8 mm
708-491-02	Dual point	196.00 in. / 4978.4 mm
708-491-11*	Dual point	172.00 in. / 4368.8 mm
708-491-31**	Dual point	172.00 in. / 4368.8 mm
708-491-12*	Dual point	196.00 in. / 4978.4 mm
708-491-32***	Dual point	196.00 in. / 4978.4 mm
708-491-21	Dual point	172.00 in. / 4368.8 mm
708-492-01	Dual point	232.00 in. / 5892.8 mm
708-492-02	Dual point	256.00 in. / 6502.4 mm
708-492-11*	Dual point	216.00 in. / 5486.0 mm
708-492-21***	Dual point	216.00 in. / 5486.0 mm
708-492-22**	Dual point	256.00 in. / 6502.4 mm
708-492-31**	Dual point	216.00 in. / 5486.0 mm
708-492-12*	Dual point	240.00 in. / 6096.0 mm
708-492-32**	Dual point	240.00 in. / 6096.0 mm
708-493-03	Coaxial Non-Poppet	172.00 in. / 4368.8 mm
708-493-04	Coaxial Non-Poppet	196.00 in. / 4978.4 mm
708-494-02	Dual point valve only	Rivet on
708-494-03	Coaxial valve only	Rivet on
708-494-04	Dual point valve/adaptor kit	Rivet on
708-498-01	Installation Kit - Dual point	N/A
708-498-02	Installation Kit - CARB EVER	N/A
708-498-03	Installation Kit - Coaxial	N/A
708-498-11***	Installation Kit - Dual point AGB	N/A

*CARB EVR Phase I Certification VR-101 for gas, factory installed top tube to valve body.

**CARB EVR Phase I Certification VR-101 for gas/E85, factory installed top tube to valve body.

***Biofuel Compatible (E-85/Biodiesel)



Note: EVR valve requires flaring tool.

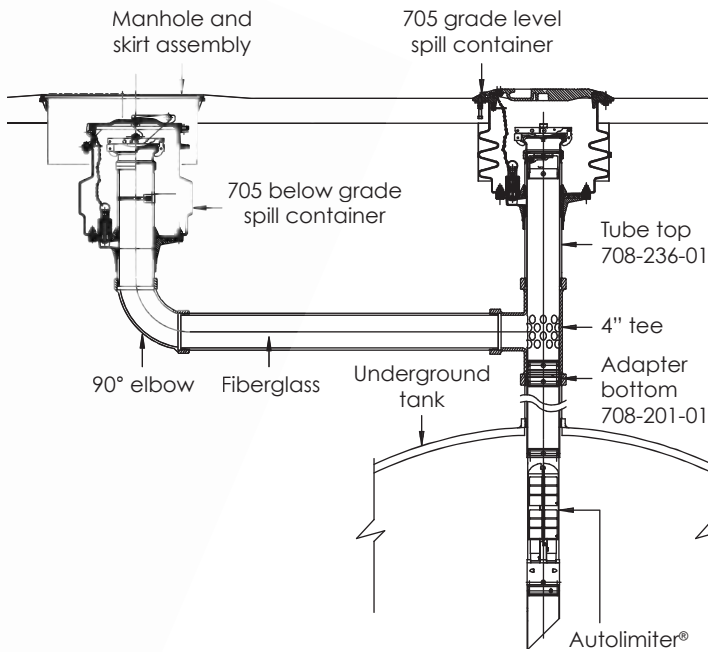
Model	A		B		C	
	In.	mm	In.	mm	In.	mm
708-491-01	60.00	1524.0	96.00	2438.4	172.00	4368.8
708-491-02	60.00	1524.0	120.00	3048.0	196.00	4978.4
708-491-11	60.00	1930.0	96.00	2438.4	172.00	4368.8
708-491-31	60.00	1930.0	96.00	2438.4	172.00	4368.8
708-491-12	60.00	1930.0	120.00	3048.0	196.00	4978.4
708-491-32	60.00	1930.0	96.00	2438.4	196.00	4368.8
708-491-21	60.00	1524.0	96.00	2438.4	172.00	4368.8
708-492-01	120.00	3048.0	96.00	2438.4	232.00	5892.8
708-492-02	120.00	3048.0	120.00	3048.0	256.00	6502.4
708-492-11	120.00	3048.0	96.00	2438.4	216.00	5486.0
708-492-31	120.00	3048.0	96.00	2438.4	216.00	5486.0
708-492-12	120.00	3048.0	120.00	3048.0	240.00	6096.0
708-492-32	120.00	3048.0	120.00	3048.0	240.00	6096.0
708-493-03	78.00	981.0	96.00	2438.4	172.00	4368.8
708-493-04	78.00	981.0	120.00	3048.0	196.00	4978.4
708-492-22	120.00	3048.0	120.00	3048.0	256.00	6502.4
708-494-XX	Valve only					

Remote Fill Kit

The EBW remote fill kit is needed when your tank location does not allow the space for a tanker truck or a convenient means to fill your tanks during high traffic periods. The remote fill can also be utilized for day or night filling, allowing delivery away from the main building during the day and close to the building during nighttime hours.

Advantages

- More flexibility with station and equipment design.
- Allows for sticking tank through main fill adapter.



Model	Length of Top Tube with Kit		Weight	
	In.	M	Lbs.	Kg
708-320-02	72.00	1.80	6.40	2.90



Advantages

- Flared end with Buna-N gasket for positive seating.

782 Drop Tubes

EBW drop tubes are available in two wall thicknesses. The thin wall (.035 thickness) models offer easy handling and installation. The heavy wall (.062 thickness) models offer more durability. The drop tube fits directly into the underground tank riser pipe in dual point vapor recovery and conventional non-vapor recovery fill systems. Fuel is efficiently delivered at a faster rate, and allows submerged filling, which generates less vapors and evaporation. The drop tubes are furnished with a straight cut bottom, which can be cut to length on the job site.

Note: For use with outside clamping drop elbows on adapter only. Do not use with inside expanding drop elbows.

2" size shipped six tubes per box.



Model	Tubes per Box	Size		Wall Thickness		OD		Weight	
		In. × Ft.	mm × M	In.	mm	In.	mm	Lbs.	Kg
782-202-12	6	2 × 12	51 × 3.66	0.42	10.67	1.88	48.00	45.00	20.41
782-203-12	4	3 × 12	76 × 3.66	0.42	10.67	2.94	75.00	32.00	14.51
782-204-10-2*	2	4 × 10	102 × 3.05	0.062	1.580	3.88	99.00	22.00	10.00
782-204-12-2*	2	4 × 12	102 × 3.66	0.062	1.580	3.88	99.00	26.00	11.80
782-204-15-2*	2	4 × 15	102 × 4.57	0.062	1.580	3.88	99.00	30.00	13.60
782-204-30-2**	2	4 × 10	102 × 3.05	0.062	1.580	3.88	99.00	22.00	10.00
782-204-32-2**	2	4 × 12	102 × 3.66	0.062	1.580	3.88	99.00	26.00	11.80

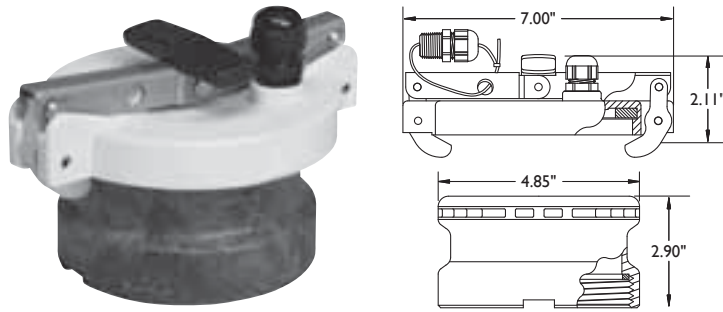
*CARB: EVR Phase I Certification VR-101 and VR-103.

**Biofuel approved models (E85 and biodiesel). CARB: EVR Phase I Certification VR-101.

Probe Cap and Adapter Kit

CARB EVR approved 4" probe riser cap is used to protect tank probes and secure probe or monitoring sensor connections. The easy-to-operate T-handle provides a convenient method of removal and replacement.

The 90037 adapter kit includes a 4" nylon cap with 1/2" and 3/8" cable bushing and a 4" composite adapter.



Advantages

- Durable nylon construction.
- CARB: EVR Phase I Certification VR-101 and VR-103.
- Missouri MOPETP approved APCP-0002-001-99.

Model	Bushing		Weight	
	In.	mm	Lbs.	Kg
90037-E*	0.50 and 0.38	12.70 and 9.50	1.92	0.87
Model	Description			
950-217-01	Replacement synthetic rubber gasket for adapter			
777-111-01	Replacement nitrile gasket for cap			

*CARB EVR Phase I certification VR-101 for gas and E85.

Tank Bottom Protectors

Designed to ensure a true tank bottom measurement and protect the bottom of the tank from punctures.



785-200-02



TBP-3516

Advantages

- Protects steel and fiberglass tanks from punctures and wear from gauge stick.
- Easily installs in drop tubes.

Model	Description
785-200-02	Zinc plated carbon steel with plastisole coating
TBP-3516-E**	Tank bottom protector

*CARB: EVR Phase I Certification VR-101 and Missouri MOPETP approved APCP-0002-001-99.

**Biofuel approved model E85 and biodiesel).



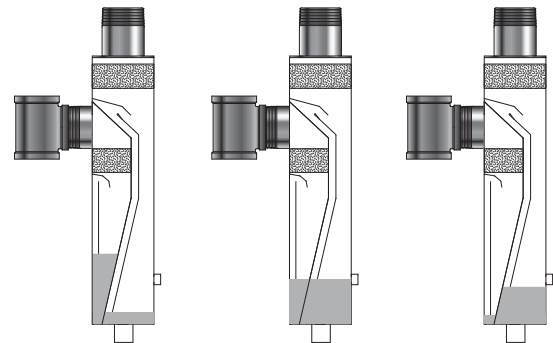
Advantages

- Installed, serviced and tested from ground level eliminating the need for ladder or costly boom truck.
- Liquid-based pressure and vacuum venting system with no leak rate.
- Stainless steel construction.
- Biofuels compatible.
- Stage I EVR approved to VR-101, 102, 103, 104, and 105 for use with gas and E85.
- UL 842 Listed



PV-ZERO™ Pressure/Vacuum Vent Valve

The PV-ZERO pressure/vacuum vent valve from Franklin Fueling Systems provides an innovative solution for tank venting needs. The patented liquid trap design utilizes vapor pressure to provide positive and negative pressure relief of an underground storage tank. The stainless steel design allows the PV-ZERO to be compatible with both gasoline and E85.



Tank Vacuum

Atmosphere

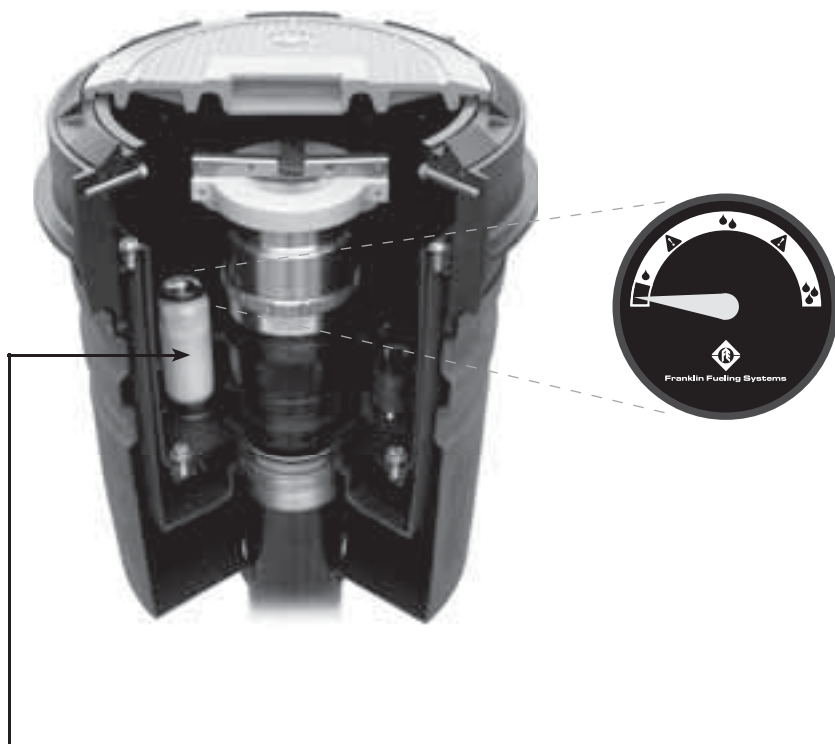
Tank Pressure

Model	Description
407215901	PV-ZERO pressure/vacuum vent valve, 3" NPT, gas and E85
407225901	PV-ZERO test cap assembly, gas and E85
407220001	PV-ZERO gas/E85 fluid

Note: May require four to eight week lead time. Consult factory for availability.

Defender Series™ Spill Container with I² Monitor

The Defender Series spill container combines years of knowledge and experience in forecourts across the globe to represent the next generation in spill containment. The Defender Series adapts alongside evolving environmental regulations with the latest innovations in spill containment. Get the best defense and quality construction with the Defender Series from Franklin Fueling systems.



I² Monitor

Monthly and annual visual inspections can be efficiently completed by inspecting the I² (Interstitial Integrity) Monitor to confirm liquid has not intruded the secondary containment space. An electronic liquid detection sensor option is also available for site owners who choose to install active leak detection methods to further protect their investment.

Advantages

• Fugitive Emission Protection

Proactively protecting a site from the dangers of fugitive emissions can save station owners both time and money by avoiding remediation due to fuel leakage. The Defender Series provides several key defenses from these costly expenses:

- 1/4" compression gasket provides a vapor tight mechanical seal.
- Drop tube compression adapter ensures a vapor tight seal.
- Drain valve designed to meet CARB leak rate requirements.
- Concentrated secondary containment catch basin provides immediate notification of integrity breach..

• Integrity Confirmation

Always know how your spill containment is performing and get immediate confirmation on the integrity of the interstitial space with the following Defender Series features:

- I² (Interstitial Integrity) Monitor facilitates efficient monthly and annual visual inspections confirming the integrity of the secondary containment space
- Electronic liquid detection sensor option available with proven ULS sensor for active leak detection
- ULS wiring penetrates side wall of gravel guard ensuring no additional installation height requirement

• Minimized Maintenance Costs

Maximize your business' value and minimize installation and maintenance expenses with features like:

- Field replaceable containment – replace easily without having to break concrete, simply loosen the four plow ring bolts to remove and replace interior containment.
- Plow rings bolts are protected – located inside the interior of the container, shielding them from the potential wear and tear of the forecourt environment.
- Variable height adjustments – allows for an installation height between 14 1/2" and 17 5/8", for easy installation in retrofit applications.



Model Number Reference Chart

705 - 5XY - ZAB

X = Containment

4 = Single wall 5 = Double wall

Y = Installation

0 = Direct Bury (gas)

1 = Direct Bury Replacement (gas)

2 = Multiport (gas/E85)

5 = Direct Bury (gas/E85)

Z = Interstitial Monitoring

0 = No sensor

1 = I² Monitor (float gauge)

2 = TSP-ULS Sensor

A = Base Thread

0 = NPSM

1 = NPT

B = Drain

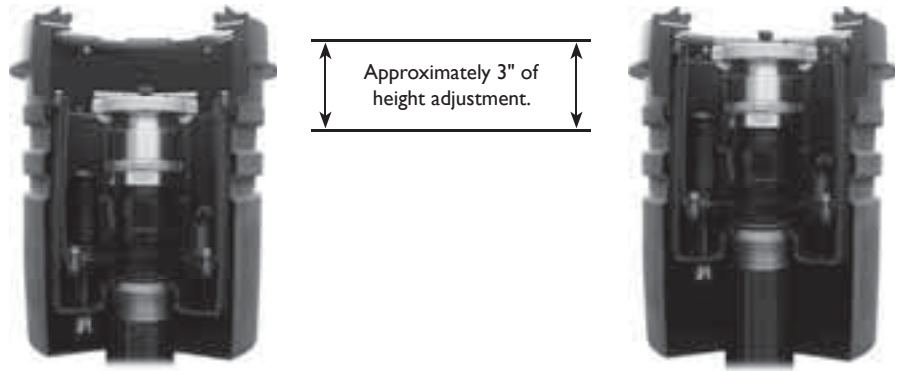
1 = with Drain

2 = without Drain

CI-GKT suffix is a cast iron gasketed lid.
Call for additional lid options.

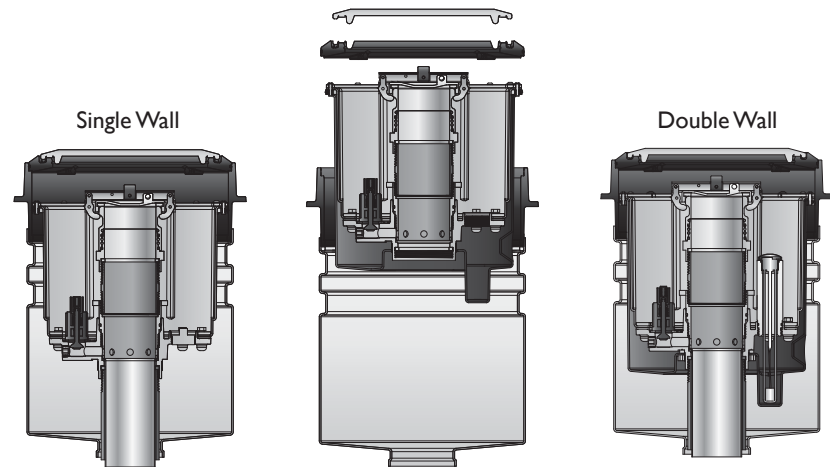
Variable Installation Height

The Defender Series double wall and single wall field replaceable spill container was designed with the retrofit application in mind. The variable height adjustment feature allows an installation height range of 14 1/2" to 17 5/8" which minimizes the number of retrofit spill containment options needed to replace existing direct bury containments. This reduces the need to replace tank risers and ultimately reduces the retrofit installation time.

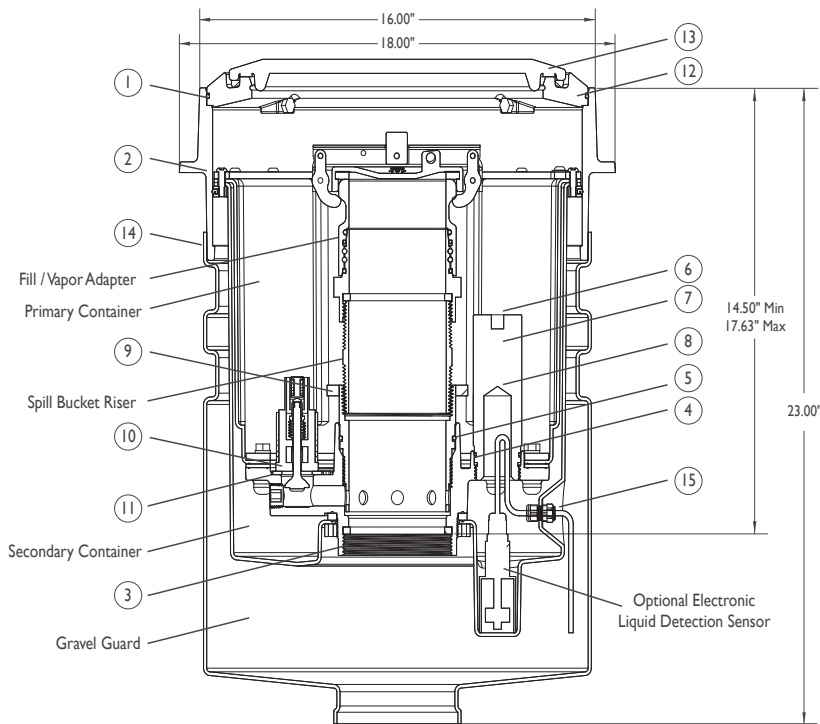


Double Wall Upgradeability

As regulations change, it may become necessary to upgrade a single wall spill container to meet future requirements. The Defender Series™ Spill Container allows the single wall option to be converted into a double wall spill container simply by removing the snow plow ring, removing the single wall containment, threading the secondary contained spill container onto the existing tank riser and then reinstalling the snow plow ring.



Model	Description
705540001CI-GKT	5 gal, Single wall, NPT, w/ drain, grey epoxy coated cast iron cover w/ gasket
705540002CI-GKT	5 gal, single wall, NPT, no drain, grey epoxy coated cast iron cover w/ gasket
705550101CI-GKT	5 gal, double wall, NPT, w/ drain, I ² monitor, grey epoxy coated cast iron cover w/ gasket
705550102CI-GKT	5 gal, double wall, NPT, no drain, I ² monitor, grey epoxy coated cast iron cover w/ gasket
705550201CI-GKT	5 gal, double wall, NPT, w/ drain, ULS sensor, grey epoxy coated cast iron cover w/ gasket
705550202CI-GKT	5 gal, double wall, NPT, no drain, ULS sensor, grey epoxy coated cast iron cover w/ gasket



Defender Series™ Spill Container Replacement Parts

#	Model	Description
1	602009006	Snow plow ring O-ring
2	70550301	Spill container seal-ring
3	602256001	Tank riser gasket
4	400333132	Inspection port pipe O-ring
5	1103939	DT riser clamp o-ring
6	70551101	I ² monitor
7	70551002	Inspection port (I ² monitor)
8	70551001	Inspection port (sensor)
9	70550901EC	DT riser clamp
10	70533701	Pull to push drain valve
11	70522601	Drain valve gasket
12	70553001	Snow plow ring assembly
13	70544001	Cover, cast iron w/ gasket (gray)
	705420XX	Cover, FRC (specify color)
	705423XX	Cover, FRC (specify color)
14	1115601	Slotted hex head self-tapping screw
	70553101	Drain chain an clip
	705551101	Double wall, w/o riser; cap and adapter, w/ I ² monitor, w/drain
	705551102	Double wall, w/o riser; cap and adapter, w/ I ² monitor, no drain
	N/A	705551201
N/A	705551202	Double wall, w/o riser; cap and adapter, w/ sensor, no drain
	705541001	Single wall, w/o riser; cap and adapter, w/ drain
	705541002	Single wall, w/o riser; cap and adapter, no drain

Defender Series™ Spill Container Tools

Model	Description
T-7001	T-handle wrench
T-7106	Double-ended installation tool
T-7107	Double wall vacuum test kit (for double wall models only)

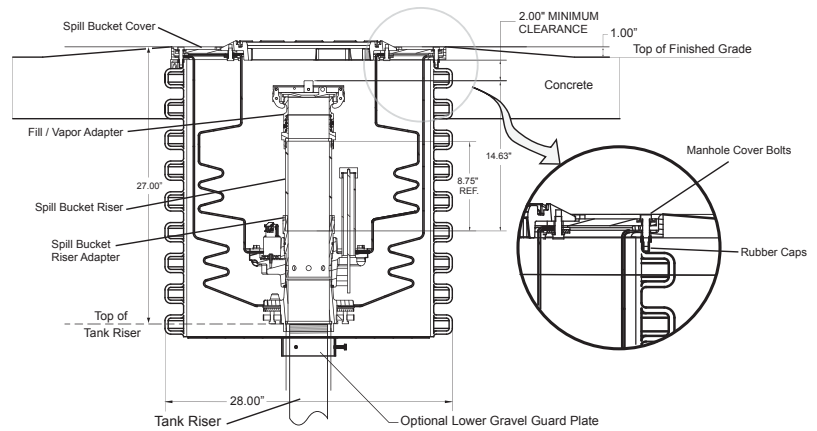


Advantages

- 15 gallon capacity of primary spill containment.
- Field replaceable without breaking concrete.
- Both primary and secondary containment can be tested to meet compliance needs.

15 Gallon Secondary Contained Spill Container

The 15 gallon secondary contained spill container has been newly designed to handle large overflow events with ease. This new spill container is field replaceable without breaking concrete. The secondary containment space is testable via vacuum or hydrostatic testing. The standard dipstick can also be used for visual monitoring.



Model, with drain	Capacity		Cover	Weight	
	Gallon	Liter		Lbs.	Kg
715-460-01-CI-GKT**	15	57	Cast iron w/Gasket	155.00	70.00
715-461-01-CI-GKT*	15	57	Cast iron w/Gasket	155.00	70.00
715-464-01-BLK**	15	57	Black, FRC, raintight	150.00	68.00
715-465-01-BLK*	15	57	Black, FRC, raintight	150.00	68.00

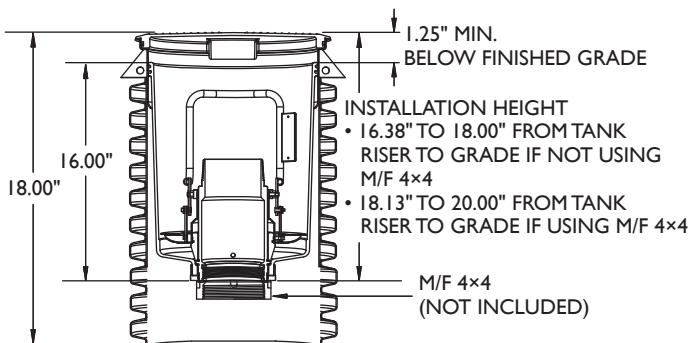
Model, without drain	Capacity		Cover	Weight	
	Gallon	Liter		Lbs.	Kg
715-460-02-CI-GKT**	15	57	Cast iron w/Gasket	155.00	70.00
715-461-02-CI-GKT*	15	57	Cast iron w/Gasket	155.00	70.00
715-464-02-BLK**	15	57	Black, FRC, raintight	150.00	68.00
715-465-02-BLK*	15	57	Black, FRC, raintight	150.00	68.00

*With lower gravel guard.

**Without lower gravel guard.

Field Replaceable 5 Gallon Direct Bury Spill Containers with Corrugated Gravel Shield

These spill containers are made from injection-molded glass-reinforced nylon with a corrosion proof HDPE gravel shield. These containers are seamless, eliminating future leak paths, and are inert in motor fuels and alcohols. Fully factory assembled, tested and complete with a fill or vapor riser and grey API cover.



PRODUCT ID MARKER PLATE

Model	Type	Drain Valve	Snow Plow Ring	EVR Certified Model Number
400-CS-NPR-GRY**	Fill	Yes	No	
400-CS-SPR-GRY**	Fill	Yes	Yes	
401-CS-NPR-GRY**	Vapor	No	No	
401-CS-SPR-GRY**	Vapor	No	Yes	
500-CS-NPR-GRY*	Fill	Yes	No	85000-1-S
500-CS-SPR-GRY*	Fill	Yes	Yes	
501-CS-NPR-GRY*	Vapor	No	No	85001-1-S-NV
501-CS-SPR-GRY*	Vapor	No	Yes	

Note: Requires installation tool kit T-7043 on page 90 and M/F 4x4 on page 91.

*EVR Phase I Certification and Missouri MOPETP APCP-0002-001-99, approved for gas and E85.

**Non-EVR spill containers have drop tube installed below the adapter of the spill container.

Advantages

- Field replaceable without breaking concrete.
- Bucket seals into a seamless corrosion proof 14 gauge stainless steel sleeve for a permanent watertight seal.
- Ductile iron cover is powder coated with a cast handle. Cover seals into the stainless steel sleeve using a watertight fluorocarbon U-shaped wiper seal. Optional API colored covers are available.
- Gravel guard is 17" tall corrosion proof corrugated HDPE.
- Drain valve incorporates a powder coated cam lock handle with provision for product ID marker. A foam filter prevents debris from plugging the drain path to the tank and is easily cleaned or replaced in the field.
- Factory assembled and tested.
- Optional ductile cast iron snow plow ring is available.
- Tracer tight approved.



Model Number Reference Chart

XXX - XX - XXX - XXX
1 2 3 4

1 = Spill Capacity and Type

- 400 = 5 gallon fill with drain valve
- 401 = 5 gallon vapor without drain valve
- 500 = 5 gallon fill with drain valve, EVR approved
- 501 = 5 gallon vapor without drain valve, EVR approved

2 = Gravel Shield Construction

CS = Corrugated ABS gravel shield

3 = Snow Plow Ring Option

SPR = With snow plow ring

NPR = Without snow plow ring

4 = Manway Cover Option

GRY = Grey

R = Red

W = White

Y = Yellow

Advantages

- Field replaceable without breaking concrete.
- Bucket seals into a seamless corrosion proof 14 gauge stainless steel sleeve for a permanent watertight seal.
- Ductile iron cover is powder coated with a cast handle. Cover seals into the stainless steel sleeve using a watertight fluorocarbon U-shaped wiper seal. Optional API colored covers are available.
- Gravel guard is constructed of FRP. Length is field adjusted to meet site specific bury depths and waterproof sealed with permathane adhesive. Bottom is sealed with a 4" alcryn polymer entry boot at the bottom riser.
- Drain valve incorporates a powder coated cam lock handle with provision for product ID marker. A foam filter prevents debris from plugging the drain path to the tank and is easily cleaned or replaced in the field.
- Optional ductile cast iron snow plow ring is available.
- Tracer tight approved.

Model Number Reference Chart

XXX - XX - XXX - XXX
1 2 3 4

1 = Spill Capacity and Type

500 = 5 gallon fill with drain valve
501 = 5 gallon vapor without drain valve

2 = Gravel Shield Construction

FS = Fiberglass gravel shield, 14" diameter access opening

3 = Snow Plow Ring Option

SPR = With snow plow ring
NPR = Without snow plow ring

4 = Manway Cover Option

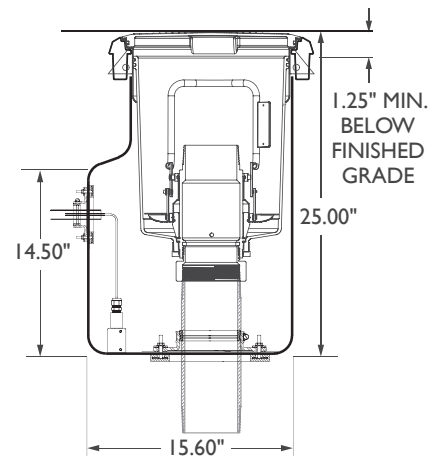
GRY = Grey R = Red
W = White Y = Yellow

Field Replaceable 5 Gallon Direct Bury Spill Containers with FRP Gravel Shield

These spill containers are made from injection-molded glass-reinforced nylon with a corrosion proof fiberglass gravel shield. These containers are seamless, eliminating future leak paths, and are inert in motor fuels and alcohols. Fully factory assembled, tested and complete with a fill or vapor riser and grey API cover.



40X



Model	Type	Drain Valve	Snow Plow Ring	EVR Certified Model Number
400-FS-SPR-R	Fill	Yes	Yes	
400-FS-SPR-W	Fill	Yes	Yes	
400-FS-SPR-Y	Fill	Yes	Yes	
401-FS-SPR-O	Vapor	No	Yes	
404-FS-SPR-GRY*	Fill	Yes	Yes	
405-FS-SPR-GRY*	Vapor	No	Yes	
500-FS-NPR-GRY**	Fill	Yes	No	85000-I-GS
500-FS-SPR-GRY**	Fill	Yes	Yes	
501-FS-NPR-GRY**	Vapor	No	No	85001-I-GS-NV
501-FS-SPR-GRY**	Vapor	No	Yes	

Notes: 1. Requires installation tool kit T-7043 on page 92 and M/F 4x4 on page 91. One tube of urethane sealant is included with each of the above spill containers to seal FRP gravel shield to stainless steel sleeve once site specific gravel guard height is cut.

2. May require a two-week lead time. Consult factory for availability.

*Package includes liquid sensor TSP-ULS, M/F 4x4, 3/4" entry boot, 4" entry boot and spill container.

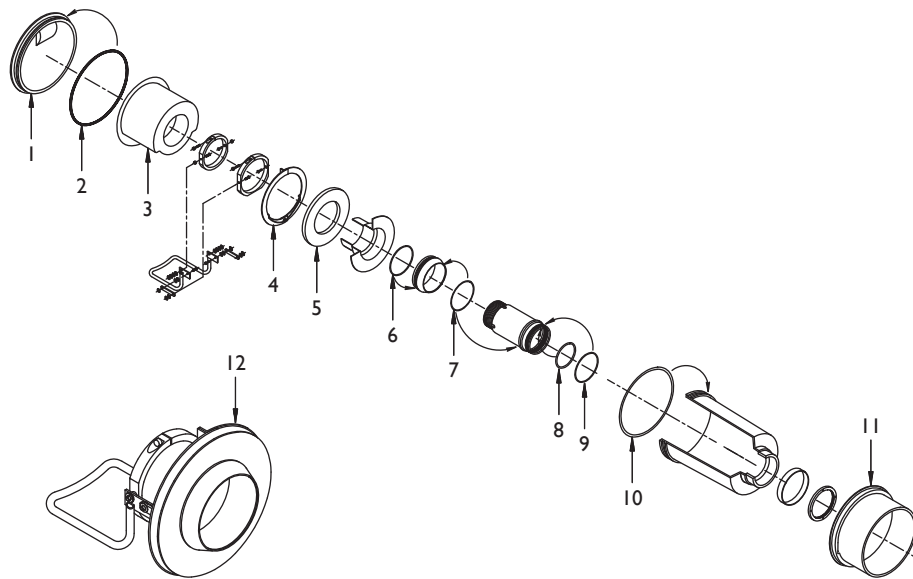
**EVR Phase I Certification VR-101 and ULC listed, approved for gas and E85.

Spill Container Replacement Parts

Replacement 5 gallon spill containers , include factory installed risers on both fill and vapor models. A drain valve is included on fill models as shown. Factory assembled and tested. For all direct bury and multi-port manways. 85000-EXT includes an extension for use with platform packages shown on page 64. Available as vapor, without drain valve, or fill, with drain valve.

Model	Description
85100-1*	Replacement 5 gallon 85000-1 fill spill bucket, with drain valve
85101-1*	Replacement 5 gallon 85000-1 vapor spill bucket, without drain valve
85100	Replacement 3.5 gallon Phil-Tite spill bucket, with drain valve
85101	Replacement 3.5 gallon Phil-Tite spill bucket, without drain valve

*Missouri MOPETP approved.



Number	Part Number	Description
1	85011-1	Grey ductile cast iron cover with wiper seal
2	SC-1513V	U-shaped seal for ductile cast iron lid
3	PP-1005-TB	Fill debris bucket insert, without pump
	PP-1005-TBP	Vapor debris bucket insert, with pump
4	85031-1	Stainless steel retaining ring for screen and filter
5	602026001	Flexible polyurethane foam filter
6	85035	Shut-off collar to screen, upper O-ring
7		Shut-off collar to screen, lower O-ring
8	85039	1/4" flat seal-riser tube, inner O-ring
9	85035	Riser tube to spill bucket, outer O-ring
10	85036	Outer spill bucket U-shaped seal for 85000 Series
	85036-1	Outer spill bucket U-shaped seal for 85000-1 Series
11	85009	Direct bury stainless steel sleeve
12	85400	Drain valve handle and valve assembly

Advantages

- Extra space at top of spill container makes it easier for drivers to connect fuel hose.
- Patent number: 4,696,330.
- EVR Phase I Certification VR-101 for gas and E85.
- Florida approved EQ555.
- Tracer tight approved.
- Missouri MOPETP approved ACP-0002-001-99.





Advantages

Solid Construction - The durable and flexible polyethylene shell is designed to move with natural ground movements. The shell is equipped with a gravel guard to prevent backfill material from filling in around the movable shell, eliminating problems with ground movement.

Cast Iron or Composite Base - Ensures a long lasting, watertight seal.

Heavy Duty Cast Iron Deflector - Provides protection from heavy traffic and truck plows and allows for water to run away from the spill container top, eliminating water collection in the bucket.

Drain Valve - Allows emptying of contained product back to the storage tank. The drain is equipped with a screen for convenient cleaning.

Cover Options - Includes FRC raintight in API colors, FRC black snap-on, raintight aluminum, watertight locking aluminum and cast iron.

Optional API Cover Identification Plates - Clearly identifies the product contained in the storage tank and helps to prevent cross contamination. Identification plates are available for all standard API symbols.

Highway 20 Rated (D.O.T. H20) - All EBW spill containers and manways exceed the D.O.T. H20 requirements.

- EVR Phase I Certification VR-103 (7XX-49Y-0Z models).

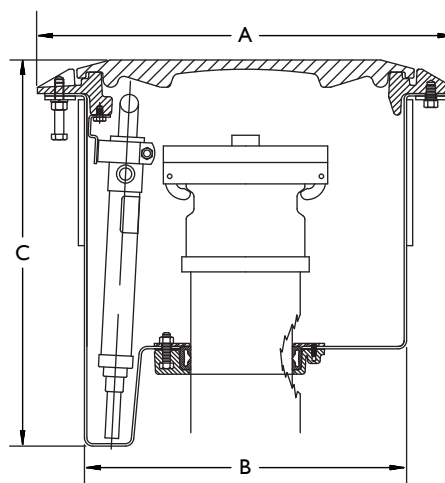
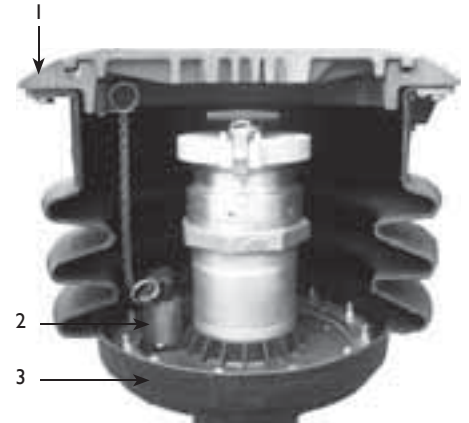
Materials

- Base: cast iron or composite.
- Bucket: polyethylene.
- Mounting ring: cast iron.
- Cover: fiber reinforced composite (FRC), cast iron or aluminum.

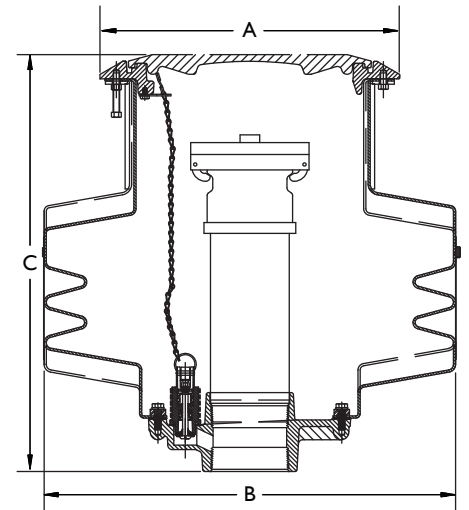
702, 705 and 715 Grade Level Spill Containers

EBW spill containers are designed to collect spilled product that occurs during normal tank filling on underground storage tanks. Threaded base models are available in cast iron or composite. Slip-on (retrofit) models use a gasket flanged bolt system to secure the spill bucket to the riser pipe and are designed to eliminate the need to remove the riser pipe from the underground tank when installing.

Number	Description
1	Heavy duty cast iron deflector ring
2	Drain valve
3	Cast iron or composite base



702, 703
SLIP-ON BASE



705, 715, 725
THREADED BASE

Model	A		B		C	
	In.	cm	In.	cm	In.	cm
702	17.12	43.48	13.25	33.70	15.88	40.30
703	17.12	43.48	13.25	33.70	15.88	40.30
705	17.12	43.48	14.75	37.46	15.69	39.85
715	17.12	43.48	23.50	59.69	22.50	57.15

Composite Base Spill Containers

Model, with drain	Capacity		Cover	Weight	
	Gallon	Liter		Lbs.	Kg
705-471-01-BLK	5	19	Black, FRC, raintight	42.00	19.30
705-473-01-BLK-S*	5	19	Black, snap-on	42.00	19.30
715-471-01-BLK	15	57	Black, FRC, raintight	50.00	23.00



705

Cast Iron Base Spill Containers

Model, with drain	Capacity		Cover	Weight	
	Gallon	Liter		Lbs.	Kg
705-470-01-BLK	5	19	Black, FRC, raintight	54.00	25.00
705-472-01-BLK-S*	5	19	Black, snap-on	54.00	25.00
705-479-65-CI-GKT*	5	19	Grey epoxy coated cast iron w/gasket, RCA	56.00	25.40
705-479-01-CI-GKT*	5	19	Grey epoxy coated cast iron w/ gasket	56.00	25.40
705-490-01-BLK**	5	19	Black, FRC, raintight	58.00	26.70
715-470-01-BLK	15	57	Black, FRC, raintight	62.00	28.00
715-472-01 BLK	15	57	Black, FRC, raintight	62.00	28.00



715

Model, without drain	Capacity		Cover	Weight	
	Gallon	Liter		Lbs.	Kg
705-458-01-BLK	5	19	Black, FRC, raintight	64.00	29.40
705-472-02-BLK-S*	5	19	Black, snap-on	62.00	28.00
705-479-02-CI-GKT*	5	19	Grey epoxy coated cast iron w/gasket, RCA	68.00	30.80
705-490-02-BLK**	5	19	Black, FRC, raintight	42.00	19.30
715-472-02-BLK-S*	15	57	Black, snap-on	62.00	28.00

Retrofit Spill Containers

Model, with pump	Capacity		Cover	Weight	
	Gallon	Liter		Lbs.	Kg
702-400-01-BLK	5	19	Black, FRC, raintight	34.00	15.60
702-404-65-CI-GKT*	5	19	Grey epoxy coated cast iron, w/gasket, RCA	33.00	15.10
702-405-01-BLK-S*	5	19	Black, FRC, snap-on	33.00	15.10
Model, without pump	Capacity		Cover	Weight	
	Gallon	Liter		Lbs.	Kg
702-404-02-CI-GKT*	5	19	Grey epoxy coated cast iron, w/gasket	37.00	16.80
702-406-01-BLK	5	19	Black, FRC, raintight	37.00	16.80



702

*ULC approved, MH21091

**CARB Phase I EVR approved, VR-103

RCA references include riser, cap and adapter



Grade Level Spill Container Accessories and Replacement Parts

Raintight Cover Options

Suffix	Description
BLK	Black, raintight
WHT	White, raintight
RED	Red, raintight
BLU	Blue, raintight
YEL	Yellow, raintight
GRY	Grey, raintight
ORG	Orange, raintight
GRN	Green, raintight
BRN	Brown, raintight
WHT-X	White, raintight with black cross
RED-X	Red, raintight with white cross
BLU-X	Blue, raintight with white cross
ALUM	Aluminum
CI	Cast iron
CI-GKT	Cast iron with gasket
WATERT	Watertight aluminum

Note: You must specify cover option at time of order.



WATERTIGHT ALUMINUM
LOCK-DOWN COVER

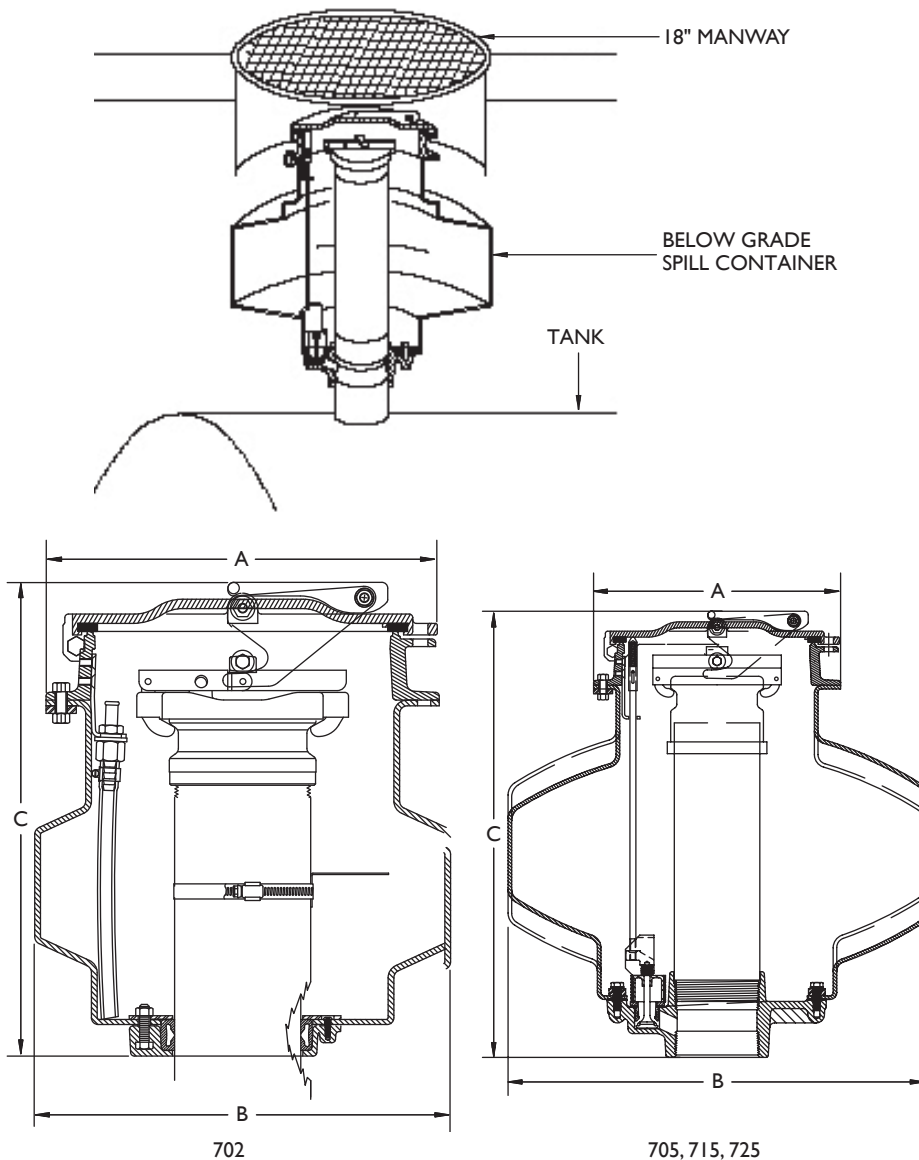
12" Replacement Covers For Grade Level Spill Containers

Model	Description
705-171-01	Replacement clips for snap-on covers
705-333-01*	FRC black snap-on
705-409-00	Aluminum
705-420-02	FRC white with black cross, regular unleaded
705-420-03	FRC red with white cross, premium unleaded
705-420-04	FRC blue with white cross, mid-grade unleaded
705-423-01	FRC standard black cover
705-423-02	FRC white
705-423-03	FRC red
705-423-04	FRC blue
705-423-05	FRC yellow
705-423-07	FRC orange
705-423-08	FRC green
705-423-09	FRC bronze
705-430-00	Cast iron
705-440-01	Cast iron with gasket
710-430-01	Aluminum watertight for use on 705 and 715 grade level spill containers

*Snap-on lids fit only on special snap-on spill containers. Please consult factory. Minimum quantities may apply.

702, 705 and 715 Below Grade Level Spill Containers

EBW below grade spill containers are equipped with a hinged, locking, watertight cover, eliminating water and debris infiltration. A grade level manway with FRC cover is installed above the spill container to allow surface water to drain into the soil and away from the spill container. Models are available with cast iron or composite threaded base, slip-on (retrofit) base, standard pull drain valve, and black composite or API color covers. Steel covers are available in lieu of standard black FRC covers at no additional charge.



Advantages

Watertight Design - The hinged, locking, watertight cover and solid body design prevents rainwater from getting into the spill container.

Cover Options - Includes FRC raintight in API colors, FRC black snap-on, raintight aluminum, watertight locking aluminum and cast iron.

API Cover Identification Plates - All FRC colored covers have a recessed area on the top for a product identification plate. The identification plate clearly identifies the product contained in the storage tank. Identification plates are available for all standard API symbols.

Highway 20 Rated (D.O.T. H20) - All EBW spill containers and manways exceed the D.O.T. H20 requirements.

Auto-Drain - Conforming to certain state and local regulations, the auto-drain is a ball float drain valve that automatically allows product to drain when the product is present.

Optional Cover Actuated Push Drains (C.A.P.D.) - As the spill container cover is closed and locked in place, the drain is automatically activated, allowing any spilled product to drain into the tank.

Centering-Ring - A styrofoam centering-ring is used during installation to easily align the grade level manway with the below grade spill container.

- CARB: EVR Certification VR-103 (7XX-49Y-0Z models).

Materials

- Base: cast iron or composite.
- Bucket: polyethylene
- Manway cover: fiber reinforced composite steel.
- Cover: cast iron.

Model	A		B		C	
	In.	cm	In.	cm	In.	cm
702	13.00	33.02	13.75	34.90	15.88	40.30
705	13.00	33.02	13.75	34.92	17.69	44.93
715	13.00	33.02	22.00	55.88	23.44	59.54



Composite Base Spill Containers

Model, with drain	Capacity		Cover	Weight	
	Gallon	Liter		Lbs.	Kg
705-475-01-BLK*	5	19	Black, FRC, 18"	86.00	39.00

Cast Iron Base Spill Containers

Model, with drain	Capacity		Cover	Weight	
	Gallon	Liter		Lbs.	Kg
705-445-01-BLK	5	19	Black, FRC, 18"	68.00	31.20
705-474-01-BLK*	5	19	Black, FRC, 18"	94.00	43.00
705-474-65-BLK*	5	19	Black, FRC, 18", RCA	131.00	60.20
705-492-01-BLK**	5	19	Black, FRC, 18"	94.00	43.00
715-474-01-BLK*	15	57	Black, FRC, 18"	96.00	43.50
715-474-65-BLK*	15	57	Black, FRC, 18", RCA	100.00	45.40
715-492-01-BLK**	15	57	Black, FRC, 18"	100.00	45.40

Model, without drain	Capacity		Cover	Weight	
	Gallon	Liter		Lbs.	Kg
705-477-ND-BLK*	5	19	Black, FRC, 18", RCA	130.00	59.00
705-492-02-BLK**	5	19	Black, FRC, 18"	94.00	43.00
715-492-02-BLK**	15	57	Black, FRC, 18"	100.00	45.40

*ULC approved, MH21091

**CARB Phase I approved, VR-103

18" Manway Cover Options

Suffix	Description
BLK	Black, raintight, FRC
WHT	White, raintight, FRC
RED	Red, raintight, FRC
BLU	Blue, raintight, FRC
YEL	Yellow, raintight, FRC
GRY	Grey, raintight, FRC
ORG	Orange, raintight, FRC
GRN	Green, raintight, FRC
STL	Steel
NC	No cover, FRC

Replacement 18" Manway Covers

Suffix	Description
781-304-01	FRC black, raintight
781-304-02	FRC white, raintight
781-304-03	FRC red, raintight
781-304-04	FRC blue, raintight
781-304-05	FRC yellow, raintight
781-304-06	FRC grey, raintight
781-304-07	FRC orange, raintight
781-304-08	FRC green, raintight
781-306-01	Steel

Retrofit Spill Containers

Model, with pump	Capacity		Cover	Weight	
	Gallon	Liter		Lbs.	Kg
702-450-01-BLK*	5	19	Black, FRC, 18"	39.00	17.70
702-450-65*	5	19	No cover, with skirt	39.00	17.70



702, 705



715



CENTERING-RING



COVER OPTIONS

7-1/2", 12" and 18" Round Manways

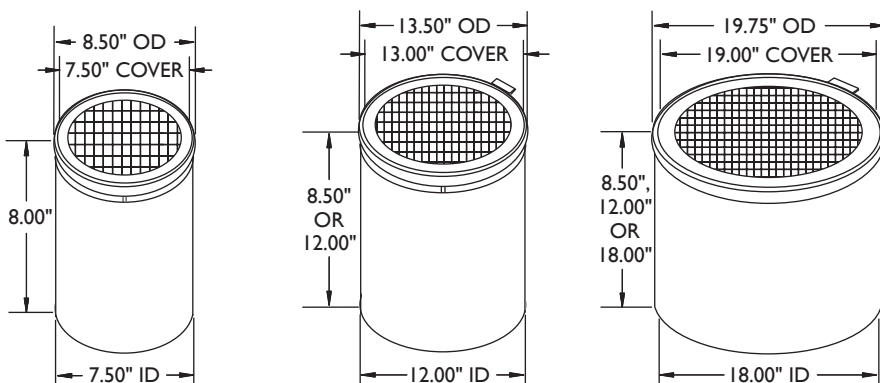
These manways have a proven track record of trouble-free operation. Their durable construction withstands the heaviest traffic and meets the requirements of a D.O.T. H20 load rating.



7-1/2"

12"

18"



Advantages

Cast Iron Cover and Rings - EBW 7-1/2" round manways have ribbed cast iron covers and cast iron rings to withstand heavy loads and traffic.

Heavy Duty Skirts - EBW 7-1/2" round manways have heavy duty cast iron skirts. 12" and 18" round manways have a 16 gauge welded steel skirt and are available in different depths to fit your needs.

Colored Cover Options - EBW 18" round manways can be ordered with optional FRC colored covers in standard API color codes. The FRC covers also include a recessed area for optional API color coded identification plates.

Highway 20 Rated (D.O.T. H20) - All EBW spill containers and manways exceed the D.O.T. H20 requirement.

Model	Manway Size		Cover	Skirt Depth		Weight	
	In.	mm		In.	mm	Lbs.	Kg
781-208-08	7.50	191.00	Cast iron	8.00	203.00	22.00	10.00
781-212-12-CI	12.00	305.00	Cast iron	12.00	305.00	36.00	16.00
781-212-12-CI-H	12.00	305.00	Cast iron with handle	12.00	305.00	36.00	16.00
781-212-24-CI	12.00	305.00	Cast iron	24.00	610.00	70.00	32.00
781-418-08-BLK	18.00	457.00	FRC	8.50	216.00	30.00	14.00
781-418-08-GRY	18.00	457.00	FRC	8.50	216.00	30.00	14.00
781-418-12-BLK	18.00	457.00	FRC	12.00	305.00	33.00	15.00
781-418-12-GRY	18.00	457.00	FRC	12.00	305.00	33.00	15.00
781-418-18-BLK	18.00	457.00	FRC	18.00	457.00	39.00	18.00
781-478-65	18.00	457.00	FRC bolted	8.50	216.00	30.00	14.00

Replacement Round Manway Covers

Model, with drain	Manway Size		Cover	Weight	
	In.	mm		Lbs.	Kg
781-302-01	12.00	305.00	FRC black	10.00	5.00
781-302-07	12.00	305.00	FRC orange	10.00	5.00
781-304-01	18.00	457.00	FRC black	10.00	5.00
781-306-01	18.00	457.00	0.375" steel	33.00	15.00
781-400-01	12.00	305.00	Cast iron	17.00	8.00
781-402-01	7.50	191.00	Cast iron	6.00	3.00
781-407-01	12.00	305.00	Cast iron with handle	18.00	8.10
SRC18HRP	18.00	457.00	Steel, bolt-down	33.00	15.00

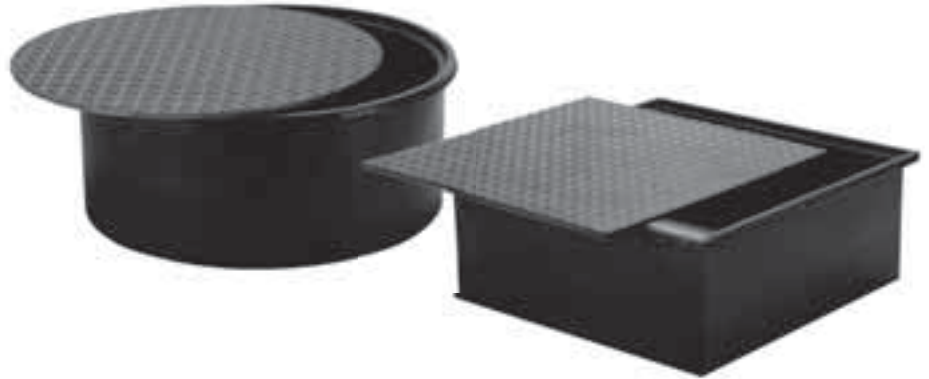


Advantages

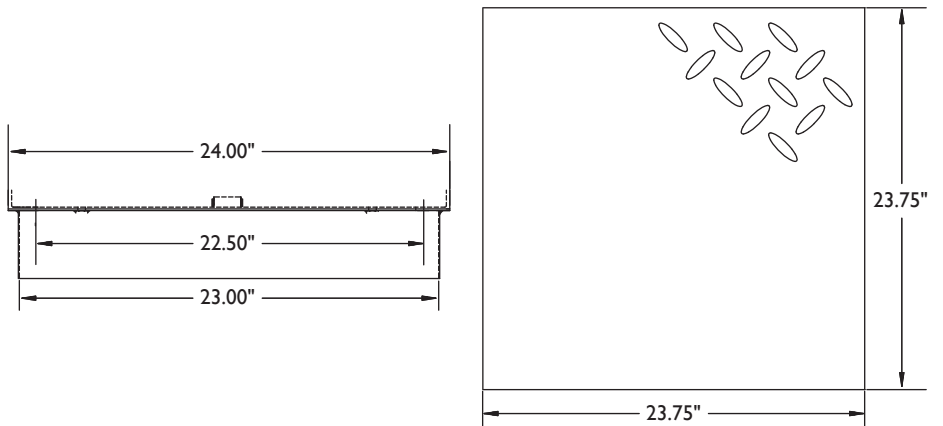
- Covers meet or exceed D.O.T. H20 load rating.
- Available in a bolted version including bolts and gasket.
- Painted rustproof black.
- 24" square manway is manufactured using all welded construction. Corners are matched to ensure proper fit with covers.

Steel Manways

Available in 18" to 48" round or 24" square.

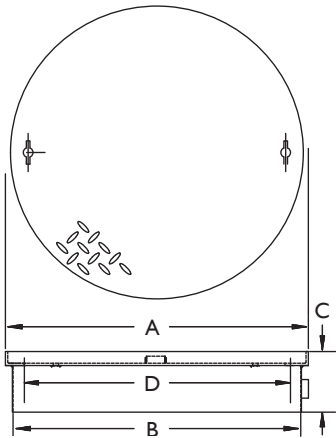


Square Manway



Model	Dimensions		Skirt Size		Cover	Weight	
	In.	cm	In.	cm		Lbs.	Kg
SSQ2409	24.00 × 24.00	60.96 × 60.96	9.00	22.86	Non-bolted	86.00	39.01

Round Manways



Model	A		B		C		D	
	In.	cm	In.	cm	In.	cm	In.	cm
781-418-08-STL	19.00	48.26	18.00	45.72	8.50	21.59	17.93	45.54
781-418-12-STL	19.00	48.26	18.00	45.72	12.00	30.48	17.93	45.54
781-418-18-STL	19.00	48.26	18.00	45.72	18.00	45.72	17.93	45.54
SR1809 WT	17.50	44.45	16.75	42.55	9.00	22.86	16.25	41.28
SR2409 HD	23.50	59.69	22.75	57.79	9.00	22.86	22.25	56.52
SR3009 HD	29.50	74.93	28.75	73.03	9.00	22.86	28.25	71.76
SR3009 WT	29.50	74.93	28.75	73.03	9.00	22.86	28.25	71.76
SR3609 HD	35.50	90.17	34.75	88.27	9.00	22.86	34.25	87.00
SR3609 WT	35.50	90.17	34.75	88.27	9.00	22.86	34.25	87.00
SR3809 HD	39.50	100.33	38.75	98.43	9.00	22.86	38.25	97.16
SR3809 WT	39.50	100.33	38.75	98.43	9.00	22.86	38.25	97.16
SR4209 HD	41.50	105.41	40.25	102.24	9.00	22.86	39.75	100.97
SR4209 WT	41.50	105.41	40.25	102.24	9.00	22.86	39.75	100.97
SR4809 HD	47.50	120.65	46.25	117.48	9.00	22.86	45.75	116.21
SR4809 WT	47.50	120.65	46.25	117.48	9.00	22.86	45.75	116.21

Model	Dimensions		Skirt Size		Cover	Weight	
	In.	cm	In.	cm		Lbs.	Kg
781-418-08-STL	18.00	45.72	8.00	20.32	Non-bolted	39.00	17.60
781-418-12-STL	18.00	45.72	12.00	30.48	Non-bolted	41.00	18.60
781-418-18-STL	18.00	45.72	18.00	45.72	Non-bolted	44.00	19.95
SR1809 WT	18.00	45.72	9.00	22.86	Bolted	40.00	18.14
SR2409 HD	24.00	60.96	9.00	22.86	Non-bolted	70.00	31.75
SR3009 HD	30.00	76.20	9.00	22.86	Non-bolted	139.00	63.05
SR3009 WT	30.00	76.20	9.00	22.86	Bolted	139.00	63.05
SR3609 HD	36.00	91.44	9.00	22.86	Non-bolted	192.00	87.09
SR3609 WT	36.00	91.44	9.00	22.86	Bolted	192.00	87.09
SR3809 HD	38.00	96.52	9.00	22.86	Non-bolted	235.00	106.59
SR3809 WT	38.00	96.52	9.00	22.86	Bolted	235.00	106.59
SR4209 HD	42.00	106.68	9.00	22.86	Non-bolted	310.00	140.61
SR4209 WT	42.00	106.68	9.00	22.86	Bolted	310.00	140.61
SR4809 HD	48.00	121.92	9.00	22.86	Non-bolted	400.00	181.44
SR4809 WT	48.00	121.92	9.00	22.86	Bolted	400.00	181.44

Note: May require two week lead time. Consult factory for availability.



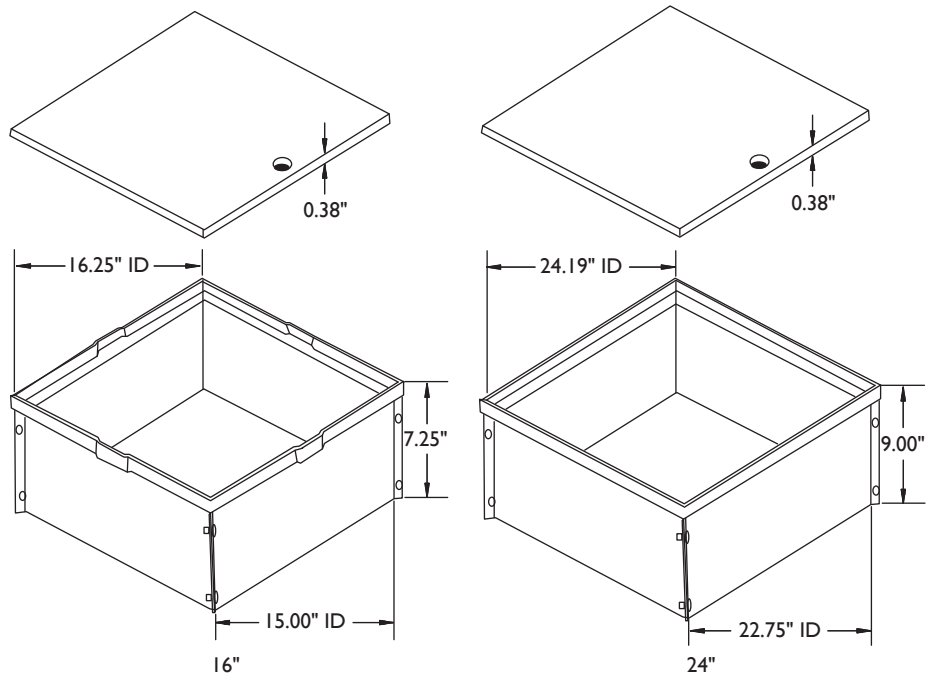
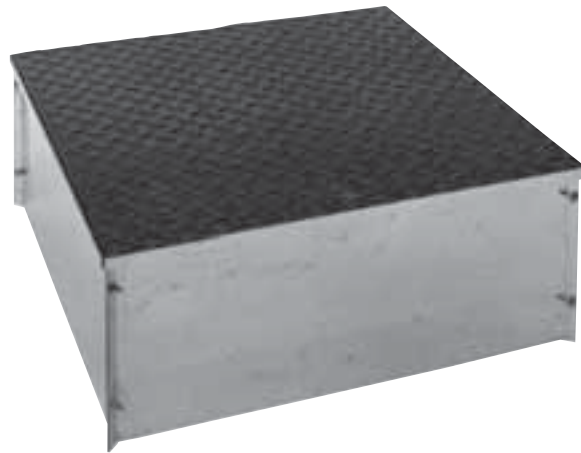
Advantages

Heavy Duty Covers - All EBW square manways feature a 3/8" diamond back steel plate cover.

Convenient Packaging - Shipped in individual boxes with knock down skirts making handling and storage easy. Skirts are easily assembled using the provided hardware.

16" and 24" Square Manways With Knock Down Skirts

EBW square manways feature a 3/8" diamond back steel plate cover with a galvanized steel skirt. Available in 16" x 16" and 24" x 24" dimensions and meeting D.O.T. H20 load rating, each is individually boxed with skirt in knock down form for easy handling and storing.



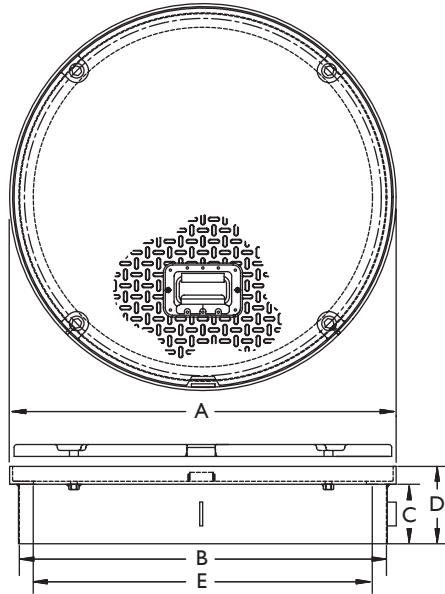
Model	Dimensions		Skirt Size		Weight	
	In.	cm	In.	cm	Lbs.	Kg
987-100-01	16.00 x 16.00	40.60 x 40.60	7.50	19.05	38.50	17.50
987-200-01	24.00 x 24.00	60.96 x 60.96	9.00	22.86	82.00	37.00

Square Manway Replacement Covers

Model	Description
789-203-01	16" x 16" steel cover
987-201-01	24" x 24" steel cover
11021-03	Nut

12", 30", 36" and 42" Fiber Reinforced Composite Manways

EBW SAFE-LITE FRC manway covers are ultra lightweight. Engineered and tested to exceed the D.O.T. H20 load ratings. Covers weigh almost one-third less than steel which dramatically reduces injury potential during cover removal. Available in 12", 30", 36" and 42" sizes. The slide action cover further reduces the chance of injury by eliminating the need to bend down to remove or replace the cover.



Model	A		B		C		D		E	
	In.	cm	In.	cm	In.	cm	In.	cm	In.	cm
12"	13.75	34.93	12.00	30.48	7.00	17.78	8.50	21.59	12.00	30.48
30"	32.75	83.19	31.12	79.38	10.50	26.67	12.00	30.48	28.75	73.03
36"	40.25	102.24	38.62	98.09	10.50	26.67	12.00	30.48	36.25	92.08
42"	45.00	114.30	43.38	110.19	10.50	26.67	12.00	30.48	41.00	104.14
42"	45.00	114.30	43.38	110.19	16.50	41.91	18.00	45.72	41.00	104.14

12" Round FRC Covers

Model	Cover OD	Description
781-302-01	12.88"	Black
781-302-07	12.88"	Orange

30" Round FRC Covers

Model	Cover OD	Description
781-459-06	32.00"	Grey, bolted cover
781-490-06	32.00"	Grey

36" Round FRC Covers

Model	Cover OD	Description
781-456-06	39.50"	Grey, bolted cover
781-448-06	39.50"	Grey
781-482-06	39.50"	Grey, slide action cover

Advantages

Exceeds D.O.T. Requirements - Engineered for high-strength and tested to over 50,000 lbs. load (2-1/2 times D.O.T. requirement) without failure.

Fatigue Resistant - Product has undergone 30 year life simulation testing, with 11,000 loading cycles of 20,000 lbs. each.

Lightweight - FRC composite covers weigh almost one-third less than steel. Lighter weight reduces back injuries, increases ease of access to manway and decreases shipping costs.

Skirt Ring - Made of 1/4" rolled angle iron. Skirt is 14 gauge steel, built to handle the heaviest traffic.

Slide Action Cover - Cover is removed and replaced by placing the slide action handle into the plate on the cover. No bending down to remove the cover.

Cover Options - Bolted, non-bolted and slide on models. All covers are supplied with handles. Other colors available; call for details.

Optional Aramid Covers - For extra wear protection at heavy traffic sites. Available for 36" and 42" models only.



42" Round FRC Covers

Model	Cover OD	Description
781-441-06	44.25"	Grey, bolted cover
781-445-06	44.25"	Grey
781-483-06	44.25"	Grey, slide action cover

12" Round Manways with FRC Covers

Model	Cover OD	Description
781-212-12-BLK	12.88"	Black with 12" skirt
781-212-12-ORG	12.88"	Orange with 12" skirt

30" Round Manways with FRC Covers

Model	Cover OD	Description
781-430-12-GRY	32.00"	Grey, bolted cover with 12" skirt
781-430-13-GRY	32.00"	Grey with 12" skirt

36" Round Manways with FRC Covers

Model	Cover OD	Description
781-433-12-GRY	39.50"	Grey, bolted cover with 12" skirt
781-433-13-GRY	39.50"	Grey with 12" skirt
781-485-12-GRY	39.50"	Grey, slide action cover with 12" skirt

42" Round Manways with FRC Covers

Model	Cover OD	Description
781-443-12-GRY	44.25"	Grey, bolted cover with 12" skirt
781-443-18-GRY	44.25"	Grey, bolted cover with 18" skirt
781-444-12-GRY	44.25" x 52.00"	Grey, bolted cover with 42" x 8" top skirt and 52" x 14" bottom skirt
781-443-13-GRY	44.25"	Grey with 12" skirt
781-486-12-GRY	44.25"	Grey, slide action cover with 12" skirt

36" FRC Aramid Covers

Model	Cover OD	Description
780-448-06	39.50"	Grey
780-456-06	39.50"	Grey, bolted cover

42" FRC Aramid Covers

Model	Cover OD	Description
780-441-06	44.25"	Grey, bolted cover
780-445-06	44.25"	Grey

36" Round Manways with FRC Aramid Covers

Model	Cover OD	Description
780-492-BD	39.50"	Bolted cover with 12" skirt
780-492-NB	39.50"	12" skirt
780-492-SA	39.50"	Slide cover
780-492-SB	39.50"	Grey, slide action cover with bolt-down option

42" Round Manways with FRC Aramid Covers

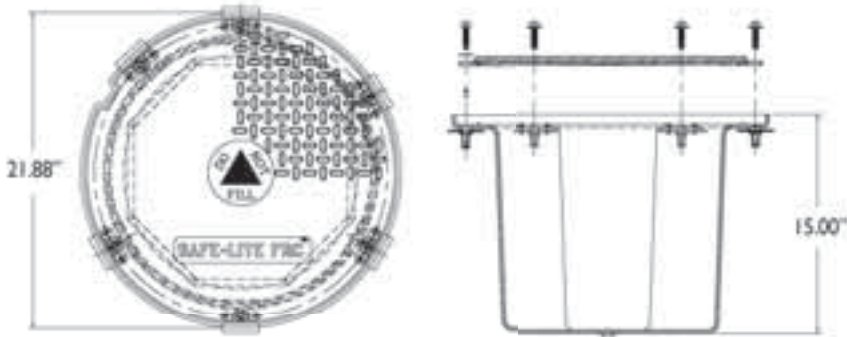
Model	Cover OD	Description
780-491-BD	44.25"	Bolted cover with 12" skirt
780-491-NB	44.25"	12" skirt
780-491-SA	44.25"	Slide action cover
780-491-SB	44.25"	Slide action cover with bolt-down option

Containment Manhole

The 818-402 series containment manhole is an ideal containment solution for any tank access point riser that requires isolation from backfill. These containers are supplied with a bottom which is cut in the field. A containment boot can be added to the bottom to isolate the manhole from the environment.



- Advantages**
- Ideal solution for in-tank probe riser containment.
 - Cover is available with or without “monitoring well”.



Model	Description
818-402-01	18" monitoring well manhole with "monitoring well" on top
818-402-02	18" monitoring well manhole with plain top
818-306-01	Replacement cover with "monitoring well" on top
818-307-01	Replacement cover with plain top



Monitoring Test Well Manways

These manways are equipped with strong cast iron bolt-down lids to provide a "limited access", watertight seal to prevent driveway contamination from entering manway and a heavy duty cast iron rim for street traffic. A distinctive triangle design and words, "Do Not Fill - Test Well" are cast into the cover to meet API specifications.



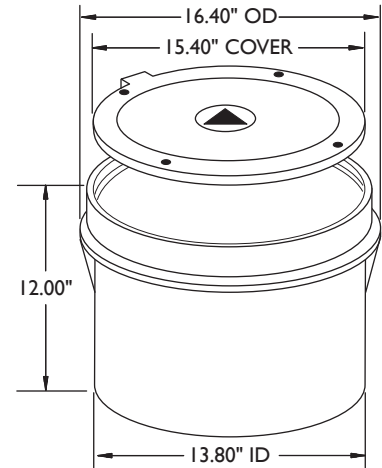
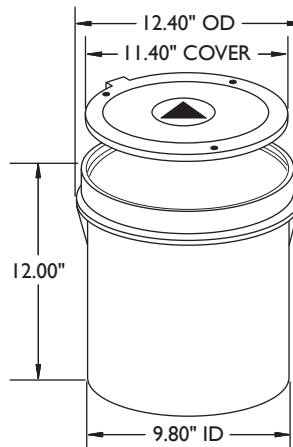
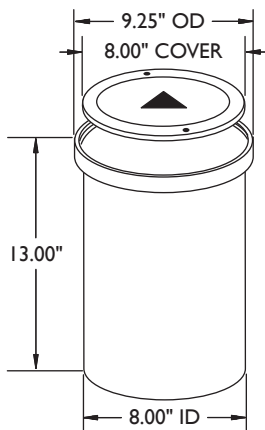
8"



10"



14"

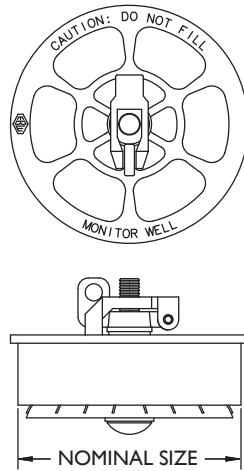


Model	Description	Size		Weight	
		In.	mm	Lbs.	Kg
808-400-01	8" cast iron	13.00	330.00	18.00	8.00
810-302-01	10" cast iron	12.00	305.00	25.00	11.00
814-302-01	14" cast iron	12.00	305.00	41.00	19.00

Monitoring Test Well Accessories

Monitoring Test Well Cap Plugs

The well cap plugs are yellow in color and designed with molded-in “Caution: Do Not Fill - Monitor Well”. The bolt is captive which prevents drop-out, and there is a locking mechanism to prevent unauthorized access. These cap plugs expand on the inside diameter of the PVC casing to form a water and vapor-tight seal; no adapter is necessary. These well caps comply with regulations at both state and federal levels.



Model	Size	
	In.	mm
772-102-01	4.00	102.00
772-106-01	2.00	51.00
772-109-01	6.00	152.00

PVC Well Screen Filter Wrap

Used on the outside of well screen to further prevent fine soil from entering and blocking the slots. Packaged in 100 ft. rolls. Consult factory for availability.



Model	Size	
	In.	mm
773-100-02	2.00	51.00
773-100-04	4.00	102.00

Materials

- Body: corrosion-proof plastic.
- Gasket: Buna-N.

Materials

- Body: spun bound polypropylene.



Monitoring Test Well Screen Pipe

EBW monitoring well screen pipe facilitates groundwater testing by allowing groundwater to pass through the horizontal slots in the pipe. Consult factory for availability.



Model	Size		Length		Weight	
	In.	mm	Ft.	cm	Lbs.	Kg
773-200-01	2.00	51.00	13.00	396.00	15.00	7.00
773-200-02	4.00	102.00	13.00	396.00	27.00	12.00
773-200-03	6.00	152.00	13.00	396.00	47.00	21.00
773-200-04	4.00	102.00	15.00	396.00	31.00	14.00

Monitoring Test Well Package

The EBW monitoring test well package contains all of the necessary components to operate and properly maintain a monitor well.



Manway

Cap Plug

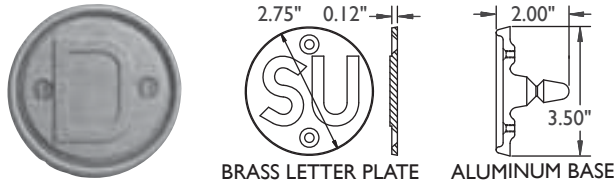
Slotted PVC

Model	Manway	Cap Plug	Slotted PVC
808-4-K	808-400-01	772-102-01	773-200-02
810-4-K	810-302-01	772-102-01	773-200-02
810-6-K	810-302-01	772-109-01	773-200-03

787 Series Fuel Identification

787 Series Fuel Identification Markers

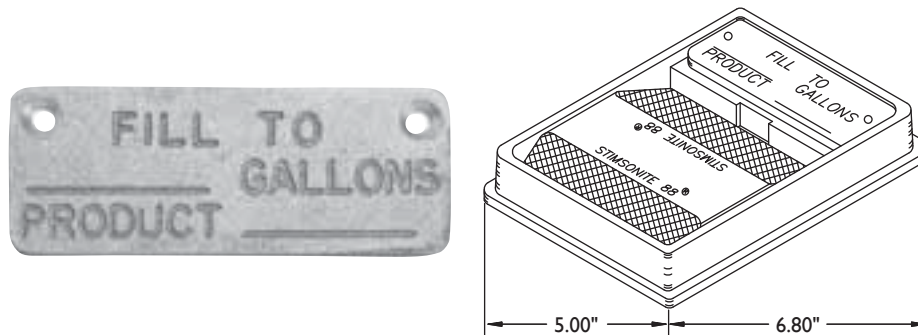
This interchangeable identification marker allows quick, visual identification of tank contents, eliminating the danger of wrong product fill. The aluminum base is easily set in soft concrete and removable brass letter plates are fastened to the base. When the tank contents change, the letters are easily changed to reflect the new product. The marker kit is available in eight standard letter codes.



Model	Description	Size	
		In.	mm
787-100-03	D - diesel kit	3.50 × 2.00	89.00 × 51.00
787-100-06	SU - super unleaded kit	3.50 × 2.00	89.00 × 51.00
787-100-07	P - premium kit	3.50 × 2.00	89.00 × 51.00
787-100-09	RU - regular unleaded kit	3.50 × 2.00	89.00 × 51.00
Model	Description		
787-101-01	Aluminum base only		
787-102-03	D - brass letter only		
787-102-06	SU - brass letter only		
787-102-07	P - brass letter only		
787-102-09	RU - brass letter only		

787 Series Fill Identifier

Tank contents and capacity are easily identified with this color-coded fill identifier. Colored identifiers allow instant identification of the tank's contents. A solid brass plate, inscribed with maximum fill levels, helps prevent tank overflow and product mixing. The identifier and brass plate are permanently attached to the cast iron base which is set in soft concrete, flush with surrounding pavement. The identifier kit is available in five product-coded colors.



Model	Description	Size	
		In.	mm
787-103-02	Fill replacement plate	1.50 × 3.50	38.00 × 89.00
787-103-03	Vapor replacement plate	1.50 × 3.50	38.00 × 89.00
787-201-01	High-grade unleaded kit, red	4.00 × 5.00	102.00 × 127.00
787-201-02	Low-grade unleaded kit, white	4.00 × 5.00	102.00 × 127.00
787-201-03	Diesel kit, white	4.00 × 5.00	102.00 × 127.00
787-201-04	Mid-grade unleaded kit, blue	4.00 × 5.00	102.00 × 127.00
787-201-05	Vapor recovery kit, orange	4.00 × 5.00	102.00 × 127.00
787-200-01	Iron box only	5.00 × 6.80	127.00 × 173.00

Materials

- Body: aluminum.
- Plate: brass.

Materials

- Body: cast iron.
- Plate: brass.

Advantages

- Provides future access to tank top.
- Fewer forecourt manways improves site appearance and pedestrian safety.
- Patented watertight D-profile O-ring seals cover and prevent groundwater intrusion.
- 18" corrosion proof FRP skirt
- Cam locks seal manway cover allowing simple removal.
- Optional waterproof sump shield system and ductile cast iron snow plow ring.
- Grey powder coated manway.
- 5 gallon spill containers and drain valves are same as the 85000-I Series fill and vapor containers.
- Cam locks eliminate corroded threads, lost bolts and water entry from not reinstalling bolts after service.
- EVR Phase I Certification VR-101.

Model Number Reference Chart

XXX - XX - X - X - XXX
1 2 3 4 5

1 = Cover Type and Size

M36 = Multi-port manway cover, 36" access opening
 M42 = Multi-port manway cover, 42" access opening
 T36 = Turbine manway cover, 36" access opening

2 = Number of Spill Containers

0C = 0 spill containers
 1C = 1 spill containers
 2C = 2 spill containers
 4C = 4 spill containers

3 = Number of 13" Access Openings

4 = Number of 8" Access Openings

5 = Snow Plow Ring Option

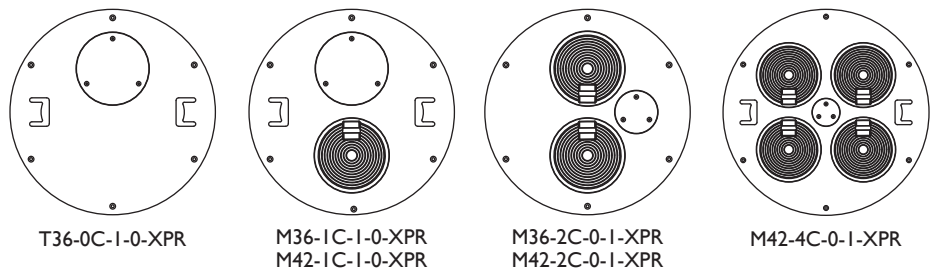
SPR = With snow plow ring
 NPR = Without snow plow ring

Multi-port Manways

Phil-Tite multi-port manways use a patented watertight sealing system. Available with 36" and 42" finished openings in a variety of configurations.



Multi-port Manway Configurations



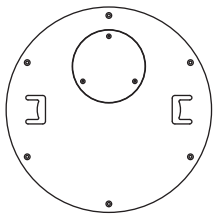
X = either N (no snow plow ring) or S (snow plow ring)

Multi-port Manway Packages

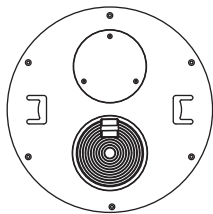
Available in 36" and 42" access opening diameters. Spill container access openings are 16" on center to align with standard tank bung openings. Multi-port manways include a manway cover with cam locks, 18" flared fiberglass skirt, stainless steel sleeve(s) with powder coated cover(s) and fill and/or vapor containers.



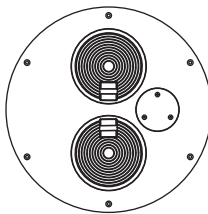
Multi-port Manway Configurations



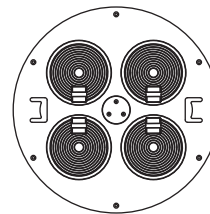
T36-0C-1-0-XPR



M36-1C-1-0-XPR
M42-1C-1-0-XPR



M36-2C-0-1-XPR
M42-2C-0-1-XPR



M42-4C-0-1-XPR

X = either N (no snow plow ring) or S (snow plow ring)

Model	Description
T36-0C-1-0-NPR	36" turbine manway with one 13" access opening offset, no plow ring
M36-1C-1-0-NPR	36" multi-port manway with one field replaceable spill container with drain, one 13" access opening, no plow ring
M36-1C-1-0-SPR	36" multi-port manway with one field replaceable spill container with drain, one 13" access opening, with plow ring
M36-2C-0-1-NPR	36" multi-port manway with one field replaceable spill container without drain, one with drain, one 8" access opening, no plow ring
M36-2C-0-1-SPR	36" multi-port manway with one field replaceable spill container without drain, one with drain, one 8" access opening, with plow ring
M42-1C-1-0-NPR	42" multi-port manway with one field replaceable spill container with drain, one 13" access opening, no plow ring
M42-1C-1-0-SPR	42" multi-port manway with one field replaceable spill container with drain, one 13" access opening, with plow ring
M42-2C-0-1-NPR	42" multi-port manway with one field replaceable spill container without drain, one with drain, one 8" access opening, no plow ring
M42-2C-0-1-POR	42" multi-port manway with one field replaceable spill container without drain, one with drain, one 8" access opening, orange and red covers, with plow ring
M42-2C-0-1-POW	42" multi-port manway with one field replaceable spill container without drain, one with drain, one 8" access opening, orange and white covers, with plow ring
M42-2C-0-1-SPR	42" multi-port manway with one field replaceable spill container without drain, one with drain, one 8" access opening, with plow ring
M42-4C-0-1-NPR	42" quad multi-port manway with two field replaceable spill containers with drains, two field replaceable spill containers without drains, one 6" access opening, no plow ring
M42-4C-0-1-SPR	42" quad multi-port manway with two field replaceable spill containers with drains, two field replaceable spill containers without drains, one 6" access opening, with plow ring

Note: Requires installation tool kit T-7043 on page 90 and M/F 4x4 on page 91.

Advantages

- Patented watertight D-profile O-ring seals cover and prevents groundwater intrusion.
- 18" corrosion proof FRP skirt will not rust.
- Cover lockdown uses cam locks with stainless steel hardware eliminating corroded threads, lost bolts and water entry from not reinstalling bolts after service.
- Optional waterproof sump shield system and ductile cast iron snow plow ring.
- Grey powder coated manway.
- Patent numbers: 4,696,330 and 5,086,256.
- EVR Phase I Certification VR-101.
- Missouri MOPETP approved ACP-0002-001-99.

Model Number Reference Chart

XXX - XX - X - X - XXX
1 2 3 4 5

1 = Cover Type and Size

M36 = Multi-port manway cover, 36" access opening
M42 = Multi-port manway cover, 42" access opening
T36 = Turbine manway cover, 36" access opening

2 = Number of Spill Containers

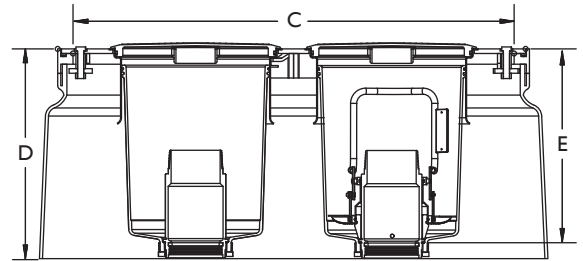
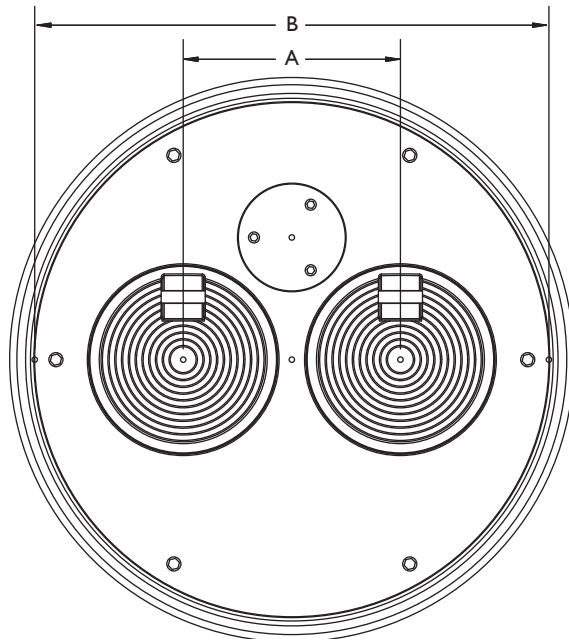
0C = 0 spill containers
1C = 1 spill containers
2C = 2 spill containers
4C = 4 spill containers

3 = Number of 13" Access Openings

4 = Number of 8" Access Openings

5 = Snow Plow Ring Option

SPR = With snow plow ring
NPR = Without snow plow ring



Model	A	B	C	D	E	
	Spill Collection Separation	Cover Diameter	Access Opening	Manway Skirt from Finished Grade Height	Height of Riser from Finished Grade to Achieve 5 Gallon Capacity without M/F 4x4	Height of Riser from Finished Grade to Achieve 5 Gallon Capacity with M/F 4x4
36"	16.00"	37.88"	36.00"	18.00"	16.38" to 18.00"	18.13" to 20.00"
42"	16.00"	44.50"	42.00"	18.00"	16.38" to 18.00"	18.13" to 20.00"

Watertight Fiberglass Multi-port Sump Packages

Available in both single and double wall configurations. Each package includes a patented watertight multi-port sump shield.

Our octagonal base sumps are a two-piece design eliminating the need to work in a confined space during installation. Eight flat panels are molded into the bottom section to provide 90° pipe entries.

Most single wall models are available with or without bottom for various mounting options.

Double wall models are only available for mounting to tank collar.

Note: Two-week lead time on all fiberglass parts.



M Model Two-Piece Octagonal Multi-port Sump

Dual Point Fill Watertight Multi-port Sump Packages

42" Single and Double Wall Octagonal*

Model	Wall Type	Seam Kits Recommended	Bottom	8" Openings	13" Openings
M(X)4236-2/I-OC-S	Single	2	No	1	2
M(X)4236-2/I-OB-S	Single	1	Yes	1	2
M(X)4236-2/I-OH-H	Double	4	No	1	2

Note: See page 63 for seam kit information.

*All 42" octagonal multi-port sumps have a 42" base diameter, minimum 36" manway size and a 39" riser diameter.

**Overall height.

Diesel Watertight Multi-port Sump Packages

42" Single and Double Wall Octagonal*

Model	Wall Type	Seam Kits Recommended	Bottom	8" Openings	13" Openings
M(X)4236-1/I-OC-S	Single	2	No	0	1
M(X)4236-1/I-OB-S	Single	1	Yes	0	1
MD4236-1/I-OC-H	Double	4	No	0	1

Note: See page 62 for seam kit information.

*All 42" octagonal multi-port sumps have a 42" base diameter, minimum 36" manway size and a 39" riser diameter.

**Overall height.

Advantages

- Constructed from rugged three layer hand layup FRP with a vapor, watertight gel coat interior wall surface.
- Available in 42" and 48" diameter.
- Sump reducers are available to fit under a 42" or 36" manway.
- Double wall models are shipped under vacuum with a vacuum gauge installed for verification at site of sealed interstitial.
- Packages include watertight sump shield, sump reducer, appropriate size and quantity neoprene boots, and 315SS clamps.

Model Number Reference Chart

XX XXXX - X/X - XX - X
I A B 2 3 4

I = Sump Type

M = Multi-port

A = Depth

M = Medium burial

D = Deep burial

B = Size

4236 = 42" diameter base, 36" minimum manway diameter
 4242 = 42" diameter base, 42" minimum manway diameter

2 = Watertight Shield Opening Options

1/0 = One spill container opening
 4/0 = Four spill container openings
 2/1 = Two spill container openings, one 8" opening

3 = Base Options

OB = Octagonal base with bottom
 OC = Octagonal mount base

4 = Interstitial Monitoring Method

S = Single wall, none
 H = Hydrostate (brine)
 V = Vacuum

30" Access Multi-port Watertight Sump Shield Packages*

Model	Seam Kits Recommended	Reducer Base		8" Openings	13" Openings
		OD	ID		
MSC-4236-1-0		43"	42-5/8"	0	1
MSC-4236-2-1		43"	42-5/8"	1	2
MSC-XS36-1		31-5/8"	31-1/4"	0	1
MSC-XS36-3		31-5/8"	31-1/4"	1	2

Note: See page 62 for seam kit information.

*All 30" access multi-port sump shields have a minimum 36" manway size. All reducer OD and ID dimensions ± 1/16".



42" or 48" MSC models

36" Access Multi-port Watertight Sump Shield Packages*

Model	Seam Kits Recommended	Reducer Base		8" Openings	13" Openings
		OD	ID		
MSC-4242-2-1		43"	42-5/8"	1	2
MSC-4242-4-1		43"	42-5/8"	1 (6" access)	4
MSC-4242-1-0		43"	42-5/8"	0	1

Note: See page 62 for seam kit information.

*All 36" access multi-port sump shields have a minimum 42" manway size except MSO-4236-1-0, minimum size 36". All reducer OD and ID dimensions ± 1/16".



42" or 48" MSC models

Watertight Fiberglass Multi-port Sump Package Accessories

Fiberglass Seam Adhesive Kit

Model	Description
FG-SEAMKIT	Includes mat, resin, putty and catalyst for one fiberglass seam, single or double wall.

Note: Double wall applications may require two seam kits per seam.

Boots

Multi-port nitrile boot with stainless steel band clamp.

Model	Description
WTRB-1013	85000 and 85000-1 series spill container reducer boot with clamp for spill bucket to WTSS

Caps

Multi-port cap covers for sealing access openings.

Model	Description
WTRC-0600	6" rubber cap with clamp for 6" access opening in watertight sump shield
WTRC-0800	8" rubber cap with clamp for 8" access opening in watertight sump shield
WTRC-1300	13" rubber cap with clamp for 13" access opening in watertight sump shield

EVR Phase I Packages

Kit includes all Phil-Tite branded items to comply with CARB: EVR Phase I requirements for a multi-port installation.



Advantage

- EVR Phase I Certification VR-101.
- Missouri MOPETP approved APCP-0002-001-99.

Model	Description	Quantity	
		EVR-3	EVR-4
PP-1005-TB	Debris collector	1	2
85100-1*	Replacement fill bucket with drain	1	2
85101-1*	Replacement vapor spill container without drain	1	2
SWF-100-B	Swivel fill adapter	1	2
SWV-101-B	Vapor swivel adapter	1	2
M/F 4x4	4" x 4" riser adapter	3	5
TBP-3516	Tank bottom protector	1	0
M-1600	Riser support bracket	1	4

*Included with M36 and M42 multi-ports.

Package	Multi-port	Parts Included						
		SWF-100-B	SWV-101-B	PP-1005-TB	PP-1005-TBP	M-1600	M/F 4x4	TBP-3516
M36-EVR-3	M36-2C-0-1-NPR	1	1	1	0	1	3	1
M36-EVR-3-SPR	M36-2C-0-1-SPR	1	1	1	0	1	3	1
M42-EVR-1-NPR	M42-1C-1-0-NPR	1	0	1	0	0	1	1
M42-EVR-1-SPR	M42-1C-1-0-SPR	1	0	1	0	0	1	1
M42-EVR-2-NPR	M42-2C-0-1-NPR	1	1	1	1	1	3	1
M42-EVR-2-SPR	M42-2C-0-1-SPR	1	1	1	1	1	3	1
M42-EVR-4	M42-4C-0-0-NPR	2	2	2	0	4	5	0

Package	Multi-port Package
M36-EVR-3	M36-2C-0-1-NPR
M36-EVR-3-SPR	M36-2C-0-1-SPR
M42-EVR-1-NPR	M42-1C-1-0-NPR
M42-EVR-1-SPR	M42-1C-1-0-SPR
M42-EVR-2-NPR	M42-2C-0-1-NPR
M42-EVR-2-SPR	M42-2C-0-1-SPR
M42-EVR-4	M42-4C-0-0-NPR

Note: Requires installation tool kit T-7043.



Phase I Vapor Recovery Solutions

The United States Environmental Protection Agency issued a Federal Register in January of 2008 including vapor recovery and submerged filling requirements for facilities utilizing underground storage tank containment. These regulations require facilities with throughput over 100,000 gallons per month to install Stage I vapor recovery equipment. Facilities with throughput over 10,000 gallons per month are required to install a submerged filling device on their underground storage tank.



Stage I Enhanced Vapor Recovery

Order as a complete package.

Model	Description
602303901	Phase I EVR package
Package includes:	
500-CS-SPR-GRY	5 gallon spill bucket with drain
501-CS-SPR-GRY	5 gallon spill bucket without drain
PP-1005-TB	Debris bucket
M/F 4X4	4" x 4" threaded riser adapter (Qty. 3)
SWFV-PKG	Swivel vapor and fill adapter
777-201-01	Top seal fill cap
304-301-01	Vapor recovery cap
90037	Probe capo and adapter kit

Phase I Vapor Recovery (Coaxial)

Model	Description
708-226-04-2	Coaxial vapor recovery drop tube (2 per pack, 3.5" x 13')
306-300-01	Coaxial vapor recovery adapter

Phase I Vapor Recovery (Dual Point)

Model	Description
782-204-12-2*	4" x 12' fill drop tube (2 per pack)
778-301-01	Top seal fill pipe adapter
300-210-01	Vapor check valve adapter
304-301-01	Vapor recovery cap
777-201-02	Top seal fill cap, gas/E85

* 10' and 15' models also available

Overfill and Tank Bottom Protection

Order Autolimiter, straight drop tube and tank bottom protector separately per order.

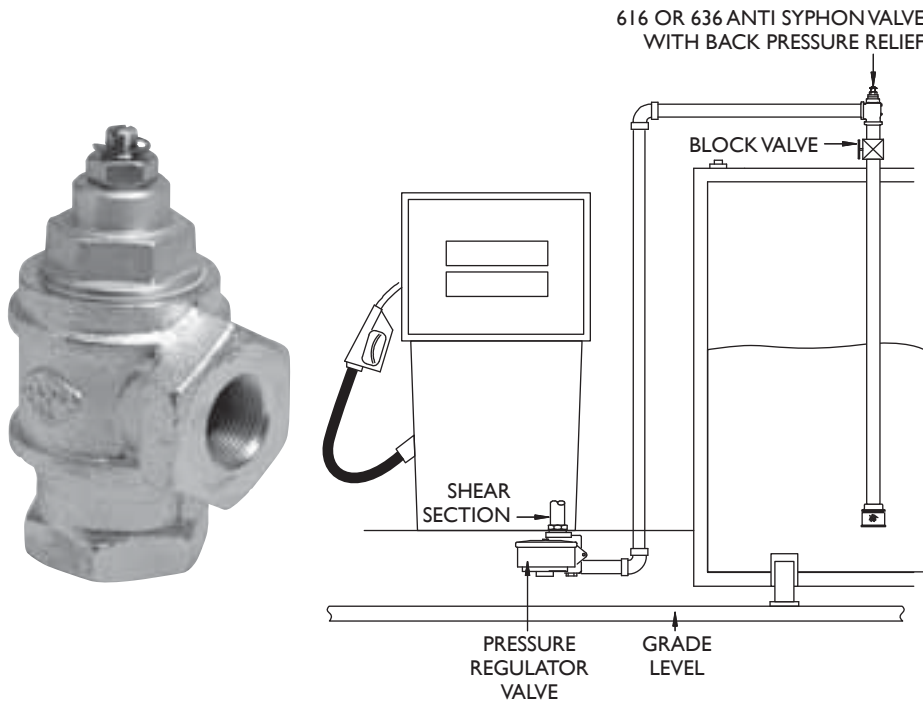
Model	Description
708-491-12	Autolimiter II automatic shut-off valve
TBP-3516-E*	Tank bottom protector

* Use tank bottom protector only with FRP tanks with no striker plate.

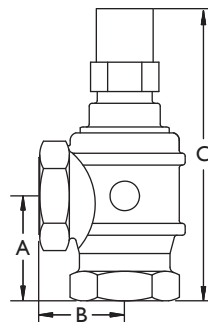
605, 606, 616 and 636 Anti Syphon Valves

EBW anti syphon valves are recommended for all aboveground storage applications to prevent fuel from exiting the storage tank in the event of a broken line or leak.

The anti syphon valves shut off product flow when lines are broken, preventing fuel spillage and fire hazards. Each valve has an adjusting mechanism allowing for various liquid head pressure settings within the valve range. The adjusting mechanism is lockable after the preferred setting is made. EBW anti syphon valves are set to maximum head pressure when shipped from the factory. The anti syphon valve also includes a pressure relief valve, eliminating thermal expansion of fluid in the lines.



Model	A		B		C	
	In.	mm	In.	mm	In.	mm
605	2.22	56.38	1.80	45.72	5.94	150.88
606	2.22	56.38	1.80	45.72	5.94	150.88
616	2.61	66.29	55.62	55.62	6.56	141.22
636	2.66	67.56	68.32	68.32	6.97	151.63



Model	Size		Head Pressure Range	Weight	
	In.	mm		Lbs.	Kg
605-300-01	0.75	19.02	0' to 12'	3.40	1.54
606-300-01	1.00	25.40	0' to 12'	3.20	1.45
616-300-01	1.50	38.10	5' to 12'	4.60	2.09
616-300-02	1.50	38.10	12' to 25'	4.60	2.09
616-300-03	1.50	38.10	0' to 5'	4.60	2.09
636-300-01	2.00	50.80	5' to 12'	7.20	3.27
636-300-02	2.00	50.80	12' to 25'	7.20	3.27

Advantages

- Hydrostatic pressure adjusting mechanism with durable weather cap.
- Built in thermal expansion pressure relief valve.
- 3/4" and 1" models are ideal for fuel oil and generator applications.
- Can be installed in horizontal or vertical position.
- Can be used in pressure systems.
- NFPA 30.
- API/RP 2000.

Materials

- Body: ductile iron-zinc plated.
- Cap: brass.
- Spring: zinc plated steel.
- Poppet: brass.
- Seat: brass.
- Adjustment screw: stainless steel.
- Disc: fluorocarbon seal.





Advantages

- Hydrostatic pressure adjusting mechanism with durable weather cap.
- Built in thermal expansion pressure relief valve.
- Shear section is standard, eliminating need for an additional shear valve.
- NFPA 30.
- API/RP 2000.

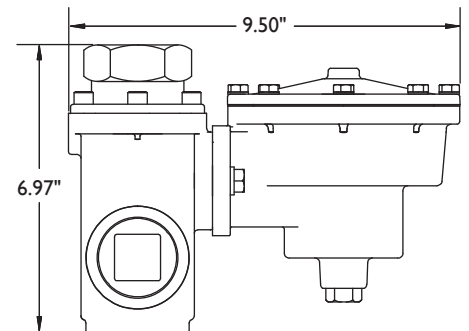
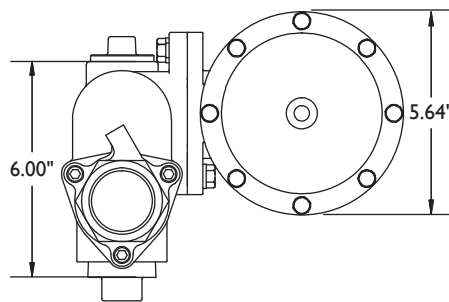
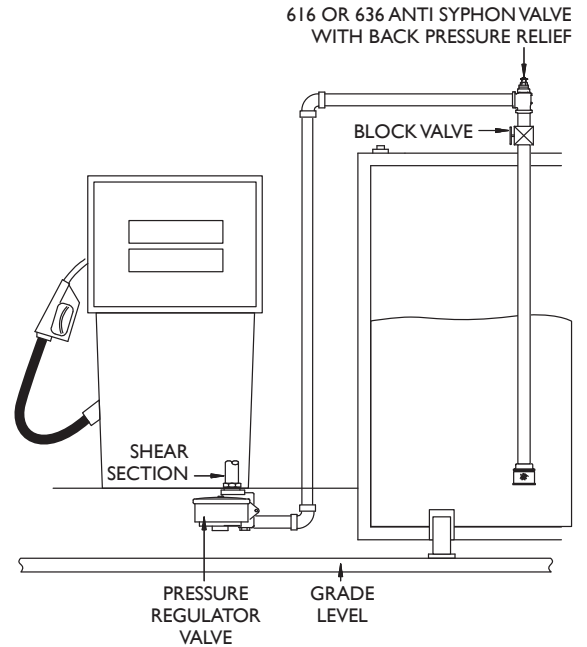


Materials

- Body: cast iron.
- Seals: fluorocarbon.
- Filter: stainless steel.
- Poppet: fluorocarbon.

664 Pressure Regulator Valve

The EBW 664 pressure regulator valve is designed to be used in conjunction with suction type dispensers connected to an aboveground storage tank. The pressure regulator valve prevents fuel from flowing to the pumping unit and flowing out the vent tube of the self-contained dispenser when the pump is not activated. The pressure regulator valve is a vacuum actuated valve which will not allow product flow until the suction of the pumping unit opens the valve. The valve closes by means of an internal spring when pumping is complete.



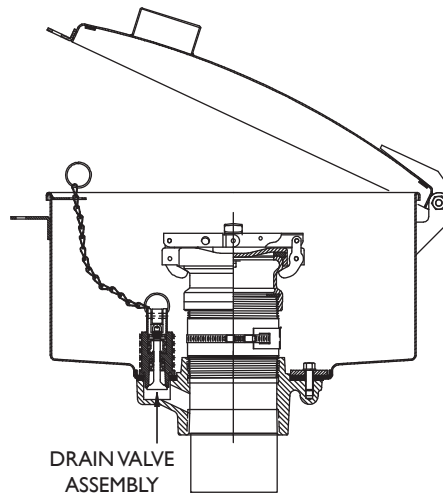
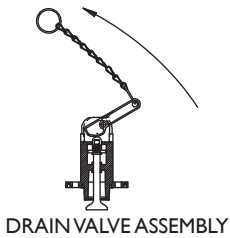
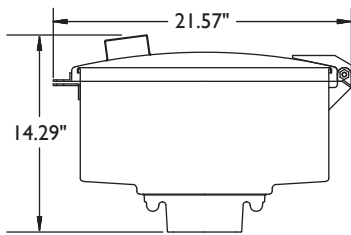
Note: Please refer to the installation instructions supplied with the valve for proper installation procedures.

Model	Description	Weight	
		Lbs.	Kg
664-302-01	Male-NPT	19.00	8.62
664-302-02	Union	19.30	8.75
664-302-03	Femail-NPT	19.00	8.62
664-302-06	Female-Poppeted	19.00	8.62
664-302-26	Female-BSPT	19.00	8.62

Model	Description
662-220-01	Male replacement adapter
662-221-01	Union replacement adapter
662-222-01	Female replacement adapter for 664-302-03
664-211-01	Female Replacement Adaptor for 664-302-06
664-304-01	Mounting bracket

706 AST Spill Container

The EBW AST spill container gives overflow protection to fill and vapor return risers on an aboveground storage tank. Its 7-1/2 gallon capacity prevents potential environmental problems by containing fuel overflow during fill-up.



Advantages

- Built-in drain allows spilled fuel to drain back into the tank.
- 7-1/2 gallon capacity.
- Lockable lid prevents tampering and theft.
- Epoxy coated 14 gauge steel skirt and lid provide corrosion protection and durability.
- Threads onto a 4" riser pipe to install.
- Cast iron base securely bolted to the steel skirt provides superior strength for heavy duty applications.

Materials

- Lid and skirt: 14 gallon epoxy coated steel.
- Base: cast iron.
- Gasket: fire-resistant graphite base gasket.
- Drain valve: acetal with a flouorocarbon graphite valve seal.

Model	Description	Weight	
		Lbs.	Kg
705-341-01	Replacement drain valve	0.50	0.20
706-420-01	Standard	40.00	18.14
706-420-65**	Canadian	42.00	18.05

**Includes riser pipe, cap and adapter.



Advantages

- Cylindrical float design eliminates interference with tank walls and cross braces.
- 100 psi working pressure rating.
- Flow rate 200 gpm at 20 psi.
- No minimum flow rate.
- Ships complete with upper nipple and tight fill adapter with crossbar to prevent open fills.
- Simply thread onto a 4" riser pipe to install. Length of upper tube determines shut-off point.

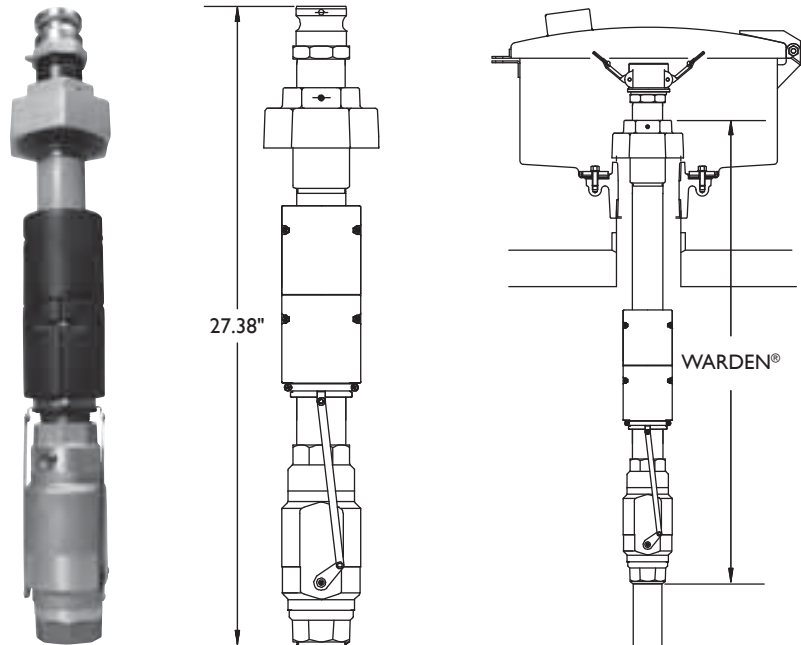
Materials

- Valve body: aluminum 356-T6.
- Poppet: aluminum 356-T6.
- Shaft: stainless steel.
- Float: high density polyethylene.
- Nipple: epoxy coated black iron pipe.

709 Warden® AST Overfill Prevention Valve

The EBW Warden® is designed to provide a positive shut-off during a pressurized fill delivery on an aboveground storage tank. It eliminates spills and overfills, avoiding costly cleanup expenses and ground contamination. The Warden® is fully adjustable to provide shut-off in various height and capacity aboveground tanks. It is designed to fit into a 4" fill riser, making installation on new and existing locations simple and quick. Designed with inverted floats for use in small or large rectangular tanks. Requires 4" minimum ullage.

Note: The Warden® is recommended for use with clean product only. Contaminated product may cause erratic operation or valve failure



Model	Description	Weight	
		Lbs.	Kg
709-420-01	Warden®, 4" overfill with inverted floats	12.50	5.67
774-212-20	2" dust cap	1.25	0.57

Fill Caps

770 Locking Fill Cap

This watertight, locking fill cap consists of a sturdy brass body with an attractive grey, epoxy coated, cast iron cap. Holes are uniformly located around the edge of the cap so that it may be locked in any position. Furnished with a Buna-N gasket.



Model	Size		Weight	
	In.	mm	Lbs.	Kg
770-101-01	2	51	2.62	1.19
770-101-03	4	102	7.75	3.52

751 2" Aluminum Fill Cap

Constructed of aluminum, this fully lockable fill cap has female threads for installation. Lock is not included.



Model	Description	Weight	
		Lbs.	Kg
751-202-01	Female	0.69	0.31
751-204-01	Male	0.69	0.31

Materials

- Body: brass.
- Cap: cast iron.
- Gasket: Buna-N.

Materials

- Body: aluminum.
- Cap: aluminum.



Advantages

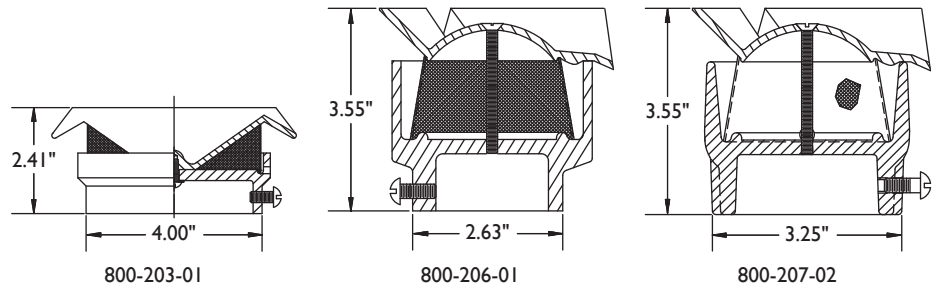
- Dome-shaped top design drains off moisture including rain, snow and ice.
- 30 mesh prevents dirt and debris from entering vent lines.

Materials

- Body: aluminum.
- Lid: zinc plated steel.
- Seal: brass.

800 Tank Vents

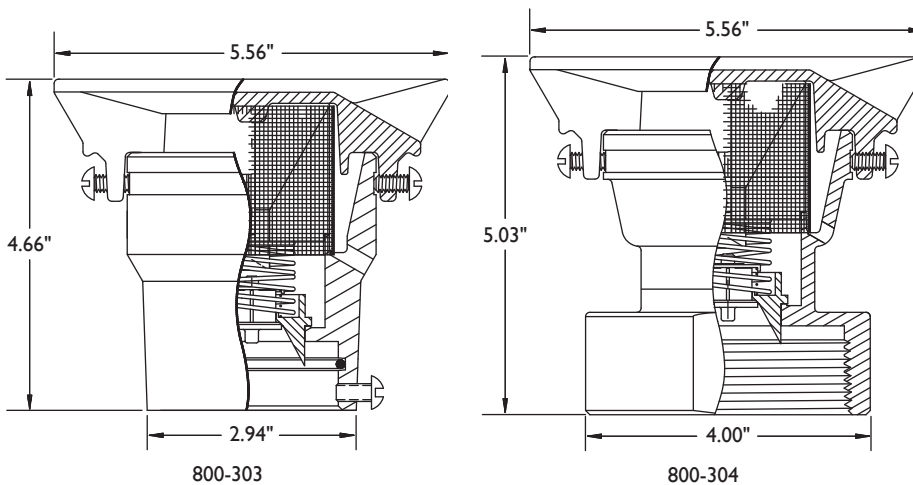
EBW tank vents are designed to provide an open path for vapors from an underground or aboveground storage tank to the atmosphere.



Model	Size		Weight	
	In.	mm	Lbs.	Kg
800-203-01	3.00	76.00	1.19	0.54
800-206-01	1.50	38.00	1.00	0.45
800-207-02	2.00	51.00	1.00	0.42

802 Pressure Vacuum Vents

EBW pressure vacuum vents are used on underground and aboveground storage tank vent pipes to discharge vapors upward into the atmosphere. The top casting is dome-shaped to quickly drain off moisture including rain, snow and ice. Body and cover are cast aluminum with a 30 mesh, flame arresting, bronze screen. 2" and 3" models have vent rates of 8000 cubic feet per hour, and produce 8.0 ounces of pressure and 0.5 ounces of vacuum.



Advantages

- Two model types available, NPT/BSPT threads or O-ring with locking screw.
- NFPA 30.

Materials

- Body: aluminum.
- Poppet: acetal.
- Spring: stainless steel.
- Screws: zinc plated steel.
- Screen: brass.

Model	Size		Installation	Weight	
	In.	mm		Lbs.	Kg
802-303-01*	2.00	51.00	NPT threaded	1.88	0.85
802-303-02*	2.00	51.00	O-ring seal	1.84	0.83
802-303-12*	2.00	51.00	O-ring seal	1.88	0.85
802-303-21*	2.00	51.00	BSPT threaded	1.88	0.85
802-304-05*	3.00	76.00	NPT threaded	2.44	1.11
802-304-06	3.00	76.00	O-ring seal	2.40	1.08

*UL file # MH 15882.



Advantages

- Several sizes and styles available, 4" and 6" male and female models.
- Fluorocarbon O-ring seal.

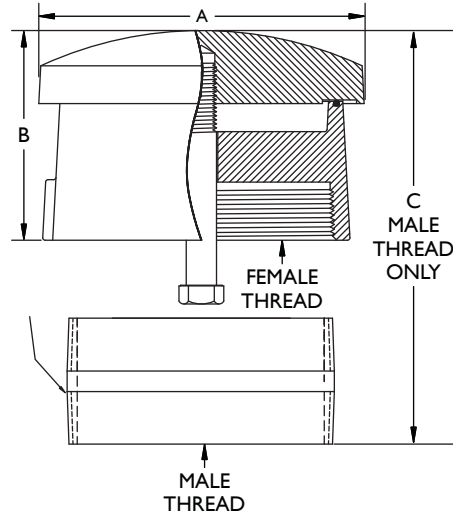


Materials

- Body: cast iron.
- Lid: cast iron.
- Seal: fluorocarbon.

803 Aboveground Emergency Vents

EBW 803 aboveground emergency vents are designed to work in conjunction with EBW 802 pressure vacuum vents to prevent an aboveground storage tank from becoming over pressurized in the event of a fire or blockage. When the aboveground tank reaches a determined pressure, the cast iron lid will raise up to allow the pressure to release. When the pressure releases, the cast iron cover will lower and reseal. The sturdy cast iron body and lid, along with the fluorocarbon O-ring, provide a tight seal when closed. All EBW aboveground tank vents are designed to open at 8.0 ounces of pressure.



Note: Pipe nipple shown for male thread models only.

Model	A		B		C		Thread
	In.	mm	In.	mm	In.	mm	
803-200-01	6.00	154.80	4.50	115.14			4" NPT
803-205-01	8.06	204.73	5.19	131.95			6" NPT
803-300-01	6.00	154.80	4.50	115.14	6.34	161.93	4" NPT
803-303-01	8.06	204.73	5.19	131.95	6.81	172.97	6" NPT
803-308-01	10.50	268.17	5.50	141.94			8" NPT

Vent Size		@ 2.5 PSI = SCFH
In.	mm	
4.00	102.00	96,000 SCFH
6.00	152.00	233,000 SCFH
8.00	203.00	411,000 SCFH

Model	Size		Connection	Weight	
	In.	mm		Lbs.	Kg
803-200-01	4.00	102.00	Female	14.00	6.35
803-205-01	6.00	152.00	Female	30.00	13.60
803-300-01	4.00	102.00	Male	14.00	6.35
803-303-01	6.00	152.00	Male	30.00	13.60
803-308-01	8.00	203.00	Female	40.20	18.23

402 Utility Nozzle

This nozzle is constructed of high tensile strength aluminum alloy. Its angled design allows more efficient fueling positions by reducing hose wear and pinch points. It features a zinc plated steel lever and molded Buna-N or fluorocarbon disc seats and O-rings. A throttling disc is also available for smooth operation.



Advantages

- 50 psi rating.
- Heat-treated aluminum body.
- Brass stem.
- Buna-N or fluorocarbon poppet seal.



Model	Inlet Size		Outlet	Seal	Weight	
	In.	mm			Lbs.	Kg
402-300-01	0.75	19.10	Leaded	Buna-N	1.31	0.59
402-300-02	1.00	25.50	Leaded	Buna-N	1.31	0.59
402-310-01	0.75	19.10	Unleaded	Buna-N	1.31	0.59
402-310-02	1.00	25.50	Unleaded	Buna-N	1.31	0.59
402-313-41*	0.75	19.10	Leaded	Fluorocarbon	1.31	0.59
402-313-42*	1.00	25.50	Leaded	Fluorocarbon	1.31	0.59
402-314-41*	0.75	19.10	Unleaded	Fluorocarbon	1.31	0.59
402-314-42*	1.00	25.50	Unleaded	Fluorocarbon	1.31	0.59
1100342	Service Kit					

*Biofuel approved models (E85 and biofuel).



Advantages

- 100 psi rating.
- Aluminum body.
- Stainless steel stem.
- PTFE-impregnated graphite package.
- Fluorocarbon disc.
- Patent number 3285564.

Materials

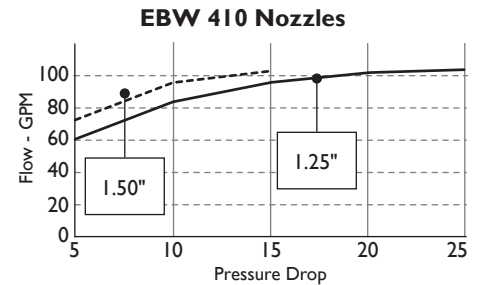
- Body: aluminum.
- Stem: stainless steel.
- Packing: PTFE-impregnated graphite.
- Discs: fluorocarbon.

410 Fuel Oil Delivery Nozzle

The EBW 410 fuel oil delivery nozzle has hold-open notches and a lever pin bushing made of Nylafil, which resists wear five times longer than metal and is unaffected by temperature extremes. This is the most rugged nozzle available with a heavy duty body and increased wear lugs. Dashpot construction ensures smooth opening, shockproof closure and maximum flow.

Note: Tubes not included and must be ordered separately. See page 79.

WARNING: This is a non-automatic nozzle with a manually operated latch which will not shut off automatically. Use should be limited to applications sanctioned by OSHA, State Fire Marshal Codes, and other appropriate regulating bodies and/or safety codes.



Model	Inlet Size		Outlet Size		Weight	
	In.	mm	In.	mm	Lbs.	Kg
410-300-03	1.25	31.90	1.25	31.90	1.31	0.59
410-401-03	1.50	38.30	1.50	38.30	1.31	0.59

Advantages

- Extra large hand opening to accommodate gloves or mittens.
- Check valve is in nozzle body, not spout, for inexpensive, fast spout replacement.
- Self-adjusting stem packing means no field adjustment is required.
- Automatic shut-off with dual poppets for easy opening.
- Two position hold-open latch.
- Right angle design allows nozzle to fit close to walls and corners.
- Cast-in protective standoffs provide durability with rough usage.

Materials

- Body: cast aluminum.
- Stem: stainless steel.
- Packing: PTFE-impregnated graphite.
- Discs: fluorocarbon.

415 Automatic Bulk Fueling Nozzle

The EBW automatic bulk fueling nozzle is an extra heavy duty, high flow fuel dispensing nozzle designed for bulk fueling operations such as marine/truck/bus dispensing or home fuel oil delivery. This nozzle comes complete with automatic venturi shut-off and a dual position, hold-open mechanism.



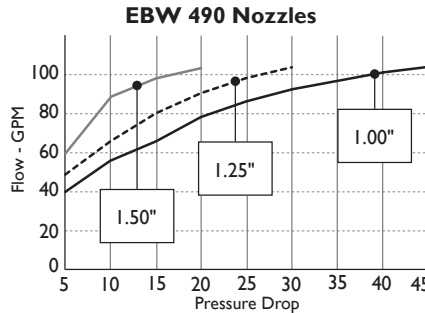
Model	Inlet Size		Weight	
	In.	mm	Lbs.	Kg
415-110-01	1.50	38.10	7.30	3.31

490 Dual Poppet Nozzle

This nozzle fulfills your requirements when dashpot construction is not required. The same rugged construction and long wear features of the 410 dashpot nozzle have also been built into this model.

Note: Tubes not included and must be ordered separately. See page 79.

WARNING: This is a non-automatic nozzle with a manually operated latch which will not shut-off automatically. Use should be limited to applications sanctioned by OSHA, State Fire Marshal Codes, and other appropriate regulating bodies and/or safety codes.



Model	Inlet Size		Outlet Size		Weight	
	In.	mm	In.	mm	Lbs.	Kg
490-301-05	1.00	25.50	1.25	31.90	1.38	0.62
490-301-06	1.25	31.90	1.25	31.90	1.38	0.62
490-302-01	1.25	38.30	1.50	38.3	1.38	0.62

Advantages

- 50 psi rating.
- Aluminum body.
- Stainless steel stem.
- PTFE-impregnated graphite.
- Patent number 3,285,564.

Materials

- Body: aluminum.
- Stem: stainless steel.
- Packing: PTFE-impregnated graphite.
- Discs: fluorocarbon.

498 Manual Nozzle

The 498 manual nozzle has a cast aluminum body, stainless steel trim and aluminum chrome plated parts, for trouble-free service and easy operation. In addition, this nozzle's high flow, minimum pressure loss and excellent throttling characteristics provide fast and accurate deliveries with top-off control. Its ball-burnished finish also adds an attractive appearance to any pump installation.



Model	Inlet Size		Outlet	Seal	Weight	
	In.	mm			Lbs.	Kg
498-301-01	0.75	19.10	Leaded	Buna-N	1.38	0.62
498-301-02	1.00	25.50	Leaded	Buna-N	1.38	0.62
498-301-06*	1.00	25.50	Leaded	Buna-N	1.38	0.62

*Without check.

Advantage

- PTFE-impregnated graphite.



Materials

- Tubes: unleaded - 13/16" aluminum.
leaded - 15/16" aluminum
- Body: heat-treated aluminum.
- Packing: PTFE-impregnated graphite.
- Poppet: Buna-N or fluorocarbon.



Advantage

- Patent number 3,285,564.

Materials

- Body: cast aluminum.
- Stem: stainless steel.
- Packing: PTFE-impregnated graphite.
- Discs: fluorocarbon.

495 Aircraft Fueling Nozzle

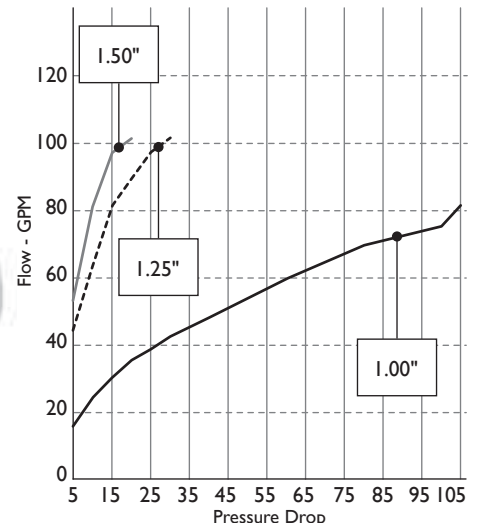
Standard features include a 100 mesh tube strainer, a dust cap assembly and a 6-1/2' static discharge ground wire. 1-1/4" and 1-1/2" models have an aluminum discharge tube with a knurled area for hand assembly; the 1" model has a brass tube standard. Dashpot construction ensures smooth opening, shockproof closure and maximum flow.

Nozzle can be built to military specifications, consult factory for details.

WARNING: This is a non-automatic nozzle with a manually operated latch which will not shut-off automatically. Use should be limited to applications sanctioned by OSHA, State Fire Marshal Codes, and other appropriate regulating bodies and/or safety codes.



EBW 495 Nozzles



Model	Inlet Size		Outlet Size		Weight	
	In.	mm	In.	mm	Lbs.	Kg
495-400-01	1.50	38.30	1.50 NPT	38.30	6.50	3.00
495-401-01	1.25	31.90	1.25 NPT	31.90	5.30	2.40
495-402-01	1.00	25.50	1.25 NPT	31.90	4.15	1.90

Part	495-400-01	495-401-01	495-402-01	495-404-01
	Model	Model	Model	Model
Spout	495-210-01	495-211-01	495-112-01	495-210-01
Strainer	495-208-01	495-125-01	495-204-01	
Dust cap assembly	495-105-01	495-106-01	495-111-01	495-105-01
Ground wire assembly	495-107-01	495-107-01	495-107-01	497-107-01

Model	Description
495-120-01	1-1/2" aluminum tube and brass strainer assembly
495-120-02	1-1/2" tube and strainer assembly, brass
495-122-01	1-1/4" aluminum tube and brass strainer assembly

Nozzle Accessories

Brass Nozzle Tubes

Nozzle tubes fit EBW 410 and 490 nozzles, are constructed of brass for durability and include a cast brass nut for a secure attachment to the nozzle.

Model	Thread Size		Tube Dia.		Tube Length		Weight	
	In.	mm	In.	mm	In.	mm	Lbs.	Kg
410-116-01	1.50	38.3	1.38	35.20	8.50	216.80	1.00	0.45
410-122-01	1.25	31.9	1.12	28.60	8.50	216.80	0.88	0.40
410-129-01	1.50	38.3	1.62	41.30	8.50	216.80	1.00	0.45
410-133-01	1.25	31.9	1.38	35.20	8.50	216.80	1.00	0.45

Aluminum Nozzle Tubes

Nozzle tubes fit EBW 410 and 490 nozzles and are constructed of schedule 40 aluminum. 491-107-01 includes a 1-1/4" brass nut for a secure attachment to the nozzle.

Model	Thread Size		Tube Dia.		Tube Length		Weight	
	In.	mm	In.	mm	In.	mm	Lbs.	Kg
491-100-01	1.25 NPT	31.9	1.66	42.30	8.50	216.80	0.56	0.25
491-101-01	1.50 NPT	38.3	1.91	48.70	8.50	216.80	0.69	0.31
491-107-01	1.25 NPT	31.9	1.31	33.40	8.50	216.80	0.63	0.29

465 Hose Swivel

This swivel was designed for ease of delivery. It features free swivel action up to 125 psi with fluorocarbon O-ring seals, enabling it to turn smoothly with little effort while remaining leakproof. A waterproof dust seal assures constant free-turning action.



Model	Size		Description	Weight	
	In.	mm		Lbs.	Kg
465-101-01	1.25" x 1.25"	31.90 x 31.90	Without check	0.69	0.31
465-101-02	1.25" x 1.25"	31.90 x 31.90	With check	0.69	0.31
465-102-01	1.50" x 1.50"	38.30 x 38.30	Without check	0.72	0.33
465-102-02	1.50" x 1.50"	38.30 x 38.30	With check	0.72	0.33

Dust Cap Assembly

Dust cap assembly consists of a cast aluminum cap, zinc coated chains and a phosphor bronze spring for corrosion resistance.



Model	Size		Weight	
	In.	mm	Lbs.	Kg
495-105-01*	1.91	48.7	0.25	0.11
495-106-01**	1.66	42.3	0.19	0.09
495-111-01***	1.12	28.6	0.19	0.09

*For use with 1.50" nozzle.

**For use with 1.25" nozzle

***For use with 1.00" nozzle.

Materials

- Body: wrought aluminum with hard coat anodized finish for durability.
- Stem: two fluorocarbon O-ring seals and waterproof dust seal.



Ground Wire Assembly

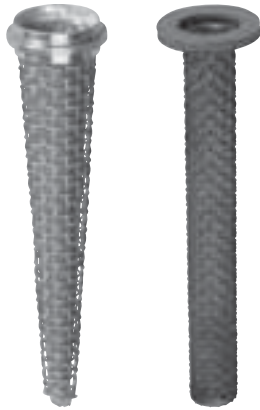
6-1/2' of preformed galvanized steel cable with a terminal eye and heavy duty battery clip.



Model	Size		Weight	
	In.	M	Lbs.	Kg
495-107-01	78.00	1.90	0.13	0.06

Strainers

495-125 strainers are made of a six mesh brass outer screen, 100 mesh brass inner screen, two O-rings and a thrust ring. The 495-204 strainer is made of an eight mesh brass outer screen and 100 mesh brass inner screen.



Model	Size		Description	Weight	
	In.	M		Lbs.	Kg
495-125-01	1.25	31.90	Brass	0.19	0.09
495-204-01	1.00	25.50	Brass	0.13	0.06
495-209-01	1.50	38.30	Brass	0.31	0.14

697/698 3/4" Safety-Sever™ Breakaway

The safety-sever prevents hose driveaways from becoming major disasters by uncoupling and instantly sealing both ends of the break. It prevents costly damage to dispensers, eliminates downtime and averts the major danger of runaway fuel spillage. A safety-sever coupler can be reconnected in minutes by simply replacing the metal tipped shear screw. Breakaway force provides ample protection for dispensers, while preventing accidental disconnection caused by ordinary aggressive hose handling.



Model	Size		Weight	
	In.	mm	Lbs.	Kg
697-137-01	0.75	19.10	0.88	0.04
698-133-21*	0.75	19.10	0.88	0.04
Model	Description			
697-133-01	Replacement set screws			
699-200-01	3/4" hose			

*BSPT

Advantages

- Standard 3/4" NPT fittings.
- Uncouples instantly.
- Self-contained.
- Instantly seals both ends of the break.
- Seals are engineered for flex fuels.



797 1" Safety-Sever™ Breakaway

Same features as the 697 safety-sever except for a greater flow rate; ideal for truck stops and other high-capacity flow rate needs. Can be reconnected in minutes by using a replacement shear screw.



Model	Size		Weight	
	In.	mm	Lbs.	Kg
797-225-01	1.00	25.50	1.00	0.50
Model	Description			
699-200-02	1" hose			
797-133-01	Sever screw			

Advantages

- Standard 1" NPT fittings.
- Uncouples instantly.
- Self-contained.
- Instantly seals both ends of the break.
- Seals are engineered for flex fuels.





Advantages

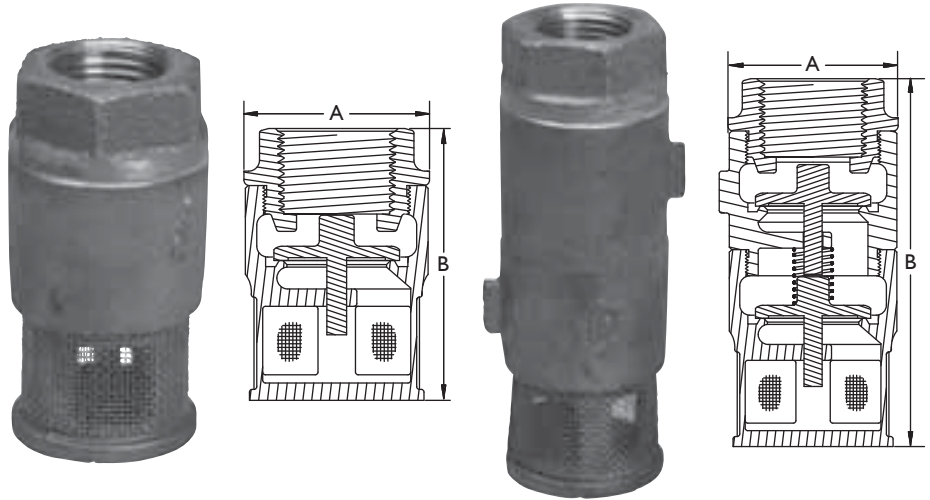
- Metal to metal poppet seating.
- 24 mesh screen protects the valve from debris.
- All valves are pressure tested to ensure accuracy.

Materials

- Body: brass.
- Poppet: brass.
- Screen: 24 mesh brass.

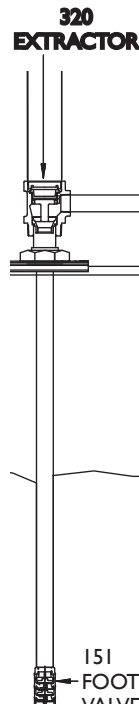
50-201 Brass Foot Valves

Foot valves are used to maintain the prime in suction system fuel lines. The foot valves are installed at the bottom of the suction pipe at the bottom of an underground storage tank. Single poppet foot valves are typically used where easy access to the valve is available. Double poppet models offer twice as much protection for maintaining the prime. Both 1-1/2" models can be used with EBW 320 extractor fittings.



50-105-01

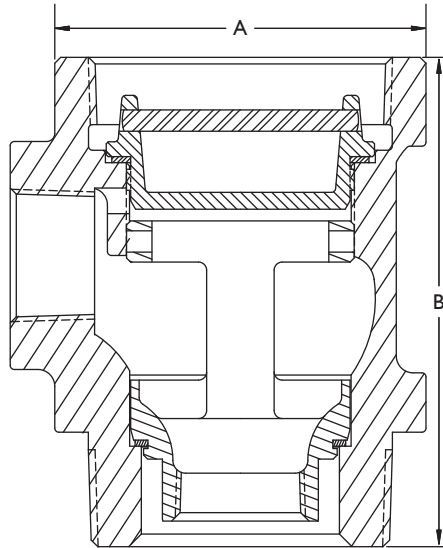
51-100-01



Model	Description	A		B		Weight	
		In.	mm	In.	mm	Lbs.	Kg
50-105-01	1/2" single	1.44	37.00	2.75	70.00	0.75	0.34
51-100-01	1/2" double	1.44	37.00	4.00	102.00	1.18	0.54
75-105-01	3/4" single	1.69	43.00	2.75	70.00	0.94	0.43
76-100-01	3/4" double	1.69	43.00	4.00	102.00	1.31	0.60
100-105-01	1" single	2.00	51.00	3.00	76.00	1.12	0.51
101-100-01	1" double	2.00	51.00	4.25	108.00	1.56	0.71
150-202-01	1-1/2" single	2.75	70.00	4.25	108.00	3.12	1.42
151-200-01	1-1/2" double	2.75	70.00	5.38	137.00	4.38	1.99
200-200-01	2" single	3.44	87.00	4.88	124.00	4.38	1.99
201-200-01	2" double	3.44	87.00	6.75	172.00	6.44	2.92

320 Foot Valve Extractor

The 320 foot valve extractor is designed for use with the 150 and 156 1-1/2" foot valves. This 20 lb. extractor valve provides a means to remove foot valves easily from underground storage tanks for cleaning or servicing. The 320 foot valve extractor is gasket sealed to prevent loss of prime caused by air being sucked in through the top fitting.



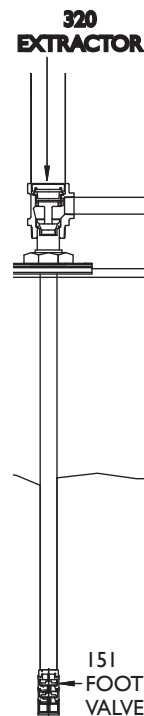
Materials

- Body: zinc plated cast iron.
- Cap: bronze.
- Suction stub adapter: bronze.
- Gasket: leather.

Model	Size		A		B	
	In.	mm	In.	mm	In.	mm
320-302-01	4.00 × 4.00 × 1.50	102.00 × 102.00 × 38.00	5.50	139.70	7.25	184.15
320-302-02	4.00 × 4.00 × 2.00	102.00 × 102.00 × 51.00	5.50	139.70	7.25	184.15

Model	Inlet Female Thread		Inlet Male Thread		Outlet Thread		Top Thread	
	In.	mm	In.	mm	In.	mm	In.	mm
320-302-01	1.50	38.00	4.00	102.00	1.50	38.00	4.00	102.00
320-302-02	1.50	38.00	4.00	102.00	2.00	51.00	4.00	102.00

Model	Description
320-102-01	Suction stub adapter
320-103-01	Cap assembly
321-100-01	Extractor wrench
320-104-01	Kit - cap with gasket





Advantages

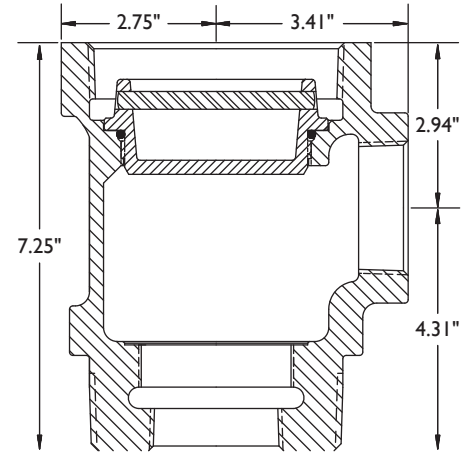
- Compatible with suction style and submersible style systems.
- Threaded brass cap with O-ring seal.
- 50 psi working pressure.

Materials

- Body: plated cast iron.
- Cap: plated cast iron.
- Test plug: brass.
- Seals: fluorocarbon.

325 Product Line Isolation Valve

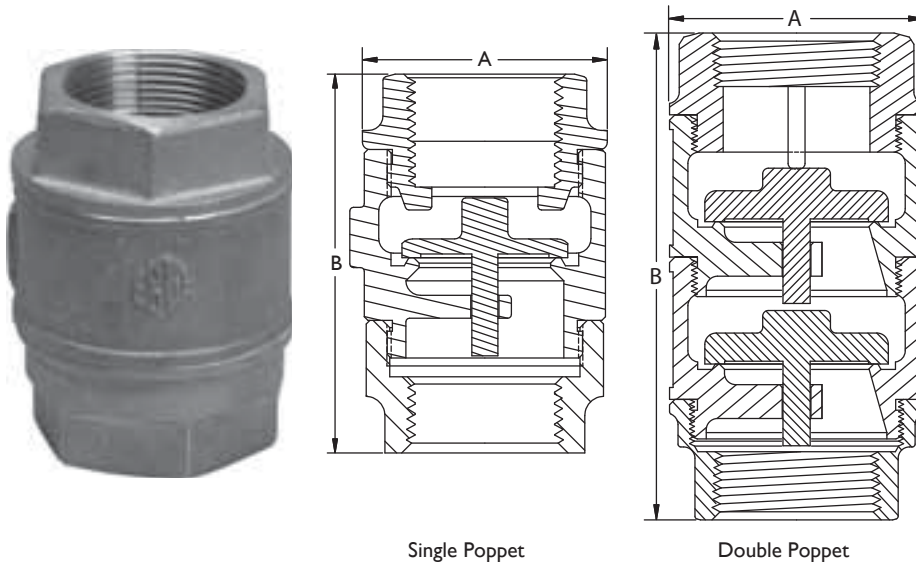
The EBW 325 product line isolation valve (PLIV) is designed to be installed at the top of the underground storage tank fuel line fitting on suction systems, or at the output of the submersible pump in a remote system. This provides a means of sealing off the tank for precision line testing without breaking pipe connections. The 325 PLIV can also be used for vapor line tank isolation on suction systems.



Model	Size		Description	Weight	
	In.	M		Lbs.	Kg
325-300-01	4.00 × 4.00 × 2.00	102.00 × 102.00 × 51.00	PLIV	17.00	7.71
Model	Description				
321-100-01	Extractor wrench, 14 lbs.				
325-100-01	2" test plug				

515 and 516 Brass Vertical Check Valves

EBW vertical check valves are used on suction system fuel lines to maintain prime. Check valves are installed directly below the dispenser pumping unit. EBW offers both single and double poppet models. Double poppet models offer twice the protection from losing prime.



- Advantages**
- Metal to metal poppet seating.
 - All valves are pressure tested to ensure accuracy.

- Materials**
- Body: brass.
 - Poppet: brass.
 - Seat: brass.

Model	Size		Poppet Type	A		B		Weight	
	In.	mm		In.	mm	In.	mm	Lbs.	Kg
515-200-01	1.50	38.10	Single	2.81	71.30	3.83	97.20	3.13	1.42
516-200-01	1.50	38.10	Double	2.81	71.30	5.40	137.20	4.31	1.96

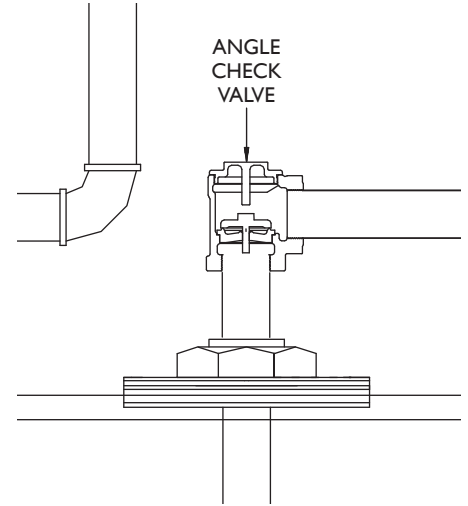


Materials

- Body: zinc plated cast iron.
- Seat: brass.
- Poppet: brass.
- NPT: brass.
- Spring: stainless steel.

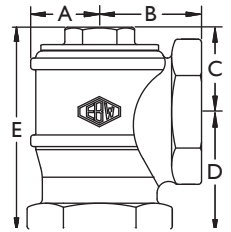
615 and 635 Angle Check Valves

Angle check valves are used on suction system fuel lines to maintain prime. EBW angle check valves are installed at the top of an underground storage tank suction line. Single poppet models are typically used where access to the valve is readily available.



Model	A		B		C		D		E	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
615-301-01	1.50	38.10	2.19	55.60	1.82	46.20	2.62	66.50	44.40	112.80
635-201-01	1.81	45.90	2.69	68.30	2.43	61.70	2.66	67.60	5.09	129.30

*Spring loaded.

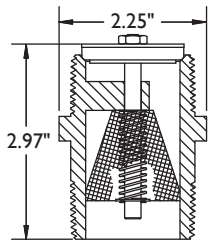


Model	Size		Poppet Type	Weight	
	In.	mm		Lbs.	Kg
615-301-01	1.50	38.1	Single	3.80	1.70
615-302-01*	1.50	38.1	Single	3.90	1.80
635-201-01	2.00	51	Single	7.25	3.30

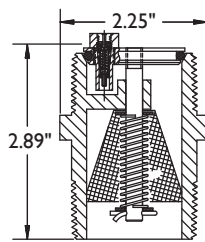
*Spring loaded.

621 and 622 Under Pump/In-Line Check Valves

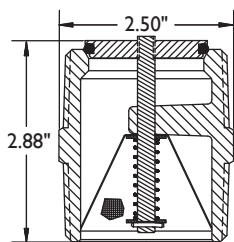
Under pump/in-line check valves are designed to be installed directly in the inlet of the dispenser pumping unit to maintain prime on a suction system fuel line. The under pump/in-line check valve can also be used in a pressurized system at the submersible pump outlet to hold product in the line.



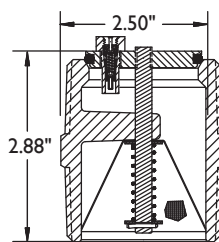
621-200-01



621-300-01



622-200-01



622-300-01

Advantages

- Cast-in Hex for sturdy wrenching surface.
- NPT threads on both ends are designed to receive female threaded product lines.
- Pressure relief models relieve thermal expansion in the pumping unit, reducing the chance of vapor lock.

Materials

- Body: brass.
- Poppet: brass.
- Seal: fluorocarbon.
- Spring: stainless steel.

Model	Size		Pressure Relief	Weight	
	In.	mm		Lbs.	Kg
620-201-01	1.50	38.10	No	1.31	0.59
621-200-01	1.50	38.1	No	1.31	0.59
621-300-01	1.50	38.1	Yes	1.61	0.73
622-200-01	2.00	51	No	1.11	0.50
622-300-01*	2.00	51	Yes	1.87	0.85

*Dresser.



Advantages

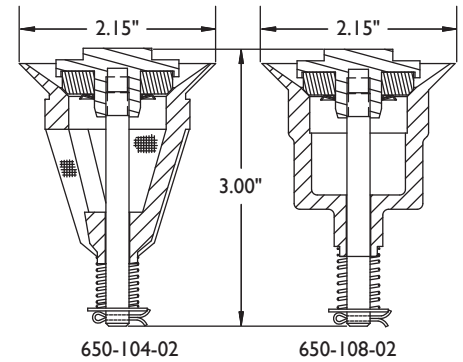
- Spring-loaded poppet.
- Open construction design allows for free flow of product.
- With or without protective screen.

Materials

- Body: bronze.
- Poppet: acetal.
- Seal: fluorocarbon.
- Spring: stainless steel.
- Screen: brass.

650 Union Check Valve

EBW union check valves are designed to be installed into an existing union to temporarily stop the loss of prime due to damaged foot valves, angle check valves, or vertical check valves in a suction system fuel line.



Model	Size		Screen	Weight	
	In.	mm		Lbs.	Kg
650-104-02	1.50	38.10	Yes	0.50	0.23
650-108-02	1.50	38.10	No	0.50	0.23

Wrenches

EBW tank tools make installation faster, safer and easier. These heavy duty tools can be used for removal as well as installation, on new or existing systems.

Hard-to-reach fill adapters are easily removed or installed with the EBW heavy duty chain wrench. It features a 3/4" drive to reach adapters located below grade level or in other difficult locations.

EBW extractor wrenches were designed to easily remove or install valves, test plugs and pipe caps. The 321-100 is used with the EBW extractor foot valve, extractor vent valves and most competitor extractor fittings.

Advantages

- Heavy duty construction.
- Wrench has cast iron head with steel chain.
- Wrench is steel constructed.



901-101-01

321-100-01

Model	Description	Application	Weight	
			Lbs.	Kg
321-100-01	60" extractor wrench	Remove and install	14.00	6.40
901-101-01	3/4" chain wrench	Remove and install	3.00	1.40

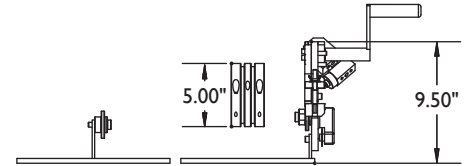


Advantages

- Cut tube.
- Flare tube.
- Fix small dents on tube.
- No drill required.

Flaring Tool

The T-6100-FT flaring tool reduces the installation time for 4" aluminum fill drop tubes. This flaring tool cuts and flares the tube in less than 10 minutes. Eliminates drilling, bolting and epoxying a factory-supplied drop tube.



Model	Description
T-6100-FT	Flaring tool kit for flaring drop tubes

Note: May require two week lead time, consult factory.

Spill Container Tool Kit

Designed to install and remove Phil-Tite and competitive make spill containers and swivel adapters. Each tool is color-coded to perform specific functions.



Part	Purpose
Black adapter	Phil-Tite spill containers
Orange adapter	Phil-Tite fill and vapor swivel adapters and M/F 4x4 riser adapters
T-handle	Attaches to color-coded tools
Allen wrench	Removes screw protecting threaded openings for jackscrews

Model	Description
T-7001	T-handle for installation tool kit
T-7002-A	Black heavy duty adapter used to install removable Phil-Tite spill buckets
T-7002-HD	Heavy duty spill bucket removal tool, includes T-7002-A adapter and T-handle with handle weights
T-7043	Tool kit required to install a Phil-Tite spill container, tool kit items listed above
T-7100	Red adapter tool used to remove old fill non-swivel adapters with lugs
T-7102	Orange adapter tool, used to remove or install SWF-100-B and SWV-101-B swivel adapters and M/F 4x4 riser adapters
T-7103	Blue adapter tool, used to install OPW tall swivel adapters
T-7104	Green torque adapter tool for static torque testing on any swivel adapter
T-7200	Cast iron cover removal tool
T-7106	Defender Series spill container installation tool
T-7107	Defender Series spill container double wall vacuum test kit

Debris Buckets

Keeps debris out of the filter area of the spill container. Easily removed and cleaned.



Model	Description
PP-1005-TB	Debris bucket without pump
PP-1005-TBP	Debris bucket with pump

M/F 4x4

This 4" x 4" threaded riser adapter installs at the top of the 4" field-installed tank riser for a precision sealing surface for spill containers and probe adapters. Adds 1-3/4" to riser length.



Model	Description
M/F 4x4	4" x 4" threaded riser adapter

Alignment Brackets

Alignment brackets to keep riser pipes supported at 16" or center-to-center separation for alignment into multi-port cover.



Model	Description
M-1600	Riser alignment bracket for 16" center

48-409

Designed for separation and orderly support of piping runs. Intended to be buried for permanent installation.



Model	Description
48-409	Styrofoam piping supports, 20-pack

Cover Removal Tool

Used to ease the removal of cast iron covers.



Model	Description
T-7200	Cast iron cover removal tool

Advantage

- EVR Phase I Certification VR-101.
- Missouri MOPETP approved ACP-0002-001-99.

Advantages

- Patent number 6,840,549 B1.
- EVR Phase I Certification VR-101.
- Tracer tight approved.
- Missouri MOPETP approved ACP-0002-001-99.

Advantage

- EVR Phase I Certification VR-101.
- Missouri MOPETP approved ACP-0002-001-99.

Underground Storage Tank Equipment

Model	Description
90074	Fulcrum arm kit
1103001	Shear valve adapter bolts, socket head cap screw 5/16-18" × 5/8" long
1103011	Fusible length screw, socket head cap screw 6-32" × 1/4" long
1103305	Socket set screw, 1/4-20" × 1/4" long
1103401	362 vapor shear valve seal ring, square cut, Buna ID 2-1/8"
1118201	4" drop tube gasket
1103305	662 shear valve set screw
1137201	Autolimiter® cold weld bonding compound
30330101	Coaxial connection fitting
70849603	Autolimiter® 8' thread-on replacement bottom tube (2-pack)
95021501	777-201 biofuel cap replacement gasket

Spill Containers

Model	Description
90022	EBW grade level spill container drain cover kit
1106703	Below grade spill container flexible head cap screw 1/4-20" × 1/2" long
46011302	Push knob
70210501	Kit: gasket, plate, 4" screws, zinc
70230101	Pump with safety instruction sheet
70512001	Drain valve assembly
70512201	Assembly gasket, plate and bolts
70521501	705 grade level push drain assembly
70521506	705 below grade push drain assembly
70522601	705 grade level and below grade drain valve gasket
70523501	705 below grade retro push drain assembly
70533218	Pull-push drain assembly kit
70533219	Pull-push drain assembly kit, flat style
70533299	Pull-push drain assembly kit, converter
70533401	12" cover gasket-FRC snap-on cover
70533601	705 grade level and below grade pull drain assembly
70533602	715 grade level and below grade pull drain assembly
70533603	725 below grade pull drain assembly
70533604	725 grade level pull drain assembly
70534101	Pull-push drain valve assembly
70541701	Styrofoam collar
70825501	Drain valve isolation kit
70849801	Autolimiter® installation kit
71040104	Below grade spill container cover assembly kit, includes cover and flange
71040201	Below grade spill container cover
71520301	EBW 15 gallon push drain assembly
71520501	Replacement handle for below grade spill container
78910201	Cover gasket
85010	Multi-port stainless steel sleeve, 3 tabs
85011-1	Phil-Tite spill container cover assembly, grey
85032	Bellows and screen
85100	Replacement 3-1/2 gallon fill spill container
85101	Replacement 3-1/2 gallon vapor spill container
602026001	Foam filter

Spill Containers (cont.)

Model	Description
602047903	Phil-Tite spill container cover assembly, red
602047905	Phil-Tite spill container cover assembly, white
602047906	Phil-Tite spill container cover assembly, yellow
602047909	Phil-Tite spill container cover assembly, orange
602132902	36" cover assembly, one 13" opening
602132920	36" cover assembly, fill/vapor spill containers, one 8" opening SPR
602132914	36" multiport cover, fill/vapor spill containers, one 8" opening, grey cover, NPR
602133909	42" multiport cover, fill/vapor spill containers, one 8" opening, grey cover, NPR
602133960	42" multiport cover with snow plow ring, quadruple spill container, one 6" opening, SPR
602132914OR	36" multiport cover, fill/vapor spill containers, one 8" spill container, NPR
602132914OW	36" multiport cover, fill/vapor spill containers, one 8" spill container, NPR
602250001	Drop tube seal
602256001	Non-CARB seal, 1/4" flat
85031-1	5 gallon spare retaining ring
85039-DT	Phil-Tite EVR drop tube seal
AC-0600-O-RING	6" access O-ring
AC-0638	6" x 3/8" access cover with O-ring, S2 double wall spill
AC-0650	6" x 1/2" access cover with O-ring, 42" quadruple multiport
AC-0800-O-RING	8" access O-ring
602345907	8" x 3/8" access cover with O-ring 36" multiport
602345906	8" x 1/2" access cover with O-ring, 42" multiport
AC-1300-O-RING	13" access O-ring
AC-1338	13" x 3/8" access cover with O-ring
AC-1350	13" x 1/2" access cover with O-ring
EP-400-VB	Extraction pump
SC-1501L	Large cam assembly for 36" and 42" multiport cover
SC-1501S	Small cam assembly for 36" and 42" inspection port
SC-1518B	18" D-ring gasket
SC-1524B	24" D-ring gasket
SC-1536B	36" D-ring gasket
SC-1542B	42" D-ring gasket
70522502	Cover actuated push drain for below grade EBW 5 gallon spill container
1114901	Replacement bolt for 810 and 814 monitoring well manways

**Manways**

Model	Description
1117637	Stainless steel Hex head cap screw for FRC manways
1127503	Flat stainless steel washer for bolt-down FRC manways
78044506	42" grey aramid cover, no holes
78110001	1/8" x 150" foam gasket kit
78120501	Replacement lift handle assembly
78120901	Slide action cover replacement key plate
78133401	18" bolt-down FRP cover for 781-465 bolt-down manway
78134101	Slide action cover removal handle
78144801	36" no hole cover, black
78148201	36" manway slide action cover, black
78148206	36" manway slide action cover, grey
78710401	2-way reflective marker I.D., red
78710402	2-way reflective marker I.D., white
78710405	2-way reflective marker I.D., orange
78920301	Pit box cover
80810001	8" assembly lid
80820001	8" manway gasket
81040101	10" monitoring well lid
81440101	14" monitoring well lid
81830601**	18" cover for 818-402
81830701**	18" cover for 818-402, "Monitoring Well" on top
98720101	Pit box cover
SRC24HRS	24" round finished cover
SRC36HRS	36" round assembly cover
SRC38HRS	38" round assembly cover
SRC38WRS	38" raintight assembly cover
SSQC24HS	24" square replacement cover for SSQ2409 manway

**Six week lead time.

Fiberglass

Model	Description
602133909	42" cover assembly, two spill container openings, one 8" access opening
602166001	Sump shield latch
602212001	33" sump shield gasket
602212002	40" sump shield gasket
602226904*	36" watertight sump shield, 2 spill container openings, 1 access opening, no boots
602226909*	42" watertight sump shield, 4 spill container openings, no boots
602226910*	42" watertight sump shield, 2 spill container openings, 1 access opening, no boots
WTBC-0800	8" stainless steel, #140 band clamp
WTBC-1100	11" stainless steel, #176 band clamp
WTBC-1300	13" stainless steel, #212 band clamp

*Comes with third generation latches.

Aboveground Storage Tank Equipment

Model	Description
1127507	Stainless steel flat washer for 709 Warden®
9006001	S-kit diaphragm for 664 pressure regulator valve
1103913	Fluorocarbon #2-236 O-ring for 325 product line isolation valve
32010001	Upper gasket cap for 320 foot valve

Suction Systems

Model	Description
32010002	Lower gasket insert for 320 foot valve
32010401	Gasket with cap for 320 foot valve
64010201	Poppet seat assembly for 640 vertical check valve

Nozzles

Model	Description
90028	69713701 S-kit
1103906	Fluorocarbon #2-021 O-ring for 697 safety sever
40210001	Cast and machined nozzle cap
40210401	Spring valve
40210601	Stem/Buna O-ring assembly
40210603	402 stem O-ring, fluorocarbon
40211001	13/16" unleaded tube
40211101	15/16" leaded tube
40212801	402/498 nitrile poppet assembly
40212802	Fluorocarbon poppet assembly
40231201	Lever nozzle
40239899	402 3/4" nozzle without tube
49030201	1-1/2" nozzle assembly
49511201	1-1/8" tube and nut assembly
49512001	1-1/4" aluminum tube and strainer assembly
49521001	Anodized airport craft spout
49810001	Plated nut nozzle tube
49810601	Stem
49820602	Tube and adapter assembly
49830106	1" regular nozzle assembly
69712301	Set 1/4-28" special screw, black
69713301	Set 10-24" aluminum pilot screw
69920001	3/4" black hose assembly
69920002	1" black hose assembly
79713301	Set 1/4-28" aluminum pilot screw

Tools

Model	Description
602181101	Plastic wheel for Phil-Tite flaring tool
66410901	664 pressure regulator valve intake screen

**Underground Storage Tank Equipment**

Approval	Certifying Agency	Reference Number	Products Approved
UL/ULC	USA/Canada	File MH9253	662 shear valves
ULC	Canada	File MH21090	708 Autolimiters®
UL	USA	File MH15882	362 vapor line shear valves
Missouri	USA	#99-08	778-301 fill adapter, XXX-300 Series extractor vents
NFPA 30A	USA	N/A	662 shear valves
DEP	Florida	EQ-392	308 float vent valve
DEP	Florida	EQ-464	708 Autolimiter®
DEP	Florida	EQ-392	308 float vent valve
DEP	Florida	EQ-464	Autolimiter® II
CARB EVR Stage I	California	VR-103-B	SWF-100-B, SWV-101-B, 777-201-01, 304-301-XX, 90037, 3XX-400-01, 308-300-XX and 708-45X
DEP	Florida	EQ-656	Autolimiter II and 709 Warden
CARB EVR Stage I	California	VR-101-K	SWF-100-B, SWV-101-B, M/F 4x4, M-1600, 777-201-01, 304-301-XX, 90037, 3XX-400-01, 308-300-XX and 708-49X-1Y, SWF-100-SS, SWV-101-SS
MOPETP EVR Stage I	Missouri	APCP-0002-001-99	SWF-100-B, SWV-101-B, 777-201-01, 304-301-XX, 708-49X-1Y, 90037, M-1600, M/F4X4, TBP-3516, SWF-100-SS, SWV-101-SS
DEP	Florida	EQ-464	708 Autolimiter®
DEP	Florida	EQ-464	Autolimiter® II

Spill Containers and Manways

Approval	Certifying Agency	Reference Number	Products Approved
ULC	Canada	File MH21091	702-404, -405, -414, -416, -450, 703-404, 705-472, -473, -474, -475, -477, -479, -483, 715-472, -473, -474, -475, -479, 725-472, -473, -474, -475, -479, 705-540 & 705-550 Defender Series
DEP	Florida	EQ-052	705 spill containers
DEP	Florida	EQ-597	702-400 spill containers
DEP	Florida	EQ-604	703-400 spill containers
DEP	Florida	EQ-052	705 spill containers
DEP	Florida	EQ-597	702-400 spill containers
DEP	Florida	EQ-604	703-400 spill containers
CARB EVR Stage I	California	VR-103-B	705-49X Series
ULC	Canada	File MH21091	400 and 500 Series spill containers
Tracer tight	USA	n/a	85000-I spill containers
DEP	Florida	EQ-555	85000 spill containers
DEP	Florida	EQ-612	UST sumps
CARB EVR Stage I	California	VR-101-K	85000 and 85000-I Series, 85011, PP-1005-TB, PP-1005-TBP
California Water Board	California	H&SC Chapter 6.7	85000-I spill containers
Third Party	California	Jim Ray - PE	85000-I spill containers
Third Party	California	Shasta County	85100-F spill container
Third Party	California	Shasta County	85000-EXT spill container
Third Party	California	Shasta County	85000-I spill containers
Third Party	California	RHL Design Group	MSC watertight sump shields
DEP	Florida	EQ-704	40X series spill container with sensor
Third Party	California	RHL Design Group	400 and 500 Series secondary contained spill containment devices
MOPETP EVR Stage I	Missouri DNR	APCP-0002-001-99	PP-1005-TP, PP-1005-TBP, SWF-100-B, SWV-101-B, M/F 4X4, M-1600, M-6050, TBP-3516, 777-201-01, 304-301-XX, 708-49X-1Y, 90037, 50X-CS, 50X-FS, 50X-F2, 50X-S2, 85100-I, 85101-I, M36, M42
DEP	Florida	EQ-757	705-540 & 705-550 Defender Series Spill Containers

Aboveground Storage Tank Equipment

Approval	Certifying Agency	Reference Number	Products Approved
cULus	USA/Canada	File MHI7159	664 pressure regulator valve
cULus	USA/Canada	File MH25961	950 emergency vent and monitoring well caps, 803
UL	USA	File MHI5882	362 and 802 vapor line shear valves and pressure vacuum vents
UL	USA	MHI5882	802-303 and 802-304 pressure vacuum vents
NPFA 30	USA	n/a	605, 606, 616 and 636 anti syphon valves
API/RP 2000	USA	n/a	605, 606, 616 and 636 anti syphon valves
DEP	Florida	EQ-629	706-420 aboveground spill container
DEP	Florida	EQ-464	709 Warden® overfill prevention valve
DEP	Florida	EQ-392	308 float vent valve
NYCFD	NYC	C of A 4958	709 Warden
UL	USA	File MHI7159	605, 606, 616 and 636 anti syphon valves

Nozzles and Breakaways

Approval	Certifying Agency	Reference Number	Products Approved
cULus	USA/Canada	File MHI3686	697 and 797 safety severers
UL	USA	File MH6265	402 and 498 nozzles

Advantages

- A time proven material, Nylon 12 has been the primary layer of APT pipe for more than 12 years. Preferred by the world's largest auto makers, the fuel line material contains no polyethylene.
- No possibility of piping layer delamination due to the layered piping construction of high-grade material.
- Biofuel approved (E85 and biodiesel).



XP Pressure and Suction Product Piping

The 1" size of APT piping can be used in both pressure and suction applications, and is ideal for providing remote feed and fill for heaters, boilers and emergency generators. The 1½", 1¾" and 2" sizes of APT product piping can be used in both pressure and suction applications, and are ideal for underground service station fuel delivery systems. The D-Series piping is a single wall, direct bury piping, while the SC-Series piping provides additional environmental security as a secondary contained direct bury pipe. Both feature controlled flexibility, even in low temperatures, permitting fast, easy installation.



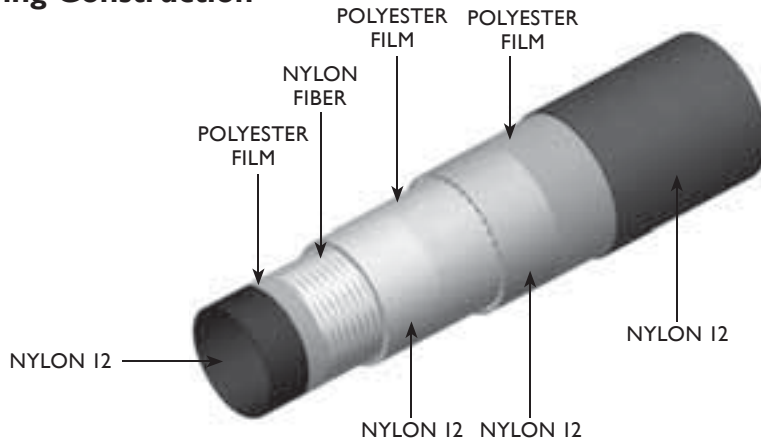
Reel Size	Inches*	cm*
Master	91 × 31 × 74	231.1 × 78.7 × 188
Super master (S. Mast.)	91 × 49 × 74	231.1 × 124.5 × 188

Notes: 1. Do not store piping in direct sunlight.
2. UL971 listed to the January 2004 standards.

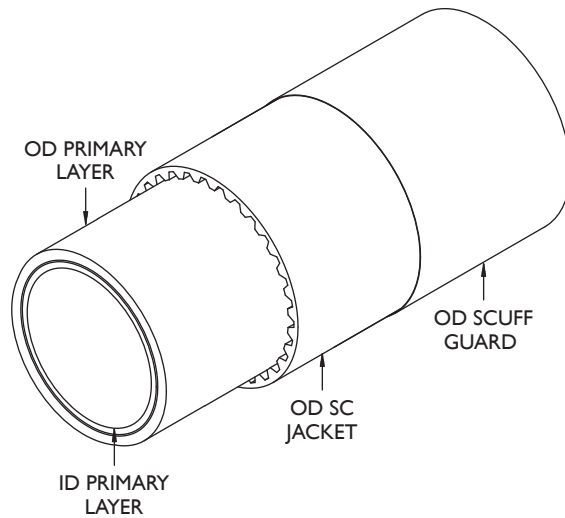
*Reel dia. × width × hub dia.

Model	Description	Ft.	Reel	Weight	
				Lbs.	Kg
XP-100-SC	1" secondary contained	250	Master	551	249
		500	Master	658	298
		2,500	S. Master	1,578	715
XP-100-D	1" single wall	250	Master	508	230
		500	Master	570	258
XP-150-SC	1½" secondary contained	100	Master	500	226
		250	Master	583	264
		500	Master	720	326
		1,000	S. Master	1,065	483
XP-150-D	1½" single wall	1,500	S. Master	1,340	607
		100	Master	475	215
		250	Master	520	235
		500	Master	595	269
XP-175-SC	1¾" secondary contained	1,000	S. Master	815	369
		1,500	S. Master	965	437
		100	Master	550	249
		250	Master	655	295
XP-175-D	1¾" single wall	500	Master	830	374
		1,000	S. Master	1,355	610
		100	Master	520	235
		250	Master	580	261
XP-200-SC	2" secondary contained	500	Master	680	306
		1,000	S. Master	1,115	502
		100	Master	585	263
		200	Master	690	311
XP-200-D	2" single wall	350	Master	848	381
		700	S. Master	1,250	563
		100	Master	545	245
		200	Master	610	275
XP-200-D	2" single wall	350	Master	708	318
		700	S. Master	970	437

XP Piping Construction



XP Piping Dimensions



Model	ID ± 0.010 Primary Layer	OD ± 0.020 Primary Layer	OD ± 0.030 SC Jacket	OD ± 0.030 Scuff Guard	Minimum Bend Radius
XP-100-D	1.00"	1.27"	n/a	n/a	36.00"
XP-100-SC	1.00"	1.27"	1.47"	1.502"	36.00"
XP-150-D	1.40"	1.70"	n/a	n/a	36.00"
XP-150-SC	1.40"	1.70"	1.90"	1.925"	36.00"
XP-175-D	1.65"	1.95"	n/a	n/a	36.00"
XP-175-SC	1.65"	1.95"	2.15"	2.175"	36.00"
XP-200-D	2.04"	2.45"	n/a	n/a	36.00"
XP-200-SC	2.04"	2.45"	2.65"	2.675"	36.00"

Advantages

- APT's XP marina/aboveground piping consists of XP pipe encased in metallic conduit, making it impact resistant and UV and fire protected.

XP Marina/Aboveground Product Piping

APT metallic ducted (MD) pipe is the ideal choice for aboveground and marina fuel delivery systems. The MD-Series piping system contains our XP product piping inside a flexible metallic conduit. This superior construction adds fire protection, impact resistance and UV stability to what is already the highest quality piping system. The MD-Series pipe is shipped with single wall or secondary contained pipe already installed into the metallic jacket, reducing installation time in the field. For marinas, the flexibility of this product easily handles variation in water levels and can be installed alongside or under docks.

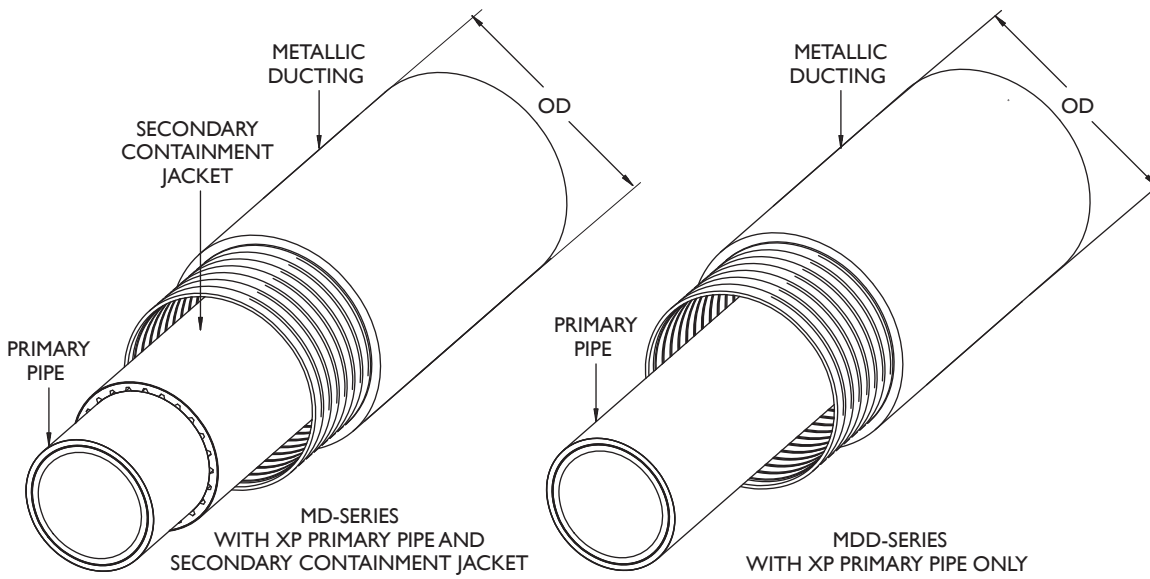


Reel Size	Inches*	cm*
Master	91 × 33 × 74	231.1 × 83.8 × 187.9
Super master (S. Mast.)	91 × 52 × 74	231.1 × 132.1 × 187.9

*Reel dia. × width × hub dia.

Model	Description	Ft.	Reel	Weight	
				Lbs.	Kg
XP-100-MD-250	1" secondary contained inside metallic duct	250	Master	878	398
XP-100-MD-500	1" secondary contained inside metallic duct	500	Master	1,691	767
XP-100-MDD-250	1" single wall inside metallic duct	250	Master	816	370
XP-100-MDD-500	1" single wall inside metallic duct	500	Master	1,566	710
XP-150-MD-250	1½" secondary contained inside metallic duct	250	Master	1,005	455
XP-150-MD-500	1½" secondary contained inside metallic duct	500	S. Master	1,979	895
XP-150-MDD-250	1½" single wall inside metallic duct	250	Master	955	433
XP-150-MDD-500	1½" single wall inside metallic duct	500	Master	1,844	836
XP-175-MD-250	1¾" secondary contained inside metallic duct	250	Master	1,076	488
XP-175-MD-500	1¾" secondary contained inside metallic duct	500	S. Master	2,122	962
XP-175-MDD-250	1¾" single wall inside metallic duct	250	Master	1,001	454
XP-175-MDD-500	1¾" single wall inside metallic duct	500	Master	1,937	878
XP-200-MD-200	2" secondary contained inside metallic duct	200	Master	1,069	485
XP-200-MD-350	2" secondary contained inside metallic duct	350	S. Master	2,083	944
XP-200-MDD-200	2" single wall inside metallic duct	200	Master	999	453
XP-200-MDD-350	2" single wall inside metallic duct	350	S. Master	1,871	849

XP Marina/Aboveground Product Piping

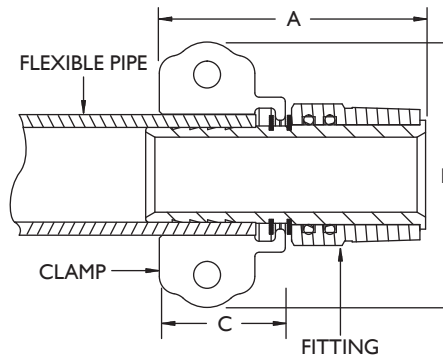


Model	Description	Primary Pipe	Ducting	Ducting OD
XP-100-MD	1" secondary contained inside metallic duct	XP-100-SC	MD-200	2.36"
XP-100-MDD	1" single wall inside metallic duct	XP-100-D	MD-150	1.88"
XP-150-MD	1½" secondary contained inside metallic duct	XP-150-SC	MD-250	2.85"
XP-150-MDD	1½" single wall inside metallic duct	XP-150-D	MD-200	2.36"
XP-175-MD	1¾" secondary contained inside metallic duct	XP-175-SC	MD-250	2.85"
XP-175-MDD	1¾" single wall inside metallic duct	XP-175-D	MD-250	2.85"
XP-200-MD	2" secondary contained inside metallic duct	XP-200-SC	MD-300	3.50"
XP-200-MDD	2" single wall inside metallic duct	XP-200-D	MD-300	3.50"

XP Clamshell Swivel Pipe Fittings

When using APT product piping, continuous runs eliminate the need for in-line joints. Installers make connections inside accessible containment sumps using APT swivel fittings. These fittings are manufactured from solid brass or stainless steel with two fluorocarbon O-rings protected in grooves located on the inside of the connector. Plated clamps secure the fittings to the pipe. XP-Series pipe clamps are labeled XP for easy identification.

Note: Use only XP-Series fittings with XP piping.



Model	A	B	C
MS-XP-150-150	4.00"	4.00"	1.75"
MS-XP-175-200	4.00"	4.00"	1.75"
MS-XP-200-200	4.50"	4.75"	2.25"

Brass Swivels

Model	Description
MS-XP-150-150	Installs on the end of 1½" single/secondary contained XP pipe with 1½" NPT
MS-XP-175-200	Installs on the end of 1¾" single/secondary contained XP pipe with 2" NPT
MS-XP-200-200	Installs on the end of 2" single/secondary contained XP pipe with 2" NPT

Stainless Steel Swivels

Model	Description
MS-XP-150-150SS*	Installs on the end of 1.50" single/secondary contained XP pipe with 1½" NPT
MS-XP-175-200SS*	Installs on the end of 1.75" single/secondary contained XP pipe with 2" NPT
MS-XP-200-200SS*	Installs on the end of 2.00" single/secondary contained XP pipe with 2" NPT

*Contact Customer Service for availability and lead times.

Advantages

- No special tools required so no project delays when swage machine is inoperative.
- NPT threads are installed quickly and securely, are available locally and are field proven.
- 100 psi rated working pressure.
- Stainless steel fittings biofuel approved (E85 and biodiesel).



Advantages

- Compatible with standard 1½" or 2" NPT threads.
- Swage fittings utilize APT's proven swivel and double fluorocarbon O-ring design, similar to APT clamshell fittings.
- 100 psi rated working pressure.
- Biofuel approved (E85 and biodiesel).



Advantages

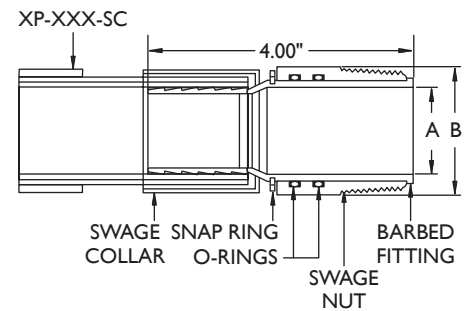
- APT XP clamshell non-swivel fittings are made from one solid brass or stainless steel piece.
- NPT threads are installed quickly and securely, are available locally and are field proven.
- 100 psi rated working pressure.
- Stainless steel fittings biofuel approved (E85 and biodiesel).



XP Male Swage Swivel Pipe Fittings

The APT innovative swage fitting is designed with the same proven technology as our clamshell fittings. Compatible with APT 1½", 1¾" and 2" single and secondary containment piping using standard NPT connection fittings. Manufactured of stainless steel, the APT swage fitting is reliable, easy to install and requires no specialized connection tees or elbows. "XP ONLY" is permanently etched on each stainless steel collar for easy identification.

Note: Use only XP-Series fittings with XP piping.



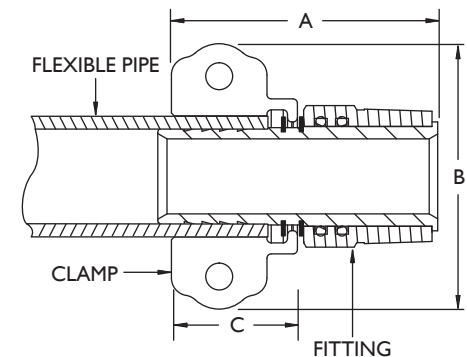
Model	A	B
MS-XP-SW-150-150	1.50"	2.00"
MS-XP-SW-175-200	1.75"	2.50"
MS-XP-SW-200-200	2.00"	3.00"

Model	Description
MS-XP-SW-150-150	Installs on 1½" single/secondary contained XP pipe with 1½" NPT
MS-XP-SW-175-200	Installs on 1¾" single/secondary contained XP pipe with 2" NPT
MS-XP-SW-200-200	Installs on 2" single/secondary contained XP pipe with 2" NPT

XP Clamshell Non-Swivel Pipe Fittings

APT non-swivel pipe fittings are constructed of one piece solid brass or stainless steel and provide the same high quality and environmental security as APT swivel fittings, at a more economical price. XP-Series clamps are blue and labeled "XP" for easy identification.

Note: Use only XP-Series fittings with XP piping.



Model	A	B	C
MN-XP-100-100SS	3.00"	3.00"	1.50"

Model	Description
MN-XP-100-100	Installs on 1" single/secondary contained XP pipe with 1" NPT (brass)
MN-XP-100-100SS*	Installs on 1" single/secondary contained XP pipe with 1" NPT (stainless steel)

*Contact Customer Service for availability and lead times.

XP Clamshell Non-Swivel Tee and Elbow Pipe Fittings

Installing flexible pipe inside of a narrow-base dispenser sump has never been easier. The XP clamshell non-swivel tee and elbow fittings allow for an easy space-saving installation by enabling an installer to connect flexible pipe directly into a shear valve riser, eliminating the need for extra galvanized fittings. By eliminating the galvanized fittings, you also reduce the amount of potential leak points, giving you peace of mind that your installation is secure. With the tee and elbow fittings you can complete an XP pipe installation inside of a sump in less than 16" of linear space. The stainless steel design of the fittings makes them an ideal solution for any fueling application.



Model	Description
TEE-XP-150	XP tee clamshell non-swivel pipe fitting
ELB-XP-150	XP elbow clamshell non-swivel pipe fitting
TEE-XP-175	XP tee clamshell non-swivel pipe fitting
ELB-XP-175	XP elbow clamshell non-swivel pipe fitting
TEE-XP-200	XP tee clamshell non-swivel pipe fitting
ELB-XP-200	XP elbow clamshell non-swivel pipe fitting

Advantages

- Ideal for retrofit installations where containment sump has limited space or a narrow base.
- Eliminate threaded pipe joints inside of containment space; freeing up valuable space in tight quarters.
- Reduce installation time.
- Stainless steel design allows use with any fueling application.
- Available in non-swivel clamshell version for use with XP-150 pipe.
- This installation can be completed in less than 16" of space.



Advantages

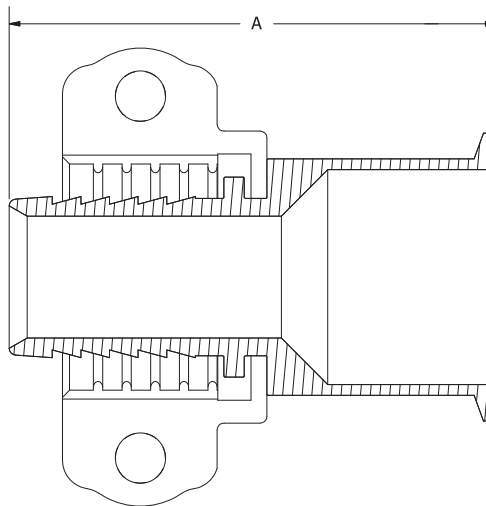
- The rugged stainless steel construction allows use with any fueling application including biofuels.
- Installation and servicing is made simple with the removal of threaded connections.
- Connects directly to XP pipe using the same clamshell design with no special tools required.
- Utilize any standard flex connector's gasket and clamp to easily connect to the XP Quick Release Fitting's standard flanged edge.

Approvals



XP Quick Release Fittings

XP Quick Release Fittings bring a new level of ease to XP pipe installation and servicing. These installer-friendly fittings combine the clamping system found on the original XP clamshell fittings with the capability to connect seamlessly to flex connectors utilizing the connectors clamp and gasket. Installations made easier than ever with the removal of additional threaded connections. The flange and clamp also allow for quick disconnection of the pipe from a submersible pump for easy servicing.



Model	A
QRS-XP-150-200	2.85"
QRS-XP-175-200	2.85"
QRS-XP-200-200	2.85"

Model	Description
QRS-XP-150-200	XP quick release fitting, installs with 1 1/2" double-wall XP pipe with 2" flange
QRS-XP-175-200	XP quick release fitting, installs with 1 3/4" double-wall XP pipe with 2" flange
QRS-XP-200-200	XP quick release fitting, installs with 2" double-wall XP pipe with 2" flange
407082001	Clamp
407046001	Fluorocarbon gasket
407031001	2" Short Elbow
407032001	2" Short Tee

End Connections and Fittings

Our objective is to utilize standard fittings whenever possible. Consequently, all APT swivel and non-swivel fittings are compatible with standard 1½", 2" and 2½" NPT plumbing fittings that can be purchased in your area.



Advantages

- Fittings are galvanized to prevent corrosion.
- Fittings are completely interchangeable with standard 1½", 2" and 2½" NPT fittings.
- Stainless steel fittings biofuel approved (E85 and biodiesel).

Galvanized End Connections and Fittings

Model	Description
GC-150	Galvanized cap, 1½" NPT
GC-200	Galvanized cap, 2" NPT
GE90-150	Galvanized elbow, 90°, 1½" NPT
GE90-200	Galvanized elbow, 90°, 2" NPT
GE90-215	Galvanized reducing elbow, 90°, 2" NPT × 1½" NPT
GE90-252	Galvanized reducing elbow, 90°, 2½" NPT × 2" NPT
GHB-200-150	Galvanized Hex bushing, 2" NPT × 1½" NPT
GT-150	Galvanized tee, 1½" NPT
GT-200	Galvanized tee, 2" NPT
GT-215	Galvanized reducing tee, 2" × 2" × 1½" NPT
GT-252	Galvanized reducing tee, 2½" × 2½" × 2" NPT
GU-150	Galvanized union, 1½" NPT
GU-200	Galvanized union, 2" NPT

Stainless Steel End Connections and Fittings*

Model	Description
SSC-150	Stainless steel cap, 1½" NPT
SSC-200	Stainless steel cap, 2" NPT
SSE90-150	Stainless steel elbow, 90°, 1½" NPT
SSE90-200	Stainless steel elbow, 90°, 2" NPT
SSSHP-150	Stainless steel square head plug, 1½" NPT
SST-150	Stainless steel tee, 1½" NPT
SST-200	Stainless steel tee, 2" NPT
SSU-150	Stainless steel union, 1½" NPT
GSHP-150	Galvanized steel square head plug, 1½" NPT
GSHP-200	Galvanized steel square head plug, 1½" NPT

*Contact Customer Service for availability and lead times on all stainless steel end connections and fittings.

Bushings

Model	Description
GHB-200-150	Galvanized Hex bushing, 2" NPT × 1½" NPT



Caps

Model	Description
GC-150	Galvanized cap, 1½" NPT
GC-200	Galvanized cap, 2" NPT
SSC-150	Stainless steel cap, 1½" NPT
SSC-200	Stainless steel cap, 2" NPT



Elbows

Model	Description
GE90-150	Galvanized elbow, 90°, 1½" NPT
GE90-200	Galvanized elbow, 90°, 2" NPT
GE90-215	Galvanized reducing elbow, 90°, 2" NPT × 1½" NPT
GE90-252	Galvanized reducing elbow, 90°, 2½" NPT × 2" NPT
SSE90-150	Stainless steel elbow, 90°, 1½" NPT
SSE90-200	Stainless steel elbow, 90°, 2" NPT



Plugs

Model	Description
SSSHP-150	Stainless steel square head plug, 1½" NPT
GSHP-150	Galvanized steel square head plug, 1½" NPT
GSHP-200	Galvanized steel square head plug, 1½" NPT



Tees

Model	Description
GT-150	Galvanized tee, 1½" NPT
GT-200	Galvanized tee, 2" NPT
GT-215	Galvanized reducing tee, 2" × 2" × 1½" NPT
GT-252	Galvanized reducing tee, 2½" × 2½" × 2" NPT
SST-150	Stainless steel tee, 1½" NPT
SST-200	Stainless steel tee, 2" NPT



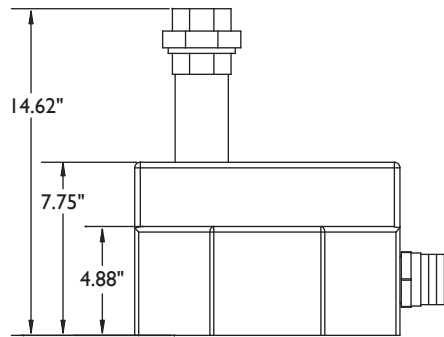
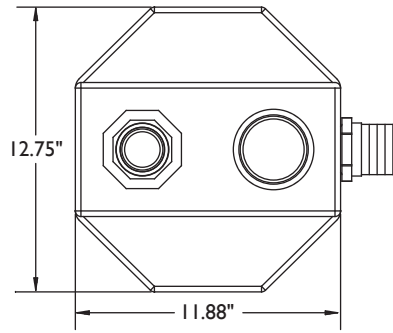
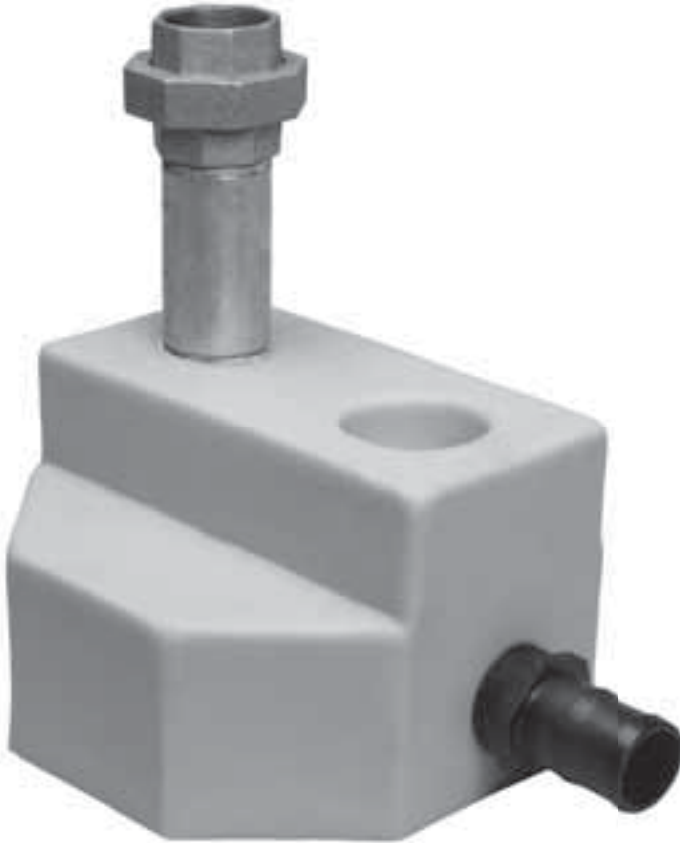
Unions

Model	Description
GU-150	Galvanized union, 1½" NPT
GU-200	Galvanized union, 2" NPT
SSU-150	Stainless steel union, 1½" NPT



2" Vent Conversion Box Fittings

VCF-200 vent box can be used along with XP-Series 2" single wall pipe for use in venting tanks.



Model	Description
VNC-200	2" nylon male nipple
VCF-200	Vent conversion box with 2" nylon nipple and 2" galvanized riser with union

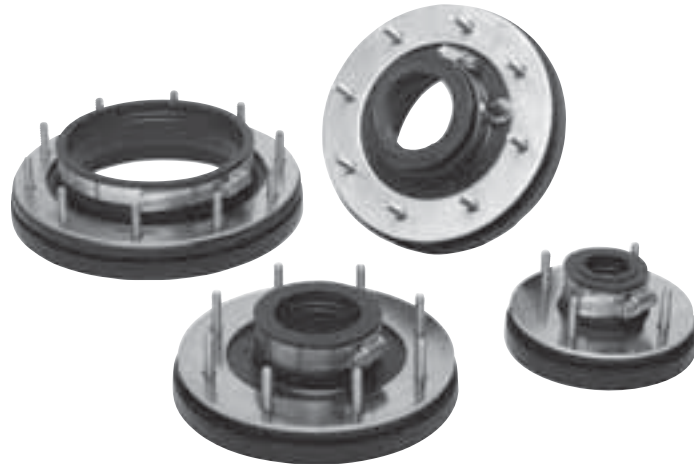
Advantages

- Designed to be used with APT product piping, the entry boots are also ideal for use with rigid piping and electrical conduits.
- Flexible entry boots available in sizes from 1/2" through 4".
- Ducted entry boots available in sizes from 1 1/2" through 2 1/2". APT offers these ducted entry boots in an air testable version for easy testing of the 4" corrugated ducting.
- Boot size designations correspond directly to the pipe size being used.
- Any boot for a single wall pipe can be converted to a boot for a double wall pipe by simply removing the insert in the pipe opening.
- Entry boot can be serviced from inside the sump, eliminating the need for sump excavation.
- Made from oil- and gasoline-resistant nitrile rubber.
- Will work on round sumps of 36" or larger diameter.

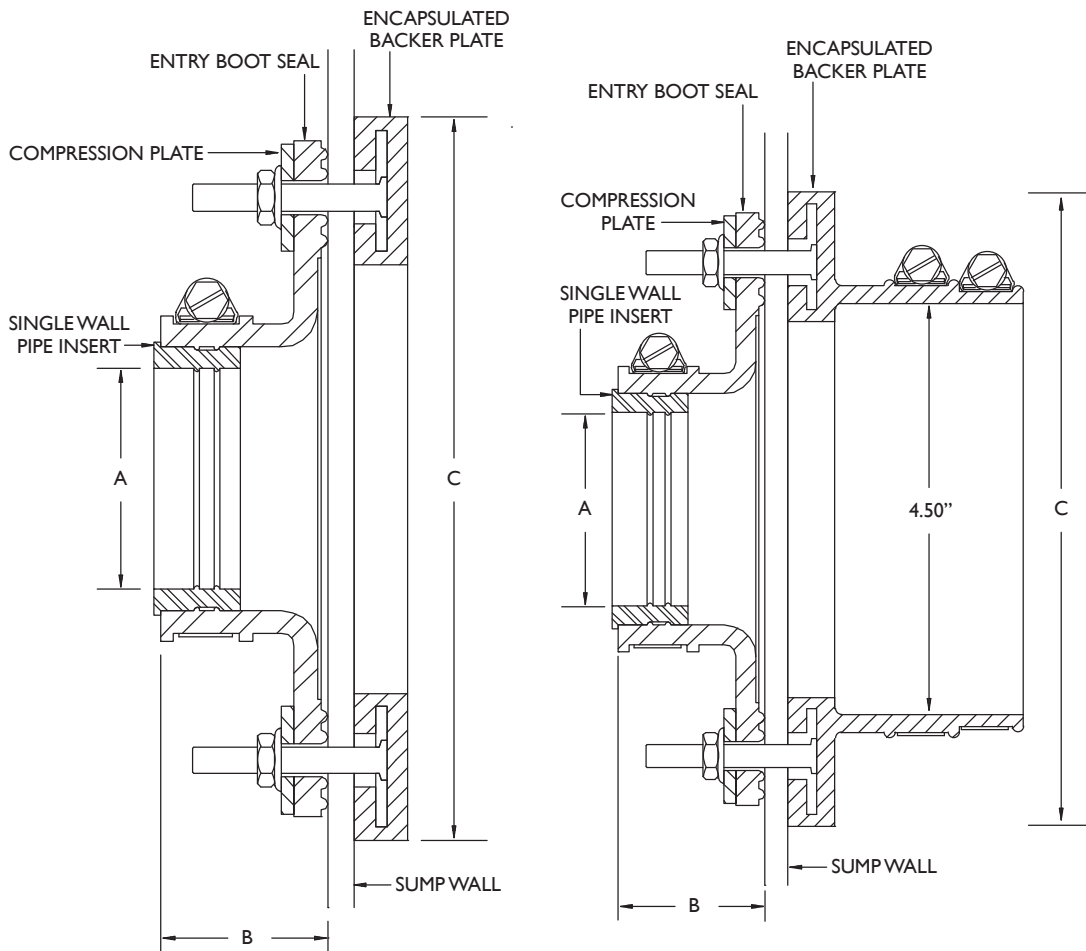


Flexible Entry Boots

APT flexible entry boots are two-piece boots that double the sealing power of your entry boots. Stainless steel studs and corrosion-resistant nuts and washer plates make for the highest quality entry boot. APT offers a complete line of sizes for 1/2" through 4" single and secondary containment pipe. The 1 1/2" through 2 1/2" sizes are also available in a ducted boot version to accommodate the use of APT DCT-400 corrugated ducting for easy retractability.



Model	Description
FEB-050-D	Flexible entry boot for 1/2" electrical conduit
FEB-050-SC	Flexible entry boot for 3/4" electrical conduit
FEB-075-D	Flexible entry boot for 3/4" and 1" electrical conduit
FEB-075-D2	Double sided entry boot for 3/4" and 1" electrical conduit
FEB-075-SC	Flexible entry boot for 1" electrical conduit
FEB-100-D	Flexible entry boot for XP-100-D
FEB-100-SC	Flexible entry boot for XP-100-SC
FEB-150-D	Flexible entry boot for XP-150-D
FEB-150-SC	Flexible entry boot for XP-150-SC
FEB-175-D	Flexible entry boot for XP-175-D
FEB-175-SC	Flexible entry boot for XP-175-SC and 2" single wall fiberglass
FEB-200-D	Flexible entry boot for XP-200-D
FEB-200-SC	Flexible entry boot for XP-200-SC
FEB-250-SC	Flexible entry boot for XP-250-SC
FEB-300	Flexible entry boot for 3" single wall fiberglass
FEB-300-R	Flexible entry boot for 3" single wall fiberglass
FEB-400-R	Flexible entry boot for 4" single wall fiberglass
FEB-400-F	Flexible entry boot for 4" double wall pipe
Model	Description
DEB-150-D	Ducted entry boot for XP-150-D
DEB-150-SC	Ducted entry boot for XP-150-SC
DEB-175-D	Ducted entry boot for XP-175-D
DEB-175-SC	Ducted entry boot for XP-175-SC
DEB-200-D	Ducted entry boot for XP-200-D
DEB-200-SC	Ducted entry boot for XP-200-SC
DEB-250-SC	Ducted entry boot for P-250-SC
Model	Description
DEB-150-DA	Air testable ducted entry boot for XP-150-D
DEB-150-SCA	Air testable ducted entry boot for XP-150-SC
DEB-175-DA	Air testable ducted entry boot for XP-175-D
DEB-175-SCA	Air testable ducted entry boot for XP-175-SC
DEB-200-DA	Air testable ducted entry boot for XP-200-D
DEB-252-DA	Air testable ducted entry boot for XP-200-SC and P-250-D
89510101	Ducting insert
89510201	Ducting v-seal



Flexible Entry Boots

Model	A	B	C	Mtg. Hole Size	Mtg. Studs
FEB-050-D	0.84"	1.50"	4.75"	2.00"	4
FEB-050-SC	1.05"	1.50"	4.75"	2.00"	4
FEB-075-D	1.05"	1.50"	4.75"	2.00"	4
FEB-075-SC	1.32"	1.50"	4.75"	2.00"	4
FEB-100-D	1.32"	1.50"	4.75"	2.00"	4
FEB-100-SC	1.70"	1.50"	4.75"	2.00"	4
FEB-150-D	1.75"	1.50"	6.75"	3.50"	8
FEB-150-SC	2.00"	1.50"	6.75"	3.50"	8
FEB-175-D	2.00"	1.50"	6.75"	3.50"	8
FEB-175-SC	2.40"	1.50"	6.75"	3.50"	8
FEB-200-D	2.50"	1.50"	6.75"	3.50"	8
FEB-200-SC	2.88"	1.50"	6.75"	3.50"	8
FEB-250-SC	3.24"	1.50"	6.75"	3.50"	8
FEB-300	3.50"	1.50"	8.00"	3.50"	10
FEB-300-R	3.50"	1.50"	6.75"	3.50"	8
FEB-400-R	4.50"	1.50"	8.00"	5.50"	10
FEB-400-F	4.94"	1.50"	8.00"	5.50"	10

Ducted Entry Boots

Model	A	B	C	Mtg. Hole Size	Mtg. Studs
DEB-150-D	1.75"	1.50"	6.75"	3.50"	8
DEB-150-SC	2.00"	1.50"	6.75"	3.50"	8
DEB-175-D	2.00"	1.50"	6.75"	3.50"	8
DEB-175-SC	2.40"	1.50"	6.75"	3.50"	8
DEB-200-SC	2.88"	1.50"	6.75"	3.50"	8
DEB-250-SC	3.24"	1.50"	6.75"	3.50"	10

Air Testable

Model	A	B	C	Mtg. Hole Size	Mtg. Studs
DEB-150-DA	1.75"	1.50"	6.75"	3.50"	8
DEB-150-SCA	2.00"	1.50"	6.75"	3.50"	8
DEB-175-DA	2.00"	1.50"	6.75"	3.50"	8
DEB-175-SCA	2.40"	1.50"	6.75"	3.50"	8
DEB-200-DA	2.50"	1.50"	8.00"	5.50"	10
DEB-252-DA	3.00"	1.50"	8.00"	5.50"	10

Advantages

- Designed to be used with APT product piping, the entry boots are also ideal for use with rigid piping and electrical conduits.
- Flexible double entry boots are ideal for generator, fuel oil return and feed line applications.
- Boot can be serviced from inside the sump so there is no need to break concrete.
- Made from oil- and gasoline-resistant nitrile rubber.
- Allows two pipes to go through one boot for easier installation.
- Combination of two different pipe diameters through one boot can be easily converted by simply removing the insert in the pipe opening.

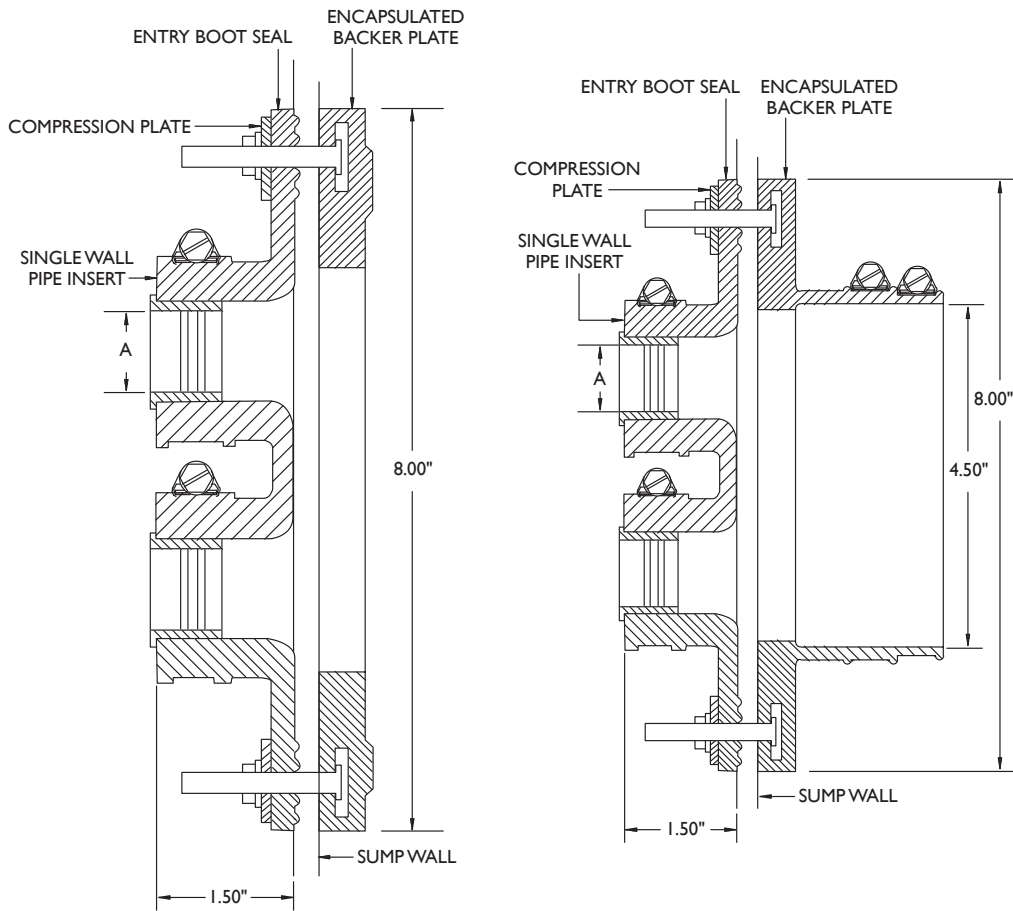


Flexible Double Entry Boots

The APT flexible double entry boot allows two pipes or conduits to go through a single sump entry boot opening. The APT boot comes in two different styles, the flexible double boot for non-ducted applications and the ducted double boot when using APT DCT-400 corrugated piping. Double entry boots accommodate ¾" and 1" pipe sizes or a combination of the two.



Model	Description
FDB-075-D	Flexible double boot for ¾" electrical conduit
FDB-075-SC	Flexible double boot for P-075-SC
FDB-100-D	Flexible double boot for XP-100-D or 1" electrical conduit
FDB-100-SC	Flexible double boot for XP-100-SC
Model	Description
DDB-075-D	Ducted double boot for ¾" electrical conduit
DDB-075-SC	Ducted double boot for P-075-SC
DDB-100-D	Ducted double boot for XP-100-D or 1" electrical conduit
DDB-100-SC	Ducted double boot for XP-100-SC
89510101	Ducting insert
89510201	Ducting v-seal



Flexible Double Entry Boots

Model	A	Mtg. Hole Size	Mtg. Studs
FDB-075-D	1.05"	5.50"	10
FDB-075-SC	1.32"	5.50"	10
FDB-100-D	1.32"	5.50"	10
FDB-100-SC	1.70"	5.50"	10

Ducted Double Entry Boots

Model	A	Mtg. Hole Size	Mtg. Studs
DDB-075-D	1.05"	5.50"	10
DDB-075-SC	1.32"	5.50"	10
DDB-100-D	1.32"	5.50"	10
DDB-100-SC	1.70"	5.50"	10

Advantages

- Designed to be used with APT product piping, the bulkhead boots are also ideal for use with rigid piping and electrical conduits.
- Flexible bulkhead boots available in sizes from 1/2" through 2 1/2". Ducted bulkhead boots available in sizes from 1 1/2" through 2 1/2".
- Boot size designations correspond directly to the pipe size being used.
- Any boot for a single wall pipe can be converted to a boot for a double wall pipe by simply removing the insert in the pipe opening.
- Bulkhead boots can be serviced from inside the sump, eliminating the need for sump excavation.
- Made from oil- and gasoline-resistant nitrile rubber.

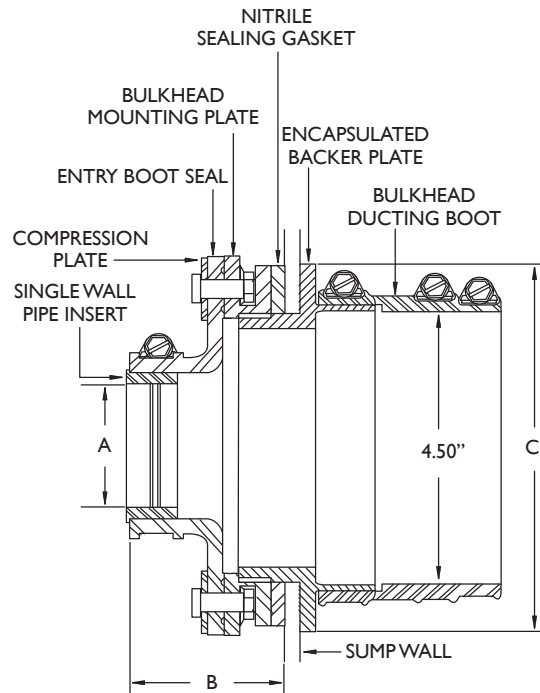
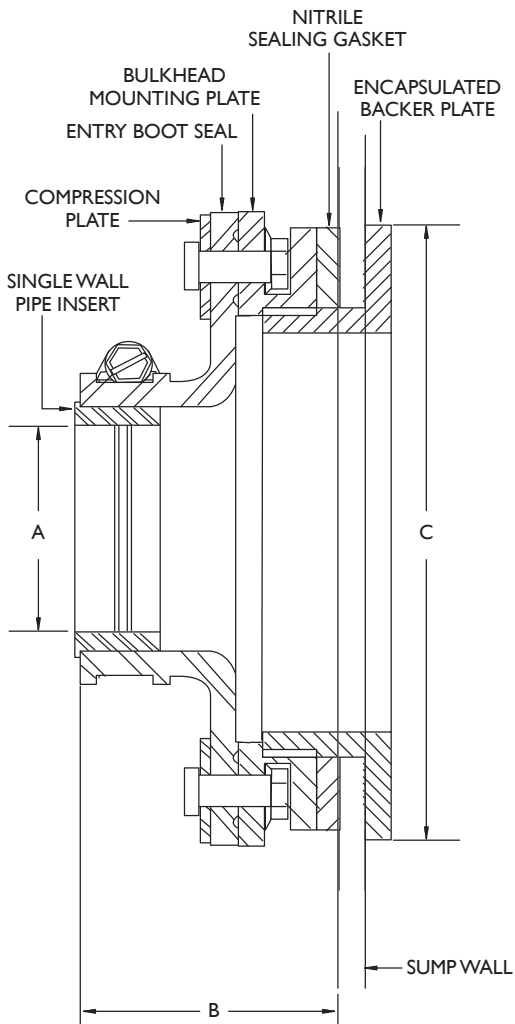


Flexible Bulkhead Boots

APT bulkhead boots boast an enlarged gasket area to seal against the sump wall and incorporate the proven advantages of the APT standard flexible entry boot seal. The bulkhead boot requires only a single hole to be drilled for installation, reducing labor time and cost. APT offers a complete line of sizes for 1/2" through 2 1/2" single and secondary contained pipe. The 1 1/2" through 2 1/2" sizes are also available in a ducted boot version to accommodate the use of APT DCT-400 corrugated ducting for easy retractability.



Model	Description
FBB-075-D	Flexible bulkhead boot for P-075-D, 3/4" and 1" electrical conduit
FBB-150-SC	Flexible bulkhead boot for XP-150-SC
Model	Description
DBB-150-SC	Ducted bulkhead boot for XP-150-SC
DBB-200-SC	Ducted bulkhead boot for XP-200-SC
Model	Description
89510101	Ducting insert
89510201	Ducting v-seal



Flexible Bulkhead Boots

Model	A	B	C	Mtg. Hole Size
FBB-075-D	1.05"	2.50"	4.00"	2.38"
FBB-150-SC	2.00"	2.50"	6.00"	4.38"

Ducted Bulkhead Boots

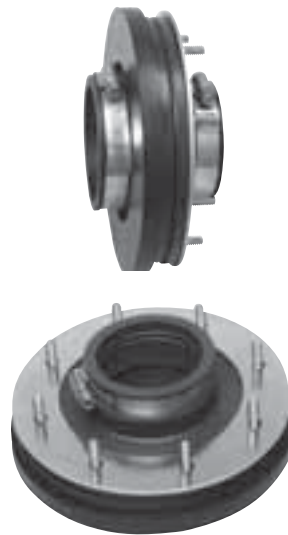
Model	A	B	C	Mtg. Hole Size
DBB-150-SC	2.00"	2.50"	6.00"	4.38"
DBB-200-SC	2.88"	2.50"	6.00"	4.38"

Advantages

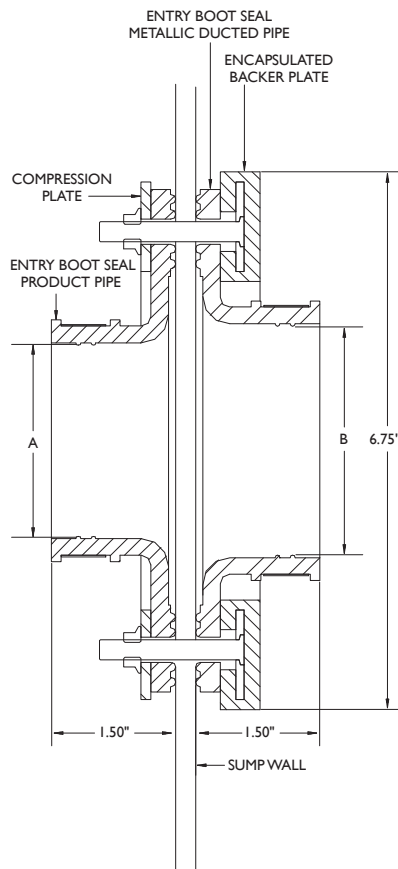
- Same proven design features of APT standard flexible entry boots.
- Inner seal provides watertight seal around the single or secondary contained product pipe.
- The outer seal secures the MD layer to the sump wall.
- Double seals offer additional security for the harsh conditions of marina and aboveground applications.
- Made from gas- and oil-resistant nitrile rubber.
- Will work on round sumps of 36" or larger diameter.

MD-Series Flexible Entry Boots

When using the APT metallic ducted (MD) pipe, the use of the MD-Series flexible entry boot is required. These boots are similar in design to our standard flexible entry boots, except they include an additional seal that faces outward to secure the MD layer of the pipe to the sump wall, and terminate the single or secondary contained piping on the inside of the sump for a watertight seal.



Model	Description
FEB-075-MDD	Flexible entry boot for P-075-MD
FEB-075-MD	Flexible entry boot for P-075-MD
FEB-100-MDD	Flexible entry boot for XP-100-MDD
FEB-100-MD	Flexible entry boot for XP-100-MD
FEB-150-MDD	Flexible entry boot for XP-150-MDD
FEB-150-MD	Flexible entry boot for XP-150-MD
FEB-175-MDD	Flexible entry boot for XP-175-MDD
FEB-175-MD	Flexible entry boot for XP-175-MD
FEB-200-MDD	Flexible entry boot for XP-200-MDD
FEB-200-MD	Flexible entry boot for XP-200-MD



MD-Series Flexible Entry Boots

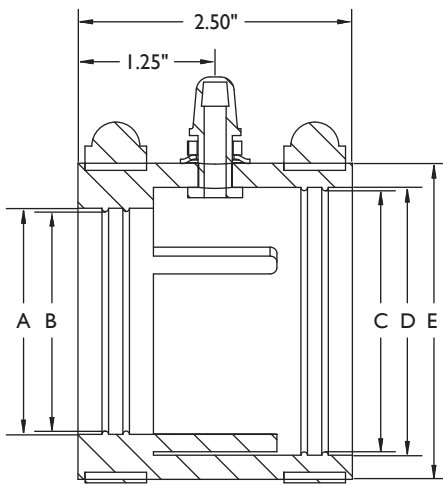
Model	A	B	Mtg. Hole Size	Mtg. Studs
FEB-075-MDD	1.05"	1.70"	2.00"	4
FEB-075-MD	1.32"	2.00"	3.50"	8
FEB-100-MDD	1.32"	2.00"	3.50"	8
FEB-100-MD	1.70"	2.40"	3.50"	8
FEB-150-MDD	1.75"	2.40"	3.50"	8
FEB-150-MD	2.00"	2.88"	3.50"	8
FEB-175-MDD	2.00"	2.88"	3.50"	8
FEB-175-MD	2.40"	2.88"	3.50"	8
FEB-200-MDD	2.50"	3.50"	3.50"	8
FEB-200-MD	2.88"	3.50"	3.50"	8

Clamshell Secondary Test Boots

APT secondary test boots are designed for testing the integrity of secondary contained flexible piping when using APT clamshell fittings. Each boot has an air chuck for applying air pressure to the secondary containment jacket. Placing a boot on each end of the secondary containment jacket forms an airtight chamber for testing. After the testing is completed, slide the boots back on the pipe to open the secondary system. The boots remain on the pipe available for future testing as required by local regulations.

Advantages

- Secondary test boots slip over the end of the pipe prior to installation of end fittings.
- Boots are manufactured using fuel-resistant nitrile rubber and employ brass air chucks and stainless steel clamps for maximum corrosion resistance.
- Boots are easily clamped down with a screwdriver or 5/16" nut driver, forming an airtight chamber between the primary pipe and the secondary jacket.
- The secondary chamber is pressurized to 5-8 psi through air chuck to test system integrity.
- After pressure testing, the boots remain on the pipe for future use but are pulled back to permit back-flow of fuel leaks to the tank sump.



Model	A	B	C	D	E
STB-100	1.38"	1.32"	1.70"	1.76"	2.20"
STB-150	1.81"	1.75"	2.00"	2.06"	2.50"
STB-175	2.06"	2.00"	2.38"	2.44"	2.88"
STB-200	2.56"	2.50"	2.88"	2.94"	3.38"

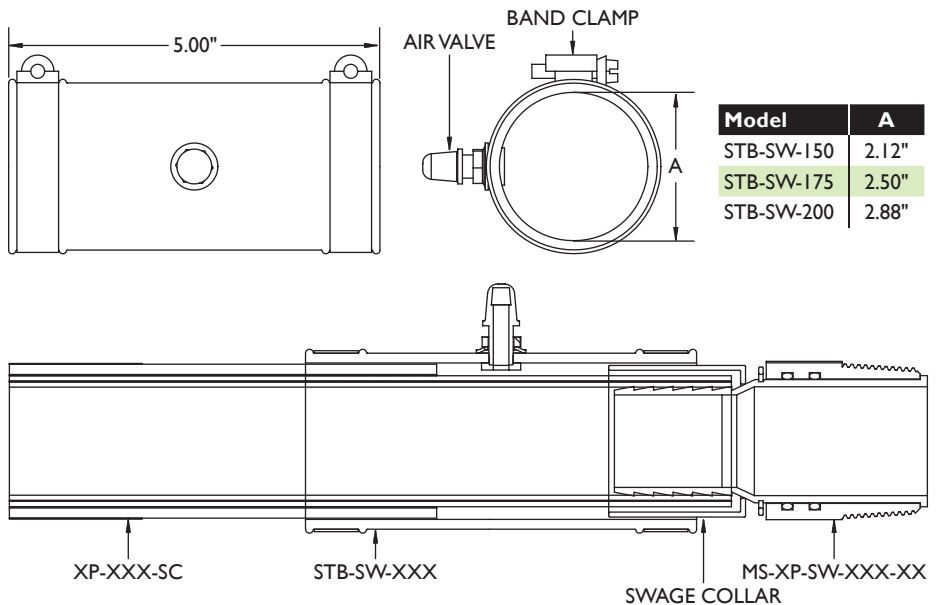
Model	Description
STB-100	Secondary test boot for XP-100-SC pipe
STB-150	Secondary test boot for XP-150-SC pipe
STB-175	Secondary test boot for XP-175-SC pipe
STB-200	Secondary test boot for XP-200-SC pipe

Advantages

- Secondary test boots slip over the end of the pipe prior to installation of end fittings.
- Boots are manufactured using fuel-resistant nitrile rubber and employ brass air chucks and stainless steel clamps for maximum corrosion resistance.
- Boots are easily clamped down with a screwdriver or 5/16" nut driver, forming an airtight chamber between the primary pipe and the secondary jacket.
- The secondary chamber is pressurized to 5-8 psi through air chuck to test system integrity.
- After pressure testing, the boots remain on the pipe for future use but are pulled back to permit back-flow of fuel leaks to the tank sump.

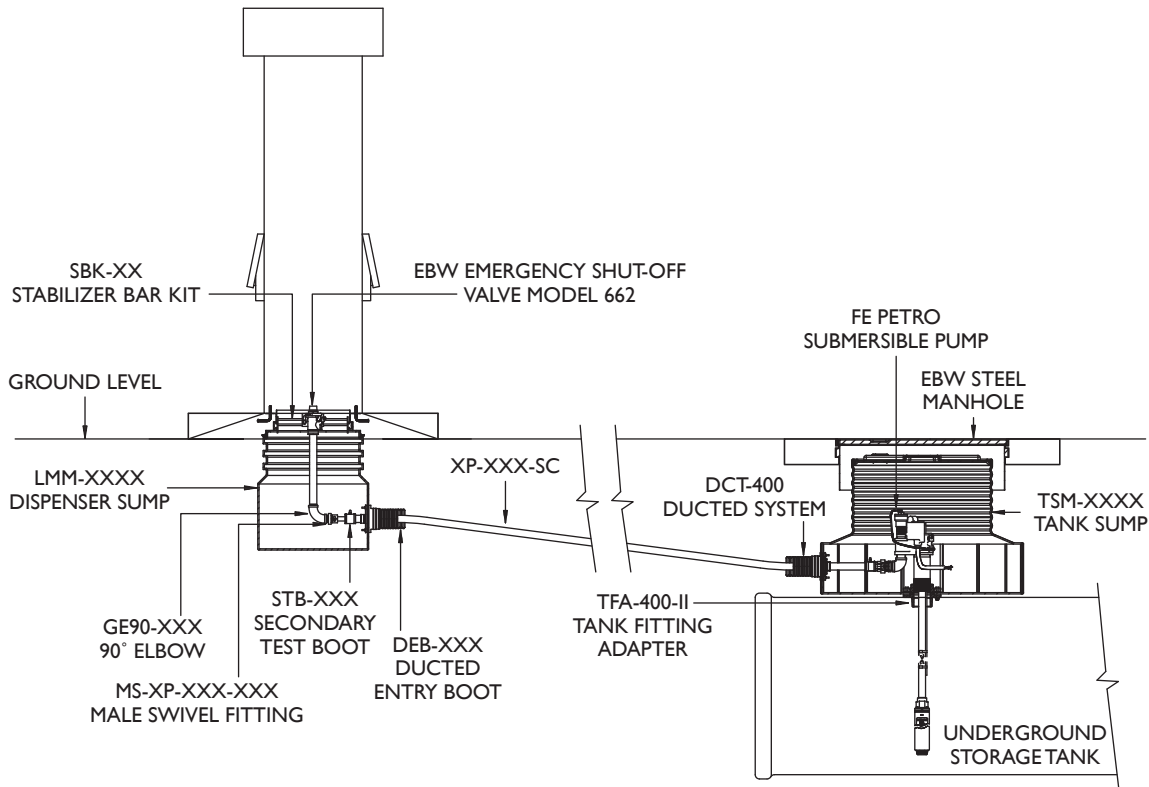
Swage Secondary Air Test Boots

APT secondary test boots are designed for testing the integrity of SC flexible piping when using the APT swage fitting. Each boot has an air chuck for applying air pressure to the SC jacket to form an airtight chamber for testing purposes. After testing is complete, slide the boots back on the pipe system. The boots remain on the pipe available for future testing as required by local regulations.



Model	Description
STB-SW-150	Secondary test boot for swage XP-150 piping
STB-SW-175	Secondary test boot for swage XP-175 piping
STB-SW-200	Secondary test boot for swage XP-200 piping

Below Grade Typical Application Drawing



APT Rigid Pipe-Boot Reference Chart

Thin Wall Electrical Conduit	OD	APT Entry Boot
1/2"		FEB-050-D
3/4"		FEB-050-SC
1"		FEB-075-SC
Galvanized Electrical Conduit	OD	APT Entry Boot
1/2"		FEB-050-D
3/4"		FEB-050-SC
1"		FEB-075-SC
Galvanized Pipe	OD	APT Entry Boot
1/2"		FEB-050-D
3/4"		FEB-050-SC
1"		FEB-075-SC
1 1/2"		FEB-150-SC
2"		FEB-175-SC
Fiberglass Piping (Single Wall)	OD	APT Entry Boot
2"		FEB-175-SC
3"	3.50"	FEB-300-R
4"		FEB-400-R
Schedule 40/80 Pipe, Same OD	OD	APT Entry Boot
1/2"		FEB-050-D
3/4"		FEB-050-SC
1"		FEB-075-SC
1 1/4"	1.32"	FEB-100-SC
1 1/2"	1.70"	FEB-150-SC
2"		FEB-175-SC
2 1/2"		FEB-200-SC
3"		FEB-300-R
4"		FEB-400-R

Advantages

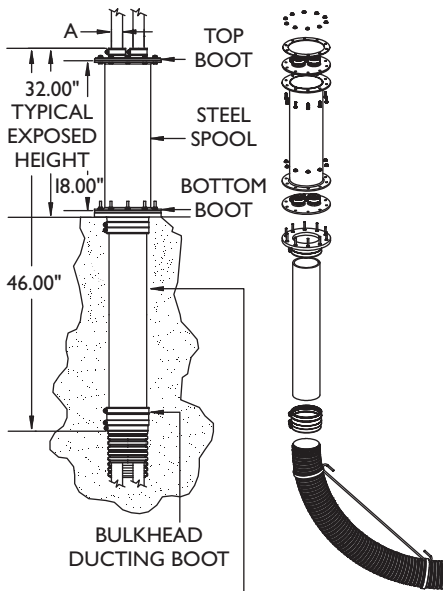
- Transition sleeve provides the transition for above and below ground level.
- Transition sleeve provides the transition of APT pipe to steel pipe.
- May be additionally used for through-wall installation, above or below ground.
- Low cost alternative to the AST-2922 transition sump.
- Designed to utilize APT dual entry and ducted boots.
- Split design allows aboveground spill or leak containment. Ready access for maintenance or replacement of joint hardware and pipe.
- The transition sleeve can accommodate for fill/feed generator applications.

TSL-005 Includes

- Transition sleeve spool, 5" ID.
- HDPE pipe, 18" length, 4" ID.
- Bulkhead ducting boot.
- Hose clamps.
- Blue corrugated ducting, 48" length.
- 1/4" formed steel rod.
- Installation instructions.

Grade Level Transition Sleeve™

The transition sleeve is the practical, environmentally sound solution for above and below ground supply of generator or boiler applications from remote storage tanks. Steel piping enters the sleeve through APT special flexible double entry boots. It is an economical alternative that allows a straightforward installation with no special tools.



HDPE PIPE LENGTH MAY BE MODIFIED TO SUIT

Transition Sleeve Top Boot Assembly

Model	A	Mtg. Hole Size	Mtg. Studs
TST-100-D	1.32" or 1.70"	5.50"	10

Transition Sleeve Bottom Boot Assembly

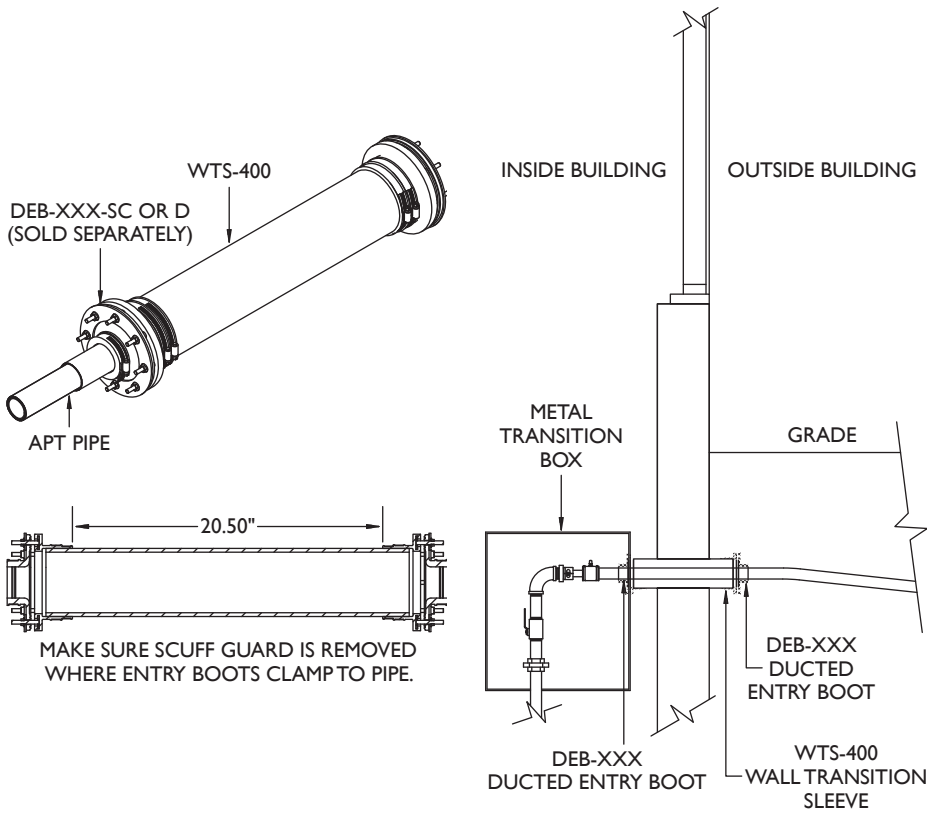
Model	A	Mtg. Hole Size	Mtg. Studs
TSB-100-D	1.32" or 1.70"	5.50"	10
TSB-100-SC	1.70"	5.50"	10

Model	Description
TSL-005	Transition sleeve (top and bottom boot required, sold separately)
Model	Description
TST-100-D	Transition sleeve top flexible entry boot, 1" steel pipe
Model	Description
TSB-100-D	Transition sleeve bottom flexible entry boot for XP-100-D or 1" conduit
TSB-100-SC	Transition sleeve bottom flexible entry boot for XP-100-SC

Note: The transition sleeve along with the top and bottom entry boot should be ordered separately.

Wall Transition Sleeve

The wall transition sleeve is a practical, environmentally sound solution for below ground generator or boiler applications that pass through the walls of buildings or concrete structures. Piping enters the sleeve through APT's special flexible entry boots. The wall transition sleeve is an economical alternative that allows a straightforward installation with no tools.



Advantages

- Transition sleeve used for through-wall installation.
- Low cost alternative.
- Designed to utilize APT ducted entry and single entry flexible boots.
- The transition sleeve can accommodate for fill/feed generator applications.

Model	Description
WTS-400	Wall transition sleeve (ducted entry boot required, sold separately)

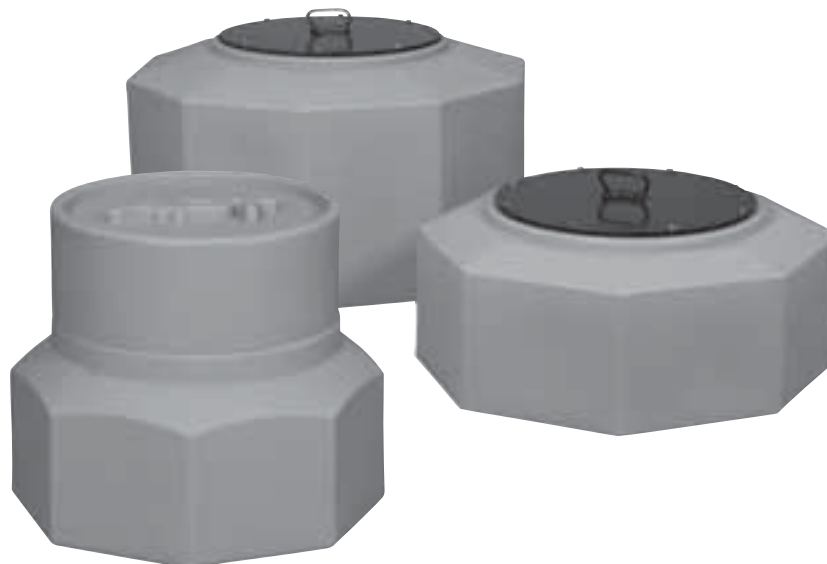
Advantages

- TS-2430 utilizes an 18" bolt-down watertight lid.
- TS-3630 and TS-4230 utilize a 23½" bolt-down watertight lid.
- High density polyethylene construction is durable and chemical-resistant.
- All TS-Series sumps allow fittings to be installed with ease, while tapered design allows for installation under an economical 30" manway.
- Bolt-down cover can be easily removed for routine inspections.
- One-piece design enhances water resistance.



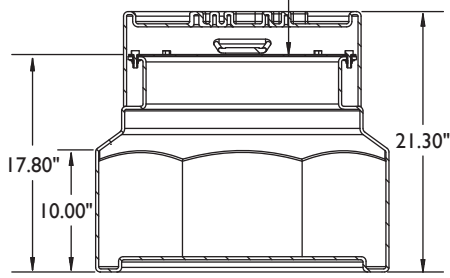
Below Grade Transition Tank Sumps

APT's TS-2430, TS-3630 and TS-4230 tank sumps are ideally suited for low cost retro fits and shallow burial applications. The TS-2430 is ideal for line branching points and for containing piping splices. The 36" or 42" bases provide ample space for submersibles and fittings. The bolt-on gasket-lid combination fits economically under a 30" manway.

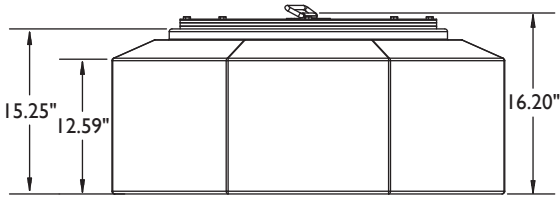
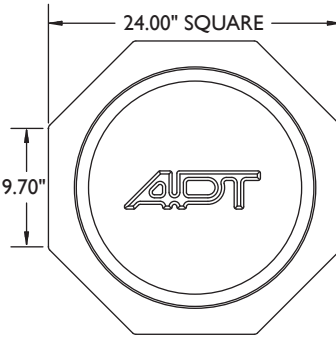


Model	Description
TS-2430	Transition sump, shallow burial, 24" base, fits under a 30" manway
TS-3630	Tank sump, shallow burial, 36" base, fits under a 30" manway
TS-4230	Tank sump, medium burial, 42" base, fits under a 30" manway
TS-KIT	TS-3630/4230 retro fit kit, replacement lid assembly for screw-on polyethylene lids
999-855-55	Replacement gasket

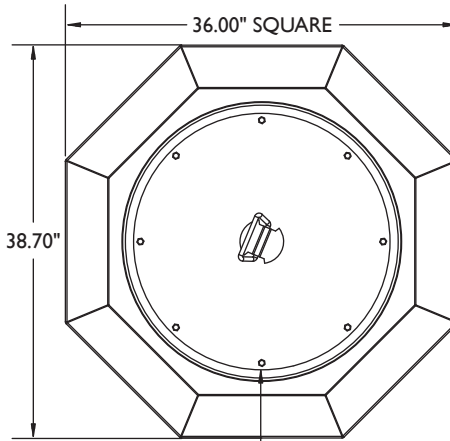
18" BOLT-DOWN RAIN-TIGHT ACCESS COVER



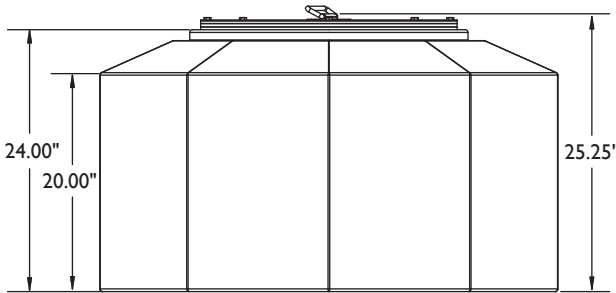
TS-2430



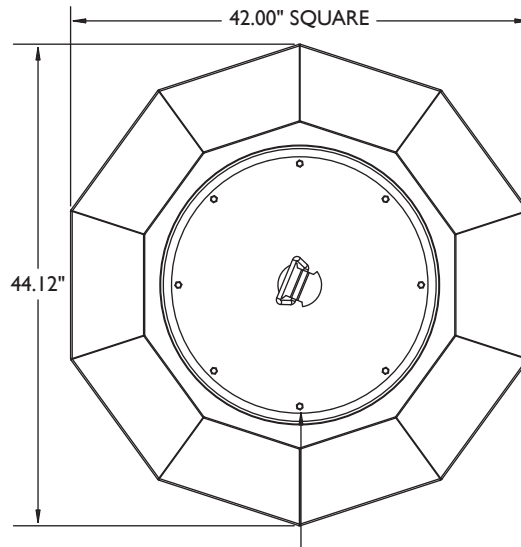
TS-3630



23½" BOLT-DOWN RAIN-TIGHT ACCESS COVER



TS-4230



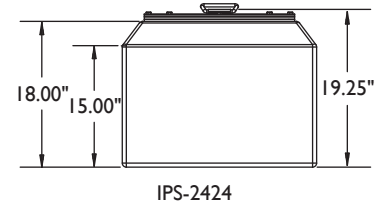
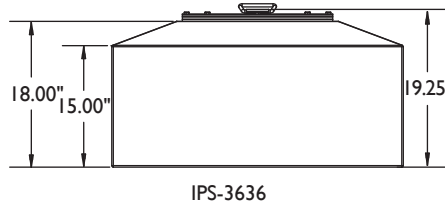
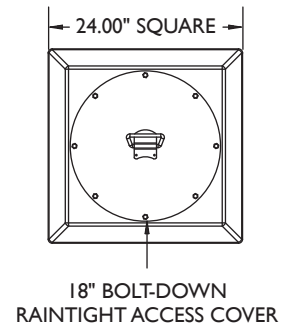
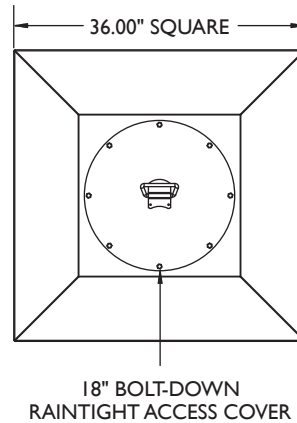
23½" BOLT-DOWN RAIN-TIGHT ACCESS COVER

Advantages

- 18" bolt-down watertight lid.
- Design is engineered to be multi-functional.
- Sumps are constructed from high density polyethylene, making them durable and chemical-resistant.
- Two sizes available, 24" x 24" square and 36" x 36" square.
- Tapered top allows both intermediate piping sumps to fit securely under a 24" manway.
- One-piece design ensures environmental security and water resistance.

Below Grade Intermediate Piping Sumps

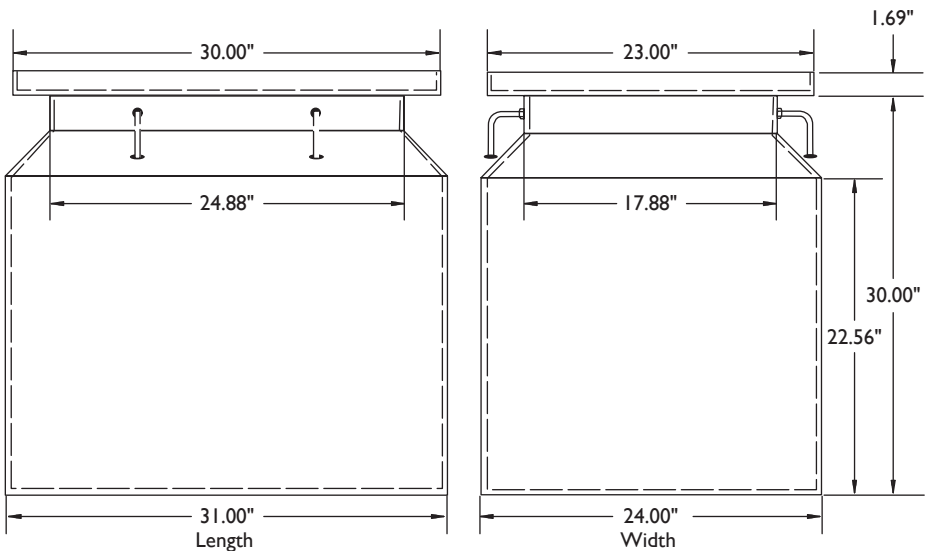
The APT intermediate piping sump is a multifunctional component in the underground flexible piping system. The IPS-2424 and IPS-3636 can be used as a containment sump for fittings when utilizing a tee between dispenser islands, for contained piping splices, or for line branching points. These sumps are ideal for a low point sensor chamber between USTs and dispenser islands where required.



Model	Description
IPS-2424	Intermediate piping sump, 24" x 24", fits under a 24" manway
IPS-3636	Intermediate piping sump, 36" x 36", fits under a 36" manway
999-855-54	Replacement gasket
735-101-02	Replacement cover

Grade Level Transition Sump

The AST above or below ground transition sump is the practical, environmentally sound solution for remote dispensing from aboveground storage tanks. Steel and flexible piping enter the sump through the APT flexible entry boot. Inside the sump, the steel piping easily connects to flexible piping for a fueltight, continuous run to dispensers or an intermediate sump.



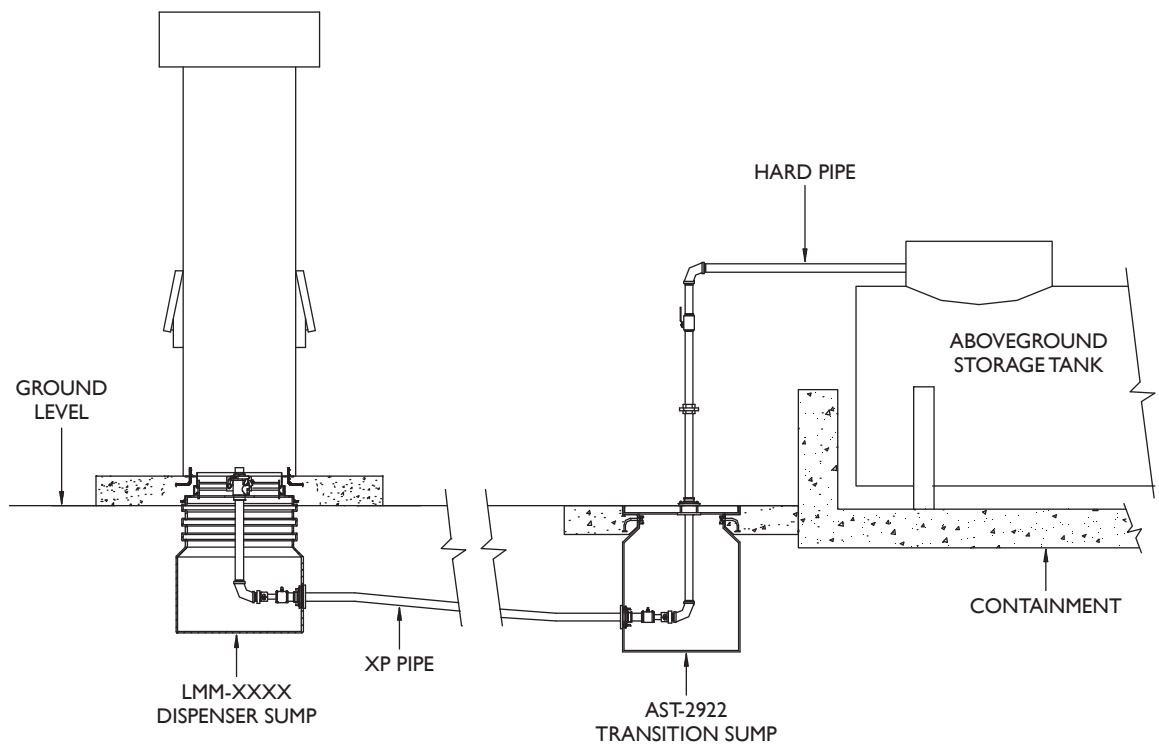
Advantages

- Transition sumps help meet environmental regulations by isolating metal piping from the soil.
- Transition sumps can be installed either inside or outside containment dikes.
- 30" burial depth allows the transition sump to be used as the system low point for leak detection.
- Load rated composite cover.
- Flexible entry boot provides a fueltight and watertight seal around the metal piping and flexible piping as it enters the sump lid and sidewall.
- H-20 load rating. Pipe entries installed in lids negate the load rating.



Model	Description
AST-2922	Aboveground storage tank transition sump
999-855-53	Replacement gasket
252-029-23	Replacement AST-2922 lid, grey
IP-400-B	Inspection replacement port, FEB style with replacement well cap

Above Grade Typical Application Drawing



4542 Series One-Piece Tank Sumps

The 4542 Series one-piece tank sump is made of high-density polyethylene with a factory installed gasket snap-on lid. The 16 side panels allow for pipe entry from virtually any direction.

The 4542 Series is available in three burial depths. Each offers an optional inspection port (IP) for easy viewing of the interior of the sump without removal of the lid.



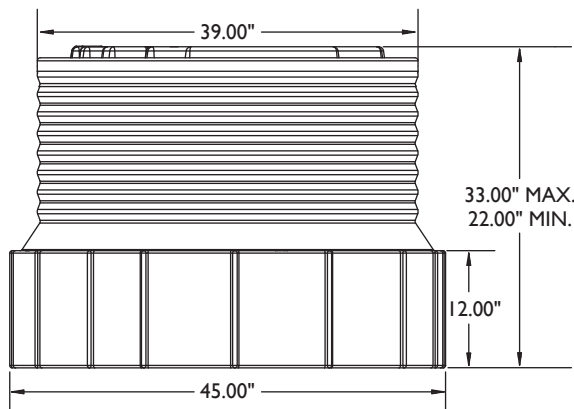
Advantages

- Economically priced one-piece design.
- Ribbed riser allows for simple 3" height adjustments using standard tools.
- Available in deep, medium and shallow burial depth models.
- Utilizes a unique gasket, snap-on lid design.
- Sized to fit under a standard 42" manway.
- Central location for an optional inspection port.
- Lid designed with a large-grip handle for easy removal of the snap-on lid.

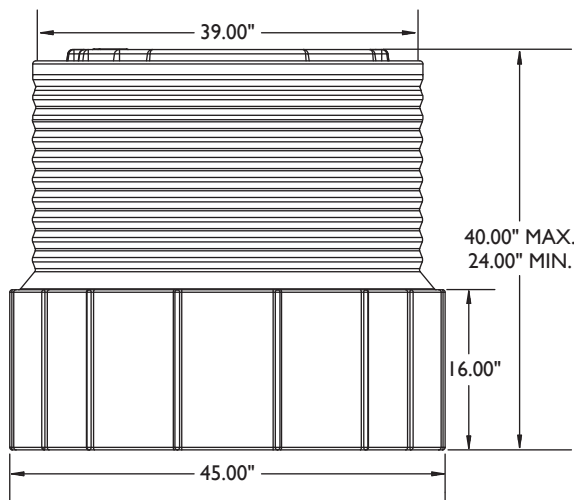


Model	Description
TSD-4542	Tank sump, deep burial, 45" base, fits 42" manway
TSM-4542	Tank sump, medium burial, 45" base, fits 42" manway
TSS-4542	Tank sump, shallow burial, 45" base, fits 42" manway
260-042-09	TSM-4542 sump lid replacement
MA-22	Manway adapter, 22"
MA-24	Manway adapter, 24"
IP-400	Inspection port
IP-400-B	Inspection port, FEP style with well cap

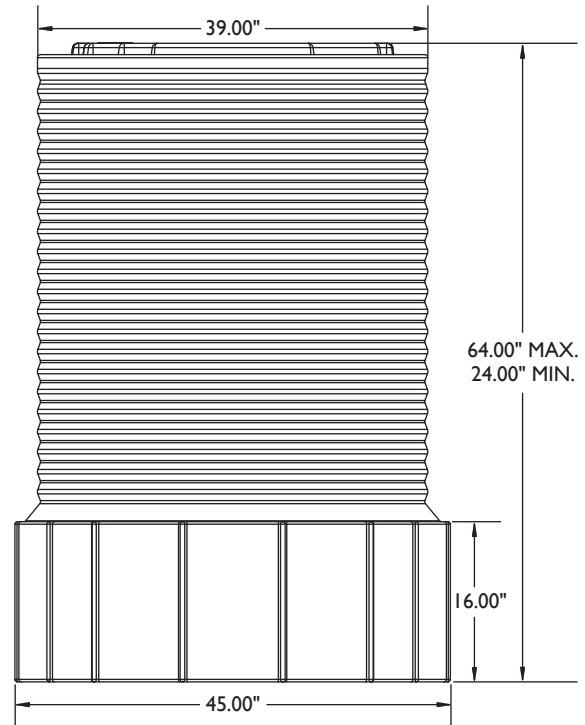
Note: Replacement gaskets sold with cover only.



TSS-4542
SHALLOW BURIAL



TSM-4542
MEDIUM BURIAL



TSD-4542
DEEP BURIAL

4736 Series One-Piece Tank Sumps

The 4736 Series one-piece tank sump is made of high-density polyethylene with a factory installed gasket snap-on lid. The 16 side panels allow for pipe entry from virtually any direction.

The 4736 Series is available in three burial depths. Each is offered with an optional inspection port (IP) for easy viewing of the interior of the sump without removal of the lid.



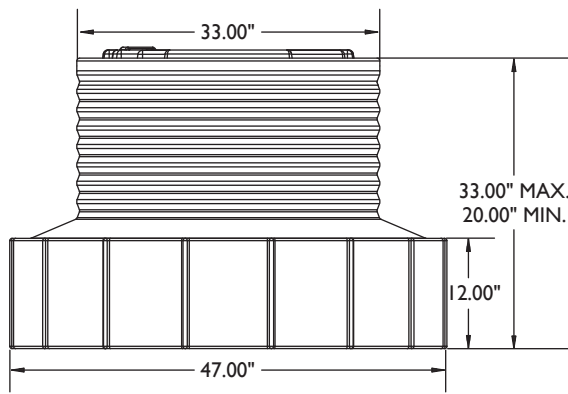
Advantages

- Economically priced one-piece design.
- Ribbed riser allows for simple 3" height adjustments using standard tools.
- Available in deep, medium and shallow burial depth models.
- Utilizes a unique gasket, snap-on lid design.
- Sized to fit under a standard 36" manway.
- Central location for an optional inspection port.
- Lid designed with a large-grip handle for easy removal of the snap-on lid.

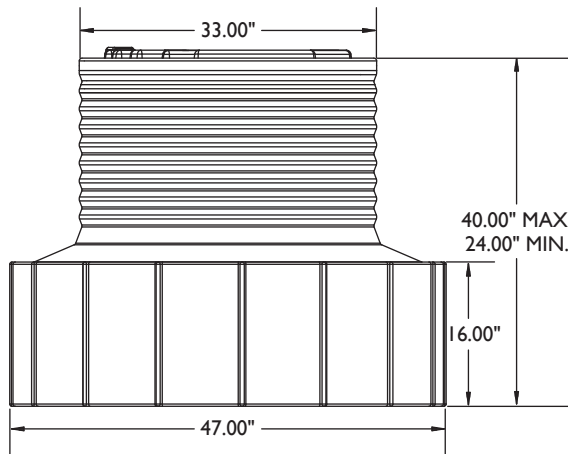


Model	Description
TSD-4736	Tank sump, deep burial, 47" base, fits 36" manway
TSM-4736	Tank sump, medium burial, 47" base, fits 36" manway
TSS-4736	Tank sump, shallow burial, 47" base, fits 36" manway
260-036-08	TSM-4736 sump lid replacement
MA-22	Manway adapter, 22"
MA-24	Manway adapter, 24"
IP-400	Inspection port
IP-400-B	Inspection port, FEP style with well cap

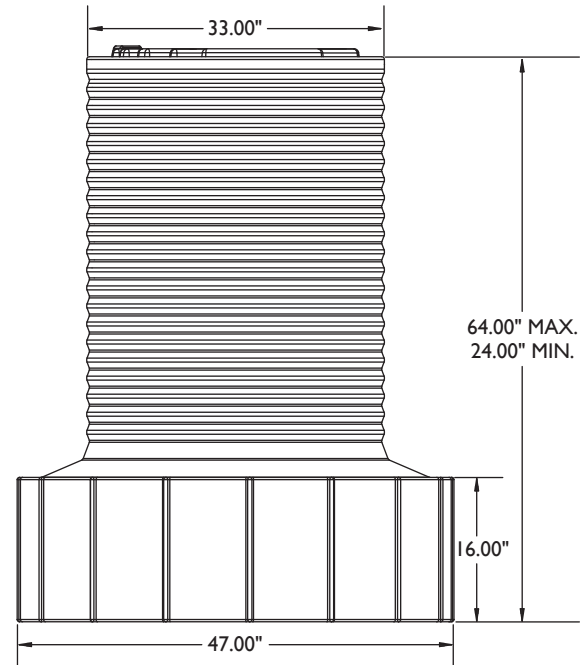
Note: Replacement gaskets sold with cover only.



TSS-4736
SHALLOW BURIAL



TSM-4736
MEDIUM BURIAL



TSD-4736
DEEP BURIAL

Watertight Fiberglass Turbine Sump Packages

Our octagonal base sumps are a two-piece design eliminating the need to work in a confined space during installation. Eight flat panels are molded into the bottom section to provide 90° pipe entries.

Available in both single and double wall configurations. Each package includes a patented watertight multi-port sump shield.

Most single wall models are available with or without bottom for various mounting options.

Double wall models are only available for mounting to tank collar.

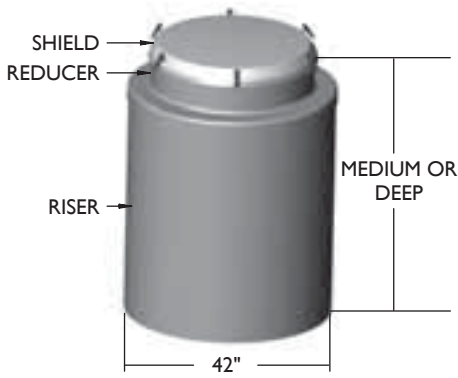
Note: Two-week lead time on all fiberglass parts.



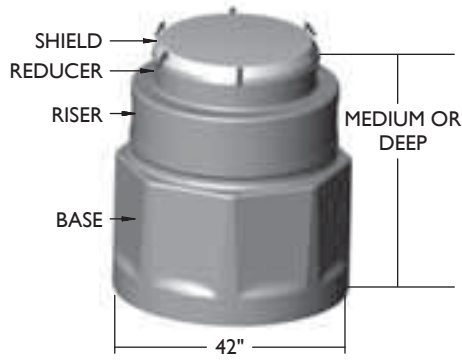
T Model Turbine Sumps



T Model Two-Piece Octagonal Turbine Sumps



T(x)4(x)36-0/0-RC-S



T(x)4836-0/0-OX-X

Advantages

- Constructed from rugged 1/4" thick, three-layer hand layup FRP with a vapor, watertight gel coat interior wall surface.
- White gel coat interior provides a vapor and watertight barrier and superior visibility.
- Available in 42" and 48" diameter.
- Sump reducers are available to fit under a 36" manway.
- Double wall models are shipped under vacuum with a vacuum gauge installed for verification at site of sealed interstitial.
- Packages include watertight sump shield, sump reducer and sump riser.

Model Number Reference Chart

XXXXXX - X/X - XX - X
 1 A B 2 3 4

1 = Sump Type

T = Turbine

A = Depth

M = Medium burial

D = Deep burial

B = Size

4236 = 42" diameter base, 36"

minimum manway diameter

4836 = 48" diameter base, 36"

minimum manway diameter

2 = Watertight Shield Opening Options

0/0 = Turbine cover, no openings

3 = Base Options

OB = Octagonal base with bottom

RC = Round collar mount base

OC = Octagonal base mount base

4 = Interstitial Monitoring Method

S = Single wall, none

H = Hydrostatic (brine)

V = Vacuum

42" and 48" Single Wall Cylindrical Turbine Sumps

Model	Wall Type	Riser Base Dia.	Min. Manway Size	Seam Kits Recommended	Bottom
T(X)A4236-0/0-RC-S	Single	42	36	2	No
T(X)A4836-0/0-RC-S	Single	48	36	2	No

Note: Seam kits not included. See bottom of page for part number and pricing.
*Overall height.

42" Single and Double Wall Octagonal Turbine Sumps

Model	Wall Type	Octagonal Base Dia.	Min. Manway Size	Seam Kits Recommended	Bottom	Riser Dia.
T(X)4236-0/0-OC-S	Single	42	36	2	No	39
T(X)4236-0/0-OB-S	Single	42	36	1	Yes	39
T(X)4236-0/0-OC-H	Double	42	36	4	No	39
T(X)4236-0/0-OC-V	Double	42	36	4	No	39

Note: Seam kits not included. See bottom of page for part number and pricing.
*Overall height.

48" Single and Double Wall Octagonal Turbine Sumps

Model	Wall Type	Octagonal Base Dia.	Min. Manway Size	Seam Kits Recommended	Bottom	Riser Dia.
T(X)A4836-0/0-OC-S	Single	48	36	3	No	42
T(X)A4836-0/0-OB-S	Single	48	36	2	Yes	42
T(X)4836-0/0-OC-H	Double	48	36	4	No	42
T(X)4836-0/0-OC-V	Double	48	36	4	No	42

Note: Seam kits not included. See bottom of page for part number and pricing.
*Overall height.

30" Access Turbine Watertight Sump Shield Packages*

Model	Access Opening	Riser Dia.	Min. Manway Dia.	Seam Kits Recommended
TSS-4236	30"	42	36	1
TSS-4836	30"	48	36	1
TSS-XS36	30"	Xerxes 33	36	1

Note: Seam kits not included. See bottom of page for part number and pricing.
*Package includes watertight sump shield and riser reducer.



Fiberglass Seam Adhesive Kit

Model	Description
FG-SEAMKIT	Includes matte, resin, putty and catalyst for one fiberglass seam single or double wall.

Note: Double wall applications may require two seam kits per seam.

Fiberglass Replacement Parts

Model	Description
TSS-36	36" watertight sump shield
602212001	33" sump shield gasket
602212002	40" sump shield gasket
602221902	Adaptor 42/36
602221904	Adaptor 42/42
602221908	Adaptor 48"
602226906	Adaptor 42" WTC
602329001	Sump shield/keeper
602330901	Bracket assembly
602331001	Rubber pull latch

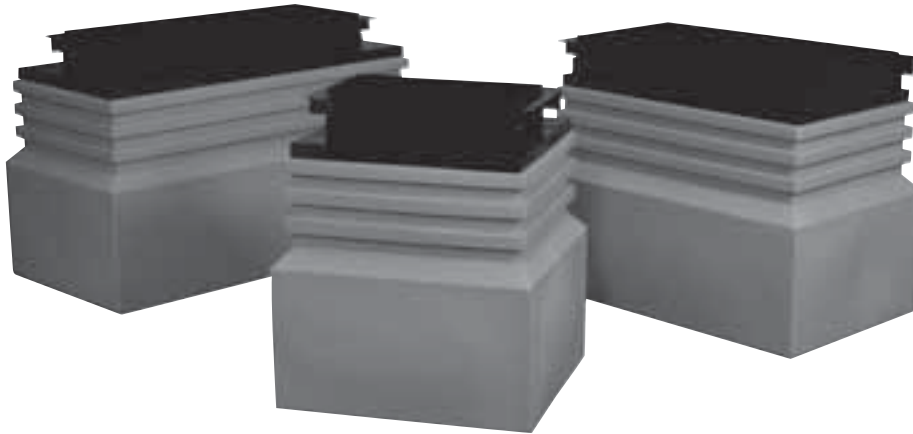
Note: Fiberglass orders cannot be cancelled.

Large Mouth Dispenser Sumps

The large mouth dispenser sump modular design provides versatility and ease of installation.

There are six polyethylene bases in three lengths and two depths. These bases have a large 22" wide by 24", 36" or 48" long openings, easing the installation of entry boots and piping connections. The ribbed riser can be cut down in 3" increments in the field to achieve proper pipe slopes with respect to grade.

A variety of large mouth tops (LMTs) are available to match nearly every dispenser model. The lids are corrosion-resistant painted steel to which shear valves and dispenser frames are mounted.



Advantages

- 22" wide by 24", 36" or 48" long opening on base gives plenty of room for boot, fitting and monitor installation.
- Available in medium and deep burial depths to properly maintain slope.
- The base widens to a spacious 26" where entry boots and pipe connections are made.
- Height modifications are accomplished by trimming off the base at the ribs.
- Stabilizer bar kits (SBKs) mount into welded strut channels for shear valve mounting. One SBK is required for each shear valve and must be purchased separately.

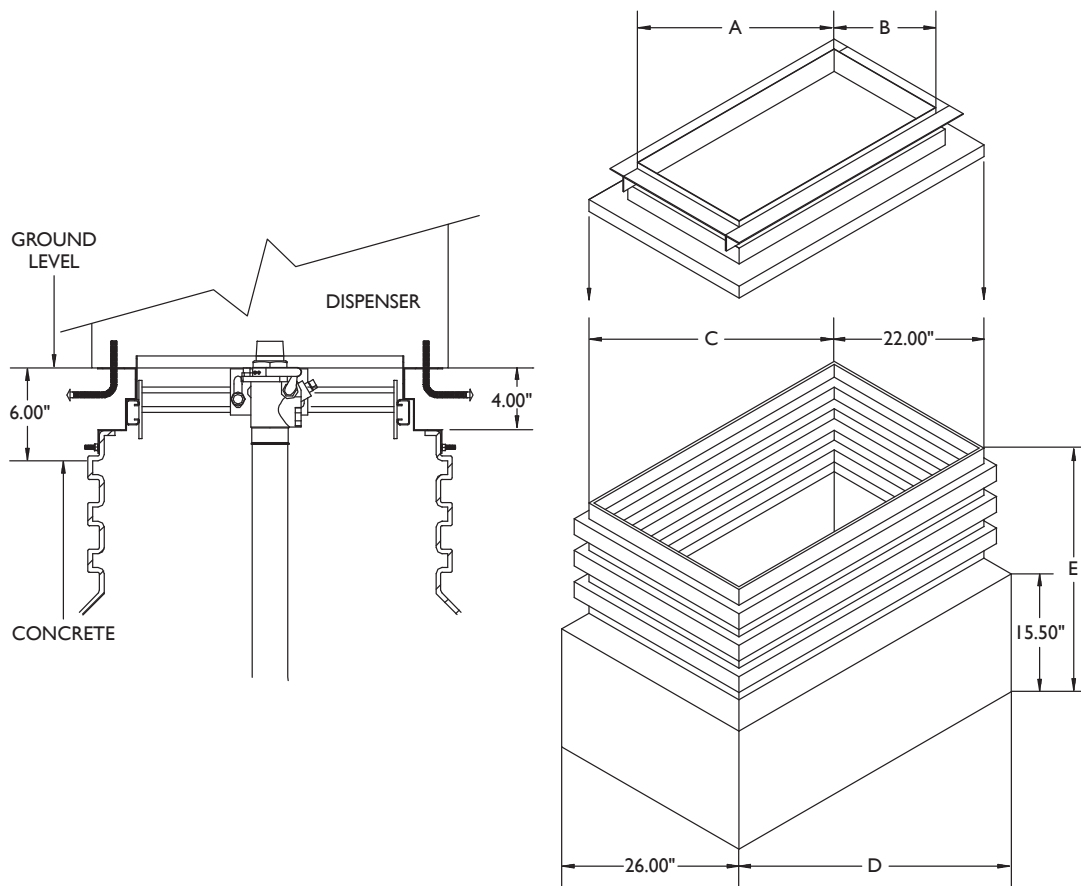


Model	SBK #
LM(M/D)-1410	SBK-2
LM(M/D)-1913-T	SBK-25
LM(M/D)-2010	SBK-2
LM(M/D)-2018	SBK-3
LM(M/D)-2313-T	SBK-25
LM(M/D)-2407	SBK-1
LM(M/D)-2715	SBK-3
LM(M/D)-2811	SBK-25
LM(M/D)-2915	SBK-3
LM(M/D)-3610	SBK-2
LM(M/D)-3617	SBK-3
Conduitless	LM(M/D) - 3914-36-W
Conduitless	LM(M/D) - 3914-36-W
LM(M/D)-4018	SBK-3
LM(M/D)-4111	SBK-25
LM(M/D)-4115	SBK-3

Notes: Medium and deep models include base and top. Stabilizer bar kits (SBK) sold separately.

For "M/D" in part number use "M" for medium or "D" for deep when ordering.

*Contact Customer Service for availability and lead times.

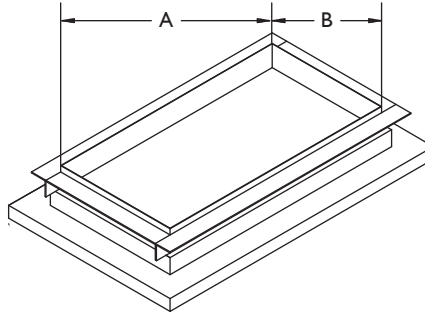


Model	A	B	C	D	E	
					Medium (M)	Deep (D)
LM(M/D)-1410	13.50"	9.75"	24.00"	28.00"	28.00"	43.00"
LM(M/D)-1913-T	19.00"	12.00"	24.00"	28.00"	28.00"	43.00"
LM(M/D)-2010	20.50"	10.00"	24.00"	28.00"	28.00"	43.00"
LM(M/D)-2018	20.81"	18.31"	24.00"	28.00"	28.00"	43.00"
LM(M/D)-2313-T	23.00"	12.00"	36.00"	40.00"	28.00"	43.00"
LM(M/D)-2407	23.75"	7.50"	36.00"	40.00"	28.00"	43.00"
LM(M/D)-2715	27.00"	15.00"	36.00"	40.00"	28.00"	43.00"
LM(M/D)-2811	28.50"	11.00"	36.00"	40.00"	28.00"	43.00"
LM(M/D)-2915	29.75"	15.75"	36.00"	40.00"	28.00"	43.00"
LM(M/D)-3610	36.00"	10.25"	48.00"	52.00"	28.00"	43.00"
LM(M/D)-3617 Conduitless	36.00"	17.25"	36.00"	40.00"	28.00"	43.00"
LM(M/D)-3914-36-W Conduitless	38.75"	14.00"	36.00"	40.00"	28.00"	43.00"
LM(M/D)-3914	38.75"	14.00"	48.00"	52.00"	28.00"	43.00"
LM(M/D)-4018	39.75"	17.75"	48.00"	52.00"	28.00"	43.00"
LM(M/D)-4111	41.50"	11.00"	48.00"	52.00"	28.00"	43.00"
LM(M/D)-4115	41.50"	15.75"	48.00"	52.00"	28.00"	43.00"

Note: For "M/D" in part number use "M" for medium or "D" for deep when ordering.

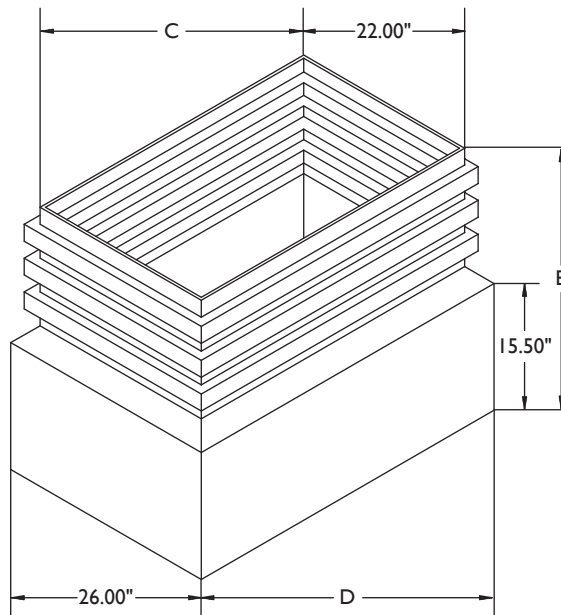
Large Mouth Dispenser Sump Tops

Model	A	B	Sump Base Size - LB(X)
LMT-1410	13.50"	9.75"	2400
LMT-1913-T	19.00"	12.00"	2400
LMT-2010	20.50"	10.00"	2400
LMT-2018	20.81"	18.31"	2400
LMT-2313-T	23.00"	12.00"	3600
LMT-2407	23.75"	7.50"	3600
LMT-2715	27.00"	15.00"	3600
LMT-2811	28.50"	11.00"	3600
LMT-2915	29.75"	15.75"	3600
LMT-3610	36.00"	10.25"	4800
LMT-3617-36 Conduitless	36.00"	17.25"	3600
LMT-3914-36-W Conduitless	38.75"	14.00"	3600
LMT-3914	38.75"	14.00"	4800
LMT-4018	39.75"	17.75"	4800
LMT-4111	41.50"	11.00"	4800
LMT-4115	41.50"	15.75"	4800



Large Mouth Dispenser Sump Bases

Model	C	D	E
LBM-2400	24.00"	28.00"	28.00"
LBM-3600	36.00"	40.00"	28.00"
LBM-4800	48.00"	52.00"	28.00"
LBD-2400	24.00"	28.00"	43.00"
LBD-3600	36.00"	40.00"	43.00"
LBD-4800	48.00"	52.00"	43.00"



Large Mouth Dispenser Sumps Directory

The large mouth sump employs a 22" wide base opening with lengths of 24", 36" and 48". A removable powder coated steel cover comes in a variety of different configurations to match nearly all popular dispensers. Height modifications can be made in the field by trimming the base with standard tools.

Both styles of APT dispenser sumps have bases constructed of tough high-density polyethylene and brackets for mounting impact valve stabilizer bar kits. One SBK is required for each pipe that enters the dispenser. Refer to page 48 for ordering information.

Bennett®

Series	Model	Polyethylene Sump	SBK #
Horizon/Big Squirt	2200 Series	LM(X)-2010	SBK-2
Horizon	2300 Series	LM(X)-2811	SBK-25
	2400 Series	LM(X)-4111	SBK-25
	3000 Series	LM(X)-1410	SBK-2
	6000 Series	LM(X)-1410	SBK-2
	3000 Series	LM(X)-2313-T	SBK-25

Gasboy™

Series	Model	Polyethylene Sump	SBK #
	215A	LM(X)-1410	SBK-2
	216A	LM(X)-1410	SBK-2
	9140A	LM(X)-2313T	SBK-25
	9140AX	LM(X)-2313T	SBK-25
	9152A	LM(X)-1913T	SBK-25
	9152ATW1	LM(X)-2313T	SBK-25
	9152AX	LM(X)-1913T	SBK-25
	9152AXTW1	LM(X)-2313T	SBK-25
	9152AXTW2	LM(X)-2313T	SBK-25
	9153A	LM(X)-1913T	SBK-25
	9153AHC	LM(X)-1913T	SBK-25
	9153ATW1M	LM(X)-2313T	SBK-25
	9153ATW2	LM(X)-2313T	SBK-25
	9153AXTW2	LM(X)-2313T	SBK-25
	9850XTW2	LM(X)-2313T	SBK-25
	9852ATW2	LM(X)-2313T	SBK-25
	9852AXTW2	LM(X)-2313T	SBK-25
	9853ATW2	LM(X)-2313T	SBK-25
	9853AXTW2	LM(X)-2313T	SBK-25
	9153AX	LM(X)-1913T	SBK-25
	9153AXTW1	LM(X)-2313T	SBK-25
	9753EXIL	LM(X)-1913T	SBK-25
	9840A	LM(X)-2313T	SBK-25
	9840AX	LM(X)-2313T	SBK-25
	9850A	LM(X)-1913T	SBK-25
	9850AX	LM(X)-1913T	SBK-25
	9850AXTW1	LM(X)-2313T	SBK-25
	9852A	LM(X)-1913T	SBK-25
	9852ATW1	LM(X)-2313T	SBK-25
	9852AX	LM(X)-1913T	SBK-25
	9852AXTW1	LM(X)-2313T	SBK-25
	9853A	LM(X)-1913T	SBK-25
	9853AHC	LM(X)-1913T	SBK-25
	9853ATW1M	LM(X)-2313T	SBK-25

Gasboy™ (cont.)

Series	Model	Polyethylene Sump	SBK #
	9853AX	LM(X)-1913T	SBK-25
	9853AXTWI	LM(X)-2313T	SBK-25
	ATLAS	LM(X)-2313T	SBK-25

Gilbarco™

Series	Model	Polyethylene Sump	SBK #
Advantage MPD		LM(X)-4115	SBK-3
Advantage Quad/Dual		LM(X)-2915	SBK-3
Advantage Single Hose	B71XXX	LM(X)-4115	SBK-3
Advantage Six Hose		LM(X)-4115	SBK-3
Advantage X+0 (36" frame)	B7AXXX	LM(X)-2915	SBK-3
Advantage X+0, X+1 (48" frame)	B7XXXX	LM(X)-4115	SBK-3
Commercial High Gallonage		LM(X)-2010	SBK-2
Commercial Ultra High Gallonage		LM(X)-2010	SBK-2
Eclipse	All	LM(X)-2010t	SBK-25
Encore™ (40" sump length)	All	LM(X)-3617	SBK-3
Encore™ Super Hi	All	LM(X)-3617	SBK-3
Encore™ Ultra Hi	All	LM(X)-3617	SBK-3
Highhose MPD-X		LM(X)-3610	SBK-2
Highhose Salesmaker-2H	AM62XXA	LM(X)-2010	SBK-2
Highhose Salesmaker 4/4A		LM(X)-2313T	SBK-25
Highhose Salesmaker Pro	ABXXXXA	LM(X)-2313T	SBK-25
Highline 111B 21" frame	AC6921A	LM(X)-2010	SBK-2
Highline 111B 27" frame	AC3921A	LM(X)-2010	SBK-2
Highline High Gallonage	AC6942A	LM(X)-2010	SBK-2
Highline Ultra Hi Gallonage	AC6992A-MSI	LM(X)-2010	SBK-2
Highline Salesmaker 21" frame	AC1921A-SI	LM(X)-1410	SBK-2
Highline Salesmaker 27" frame	AC1921A-SI	LM(X)-1410	SBK-2
Highline Satellite	AC-4093-SI	LM(X)-2010	SBK-2
	AC-6093-SI	LM(X)-2010	SBK-2
Highline Super Hi	AC4982A-MSI	LM(X)-2010	SBK-2
	AC7982A-MSI	LM(X)-2010	SBK-2
Highline Ultra Hi	AC4992A-MSI	LM(X)-2010	SBK-2
	AC7992A-MSI	LM(X)-2010	SBK-2
Legacy	All	LM(X)-2407	SBK-1
Trimline 21" frame	252-0	LM(X)-2010	SBK-2
Trimline 27" frame	252-0	LM(X)-2010	SBK-2

RDR

Series	Model	Polyethylene Sump	SBK #
RDR		LM(X)-2018	SBK-3

Schlumberger

Series	Model	Polyethylene Sump	SBK #
Centurion Narrow	XXXXX1	LM(X)-2915	SBK-3
Centurion Wide	XXXXX2	LM(X)-4115	SBK-3
	435, 440, 640, 650	LM(X)-1913T	SBK-25
2300 Series		LM(X)-2811	SBK-25
2400 Series		LM(X)-4111	SBK-25

Tokheim™

Series	Model	Polyethylene Sump	SBK #
	162	LM(X)-1913T	SBK-25
	220	LM(X)-1410	SBK-2
	222	LM(X)-1410	SBK-2
	262	LM(X)-1913T	SBK-25
	311	LM(X)-2407	SBK-3
	312	LM(X)-2407	SBK-3
	322	LM(X)-2407	SBK-3
	324	LM(X)-2407	SBK-3
	330	LM(X)-1410	SBK-2
	333	LM(X)-1410	SBK-2
	411	LM(X)-4018	SBK-3
	413	LM(X)-4018	SBK-3
	414	LM(X)-4018	SBK-3
	422	LM(X)-4018	SBK-3
	424	LM(X)-4018	SBK-3
	426	LM(X)-4018	SBK-3
	428	LM(X)-4018	SBK-3
	785	LM(X)-1913T	SBK-25
	793	LM(X)-1410	SBK-2
	1248	LM(X)-1913T	SBK-25
	1250	LM(X)-1913T	SBK-25
Centurion Narrow	XXXXX1	LM(X)-2915	SBK-3
Centurion Wide	XXXXX2	LM(X)-4115	SBK-3

Universal

Series	Model	Polyethylene Sump	SBK #
Univision	UV-9100	LM(X)-2811	SBK-25
	UV-9200	LM(X)-2811	SBK-25
	UV-9300	LM(X)-4111	SBK-25
	UV-9400	LM(X)-4111	SBK-25
3000 Narrow Base	All	LM(X)-1410	SBK-2
3000 Wide Base	All	LM(X)-1410	SBK-2
3500 Narrow Base	All	LM(X)-1410	SBK-2
3500 Wide Base	All	LM(X)-1410	SBK-2
4000 Narrow Base	All	LM(X)-1410	SBK-2
4000 Wide Base	All	LM(X)-1410	SBK-2
8000	All	LM(X)-3914	SBK-25

Wayne™

Series	Model	Polyethylene Sump	SBK #
	DS/375/19	LM(X)-2407	SBK-2
	DS/585/19E	LM(X)-2407	SBK-2
	DS/585/EG	LM(X)-2407	SBK-2
V289 Vista™ Series		LM(X)-2811	SBK-25
V387 Vista™ Series		LM(X)-2811	SBK-25
V388 Vista™ Series		LM(X)-2811	SBK-25
V389 Vista™ Series		LM(X)-2811	SBK-25
V390 Vista™ Series		LM(X)-4111	SBK-25
V395 Vista™ Series		LM(X)-4111	SBK-25
V399 Vista™ Series		LM(X)-4111	SBK-25
V490 Vista™ Series		LM(X)-4111	SBK-25
V580 Vista™ Series		LM(X)-2811	SBK-25
V585 Vista™ Series		LM(X)-2811	SBK-25
V590 Vista™ Series		LM(X)-4111	SBK-25
V595 Vista™ Series		LM(X)-4111	SBK-25
350 Series		LM(X)-2407	SBK-2
360 Series		LM(X)-2407	SBK-2
370 Series		LM(X)-2407	SBK-2
387 Series		LM(X)-2407	SBK-2
389 Series		LM(X)-2407	SBK-2
390 Series		LM(X)-4111	SBK-25
490 Series		LM(X)-4111	SBK-25
Global (GXXXX) Series		LM(X)-2715	SBK-3
Ovation™ Series	All	LM(X)-3914/LMM(3914-36)	SBK-25
Reliance		LM(X)-2715	SBK-3
HS3/V387		LM(X)-2715	SBK-3

Advantages

- Powder coated steel frame.
- Dispenser frame factory assembled and watertight sealed.
- Water dam frame design prevents surface water from entering sump.
- Strong three-layer hand layup FRP.
- Sumps include dispenser frames and mounting hardware.
- Stackable for reduced freight and storage space (single wall only).
- Double wall sumps are available for hydrostatic (brine) or vacuum monitoring and are shipped under vacuum with factory installed vacuum gauge.



Model Number Reference Chart

XXX - XX XX - XX
 I 2A 2B 3

I = Sump Type & Depth

LMM = Large mouth, medium bury

2 = Dispenser Frame Size

2A = A length

2B = B length

3 = Single or Double Wall

S = Single wall

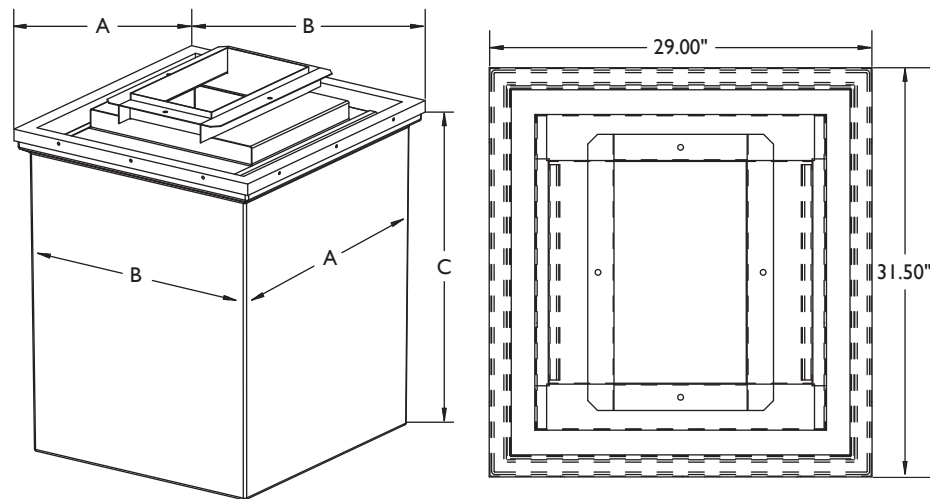
D = Double wall

Single and Double Wall Fiberglass Large Mouth Dispenser Sumps

Designed for the installer, single and double wall fiberglass large mouth dispenser sumps provide easy access to piping connections. The dispenser frame and top are factory assembled and field glassed onto the sump after piping connections are completed. Stabilizer bar kits (SBK) for mounting emergency shear valves are track mount designed and adjust in all planes for proper alignment of the shear valve to the dispenser piping.

Note: Consult customer service to verify lead time on all double wall dispenser sumps. Two-week lead time on all fiberglass parts.

2400 Series



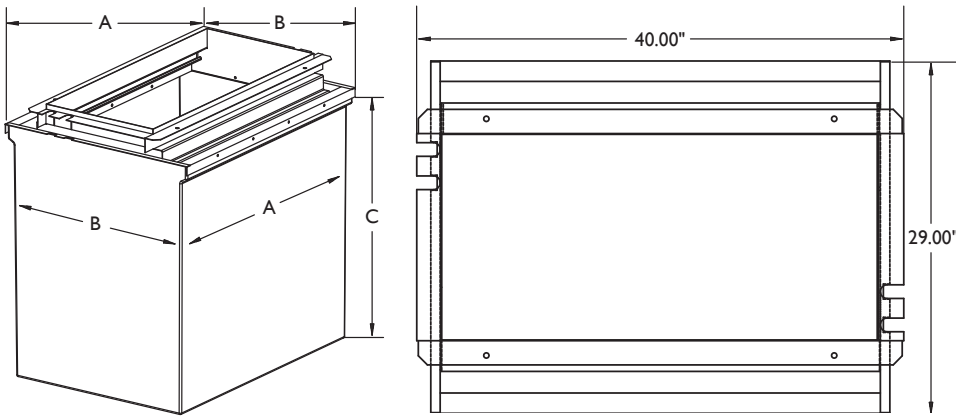
Model	A	B	C	SBK #
LMM-1410-X	28.00"	26.00"	33.50"	SBK-2
LMM-1913-T-X	28.00"	26.00"	33.50"	SBK-25
LMM-2010-X	28.00"	26.00"	33.50"	SBK-2
LMM-2018-X	28.00"	26.00"	33.50"	SBK-3

Model	Description
HM-KIT	Hydrostatic monitoring system for dispenser sumps
602-284-004	Drop down frame 2400 Series

Note: Fiberglass models include base and top.

Note: Fiberglass orders cannot be cancelled.

3600 Series

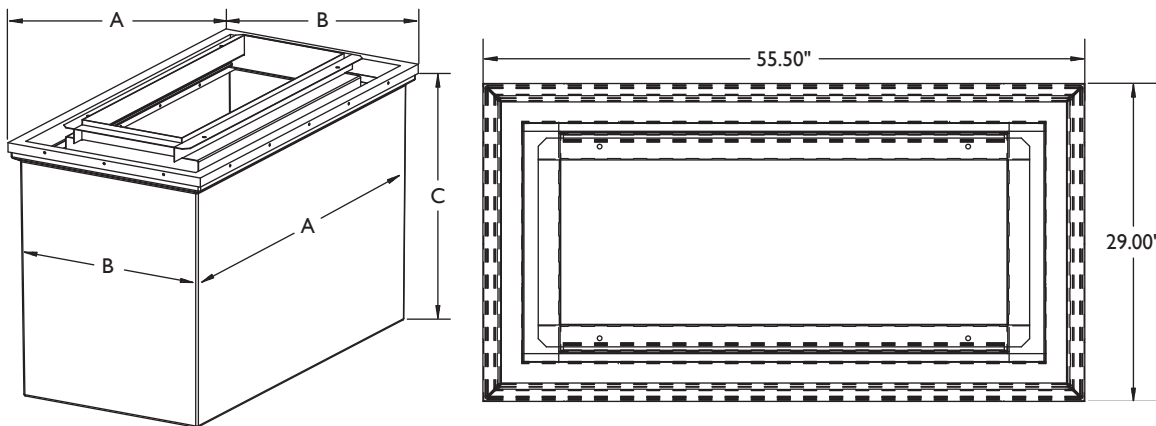


Model	A	B	C	SBK #
LMM-2313-T-X	36.00"	26.00"	33.50"	SBK-25
LMM-2407-X	36.00"	26.00"	33.50"	SBK-1
LMM-2715-X	36.00"	26.00"	33.50"	SBK-3
LMM-2811-X	36.00"	26.00"	33.50"	SBK-25
LMM-2915-X	36.00"	26.00"	33.50"	SBK-3
LMM-3617-X Conduitless	36.00"	26.00"	33.50"	SBK-3
LMM-3914-36-W-X Conduitless	36.00"	26.00"	33.50"	SBK-25

Model	Description
HM-KIT	Hydrostatic monitoring system for dispenser sumps
602-270-004	Drop down frame 3600 Series

Note: Fiberglass models include base and top.

4800 Series



Model	A	B	C	SBK #
LMM-3610-X	52.00"	26.00"	33.50"	SBK-2
LMM-3914-X	52.00"	26.00"	33.50"	SBK-25
LMM-4018-X	52.00"	26.00"	33.50"	SBK-3
LMM-4111-X	52.00"	26.00"	33.50"	SBK-25
LMM-4115-X	52.00"	26.00"	33.50"	SBK-3

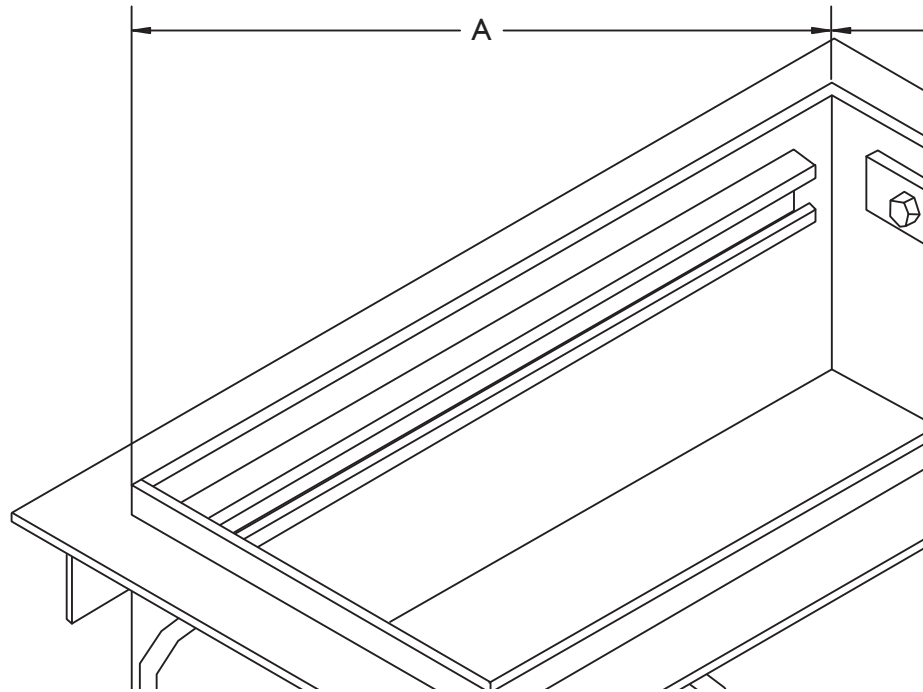
Model	Description
HM-KIT	Hydrostatic monitoring system for dispenser sumps
602-271-004	Drop down frame 4800 Series

Note: Fiberglass models include base and top.

Note: Fiberglass orders cannot be cancelled.

Classic Dispenser Pan Sumps

Dispenser pans are an extremely cost-effective alternative where shallow burial is permitted. Each model of dispenser pan is furnished with concrete anchor bolts and utilizes galvanized steel top frames for anchoring the dispenser.



Model	Description	A	B	C	SBK #
DP-1816	Dispenser pan, 13 $\frac{3}{4}$ " \times 11 $\frac{1}{4}$ "	13.75"	11.25"	10.25"	SBK-2
DP-2014	Dispenser pan, 16 $\frac{1}{2}$ " \times 10 $\frac{1}{2}$ "	16.50"	10.50"	8.75"	SBK-2
DP-2816	Dispenser pan, 23" \times 11 $\frac{3}{4}$ "	23.00"	11.75"	9.00"	SBK-2
DP-4721	Dispenser pan, 42" \times 16"	42.00"	16.00"	8.75"	SBK-3

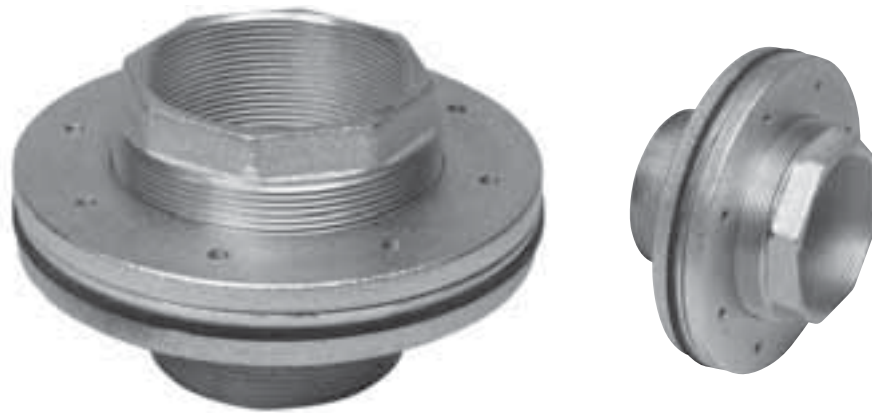
Tank Fitting Adapters

APT tank fitting adapters provide a high quality, cost-effective way to mount tank sumps to a standard 4" NPT tank opening or 6" NPT tank opening. The bright zinc plated cast iron construction is not only strong, but corrosion-resistant.

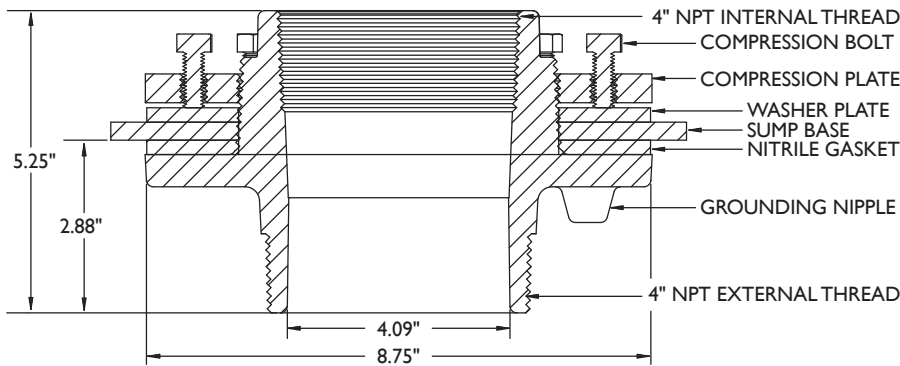
The TFA-400-II and TFA-600 are easy to install and their single hole style mounting allows sumps to be rotated to properly align pipe entries.

Advantages

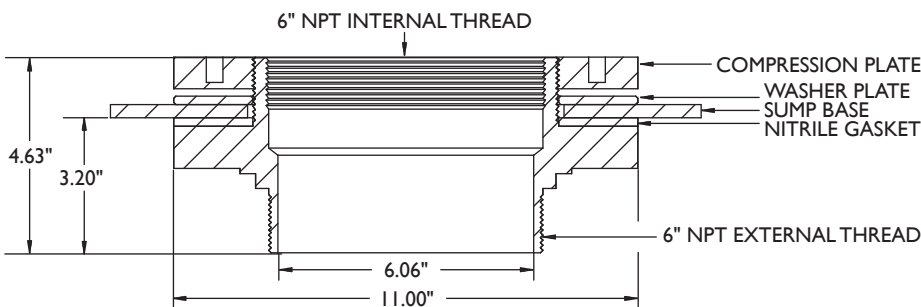
- Easily installs with standard tools.
- TFA-400-II fits onto a standard 4" NPT tank riser pipe with 4" NPT internal threads for mounting a submersible pump.
- TFA-600 fits onto a standard 6" NPT tank riser pipe with 6" NPT internal threads for mounting a submersible pump.
- Installs through one hole in the sump base, permitting the sump to be rotated on the adapter to properly align pipe penetrations.
- Compression ring design allows installation with a solid gasket ring to ensure a watertight seal and environmental security.



TFA-400-II Tank Fitting Adapter



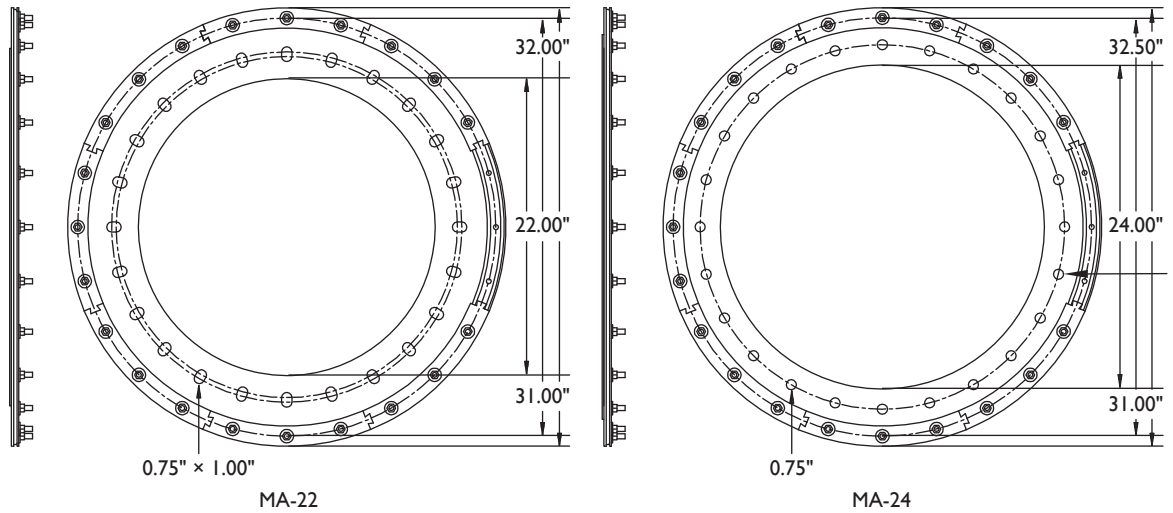
TFA-600 Tank Fitting Adapter



Model	Description
TFA-400-II	Tank fitting adapter generation II, 4" NPT
TFA-600	Tank fitting adapter, 6" NPT
411-105-02	Compression plate for TFA-400-II (replacement)
420-200-02	Plate washer TFA-400-II (replacement)
446-100-02	Gasket for TFA-400-II

Tank Manway Adapters

APT tank manway adapters permit tank sumps to be mounted directly to a tank's 22" or 24" manway.



Model	Description
MA-22	22" tank manway adapter
MA-24	24" tank manway adapter

Stabilizer Bar Kits

Model	Description
SBK-1	Stabilizer bar kit 1
SBK-2	Stabilizer bar kit 2
SBK-3	Stabilizer bar kit 3
SBK-25	Stabilizer bar kit 25

Installation Tools



Deburring Tool, DBT-100



SLP-1000



Double Wall Cutting Tool

Part Number	Description
BPT-100	Bypass tube, 30" length
BOS-103	Bostik 1100, 10.3 ounce tube (white)
BTT-004	Bulkhead tightening tool for 4 stud bulkhead boots
BTT-008	Bulkhead tightening tool for 8 stud bulkhead boots
DBT-100	Deburring tool
DWC-XP-100	Double wall cutting tool, 1"
DWC-XP-150	Double wall cutting tool, 1½"
DWC-XP-175	Double wall cutting tool, 1¾"
DWC-XP-200	Double wall cutting tool, 2"
DWC-XP-KIT	Double wall cutting tool handle replacement kit
SDT-010	Steel drill template for 4, 8 and 10 stud entry boots
SLP-1000	Sump lid puller for TS-4542 and TS-4736 snap-on lid
TRK-100	Air test regulator for APT secondary contained piping
STK-1	Single line secondary test system
STK-2	Dual line secondary test system
88530002	Replacement razor blade

Swage Kits

Model	Description
SWK-150	Swage tool kit, 1½"
SWK-175	Swage tool kit, 1¾"
SWK-200	Swage tool kit, 2"

P-Series Clamshell Swivel Pipe Fittings

For APT P-Series replacement parts, please contact Franklin Fueling Systems Customer Service for price and availability.

Advantages

- The bulkhead tightening tools speed the installation of bulkhead boots while providing a more even distribution of torque than standard spanner wrenches.
- The reusable steel drill template is a durable, faster alternative to the paper templates provided with each entry boot.
- The air test regulator provides a fast, accurate means of testing the secondary layer of APT pipe integrity prior to charging with product.
- The double wall cutter simplifies secondary jacket removal without causing damage to the primary pipe.
- All double wall cutters are plated blue along with the letters "XP" stamped on the body for easy identification.



Advantages

- UL971 approved for all four test fuel categories including:
 - Motor vehicle fuels typically found in consumer dispensing facilities like gasoline or diesel including blended fuels with maximum 15% MTBE, 15% Methanol or 30% Ethanol.
 - Concentrated fuels such as alternate un-blended fuels containing up to 100% concentrations of Toluene, Methanol or Ethanol.
 - High blend fuels with higher than normal gasoline blends with maximum 50% Methanol or 50% Ethanol.
 - Aviation and marine specialty fuels containing up to 100% kerosene or leaded gasoline.
- Uses highly efficient electrofusion welding system which connects the pipe and fittings to create a seamless direct burial pipework system.
- Can be installed with a duct.
- Flexible enough to coil and bend like flexible pipe but rigid enough to be used in place of fiberglass pipe for vapor recovery.
- CARB approved for vapor recovery applications.

UPP Piping

UPP double wall piping provides a direct bury or retrofit solution for product, vapor and vent piping applications which require secondary containment protection. UPP double wall pipe is composed of an HDPE primary pipe with nylon fuel barrier lining enclosed within a larger-diameter ribbed HDPE secondary pipe with nylon fuel barrier lining. UPP single wall pipe is composed of an HDPE pipe with a nylon fuel barrier lining and is ideal for vent and vapor applications. This semi-rigid pipe system is flexible enough to bend on site without the need for elbow joints but is also rigid enough to be CARB certified for vapor recovery applications. The outer HDPE construction of UPP pipe allows all connections to be joined using the electrofusion welding process; providing a solid, single continuous system of pipework from the underground tank sump to the dispenser sump. UPP piping is available in both stick lengths and coils.



Single Wall and Double Wall Pipe

Model	Description	Unit
001.063.050.028PS		28' stick
001.063.050.033PS	1 1/2" double wall pipe	33' stick
001.063.050.165PS		165' coil
001.075.063.028PS		28' stick
001.075.063.033PS		33' stick
001.075.063.038PS	2" double wall pipe	38' stick
001.075.063.100PS		100' coil
001.075.063.165PS		165' coil
001.063.019V	2" single wall pipe	19' stick
001.110.090.019PS		19' stick
001.110.090.038PS*	3" double wall pipe	38' stick
001.090.019V		19' stick
001.090.038V*	3" single wall pipe	38' stick
001.125.110.019PS	4" double wall pipe	19' stick

*Please contact customer service for lead times and product availability.

4" Ducting

Model	Description
00-110-050-DUCT	4" UPP flexible ducting (165' coil)

UPP Fittings

The UPP pipework system includes a wide range of primary and secondary fittings used in conjunction with UPP pipe and the electrofusion welding process to create a single continuous system of pipework from the underground tank sump to the dispenser sump. The offering includes welding couplers, electrofusion fittings with integral welding couplers, plain fittings and reducer fittings available in 45° and 90° elbows as well as tees to provide easy pipe run changes of direction. At the heart of the UPP pipework system is the UPP welding coupler, used to seamlessly join pipe runs. UPP electrofusion fittings feature integrated welding sockets built into the tee or elbow which quickly and easily facilitate pipe run change of directions. UPP plain fittings, used in conjunction with welding couplers or electrofusion fittings, allow a greater degree of flexibility and control when designing and laying out pipe pipework systems. Reducer fittings allow for easy transition from a larger pipe diameter down to a smaller diameter.



Advantages

- Electrofusion fittings feature integrated welding sockets which allow them to be welded directly to UPP pipe.
- Plain fittings provide maximum flexibility and control when designing and laying out pipework assemblies.
- Both single wall and double wall fittings available in a variety of diameters and configurations for efficient site design and installation.

Primary Welding Coupler Fittings

Model	Description
02-50-U	1 1/2" primary welding coupler
02-050-L-U	1 1/2" primary welding coupler, long
02-63-U	2" primary welding coupler
02-063-L-U	2" primary welding coupler, long
02-90-U	3" primary welding coupler
02-110-U	4" primary welding coupler



Long Coupler

Primary Electrofusion 90° Elbow Fittings

Model	Description
03-050-EIF-U	1 1/2" primary electrofusion 90° elbow fitting
03-063-EIF-U	2" primary electrofusion 90° elbow fitting
03-090-EIF-U	3" primary electrofusion 90° elbow fitting
03-110-EIF-U	4" primary electrofusion 90° elbow fitting

Note: Primary electrofusion fittings feature integrated welding sockets which allow the fitting to be directly welded to single wall pipe.



Primary Plain 90° Elbow Fittings

Model	Description
03-050-L	1 1/2" primary plain 90° elbow fitting
03-063-L	2" primary plain 90° elbow fitting
03-090-L	3" primary plain 90° elbow fitting
03-110-LS-4	4" primary plain 90° elbow fitting

Note: Primary plain fittings require primary welding couplers to be welded to single wall pipe.



Primary Electrofusion 45° Elbow Fittings

Model	Description
04-050-EIF-U	1 1/2" primary electrofusion 45° elbow fitting
04-063-EIF-U	2" primary electrofusion 45° elbow fitting
04-090-EIF-U	3" primary electrofusion 45° elbow fitting
04-110-EIF-U	4" primary electrofusion 45° elbow fitting

Note: Primary electrofusion fittings feature integrated welding sockets which allow the fitting to be directly welded to single wall pipe.



Primary Plain 45° Elbow Fittings

Model	Description
04-050-L	1 1/2" primary plain 45° elbow fitting
04-063-L	2" primary plain elbow 45° fitting
04-090-LS-4-U	3" primary plain elbow 45° fitting
04-110-LS-4-U	4" primary plain elbow 45° fitting

Note: Primary plain fittings require primary welding couplers to be welded to single wall pipe.



Primary Electrofusion Tee Fittings

Model	Description
08-050-EIF-U	1 1/2" single wall electrofusion tee fitting
08-063-EIF-U	2" single wall electrofusion tee fitting
08-090-EIF-U	3" single wall electrofusion tee fitting
08-110-EIF-U	4" single wall electrofusion tee fitting

Note: Primary electrofusion fittings feature integrated welding sockets which allow the fitting to be directly welded to single wall pipe. Riser spigot requires primary welding coupler to be welded to single wall pipe.



Primary Plain Tee Fittings

Model	Description
08-050-L	1 1/2" primary plain tee fitting
08-063-L	2" primary plain tee fitting
08-090-L	3" primary plain tee fitting

Note: Primary plain fittings require primary welding couplers to be welded to single wall pipe.



Primary Electrofusion Reducer Fittings

Model	Description
09-090-063EIF-U	3" x 2" primary electrofusion reducer fitting
09-110-090EIF-U	4" x 3" primary electrofusion reducer fitting

Note: Primary electrofusion fittings feature integrated welding sockets which allow the fitting to be directly welded to single wall pipe.



Primary Plain Reducer Fittings

Model	Description
09-063-050-L	2" x 1 1/2" primary plain reducer fitting
09-090-063-L-U	3" x 2" primary plain reducer fitting
09-110-063-L-U	4" x 2" primary plain reducer fitting

Note: Primary plain fittings require primary welding couplers to be welded to single wall pipe.



Primary Plain Reducer Tee

Model	Description
08-090-063-U	3" x 3" x 2" primary plain reducing tee

Note: Primary plain fittings require primary welding couplers to be welded to single wall pipe.



Primary Plugs

Model	Description
10-050-L	1 1/2" primary plug
10-063-L-U	2" primary plug
10-090-L-U	3" primary plug
10-110-L*	4" primary plug

*Please contact customer service for lead times and product availability.



Secondary Welding Coupler Fittings

Model	Description
02-63SC-U	1 1/2" secondary welding coupler
02-75SC-U	2" secondary welding coupler
02-110SC-U	3" secondary welding coupler
02-125SC-U	4" secondary welding coupler
02-160SC-U	6" secondary welding coupler
02.200(SC)-I	8" secondary welding coupler



Coaxial 90° Elbow Fittings

Model	Description
03-110-63-SC-U	4"/2" coaxial 90° elbow fitting

Note: Coaxial fitting requires both primary and secondary welding couplers to be welded to double wall piping.





Coaxial 90° Elbow Fitting with Extended Primary

Model	Description
03-110-63SC-L-U	4 1/2" coaxial 90° elbow fitting with extended primary

Note: Ideal for end-of-run-riser applications. Coaxial fittings require both primary and secondary welding couplers to be welded to double wall piping.

Coaxial Tee Fitting with Extended Primary

Model	Description
08-110-63SC-L-U	4 1/2" coaxial tee fitting with extended primary

Note: Ideal for end-of-run-riser applications. Coaxial fittings require both primary and secondary welding couplers to be welded to double wall piping.

Secondary 90° Elbow Fittings

For use with lined primary 90° elbow fittings to build double wall 90° joints.

Model	Description
03.110(SC)	4" secondary 90° elbow fitting
03.160(SC)	6" secondary 90° elbow fitting

Note: Secondary fittings require secondary welding couplers to be welded to double wall piping.

Lined Primary 90° Elbow Fittings

For use with secondary 90° elbow fittings to build double wall 90° joints.

Model	Description
03-090-LS-4-U	3" lined primary 90° elbow fitting
03-110-LS-4-U	4" lined primary 90° elbow fitting

Note: Lined primary fittings require primary welding couplers to be welded to single wall piping.

Secondary 45° Elbow Fittings

For use with lined primary 45° elbow fittings to build double wall 45° joints.

Model	Description
04.110(SC)	4" secondary 45° elbow fitting
04.160(SC)	6" secondary 45° elbow fitting

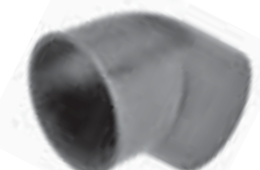
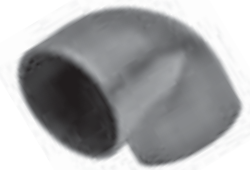
Note: Secondary fittings require secondary welding couplers to be welded to double wall piping.

Lined Primary 45° Elbow Fittings

For use with secondary 45° elbow fittings to build double wall 45° joints.

Model	Description
04-090-LS-4-U	3" lined primary 45° elbow fitting
04-110-LS-4-U	4" lined primary 45° elbow fitting

Note: Lined primary fittings require primary welding couplers to be welded to single wall piping.



Secondary Tee Fittings

For use with primary tee fittings to build double wall tee joints.

Model	Description
08.110(SC)	4" secondary tee fitting
08.160(SC)	6" secondary tee fitting
08.200(SC)	8" secondary tee fitting

Note: Secondary fittings require secondary welding couplers to be welded to double wall piping.

Primary Tee Fittings

For use with secondary tee fittings to build double wall tee joints.

Model	Description
08.90-L-1	3" primary tee fitting
08-110-L-U	4" primary tee fitting

Note: Double wall lined primary fittings require single wall welding couplers to be welded to single wall piping.

Secondary Electrofusion Reducer Fittings

Model	Description
49-063-050-U	1 1/2" secondary electrofusion reducer fitting
49-063-050TP-U	1 1/2" secondary electrofusion reducer fitting with test port
49-075-063-1-U	2" secondary electrofusion reducer fitting
49-075-063TPI-U	2" secondary electrofusion reducer fitting with test port
49-110-063SC-U	4" x 1 1/2" secondary electrofusion reducer fitting
49-110-075SC-U	4" x 2" secondary electrofusion reducer fitting
49-110-090-U	4" x 3" secondary electrofusion reducer fitting
49-110-090TP-U	4" x 3" secondary electrofusion reducer fitting with test port
49-125-110-U	5" x 4" secondary electrofusion reducer fitting
49-125-110TP-U	5" x 4" secondary electrofusion reducer fitting with test port

Note: Secondary electrofusion reducer fittings feature integrated welding sockets which allow the fitting to be directly welded to double wall pipe.

Secondary Plain Reducer Fittings

Model	Description
09-110-75SC-U	4" x 2" secondary plain reducer fitting
09.160.110(SC)	6" x 4" secondary plain reducer fitting
09.160.125(SC)	6" x 5" secondary plain reducer fitting
09.200.160(SC)	8" x 6" secondary plain reducer fitting
01.110(SC)(0.3)	Spool piece

Note: Secondary plain reducer fittings require secondary welding couplers to be welded to double wall pipe.

Test Port and Connection Tube

Model	Description
TPL	1/4" test port for entry fittings
LDT60-1	1/4" leak detection connection tube, 24"

Note: For use with secondary fittings with test ports.

Secondary Plugs

Model	Description
10.75(SC)	2" secondary plug
10.110(SC)	4" secondary plug
10.125(SC)	5" secondary plug



Fitting With Test Port





Advantages

- Termination fittings provide the transition from pipework to the dispenser or turbine sump fittings.
- Small and light to reduce the amount of space required to transition UPP pipework runs inside of sumps ensuring quick and easy installation.
- Quick release termination fittings are ideal for tight spaces as they easily connect to flexible connectors inside sumps without the need for a wrench.

UPP Termination Fittings

The UPP termination fittings allow you to easily terminate UPP pipework at tanks, dispensers, vent stack or spill containers using the electrofusion welding process to connect the fittings directly to UPP pipework. UPP termination fittings are available in both male and female and come in a variety of thread sizes and pipe diameter sizes to ensure easy connection with any size installation. The quick release termination fittings allow for maximum ease of connection in confined spaces. The flange style coupling makes installation simple with no wrenches required. The compactness of the fitting itself makes it ideal for even the smallest of work spaces. The quick release termination fittings also allow for some assemblies to be removed from the pipework system without having to cut pipe.



Male Threaded Termination Fittings

Model	Description
81-050NPT-U	1 1/2" (pipe) x 1 1/2" NPT male threaded termination fitting
81-063-1NPT-U	2" (pipe) x 1 1/2" NPT male threaded termination fitting
81-063NPT-U	2" (pipe) x 2" NPT male threaded termination fitting
81-090NPT-U	3" (pipe) x 3" NPT male threaded termination fitting
81-110NPT-U	4" (pipe) x 4" NPT male threaded termination fitting



Female Threaded Termination Fittings

Model	Description
82-050NPT-U	1 1/2" (pipe) x 1 1/2" NPT female threaded termination fitting
82-063-1NPT-U	2" (pipe) x 1 1/2" NPT female threaded termination fitting
82-063NPT-U	2" (pipe) x 2" NPT female threaded termination fitting
82-090NPT-U	3" (pipe) x 3" NPT female threaded termination fitting
82-110NPT-U	4" (pipe) x 4" NPT female threaded termination fitting



Female Threaded Termination Fittings without Hex

Model	Description
11.50 NPT	2" (pipe) x 2" NPT female threaded termination fitting w/o hex



Quick Release Termination Fittings

Model	Description
80.063 QL	2" (pipe) x 2" quick release termination fitting
80.090 QL	3" (pipe) x 3" quick release termination fitting



Union Adapter Termination Fittings

Model	Description
82-050UFNPT-U	1 1/2" (pipe) x 1 1/2" NPT union adapter termination fitting
82-063UFNPT-U	2" (pipe) x 2" NPT union adapter termination fitting



Hex Adapter

Model	Description
HEX 2	2" NPT x 1 1/2" NPT hex adapter





Advantages

- Integrated welding couplers allow you to weld the entry boot directly to UPP single wall or double wall pipe as well as polyethylene sump walls.
- Entry boots with integrated test ports allow for easy vacuum or pressure testing.
- A variety of entry boot options are available to suite both polyethylene and single wall and double wall fiberglass sump installations.

UPP Entry Boots

UPP electrofusion entry boots are available for both polyethylene and fiberglass sump applications. Electrofusion UPP entry boots allow you to quickly and easily weld entry boots directly to the wall of any polyethylene sump. The boots are specifically designed to reduce the number of fittings necessary to provide a seal between the sump and the UPP single wall or double wall pipe system. By welding the boot directly to the sump it becomes one continuous piece with the sump itself, eliminating potential leak paths. Fiberglass UPP entry boots allow you to install UPP pipework with both single wall and double wall fiberglass sumps while still leaving no exposed mechanical seals as the fitting is concealed within external and internal cover seals which are bonded directly to wall of the fiberglass sump. Fiberglass UPP entry boots can be installed on both flat and curved fiberglass sump walls. All UPP entry boots are polyethylene based allowing electrofusion of UPP piping directly to the penetration and are both vacuum and pressure testable.



Electrofusion Entry Boots

Model	Description
303-063-EIF-U	1 1/2" double wall / 2" single wall electrofusion entry boot
303-075-EIF-U	2" double wall electrofusion entry boot
304-110-090-U	3" double wall electrofusion entry boot with integrated termination fitting
304-110-090TP-U	3" double wall electrofusion entry boot with integrated termination fitting and test port
305-125-110-U	4" double wall electrofusion entry boot with integrated termination fitting
305-125-110TP-U	4" double wall electrofusion entry boot with integrated termination fitting and test port
304-110-063-TP*	1 1/2" double wall ducted entry boot with ducting test port
304-110-075-TP*	2" double wall ducted entry boot with ducting test port

Note: Double wall electrofusion entry boots feature integrated welding sockets which allow the fitting to be directly welded to double wall pipe. Electrofusion entry boots receive both the primary and secondary pipe.

*For use with UPP 4" ducting.



Fiberglass Entry Boots

Model	Description
FEB-D-075-I	2" (pipe) fiberglass entry boot
FBC-N-075	Internal cover for 2" (pipe) fiberglass entry boot
FBC-X-075	External cover for 2" (pipe) fiberglass entry boot
FEB-D-110-I	3" (pipe) fiberglass entry boot
FBC-N-110	Internal cover for 3" (pipe) fiberglass entry boot
FBC-X-110	External cover for 3" (pipe) fiberglass entry boot

Note: Each fiberglass entry boot requires an external and internal cover for proper installation.



Electrofusion Conduit Boot

Model	Description
302-040	1 1/4" electrofusion conduit boot
29-040-032-1	1 1/4" reducer boot



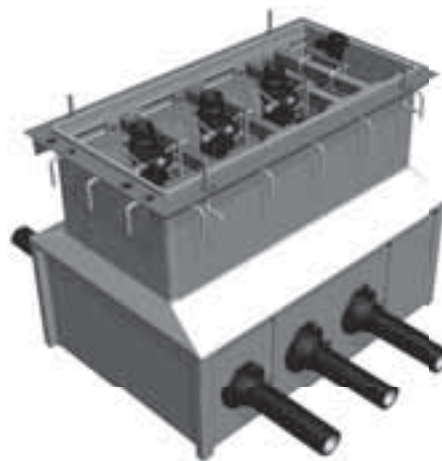


Advantages

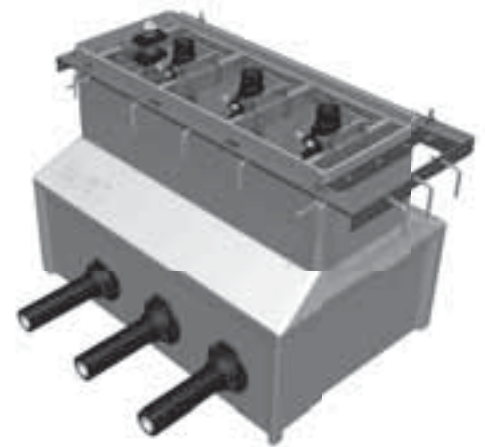
- Rigid 8mm thick HDPE body with reinforced contoured structure and integrated rain lip provide maximum strength and durability.
- Adjustable sump neck, top frame conduit entry points and stabilizer bar predrilled shear valve mounts ensure fast and efficient installation.
- Large, open entry boot face provides ample space for boot installation.
- Combine with patented UPP electrofusion entry boots and pipework for fast installation while eliminating potential leak paths.

UPP Dispenser Sumps

UPP dispenser sumps feature a rigid 8mm thick HDPE body with reinforced contoured structure and integrated rain lip allowing them to stand up to harsh forecourt conditions such as ground movement or hydrostatic pressure. The neck of UPP dispenser sumps can be trimmed to adjust for varying sump burial depths ensuring an efficient installation. In addition, the durable steel UPP dispenser sump top frames feature conduit entry points which allow conduit to enter the dispenser through the top frame without having to penetrate the sump wall. The galvanized steel stabilizer bars feature pre-drilled shear valve mount plates and spring channel nuts for quick mounting. UPP electrofusion entry boots allow you to connect UPP pipework directly to the dispenser sump, creating a solid, one-piece construction and eliminating potential leak paths.



Encore™



Ovation™

Dispenser Sumps

Model	Description
DS3617 ENCORE	Encore™ dispenser sump with 36" x 17" top frame
SBK-3	Stabilizer bar kit for Encore™ dispenser sump
DS3915	Wayne™ and Ovation™ dispenser sump with 39" x 15" top frame
SBK-25	Stabilizer bar kit for Wayne™ and Ovation™ dispenser sump
DS.SB15-1 Ovation™	Stabilizer bar kit for Wayne™ and Ovation™ dispenser sump

UPP Installation Tools

The UPP product line features a complete range of tools to ensure safe and efficient installation. At the heart of the electrofusion welding process is the handheld UPP 230v EFI electrofusion welder (cased 110v electrofusion welder also available). Robust construction, water and dust resistant features and easy-to-read graphic display of the electrofusion process provide installers with a durable, reliable and simple means of installation. The handheld EFI electrofusion welder automatically recognizes a fitting when connected with the welding cable and also checks the ambient temperature using a sensor positioned in the housing and adjusts the energy level to balance with the surrounding environment. It then applies the correct amount of energy necessary to achieve a successful weld. One welder can handle every type of UPP electrofusion welding coupler, fitting, or entry boot and come complete with welding leads in a lightweight carrying bag (230v model) or robust case (110v model). All installation tools are available separately or included in a rugged tool box contain every tool necessary for a full UPP pipework installation.

Welding Unit Specifications

	230v Model	110v model
Model number	EFI-230V	EFI-110V
Operating voltage	230V AC supply	110V AC supply
Operating frequency	45 to 65 Hz	
Operating temperature	5 °F to 113 °F	
	Color	Pin Size/Length
Single wall (primary) welding cable	Red	4mm/18'
Double wall (secondary) welding cable	Green	2mm/18'
Jumper welding cable*	Red	4mm/18'
Power supply cable	Black	13'

*Used to weld a series of single wall (primary) fittings.

230 V EFI Handheld Electrofusion Welder

Model	Description
EFI-230V	230V EFI handheld electrofusion welder
EFI-PC 4mm	Spare single wall (primary) welding cable (orange)
EFI-SC 2mm	Spare double wall (secondary) welding cable (green)
EFI-BC 4mm*	Spare jumper welding cable (red)

*Used to weld a series of single wall (primary) fittings.

110V EFI Electrofusion Welder

Model	Description
EFI-110V	1100v EFI electrofusion welder
EFI-PC 4mm	Spare single wall (primary) welding cable (orange)
EFI-SC 2mm	Spare double wall (secondary) welding cable (green)
EFI-BC 4mm*	Spare jumper welding cable (red)

*Used to weld a series of single wall (primary) fittings.





Pipe Cutter

Model	Description
P.CUT	1 1/2" to 5" pipe cutter - medium
P.CUT MED	4" to 6" pipe cutter - large

Adjustable Rotary Scraper

Model	Description
SCR-025-110	1" to 4" pipe adjustable rotary scraper
SCR-090-225	3" to 9" pipe adjustable rotary scraper
SCR-BLADE-025-225	Spare blades for adjustable rotary scraper

Handheld Scraper

Model	Description
SCR.HAR	Handheld scraper
SCR.HAR(B)	Spare blades for handheld scraper

Wooden Mallet

Model	Description
MALI	Wooden mallet

Pipe Clamps

Model	Description
CLAMP (S)	Straight clamp for straight joints (1" to 4" pipe)
CLAMP (A)	Angled clamp for straight and elbow joints (1" to 4" pipe)

Electrofusion Entry Boot Clamps

Model	Description
302-CLAMP	Clamp for 302 electrofusion entry boot (orange)
303-CLAMP	Clamp for 303 electrofusion entry boot (blue)
304-CLAMP	Clamp for 304-110-090 electrofusion entry booth (yellow)

Holes Saws

Model	Description
MANI	Mandrel (fits all hole saws)
HS3	4" hole saw for 303-063 and 303-075 electrofusion entry boots
HS075	4 1/8" hole saw for FEB-0-075 fiberglass entry boots
HS5	5 1/2" hole saw for FEB-D-110-1 fiberglass entry boots
HS6	5 5/16" hole saw for 305 electrofusion entry boots
F-Driver	Driver tool
CWI	Cutting wheel



Towing Head

For pipe retrofit installations.

Model	Description
TH50-SDR8	1 1/2" single wall pipe towing head
TH63	2" single wall pipe towing head
TH63SC-SDR8	1 1/2" double wall pipe towing head
TH75SC	2" double wall pipe towing head



Fiberglass Entry Boot Tools and Accessories

Model	Description
FEB-075-TOOL*	Tool to tighten 2" fiberglass entry boot
FEB-110-TOOL*	Tool to tighten 3" fiberglass entry boot
E32-2014-50	Epoxy cartridge (50ml)
E32 GUN	Epoxy cartridge gun
RESIN TIN W/CH	Resin tin for internal and external fiberglass entry boot covers (1.1L)
EMERY	Emery cloth for fiberglass entry booth sump surface preparation (sold in 1' lengths)

*Two tools required for tightening.



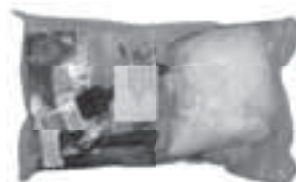
Pipe and Fitting Markers

Model	Description
CHINA	Pencils for marking fittings (box of 12)



Consumables Kit

Model	Description
UPP Consumable Kit	UPP Consumables Includes: (1) pound of lint-free rags, (2) markers, (2) one quart spray bottle, (1) box of nitrile gloves, (2) silver markers, (1) sheet emery cloth, (2) paint scrapers





Underground Storage Tanks

CARB Certified for Use With	Executive Order Number	Vacuum Source Description
400 ORVR compatible nozzle with 6280 system monitor	G-70-186	VP500 vane pump 9000 mini-jet
600 bootless nozzle	G-70-183	VP1000
600 bootless nozzle with 6280 system monitor	G-70-165	VP500 vane pump 9000 mini-jet
800 ORVR compatible nozzle	G-70-191	VP1000
900 ORVR compatible nozzle	G-70-191	VP1000
900 EVR/ORVR compatible nozzle with clean air separator	VR-201	VP1000 for EVR
900 EVR/ORVR compatible nozzle with clean air separator and ISD	VR-202	VP1000 for EVR and ISD

Aboveground Storage Tanks

CARB Certified for Use With	Executive Order Number	Vacuum Source Description
400 ORVR compatible nozzle with 6280 system monitor*	G-70-187	VP500 vane pump 9000 mini-jet
	G-70-187	

*6280 monitor required for the sites with monthly throughput greater than 10,000 gallons

996I Clean Air Separator

The Healy clean air separator prevents excess emissions and product loss by controlling gasoline storage tank pressure. The unit works in combination with Healy ORVR/EVR type nozzles as part of a system that increases overall performance and efficiency.



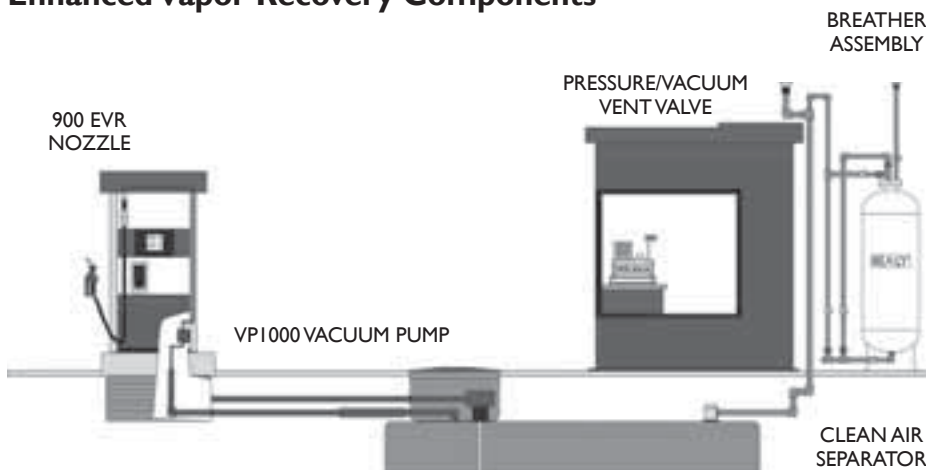
Advantages

- High reliability and maintenance-free.
- No mechanical moving parts.
- No electrical connections needed.
- 5-year warranty.

CARB Certified for Use With	Executive Order Number	Tank Type
Healy EVR components	VR-201 VR-202	UST without ISD UST with ISD

Model	Description
996I	Vertical clean air separator, includes breather assembly, 9466G float check, locking ball valves, locks and keys
996IH	Horizontal clean air separator, includes breather assembly, 9466G float check, locking ball valves, locks and keys
9948	Breather assembly
996123	1" ball valve (4 per CAS)
996124	Brass lock for ball valve (includes key) (4 per CAS)
996125	Keys for brass lock
9466G	Float Check (for use with CAS only)

Enhanced Vapor Recovery Components



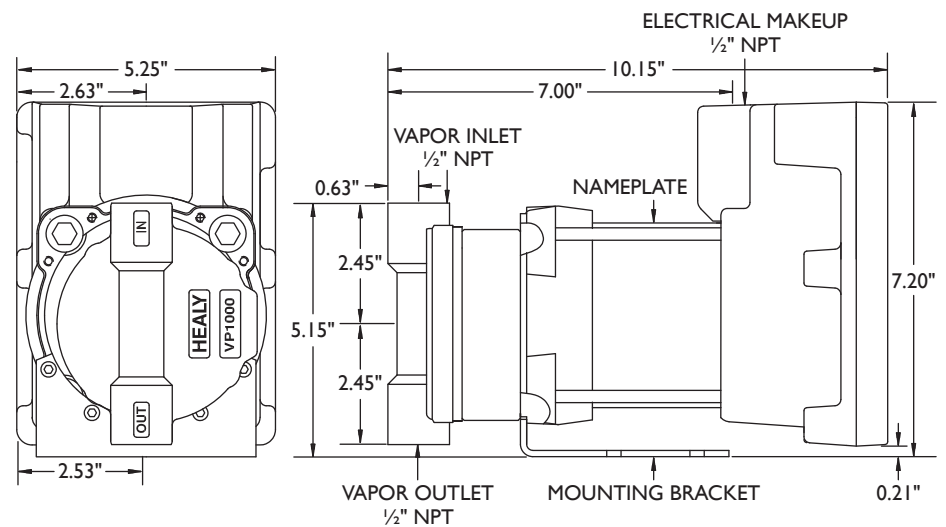


Advantages

- Compatible with new and existing dispensers.
- Underground tank certification.

VPI000 Series Dispenser-Mounted Vacuum Source

One vacuum pump per dispenser supplies both sides, reducing long term maintenance costs. The VPI000 has been designed to satisfy the vapor recovery needs of a blender or non-blender dispenser. Simple installation with no excavation minimizes downtime and labor. The VPI000 connects to the dispenser with a simple interface module without costly software changes or electronic board replacement. This is the most cost-effective dispenser-mounted vacuum-assist system on the market today.



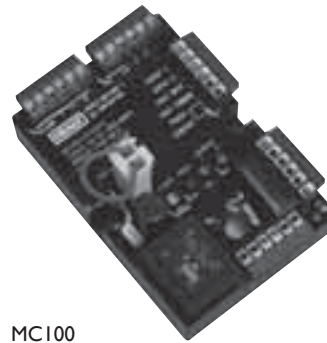
ALL DIMENSIONS ARE APPROXIMATE AND REFERENCE ONLY.

CARB Certified for Use With	Executive Order Number	Tank Type
Healy 600 bootless nozzle	G-70-183	UST
Healy 800 ORVR nozzle	G-70-191	UST
Healy 900 EVR nozzle	VR-201	UST
	VR-202	UST

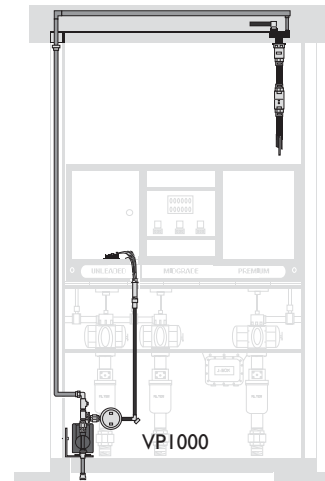
VPI1000 Dispenser-Mounted Vacuum Source Kits

Each kit includes vapor and electrical conduits as listed below. One VPI1000 per dispenser supplies both sides.

Model	Description
VPI1000M	Gasboy™ 9800 Series - Non-Vapor Ready to Healy
Includes:	Z081H hardware kit Z081E electrical kit Z081V vapor kit VPI1000-5 vacuum pump I374A MCI100-I interface module with harness
VPI1000N	Dresser Wayne™ Harmony™ Series - Balance to Healy
Includes:	Z078H hardware kit Z078E electrical kit Z078V vapor kit VPI1000-5 vacuum pump I365A MCI100-I interface module with harness
VPI1000P	Dresser Wayne™ Ovation™ Series - Balance or WayneVAC to Healy
Includes:	Z079H hardware kit Z079E electrical kit Z079V vapor kit VPI1000-5 vacuum pump I365A MCI100-I interface module with harness
VPI1000Q	Dresser Wayne™ Harmony™ Series - WayneVAC to Healy
Includes:	Z080H hardware kit Z080E electrical kit Z080V vapor kit VPI1000-5 vacuum pump I365A MCI100-I interface module with harness
VPI1000R	Gilbarco™ Encore™ 300 or 500 Series - Balance to Healy
Includes:	Z082H hardware kit Z082E electrical kit Z082V vapor kit VPI1000-5 vacuum pump I373A MCI100-I interface module with harness,
VPI1000S	Gilbarco™ Encore™ 300 or 500 Series - VaporVac® to Healy
Includes:	Z082H hardware kit Z082E electrical kit Z083V vapor kit VPI1000-5 vacuum pump I373A MCI100-I interface module with harness,
VPI1000T	Dresser Wayne™ 3 Vista™ or 4 Vista™ Series - Balance to Healy
Includes:	Z084H hardware kit Z084E electrical kit Z084V vapor kit VPI1000-5 vacuum pump I365A MCI100-I interface module with harness
VPI1000V	Dresser Wayne™ 1 Vista™ or 2 Vista™ blenders only - Balance to Healy
Includes:	Z084H hardware kit Z084E electrical kit Z084V vapor kit VPI1000-5 vacuum pump I363A MCI100-I interface module with harness,



MCI100



VPI1000 INSTALLATION

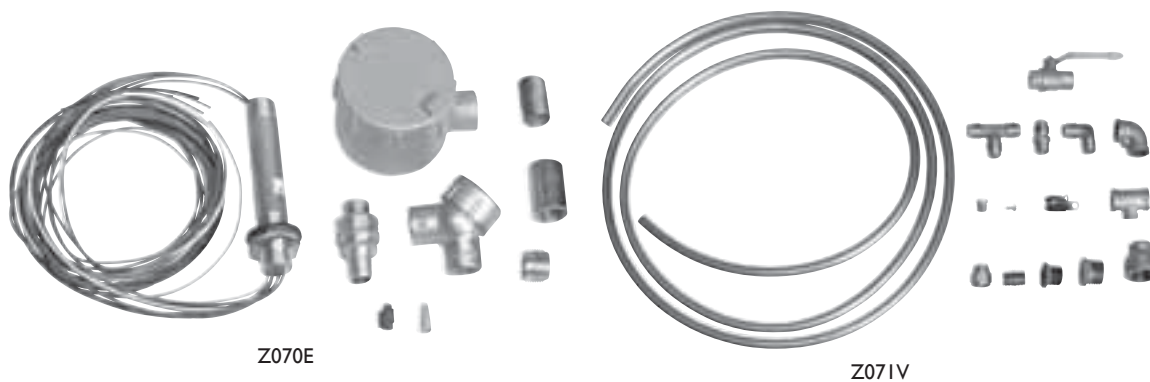
VPI000 Dispenser Mounted Vacuum Source Kits (Non-Inclusive)

Kits do not include vapor and electrical conduits. Use Z070E and Z071V kits listed below. One VPI000 per dispenser supplies both sides.

Model	Description
VPI000A	For use with all dispenser types, use if a model-specific VPI000D-V is not available. Includes VPI000-5 vacuum pump, I360A interface module and I404 universal hardware/mounting kit.
VPI000D	Gilbarco™ 300 blender dispensers only (early model AC solenoid valves, pre-April 2003). Includes VPI000-5 vacuum pump, I368A interface module with harness an I404 universal hardware/mounting kit.
VPI000E	International only, VPI000-220, I380A and I404
VPI000G	Wayne™ DL non-blender dispensers only. Includes VPI000-5 vacuum pump, I354A interface module with harness and I404 universal hardware/mounting kit.
VPI000H	Tokheim™ Premier™ C blender dispensers with 24 VDC solenoids only. Includes VPI000-5 vacuum pump, I362A interface module with harness and I404 universal hardware/mounting kit.
VPI000J	Tokheim™ earlier-series blender dispenser with AC and DC solenoids. Includes VPI000-5 vacuum pump, I372A interface module with harness and I404 universal hardware/mounting kit.

Universal Vapor and Electrical Kits

For use with the VPI000 kits listed above.



Model	Description
Z070E	Electrical installation kit for VPI000 Series vacuum source, for use with VPI000A-J
Z071V	Vapor piping installation kit for VPI000 Series vacuum source, for use with VPI000A-J
Z069E	International only, 220V electrical installation kit for VPI000E

VPI000 Replacement Parts

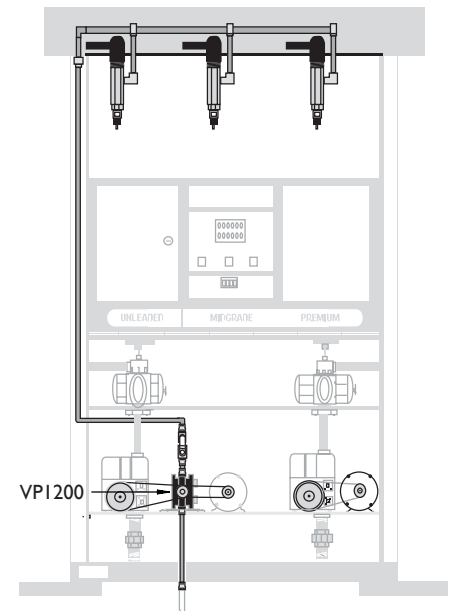
Model	Description
I316	6" potted conduit assembly
I346	3" potted conduit assembly, used in Z078E, Z079E, Z080E and Z084E
I354	Wire harness for use with Wayne™ DL non-blenders
I354A	I354 wire harness with interface module
I360	Wire harness, universal
I360A	I360 wire harness with interface module, universal
I362	Wire harness for use with Tokheim™ Premier™ C blender dispensers with 24 VDC solenoids
I362A	I362 wire harness with interface module
I363	Wire harness for use with Wayne™ I Vista™ and 2 Vista™ blender dispensers
I363A	I363 wire harness with interface module
I365	Wire harness for use with Wayne™ Ovation™, 3 Vista™ and 4 Vista™ dispensers
I365A	I365 wire harness with interface module
I368	Wire harness for use with Gilbarco™ Encore™ 300 blender dispensers, early AC solenoids, pre-April 2003
I368A	I368 wire harness with interface module
I372	For use with earlier version Tokheim™ blender dispensers with AC and DC solenoids
I372A	I372 wire harness with interface module
I373	Wire harness for use with Gilbarco™ Encore™ 300 and 500 Series dispensers, with 24VDC solenoids
I373A	I373 wire harness with interface module
I374	Wire harness for use with Gasboy™ 9800
I374A	I374 wire harness with interface module
I404	Universal mounting kit
I4440I	VPI000 front cover assembly (98008 o-ring sold separately)
I3602	Spare fuse 5 A, 250 Volt
MC100-I	Universal interface module only
VPI000-5	Vacuum pump only, 110 Volt
RVP1000-5	Rebuilt VPI000-5 vacuum pump only
VPI000-5 Core	VPI000-5 core in reusable condition for rebuild
VPI000VRC-P	VPI000 vane and rotor replacement kit (includes vanes, rotor, shaft key and cover O-ring 98008)
VPI000-220	International vacuum pump only, 220 Volt
MC200-I	International control module only, 220 Volt
I3160290I	International 6" potted conduit assembly, 220V
I380	International wire harness, universal 220V
I380A	International I380 wire harness with interface module, universal 220V
MC100-I PLUG	Replacement jumper plug for interface module
98008	O-ring for VPI000 front cover
I44402	VPI000 front cover assembly (international only)

Advantages

- Small size: 5-1/4" × 5" × 4-3/8".
- Compatible with new and existing dispensers.
- International approvals, contact Franklin Fueling Systems.

VPI200 Series Self-Contained Suction Pump Dispenser-Mounted Vacuum Source

Similar to the VPI1000, except powered by a suction pump motor. One pump supplies both sides. Simple installation with no excavation minimizes downtime and labor; ideal for retrofitting new or existing dispensers, installs easily on a bracket or attached to the frame of the unit. High vacuum level assures clearing of flooded vapor hoses.



VPI200 INSTALLATION

Model	Description
VPI200-1	Self-contained suction pump-mounted assembly (bronze rotor)
VPI200-3	Self-contained suction pump-mounted assembly with flame arrestors (bronze rotors)
VPI200VR-B	Vane and rotor kit (bronze)
I27434	Machine key, square

Note: For international markets, contact factory for additional information. Non-electric, powered by a suction dispenser pump motor.

400 Series ORVR Nozzle

The first nozzle to receive CARB certification for ORVR compatibility. For use on central vacuum vapor recovery systems and in aboveground storage tank applications. ORVR and vapor flow controls are built into the nozzle.



CARB Certified for Use With	Executive Order Number	Tank Type
9000 mini-jet	G-70-187	AST
VP500 vane pump	G-70-187	AST
Type 100 jet pump	G-70-187	AST
9000 mini-jet	G-70-186	UST
VP500 vane pump	G-70-186	UST

Advantages

- Aboveground tank installation.
- Underground tank installation.
- Available as full-service with hold-open clip.
- Available as self-service without hold-open clip.

Model	Description
400-04 FS	400 ORVR compatible nozzle, unleaded, full-service with black scuffguard*
400-04 RFS	Rebuilt 400 ORVR compatible nozzle, unleaded, full-service with black scuffguard*
400-04 SS	400 ORVR compatible nozzle, unleaded, self-service with black scuffguard*
400-04 RSS	Rebuilt 400 ORVR compatible nozzle, unleaded, self-service with black scuffguard*
400 Core	400 nozzle core, in reusable condition for rebuild
468	400 nozzle scuffguard, black
468BL	400 nozzle scuffguard, blue
468G	400 nozzle scuffguard, green
468GD	400 nozzle scuffguard, gold
468R	400 nozzle scuffguard, red
468SL	400 nozzle scuffguard, silver
468W	400 nozzle scuffguard, white
469	400 nozzle handle cover
405220905	400 nozzle spout kit includes 408-2A spout assembly, 408-OR O-ring kit, 409 boot assembly and 425 boot clamp
405219904	400 nozzle boot assembly includes 425 boot clamp
405221901	400 nozzle hold-open clip kit includes 6238-2 hold-open clip, 239-L rear guard rivet, 6249 spring, 6130-4 lever assembly, 240-SS pal nut, 219 front guard rivet, 6358 hand guard and 235-C lever cover

*Nozzles are supplied with black scuffguards unless otherwise specified. To order a nozzle with a scuffguard color other than black, place appropriate "X" code after "04" in the model number as follows: BL for blue, GD for gold, G for green, R for red, SL for silver or W for white.

Advantages

- Highest quality.
- Bootless design.
- Available as full-service with hold-open clip.
- Available as self-service without hold-open clip.

600 Series Bootless Nozzle

The 600 Series bootless vapor recovery nozzle is the international standard for Stage II components. For use on new or existing dispensers, it can be installed with both central or dispenser mounted vacuum sources.



CARB Certified for Use With	Executive Order Number	Tank Type
9000 mini-jet	G-70-165	UST
VP500 vane pump	G-70-165	UST
VP1000 Series vacuum pump	G-70-183	UST

Model	Description
600-02G3 FS	600 bootless nozzle, unleaded, full-service with black scuffguard*
600-02G3 RFS	Rebuilt 600 bootless nozzle, unleaded, full-service with black scuffguard*
600-02G3 SS	600 bootless nozzle, unleaded, self-service with black scuffguard*
600-02G3 RSS	Rebuilt 600 bootless nozzle, unleaded, self-service with black scuffguard*
469	600 nozzle handle cover
600 Core	600 nozzle core, in reusable condition for rebuild
6030	600 nozzle scuffguard, black
6030BL	600 nozzle scuffguard, blue
6030G	600 nozzle scuffguard, green
6030GD	600 nozzle scuffguard, gold
6030R	600 nozzle scuffguard, red
6030SL	600 nozzle scuffguard, silver
6030WV	600 nozzle scuffguard, white
6030Y	600 nozzle scuffguard, yellow
405219903	600 nozzle vapor escape guard and 6119 boot clamp, black
405220903	600 nozzle spout kit includes 6206-G4 spout assembly, 6206-OR O-ring kit, 6118 vapor escape guard, and 6119 boot clamp
405221901	600 nozzle hold-open clip kit includes 6238-2 hold-open clip, 239-L rear guard rivet, 6249 spring, 6130-4 lever assembly, 240-SS pal nut, 219 front guard rivet, 6358 handguard and 235-C lever cover

*Nozzles are supplied with black scuffguards unless otherwise specified. To order a nozzle with a scuffguard color other than black, place appropriate "X" code after "G3" in model number, as follows: BL for blue, GD for gold, G for green, R for red, SL for silver, W for white or Y for yellow.

800 Series ORVR Nozzle

Converts any new or existing dispenser to a CARB certified system for ORVR compatibility. ORVR detection is built into the nozzle, and there is no need for a back-end processor.



CARB Certified for Use With	Executive Order Number	Tank Type
VPI000 Series vacuum pump	G-70-191	UST

Advantages

- Highest quality.
- ORVR compatible for underground tank systems without the need for a back-end processor.
- Reliable and efficient.
- Available as full-service with hold-open clip.
- Available as self-service without hold-open clip.

Model	Description
800-02G3 FS	800 ORVR compatible nozzle, unleaded, full-service with black scuffguard*
800-02G3 RFS	Rebuilt 800 ORVR compatible nozzle, unleaded, full-service with black scuffguard*
800-02G3 SS	800 ORVR compatible nozzle, unleaded, self-service with black scuffguard*
800-02G3 RSS	Rebuilt 800 ORVR compatible nozzle, unleaded, self-service with black scuffguard*
469	800 nozzle handle cover
6408	800 nozzle scuffguard, black
6408BL	800 nozzle scuffguard, blue
6408G	800 nozzle scuffguard, green
6408GD	800 nozzle scuffguard, gold
6408R	800 nozzle scuffguard, red
6408SL	800 nozzle scuffguard, silver
6408W	800 nozzle scuffguard, white
6408Y	800 nozzle scuffguard, yellow
800 Core	800 nozzle core, in reusable condition for rebuild
405219902	800 nozzle mini-boot with face seal and 640956 boot clamp
405220902	800 nozzle spout kit includes 8177 spout assembly, 6206-OR O-ring kit, 6395A boot and 640956 boot clamp
405221901	800 nozzle hold-open clip kit includes 6238-2 hold open clip, 239-L rear guard rivet, 6249 spring, 6130-4 lever assembly, 240-SS pal nut, 219 front guard rivet, 6358 hand guard and 235-C lever cover

*Nozzles are supplied with black scuffguards unless otherwise specified. To order a nozzle with a scuffguard color other than black, place appropriate "X" code after "G3" in the model number as follows: BL for blue, GD for gold, G for green, R for red, SL for silver, W for white or Y for yellow.

**Advantages**

- ORVR compatible for underground tank systems.
- Reliable and efficient.
- Available as full-service with hold-open clip or self-service without hold-open clip.
- Over-horizontal interlock mechanism.

708 Series ORVR Nozzle

Converts Dresser WayneVac or Gilbarco™ VaporVac® equipped dispensers to a TCEQ-certified system for ORVR compatibility. ORVR detection is built into the nozzle and there is no need for a back-end processor. The high quality, durable Healy 708 Series nozzle, designed using state-of-the-art engineering, includes a dripless spout design which reduces fugitive emissions.

**TCEQ Certified for Use With**

Dresser WayneVac
Gilbarco™ VaporVac®

Tank Type

UST

Model	Description
708-02G3 FS	708 ORVR compatible nozzle, unleaded, full-service, with black scuffguard*
708-02G3 RFS	Rebuilt 708 ORVR compatible nozzle, unleaded, full-service, with black scuffguard*
708-02G3 SS	708 ORVR compatible nozzle, unleaded, self-service, with black scuffguard*
708-02G3 RSS	Rebuilt 708 ORVR compatible nozzle, unleaded, self-service, with black scuffguard*
469	708 nozzle handle cover
708 core	708 nozzle core, in reusable condition for rebuild
6408	708 nozzle scuffguard, black
6408BL	708 nozzle scuffguard, blue
6408GD	708 nozzle scuffguard, gold
6408G	708 nozzle scuffguard, green
6408R	708 nozzle scuffguard, red
6408SL	708 nozzle scuffguard, silver
6408WV	708 nozzle scuffguard, white
6408Y	708 nozzle scuffguard, yellow
405219902	708 nozzle mini-boot with 279A face seal and 640956 boot clamp
405220902	708 dripless nozzle spout kit includes 8177 spout assembly, 6206-OR O-ring kit, 6395A boot assembly and 640956 boot clamp
405221901	708 nozzle hold-open clip kit includes 6238-2 hold-open clip, 239-L rear guard rivet, 6249 spring, 6130-4 lever assembly, 240-SS pal nut, 219 front guard rivet, 6358 hand guard and 235-C lever cover

*Nozzles are supplied with black scuffguards unless otherwise specified. To order a nozzle with a scuffguard color other than black, place appropriate "X" code after "G3" in model number, as follows: BL for blue, GD for gold, G for green, R for red, SL for silver, W for white or Y for yellow.

709 Series ORVR Nozzle

Converts Dresser WayneVac or Gilbarco™ VaporVac® equipped dispensers to a TCEQ-certified system for ORVR compatibility. ORVR detection is built into the nozzle and there is no need for a back-end processor. The high quality, durable Healy 709 Series nozzle, designed using state-of-the-art engineering, includes a dripless spout design which reduces fugitive emissions.



TCEQ Certified for Use With	Tank Type
Dresser WayneVac Gilbarco™ VaporVac®	UST

Advantages

- ORVR compatible for underground tank systems.
- Highest quality, most efficient nozzle available.
- Reliable and low-maintenance.
- Available as full-service with hold-open clip or self-service without hold-open clip.
- Boot-insertion interlock mechanism.

Model	Description
709-02G3 FS	709 ORVR compatible nozzle, unleaded, full-service, with black scuffguard*
709-02G3 RFS	Rebuilt 709 ORVR compatible nozzle, unleaded, full-service, with black scuffguard*
709-02G3 SS	709 ORVR compatible nozzle, unleaded self-service, with black scuffguard*
709-02G3 RSS	Rebuilt 709 ORVR compatible nozzle, unleaded self-service, with black scuffguard*
469	709 nozzle handle cover
709 core	709 nozzle core, in reusable condition for rebuild
6408	709 nozzle scuffguard, black
6408BL	709 nozzle scuffguard, blue
6408GD	709 nozzle scuffguard, gold
6408G	709 nozzle scuffguard, green
6408R	709 nozzle scuffguard, red
6408SL	709 nozzle scuffguard, silver
6408W	709 nozzle scuffguard, white
6408Y	709 nozzle scuffguard, yellow
405219901	709 nozzle mini-boot with face seal and 640956 boot clamp
405220901	709 dripless nozzle spout kit includes 8155 spout assembly, 6206-OR O-ring kit, 6395B boot assembly and 640956 boot clamp
405221901	709 nozzle hold-open clip kit includes 6238-2 hold-open clip, 239-L rear guard rivet, 6249 spring, 6130-4 lever assembly, 240-SS pal nut, 219 front guard rivet, 6358 hand guard and 235-C lever cover

*Nozzles are supplied with black scuffguards unless otherwise specified. To order a nozzle with a scuffguard color other than black, place appropriate "X" code after "G3" in model number, as follows: BL for blue, GD for gold, G for green, R for red, SL for silver, W for white or Y for yellow.

**Advantages**

- EVR/ORVR certified.
- Highest quality, most efficient nozzle available.
- Reliable and low maintenance.
- Available as full-service with hold-open clip.
- Available as self-service without hold-open clip.

900 Series EVR Certified Nozzle

The most efficient and durable gasoline nozzle on the market today. The 900 Series boasts high quality, durability and state-of-the-art engineering designed to reduce emissions caused by liquid retention and spillage. The 900 Series nozzle is ORVR and EVR certified by the California Air Resources Board (CARB).



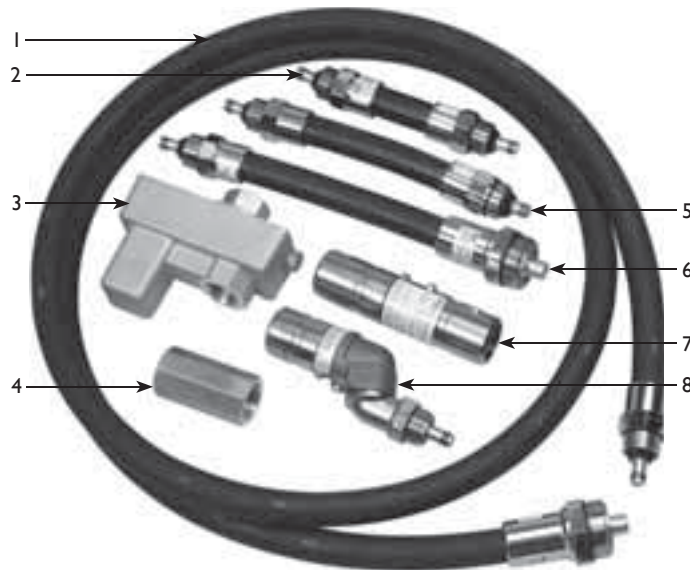
CARB Certified for Use With	Executive Order Number	Tank Type
VPI000 Series vacuum pump	VR-201 VR-202 G-70-191	UST

Model	Description
900-02G3 FS	900 EVR/ORVR compatible nozzle, unleaded, full-service with black scuffguard*
900-02G3 RFS	Rebuilt 900 EVR/ORVR compatible nozzle, unleaded, full-service with black scuffguard*
900-02G3 SS	900 EVR/ORVR compatible nozzle, unleaded, self-service with black scuffguard*
900-02G3 RSS	Rebuilt 900 EVR/ORVR compatible nozzle, unleaded, self-service with black scuffguard*
469	900 nozzle handle cover
6408	900 nozzle scuffguard, black
6408BL	900 nozzle scuffguard, blue
6408G	900 nozzle scuffguard, green
6408GD	900 nozzle scuffguard, gold
6408R	900 nozzle scuffguard, red
6408SL	900 nozzle scuffguard, silver
6408WV	900 nozzle scuffguard, white
6408Y	900 nozzle scuffguard, yellow
900 Core	900 nozzle core, in reusable condition for rebuild
405219901	900 nozzle mini-boot with face seal and 640956 boot clamp
405220901	900 dripless nozzle spout kit includes 8155 spout assembly, 6206-OR O-ring kit, 6395B boot assembly and 640956 boot clamp
405221901	900 nozzle hold-open clip kit includes 6238-2 hold-open clip, 239-L rear guard rivet, 6249 spring, 6130-4 lever assembly, 240-SS pal nut, 219 front guard rivet, 6358 hand guard and 235-C lever cover

*Nozzles are supplied with black scuffguards unless otherwise specified. To order a nozzle with a scuffguard color other than black, place appropriate "X" code after "G3" in model number, as follows: BL for blue, GD for gold, G for green, R for red, SL for silver, W for white or Y for yellow.

Hoses and System Accessories

Number	Description
1	75 Series coaxial hose
2	F2F2 whip hose
3	CX6-VV3A non-vapor ready multi-product dispenser hose adapter
4	CX6-A non-vapor ready dispenser hose adapter
5	F3F2 metric-type whip hose
6	S4F2 balance-type whip hose
7	8701VV breakaway
8	807 swivel breakaway



75 Series Coaxial Hose

Manufactured with a swivel on each end to provide the ease of handling customers prefer. Inverted coaxial design reduces hose size and the steel braided, premium, abuse-resistant outer hose assures long service life and low maintenance. Available in up to 20' lengths.

F2F2 Whip Hose

Standard inverted coaxial with fixed, Healy thread hose ends.

CX6-VV3A Non-Vapor Ready Multi-Product Dispenser Hose Adapter

Converts a non-vapor ready high-hose multi-product dispenser to Healy's inverted coaxial hose thread.

CX6-A Non-Vapor Ready Dispenser Hose Adapter

Converts a non-vapor ready conventional dispenser thread to Healy's inverted coaxial hose thread.

F3F2 Metric-Type Whip Hose

Adapter-type whip hose allows direct connection to the metric balance hose outlet without the need for a hose adapter.

S4F2 Balance-Type Whip Hose

Adapter-type whip hose allows direct connection to the balance hose outlet without the need for a hose adapter.

8701VV Breakaway

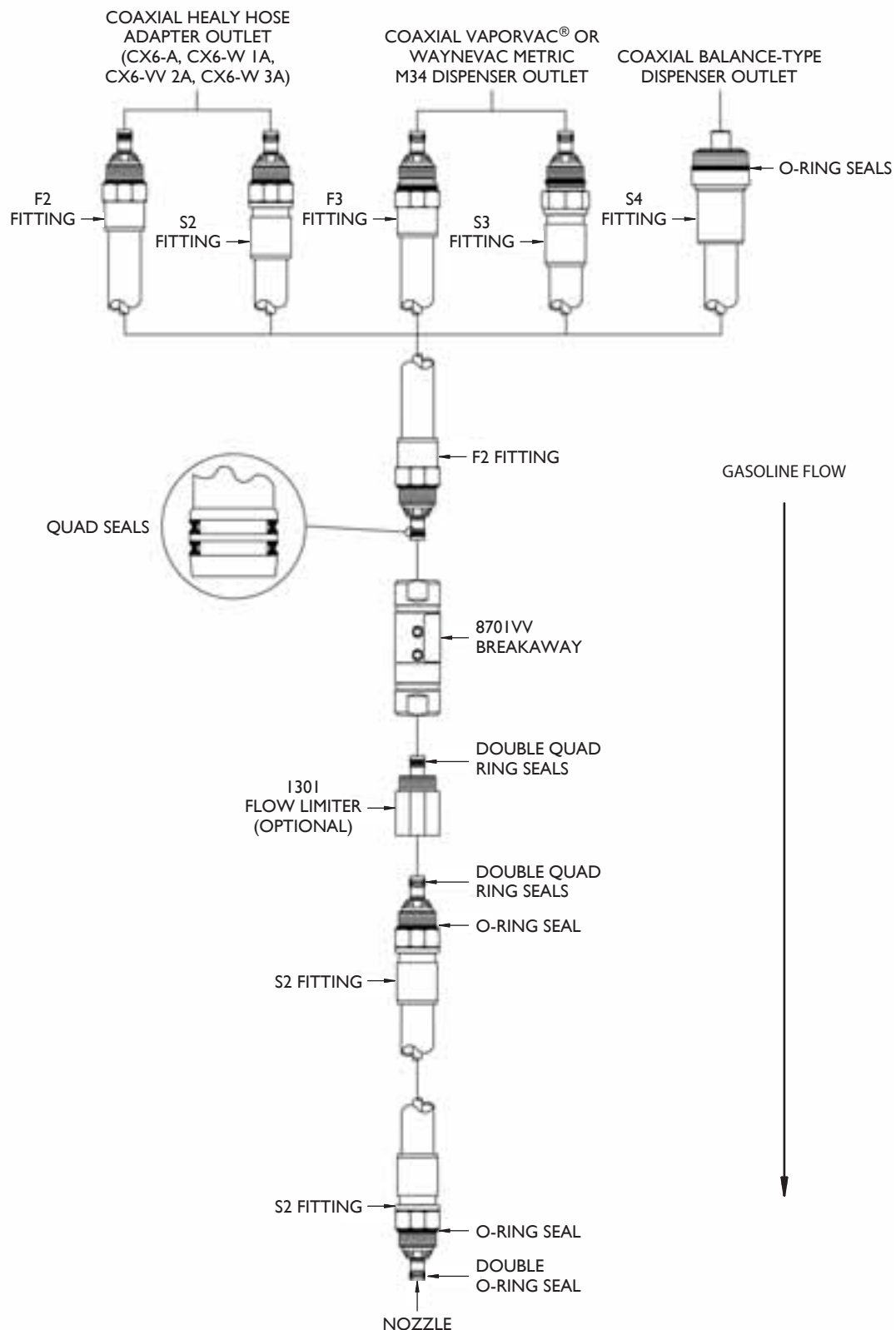
Full product and vapor shut-off, with 350 lbs. separation force. Spare shear screw allows ease of field repair in the event of a drive-off.

807 Swivel Breakaway

Breakaway and nozzle swivel in one. Allows for easier far side fueling. Full product and vapor path shut-off, with 350 lbs. separation force. Spare shear screw allows ease of field repair in the event of a drive-off.

Standard Healy and Whip Hoses

Hanging Hardware Selection Options with 8701VV Breakaway and 1301 Flow Limiter



VaporVac® is a registered trademark of Gilbarco Inc.

75 Series 3/4" Standard Healy Hose

Healy straight threaded swivels at nozzle and breakaway ends.

Model	Description
75B-030-S2S2	3' standard Healy coaxial hose
75B-035-S2S2	3½' standard Healy coaxial hose
75B-040-S2S2	4' standard Healy coaxial hose
75B-045-S2S2	4½' standard Healy coaxial hose
75B-050-S2S2	5' standard Healy coaxial hose
75B-055-S2S2	5½' standard Healy coaxial hose
75B-060-S2S2	6' standard Healy coaxial hose
75B-065-S2S2	6½' standard Healy coaxial hose
75B-070-S2S2	7' standard Healy coaxial hose
75B-075-S2S2	7½' standard Healy coaxial hose
75B-080-S2S2	8' standard Healy coaxial hose
75B-085-S2S2	8½' standard Healy coaxial hose
75B-090-S2S2	9' standard Healy coaxial hose
75B-095-S2S2	9½' standard Healy coaxial hose
75B-100-S2S2	10' standard Healy coaxial hose
75B-105-S2S2	10½' standard Healy coaxial hose
75B-110-S2S2	11' standard Healy coaxial hose
75B-115-S2S2	11½' standard Healy coaxial hose
75B-120-S2S2	12' standard Healy coaxial hose
75B-125-S2S2	12½' standard Healy coaxial hose
75B-130-S2S2	13' standard Healy coaxial hose
75B-135-S2S2	13½' standard Healy coaxial hose
75B-140-S2S2	14' standard Healy coaxial hose

Note: Healy hoses are available from three feet up to 20 feet; contact factory for pricing and availability of lengths not shown. Hoses are CARB-approved for overall assembly lengths up to 20 feet, including breakaway and whip hose.

Hoses are supplied in black unless otherwise specified. To order a hose in a color other than black, replace "B" with the code as follows: BL = blue, G = green, R = red. Consult factory for pricing.

75 Series 3/4" Standard Whip Hose

For use with 8710VV breakaway and Healy product hose.

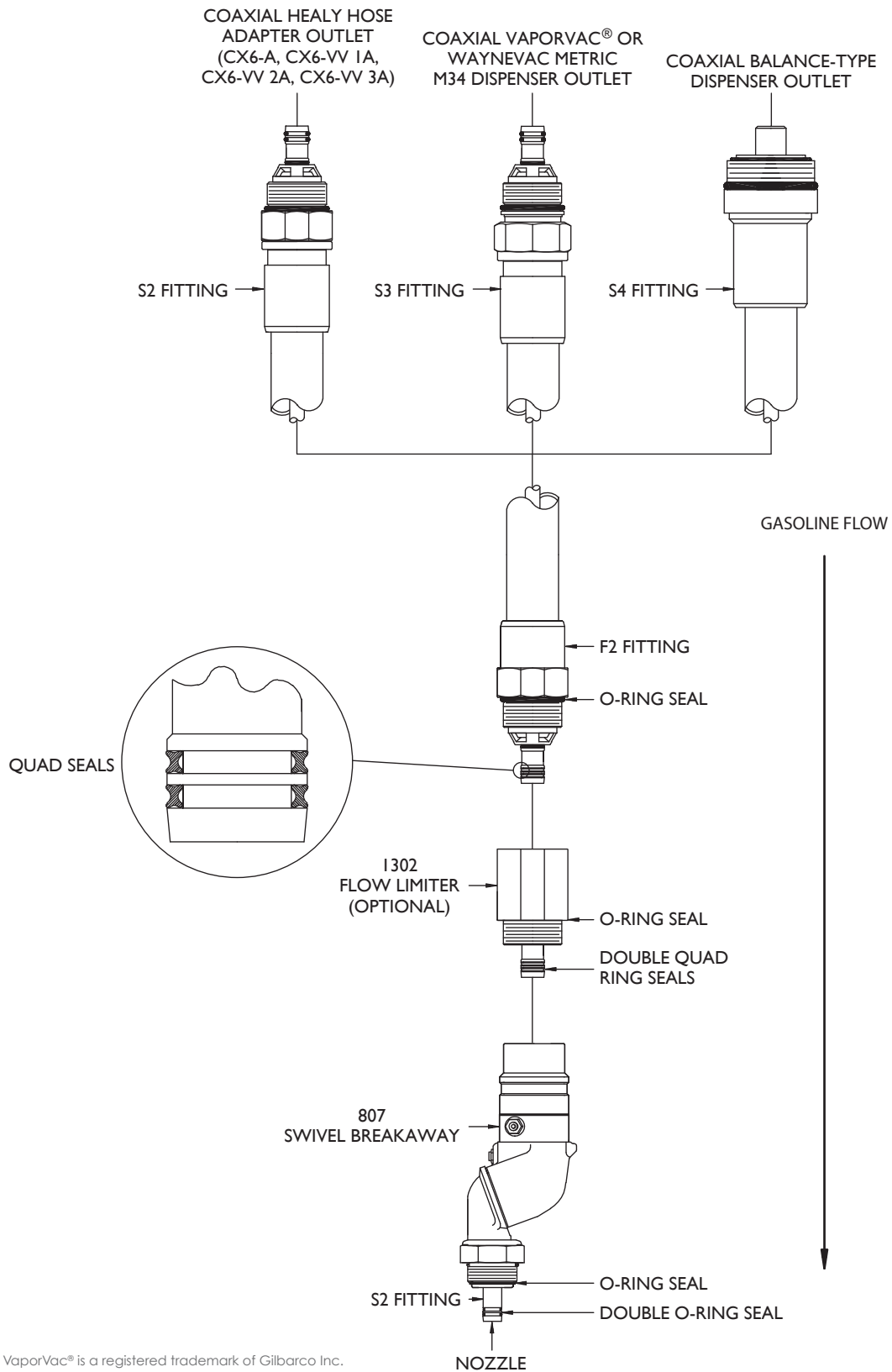
Model	Description
75B-008-F2F2	Healy straight thread, fixed ends on breakaway and dispenser ends
75B-008-F3F2	Healy straight thread, fixed end on breakaway end, metric thread on dispenser end
75B-008-S2F2	Healy straight thread, fixed end on breakaway end, swivel end on dispenser end
75B-008-S3F2	Healy straight thread, fixed end on breakaway end, metric swivel thread end on dispenser end
75B-010-S4F2	Fixed end on breakaway end, balance swivel end on dispenser end

Note: Hose ends are defined as follows: F2 = fixed ends with Healy straight thread, F3 = fixed ends with metric M-34 thread, S2 = swivel ends with Healy straight thread, S3 = swivel ends with metric M-34 thread, S4 = swivel ends with balance-type thread.

Hoses are supplied in black unless otherwise specified. To order a hose in a color other than black, replace "B" with the code as follows: BL = blue, G = green, R = red. Consult factory for pricing.

Metric- and Balance-Ready Hoses

Hanging Hardware Selection Options with 807 Swivel Breakaway and 1302 Flow Limiter and I302 Flow Limiter



75 Series 3/4" Healy Hose for Metric-Ready Dispensers

Healy straight thread fixed at 807 swivel breakaway or nozzle and metric thread swivel at dispenser outlet.

Model	Description
75B-080-S3F2	8' metric-ready dispenser coaxial hose
75B-085-S3F2	8½' metric-ready dispenser coaxial hose
75B-090-S3F2	9' metric-ready dispenser coaxial hose
75B-095-S3F2	9½' metric-ready dispenser coaxial hose
75B-100-S3F2	10' metric-ready dispenser coaxial hose
75B-105-S3F2	10½' metric-ready dispenser coaxial hose
75B-110-S3F2	11' metric-ready dispenser coaxial hose
75B-115-S3F2	11½' metric-ready dispenser coaxial hose
75B-120-S3F2	12' metric-ready dispenser coaxial hose
75B-125-S3F2	12½' metric-ready dispenser coaxial hose
75B-130-S3F2	13' metric-ready dispenser coaxial hose
75B-135-S3F2	13½' metric-ready dispenser coaxial hose
75B-140-S3F2	14' metric-ready dispenser coaxial hose

Hoses are supplied in black unless otherwise specified. To order a hose in a color other than black, replace "B" with the code as follows: BL = blue, G = green, R = red. Consult factory for pricing.

75 Series 3/4" Healy Hose for Balance-Ready Dispensers

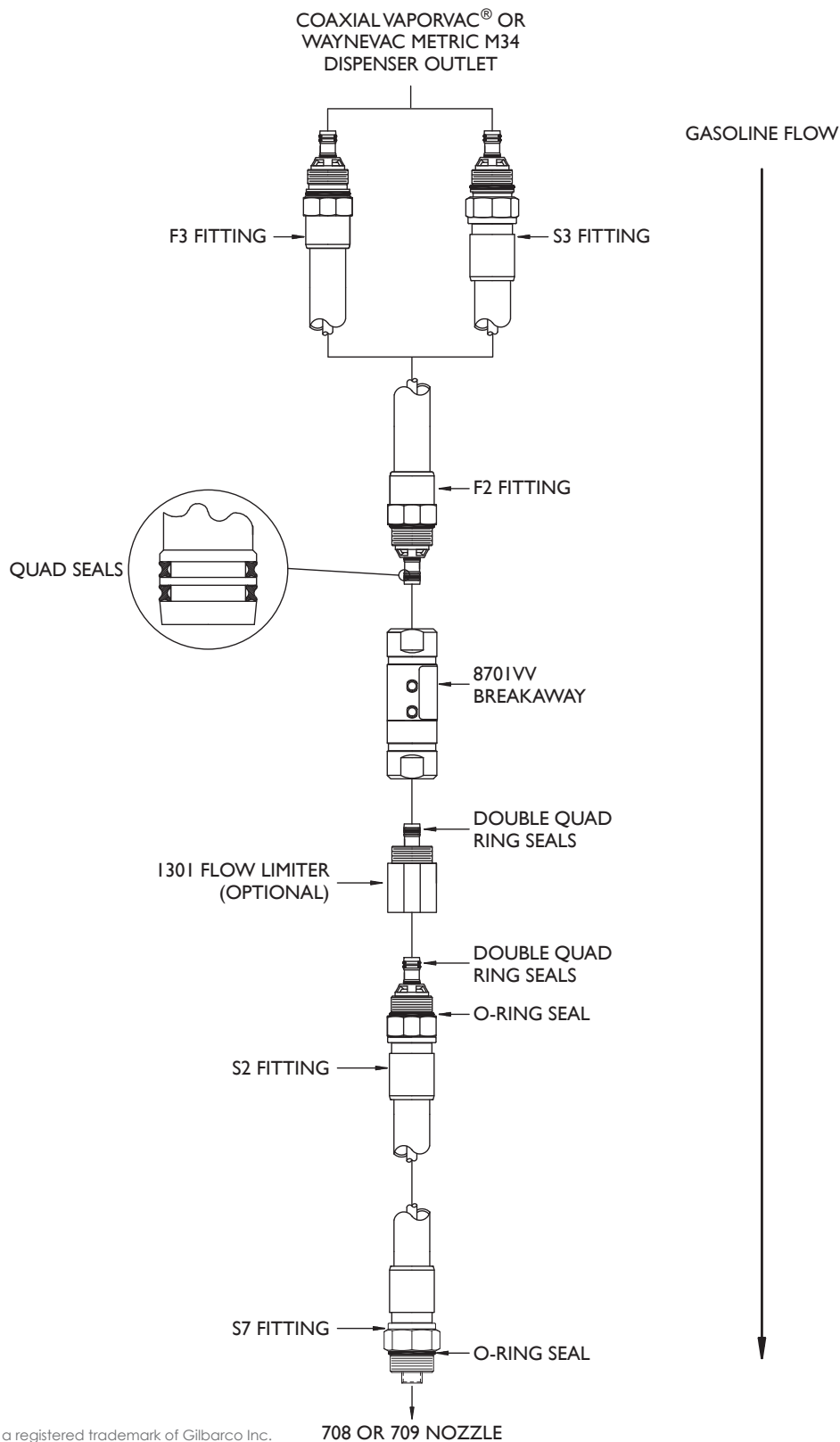
Healy straight thread fixed at 807 swivel breakaway or nozzle and balance-type thread swivel at dispenser outlet.

Model	Description
75B-080-S4F2	8' balance-ready dispenser coaxial hose
75B-085-S4F2	8½' balance-ready dispenser coaxial hose
75B-090-S4F2	9' balance-ready dispenser coaxial hose
75B-095-S4F2	9½' balance-ready dispenser coaxial hose
75B-100-S4F2	10' balance-ready dispenser coaxial hose
75B-105-S4F2	10½' balance-ready dispenser coaxial hose
75B-110-S4F2	11' balance-ready dispenser coaxial hose
75B-115-S4F2	11½' balance-ready dispenser coaxial hose
75B-120-S4F2	12' balance-ready dispenser coaxial hose
75B-125-S4F2	12½' balance-ready dispenser coaxial hose
75B-130-S4F2	13' balance-ready dispenser coaxial hose
75B-135-S4F2	13½' balance-ready dispenser coaxial hose
75B-140-S4F2	14' balance-ready dispenser coaxial hose

Note: Healy hoses are available from three feet up to 20 feet; contact factory for pricing and availability of lengths not shown. Hoses are CARB-approved for overall assembly lengths up to 20 feet, including breakaway and whip hose.

Hoses are supplied in black unless otherwise specified. To order a hose in a color other than black, replace "B" with the code as follows: BL = blue, G = green, R = red. Consult factory for pricing.

S7 Series Hoses (for use with 708 and 709 series nozzle only)



75 Series 3/4" S7 Series Healy Hose

Healy straight thread swivels at both ends (for use with 708 and 709 series nozzles only).

Part Number	Description
75B-080-S2S7	8' standard Healy coaxial hose
75B-085-S2S7	8½' standard Healy coaxial hose
75B-090-S2S7	9' standard Healy coaxial hose
75B-095-S2S7	9½' standard Healy coaxial hose
75B-100-S2S7	10' standard Healy coaxial hose
75B-105-S2S7	10½' standard Healy coaxial hose
75B-110-S2S7	11' standard Healy coaxial hose
75B-115-S2S7	11½' standard Healy coaxial hose
75B-120-S2S7	12' standard Healy coaxial hose
75B-125-S2S7	12½' standard Healy coaxial hose
75B-130-S2S7	13' standard Healy coaxial hose
75B-135-S2S7	13½' standard Healy coaxial hose
75B-140-S2S7	14' standard Healy coaxial hose

Note: Healy hoses are available from three feet up to 20 feet; contact factory for pricing and availability of lengths not shown.

Hoses are supplied in black unless otherwise specified. To order a hose in a color other than black, replace "B" with the code as follows: BL = blue, G = green, R = red. Consult factory for pricing.

75 Series Coaxial Hose Adapters

Model	Description
CX6-A	Hose adapter, non-vapor ready, NPT
CX6-AE	Hose adapter, non-vapor ready, BSP, international only
CX6-VV3A	Hose adapter, non-vapor ready, multi-product units

75 Series Standard and Balance-Ready Healy Hose Breakaways

Model	Description
715VV	Repair kit for 8701VV breakaway, includes valves and O-rings
761	Nozzle end for 8701VV breakaway scuffguard
762	Dispenser end for 8701VV breakaway scuffguard
787	Nickel plated brass shear screw for 8701VV
787-1	Nickel plated brass shear screw for 807 swivel breakaway
795	Clamp repair tool for 8701VV and 807 breakaway
807	Swivel breakaway installed between hose and nozzle
8701VV	Standard hose breakaway with vapor path shut-off, 350 lbs. strength
Z055	O-ring kit for 8701VV with nickel plated shear screw

Dispenser Vapor Retrofit Kits*

Model	Description
Z008	Standard for single-hose dispenser
Z009	Standard for dual-hose dispenser
Z044C	Universal for six-hose multi-product dispenser
Z046C	Universal for four-hose multi-product dispenser
Z047C	Universal for two-hose multi-product dispenser

*Hose adapters are not included in retrofit kits.

Hose Accessories and Spare Parts

Model	Description
516	Hose end O-ring for S4 fitting, large
1301	Hose flow limiter for 8701VV standard breakaway, installed between breakaway and main hose
1302	Hose flow limiter for 807 swivel breakaway, installed between main hose and nozzle
8103	Hose clamp, for connect to hose retractor
HB-2	Hose end O-ring for S2 fitting, large
HB-4	Vapor end quad ring (2 required per adaptor)
291	Vapor end O-ring, small (2 required per adaptor)
6094	Hose end O-ring for S3 fitting, large

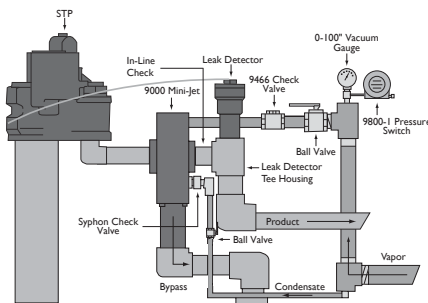
9000 Series Mini-Jet Central Vacuum Pump

The popular, non-electric mini-jet offers the ultimate in versatility utilizing an existing STP's product flow to create vacuum for vapor recovery. One mini-jet can handle eight fueling positions with four nozzles in simultaneous full flow operation. Additional mini-jets can be added for larger sites. Provides high reliability and low maintenance. High vacuum level assures clearing of flooded vapor hoses.

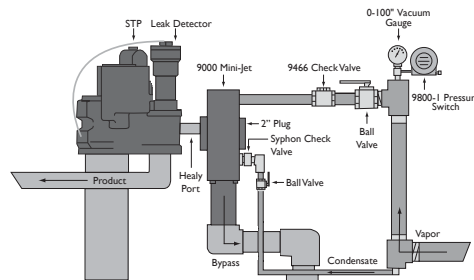


Advantages

- No electrical hook-up.
- No moving parts creating vacuum.
- Installs in standard existing STP tank sump.



IN-LINE INSTALLATION



HEALY PORT INSTALLATION

CARB Certified for Use With	Executive Order Number	Tank Type
Healy 400 ORVR nozzle	G-70-187	AST
Healy 400 ORVR nozzle	G-70-186	UST
Healy 600 bootless nozzle	G-70-165	UST

Model	Description
9000-02	9000 mini-jet, non-electric with syphon port, can handle eight fueling positions with four nozzles in simultaneous full flow
650-104-02	9000 mini-jet check valve strainer assembly (replaces 912A)
940A	Vacuum regulator upgrade kit
965	O-ring (1 per cover)
CV4	O-ring, for strainer assembly

Note: Central vacuum source installations may require the use of the Healy 6280 monitor assembly.

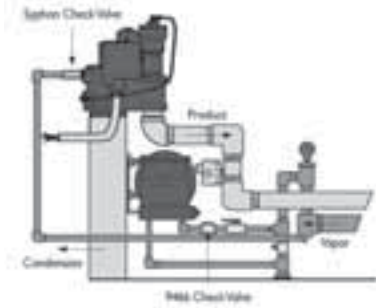


Advantages

- Flexible installation options.
- Low cost installation and operation.
- Unsurpassed low maintenance.

VP500 Central Vacuum Vane Pump

Provides the ultimate in central vacuum versatility. 1 1/2/230 VAC — 50/60 Hz application. High vacuum level assures clearing of flooded vapor hoses. Available in two versions. VP500B for mounting in a STP sump. Handles 10 fueling positions with five nozzles in simultaneous full flow operation.



CARB Certified for Use With	Executive Order Number	Tank Type
Healy 400 ORVR nozzle	G-70-187	AST
Healy 400 ORVR nozzle	G-70-186	UST
Healy 600 bootless nozzle	G-70-165	UST

Model	Description
VP500B	VP500 vane pump with U-bolts and angle bracket for mounting, handles 10 fueling positions with five nozzles in simultaneous full flow
VP500	Replacement VP500 vane pump with regulator and flame arrestor assembly
VP500VR-3	VP500 vane and rotor replacement kit, pin drive
5007A	Regulator assembly
9214	VP500 flame arrestor

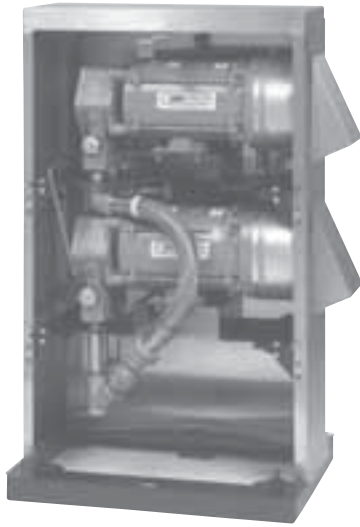
Note: Central vacuum source installation may require the use of the Healy 6280 monitor assembly.

VP500C/1 or VP500C/2 Cabinet Models

The VP500 cabinet models provide the same performance specifications as the 500B but operate inside an attractive stainless steel cabinet designed to be mounted separately, remote of the gasoline storage tanks.

The C/1 contains one vacuum pump with a capacity to handle 10 fueling positions with five nozzles in simultaneous full flow operation.

The C/2 model contains two vacuum pumps within the same stainless steel cabinet but increases the system's vapor recovery capacity to handle 20 fueling positions with 10 nozzles in simultaneous full flow operation.



Advantages

- Flexible installation options.
- Low cost installation and operation.
- Reliability and low maintenance.

CARB Certified for Use With	Executive Order Number	Tank Type
Healy 400 ORVR nozzle	G-70-187	AST
Healy 400 ORVR nozzle	G-70-186	UST
Healy 600 bootless nozzle	G-70-165	UST

Model	Description
VP500C/1	Single cabinet-mounted VP500 vane pump, includes 9800-1 pressure switch, handles 10 fueling positions with five nozzles in simultaneous full flow
VP500C/2	Dual cabinet-mounted VP500 vane pump, includes 9800-1 pressure switch, handles 20 fueling positions with 10 nozzles in simultaneous full flow

Note: Central vacuum source installation may require the use of the Healy 6280 monitor assembly.

100 Jet Pump Central Vacuum Source

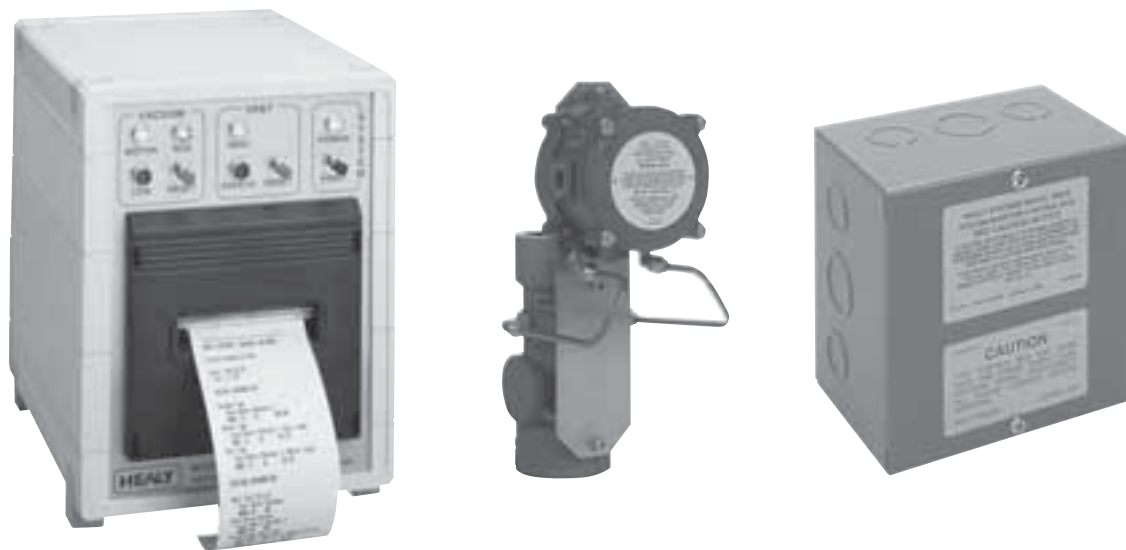
Model	Description
100	100 jet pump central vacuum source, two required for each hose
930	100 jet pump central vacuum source O-ring
1005W-4	STP sensing relay for product input
1258A	100 jet pump external relief valve assembly

Note: Central vacuum source installation may require the use of the Healy 6280 monitor assembly.

6280 Vapor Recovery Monitoring System

Continuously monitors system performance in accordance with CARB specifications.

For use with Healy central vacuum vapor recovery systems only. Required per CARB executive order for all USTs and when monthly throughput is greater than 10,000 gallons on ASTs.



CARB Certified for Use With	Executive Order Number	Tank Type
VP500/9000 pump with 400 ORVR nozzle	G-70-186	UST
9000/VP500 pump with 400 ORVR nozzle	G-70-187	AST
9000 Series mini-jet with 600 bootless nozzle	G-70-165	UST
VP500 Series vane pump with 600 bootless nozzle	G-70-165	UST

Model	Description
6280A	System monitor assembly, includes 6280 system monitor, 6275 vent sensor, SMCB control box, HPVV vacuum vent valve, 9800-1 pressure switch, HPV1.5 pressure vent valve, 9466 1" check valve
6280	Replacement monitor only
6275	Vent sensor assembly
9466	1" back pressure condensate drain check valve, central vacuum use only
9800-1	Pressure switch, replaces 93928 pressure switch
62755	Vent sensor assembly pressure switch for 6280A
628021	Control box power supply, 110VAC to 12VDC, 1.5 A
628028	Printer paper roll
628029	Printer ribbon cartridge
1005W-4	Control box solid state sensing relay for product input
405277901	Control box relay (CB1) with relay socket (CB1A)
HPV1.5	Pressure vent valve, +1 1/2" WC pressure
HPVV	Vacuum vent valve, +3" WC pressure, -8" vacuum (non-EVR)
SMCB	Control box only with Healy 1005W solid state relay, includes 110V power supply
SMCB-1	Control box only without Healy 1005W solid state relay, includes 110V power supply

System Test Equipment

Model	Description
8175	Surrogate spout assembly, for use with 700/800/900 Series nozzles
9968	Clean air separator test port assembly
2302A	Gauge kit, 1-0-1" water column
6059	Spout adapter, air/liquid ratio test, for use with 600 Series nozzle only
8034-1	Spout adapter, air/liquid ratio test, for use with 700/800/900 Series nozzles only
8175-1	Surrogate spout assembly including 8034-1, for use with 700/800/900 Series nozzles only
939349A	Gauge kit, 0-100" water column
Z076	Roots™ meter package, 600 Series nozzle, includes Dresser Roots™ vapor recovery meter, flange kit, 1 1/2" NPT × 1/2" NPT reducer, 6' × 3/4" hose, 600 Series nozzle spout adapter and two 1/2" NPT × 3/4" hose barb fittings
Z077	Roots™ meter package, 700/800/900 ORVR nozzle, includes Dresser Roots™ vapor recovery meter, flange kit, 1 1/2" NPT × 1/2" NPT reducer, 6' × 3/4" hose, ORVR nozzle spout adapter and two 1/2" NPT × 3/4" hose barb fittings
63034	O-ring, for 8034-1 spout adapter
8006	Magnet strip assembly (for use with spout adapter 8034-1)

Advantages

- Capable of monitoring even the largest sites.
- Continuous inventory monitoring and tank testing through proven magnetostrictive probe technology.
- Highest rated continuous 24 hour leak detection (SCALD) in the industry.
- Density measurement and alarm capabilities.
- Patented AutoLearn™ electronic line leak detection capability, including Statistical Line Leak Detection for high throughput lines.
- Standard communication ports including one Ethernet and RS-485, two USB and RS-232.
- Complete web interface and email capabilities.
- Turbine Pump Interface, intelligent STP control.
- Programmable product colors.
- Programmable One Touch buttons.
- Quick Jump menu ease of navigation.
- F.A.S.T. programming with the Franklin Auto Setup Tool.

TS-550 evo Fuel Management System

TS-550 evo brings a new level of usability and functionality to fuel management. A highly evolved user interface and blisteringly-fast new processor based on the proven TS-550 platform makes everything from daily functions to advanced setup and programming simple for every user.



Specifications

- Number of tanks monitored: 12 (72*)
- Number of lines monitored: 8 (48*)
- Sensor input channels: 12 (72*)
- Dry contact input channels: 2
- AC input channels: 12 (72*)
- 4-20 ma input channels: 8 (48*)
- Relay output channels: 2 (50*)
- Display type: color LCD touch screen
- Printer type: thermal
- Internal audible alarm
- Alarm, warning and power LEDs
- Applicable liquids: petroleum, chemicals and hazardous waste
- Level units: inches, centimeters and millimeters
- Volume units: gallons or liters (mass with density option)
- Display size: 7" (17.78 cm)
- Power requirements: 110 to 240 VAC, 50/60 hz, 2.6 Amps
- Operating temperature: 32° to 104 °F (0° to 40 °C)
- Humidity: 0-90% non-condensing
- Dimensions: 11" x 11.75" x 9.5" (279 mm x 298 mm x 241 mm)
- Interface to devices with intrinsic safety rating:
US - Class I, Div. I, Group D
Europe - Group IIA, Zone 0

Connectivity

- Ethernet/complete web interface
- RS-232/485
- USB
- Fax/data modem
- IFSF via Lon™

Capabilities

- Inventory and delivery management
- Leak detection sensors
- Static and Continuous tank testing
- Static and Statistical Electronic Line Leak Detection
- High, low and water alarm set points
- Inventory reconciliation / tank autocalibration
- Density and mass measurement
- Secondary Containment Monitoring (vacuum)
- Turbine Pump Interface (TPI)
- Email notifications
- Back-up generator monitoring / fuel flow control

Approvals

- UL, cUL, ATEX, IECEx
- Third party certification of leak detection capabilities

* Maximum number when including additional options.

TS-550 evo

Model	Description
T550ED	TS-550 evo base console without printer
T550EDP	TS-550 evo base console with printer

Expansion Console

Model	Description
EVO-EXPC	Secondary console to add eleven additional plug-in modules to the primary TS-550 evo console, comes without a display or printer

TS-550 evo Console Hardware and Software Options

TS-550 evo consoles come standard with the ability to perform in-tank static leak detection. The following software and hardware options can be added to customize your console. The internal hardware options will be factory installed when ordered with the console.

Internal Hardware Options

Part Number	Description
TS-DIMIB	(I) Internal dispenser interface module, dispenser interface cable must be ordered separately
TS-LON	(E) Lon™ communication module, IFSF protocol capability
TS-MDMIB	(M) Internal modem, includes fax and data software capability

Note: Only one TS-DIM or TS-LON module can be installed per console.

Internal Software Options

Part Number	Description
TS-TT	(T) Statistical Continuous Automatic Leak Detection, 24 hour continuous tank testing software
TS-TRAC	(R) Tank inventory reconciliation and autocalibration
TS-ELLD	(L) Electronic line leak detection
TS-SCM	(S) Secondary containment monitoring

TS-550 evo Fuel Management System Console Ordering Guide

Console model, software and hardware options can be listed separately or combined when ordering. Systems shipped from the factory will list the combined part number. Complete console part numbers have a specific order and are created using the following guidelines:

T550ED PMY / TRL S

PMY = Hardware Options

P = Printer

M = Internal modem

Y = I for dispenser interface module or

E for a LON module

TRL S = Software Options

T = SCALD 24-hour tank testing

R = Reconciliation/Autocalibration

L = Line leak detection

S = Secondary containment monitoring

Advantages

- Monitors up to 12 tanks.
- Continuous inventory monitoring and tank testing through proven magnetostrictive probe technology.
- Highest rated continuous 24 hour leak detection (SCALD) in the industry.
- Density measurement and alarm capabilities.
- Low cost, compact console.
- Standard communication ports including Ethernet, two RS-232 and USB.
- Internal fax and data modem options.
- Generates inventory, compliance and fuel management reports.

TS-5 Fuel Management System

The TS-5 fuel management system provides inventory and leak detection for up to 12 storage tanks.



Specifications

- Number of tanks monitored: 12.
- Input channels: 2.
- Output only channels: 2.
- Display type: touch screen LCD.
- Applicable liquids: petroleum, chemicals and hazardous waste.
- Level units: inches, centimeters and millimeters.
- Volume units: gallons or liters.
- Display size: 320 × 240 pixels.
- Power requirements: 110 to 220 VAC, +15%, -10%, 150 Watt maximum, 1.5 Amps.
- Operating temperature: 32° to 104 °F (0° to 40 °C).
- Storage temperature: -4° to 140 °F (-20° to 60 °C).
- Intrinsic safety rating:
US - Class I, Div. I, Group D.
Europe - Group IIA, Zone 0.
- LCD backlight contains mercury, dispose of properly.
- Can provide dispenser information and automate reconciliation when used in conjunction with the dispenser interface module.
- Provides accurate inventory information, including reports that can be used to better schedule deliveries.
- Multipurpose relays can be used for outputs to overflow alarms and external audible and visual indicators.

Capabilities

The fuel management system is built on an established open-system software platform.

- Standard Ethernet connection allows easy integration to existing wide area networks.
- XML-based software allows remote access to data without additional software.
- Graphical touch screen LCD allows text to be displayed in native language.
- E-mail notification gives station owners real-time status information.
- Monitor back-up generators for fuel inventory control, run status reports, and continuous leak detection.

Applications

The fuel management system has been designed to monitor tank tightness and gather inventory information.

- Third party approved volumetric leak detection (Pd = 99.9% at 0.2 gph).

Approvals

- UL, cUL, ATEX, IECEx
- Third party certification of leak detection capabilities

Model	Description
T5	TS-5 console without display
T5D	TS-5 console with LCD display

Note: Includes one TS-PRB 12 input probe module.

TS-5 Console Hardware and Software Options

The TS-5 console comes standard with the ability to perform in-tank static leak detection. The following software and hardware options can be added to customize your consoles. The internal hardware options will be factory installed when ordered with the console.

Internal Hardware Options

Part Number	Description
TS-DIMIB5	(I) Internal dispenser interface module, dispenser interface cable must be ordered separately
TS-LON5	(E) Lon™ communication module, IFSF protocol capability
TS-MDMIB	(M) Internal modem, includes fax and data software capability

Note: Only one TS-DIMIB or TS-LON module can be installed per console.

Internal Software Options

Part Number	Description
TS-TT	(T) Statistical Continuous Automatic Leak Detection, 24 hour continuous tank testing software
TS-TRAC	(R) Tank inventory reconciliation and autocalibration

TS-5 Fuel Management System Console Ordering Guide

Console model, software and hardware options can be listed separately or combined when ordering. Systems shipped from the factory will list the combined part number. Complete console part numbers have a specific order and are created using the following guidelines:

T5 DM X / TR

T5 = Model

T5 = TS-5, 110 or 200 VAC.

DM X = Hardware Options

D = Display, standard in the TS-5.

M = Internal modem.

X = I for dispenser interface module or E for a LON module.

TR = Software Options

T = SCALD 24-hour tank testing.

R = Reconciliation.

Advantages

- Monitors up to 72 tanks.
- Continuous inventory monitoring and tank testing through proven magnetostrictive probe technology.
- Highest rated continuous 24 hour leak detection (SCALD) in the industry.
- Density measurement and alarm capabilities.
- Patented AutoLearn™ electronic line leak detection capability, including Statistical Line Leak Detection for high throughput lines.
- Standard communication ports including one Ethernet and USB, two RS-232.
- Internal fax and data modem options.
- Interstitial and piping sump leak sensing for up to 72 sensors.
- Can handle 72 dispenser hook inputs, eliminating need for an external box.
- Approved by the California Air Resources Board EO VR-202 & VR-208.

TS-550 and TS-5000 Fuel Management Systems

The TS-550 and TS-5000 fuel management systems' modular design provides compliance and fuel management capability in a single enclosure.



Specifications

- Number of tanks monitored: 72.
- Input channels: 2.
- Output only channels: 2.
- Display type: touch screen LCD.
- Printer type: thermal.
- Applicable liquids: petroleum, chemicals and hazardous waste.
- Level units: inches, centimeters and millimeters.
- Volume units: gallons or liters.
- Display size: 320 × 240 pixels.
- Power requirements: 110 to 220 VAC, +15%, -10%, 150 Watt maximum, 1.5 Amps.
- Operating temperature: 32° to 104 °F (0° to 40 °C).
- Storage temperature: -4° to 140 °F (-20° to 60 °C).
- Intrinsic safety rating:
US - Class I, Div. I, Group D.
Europe - Group IIA, Zone 0.
- LCD backlight contains mercury, dispose of properly.

Applications

The flexible architecture of the TS-550 and TS-5000 allows multiple applications to run concurrently, satisfying current business and regulatory requirements.

- Fuel management system applications provide accurate inventory information, third party-approved tank and line leak detection, automated inventory reconciliation and submersible pump monitoring.

- The vapor recovery monitoring application gauges the effectiveness of a station's vapor recovery equipment through continuous monitoring of gasoline vapors during fueling operations.
- Secondary containment monitoring application continuously monitors the interstitial spaces of double wall tanks, lines and sumps, and notifies station owners when a release of product into the environment has occurred.

Capabilities

The TS-550 and TS-5000 are built on an established open-system software platform.

- Standard Ethernet connection allows easy integration to existing wide area networks.
- XML-based software allows remote access to data without software.
- Graphical touch screen LCD allows text to be displayed in native language.
- Generic interface modules give flexibility in configuring station monitoring requirements.
- E-mail notification gives station owners real-time status information.
- Multiple printing options give flexibility in style and format of reports.
- Monitor back-up generators for fuel inventory control, run status reports, and continuous leak detection.

Approvals

- UL, cUL, ATEX, IECEx
- Third party certification of leak detection capabilities

TS-550 110 and 220 VAC Models

Model	Description
T550	TS-550 base console without display and printer
T550D	TS-550 base console with display and without printer
T550DP	TS-550 base console with display and printer

TS-5000 110 and 220 VAC Models

Model	Description
T5000	TS-5000 base console without display and printer
T5000D	TS-5000 base console with display and without printer
T5000DP	TS-5000 base console with display and printer

Expansion Console

Model	Description
TS-EXPC	Secondary console to add eleven additional plug-in modules to the primary TS-550/5000 console, comes without a display or printer

TS-550 and TS-5000 Console Hardware and Software Options

TS-550 and TS-5000 consoles come standard with the ability to perform in-tank static leak detection. The following software and hardware options can be added to customize your console. The internal hardware options will be factory installed when ordered with the console.

Internal Hardware Options

Part Number	Description
TS-DIMIB	(I) Internal dispenser interface module, dispenser interface cable must be ordered separately
TS-LON	(E) Lon™ communication module, IFSF protocol capability
TS-MDMIB	(M) Internal modem, includes fax and data software capability

Note: Only one TS-DIM or TS-LON module can be installed per console.

Internal Software Options

Part Number	Description
TS-TT	(T) Statistical Continuous Automatic Leak Detection, 24 hour continuous tank testing software
TS-TRAC	(R) Tank inventory reconciliation and autocalibration
TS-ELLD	(L) Electronic line leak detection
TS-VRM	(V) Vapor recovery monitoring, ISD
TS-VRMB	(B) Vapor recovery monitoring for balance sites (VRM I.I)
TS-SCM	(S) Secondary containment monitoring

TS-550 and TS-5000 Fuel Management System Console Ordering Guide

Console model, software and hardware options can be listed separately or combined when ordering. Systems shipped from the factory will list the combined part number. Complete console part numbers have a specific order and are created using the following guidelines:

TX DPM Y / TRL V S

TX = Model

T550 = TS-550, 110 or 220 VAC.

T5000 = TS-5000, 110 or 220 VAC.

DPM Y = Hardware Options

D = Display.

P = Printer.

M = Internal modem.

Y = I for dispenser interface module or E for a LON module.

TRL V S = Software Options

T = SCALD 24-hour tank testing.

R = Reconciliation.

L = Line leak detection.

V = Vapor recovery monitoring, V for assist or B for balance.

S = Secondary containment monitoring.

Fuel Management System Console Accessories

TS-550 and TS-5000 Fuel Management System Console Interface Modules

TS-550 and TS-5000 consoles come standard with a power supply module and a controller module. Additional interface modules can be installed. Interface modules ordered with a console will be installed at the factory. The following guidelines must be followed:

- TS-550: Six total modules can be installed with a maximum of four intrinsically safe modules and a maximum of three of any one kind of module.
- TS-5000: Eleven total modules can be installed with a maximum of nine intrinsically safe modules and a maximum of three of any one kind of module.

Intrinsically Safe Modules

Part Number	Description
TS-PRB	12 input probe module, LL2 Series mag probes, VFM flow meters and DMS Mag sensors
TS-2WSNS	12 input 2-wire sensor module, TSP-ULS, TSP-UHS and TSP-HLS sensors
TS-3WSNS	8 input 3-wire sensor module, TSP-EIS, TSP-DIS, TSP-DDS, TSP-DTS, TSP-HIS, TSP-MWS and TSP-DVS sensors. Can also support 2-wire sensors
TS-420IB	8 input 4-20 mA module, LSU500 transducers and VPS and SCCM pressure sensors

Non-Intrinsically Safe Modules

Part Number	Description
TS-ACI	12 input AC input module, dispenser hook inputs
TS-RLY	8 output relay module, SCCM solenoid and STP control
TS-10ARLY	6 output 10 Amp relay output module, dispenser power
TS-IO	Input output module, 4 output 4-20 mA, 8 input 3-240 VAC/DC
TS-420EXP	8 input 4-20 mA module, LSU500E transducers and external devices

Note: TS-RLY Module is not required for STP control when utilizing turbine pump interface (TPI) communications.
The TS-420EXP module requires Controller Module software version 9.5 or greater
Do not include Power Supply and Controller Module when calculating total modules allowed

TS-LS500 AutoLearn™ with Statistical Line Leak Detection

Pressurized line leak detection provides automatic 3.0 gph hourly, 0.2 gph monthly and 0.1 gph annual precision line leak detection for TS-550 and TS-5000 consoles. Statistical Line Leak Detection (SLLD) is a standard feature that can provide 0.2 gph monthly results on even high throughput lines. Available in intrinsically safe and explosion proof models. Use explosion proof when low voltage conduit is not available. The TS-420IB or TS-420EXP, TS-ACI and TS-RLY module and TS-ELLD software option must be ordered and installed in the fuel management system console.

Intrinsically Safe

For new installations where separate low voltage conduits can be used. Use TS-420IB module.

Part Number	Description
TS-LS500/2	2-line transducer kit
TS-LS500/3	3-line transducer kit
TS-LS500/4	4-line transducer kit

Note: Using turbine pump interface (TPI) communications eliminates the need for a TS-RLY module;
FFS intelligent controllers required.

Explosion Proof

For retrofit installations where only a high voltage conduit can be used. Use TS-420EXP module.

Part Number	Description
TS-LS500E/2	2-line transducer kit, explosion proof
TS-LS500E/3	3-line transducer kit, explosion proof
TS-LS500E/4	4-line transducer kit, explosion proof

Note: Using turbine pump interface (TPI) communications eliminates the need for a TS-RLY module;
FFS intelligent controllers required.

Alternative Fuels Accessories

Part Number	Description
TS-AFALNIP	Leak generator needle valve kit required for E85 installations

Dispenser Interface Module Cables

Part Number	Description
TSP-WDCBL	Wayne™ cable
TSP-TDCBL	Tokheim™ cable
TSP-GDCBL	Gilbarco™ cable
TSP-GSDCBL	Gilbarco™ G-Site™ cable
TSP-BDBCL	Bennett® 515 only cable

Paper Supplies

Part Number	Description
Thermal Printer Supplies	
TS-TP2	One box of 5 rolls of thermal printer paper for TS-550, TS-5000 and Tank Sentinel® consoles
TS-TP2C	One case (100 rolls) of thermal printer paper for TS-550, TS-5000 and Tank Sentinel® consoles
Impact Printer Supplies	
TS-TP5000	TS-550 and TS-5000 impact printer paper
TS-TP5000C	12 rolls of impact printer paper
TS-INKRB	TS-550 and TS-5000 ink ribbon

Secondary Containment Monitoring

The secondary containment monitoring system is designed to detect leaks in double-wall tanks, sumps and piping. TS-420IB, TS-RLY and TS-ACI modules and the TS-SCM software option must be ordered and installed in the tank gauge console.

Sensor Modules

Part Number	Description
TS-SCCM/1	Single channel secondary containment control module
TS-SCCM/2	Dual channel secondary containment control module
TS-SCMCAL	Leak generator kit, one per station
VS-SCCM/1	220 VAC single channel secondary containment control module
VS-SCCM/2	220 VAC dual channel secondary containment control module

Install Kit

Part Number	Description
TSP-SCLSI	Product, vapor line and sump containment install kit
TSP-SCTK2	Tank containment install kit for 2" risers, in-tank hose sold separately
TSP-SCTK2B	Tank containment install kit for 2" risers with BSP threads, in-tank hose sold separately
TSP-SCTK4	Tank containment install kit for 4" risers, in-tank hose sold separately
TSP-SCTK4B	Tank containment install kit for 4" risers with BSP threads, in-tank hose sold separately

Accessories

Part Number	Description
TSP-SCBRB	Five 1/4" NPT barbed fittings
TSP-SCBRBT	1/4" NPT barbed T-fitting
TSP-SCCLP	Five hose clamps
TSP-SCTB25	25' hose
TSP-SCTB50	50' hose
TSP-SCTB100	100' hose
TSP-SCVLV	Five Schreader valves

Upgrading Installed Fuel Management System Consoles

Two types of upgrades can be done on a fuel management system console: feature upgrades and software upgrades. The latest software versions are included with all feature upgrades. Most feature upgrades require ordering a software option, hardware options and interface modules. Some modules may already be installed.

Feature Upgrade

Upgrade	Software	Hardware	Interface Module
Internal modem		TS-MDMIB internal modem	
24 hour tank testing	TS-TT SCALD tank testing		
Line leak	TS-ELLD electronic line leak detection	Appropriate TS-LS500/N transducer kit	TS-RLY module, not needed with TPI TS-420IB module TS-ACI module
Tank inventory reconciliation	TS-TRAC tank inventory reconciliation and autocalibration	TS-DIMIB module Appropriate DIM interface cables	
Secondary containment monitoring	TS-SCM secondary containment monitoring	Appropriate TS-SCCM modules, installation kits and accessories	TS-ACI module TS-RLY module TS-420IB module
Vapor recovery monitoring (ISD)	TS-VRM vapor recovery monitoring	TS-VFM flow meters TS-VPS pressure sensor TS-DIMIB dispenser interface	TS-ACI module (not needed w/VRM 1.2) TS-RLY or TS-10ARLY module TS-PRB probe module TS-420IB module

Note: When placing an order for a feature upgrade, the serial number of the console to be upgraded must be supplied.

Software Version Upgrade Only

Part Number	Description
TSA-UPGMS	Software version upgrade shipped on a USB memory stick

Advantages

- Monitors fuel levels and density measurements in up to six tanks.
- Static and continuous tank leak detection capabilities.
- Standard communication ports.
- External USB printer support.
- Web interface for remote access.
- Programmable email notification of alarms and events.
- Compact size provides installation location flexibility.
- Autocalibration can recreate missing or inaccurate tank strapping charts.

Colibri Tank Monitor

Colibri is the ideal solution for the fueling station owner who requires basic, straightforward functionality in a fuel inventory monitoring system. The Colibri system monitors fuel density and inventory levels in up to six tanks and provides accurate, reliable information without manually taking tank readings. Additional features communicate the status of tank contents, including volume, temperature, mass, water level and continuous tank leak detection. The Web interface feature allows authorized users access to tank information from any computer connected to the internet or wide area network, as well as custom alerts which can be sent to email or mobile devices. The Colibri tank monitor is the highest quality, best value solution available for any fueling station that requires essential tank monitoring capabilities.



Specifications

- Number of tanks monitored: 6
- Output channels: 2
- Display type: color LCD touch screen
- Internal audible alarm
- Alarm, warning and power LEDs
- Applicable liquids: petroleum, chemicals and hazardous waste
- Level units: centimeters, millimeters and inches
- Volume units: liters or gallons (mass with density option)
- Display size: 142 mm (5.6 in)
- Dimensions: 185 mm x 303 mm x 57 mm (7.27 in x 11.92 in x 2.24 in)
- Power requirements: 94 to 264 VAC, 50/60 Hz 1.0 Amps
- Operating temperature: 0 to 40 °C (32 to 104 °F)
- Humidity: 0% to 95% non-condensing
- Intrinsically safe rating: US – Class I, Div. I, Group D Europe – Group IIA, Zone 0
- Compatible with FFS inventory and leak detection LL2 probes

Standard Capabilities

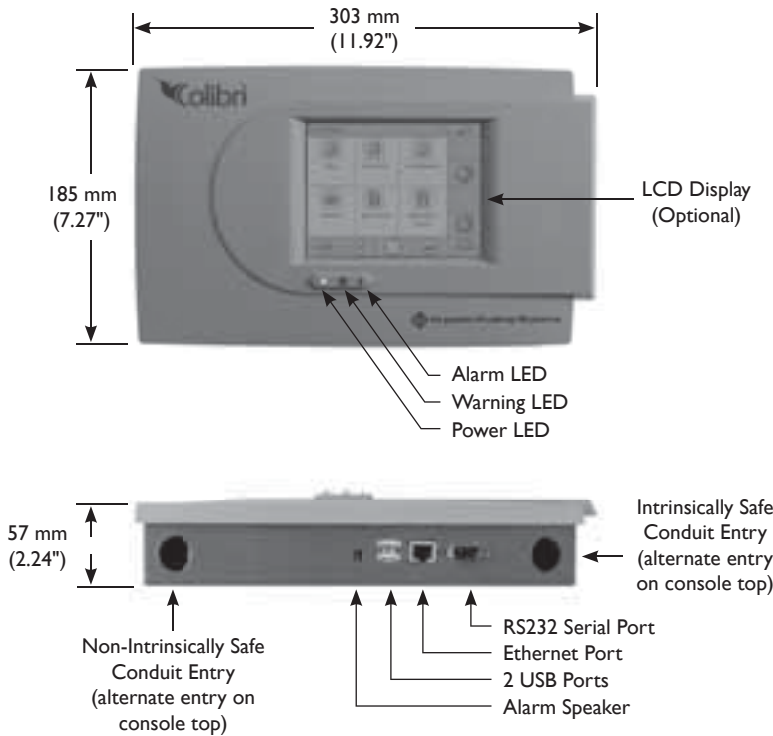
- Inventory and delivery management
- Static tank leak detection
- High, low and water alarm set points
- Available with or without display
- Web interface and email notifications

Optional Capabilities

- SCALD 24 hour tank leak detection
- Inventory reconciliation / Tank autocalibration
- Density and mass measurement

Approvals

- UL, cUL, ATEX, IECEx
- Third party certification of leak detection capabilities



Ordering Guide

Console model and software can be listed separately or combined when ordering. Systems shipped from the factory will list the combined part number. Complete console part numbers have a specific order and are created using the following guidelines:

CL6 D / TR

- CL6 = Colibri Model
- D = Display Option
- TR = Software Options
- T = SCALD 24 hour tank testing
- R = Reconciliation/autocalibration

Colibri Consoles

Model	Description
CL6	Six channel Colibri console without display
CL6D	Six channel Colibri console with display

Internal Software Options

Part Number	Description
CL-TT	(T) Statistical Continuous Automatic Leak Detection (SCALD), 24 hour continuous tank testing software
CL-TRAC	(R) Tank inventory reconciliation and autocalibration software

Upgrading Installed Colibri Systems

Feature Upgrade

The Colibri console can be upgraded after installation to add any of the available Internal Software Options. The serial number of the console as well as the part number of the option being ordered must be supplied.

Software Upgrade

The latest version of the Colibri software can be shipped on a memory stick.

Part Number	Description
CL-UPGMS	Colibri Software Version Upgrade on a USB memory stick

Note: The latest version of the Colibri software is also available for download from the FFS website.

Advantages

- Standalone ISD system.
- Approved by the California Air Resources Board EO VR-202 & VR-208.
- Includes TS-VRM vapor recovery monitoring software and optional secondary containment monitoring.
- Dispenser-based disabling prevents the entire site from shutting down in the event of an EVR failure.
- Wired-less Flow Meter and Pressure Sensor interface option.
- Ethernet-ready, web-based remote access provides the user with remote access to VRM status information, reports and alarm information using any web browser.
- Create custom rules to send e-mails and text messages on alarms and events directly from the console to service and compliance personnel.
- User-friendly touch screen interface with icon-based navigation.
- Scalable open architecture for easy and cost-saving future upgrades.

TS-EMS Environmental Monitoring System

The TS-EMS environmental monitoring system can perform in-station diagnostic vapor recovery monitoring (VRM) and secondary containment monitoring (SCM) and interface to an existing tank gauge.



Specifications

- Number of dispensers monitored: 16.
- Input channels: 2.
- Output only channels: 2.
- Display type: touch screen LCD.
- Printer type: impact.
- Volume units: gallons or liters.
- Display size: 320 × 240 pixels.
- Power requirements: 110 to 220 VAC, +15%, -10%, 150 Watt maximum, 1 1/2 Amps.
- Operating temperature: 32° to 104 °F (0° to 40 °C).
- Storage temperature: -4° to 140 °F (-20° to 60 °C).
- Intrinsic safety rating:
US - Class I, Div. I, Group D.
Europe - Group IIA, Zone 0.
- LCD backlight contains mercury, dispose of properly.

Applications

The flexible architecture of the TS-EMS allows multiple applications to run concurrently, satisfying multiple monitoring needs.

- The vapor recovery monitoring

application gauges the effectiveness of a station's vapor recovery equipment through continuous monitoring of gasoline vapors during fueling operations.

- Secondary containment monitoring application continuously monitors the interstitial spaces of double wall tanks, lines and sumps, and notifies station owners when a release of product into the environment has occurred.

Capabilities

The TS-EMS is built on an established open-system software platform.

- Standard Ethernet connection allows easy integration to existing wide area networks.
- XML-based software allows remote access to data without additional software.
- Graphical touch screen LCD allows text to be displayed in native language.
- Generic interface modules give flexibility in configuring station monitoring requirements.
- E-mail notification gives station owners real-time status information.
- Multiple printing options give flexibility in style and format of reports.

Model	Description
TEMSDPI/V	TS-EMS console with display, printer, DIM,VRM software and one TS-PRB,TS-420IB and TS-10ARLY
TEMS2DPI/V	TS-EMS console with display, printer, DIM,VRM software, one TS-PRB and TS-420IB, and two TS10ARLY
TEMS3DPI/V	TS-DTU ready TS-EMS console with display, printer, DIM,VRM software, and one TS-10ARLY module
TEMSDPI/VS	TS-EMS console with display, printer, DIM, VRM and SCM software, and one TS-PRB,TS-420IB and TS-10ARLY
TEMS2DPI/VS	TS-EMS console with display, printer, DIM and SCM software, one TS-PRB and TS-420IB, and two TS-10ARLY
TEMSDPI/B	TS-EMS console for balance sites with display, printer, DIM,VRM (I.I) software and one TS-PRB,TS-ACI,TS-420IB and TS-10ARLY
TEMS2DPI/B	TS-EMS console for balance sites with display, printer, DIM,VRM (I.I) software, one TS-PRB and TS-420IB, two TS-ACI and TS-10ARLY

- Notes:
1. Appropriate DIM cable must be ordered separately.
 2. TEMS and TEMS3 systems can support up to six dispensers. TEMS2 systems can support up to twelve dispensers. All models can be expanded to support up to 16 dispensers with additional modules.
 3. The appropriate number of TS-VFM vapor flow meters and one TS-VPS vapor pressure sensor must be ordered separately to perform vapor recovery monitoring.
 4. TS-ACI modules and hook signal wiring are only required for balance site installs.

TS-EMS Console Hardware and Software Options

TS-EMS consoles come standard with the ability to perform vapor recovery monitoring. The following software and hardware options can be added to customize your console. The internal hardware options will be factory installed when ordered with the console.

Internal Hardware Options

Part Number	Description
TS-MDMIB	(M) Internal modem, includes fax and data software capability

Internal Software Options

Part Number	Description
TS-SCM	(S) Secondary containment monitoring

TS-EMS Fuel Management System Console Interface Modules

TS-EMS consoles come standard with a power supply module, a controller module and a model dependent set of interface modules that can support up to 6 or 12 dispensers. In some situations non-standard module configurations may be required. Additional modules will be shipped separately from the EMS console. Six total modules can be installed with a maximum of four intrinsically safe modules and a maximum of three of any one kind of module.

Intrinsically Safe Modules

Part Number	Description
TS-PRB	12 input probe module,VFM flow meters
TS-420IB	8 input 4-20 mA module,VPS and SCCM pressure sensors

Non-Intrinsically Safe Modules

Part Number	Description
TS-RLY	8 output relay module, low power dispensers and SCCM solenoids
TS-10ARLY	6 output 10 Amp relay output module, high power dispensers and SCCM solenoids

External Modules

Part Number	Description
TS-DTU/P	Data transfer unit for wired-less VFM and VPS communications

Note: Order one TS-DTU/P and one TS-DRK/x install kit per dispenser. Order one additional TS-DTU/P for the console.

Dispenser Interface Module Cables

Part Number	Description
TSP-WDCBL	Wayne™ cable
TSP-TDCBL	Tokheim™ cable
TSP-GDCBL	Gilbarco™ cable
TSP-GSDCBL	Gilbarco™ G-Site™ cable
TSP-BDCBL	Bennett® 512 cable

Bennett® is a registered trademark of Bennett Pump Company.
Wayne™ is a trademark of Dresser Equipment Group Inc.
Gasboy™, Gilbarco™, Encore™, and G-Site™ are trademarks of Gilbarco Inc.
Tokheim™ is a trademark of Tokheim Holding B.V.

TS-EMS Environmental Monitoring System Ordering Guide

The TS-EMS environmental monitoring system comes standard with display, printer and dispenser interface module. An internal TS-MDMIB modem can be added as a hardware option. Order the TEMSDPI/VS if the secondary containment monitoring software option is required.

Advantages

- Dispenser-based disabling prevents the entire site from shutting down in the event of an EVR failure.
- Wireless Flow Meter and Pressure Sensor interface option when conduit is not present.
- Ethernet-ready, web-based remote access provides the user with remote access to VRM status information, reports and alarm information using any web browser.
- Create custom rules to send e-mails and text messages on alarms and events directly from the console to service and compliance personnel.
- User-friendly touch screen interface with icon-based navigation.
- Scalable open architecture for easy and cost-saving future upgrades.

TS-DTU

- Uses dispenser power wires to transmit data.
- Multi-industry proven power line communications technology.
- Save weeks of installation time.
- Save thousands of dollars in costly conduit installation and avoid damaged and blocked conduit.
- Save on the cost of the console due to a reduction in modules needed.
- No disruption of forecourt by having to break concrete.
- No need to pull wires.
- Will not interfere with dispenser operation.
- UL approved for installation in most common dispenser models.
- Works even if some dispensers are on different phases.

In-Station Diagnostics (ISD)

The INCON vapor recovery monitoring (VRM) option meets or exceeds all ISD requirements for ensuring that all components of the vapor recovery system are functioning normally. Recorded sales transactions are compared to data obtained from a TS-VFM vapor flow meter installed in each dispenser to verify that equivalent vapors are recovered from the vehicle when fuel is dispensed. The pressure of the vapor containment space is constantly monitored by the TS-VPS vapor pressure sensor and tested for over pressure and leakage conditions. Local and remote notification options alert the user of abnormalities and dispenser-based disabling keeps the rest of the site up and running when a single dispenser EVR system has a problem. The Wireless option, featuring the TS-DTU, prevents the need to break concrete to install new conduit or even pull wires and reduces the cost of the console.



TS-5000



TS-550



TS-EMS



Vapor Flow Meter



Vapor Pressure Sensor



Data Transfer Unit

Model	Description
TS-VFM	Vapor flow meter, one per dispenser
TS-VPS	Vapor pressure sensor, one per site
TS-VRM	Vapor recovery monitoring software
TS-VRMB	Vapor recovery monitoring for balance sites (VRM I.I)
TS-DTU/P	Data transfer unit for wireless VFM and VPS communications
TS-DRK/A	Gilbarco™ Advantage dispenser retrofit install kit
TS-DRK/E	Gilbarco™ Encore™ dispenser retrofit install kit
TS-DRK/T	Tokheim™ dispenser retrofit install kit
TS-DRK/W	Wayne™ dispenser retrofit install kit

- Notes: 1. Approved by California Air Resources Board EO VR-202 & VR-208.
 2. Minimum module requirements include one TS-PRB, TS-420IB, TS-RLY or TS-10ARLY.
 3. TS-VRM software is included in the TS-EMS console.
 4. Order one TS-DTU/P and one TS-DRK/x install kit per dispenser. Order one additional TS-DTU/P for the console. Controller Module software 9.5 or greater required.
 5. Consoles using the wireless option do not require the TS-PRB or TS-420IB modules for communication with the TS-VFM and TS-VPS
 6. TS-ACI modules and hook signal wiring are only required for balance site applications.

TS-1001 Full Feature Compliance Consoles

The TS-1001 consoles feature business management and environmental compliance capabilities. They offer inventory, leak detection, reporting and alarm notification.



Applications

The automatic tank gauge has been designed to monitor tank tightness, gather inventory information and assist with multiple environmental compliance issues.

- Third party approved volumetric leak detection (Pd = 99.9% at 0.2 gph).
- Can provide dispenser information and automate reconciliation when used in conjunction with the dispenser interface module.
- Provides accurate inventory information including reports that can be used to better schedule deliveries.
- Multipurpose relays can be used for outputs to overfill alarms and external audible and visual indicators.

Capabilities

The TS-1001 has programmable settings and is capable of monitoring up to four tanks.

- Offers a wide range of advanced communication options.
- Expanded, backlit LCD display with two lines of 40 columns.
- Supports multiple languages.
- Supports English and metric units.
- Generates numerous system warnings and tank alarms to quickly notify the user of any potential problems.
- Supports important generator and fuel management features.

*Maximum number when including additional options.

Specifications

- Number of tanks monitored: 4.
- Input channels: 2 (10*).
- Output only channels: 2 (10*).
- Sensor inputs: 12 (28*).
- Dimensions: 11" x 12" x 4".
- Display type: alphanumeric LCD.
- Applicable liquids: petroleum, chemicals and hazardous waste.
- Level units: inches or millimeters.
- Volume units: gallons or liters.
- Temperature units: degrees Fahrenheit or Celsius.
- Display size: 2 lines of 40 characters.
- Power requirements:
115 VAC - +15%, -10%, 100 Watts maximum, 1 Amp maximum.
230 VAC - +15%, -10%, 100 Watts maximum, 0.5 Amp maximum.
- Operating temperature: 32° to 122 °F (0° to 50 °C).
- Storage temperature: -4° to 140 °F (-20° to 60 °C).
- Intrinsic safety rating:
US - Class I, Div. I, Group D.
- Number of LLDs supported: 4.
- Printer type: 24 column thermal.

Advantages

- Monitors up to 4 tanks.
- Designed on an open architecture platform that is easily expandable for additional capabilities.
- Low cost, compact console handles a wide range of applications and is easily programmed through multipurpose function keys to meet site-specific criteria.
- Internal high-speed fax/data modem capability allows remote access from System Sentinel™ and System Sentinel AnyWare™.
- Executes automatic system check and notifies user if the unit is not functioning properly and performs continuous leak testing, no station down time required.

TS-1001 Console Ordering Guide

Console model, software and hardware options can be listed separately or combined when ordering. Systems shipped from the factory will list the combined part number. Complete console part numbers have a specific order and are created using the following guidelines:

XX PM / A B C CLR

XX = Model

TI = TS-1001, 120 VAC.
VI = TS-1001, 220 VAC.

PM = Hardware Options

P = Printer, standard.
M = Internal modem.

A B C CLR = Software Options

A = 0, 2, 4 tanks,
B* = S, SCALD, or G, generator.
C** = D - data, F - fax/data software.
C = Continental version.
L = Line leak detection.
R = Reconciliation.

*SCALD and generator options are mutually exclusive. The SCALD option is not needed for the generator model.

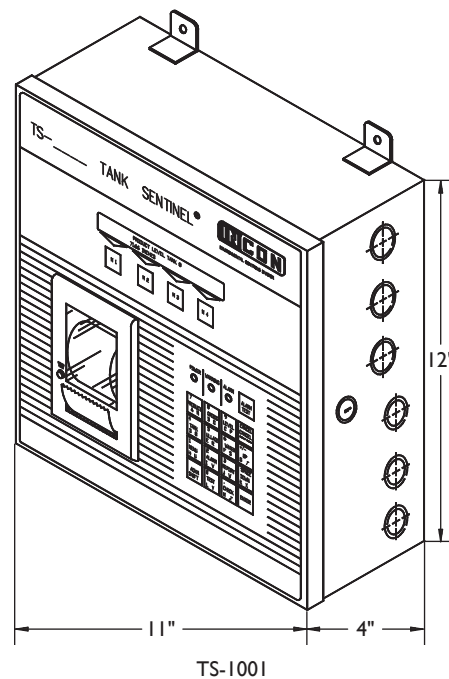
**Data and fax/data modem options are mutually exclusive.

TS-1001, 110 VAC Models

Model	Description
TIP/0	Leak monitor with 12 sensor inputs and printer
TIP/2	ATG, up to 2 tanks with 12 sensor inputs and printer
TIP/4	ATG, up to 4 tanks with 12 sensor inputs and printer

TS-1001, 220 VAC Models

Model	Description
VIP/0C	Leak monitor with 12 sensor inputs and printer
VIP/2C	ATG, up to 2 tanks with 12 sensor inputs and printer
VIP/4C	ATG, up to 4 tanks with 12 sensor inputs and printer



TS-100 I/G Fixed Feature Generator Tank Monitoring Console

The TS-100I/G back-up generator tank monitoring system provides fuel inventory control, runs status reports and continuous leak detection.



Specifications

- Number of tanks monitored: 2.
- Input channels: 2 (10").
- Output only channels: 2 (10").
- Sensor inputs: 12 (28").
- Dimensions: 12" x 11" x 4".
- Display type: alphanumeric LCD.
- Applicable liquids: petroleum, chemicals and hazardous waste.
- Level units: inches or millimeters.
- Volume units: gallons or liters.
- Temperature units: degrees Fahrenheit or Celsius.
- Display size: 2 lines of 40 characters.
- Power requirements:
115 VAC - +15%, -10%, 100 Watts maximum, 1 Amp maximum.
230 VAC - +15%, -10%, 100 Watts maximum, 0.5 Amp maximum.
- Operating temperature: 32° to 122 °F (0° to 50 °C).

- Storage temperature: -4° to 140 °F (-20° to 60 °C).
- Intrinsic safety rating:
US - Class I, Div. I, Group D.
- Number of LLDs supported: 8.
- Printer type: 24 column thermal.

Capabilities

- Generates inventory, compliance and fuel management reports.
 - Performs continuous leak detection.
 - Supports English and metric units.
 - Generates numerous system warnings and tank alarms to quickly notify the user of any potential problems.
 - Can open and shut appropriate valves through multipurpose relays.
- *Maximum number when including additional options.

Advantages

- Monitors up to 2 tanks.
- Proven INCON design.
- Easy site-specific programming through keyboard.
- Accurate inventory information, including days supply remaining.
- Alarms and positive shut-off available.
- As many as 28 sensor inputs.
- Communicates directly to System Sentinel™ software.
- Uses highly accurate magnetostrictive probe technology.

TS-100I/G Console Ordering Guide

Console model, software and hardware options can be listed separately or combined when ordering. Systems shipped from the factory will list the combined part number. Complete console part numbers have a specific order and are created using the following guidelines:

XX PM / 2G B C

XX = Model

TI = TS-100I, 120 VAC.

VI = TS-100I, 220 VAC.

PM = Hardware Options

P = Printer, standard.

M = Internal modem.

2G B C = Software Options

B* = D - data, F - fax/data software.

C = Continental version.

*Data and fax/data modem options are mutually exclusive.

TS-100I/G, I10 and 220VAC Models

Model	Description
TIP/2G	One to two tank configuration with generator back-up capability (110VAC)
VIP/2G	One to two tank configuration with generator back-up capability (220VAC)

Advantages

- Cost-effective system provides up-to-the-minute inventory information.
- State-of-the-art communication capability.
- Feature-rich programming generates detailed inventory management reports.
- Fully compatible with System Sentinel™ and System Sentinel AnyWare™ remote monitoring software.

TS-504 and TS-508 Fixed Feature Inventory Control Consoles

This inventory control family of products offers a feature-rich and cost-effective solution for continuous inventory management of fuel sites where in-tank leak detection is not required.



Specifications

- Number of tanks monitored:
TS-504 - 4.
TS-508 - 8.
- Input channels: 2 (10⁶).
- Output only channels: 2 (10⁶).
- Sensor inputs: 8 (24⁶).
- Dimensions: 12" x 11" x 4".
- Display type: alphanumeric LCD.
- Applicable liquids: petroleum, chemicals and hazardous waste.
- Level units: inches or millimeters.
- Volume units: gallons or liters.
- Temperature units: degrees Fahrenheit or Celsius.
- Display size: 2 lines of 40 characters.
- Power requirements:
115 VAC - +15%, -10%, 100 Watts maximum, 1 Amp maximum.
230 VAC - +15%, -10%, 100 Watts maximum, 0.5 Amp maximum.
- Operating temperature: 32° to 122 °F (0° to 50 °C).
- Storage temperature: -4° to 140 °F (-20° to 60 °C).
- Printer type: 24 column thermal.

Applications

The TS-504 and TS-508 family of tank monitors is the perfect solution for monitoring and controlling liquid levels in aboveground tanks at:

- Retail fueling sites.
- Fuel distribution depots.
- Heating oil storage terminals.

- Bulk storage locations for other motor fluids.
- Bulk fuel terminals.
- Chemical storage plants.
- Many other inventory control applications not requiring in-tank leak detection.

Capabilities

- Provides real-time, accurate inventory and delivery information for each tank monitored.
- Supports up to 24 sensors for sumps, interstitial spaces and test well applications.
- Can control remote alarms and pumps via multipurpose, high current relays.
- Self-calibration and diagnostic features quickly notify users of potential problems.
- Delivers cost-effective overfill protection.
- Can provide sales throughput information and automated reconciliation of sales and consumption data when used with the INCON dispenser interface module.
- Multiple monitors can be easily networked to support large tank farms and bulk terminals with more than eight tanks.
- Can be remotely monitored and controlled via System Sentinel™ remote fuel management software.
- Supports multiple languages as well as English and metric units.

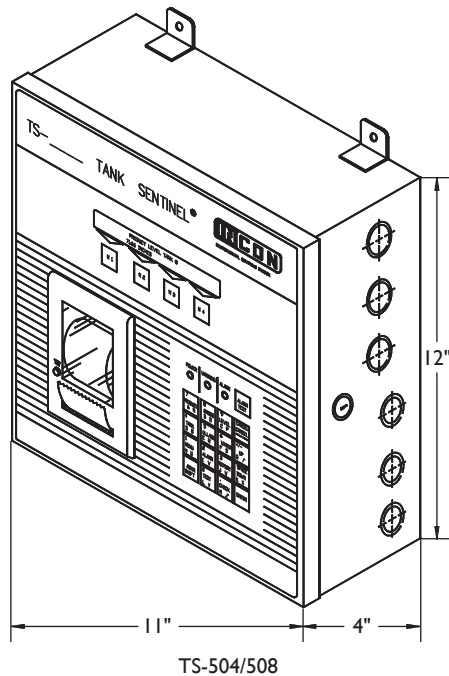
*Maximum number when including additional options.

TS-504 and TS-508, 110 VAC Models

Model	Description
T504/4	ATG, up to 4 tanks with 8 sensor inputs
T504P/4	ATG, up to 4 tanks with 8 sensor inputs and printer
T508/8	ATG, up to 8 tanks with 8 sensor inputs
T508P/8	ATG, up to 8 tanks with 8 sensor inputs and printer

TS-504 and TS-508, 220 VAC Models

Model	Description
V504/4C	ATG, up to 4 tanks with 8 sensor inputs
V504P/4C	ATG, up to 4 tanks with 8 sensor inputs and printer
V508/8C	ATG, up to 8 tanks with 8 sensor inputs
V508P/8C	ATG, up to 8 tanks with 8 sensor inputs and printer



TS-504 and TS-508 Console Ordering Guide

Console model, software and hardware options can be listed separately or combined when ordering. Systems shipped from the factory will list the combined part number. Complete console part numbers have a specific order and are created using the following guidelines:

XXXX PM / Y A CLR

XXXX = Model

T504 = TS-504, 120 VAC.
 V504 = TS-504, 220 VAC.
 T508 = TS-508, 120 VAC.
 V508 = TS-508, 220 VAC.

PM = Hardware Options

P = Printer, standard.
 M = Internal modem.

Y A CR = Software Options

Y = 4 or 8 tanks,
 TS-504 - 4,
 TS-508 - 8.
 A* = D - data, F - fax/data software.
 C = Continental version.
 R = Reconciliation.
 *Data and fax/data modem options are mutually exclusive.

Advantages

- TS-750 compliance tank gauge includes printer and optional continuous 24 hour leak testing (SCALD).
- Capable of multiple alarm modes.
- Uses magnetostrictive technology probes for unparalleled accuracy.
- Reports product and water levels in tank.
- Temperature compensated.
- Will accommodate tanks up to 12 feet in diameter.
- Kits provide for easy ordering and great value.

TS-750 Fixed Feature Tank Monitoring and Compliance Kits

The TS-750 kit is a complete, easy to order and cost-effective solution for your environmental compliance needs. It provides inventory control and leak detection for sites with up to four underground storage tanks.



Specifications

- Number of tanks monitored: 1, 2, 3 or 4.
- Output only channels: 2.
- Sensor inputs: 8.
- Dimensions: 12" x 11" x 4".
- Display type: alphanumeric LCD.
- Applicable liquids: petroleum.
- Level units: inches or millimeters.
- Volume units: gallons or liters.
- Temperature units: degrees Fahrenheit or Celsius.
- Display size: 2 lines of 40 characters.
- Power requirements:
115 VAC - +15%, -10%, 100 Watts maximum, 1 Amp maximum.
230 VAC - +15%, -10%, 100 Watts maximum, 0.5 Amp maximum.
- Operating temperature: 32° to 122 °F (0° to 50 °C).
- Storage temperature: -4° to 140 °F (-20° to 60 °C).
- Printer type: 24 column thermal.

Capabilities

- Provides real-time, accurate inventory and delivery information for each tank monitored.
- Can accommodate up to 8 sensors and 4 probes.
- Can control remote visual and audible alarms.
- Delivers cost-effective environmental compliance.
- Easily programmed to meet site-specific criteria.
- Consoles can be field upgraded to add SCALD or internal modem but not increase tanks.

The TS-750 kit consists of the TS-750 compliance monitor, probe(s), float(s) and installation kit. Please specify the diameter of each tank and the product stored in each tank when ordering. The following kits are currently available.

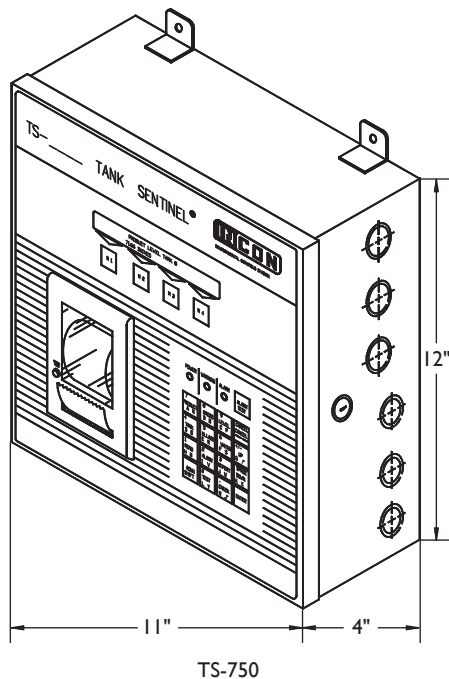
TS-750 110 VAC Models

Model	Description
T750P/1	Single tank kit with 8 sensor inputs and printer
T750P/1S	Single tank kit with 8 sensor inputs, printer and SCALD
T750P/2	Two tank kit with 8 sensor inputs and printer
T750P/2S	Two tank kit with 8 sensor inputs, printer and SCALD
T750P/3	Three tank kit with 8 sensor inputs and printer
T750P/3S	Three tank kit with 8 sensor inputs, printer and SCALD
T750P/4	Four tank kit with 8 sensor inputs and printer
T750P/4S	Four tank kit with 8 sensor inputs, printer and SCALD

TS-750 220 VAC Models

Model	Description
V750P/1C	Single tank kit with 8 sensor inputs and printer
V750P/1SC	Single tank kit with 8 sensor inputs, printer and SCALD
V750P/2C	Two tank kit with 8 sensor inputs and printer
V750P/2SC	Two tank kit with 8 sensor inputs, printer and SCALD
V750P/3C	Three tank kit with 8 sensor inputs and printer
V750P/3SC	Three tank kit with 8 sensor inputs, printer and SCALD
V750P/4C	Four tank kit with 8 sensor inputs and printer
V750P/4SC	Four tank kit with 8 sensor inputs, printer and SCALD

Note: The TS-750 kit prices include 4" floats and install kits. 2" floats and install kits are available for an additional cost. Contact FFS Customer Service for pricing.



TS-750 Console Ordering Guide

The TS-750 is designed specifically for underground fuel storage tanks. When ordering, specify the number of tanks, the diameter of each tank and the product type for each tank. INCON will provide the appropriate TS-750 tank gauge, probes, floats and installation kits for each site.

Console model, software and hardware options can be listed separately or combined when ordering. Systems shipped from the factory will list the combined part number. Complete console part numbers have a specific order and are created using the following guidelines:

XXXX PM / Y A B C

XXXX = Model

T750 = TS-750, 120 VAC.

V750 = TS-750, 220 VAC.

PM = Hardware Options

P = Printer, standard.

M = Internal modem.

Y A B C = Software Options

Y = 1, 2, 3 or 4 tanks.

A = S, SCALD.

B* = D - data, F - fax/data software.

C = Continental version.

*Data and fax/data modem options are mutually exclusive.

Internal Console Hardware Enhancements

Part Number	Description
TSSP-FDM2	(M) Internal modem, see software enhancements

Console Software Enhancements

Part Number	Description
TS-SCALD*	(S) Statistical Continuous Automatic Leak Detection, 24 hour continuous tank testing software
TS-DOM2**	(D) Data only modem software
TS-FM2**	(F) Fax and data modem software
TS-LLDI***	(L) Line leak detector interface software
TS-Reconciliation****	(R) Dispenser reconciliation software

*SCALD is not available with inventory control consoles or back-up generator consoles (the S in the console part number identifies this option). SCALD is used in 24 hour locations for tank leak testing.

**TSSP-FDM2 internal modem hardware is required (the M before the forward slash in the console part number identifies this option). Choose data only modem software to support System Sentinel™ software, or choose fax and data modem software when faxed reports are required.

***Electronic line leak detector hardware is required (the L in the console part number identifies this option). This interface software enables line leak detector compliance reporting and line leak test scheduling capability. Not available on the TS-750 console.

****TS-DIM dispenser interface module hardware is required (the R in the console part number identifies this option). This option provides automated inventory reconciliation. Not available on the TS-750 console.

Upgrading Installed Tank Sentinel® Consoles

Upgrade	Description
Internal modem	TSSP-FDM2 internal modem hardware TS-DOM2 data only modem software or TS-FM2 fax and data software
24 hour leak detection	TS-SCALD statistical, continuous automatic leak detection software
Line leak	Appropriate TS-LS300 or TS-LLD TS-LLDI line leak detector interface software
Automated inventory reconciliation	Appropriate TS-DIM dispenser interface module TS-Reconciliation dispenser reconciliation software

Note: When placing order to upgrade installed consoles, the serial number of the console to be upgraded must be supplied.

Paper Supplies

Part Number	Description
TS-TP2	One box of 5 rolls of thermal printer paper for fuel management system and Tank Sentinel® consoles
TS-TP2C	One case of 20 boxes of 5 rolls of thermal printer paper for fuel management system and Tank Sentinel® consoles

S940 Sensor Alarm Console

The S940 Sensor Alarm Console is a cost effective solution for tank overfill protection and sensor leak detection needs. This easy-to-install-and-operate device monitors up to four tanks, containment sumps or interstitial spaces and provides an audible and visual indication of an alarm condition. Two programmable relay outputs are included to sound an external alarm or send a signal to a building control or monitoring system. The weather proof enclosure allows the S940 Sensor Alarm Console to be conveniently installed indoors or out.



Advantages

- Monitors up to 4 sensors for overfill or leak detection
- Simple to install and configure
- Can be installed indoors or outdoors
- Cost effective leak detection or overfill solution
- Connect to remote alarms or external devices

Specifications

- Input channels: 4
(2-wire float switch sensor inputs)
- Output channels: 2
(dry contact relay outputs)
- Internal audible alarm
- Alarm, power and output LEDs
- Compatible Franklin Fueling Systems 2-wire sensors
 - TSP-ULS universal liquid sensor
 - TSP-HLS high level sensor
 - TSP-HFS horizontal float switch
 - TSP-UHS universal hydrostatic sensor
- Dimensions 6" x 6" x 4"
- Power requirements: 100-240 VAC +/- 10%, 50/60 Hz, 15 W max
- Operating temperature: -13 to +140 °F (-25 to +60 °C)
- Enclosure: NEMA® 4, indoor / outdoor (non-hazardous locations only)

Capabilities

- Tank overfill alarm
- Steel or fiberglass tank interstitial monitoring
- Containment sump monitoring
- General liquid sensor monitoring
- Programmable relay outputs for remote alarm or external device interface

Approvals

- UL, cUL, associated apparatus, non hazardous location
- Provides intrinsically safe circuits for sensors located in Class I, Div I, Group D hazardous location
- Third party certification of leak detection capabilities

Model	Description
S940	Four channel sensor alarm console

Advantages

- Automatically learns exact pipeline characteristics.
- No pipe type and length programming required.
- Monitors flexible, steel and/or fiberglass pipelines in any combination up to certified maximum values.
- Works with submersible pumps generating 25 psi or more.
- Automatically performs 3.0 gph, 0.2 gph and 0.1 gph line tests.
- Positive submersible pump shutdown in the event of a leak.
- Can be monitored through ATG and System Sentinel™.
- Third party certified for 0% probability of false alarm.
- Eliminates the need for factory calibration or on-site field judgments for set-up.
- For use in rigid, flex and rigid/flex piping configuration.
- Immediate notification of alarm condition.
- Allows printed compliance reports.

TS-LS300 AutoLearn™

The TS-LS300 AutoLearn™ line leak detection system learns the exact characteristics of each line, ensuring unparalleled accuracy. It can run independently or with any INCON TS-1001, TS-2001, TS-504 or TS-508 tank gauge.



Console Specifications

- Number of lines monitored: 1, 2, 3 or 4.
- Dimensions: 11" × 12" × 4".
- Power requirements:
115 VAC - +15%, -10%, 100 Watts maximum, 1 Amp maximum.
230 VAC - +15%, -10%, 100 Watts maximum, 0.5 Amp maximum.
- Operating temperature: 20° to 122 °F (10° to 50 °C).
- Intrinsic safety rating: Associated Apparatus II (1) G [EEX la] IIA.

- Belden™ cable: #9363-22 AWG, #9364-20 AWG or #9365-18 AWG.
- Max. sensor to console cable distance: 500' (152.4 M).
- Sensor port fitting: 2" female NPT.
- Sensor material: anodized aluminum body and stainless steel sensor.
- Intrinsic safety rating: Class I, Div. I, Group D, II (1) G [EEX la] IIA T4
- Explosion proof: Class I, Div. I, Group D.

Leak Sensing Transducer Specifications

- Number of lines monitored: 1.
- Dimensions: 6-1/4" × 2" NPT.
- Applicable liquids: motor fuels.
- Power requirements:
10 to 20 VDC from console.
- Operating temperature: -40° to 149 °F (-40° to 66 °C).
- Operating pressure: 0 to 100 psi (0 to 689 kPa).

Capabilities

- The TS-LS300 performs a 3.0 gph leak and pressure test after every dispense. Upon detection of a failed test, the LS300 will alarm and positively shutdown the affected turbine.
- The TS-LS300 continuously monitors pressurized lines for thermally stable conditions and performs a 0.2 gph monthly and 0.1 gph annual precision leak test during the thermally stable union.
- AutoLearn™ line leak detection technology is also available with the TS-LS500, part of the TS-550 and TS-5000 fuel management systems.

TS-LS300, 115 VAC 50/60 Hz Models

Intrinsically Safe

For new installations where separate low voltage conduits can be used.

Model	Description
TS-LS300/2	2-line console with line calibration kit
TS-LS300/3	3-line console with line calibration kit
TS-LS300/4	4-line console with line calibration kit

Note: All AutoLearn™ models include the TPI turbine pump interface module.

Explosion Proof

For retrofit installations where only a high voltage conduit can be used.

Model	Description
TS-LS300E/2	2-line console with line calibration kit
TS-LS300E/3	3-line console with line calibration kit
TS-LS300E/4	4-line console with line calibration kit

Note: All AutoLearn™ models include the TPI turbine pump interface module.

TS-LS300, 230 VAC 50/60 Hz Models

Intrinsically Safe

For new installations where separate low voltage conduits can be used.

Model	Description
VS-LS300/2	2-line console with line calibration kit
VS-LS300/3	3-line console with line calibration kit
VS-LS300/4	4-line console with line calibration kit

Note: All AutoLearn™ models include the TPI turbine pump interface module.

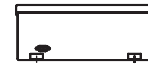
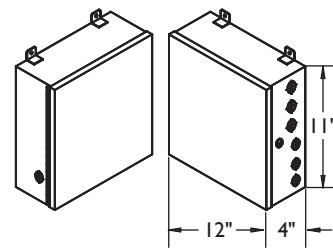
Interface Cable

For connecting two AutoLearn™ consoles together.

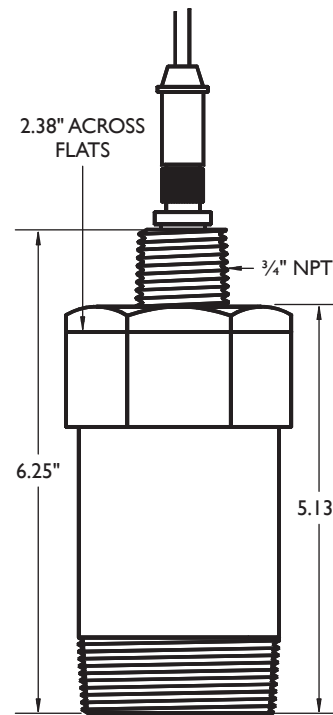
Model	Description
TSSP-ALICBL	AutoLearn™ interface cable

Alternative Fuels Accessories

Model	Description
TS-AFALNIP	Leak generator needle valve kit required for E85 installations



TS-LS300



2" NPT
TS-LSU300 TRANSDUCER

Advantages

- The TS-LLD leak detector performs gross leak tests after each 3.0 gph dispense, the monthly 0.2 gph test and the annual 0.1 gph test.
- Performs positive shutdown if a leak is detected.
- Tests performed at full pump pressure to ensure integrity of lines.
- Carries numerous regulatory approvals.
- Low-cost, wireless installation retrofits easily into the existing submersible turbine pump housings without excavation.

Line Sentinel™

The INCON TS-LLD line leak detector uses patented, flow-based technology to perform multiple line tightness tests.



Specifications

- Dimensions:
Console - 4-3/8" x 3-3/8" x 2-5/16".
Line leak detector - 23-1/2" x 2-3/8".
- Applicable liquids: gasoline and diesel motor fuels.
- Gross leak test (3.0 gph): yes.
- Monthly test (0.2 gph): yes.
- Annual test (0.1 gph): yes.
- Indicates days since 0.2 gph test passed: yes.
- LED unit: yes.
- Positive shut-down: yes.
- Tank Sentinel[®] interface: yes.

Applications

The TS-LLD can be used in most pressurized applications, in any new or existing turbine pump housing and can be used in place of a mechanical leak detector.

- Third party certified with 100% probability of leak detection and a 0% probability of false alarm.
- Supports rigid, fiberglass and flexible piping systems.
- Line leak test failure indicated by alarm.
- Works as a stand-alone unit or interfaced with INCON Tank Sentinel[®] consoles.

Note: The presence of the integral in-line check valve of the TS-LLD during normal operation creates a pressure drop which will reduce the total flow potential of the submersible pump. Some of the pressure drop can be compensated by upgrading the submersible pump motor. To ensure

desirable flow rates are achieved, we do not recommend TS-LLD in the following sites:

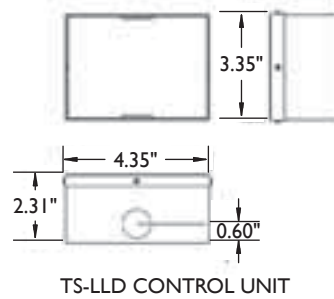
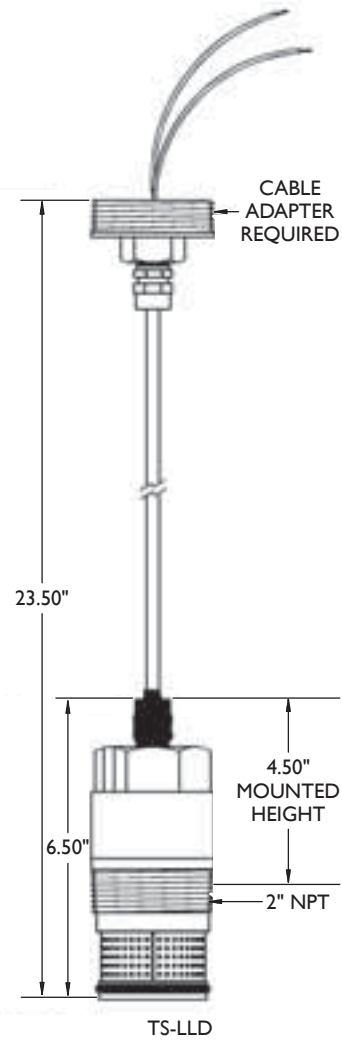
- where it is imperative to achieve 10 gpm.
 - sites that frequently have more than 4 nozzles open at a time.
- In such cases we recommend our AutoLearn[™] pressure-based electronic leak line detector.

Capabilities

The INCON TS-LLD line leak detector performs a variety of tests for environmental compliance.

- Eliminates slow-flow problems associated with mechanical leak detectors.
- Immediately identifies leaks even in changing thermal conditions, unlike mechanical LLDs.
- Performs continuous testing using highly sensitive volumetric flow technology.
- Continuously performs self-diagnostic test to ensure proper system operation.

Model	Description
TS-LLD/FE	Electronic line leak detector with an FE Petro installation adapter, one required for each submersible pump
TS-LLD/RJ	Electronic line leak detector with a Red Jacket™ installation adapter, one required for each submersible pump
TS-LLD/RJQ	Electronic line leak detector with a Red Jacket™ Quantum™ installation adapter, one required for each submersible pump



Advantages

- Easy to use and install.
- Uses innovative, magnetostrictive position measurement technology to report liquid levels.
- Highly stable performance.
- Unparalleled accuracy and performance when used with a Franklin Fueling Systems Automatic Tank Gauge.
- Screw-in electrical connector provides quick installation or removal eliminating the need to resplice wires.
- Intrinsically safe circuits for hazardous locations.

Theory of Operation

- An electromagnetic field is created inside the probe head and forms around a long waveguide within the probe shaft when position measurements are taken.
- The electromagnetic field interacts with the magnetic field of the float(s) and produces a shock wave in the waveguide that travels at a known speed.
- When the shock wave is detected at the probe head, the probe creates a signal that corresponds precisely to the product level.
- Product expansion calculations are enabled by temperature sensors that are located at various points in the probe shaft.

Leak Detection and Inventory Control Probes

TSP-LL2 liquid level probes are advanced instruments that use magnetostrictive position measurement technology to accurately report inventory levels in storage tanks.



Specifications

- Operating temperature: -40° to 140 °F (-40° to 60 °C).
- Storage temperature: -40° to 158 °F (-40° to 70 °C).
- Intrinsic safety rating: Class I, Div. 1, Group D.
- Non-linearity: $\pm 0.025\%$ of full scale.
- Repeatability: $\pm 0.001\%$.
- Temperature sensors: 5 thermistors located in the shaft.
- Temperature resolution: ± 0.02 °F (± 0.01 °C).
- Probe pigtail: 10' long two conductor cables with shields and polyurethane jacket.
- Interface cable:
0' to 200' - Belden™ 87760.
0' to 400' - Belden™ 87761.
0' to 1500' - Belden™ 89182.
Consult factory for others.
- Shaft, E-ring and washer materials:
316 stainless steel. Housing - anodized aluminum, MIL-A-8625C, Type 2, Class 2.
Floats - nitrophenyl, PVDF and nickel plated brass.
- Float kits must be ordered separately.

- The TSP-LL2-I probe is typically used for aboveground storage tanks, chemical or oil waste, or underground storage tanks that do not require in-tank leak detection.
- Probes are available in many sizes that are suitable for all common tanks.
- Easily installed into 2", 3" or 4" riser pipes.

Capabilities

- Probes can report the level of up to 3 floats.
- The TSP-LL2 is capable of precise leak detection, density measurement and inventory monitoring.
- The TSP-LL2-I is capable of inventory monitoring.
- Use the appropriate FFS suspension type installation kit to install all TSP-LL2 leak detection probes.
- Use the appropriate FFS bottom mount type installation kit for installing all TSP-LL2-I Inventory Control probes. These probes come with special hardware for installation on the tank bottom.
- Float kits must be ordered separately.

Applications

The LL2 Series of liquid level probes feature exceptional linearity, resolution and stability, and are used in underground and aboveground storage tanks. Two types of probes are manufactured for use with Franklin Fueling Systems Automatic Tank Gauges.

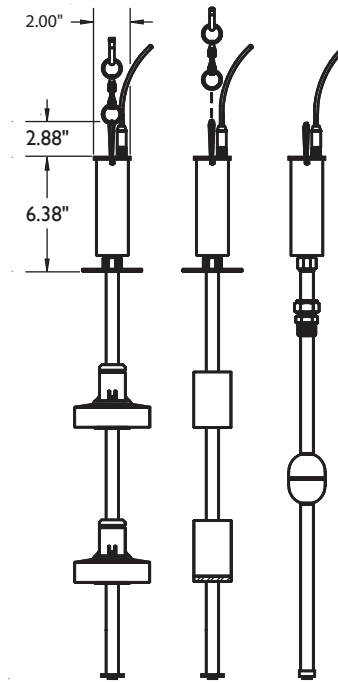
- The TSP-LL2 probe is typically used for underground storage tanks and petroleum applications when static or SCALD leak detection is required.

Belden™ is a trademark of Belden Technologies, Inc.

Leak Detection

Model	Description
TSP-LL2-29	2' diameter tank probe
TSP-LL2-41	3' diameter tank probe
TSP-LL2-53	4' diameter tank probe
TSP-LL2-65	5' diameter tank probe
TSP-LL2-69	5'4" diameter tank probe
TSP-LL2-77	6' diameter tank probe
TSP-LL2-81	6'4" diameter tank probe
TSP-LL2-89	7' diameter tank probe
TSP-LL2-101	8' diameter tank probe
TSP-LL2-113	9' diameter tank probe
TSP-LL2-125	10' diameter tank probe
TSP-LL2-131	10'6" diameter tank probe
TSP-LL2-137	11' diameter tank probe
TSP-LL2-149	12' diameter tank probe

- Notes:
1. Custom probe lengths are available; contact factory for price and delivery.
 2. These probes are used with all Franklin Fueling Systems ATG consoles.
 3. Float kits must be ordered separately.



Inventory Control

Model	Description
TSP-LL2-29-I	2' diameter tank probe
TSP-LL2-41-I	3' diameter tank probe
TSP-LL2-53-I	4' diameter tank probe
TSP-LL2-65-I	5' diameter tank probe
TSP-LL2-69-I	5'4" diameter tank probe
TSP-LL2-77-I	6' diameter tank probe
TSP-LL2-81-I	6'4" diameter tank probe
TSP-LL2-89-I	7' diameter tank probe
TSP-LL2-101-I	8' diameter tank probe
TSP-LL2-113-I	9' diameter tank probe
TSP-LL2-125-I	10' diameter tank probe
TSP-LL2-131-I	10'6" diameter tank probe
TSP-LL2-137-I	11' diameter tank probe
TSP-LL2-149-I	12' diameter tank probe
TSP-LL2-161-I	13' diameter tank probe
TSP-LL2-173-I	14' diameter tank probe
TSP-LL2-185-I	15' diameter tank probe
TSP-LL2-197-I	16' diameter tank probe
TSP-LL2-209-I	17' diameter tank probe
TSP-LL2-221-I	18' diameter tank probe

- Notes:
1. Orders for probes larger than 149" cannot be canceled and are non-returnable.
 2. Probes larger than 149" may require special floats and install kits. Contact FFS for more info.
 3. These probes are used with all Franklin Fueling Systems ATG consoles.
 4. Not for leak detection.
 5. Float kits must be ordered separately.
 6. Comes with bottom mount hardware. For replacement hardware kits, order TSSP-BMKT

Advantages

- Can be used in any tank up to 50' high.
- Suitable for all petroleum and many industrial applications.
- Available as a complete system or retrofit.

Moorman Level Gauge Kit

The Moorman level gauge kit includes the complete Moorman gauge (7S for 35' tanks and 9S for 50' tanks) and the appropriate length magnetostrictive inventory probe. The Moorman level gauge retrofit kit includes the appropriate length magnetostrictive inventory probe and probe mounting accessories. TSP-UVPK ultraviolet protection kit is included.



Model	Description
TSP-MLGK-35	Standard gauge kit for vertical tanks up to 35'
TSP-MLGK-35-M	Standard gauge for vertical tanks up to 35' with metric display
TSP-MLGKSS-35	Standard gauge for tanks up to 35' with stainless steel tape and float
TSP-MLGKSS-35-M	Standard gauge for tanks up to 35' with metric display, with stainless steel tape and float
TSP-MLGK-50	Standard gauge for vertical tanks up to 50'
TSP-MLGKSS-50	Standard gauge for tanks up to 50' with stainless steel tape and float
TSP-MRFK-35	Retrofit gauge kit for vertical tanks up to 35'
TSP-MRFK-50	Retrofit gauge kit for vertical tanks up to 50'

Float Kits



Model	Description
TSP-IDF2	2" float set for diesel tanks
TSP-IGF2	2" float set for gasoline tanks
TSP-IDF4	4" float set for diesel tanks
TSP-IGF4	4" float set for gasoline tanks
TSP-LPGF	2" float for LPG tanks, with or without isolation sleeve
TSP-SSP	2-1/16" OD, #316 stainless steel float for chemical applications only

Note: Order one float set for each LL2 Mag probe.

Water & Phase Separation Detection Float Kit

Detect both water and phase separation with a single float kit. The water and phase separation detection float kit allows you to effectively manage product levels as well as alert you of water or phase separation levels in your tanks. A single float is used to detect the presence of both water or phase separated fuel to ensure the prevention of either from reaching customer's vehicles.



Water & Phase Separation Detection Float Kit

Model	Description
TSP-IGF4P	4" float set for gasoline and up to E15 tanks

2" & 4" Float Kit Advantages

- Designed for applications involving 2", 3" or 4" riser pipes.
- Each float set contains a product and water float.
- Constructed of nitrile rubber and PVDF. Water floats contain either stainless steel or nickel plated brass ballast. Compatible with a wide variety of petroleum products.
- Water floats are colored red for gasoline and blue for diesel.

TSP-SSP Chemical Float Advantages

- #316 stainless steel product float with 2-1/16" OD.
- Suitable for use in a wide variety of chemical applications, consult factory for chemical compatibility issues.
- Use one float per TSP-LL2-I probe.
- Float specific gravity 0.55 to 0.63.
- Collapse pressure 500 psi/g minimum.

LPG Float Advantages

- Designed for applications involving tank openings of at least 2".
- Single float used for monitoring the level of LPG (propane) fuel.
- Suitable for monitoring pressurized products.
- For use in USTs or ASTs with TSP-LL2 or TSP-LL2-I probes. TSP-LPG/EU float can be used with locally supplied tank isolation sleeves.

Phase Separation Advantages

- Optional float kit for gasoline and Ethanol blend users.
- Product float determines fuel level.
- Water float will rise with the presence of water or phase separated fuel.
- Simple single-float solution for both water and phase separation.
- Free software upgrade available for T5 Series fuel management systems and Colibri automatic tank gauges.
- Improved minimum water level detection capability.
- Allows you to easily shut down a submersible pump before water or phase separation reaches the customer's vehicle.

Advantages

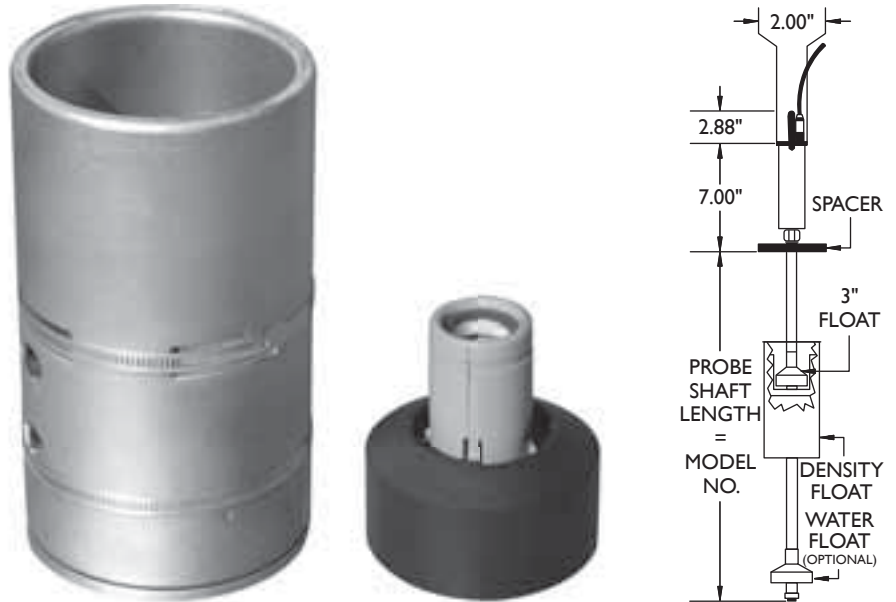
- Designed for applications involving 4" riser pipes.
- Each float set contains a product, density and water float.
- Available in Standard or Precision models
- Floats are constructed of nitrile rubber and PVDF. Precision model density floats are also nickel plated.
- Water and product floats are colored red for gasoline and blue for diesel.
- Density and product floats are calibrated and must be maintained as a set.

Theory of Operation

Density measurement is based on the distance between the calibrated product and density floats. As the density of the fuel changes, the gap between the floats will increase or decrease in proportion to the change. The tank gauge receives this information from the probe and uses it to calculate and display the current density of the fuel.

Density Measurement Float Kits

The Colibri and T5 Series fuel management systems have the ability to continuously monitor the density of fuel stored in underground and aboveground storage tanks. The same TSP-LL2 magnetostrictive probe that provides inventory management and leak detection capabilities can also supply product density and mass without the addition of extra probes or sensors. Programmable high and low density alarm points allow the user to determine the range of acceptable density fluctuations. Available in Standard and Precision models for both gasoline and diesel/fuel oil products.



Standard

Part Number	Description	Density Range
TSP-IDF4D3	Diesel/fuel oil density float kit	790-900 kg/m ³
TSP-IGF4D3	Gasoline density float kit	690-800 kg/m ³

Precision

Part Number	Description	Density Range
TSP-IDF4D	Diesel/fuel oil density float kit	790-900 kg/m ³
TSP-IGF4D	Gasoline density float kit	690-800 kg/m ³

Note: 1. Order one density measurement float kit for each magnetostrictive probe. Probes used with density float kits must have serial numbers greater than 6000000.

2. Standard density float kits accuracy: 3 kg/m³.
3. Precision density float kits accuracy: 1 kg/m³.

Probe Installation Kits

FFS Probe installation kits primarily come in two styles, Suspension and Bottom Mount. The Suspension kits are used to install TSP-LL2-xxx Leak Detection probes in underground storage tank applications using either 2" or 4" riser pipes. Suspension isolates the probe from possible tank deflection and also keeps in it a true vertical orientation for optimal float movement and measurement accuracy. These kits also provide a tight seal to the tank to prevent water intrusion and meet regulatory requirements. The 4" models also provide a quick release cap for easy access to the probe for inspection or maintenance. TSP-LL2-xxx-I Inventory Control probes come with hardware that allows them to be installed on the tank bottom. The Bottom Mount install kits provide the same tight seal and ease of access without the need for the suspension hardware necessary in leak detection applications. Both styles work well on either steel or fiberglass tanks.



Suspension Kits

Part Number	Description
TSP-K2A	Leak detection probe install kit for 2" riser pipes
TSP-K2B	Leak detection probe install kit for 2" riser pipes with BSP threads
TSP-K4A	Leak detection probe install kit for 4" riser pipes
TSP-K4B	Leak detection probe install kit for 4" riser pipes with BSP threads

Bottom Mount Kits

Part Number	Description
TSP-C2A	Inventory probe Install kit for 2" risers
TSP-C2B	Inventory probe Install kit for 2" risers with BSP threads
TSP-C4A	Inventory probe install kit for 4" risers
TSP-C4B	Inventory probe install kit for 4" risers with BSP thread

Other Kits

Part Number	Description
TSP-K4AS	#316 stainless steel mag probe install kit for 4" riser pipes
TSP-K4ASL	#316 stainless steel install kit for probes larger than 149"
TSP-LPGK	LPG probe install kit, 149" maximum LL2 probe length

Note: TSP-LPGK install kit is not needed when locally supplied tank isolation sleeve is utilized.

Cables

Part Number	Description
600-0042	Belden™ #87761, runs up to 500'
600-0055	Belden™ #89182, runs 500' to 1,500'
600-0080	Quick disconnect probe cable

Notes: 1. Cable is sold in 500' increments.

2. Orders greater than 500' will ship in 1000' and 500' rolls.

3. Contact tech support for more information on cable requirements.

Accessories

Part Number	Description
TSP-DBI	One direct burial splice connector kit
TSP-DB10	Pack of 10 direct burial splice connector kits
TSP-DBTOOL	Epoxy dispensing tool
TSP-KW30	Pack of 30 3M™ splice connectors
TSP-UVPK	Ultraviolet protection kit - protects probe electronics when installed in AST applications

Notes: 1. Use the TSP-DBI or TSP-DB10 for direct burial cable applications or when weatherproof junction boxes are not used.

2. The DBTOOL is required to dispense the epoxy.

3. Each direct burial splice connector kit includes a receptacle, three splice connectors and epoxy for the dispensing tool.

Advantages

- The TSP-K4AS/ASL install kits are for use with chemical or other installations where it is desirable for the probe head to be outside of the riser. It consists of a #316 SS 4" cap and compression fitting that is installed on the probe shaft so that only the floats and shaft are exposed to the tank contents. Includes TSP-UVPK probe head protection kit.
- The TSP-LPGK install kit is for use with pressurized LPG tanks where the probe head will reside outside of the tank opening. It consists of a special compression fitting, designed to retain the contents of the pressurized tank, that is installed on the probe shaft and then inserted into a user supplied cap with a 3/4" NPT hole. Includes TSP-UVPK probe head protection kit.

Application

For liquid-filled tank interstitial monitoring.

Advantages

- Versatile sensor for virtually all fiberglass double wall tanks equipped for hydrostatic leak detection.
- Microcomputer monitors liquid at varying levels within tanks and relays digitally encoded status information via the fail-safe Brite™ sensor digital communication system to fuel management system or Tank Sentinel® consoles, alerting of any alarm conditions.

Installation

- Lower TSP-HIS to the bottom of the brine reservoir of double wall tank.
- The normal brine level should reside half way up the sensor.
- Sensors include the TSP-KV4 vented 4" riser cap.

TSP-HIS Hydrostatic Interstitial Brite™ Sensor

The TSP-HIS hydrostatic interstitial Brite™ sensor detects leaks in double wall tanks where the interstitial space is filled with a liquid brine solution. For use with all Tank Sentinel® and fuel management systems, the TSP-HIS polyester, nitrile and epoxy construction is compatible with all types of brine.



Model	Description
TSP-HIS	Hydrostatic interstitial Brite™ sensor, 11"
TSP-HIS-XL	Hydrostatic interstitial Brite™ sensor, 21"
TSP-KV4	Hydrostatic sensor vented riser pipe cap kit for 4" riser pipes

Note: This sensor communicates with the console using 3 wires.

*Not including cable.

TSP-DIS Discriminating Interstitial Brite™ Sensor

The TSP-DIS discriminating interstitial Brite™ sensor detects the presence of various liquids in tanks as well as sumps and other locations. The TSP-DIS is designed to interface with the Tank Sentinel® and fuel management system.



Model	Description
TSP-DIS	Discriminating interstitial Brite™ sensor
TSP-KI2	Interstitial sensor riser cap kit for 2" riser pipes

Note: This sensor communicates with the console using 3 wires.

Application

For dry tank interstitial monitoring.

Advantages

- Installs in the interstitial space of steel and fiberglass double wall tanks and sumps.
- Uses light beam traveling through probe to determine if sensor is wet.
- Microprocessor inside sensor interprets readings and communicates data to the Tank Sentinel® and fuel management system.
- Fail-safe digital communications with built-in alarm if sensor malfunctions.
- Sensor can distinguish between petroleum and water.
- Alarms indicate petroleum present, water present and sensor malfunction.

Installation

Each TSP-DIS comes with 25' of oil-resistant cable. For fiberglass tanks, TSP-DIS is pulled into the interstitial space using a "fish" string or wire. For steel interstitial tanks, TSP-DIS is lowered directly to the bottom of the interstitial space through a 2" NPT fitting provided for that purpose on the tank. Optional installation kits are available which include a riser cap and other parts required to complete installation.

Application

For dry tank interstitial monitoring.

Advantages

- Highly accurate electro-optic technology and closed output circuit ensures that leaks are detected.
- Chemical-resistant materials.
- Can be installed in fiberglass or steel double wall tanks.
- Utilizes light emitting diodes and prisms to indicate if a leak has occurred.

Installation

Each TSP-EIS comes with 25' of oil-resistant cable. For fiberglass tanks, TSP-EIS is pulled into the interstitial space using a "fish" string or wire. For steel interstitial tanks, TSP-EIS is lowered directly to the bottom of the interstitial space through a 2" NPT fitting provided for that purpose on the tank. Optional installation kits are available which include a riser cap and other parts required to complete installation.

Application

For dry fiberglass tank interstitial monitoring.

Advantages

- Fiberglass interstitial monitoring using a 2-wire sensor.
- Highly reliable magnetic-float/ reed-switch technology.
- Chemical-resistant materials.

Installation

Each TSP-HFS comes with 25 feet of oil-resistant cable. For fiberglass tanks, the TSP-HFS sensor is pulled into the interstitial space using a "fish" string wire. Optional installation kits are available which include a riser cap and other parts required to complete the installation.

TSP-EIS Electro-Optic Interstitial Sensor

The TSP-EIS electro-optic interstitial sensor may be used with all Tank Sentinel® and fuel management system consoles. Utilizing electro-optic technology and made of chemically resistant polysulfone plastic, the TSP-EIS may be installed in sumps, double wall tanks or other locations where the presence of liquid indicates a leak has occurred.



Model	Description
TSP-EIS	Electro-optic interstitial sensor
TSP-K12	Interstitial sensor riser cap kit for 2" riser pipes

Note: This sensor communicates with the console using 3 wires.

TSP-HFS Horizontal Float Switch Sensor

The TSP-HFS horizontal float switch sensor is a 2-wire non-discriminating liquid sensor which may be used with the S940 alarm console. The TSP-HFS is designed primarily for liquid detection in fiberglass tank dry interstitial spaces.



Model	Description
TSP-HFS	Horizontal float switch sensor
TSP-K12	Interstitial sensor cap kit for 2" riser pipes

TSP-ULS Liquid Sensor

The TSP-ULS liquid sensor is a low cost sensor which may be used with all Tank Sentinel® and fuel management system consoles. This sensor is also compatible with S940 Sensor Alarm Console. Based on float-switch technology and made of chemically resistant materials, the TSP-ULS may be installed in sumps, dispenser pans, steel double wall tanks or other locations where the presence of liquid indicates a leak has occurred.



Model	Description
TSP-ULS	Universal liquid sump sensor
TSP-K12	Interstitial sensor riser cap kit for 2" riser pipes

Note: This sensor communicates with the console using 2 wires.

TSP-UHS Universal Hydrostatic Sensor

The TSP-UHS Universal Hydrostatic Sensor uses float switch technology to continuously monitor liquid filled double wall containment sumps. Normally submerged, the single float TSP-UHS will provide an indication if there is a loss of monitoring liquid.



Model	Description
TSP-UHS	Universal Hydrostatic Sensor Hydrostatic monitoring installation kit.
HM-KIT	Includes: flexible brine tube, sensor housing clamp, sensor housing, sensor cap and hardware

Note: This sensor communicates with the console using 2 wires.

Application

For dry steel tank interstitial and containment sump monitoring.

Advantages

- Highly reliable float technology and closed output circuit ensures that leaks are detected.
- Chemical-resistant materials assure compatibility with most liquids.

Installation

Each TSP-ULS comes with a 25' cable. 1/2" NPT thread is provided on the compression gland fitting attached to the sensor's cable, allowing it to be suspended from standard electrical boxes and fittings. The sensor may be positioned vertically by adjusting cable length. For steel interstitial tanks, TSP-ULS is lowered into the opening provided on the tank and is suspended by optional TSP-K12 installation kit. Other mounting methods available depending upon application and location.

Application

Typically used for hydrostatic monitoring of the liquid in a double wall sump interstice.

Advantages

- Highly reliable float technology and closed output circuit ensures that leaks are detected.
- Chemical-resistant materials.

Installation

Each TSP-UHS comes with a 25' cable. The sensor can be installed into the reservoir of a liquid filled double wall containment sump. The sensor must be installed in a vertical position at a level where it is normally submerged. The TSP-UHS will alert if the liquid level drops below the bottom of the sensor.

Application

For containment sump monitoring.

Advantages

- Utilizes proven magnetostrictive technology.
- Water warning, water alarm and product alarm.
- Tamper protection feature will alarm if sensor is moved from installed position.
- Will alarm and recover quickly when hydrocarbons are present.

TSP-DMS Discriminating Magnetostrictive Sensor

The TSP-DMS is a fast acting discriminating sensor that utilizes magnetostrictive technology to provide reliable monitoring of dispenser pans and containment sumps. Its floats can detect the presence of water or hydrocarbons and also ensure that the sensor installation has not been tampered with. The TSP-DMS can report water warnings and programmable water alarm points as well as product alarms. The TSP-DMS is used with fuel management system consoles.



Model	Description
TSP-DMS-12	Discriminating magnetostrictive sensor, 12"
TSP-DMS-24	Discriminating magnetostrictive sensor, 24"
TSP-KS	Unistrut™ mounting kit

- Notes: 1. For use with the T5 Series fuel management systems.
 2. This sensor communicates with the console via the TS-PRB probe module.
 3. Requires Controller Module software version 9.5 or greater.

TSP-DDS Discriminating Dispenser Sump Brite™ Sensor

The TSP-DDS is a discriminating dispenser sump Brite™ sensor which provides reliable monitoring of dispenser pans and containment sumps. Combining magnetic float switch sensors with an innovative polymer strip, the TSP-DDS generates three different alarms for the detection of hydrocarbons, for liquid in sump and when the sump is full. The TSP-DDS may be used with both fuel management system and Tank Sentinel® consoles.



Model	Description
TSP-DDS	Discriminating dispenser sump Brite™ sensor
TSP-KS	Unistrut™ mounting kit

Note: This sensor communicates with the console using 3 wires.

TSP-DTS Discriminating Turbine Sump Brite™ Sensor

The TSP-DTS is a discriminating turbine sump Brite™ sensor that detects the presence of liquid and hydrocarbons when installed in turbine and containment sumps. TSP-DTS is designed to interface with Tank Sentinel® and fuel management system.



Model	Description
TSP-DTS	Discriminating turbine sump Brite™ sensor
TSP-KS	Unistrut™ mounting kit

Note: This sensor communicates with the console using 3 wires.

Application

For containment sump monitoring.

Advantages

- Uses magnetic float switches to detect liquid at two levels.
- Innovative polymer strip detects hydrocarbons along sensor and floating on water.
- Compatible with common fuels and chemicals.
- Detects liquid at 1-1/2" from base.
- Detects hydrocarbons on sensor and floating on water.
- Digitally encoded status information sent from microcomputer to console from 775+ feet.
- Alarms to indicate liquid in sump, hydrocarbon detected, sump is full and sensor malfunction.

Installation

Variety of mounting methods possible depending on location. Bracket provided for quick installation.

Application

For containment sump monitoring.

Advantages

- Uses magnetic float switches to detect liquid at two levels.
- Innovative polymer strip detects hydrocarbons along sensor and floating on water.
- Compatible with common fuels and chemicals.
- Detects liquid at 1-1/2" from base.
- Detects hydrocarbons on sensor and floating on water.
- Digitally encoded status information sent from microcomputer to console from 775+ feet.
- Alarms to indicate liquid in sump, hydrocarbon detected, full sump and sensor malfunction.

Application

For use in dry monitoring wells.

Advantages

- Detects vapor, gas and rising groundwater when installed in a monitoring well.
- Fail-safe digital communication with built-in alarm if sensor malfunctions.
- Senses ambient temperature to minimize false alarms.
- Equipped with twenty feet of oil-resistant cable for installation in 2" and 4" monitoring wells located around underground tanks.
- Senses vapor, gas and groundwater.
- Communicates with console from 775+ feet.
- Alarms to indicate sensor malfunction.

Application

For use in wet monitoring wells.

Advantages

- Unique alarms for the detection of hydrocarbons or decreased groundwater levels.
- Completely reusable even after several exposures to hydrocarbons.
- Available in four different lengths to accommodate well depth.
- Microcomputer within TSP-MWS detects presence of hydrocarbons and alerts Tank Sentinel® and fuel management system of alarm conditions via digitally-encoded information.

Installation

- Normally installed in 4" groundwater monitoring wells.
- Integral well cap may be locked with standard padlock to prevent unauthorized access.

TSP-DVS Discriminating Vapor Brite™ Sensor

The TSP-DVS is a discriminating vapor Brite™ sensor that detects the presence of gas or vapor molecules when installed in dry monitoring wells or containment space where vapor detection is necessary. TSP-DVS is designed to interface with the Tank Sentinel® and fuel management system.



Model	Description
TSP-DVS	Discriminating vapor Brite™ sensor
TSP-KW4	Vapor sensor monitoring well pipe cap kit for 4" riser pipes

Note: This sensor communicates with the console using 3 wires.

TSP-MWS Monitoring Well Brite™ Sensor

The TSP-MWS monitoring well Brite™ sensor is a discriminating liquid sensor which detects the presence of hydrocarbon floating on groundwater. Using a float switch and innovative conductive polymer strip, the TSP-MWS identifies hydrocarbons anywhere along the length of the sensor.



Model	Description
TSP-MWS-10	Monitoring well Brite™ sensor, 10'
TSP-MWS-15	Monitoring well Brite™ sensor, 15'
TSP-MWS-20	Monitoring well Brite™ sensor, 20'
TSP-MWS-25	Monitoring well Brite™ sensor, 25'

Note: This sensor communicates with the console using 3 wires.

TSP-HLS Level Sensor

The TSP-HLS level sensor is an overflow prevention switch which is compatible with all Tank Sentinel® and fuel management system consoles. This sensor is also compatible with S940 Sensor Alarm Console. It may be adjusted to operate over a wide range of levels. The TSP-HLS is based on float-switch technology and is made of chemical-resistant materials to assure compatibility with most liquids. Each sensor is supplied with jacketed cable five feet in length. The TSP-HLS's normally closed output circuit provides supervised operation, ensuring that broken wires and similar failures will not go undetected.

The TSP-HLS is installed in a 2" NPT fitting on the tank. The level at which it operates may be adjusted by loosening a fitting and moving the sensor's shaft in or out of the tank as required.



Model	Description
TSP-HLS-15	High product level sensor, 15" long, installed in tank
TSP-HLS-15/SS	High product level sensor, stainless steel 15" long, installed in tanks containing alternative fuels
TSP-HLS-30	High product level sensor, 30" long, installed in tank
TSP-HLS-30/SS	High product level sensor, stainless steel 30" long, installed in tanks containing alternative fuels

Note: This sensor communicates with the console using 2 wires.

Application

Overflow protection switch.

Theory of Operation

The secret to the TSP-HLS's reliability is its float switch technology. A small magnetically-activated reed switch is located inside the body of the sensor. Tiny magnets are positioned inside a lightweight float which is free to move up and down along the shaft so that the magnets are below the reed switch. When the sensor is immersed in liquid, the float rises and the magnet activates the reed switch, signaling the console that the high limit has been reached.

Application

- Containment sump liquid detection resulting in dispensing cutoff.

Advantages

- Automatically stops fuel from dispensing in the event of liquid detection.
- Easily installed in either turbine or dispenser sumps.
- Ideal for retrofit applications as system connects to existing turbine or dispenser wiring, eliminating the need to pull new wires or break concrete.

Installation

- Simply mount the 404-4 Controller inside any containment sump and connect it to the existing turbine or dispenser wiring. (Dispenser installations require an electrical junction box with an open conduit hub).
- Connect the liquid sensor using the supplied water tight splice kit. Suspend it so it is just touching the bottom of the containment sump.

DC400 Dispensing Cutoff System

The DC400 Dispensing Cutoff System is a stand-alone, solid state two-part system which includes a controller and sensor, designed to automatically shut down product flow if liquid is detected inside containment spaces. Ideal for retrofit applications, the DC400 allows for easy compliance with new and evolving regulations, without the added expenses of shutting down your site to break concrete for new conduit and wiring installation. The DC400 can be mounted inside any turbine sump to provide complete pump shut down or mounted directly into dispenser sumps, allowing only the effected dispenser to be shut down as liquid is detected.



Specifications

- 404-4 Controller is compatible with:
 - S404 Liquid Sensor

Note: Previous versions of the 404-4, S406, and S404 are not compatible. Both the controller and sensor must be replaced if either requires it. Core credit available for legacy items.

- Dimensions:
 - 404-4 Controller: 6.6" x 6.2" x 3.2"
 - S404 Liquid Sensor: 1 1/2" x 3 1/2", 25' cable length
- 404-4 Input power: 90-250 VAC, 50/60 Hz, 0.25 A
- 404-4 Relay contacts: 12A, 2 hp @ 250 VAC, 12A, 1.5 hp @ 120 VAC
- Operating temperature: -4 to 140 °F (-20 to +60 °C)
- Enclosures: All sensors intrinsically safe, controller explosion proof

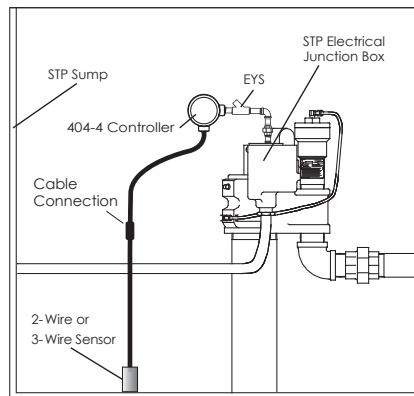
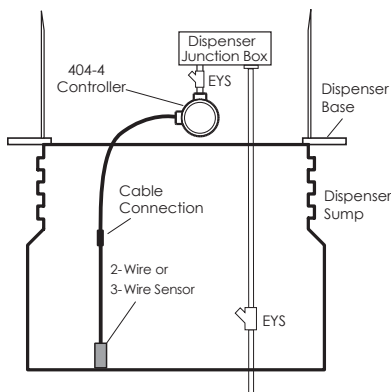
- Detection time: <1 second
- S404 sensor minimum detectable water limit: 0.98" (25 mm)

Capabilities

- Cutoff power to submersible pumps or dispensers when liquid is detected in containment sumps.
- Automatic reset on liquid removal.

Approvals

- UL - Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, Division I, Group D Hazardous Locations
- Third party certification of leak detection capabilities



Model	Description
DC404	S404 liquid sensor and controller
DC404C	S404 liquid sensor and controller for Canadian applications
TS-FE	FE Petro STP electric junction box adapter
TS-RJ	Red Jacket™ STP electric junction box adapter
TS-RJQ	Red Jacket™ Quantum™ STP electric junction box adapter

Note: Electric junction box adapters for STP installations.

Advantages

- Supplied with a cord grip and butt splices for wiring connections.
- Easily installs into a two-inch riser pipe with a compression fit against the walls of the pipe.
- Provided with security holes that fit a padlock to prevent unauthorized access into the riser pipe.

TSP-K12 Interstitial Sensor Riser Cap Installation Kit

Installation kit for installing the TSP-DIS, TSP-EIS or TSP-ULS in dry interstitial spaces with 2" riser pipe openings.



Model	Description
TSP-K12	Interstitial sensor riser cap kit for 2" riser pipes

Advantages

- The riser cap is compression fit into a 4" riser pipe via the use of a lever.
- Supplied with a cord grip and butt splices for wiring connections.
- Provided with security holes that fit a padlock to prevent unauthorized access into the riser pipe.

TSP-KV4 Hydrostatic Sensor Vented Riser Cap Installation Kit

Replacement vented installation kit for use with the TSP-HIS or TSP-HIS XL sensor installed in a 4" reservoir opening on double wall fiberglass tanks. One TSP-KV4 is already included with each TSP-HIS or TSP-HIS-XL.



Model	Description
TSP-KV4	Hydrostatic sensor vented riser cap kit for 4" riser pipes

TSP-KW4 Interstitial/Monitoring Well Pipe Cap Installation Kit

Installation kit for installing sensors in a dry tank interstitial or monitoring well with a 4" riser.



Advantages

- The interstitial/monitoring well cap is compression-fit into the riser pipe via the use of a lever.
- Supplied with a cord grip and butt splices for wiring connections.
- Provided with security holes that fit a padlock to prevent unauthorized access into the riser pipe.

Model	Description
TSP-KW4	Interstitial/monitoring well pipe cap kit for 4" riser pipes

Advantages

- Easily customized to fit virtually any sump by cutting the Unistrut™ assembly to desired length.
- Provided with 2", 3" and 4" pipe clamps for mounting to sump piping.
- Sensor location easily adjusted by the unique sliding feature of the Unistrut™ assembly.

Sensor Installation Accessories

Uni-Strut® Mounting Kit

Installation kit for installing the TSP-DDS and TSP-DTS in sump space.

Model	Description
TSP-KS	Unistrut™ mounting kit for TSP-DDS and TSP-DTS sensors

Sensor Installation Accessories

Part Number	Description
TSP-DB1	One direct burial splice connector kit
TSP-DB10	Pack of 10 direct burial splice connector kits
TSP-DBTOOL	Epoxy dispensing tool
TSP-KW30	Pack of 30 3M™ splice connectors

- Notes: 1. Use the TSP-DB1 or TSP-DB10 for direct burial cable applications or when weatherproof junction boxes are not used.
 2. The DBTOOL is required to dispense the epoxy.
 3. Each direct burial splice connector kit includes a receptacle, three splice connectors and epoxy for the dispensing tool.

TS-RAI Remote Audible and Visible Alarm Unit

The TS-RAI is a remote audible and visible alarm unit for use with Franklin Fueling Systems Automatic Tank Gauges. The unit may be used as an overfill alarm as required by federal, state and local regulations, or as a general purpose remote alarm annunciator.



Advantages

- Pulsating light and piezoelectric buzzer warn of alarm conditions.
- Can be combined with TS-RK remote acknowledge unit to provide choice of alarm silencing options.
- Can be programmed through Franklin Fueling Systems Automatic Tank Gauges to activate in response to any type of alarm in the system.
- Alarms for overfill and general purpose.

Installation

- Install within 1000 feet of console.
- Wiring: Type THHN, TFFN or THWN, 18 AWG or larger installed in conduits and completely separated from probe and sensor circuits.
- Operates directly from 110 VAC line power.
- For use in indoor/outdoor applications that have low background noise.

Model	Description
TS-RAI	Standard intensity, tank overfill alarm with light and horn
TS-RK	Remote tank overfill alarm acknowledge unit

Advantages

- Pulsating light and electromechanical buzzer warn of alarm conditions.
- Ideal for outdoor applications where a high intensity alarm is necessary.
- Can be combined with TS-RK remote acknowledge schemes.
- Has adjustable sound level with useful range of over 200 feet.

Installation

- Install within 1000 feet of console.
- Wiring: Type THHN, TFFN or THWN, 18 AWG or larger installed in conduits and completely separated from probe and sensor circuits.
- Operates directly from 110 VAC line power.
- For use in indoor/outdoor applications that have high background noise.

TS-RA2 Remote Audible and Visible Alarm Unit

The TS-RA2 is a high intensity remote audible and visible alarm unit for use with Franklin Fueling Systems Automatic Tank Gauges.. The unit may be used as an overfill alarm as required by federal, state and local regulations, or as a general purpose remote alarm annunciator.



Model	Description
TS-RA2	High intensity, tank overfill alarm with light and horn
TS-RK	Remote tank overfill alarm acknowledge unit

TS-RK Remote Alarm Acknowledge Unit

The TS-RK is a remote alarm acknowledge unit for use with all Franklin Fueling Systems Automatic Tank Gauges equipped with remote alarm annunciators.



Advantages

- Locks or silences audible and visible alarms up to 1000 feet.
- Facilitates rapid response during emergencies in either indoor or outdoor locations.
- Can be combined with TS-RA1 or TS-RA2 remote alarm units to provide a choice of alarm silencing options.
- Housed in rugged, nonmetallic NEMA® 4X unit ideal for any weather condition.

Installation

- Install within 1000 feet of console.
- Wiring: Type THHN, TFFN or THWN, 18 AWG or larger installed in conduits and completely separated from probe and sensor circuits.
- In conjunction with TS-RA1 or TS-RA2 and operates directly from 110 VAC line power.

Model	Description
TS-RK	Remote tank overfill alarm acknowledge unit

Advantages

- Easy to use and install.
- Compatible with most manufacturer's dispensers.
- Gathers all relevant dispensing information.
- Allows remote reconciliation.

TS-DIM Dispenser Interface Module

INCON's Tank Sentinel[®] console and TS-DIM together offer the ultimate solution for automating the inventory reconciliation process. Available as an internal module on fuel management system consoles, not available on the TS-750 or Colibri.

**Specifications**

- Power: 110 VAC 20 Watts.
- Size: 8-1/2" x 7-1/2" x 2".
- Environment: 35 °F to 120 °F, 10-90 non-condensing humidity.
- Electrical: 115 VAC 60 Hz, 20 Watts, dedicated circuit with earth ground.

Applications

- INCON's dispenser interface module (TS-DIM) connects to the manufacturer's dispenser distribution box to collect dispensing data. The Tank Sentinel[®] console gathers all relevant dispensing information.
- Collects information from the dispenser via the distribution box.
 - Eliminates the need to manually read dispenser meters and stick tanks to reconcile inventory.
 - Provides everything required to automate the reconciliation process.
 - Directly connects to the Tank Sentinel[®] console via a 3-wire RS 485 protocol interface to all major dispenser manufacturers including Tokheim[™], Gilbarco[™], Dresser Wayne[™] and Schlumberger.
 - Available on fuel management system consoles where dispenser configuration

require a second DIM.

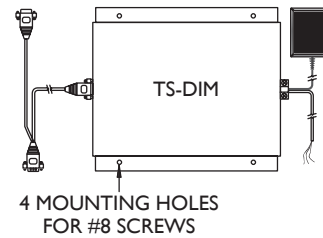
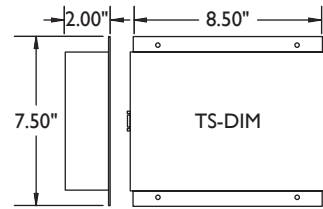
Capabilities

The TS-DIM collects information on all dispensed product and consolidates the data to a concise, easy-to-read format, facilitating the inventory reconciliation process.

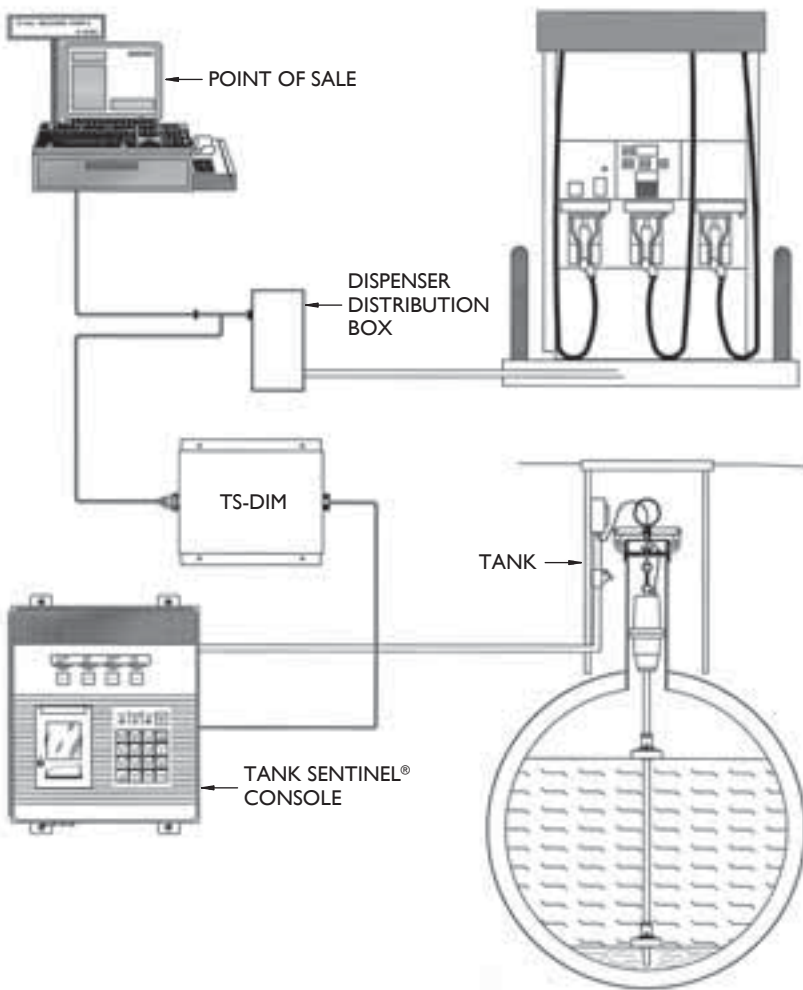
- Allows the ATG console to gather all relevant dispensing information.
- Calculates the quantity of product dispensed from each fueling point.
- Monitors up to 64 fueling points.
- Tracks the exact amount of product dispensed even during fuel deliveries.
- Reliable operation and complete data gathering ensures accurate dispenser readings.

Model	Description
TS-DIM/G	Dispenser interface module/Gilbarco™ dispensers
TS-DIM/GS	Dispenser interface module/G-site™ controller
TS-DIM/M	Dispenser interface module/Mechanical dispensers
TS-DIM/T	Dispenser interface module/Tokheim™ dispensers
TS-DIM/W	Dispenser interface module/Wayne™ dispensers

Note: Not available with the TS-750 or Colibri consoles.



TS-DIM Installation



Advantages

- In dual storage tank installations where two submersibles are used for one product grade with a single line, the ATG will always start the pump in the tank with the highest product level.
- INCON ATG can be programmed to respond to faults in the submersible pumping system.
- Automatic reset of the dry running fault in the submersible pump controller.
- Disables the submersible pump in the event of high water levels.
- Remote monitoring of the entire fueling system.
- Communication of pump diagnostic faults to remote monitoring party.
- Standalone TS-TPI can be mounted in a location convenient to on-site personnel.
- In one product grade dual tank installations with two submersible pumps discharging into a single discharge line, the second pump starts directly upon the shutdown of the first upon any shutdown fault. Within moments, the fault is reported to the monitoring party.

TS-TPI Turbine Pump Interface

The TS-TPI turbine pump interface provides a communication link for FE Petro intelligent pump controllers to communicate faults to enabled devices. This link allows the INCON ATG to include the reporting of submersible pump conditions to a monitoring party or to the station operator. Also, by integrating the intelligence of these two systems, the ATG can keep the station pumping fuel without service calls during several events that normally would result in down time and lost fuel sales. The TS-TPI is a standard internal option on the fuel management system consoles, not available on the TS-750 or Colibri.



System Requirements

- TS-TPI integrated into TS-LS300 AutoLearn™ line leak detection console.
- INCON TS-1001 or TS-2001 ATG console with version 3.5 software or higher.
- INCON TS-LS300 line leak detection console.
- FE Petro smart controller model STP-SCI, STP-SCIII or MagVFC™.
- For remote communication capabilities, System Sentinel™ version 3.1 software or higher or System Sentinel AnyWare™ version 1.0 or higher.

For TS-TPI standalone option,

- INCON TS-1001 or TS-2001 ATG console with version 3.5 software or higher.
- TS-TPI module.
- FE Petro smart controller model STP-SCI, STP-SCIII or MagVFC™.
- For remote communication capabilities, System Sentinel™ version 3.1 software or higher, or System Sentinel AnyWare™ version 1.0 or higher.

Configurations

- Standalone: TS-TPI turbine pump interface module.
- Included in AutoLearn™ TS-LS300: TS-TPI turbine pump interface module included in all TS-LS300 AutoLearn™ line leak detectors.

Model	Description
TS-TPI	Turbine pump interface

Note: Not available with the TS-750.

TS-ROM2 BriteBox™ Relay Output Module

The TS-ROM2 relay output module is a BriteBox™ expansion control module which may be used with the Tank Sentinel® console to perform control functions in response to alarm conditions. Not available on TS-750, fuel management system, or Colibri consoles.



Model	Description
TS-ROM2/4	Relay output module, 4 channel SPST
TS-ROM2/8	Relay output module, 8 channel SPST
TS-KB	Installation kit

- Notes: 1. Up to four BriteBoxes™ can be connected to the console (two TS-SEMs, one TS-ROM2 and one TS-CIM1 can be connected).
 2. One TS-ROM2 is typically used for positive pump shutdown when certain alarms occur.
 3. Order one TS-KB install kit for each BriteBox™ (includes ribbon cable, flexible conduit and fittings).
 4. Not available on TS-750, fuel management system, or Colibri consoles.

Advantages

- Designed for use with the Tank Sentinel® console to perform key emergency functions, disable pumps, operate indicator lights, sound alarms and perform other control functions.
- Flexible configuration that energizes or de-energizes each channel's relay in response to an alarm or loss of power.
- Available in 4 and 8 channel configurations.
- Uses miniature electromechanical relays to switch external loads.
- Each TS-ROM2 output channel can switch a 3 Amp 120/240 VAC load.

Installation

- Originally installed with Tank Sentinel® consoles, or can be added later.
- BriteBox™ mounted no further than 18" from Tank Sentinel® console.
- Wiring: ten conductor BriteBus™ ribbon cable run through ¾" flexible or rigid conduit connecting Tank Sentinel® console to BriteBox™ enclosure. TS-KB installation kit recommended.
- Wiring from the load circuits is connected to the field wiring terminal strip in the TS-ROM2.

TS-EPS Ethernet Port Server

The TS-EPS is a serial to Ethernet converter that allows Tank Sentinel® consoles to be assigned an IP address.



Model	Description
TS-EPS	Ethernet port enabling device for Tank Sentinel® consoles
TS-EPS-N	Ethernet port enabling device with null modem cable for other ATG systems. Not required with fuel management system or Colibri consoles.

Note: The Ethernet port device allows remote access to tank gauge console through an Ethernet IP address.

External Console Hardware Accessory

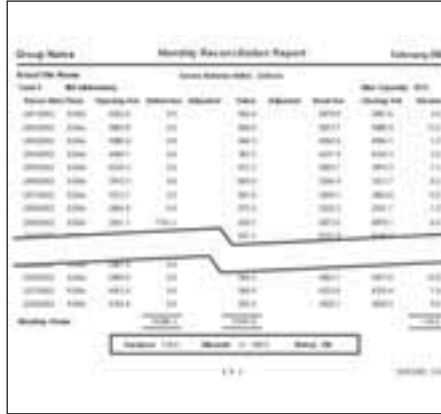
Waterproof Enclosure

(not available on fuel management system consoles)

Part Number	Description
TS-NEMA4X	NEMA® 4 waterproof enclosure

System Sentinel™ Remote Fuel Management Software

System Sentinel™ is a powerful, versatile and easy-to-use remote fuel management software that can communicate with all major tank gauge brands.



Specifications

- Microsoft Windows®: 2000 or XP Professional editions, or Windows NT 2.0 or Windows 98.
- Pentium® class processor: 33 MHz minimum.
- Minimum of 50 MB available hard drive space.
- Minimum of 32 MB RAM, 64 MB RAM with Windows XP.
- Display setting of 800 × 600 pixels with small font setting.
- Modem, Ethernet or serial connection.

Applications

With its easy-to-use report interface, System Sentinel™ allows you to spend more time managing your business. System Sentinel™ generates a wide variety of reports that can be customized to meet your business needs. The report formats are easy to read and allow you to extract relevant data quickly and easily for intelligent decision making. Some available reports are:

- Alarm history.
- Delivery.
- Leak test detail.
- Tank test detail.
- Detail and summary inventory.
- Monthly, daily and shift reconciliation.
- Alarm status.
- Average daily usage.
- Cathodic protection.
- Regulatory with sensor status.

Capabilities

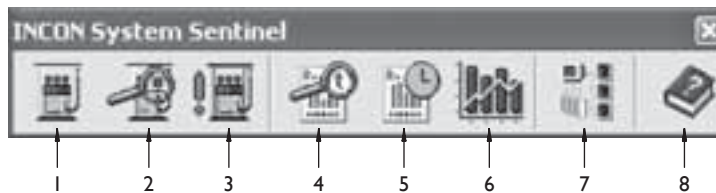
- Allows remote access to all fueling sites 24 hours a day.
- Inventory can be monitored as needed to precisely schedule deliveries.
- Monthly reconciliation and reconciliation summary reports allow for adjustments in delivery or sales volume data.
- Can monitor and report effectiveness of cathodic anti-corrosion devices.
- Communicates with all major tank gauge brands, no need to replace existing tank gauges.

Advantages

- Broad communication capabilities via modem, local or wide area networks, satellites, DSL, cable or other high-speed internet-based methods.
- Gathers specified data in a user-defined polling schedule or in real-time.
- Provides summarized or detailed information about all fueling sites.
- Deliveries are forecast from current inventory usage rates.
- Collects dispensing data to allow real-time reconciliation of sales data.
- Provides centralized control of all compliance information such as tank and line leak testing data and leak detection sensor status.
- A wide variety of reports can be custom-scheduled, displayed and printed or faxed at specific times.
- Displays data, highlights trouble spots and facilitates management by exception.
- Supports an unlimited number of sites.
- Offers immediate notification of alarms for corrective action.

System Sentinel™ Interactive Tool Bar

System Sentinel™'s interactive tool bar lets you access your site data with a click of the mouse. Each of the icons represents an important module of System Sentinel™.



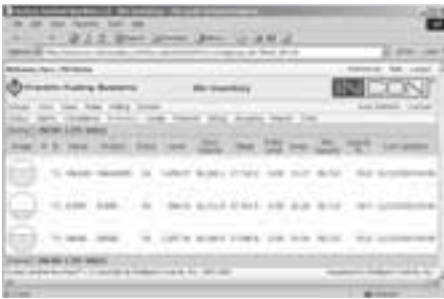
Number	Module	Description
1	Site Sentinel	Allows you to set-up and store the programming of tank gauges at your sites
2	Site Watch	Enables and assigns the polling function
3	Site Alert	Monitors your sites and notifies you when any alarms occur
4	Report Sentinel	Queries the database and organizes the information into user-selected reports or data format
5	Report Scheduler	Allows you to schedule reports to be displayed, printed or faxed at predefined times
6	Site Director	Provides a single-screen view of the alarm status up to 25 sites simultaneously, as well as product usage, delivery forecasts and regulatory compliance status for management by exception
7	Database Administrator	Allows you to archive and/or purge the data in your database
8	Help	Provides online assistance when using the software

System Sentinel™ Tech Edition

A cost effective version of System Sentinel that includes all the programming and diagnostic interface features used by technicians. (Site Sentinel, Report Sentinel, Database Administrator)

System Sentinel AnyWare™ Internet Enabled Fuel Management Software

System Sentinel AnyWare™ is an internet based fuel management package designed to provide you with unparalleled monitoring and control capabilities. Residing on a local server in your home office, System Sentinel AnyWare™ will allow your personnel to access site information through any web browser.



Specifications

- Server:
Microsoft Windows® server operating system.
933 MHz Pentium® III with 512 MB of physical memory.
100 MB for the application and 500 MB to 1 GB for the database disk space.
Second processor will boost performance significantly.
- Third Party application:
Microsoft® Internet Server (IIS) web server.
Microsoft® SQL server.
Seagate® Crystal Reports server.

Capabilities

- The powerful rules engine of the System Sentinel AnyWare™ allows you to manage by exception by automatically forwarding alarm, leak test and inventory information to the appropriate people when immediate attention is required.
- Capable of communicating to an unlimited number of sites using your WAN (wide area network) or a bank of multiple modems. System Sentinel AnyWare™ will quickly collect your site information and get it to you to help you run your business.

Advantages

- Broad communication capabilities via modem, local or wide area networks, satellites, DSL, cable or other high-speed internet-based methods.
- Gathers specified data in a user-defined polling schedule or in real-time.
- Inventory can be monitored as needed to precisely schedule deliveries.
- Deliveries are forecast from current inventory usage rates.
- Provides centralized control of all compliance information such as tank and line leak testing data and leak detection sensor status.
- Access to information can be controlled for multiple users.
- A wide variety of reports can be custom-scheduled, displayed and printed or faxed at specific times.
- Communicates with all major tank gauge brands.
- Supports an unlimited number of sites.
- Offers immediate notification of alarms for corrective action.

Advantages

- E-mails or text messages are immediately sent upon receipt of an alarm notification from the console to help lower service costs, provide less downtime and help have a higher throughput.
- Automatically and reliably retrieves fuel management and compliance data from all sites to eliminate reporting errors, lost printouts and keep all data in one place. This frees up site personnel for other tasks.
- Hardware and software is maintained by FFS so there is no need to purchase, install or maintain a server to monitor your sites.
- Secure access to site data from anywhere so you can view data with immediate accuracy from your home, office or the road.
- Daily usage and delivery forecast tools help to accurately schedule fuel drops and eliminate running out.
- A wide variety of reports and date range options help generate various compliance, alarm and inventory reports.
- Centralized, secure compliance information makes all your sites accessible in minutes.

Get Connected AnyWare™ Remote Polling Service

Get Connected AnyWare™ is a remote polling service from Franklin Fueling Systems that allows customers internet access to their sites from any web browser. Get Connected AnyWare™ acts as an application service provider of our powerful System Sentinel AnyWare™ software, allowing customers access to the application running on our servers at the Get Connected Data Center. Through high speed Ethernet or modem dial-up communications, Get Connected AnyWare™ can communicate with ATGs and retrieve important fuel management, alarm and compliance data.

Site can be accessed at www.gcanyware.com. Log in using the user demo and password demo.



Polling Options

One poll	AM, All history poll
Two polls	PM, Alarms, inventory and latest delivery
Three polls	Late PM, Alarms, inventory and latest delivery
On-demand	Customer directed polling any time

Get Connected *AnyWare*[™] Remote Polling Service

Monthly fee schedule per site based on ATG and connection type. Data export and Data Archive services also available.

Polling Service Details

Get Connected *AnyWare*[™] hosts the server, the application (System Sentinel *AnyWare*[™]) and provides internet access to it. Online training and phone/e-mail support are available. Other details include:

- Ability to browse to the Get Connected *AnyWare*[™] Web site from home, office, on the road or anywhere you have internet access.
- Customers can monitor their own sites and respond to alarms, compliance issues and perform fuel management.
- Rules can be created to send out e-mails and text messages on alarms and other events.
- All sites will be polled at least once daily and more frequent polling options are available.
- Get Connected *AnyWare*[™] consists of an auto-renewing six month agreement that can be discontinued at any time with a 30-day notice.

Receiving for High Speed Connections

Customers with an Ethernet connection can program their ATGs to contact Get Connected *AnyWare*[™] on various alarms or events. Get Connected *AnyWare*[™] will receive these transmissions and poll the site for new data. The new data will be applied to the current rules and e-mails will be generated if applicable.

Support While Getting Connected

Franklin Fueling Systems will provide support in bringing online and troubleshooting communication with sites using Franklin Fueling Systems communications equipment. This includes the TS-EPS Ethernet port server, the TS-MLS multi-line phone switch and the TS-FM2 internal modem.

Site Survey

If requested, Franklin Fueling Systems will recommend a distributor or service company in the customer's area to perform site surveys of the sites they wish to bring online.

More Functions

Get Connected *AnyWare*[™] will support connectivity to the following ATGs:

- INCON TS-5 Series (TS-5, TS-550, TS-5000, TS-EMS).
- INCON TS-1001 Series (TS-1001, TS-2001, TS-504, TS-508, TS-750).
- EBW Autostik (Bulkstik and Autostik Jr. version 3.905 or greater).
- Veeder-Root[®] TLS-300, 350 and Gilbarco[™] EMC Automatic Tank Gauges.

Connection can be established via Ethernet or internal modem. The Get Connected *AnyWare*[™] data center will store two years worth of data for each site and allow you to export your data. Data older than two years can be accessed with the data archive service.

Sump Test System Kit

The TS-ST5 sump test system is designed specifically to test dispenser and turbine containment sumps for leaks. Up to four sumps can be leak-tested simultaneously with accurate compliance test results available in just 15 minutes. The system consists of two carrying cases containing a TS-ST5 console and quick start guide in one, and leak test probes, cables and printer paper in the other.



Advantages

- Designed to deliver cost-effective environmental compliance test data.
- Easily transported in two supplied carrying cases.
- Easily set-up and programmed with site-specific data and sump identification before a test. Site and test data can also be saved to a laptop database.
- Laptop interface optional using System Sentinel™ Tech Software.
- Accommodates up to four probes for testing of up to four dispensers or four turbine containment sumps simultaneously.
- Uses INCON's magnetostrictive probe technology for unparalleled accuracy and reliable results.
- Highly accurate leak test detects level changes greater than 0.002 inches during the fifteen minute test.
- Provides accurate test solution levels for each sump monitored.
- Automatically prints out passed and/or failed sump leak test reports in just fifteen minutes after starting a leak test. Printer included.
- Shows the date and time of the test, test-solution levels and the leak test results on sump leak test reports.
- Additional sump leak test reports can also be printed at the console before other tests are completed.

INCON
ENVIRONMENTAL SOLUTIONS

TS-ST5 Sump Test System Quick Start Guide

TS-ST5 Overview - New Version 2.0 /

The TS-ST5 system includes a TS-ST5 console with a color LCD screen, a 15" x 11" printer, and a 15" x 11" printer. The console is designed to be used in a vehicle or other location where a printer is not available. The console is designed to be used in a vehicle or other location where a printer is not available.

TS-ST5 Installation

1. Requirements:
 - a) Type B access for probe cable for vehicle testing (see manual for details)
 - b) Battery pack and appropriate cables
 - c) Dispenser flow program (see manual)
 - d) The presence of water in sump (see manual for details)
2. Mount console, read battery levels and figure out the site for protection.
3. Mount the probe as directed and calibrate it (see manual).
4. Connect the probe cable to the console and the probe. Make sure the probe is in the sump. Under the TS-ST5 case, make sure the flow rate is set to the correct value. Make sure the probe is in the sump.
5. Setup: Program the TS-ST5 Console per Section 2.
6. Start using the console as directed in the manual.

Notes:

- Always use the correct probe cable for the sump being tested.
- Always use the correct flow program for the sump being tested.
- Always use the correct printer paper for the sump being tested.

FRANKLIN FUELING SYSTEMS
3760 MARSH ROAD
MADISON, WI 53718, USA
1-800-225-9767

10/31/2001 12:15 PM
SUMP LEAK TEST REPORT
SUMP 1

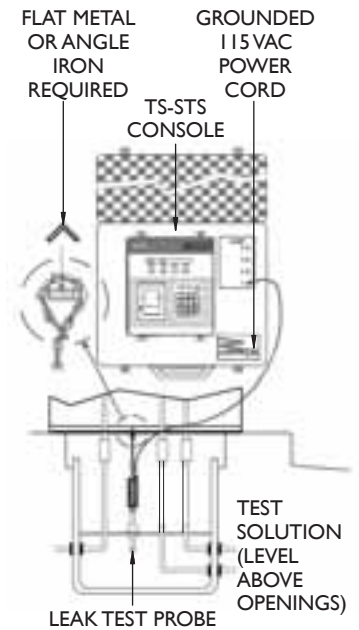
TEST STARTED	12:00 PM
TEST STARTED	10/31/01
BEGIN LEVEL	2.0120 IN
END TIME	12:15 PM
END DATE	10/31/01
END LEVEL	2.0120 IN
LEAK THRESHOLD	0.002 IN
TEST RESULT:	PASSED

Specifications

- Operating temperature:
Console - 32° to 122 °F (0° to 50 °C).
Leak test probes - -40° to 140 °F (-40° to 60 °C).
- Storage temperature:
Console - -4° to 140 °F (-20° to 60° C).
Leak test probes - -40° to 158 °F (-40° to 70 °C).
- Intrinsic safety rating:
Leak test probes - Class I, Div. I, Group D.
- Carry case weight and dimensions:
Console - 33 lbs. (15 kg), 24" x 19" x 8½" (62 cm x 49 cm x 22 cm).
Leak test probes - 30 lbs. (13.5 kg), 38" x 18" x 6" (97 cm x 45 cm x 16 cm).

- Number of sumps monitored:
Console - 4.
Leak test probes - 1.
- Applicable liquids:
Leak test probes - testing solution.
- Level units:
Console - inches.
- Display type and size:
Console - alphanumeric LCD, 2 lines of 40 characters.
- Printer type:
Console - 24 column thermal printer.
- Power requirements:
Console - 115 VAC, 50 Watts, 6' power cord with 3 prong plug supplied.
Leak test probes - 50' cable supplied.

Model	Description
TS-ST5-2K	Sump test system with two probes
TS-ST5-3K	Sump test system with three probes
TS-ST5-4K	Sump test system with four probes



TS-5, TS-550, TS-5000, TS-EMS and TS-550 evo Consoles

Part Number	Description
Common To All (TS-5 uses TSSP-PRB only)	
TSSP-10ARLY	Spare 6 output 10 amp relay module
TSSP-2VVSNS	Spare 12 input 2-wire sensor module
TSSP-3VVSNS	Spare 8 input 3-wire sensor module
TSSP-420IB	Spare 8 input 4-20ma module
TSSP-420EXP	Spare 8 input EXP 4-20ma module
TSSP-ACI	Spare 12 input AC input module
TSSP-IO	Spare input output module
TSSP-PRB	Spare 12 input probe module
TSSP-RLY	Spare 8 output relay module
TSSP-PS	Power supply module
TSSP-IPPTR	Impact printer assembly for TS-550,TS-5000 and TS-EMS (upgrade to thermal optional)
TSSP-TMPTR	Thermal printer assembly for TS-550,TS-5000,TS-EMS and TS-550 evo
TSSP-TRMBLK	Package of 10 assorted terminal blocks
TSSP-EXPPS	Expansion console power supply
TS-5/550/5000/ Only	
TSSP-CM	Spare controller module, fuel management system application only, no software options
TSSP-CM/R	Replacement controller module, factory programmed with required options
TSA-CMUPG	Upgrade kit for TSSP-CM in stock to add original options
TSSP-LCDIFB5x	LCD display and interface board kit for TS-550,TS-5000
TSSP-T550MB	TS-550 motherboard (for use with TS-EMS also)
TSSP-T5000MB	TS-5000 motherboard
TSSP-SP5FUSE	Spare Fuse Kit
TS-5 Only	
TSSP-T5MB	TS-5 motherboard
TSSP-LCDIFB5	LCD display and interface board kit for TS-5
TS-EMS Only	
TSSP-CM/EMS	Spare controller module for TS-EMS, vapor recovery monitoring application only
TSSP-CM/EMSB	Spare controller module for TS-EMS (balance site),VRM (I.I) application only
TS-550 evo Only	
EVO-CM	Spare TS-550 evo controller module, standard features only, no software options
EVO-CM/R	Replacement TS-550 evo controller module, factory programmed with required options
EVO-CMUPG	Upgrade kit for EVO-CM in stock to add original options
EVO-LCD	Replacement color LCD display
EVO-IFB	Replacement display/printer interface board

Note: The serial number of the old CM must be provided when ordering the TSSP or EVO-CM/R. Provide the serial number of the old and new CM when ordering the TSA or EVO-CMUPG.

Colibri Consoles

Part Number	Description
CL-MBWD	Replacement main board/display
CL-MBWD/R	Replacement main board/display, factory programmed with required options
CL-MB	Replacement main board (no display systems)
CL-MB/R	Replacement main board (no display systems), factory programmed with required options
CL-CVRWD	Replacement cover with display opening
CL-CVR	Replacement cover without display opening
CL-MBUPG	Upgrade kit for CL-MBWD in stock to add original options

Note: The serial number of the old main board must be provided when ordering the CL-MBWD/R. Provide the serial number of the old and new main boards when ordering the CL-MBUPG

TS-504 and TS-750 Consoles

Part Number	Description
TSSP-BAT	3 Volt lithium battery
TSSP-DSPI	Keypad/display PC board
TSSP-DSPKCI	Display/keypad cable
TSSP-ENCLK	Enclosure lock and key
TSSP-PSTB4-SM	Surface mount probe/sensor terminal board, serial numbers 100000 and higher
TSSP-PTR	Printer assembly
TSSP-PTRCI	Printer cable
TSSP-SMSB4	Surface mount system PC board, 110 VAC, serial numbers 100000 and higher
TSSP-SPFUSE	Spare fuse kit
TSSP-SVKT4-SM	TS-504 and TS-750 service kit for surface mount boards*
VSSP-SMSB4	Surface mount system PC board, 220 VAC, serial numbers 100000 and higher

*TSSP-SVKT4-SM includes one of the following: TSSP-SMSB4, TSSP-DSPI, TSSP-PSTB4-SM, TSSP-PTR, TSSP-PTRCI, TSSP-DSPKCI, TSSP-SPFUSE, TSSP-ENCLK and TSSP-BAT.

Note: TSSP-MSB4 boards are no longer available. Order TSSP-SMSB4 main board and TSSP-PSTB4-SM terminal board as replacement.

TS-508 Console

Part Number	Description
TSSP-BAT	3 Volt lithium battery
TSSP-DSP1	Keypad/display PC board
TSSP-DSPKC1	Display/keypad cable
TSSP-ENCLK	Enclosure lock and key
TSSP-PSTB8-SM	Surface mount probe/sensor terminal board, serial numbers 100000 and higher
TSSP-PTR	Printer assembly
TSSP-PTRC1	Printer cable
TSSP-SMSB8	Surface mount system PC board, 110VAC, serial numbers 100000 and higher
TSSP-SPFUSE	Spare fuse kit
TSSP-SVKT8-SM	TS-508 service kit for surface mount boards*
VSSP-SMSB8	Surface mount system PC board, 220VAC, serial numbers 100000 and higher

*TSSP-SVKT8-SM includes one of the following: TSSP-SMSB8, TSSP-DSP1, TSSP-PSTB8-SM, TSSP-PTR, TSSP-PTRC1, TSSP-DSPKC1, TSSP-SPFUSE, TSSP-ENCLK and TSSP-BAT.

Note:TSSP-MSB8 boards are no longer available. Order TSSP-SMSB8 main board and TSSP-PSTB8-SM terminal board as replacement.

TS-1001 Console

Part Number	Description
TSSP-BAT	3 Volt lithium battery
TSSP-DSP1	Keypad/display PC board
TSSP-DSPKC1	Display/keypad cable
TSSP-ENCLK	Enclosure lock and key
TSSP-PSTB1-SM	Surface mount probe/sensor terminal board, serial numbers 100000 and higher
TSSP-PTR	Printer assembly
TSSP-PTRC1	Printer cable
TSSP-SMSB4	Surface mount system PC board, 110VAC, serial numbers 100000 and higher
TSSP-SPFUSE	Spare fuse kit
TSSP-SVKT1-SM	TS-1001 service kit for surface mount boards
TSSP-TIKEY	Replacement key
VSSP-SMSB4	Surface mount system PC board, 220VAC, serial numbers 100000 and higher

*TSSP-SVKT1-SM includes one of the following: TSSP-SMSB4, TSSP-DSP1, TSSP-PSTB1-SM, TSSP-PTR, TSSP-PTRC1, TSSP-DSPKC1, TSSP-SPFUSE, TSSP-ENCLK and TSSP-BAT.

Note:TSSP-MSB4 boards are no longer available. Order TSSP-SMSB4 main board and TSSP-PSTB1-SM terminal board as replacement.

TS-2001 Console

Part Number	Description
TSSP-BAT	3 Volt lithium battery
TSSP-DSP2	Keypad/display PC board
TSSP-DSPKC2	Display/keypad cable
TSSP-ENCLK	Enclosure lock and key
TSSP-PSTB2-SM	Surface mount probe/sensor terminal board, serial numbers 100000 and higher
TSSP-PTR	Printer assembly
TSSP-PTRC2	Printer cable
TSSP-SMSB8	Surface mount system PC board, 110VAC, serial numbers 100000 and higher
TSSP-SPFUSE	Spare fuse kit
TSSP-SVKT2-SM	TS-2001 service kit for surface mount boards*
VSSP-SMSB4	Surface mount system PC board, 220VAC, serial numbers 100000 and higher

*TSSP-SVKT2-SM includes one of the following: TSSP-SMSB8, TSSP-DSP2, TSSP-PSTB2-SM, TSSP-PTR, TSSP-PTRC2, TSSP-DSPKC2, TSSP-SPFUSE, TSSP-ENCLK and TSSP-BAT.

Note:TSSP-MSB2 boards are no longer available. Order TSSP-SMSB8 main board and TSSP-PSTB2-SM terminal board as replacement.

DC400

Part Number	Description
404-4	Controller
404-4C	Controller for Canadian applications
S404	Float switch sensor

Note: Replacement parts not compatible with legacy DC400 systems. Both controller and sensor must be replaced. Order DC404 system to replace legacy components.

TS-LLD

Part Number	Description
010-0072	Control unit terminal interface board
020-1503	Hardware kit
430-0010	0.5 Amp fuse
TS-CU	Control unit
TS-FC	Line filter capacitor
TS-FPU	Face plate unit
TS-LSU	Leak sensor unit

TS-LS300

Part Number	Description
600-0080	Transducer quick disconnect cable
TS-ALCAL	3.0 gph calibration kit
TS-ALFUSE	AutoLearn™ fuse kit
TS-AFALNIP	Alternative fuels needle valve kit
TS-ALNIP	Needle valve kit
TS-LSU300	Intrinsically safe pressure transducer
TS-LSU300E	Explosion proof pressure transducer
TSSP-ALDB2	2-line display board
TSSP-ALDB4	4-line display board
TSSP-ALMB2	2-line intrinsically safe main board, 110VAC
TSSP-ALMB2E	2-line explosion proof main board, 110VAC
TSSP-ALMB4	4-line intrinsically safe main board 110VAC
TSSP-ALMB4E	4-line explosion proof main board 110VAC
TSSP-ALPTRC	Ribbon cable, display board to main board
TSSP-ALTPI	TPI turbine pump interface board
VSSP-ALMB2	2-line I/S main board, 220VAC
VSSP-ALMB4	4-line I/S main board, 220VAC

TS-LS500

Part Number	Description
600-0080	Transducer quick disconnect cable
TS-ALCAL	3.0 gph calibration kit
TS-AFALNIP	Alternative fuels needle valve kit
TS-ALNIP	Needle and valve kit
TS-LSU500	Intrinsically safe 4-20 mA pressure transducer
TS-LSU500E	Explosion proof 4-20 mA pressure transducer

TS-ST5 Sump Test Kit

Part Number	Description
282-0027	Chain, including split ring
282-0058	Split ring
600-0200	Probe cable 50'
TS-PRB-1	12" leak test probe kit*
TS-TP2	One box of 5 rolls of thermal printer paper
TSP-SSP	Stainless steel probe float
STS-CASE	STS probe case
STS-PRB-12	12" leak test probe
STS-REPAIR	STS system repair

Note: For parts for the TS-ST5 unit itself, reference the TS-1001 parts list. Repair price includes labor and return shipping only.

*Probe kit includes probe, float, chain and cable.

Accessories

Part Number	Description
430-0033	3 amp fuse for TS-ROM2/4 or /8
TSP-ENCD	Replacement encoder for TS-VFM



Transport Systems Solutions

Franklin Fueling Systems offers a complete line of tank transport systems for applications involving fuel and vapor transfer management solutions. A broad line of adapters, elbows and valves makes connecting to loading terminals and underground storage tanks easy. Preventing overfills at the loading rack is a top priority to any transport, and the optic control overfill protection system (OCS) ensures a safe delivery and compatibility with all existing racks and monitors. FFS has a solution to handle any product drop or vapor recovery situation, including a full line of delivery elbows and bottom loading adapters.



Bottom Loading



API Adapters:
Free floating API poppet and 3.5" sight glass maximize terminal and UST fuel transfers.

Vapor Recovery



Vapor Vent Valves:
FFS vapor vent valves can be serviced in place by removing the head, saving time and money.

Overfill Prevention



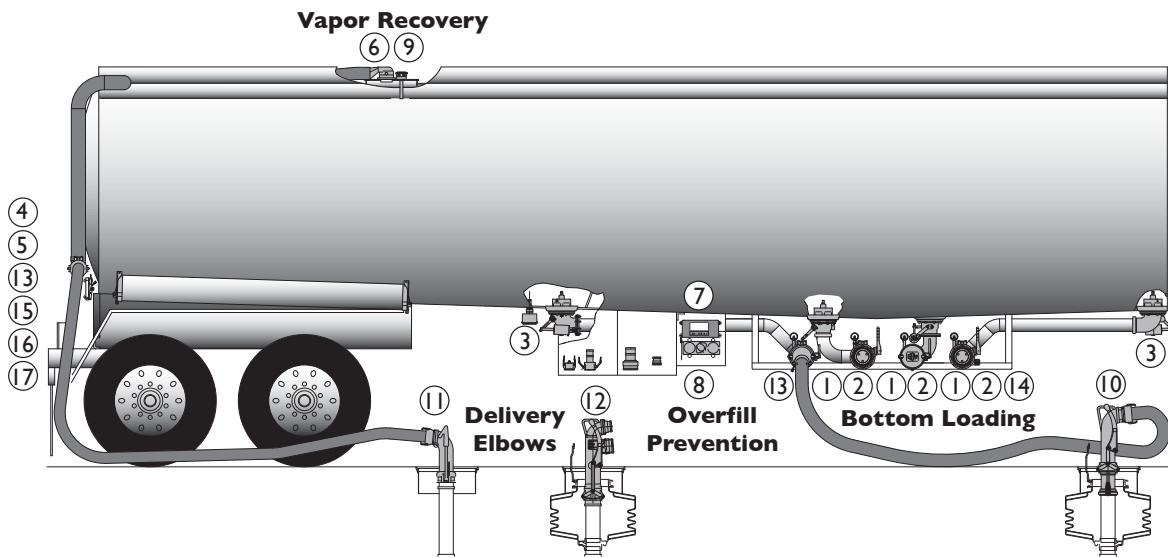
OCS Electronic Overfill Prevention:
Unparalleled diagnostics confirm transport and terminal overfill integrity before the truck is permitted to load fuel.

Delivery Elbows



Dual Point and Coaxial:
The lightweight, robust design of FFS delivery elbows ensures a true connection with minimal strain to the delivery driver.

Fuel and Vapor Transfer Solutions



Bottom Loading

No.	Model	Description
1	880-500-02	API adapter, short stroke three position, no sight glass
1	880-500-03	API adapter, short stroke three position, 1" bubbled sight glass
1	880-500-04	API adapter, short stroke three position, 3" bubbled sight glass
1	880-500-05	API adapter, short stroke three position, 3" bubbled sight glass, no handle
1	880-500-07	API adapter, short stroke three position, no sight glass, removable handle
2	880-330-01	Female gravity drop adapter
2	880-411-01	Male gravity drop adapter
3	880-430-01	Mechanically-operated 90 degree emergency valve (Victaulic™)
3	880-432-01	Air assisted 90 degree emergency valve (Victaulic™)

Vapor Recovery

No.	Model	Description
4	301-300-01	3" N.P.S.M. vapor recovery adapter with poppet
4	303-444-04	4" N.P.S.M. vapor recovery adapter, no poppet
5	302-300-11	Flanged vapor check valve
6	880-343-01	Air-operated sequential vapor valve

Overfill Prevention

No.	Model	Description
7	890-400-02	2-wire controller
8	908-221-01	Optic socket
9	890-110-01	Optic probe, 2-wire, 8"

Product Drop Elbows

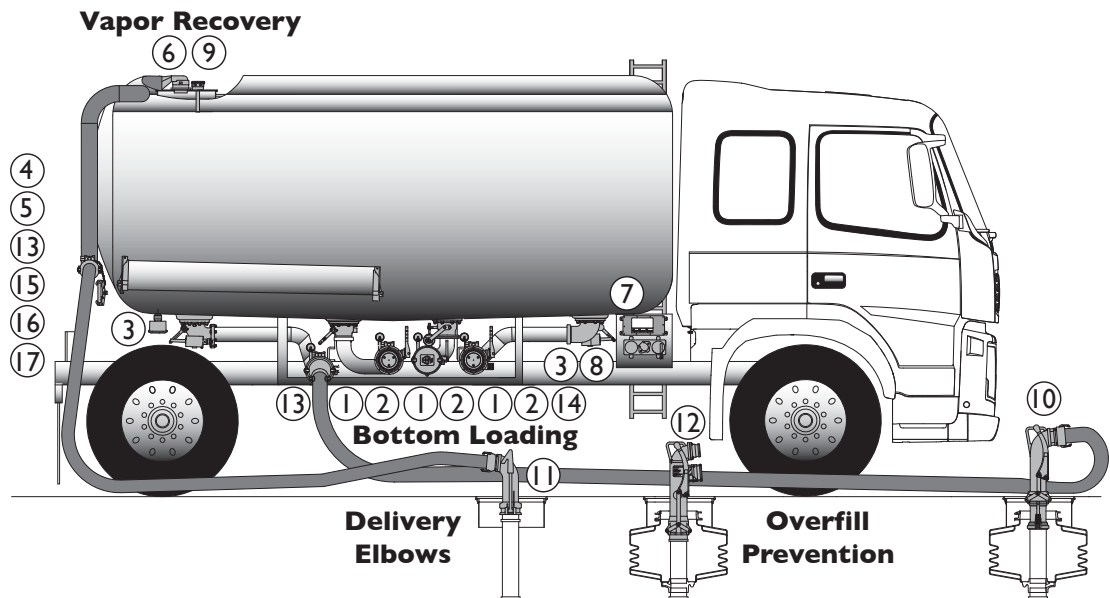
No.	Model	Description
10	880-493-02	Product drop elbow with cam and groove adapter and sight glass
10	880-455-01	Product drop elbow with sight glass
11	880-465-01	Dual point vapor recovery elbow
12	880-490-01	Coaxial delivery elbow

Accessories

No.	Model	Description
13	880-150-01	Three-way air interlock valve
13	880-150-02	Three-way air interlock valve with roller top
13	880-150-03	Three-way air interlock valve with offset actuator
14	880-403-01	API adapter dust cap
15	304-200-05	Vapor cap with chain-chevroned gasket
16	774-320-02	Vapor return hose coupler
17	784-300-03	Hose tube door



Fuel and Vapor Transfer Solutions



Bottom Loading

No.	Model	Description
1	880-500-02	API adapter, short stroke three position, no sight glass
1	880-500-03	API adapter, short stroke three position, 1" bubbled sight glass
1	880-500-04	API adapter, short stroke three position, 3" bubbled sight glass
1	880-500-05	API adapter, short stroke three position, 3" bubbled sight glass, no handle
1	880-500-07	API adapter, short stroke three position, no sight glass, removable handle
2	880-330-01	Female gravity drop adapter
2	880-411-01	Male gravity drop adapter
3	880-430-01	Mechanically-operated 90 degree emergency valve (Victaulic™)
3	880-432-01	Air assisted 90 degree emergency valve (Victaulic™)

Vapor Recovery

No.	Model	Description
4	301-300-01	3" N.P.S.M. vapor recovery adapter with poppet
4	303-444-04	4" N.P.S.M. vapor recovery adapter, no poppet
5	302-300-11	Flanged vapor check valve
6	880-343-01	Air-operated sequential vapor valve

Overfill Prevention

No.	Model	Description
7	890-400-02	2-wire controller
8	908-221-01	Optic socket
9	890-110-01	Optic probe, 2-wire, 8"

Product Drop Elbows

No.	Model	Description
10	880-493-02	Product drop elbow with cam and groove adapter and sight glass
10	880-455-01	Product drop elbow with sight glass
11	880-465-01	Dual point vapor recovery elbow
12	880-490-01	Coaxial delivery elbow

Accessories

No.	Model	Description
13	880-150-01	Three-way air interlock valve
13	880-150-02	Three-way air interlock valve with roller top
13	880-150-03	Three-way air interlock valve with offset actuator
14	880-403-01	API adapter dust cap
15	304-200-05	Vapor cap with chain-chevroned gasket
16	774-320-02	Vapor return hose coupler
17	784-300-03	Hose tube door

Victaulic™ is a trademark of Victaulic Company of America.

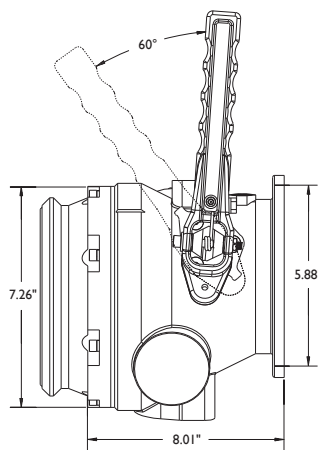
API Bottom Loading Adapters

Loading and off-loading fuel from a transport truck is easier than ever with the bottom loading adapters from Franklin Fueling Systems. While loading, the free floating poppet opens under pressure allowing the handle to remain in the closed position. This minimizes spillage caused by leaving the handle in the open position when disconnected from the bottom loader. The adapter handle is offered in aluminum or nylon and provides two open positions of flow allowing the delivery driver to manage the flow rate while off-loading fuel from the truck.

The lightweight, heavy-duty adapter is engineered and tested to meet API RP 1004 specifications. The outer end is made of hard coated aluminum and rotates seven times to maximize the products life and prevent wear that can be caused by terminal off-loading couplings. The inner wall of the adapter is fully tapered, minimizing product retention inside of the valve when off loading is complete. Each model is compatible with all API dry disconnect couplers and are constructed with a standard TTMA 4" tank truck flange and mounting lugs for FFS air interlock valves. Sight glass options are mounted on the side of the valve to maximize visibility during fuel transfer and are available in 1" and 3.5" sizes. Fuel loading and off loading management has never been easier, safer or more efficient.



Short Stroke, 3.5" Sight Glass
880-500-04



880-500-02



880-500-03

Model	Description
880-500-02	Short stroke three position, no sight glass
880-500-03	Short stroke, three position, 1" sight glass
880-500-04	Short stroke three position, 3.5" sight glass
880-500-05	Short stroke, three position, no handle, 3" sight glass
880-500-07	Short stroke, removable handle, no sight glass
880-120-01	Dust boot air cylinder
880-507-01	Replacement poppet kit with handles
880-507-02	Replacement poppet kit for bottom loaders with handles

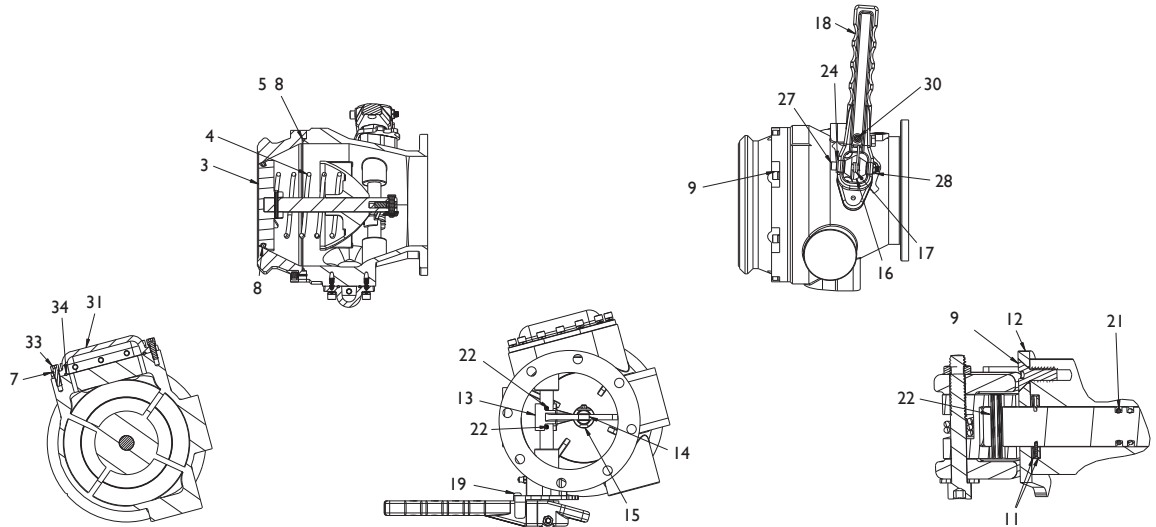
Advantages

- Long Life**
 Front API head may be rotated up to seven times to maximize the life of the adapter.

 Enhanced 3.5" sight glass provides greater impact strength and is compatible with Biofuels including E85 and Biodiesel.
- Safety**
 Free floating poppet is opened by pressure from the terminal adapter probe to minimize spills during loading.
- Speed of Delivery**
 The cam design utilized to retract the adapter poppet minimizes product flow restriction during off loading and loading.



API Bottom Loading Adapter Spare Parts



Item	Description	Part Number	880-500 Model
3	Poppet head	880-509-01	-01, -02, -03, -04, -07
4	Spring, poppet	880-127-01	-01, -02, -03, -04, -07
5	O-ring	11039-38	-01, -02, -03, -04, -07
11	Washer, flat, 5/8" ID	880-191-01	-02, -03, -04, -07
12	Latch dual	880-506-01	-02, -03, -04, -07
13	Cam, loading arm	880-215-01	-02, -03, -04, -07
14	Roller, cam	880-190-01	-02, -03, -04, -07
15	Pin, roller cam	880-189-01	-02, -03, -04, -07
16	Hex, permanent handle	880-198-01	-02, -03, -04
17	Spring, handle	880-102-01	-02, -03, -04
18	Handle, dual latching	880-505-01	-02, -03, -04
	Handle, dual latching (Canada)	880-505-03	-07
19	Pin, latch	880-192-01	-02, -03, -04, -07
21	O-ring, cross shaft	11039-12	-02, -03, -04, -07
22	Pin, 3/16", spirol	11086-04	-02, -03, -04, -07
27	Cap screw, socket head 1/4-20 x 2"	11170-16	-02, -03, -04
28	Locknut, 1/4-20	11041-05	-02, -03, -04
30	Cap screw, socket head, 10-24 x 5/8"	11030-10	-02, -03, -04, -07
31	Sight glass, 1" bubble	880-511-01	-03
	Sight glass, 3.5" bubble	880-512-01	-04
33	Cap screw, socket head, 1/4-20 x 3/4"	11170-17	-03, -04
34	O-ring, sight glass, 1" bubble	11039-36	-03
	O-ring, sight glass, 3.5" bubble	11039-37	-04
40	Ball, flow indicator, 3/8", green	880-124-02	-03

Dust Cap

This lightweight API Dust Cap shields valuable bottom loading valves from destructive outside elements. The cap easily couples on all EBW API bottom loading adapters using a reliable Buna-N gasket. The corrosion-resistant cap comes with forged brass cam arms and a heavy-duty attachment chain. This Dust Cap also meets API RP 1004 Specifications.



880-403-01

Model Unit	880-403-01	880-206-01
Description	Dust Cap	Gasket
Inches	4.00	4.00
Millimeters	101.6	101.6
Pounds	3.06	—
Kilograms	1.39	—

Part Number	Description
880-403-01	API Bottom Loading Adapter Dust Cap
880-206-01	API Bottom Loading Adapter Gasket

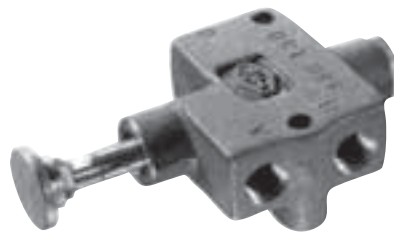


Advantages

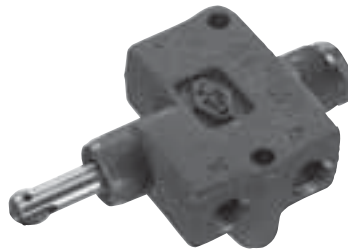
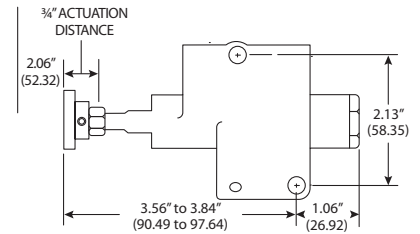
- Heat-treated, anodized aluminum construction.
- 1/4" NPT connection ports.
- Field serviceable.
- Adjustable stem button.

Three-Way Air Valves

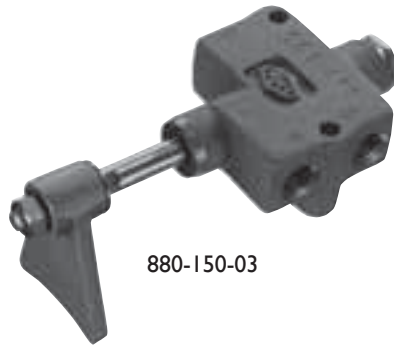
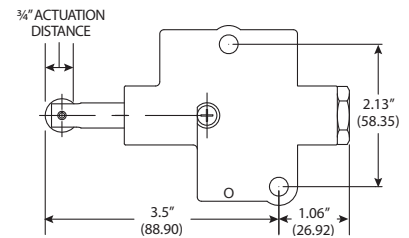
Play it safe with this lightweight valve that locks up the brakes on the trailer, preventing it from leaving the loading rack while connected to the loading arm. This three-way air valve can be used normally open or normally closed, has an adjustable stem, and comes with standardized TTMA and API mounting holes. The anodized aluminum valve is used on all API bottom loading adapters and all Vapor Check Valves.



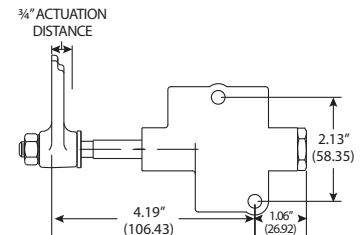
880-150-01



880-150-02

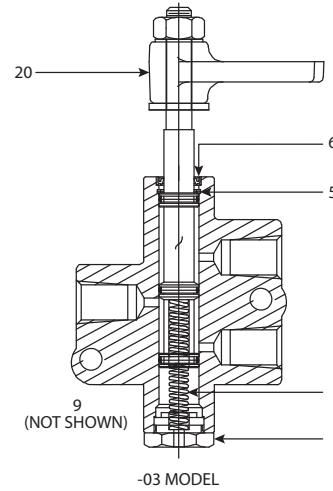
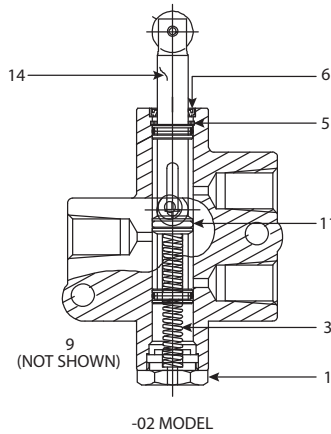
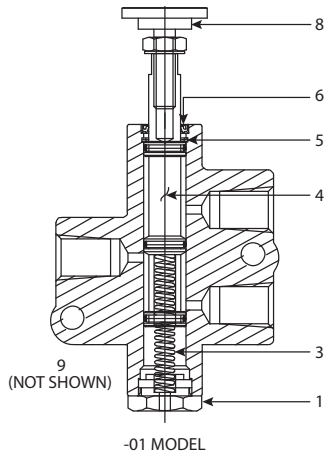


880-150-03



Model Unit	880-150-01	880-150-02	880-150-03
Width (Inches/Millimeters)	3.00/76.2	3.00/76.2	3.00/76.2
Length (Inches/Millimeters)	4.25/107.96	4.25/107.96	4.25/107.95
Pounds	0.69	0.69	0.69
Kilograms	0.31	0.31	0.31

Three-Way Air Interlock Valves Parts List



#	Part Name	Qty. Req.			Part Number
		-01	-02	-03	
1	Plug - Nut	1	1	1	880-145-01
3	Spring	1	1	1	880-148-01
4	Spool & O-ring Assembly	1	0	1	880-171-01
5	Retaining Ring	1	1	1	11090-04
6	Dust Seal	1	1	1	880-142-01
8	Screw Adjuster 1.0"	1	0	0	880-144-01
9	Screw 1/4-20 x 1.75" Hex Head	2	2	2	11063-07
14	Spool & O-ring Assembly, Roller Tip	0	1	0	880-171-02

#	Part Name	Qty. Req.			Part Number
		-01	-02	-03	
20	Actuator - Offset	0	0	1	881-120-01
	880-150-01 Service Kit*	1	0	0	90012
	880-150-02 Service Kit**	0	1	0	90055
	880-150-03 Service Kit***	0	0	1	90056

* Note: Service Kit includes: (1) #3, (1) #4, (1) #5, (1) #6, (1) #7, (1) #8, (1) #12
 **Note: Service Kit includes: (1) #3, (1) #5, (1) #6, (1) #14, (1) #15, (1) #16, (1) #17
 ***Note: Service Kit includes: (1) #3, (1) #5, (1) #6, (1) #18, (1) #19, (1) #20, (1) #21, (1) #22

Part Number	Description
880-113-01	Screw Adjuster Assembly 1.5" Button
880-150-01	Three-way Air Interlock Valve
880-150-02	Three-way Air Interlock Valve, Roller Tip
880-150-03	Three-way Air Interlock Valve, Offset Actuator

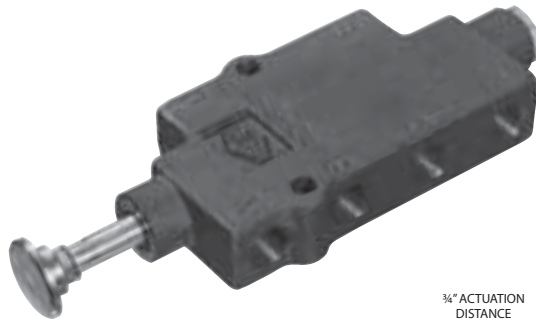


Advantages

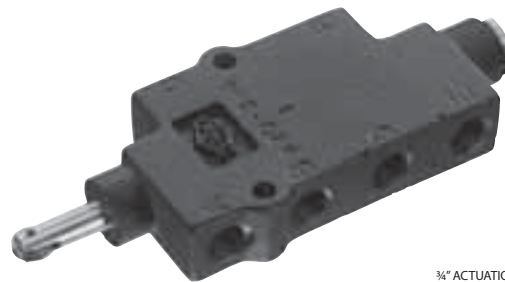
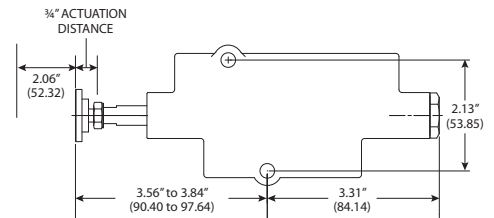
- Heat-treated, anodized aluminum construction.
- 1/4" NPT connection ports.
- Field serviceable.
- Adjustable stem button.

Six-Way Air Valves

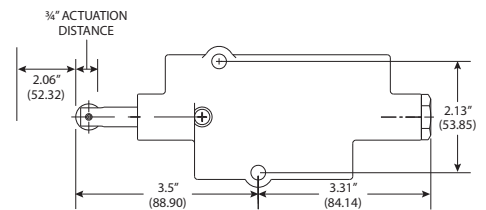
These air interlock valves were designed to operate two different air systems at the same time. The lightweight valves are designed to lock the trailer brakes and open the air operated vapor valve at the same time. These six-way air valves can be used in the normally open (N/O) and normally closed (N/C) configurations of N/O, N/C, or N/O, N/O, or N/C, N/C positions. They have an adjustable stem and come standard with TTMA and API mounting holes.



880-256-01

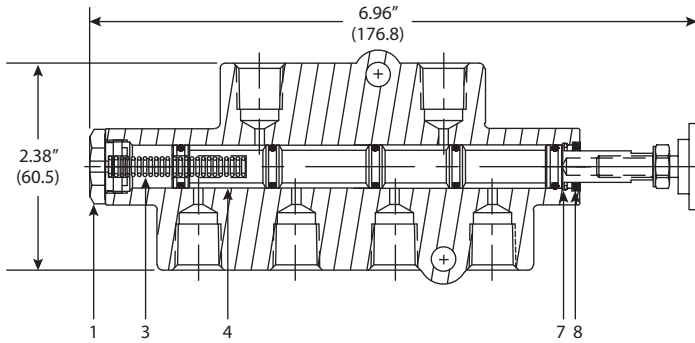


880-256-02



Model Unit	880-256-01	880-256-02	880-256-03
Width (Inches/Millimeters)	3.00/76.2	3.00/76.2	3.00/76.2
Pounds	0.69	0.69	0.69
Kilograms	0.31	0.31	0.31

Six-Way Air Interlock Valves Parts List



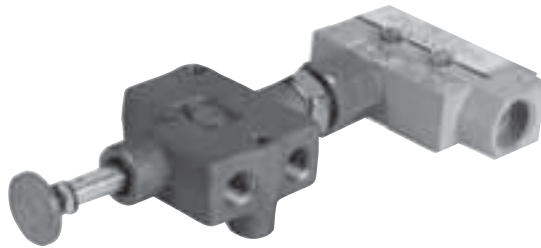
#	Part Name	Part Number
1	Plug - Nut	880-145-01
3	Spring	880-148-01
4	Spool & O-ring Assembly	880-258-01
7	Retaining Ring	11090-04
8	Dust Seal	880-142-01

Part Number	Description
880-256-01	1/4" - 1" Button Six-way Air Valve
880-256-02	1/4" - 1" Roller Tip Six-way Air Valve
880-256-03	1/4" - 1" Duckfoot Six-Way Air Valve
90020	Service kit for 880-256-01
90059	Service kit for 880-256-02

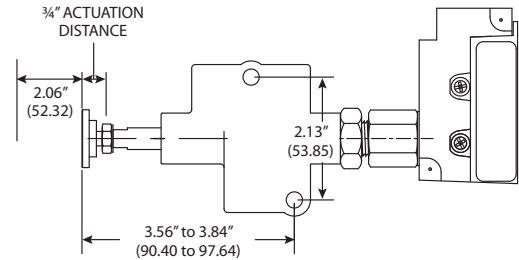


Air Interlock with Limit Switch

Ensure proper vapor recovery every time by using the Air Interlock with Limit Switch. With the limit switch, bottom loading cannot begin until a vapor recovery hose is connected to the vapor check valve. The switch does its job by breaking a connection in the secondary over-fill prevention system, thus preventing the rack monitor from giving a green light to the transport. Once a vapor line is connected, loading can begin. The coupler first depresses the plunger button of the interlock, which then locks the trailer brake system and completes the connection to the rack monitor. The vapor hose must be disconnected before the brakes will release, allowing the truck to be driven away.

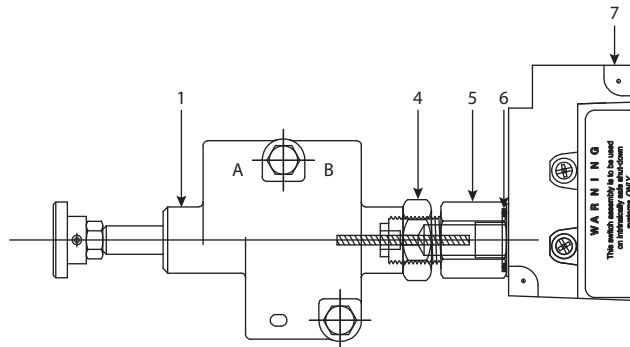


880-155-01



Model Unit	880-155-01	880-155-02
Pounds	1.25	1.25
Kilograms	0.57	0.57

Air Interlock with Limit Switch Parts List



#	Part Name	Part Number
1	Air Valve Assembly	881-156-01
4	*Nut - Hex Jam	11021-04
5	*Adapter - Valve to Switch	881-155-01
6	O-ring	11003-25
7	Limit Switch	11219-02
	Service Kit for 880-155-01	90012

* Note: These items are components of Air Valve Assembly 881-156-01

Part Number	Description
880-155-01	1/4" - 1" Button with Limit Switch
880-155-02	1/4" - 1" Roller Tip with Limit Switch

Female Gravity Drop Adapter

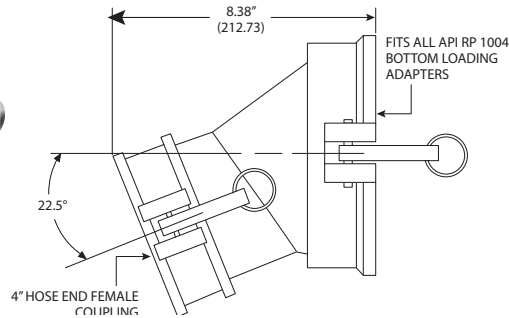
Let gravity do all the work with these high strength, corrosion-resistant adapters. A 22.5 degree angle makes service station drops a breeze with easy hose coupling and fast, unrestricted off-loading. Engineered to mate with API RP 1004 Bottom Loading Adapters, each adapter comes with a heavy-duty attachment chain and uses a large, resilient gasket that guarantees minimum product loss. The lightweight adapters are available in 3" male NPT or male cam and groove; 4" male NPT, male cam and groove or female cam and groove.

Advantages

- Heat-treated, anodized alloy body.
- Buna-N gaskets.
- Forged bronze cams and stainless steel pins.
- Meets API RP 1004 specifications.



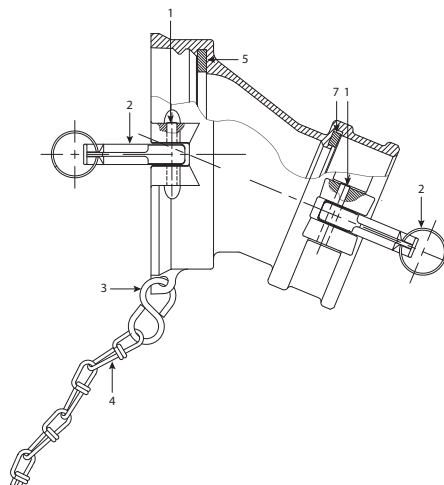
880-330-01



Model Unit	880-330-01
Size (Inches/Millimeters)	4.00/101.6
Weight (Pounds/Kilograms)	6.06/2.75

Female Gravity Drop Adapter Parts List

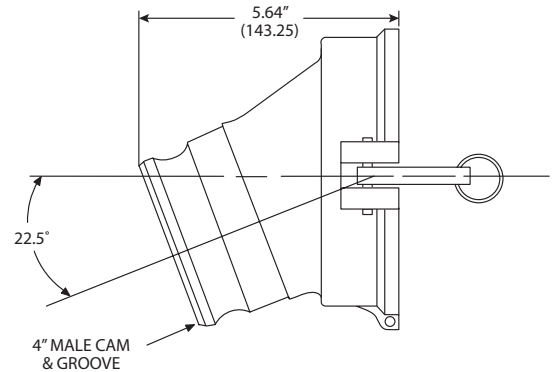
#	Part Name	Part Number
1	Groove Pin	11125-07
2	Cam Arm & Ring Assembly	774-116-03
3	S-Hook	11110-01
4	Double Loop Chain	880-115-02
5	Gasket	880-206-01
7	Gasket	774-202-04



Part Number	Description
880-330-01	Female Gravity Drop Adapter
880-206-01	Gasket - API End
774-202-04	Gasket - Hose End

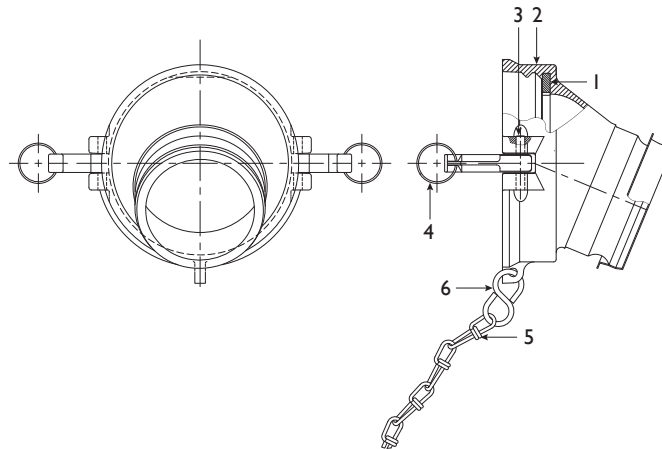


Male Gravity Drop Adapter



Model Unit	880-410-01	880-411-01
Size (Inches/Millimeters)	3.00/76.2	4.00/101.6
Weight (Pounds/Kilograms)	4.00/1.81	5.00/2.27

Male Gravity Drop Adapter Part List



#	Part Name	Part Number	#	Part Name	Part Number
1	Rubber Gasket	880-206-01	5	Double Loop Chain	880-115-02
2	4" Drop Adapter - Body Only	880-412-01	6	S-Hook	11110-01
3	Groove Pin	11125-07			
4	Cam Arm & Pull Ring Assembly	774-116-03			

Part Number	Description
880-410-01	3" Male Cam & Groove
880-411-01	4" Male Cam & Groove
880-206-01	Gasket - API End

Threaded Vapor Check Valve

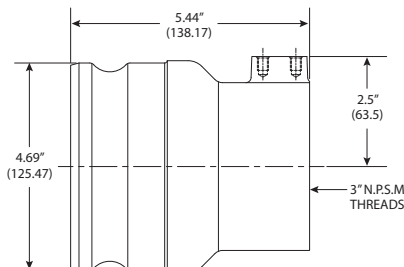
Use this Vapor Check Valve to return vapor to the truck during terminal loading and service station drops. The 3" poppet opens when coupled and closes when disconnected, preventing the vapors from escaping into the atmosphere. The valve has 3" or 4" female NPSM threads, a 4" cam and groove, and tapped mounting holes for the EBW Air Interlock Brake. The 303 series is available without a poppet to serve as a male quick coupler with an Air Interlock Valve mounting pad.

Advantages

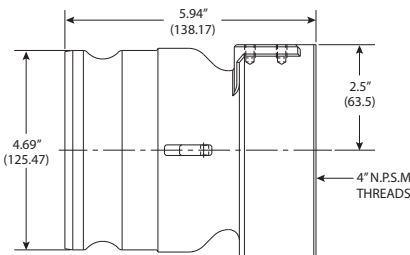
- Anodized aluminum construction.
- Stainless steel stem and spring.
- Buna-N gasket.
- Aluminum guide.



301-300-01



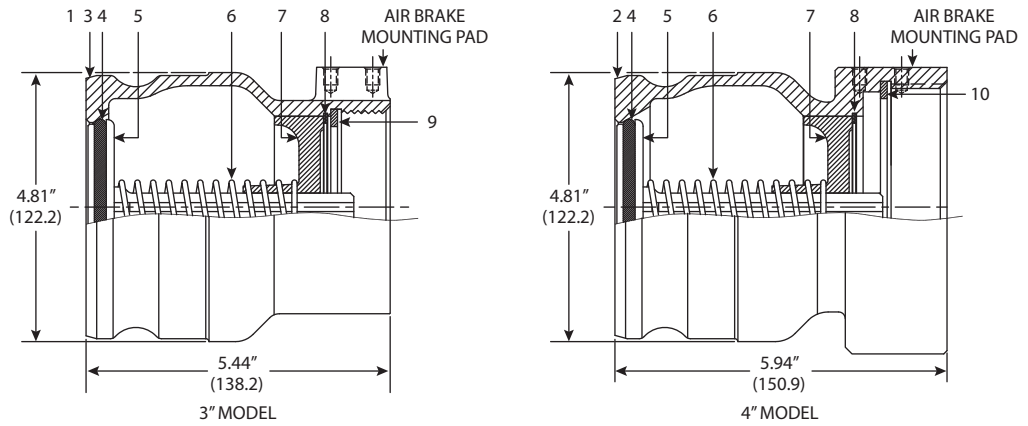
303-444-04



Model Unit	301-300-01	301-300-02	301-300-03	303-333-03	303-444-04
Poppet	Yes	Yes	Yes	No	No
Thread Size	3.00-NPSM	4.00-NPSM	3.00-BSPP	3.00-NPSM	4.00-NPSM
Weight (Lbs./Kg.)	4.50/2.04	4.81/2.18	2.55/1.16	3.81/1.73	4.31/1.96

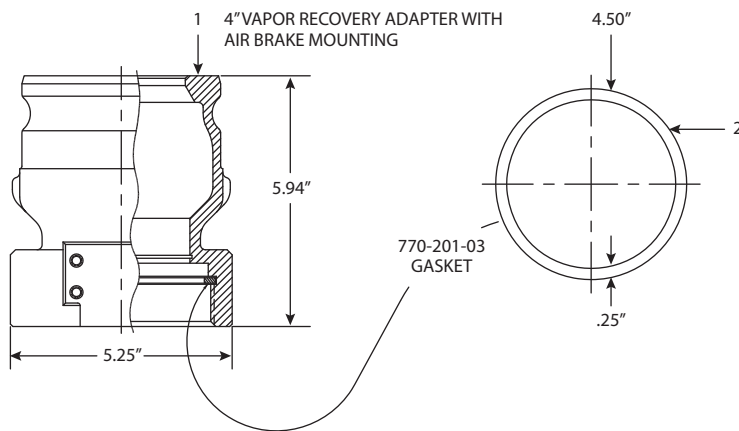


Threaded Vapor Check Valve Parts List



301-300-01/301-300-02

#	Part Name	Part Number	#	Part Name	Part Number
1	Vapor Recovery Adapter - 3" N.P.S.M.	300-305-02	6	Spring - Poppet	300-105-01
2	Vapor Recovery Adapter - 4" N.P.S.M.	300-302-02	7	Guide - Poppet Stem	300-205-01
3	Vapor Recovery Adapter - 3" B.S.P.P.	300-305-32	8	Retaining Ring	11090-02
4	O-ring	11039-15	9	3" Gasket Cover	770-201-02
5	Poppet	300-203-01	10	4" Gasket Cover	770-201-03



301-300-03

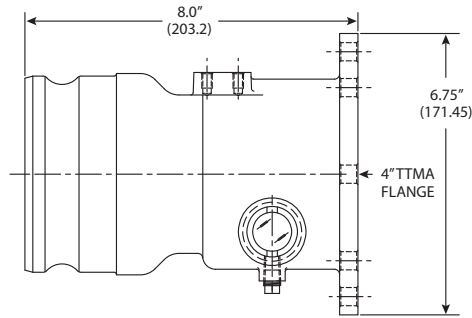
Part Name	Part Number
3" N.P.S.M.Vapor Recovery Adapter, with Poppet	301-300-01
3" BSPP Vapor Recovery Adaptor, with Poppet	301-300-03
4" N.P.S.M.Vapor Recovery Adapter, with Poppet	301-300-02
3" N.P.S.M.Vapor Recovery Adapter, no Poppet	303-333-03
4" N.P.S.M.Vapor Recovery Adapter, no Poppet	303-444-04

Flanged Vapor Check Valve

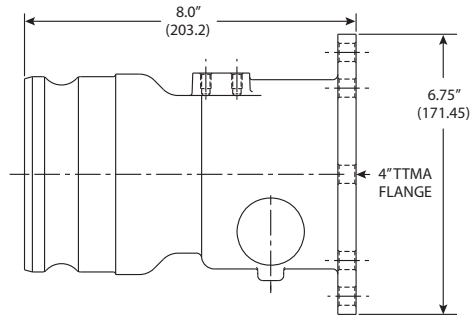
The sight glasses featured on this vapor recovery fitting can help detect liquid accumulation in the vapor manifold of a transport. A drain plug lets any extra fuel drain out, and the poppet prevents vapors from escaping when disconnected from the hose. A low pressure drop makes flow rates faster and vapor recovery safer. The adapter is constructed with a standard 4" TTMA flange, a 4" cam and groove, and a mounting pad for the Air Interlock Valve.



302-300-11



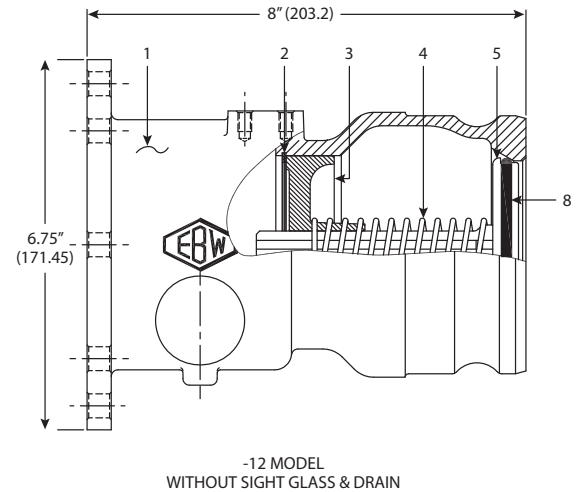
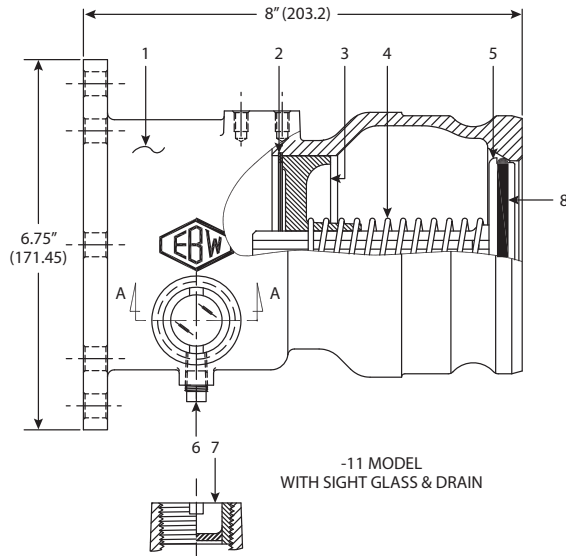
302-300-12



Model Unit	302-300-11	302-300-12
Size (Inches/Millimeters)	4.00/101.6	4.00/101.6
Weight (Pounds/Kilograms)	6.00/2.72	6.00/2.72



Flanged Vapor Check Valve Parts List



#	Part Name	Part Number
2	Retaining Ring	11090-02
3	Poppet Stem Guide	300-205-01
4	Poppet Spring	300-105-01
5	4" Poppet Vapor Recovery Adapter	300-203-01
6	Pipe Plug	11010-02
7	Sight Glass	11215-04
8	O-ring	11039-15

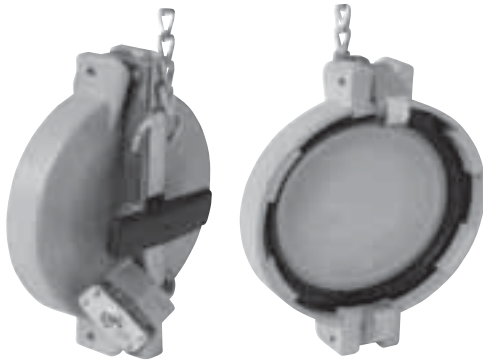
Part Number	Description
302-300-11	Flanged Vapor Check Valve with Sight Glass
302-300-12	Flanged Vapor Check Valve without Sight Glass

Vapor Caps

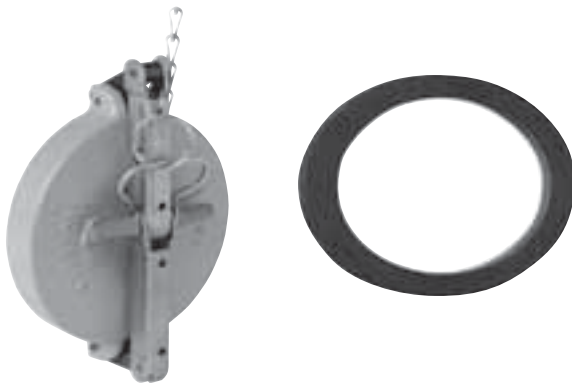
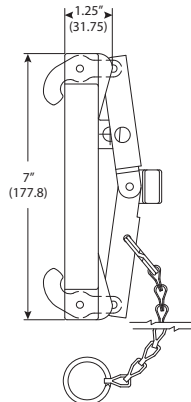
These lockable vapor caps act like dust covers, but won't activate the Air Interlock Valve when used on vapor check valves and adapters. Iron-copper infiltrated cams create a solid push-down-and-pull-up movement for quick, easy removal and replacement; steel latches hold the caps secure. Orange in color to indicate vapor recovery, the caps can be used with any 4" male cam and groove. Caps also available with finger ring and chains.

Advantages

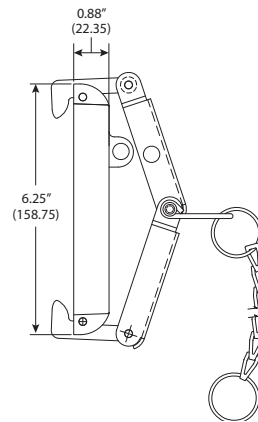
- Meets API RP 1004 Standard.
- Aluminum or glass-filled nylon construction.
- Iron-copper infiltrated cams and steel latches.
- Lockable.



304-200-05



304-301-02

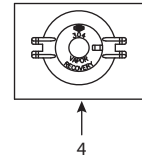
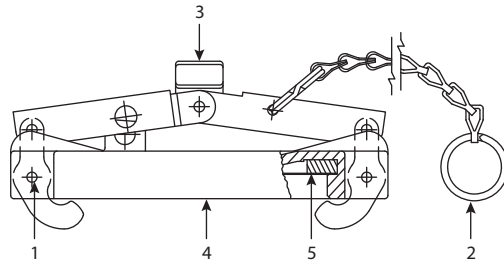


Model Unit	304-200-01	304-200-02	304-200-04
Size (Inches/Millimeters)	4.00/101.6	4.00/101.6	4.00/101.6
Weight (Pounds/Kilograms)	1.19/.54	1.19/.54	1.19/.54
Gasket No.	777-111-01	777-111-02	304-105-01

Model Unit	304-200-05	304-301-01	304-301-02
Size (Inches/Millimeters)	4.00/101.6	4.00/101.6	4.00/101.6
Weight (Pounds/Kilograms)	1.19/.54	1.19/.54	1.19/.54
Gasket No.	304-105-01	777-110-04	777-110-04



Vapor Caps Parts List



MODEL -04 & -05 ONLY
CHEVRONS THIS SIDE

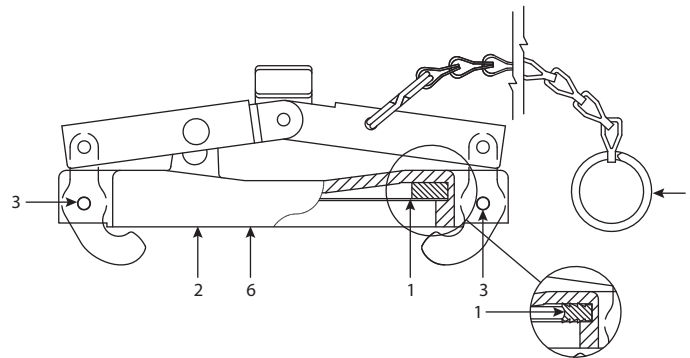


0.06 R. THIS SIDE

304-200-01/304-200-02/304-200-04/304-200-05

#	Part Name	Part Number	#	Part Name	Part Number
1	Spirol Pin	11024-09	4	Vapor Recovery Cover	304-305-01
2	Security Chain with Rings	774-110-03	5	Flat Gasket	777-111-01*
3	Handle Assembly	304-112-01	5	Gasket with Chevrons	304-105-01*

*304-200-01/304-200-02 use 777-111-01 Flat Gasket
304-200-04/304-200-05 use 304-105-01 Gasket with Chevrons



304-301-02

#	Part Name	Part Number	#	Part Name	Part Number
1	Gasket	950-215-01	5	Security Chain with Rings	774-110-03
2	Aluminum Body Cover	304-306-01	6	Cover Assembly	304-301-01
3	Spirol Pin	11024-03			

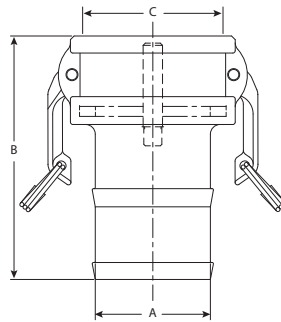
Part Number	Description
304-200-01	Nylon Vapor Cap without Chain
304-200-02	Nylon Vapor Cap with Chain
304-200-04	Nylon Vapor Cap without Chain-Chevrons Gasket
304-200-05	Nylon Vapor Cap with Chain-Chevrons Gasket
304-301-01	Aluminum Vapor Cap without Chain
304-301-02	Aluminum Vapor Cap with Chain

Vapor Return Hose Couplers

Fast, safe vapor recovery is easy with probed hose couplers. Hose shank end bands to a vapor recovery hose and the probe automatically opens the poppet of the vapor check valve when coupled. The coupler comes in three sizes for use with most vapor check valves and hose configurations. The poppetted vapor return hose coupler design prevents vapor from escaping when disconnected. The probe automatically opens the vapor check valve when connected properly. The design also offers low restrictive vapor passage. The body and probe are made of heat-treated anodized aluminum with forged bronze cams and stainless steel pins, and the poppet has a replaceable fluorocarbon seal.



774-320-02



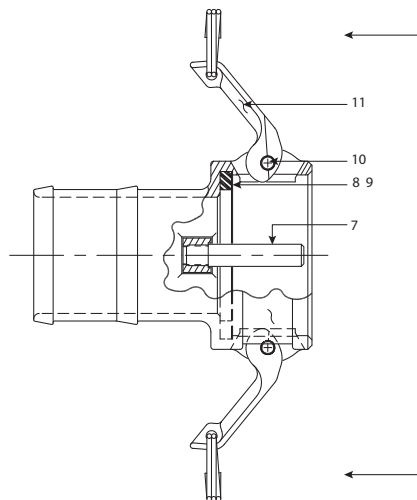
Model Unit	774-320-02	774-320-03
Dim. A (Inches/Millimeters)	3.00/76.2	4.00/101.6
Dim. B (Inches/Millimeters)	6.62/168.15	6.62/168.15
Dim. C (Inches/Millimeters)	4.75/120.65	4.75/120.65
Weight (Pounds/Kilograms)	3.00/1.36	3.38/1.53

Advantages

- Meets API RP 1004 Standard.
- Heat-treated, aluminum alloy body and brass probe.
- Forged bronze cams and stainless steel pins.
- Used with probe for opening vapor check valve.

Vapor Return Hose Couplers Parts List

#	Part Name	Part Number
2	774-CV 4" x 3" Assembly	774-320-02
3	774-CV 4" x 4" Assembly	774-320-03
7	Probe	774-112-01
8	3" Gasket	774-202-03
9	4" Gasket	774-202-04
10	Groove Pin	11125-07
11	Cam & Ring Assembly	774-116-03





Advantages

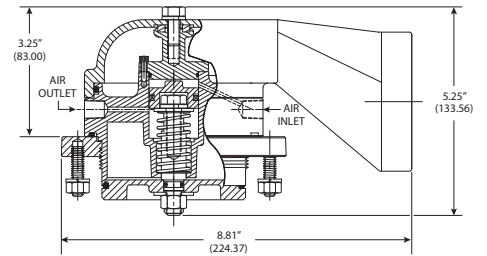
- Lightweight aluminum body and hood.
- Fluorocarbon seal.
- TTMA specifications.

Air-Operated Sequential Vapor Valves

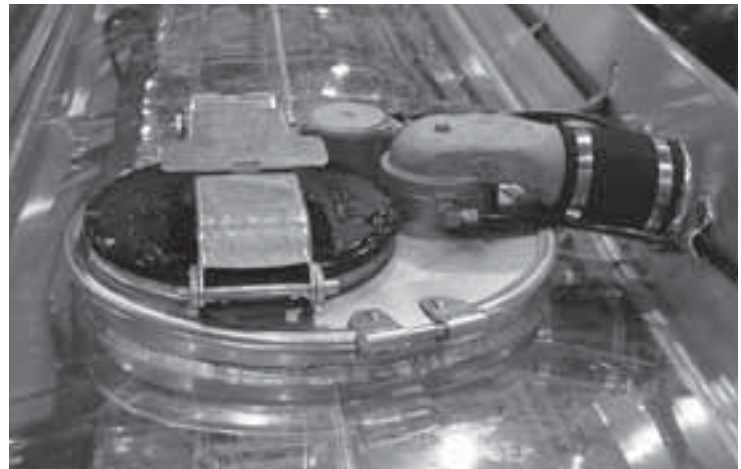
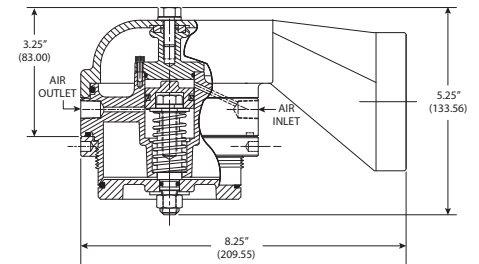
Handle fuel vapors safely and efficiently with this lightweight aluminum vapor valve. The air-operated valve allows fast vapor flow during loading and unloading. The poppet is designed to open into the tank, preventing accidental leakage from product surges or from a tank truck rollover. Easy-to-use air line connections are located outside the compartment for convenient installation and maintenance. The 3.5" vapor valve comes with male NPT threads or a TTMA flange for installation in conventional 16" or 20" manholes.



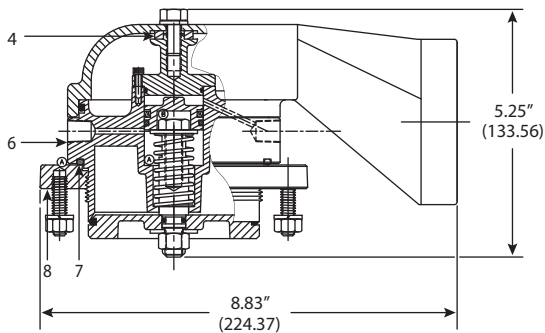
880-343-01



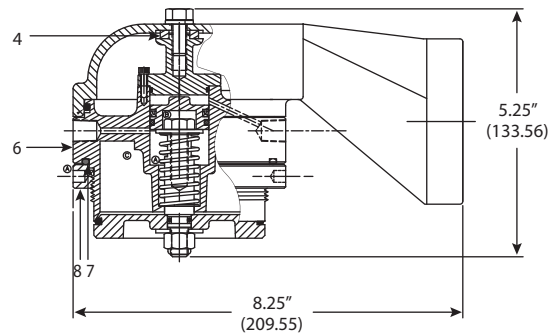
880-345-01



Air-Operated Sequential Vapor Valve Parts List



880-343-01



880-345-01

#	Part Name	Part Number
4	Square Cut Seal Ring	11034-03
6	Sequential Vapor Valve Body Assembly	880-344-01
7	O-ring	11003-26
8	Mounting Assembly Flange	880-267-01

Part Number	Description
880-341-01	Flanged without Hood
880-342-01	Threaded without Hood
880-343-01	Flanged with Hood
880-344-01	Vent Valve Only
880-345-01	Threaded with Hood



Advantages

- Cast aluminum frame and cap.
- Spring steel, chrome and plated hardware.
- Nylon bushing.
- Name embossed upon request.

Hose Tube Doors

Total protection from the elements is what you get with the heavy-duty Hose Tube Door. Beyond durable, this door withstands rusting, rugged use, and continuous road wear. The cap closes securely and can be used with a padlock for theft protection. All three sizes are available plain or cast with the EBW logo or our customized logo. Call for pricing and lead time.



784-300-03

Model Unit	784-300-03	784-400-03
Style	Plain	Plain
Size (Inches/Millimeters)	6.00/152.4	8.00/203.2
Weight (Pounds/Kilograms)	3.00/1.36	4.00/1.81

Part Number	Description
784-300-03	6" Plain Door
784-400-03	8" Plain Door

Product Drop Elbows

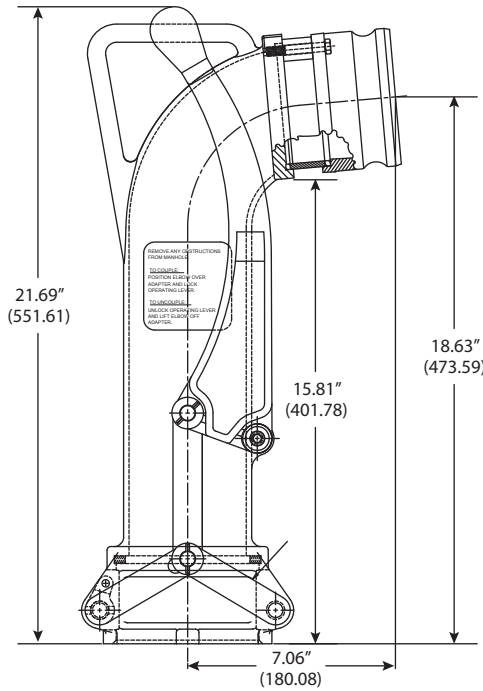
This durable 22" tall product elbow was designed for those deep tank burial applications and has a high flow rate as a result of the unrestricted flow pattern. It fits all 4-inch top seal adapters and can also be ordered with a variety of different adapters to meet any requirement. The single four bolt flange design allows for easy replacement of adapters over competitive threaded styles and is designed for extremely easy on- and off-coupling as a result of aluminum bronze alloy docking.

Advantages

- Lightweight cast aluminum.
- Four bolt flange pattern fits all 4" seal adapters.
- Protective base shield.
- Unique cam locking handle for easy on/off coupling.
- 22" tall for deep tank burial applications.



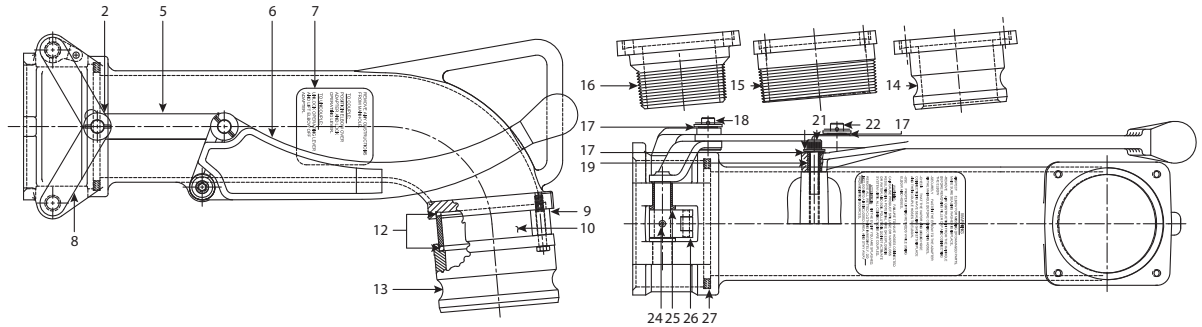
880-493-02



Model Unit	880-493-01	880-493-02	880-493-03	880-493-04	880-493-05
Weight (Pounds/Kilograms)	12.3/5.58	13/5.9	14.5/6.59	14.5-6.59	14.5/6.59
Size (Inches/Millimeters)	—	4.00/101.6	3.00/76.2	4.00/101.6	3.00/76.2



Product Drop Elbow Parts List



#	Part Name	Part Number
2	Rear Arm Assembly	880-136-01
5	Connecting Link	880-139-01
6	Operating Handle	880-482-01
7	Operational Instruction	
8	Front Arm Assembly	880-135-01
9	Sight Tube Spacer	880-151-01
10	Sight Tube	880-162-01
12	Sight Glass Seal	880-140-01
13	4" Dia. Coupling Adapter	880-284-01
14	3" Cam & Groove Adapter	880-396-01

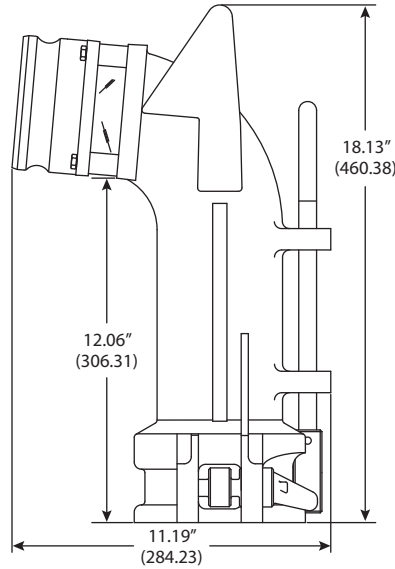
#	Part Name	Part Number
15	4" NPT Adapter	880-289-01
16	3" NPT Adapter	880-397-01
17	Wave Spring	1119001
18	Connecting Pin	880-138-01
19	Shoulder Spacer	880-149-01
21	Screw - 3/8-16 x 1.5" Hex Socket	1119601
22	Connecting Pin	880-138-02
24	High Alloy Groove Pin	1118801
25	Flanged Bushing	1118601
26	Cam Assembly Insert	880-121-01
27	Seal	880-141-01

Part Number	Description
880-493-01	Product Elbow Dual Point - No Adapter
880-493-02	4" Cam and Groove Adapter with Sight Glass 21" tall
880-493-03	3" Cam and Groove Adapter with Sight Glass
880-493-04	4" NPT Adaptor with Sight Glass
880-493-05	3" NPT Adaptor with Sight Glass

Product Drop Elbows



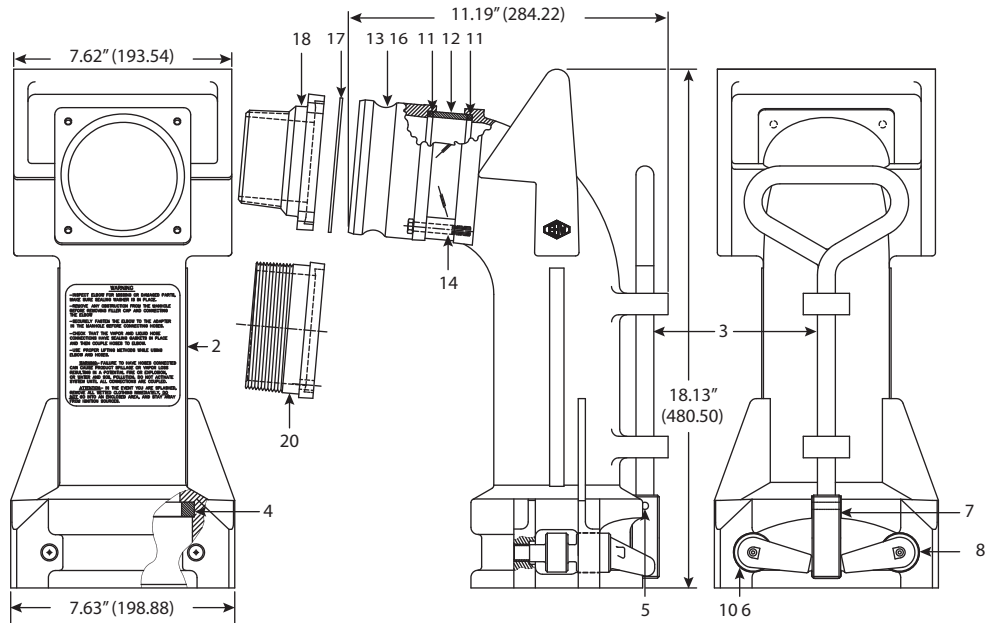
880-455-01



Model Unit	880-450-01	880-455-01	880-455-02	880-455-03	880-455-04	880-455-05
Weight (Pounds/Kilograms)	13.75/6.24	16/7.26	18/8.18	18/8.18	18/8.18	18/8.18
Size (Inches/Millimeters)	—	4.00/101.6	3.00/76.2	3.00/76.2	3.00/76.2	4.00/101.6



Product Drop Elbow Parts List



#	Part Name	Part Number
2	Product Elbow Body	880-459-01
3	Product Elbow Handle	880-237-01
4	Product Elbow Seal	11308-01
5	Pin Spirol	11086-05
6	Locking "Right" Cam	880-310-01
7	Handle Block	880-238-01
8	Locking "Left" Cam	880-310-02

#	Part Name	Part Number
11	Sight Tube Seal	880-140-01
12	Sight Tube	880-162-01
13	4" Cam & Groove Adapter	880-284-01
14	Sight Tube Spacer	880-151-01
16	3" Cam & Groove Adapter	880-396-01
17	Adapter Flange Gasket	880-247-01
18	3" NPT Adapter	880-397-01

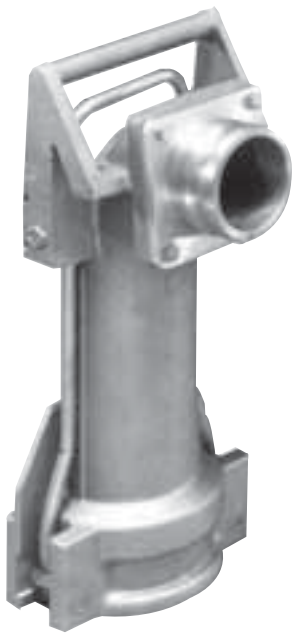
Part Number	Description
880-450-01	Body Only
880-455-01	4" Male Cam & Groove with S.G.
880-455-02	3" Male Cam & Groove with S.G.
880-455-03	3" Male NPT without S.G.
880-455-04	3" Male NPT with S.G.
880-455-05	4" Male NPT with S.G.

Dual Point Vapor Recovery Elbow

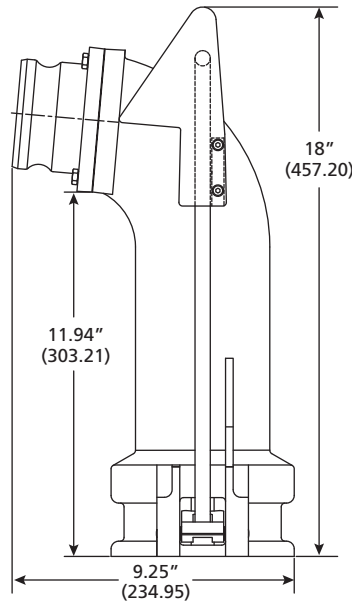
This durable cast aluminum elbow ensures complete vapor recovery for dual point systems, and can be ordered with a variety of different adapters to meet any requirement. The simple four bolt flange design allows for easy replacement of adapters over competitive threaded styles. Its low profile design allows for convenient storage and the specially designed quick grip one hand operation handle allows for easy on and off attachments.

Advantages

- Cast aluminum.
- Compact, low profile design.
- Four bolt flange pattern.
- Protective base shield.



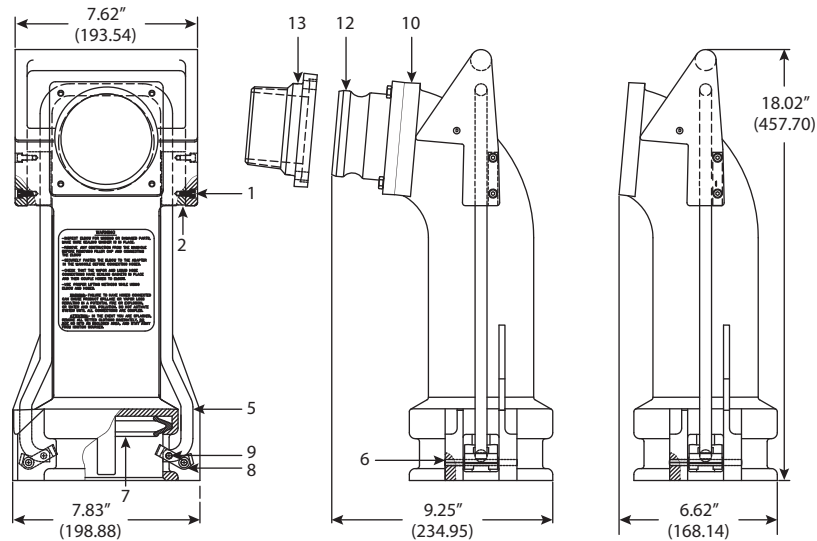
880-465-01



Model Unit	880-460	880-465-01	880-465-02
Size (Inches/Millimeters)	—	3/76.2	3/76.2
Weight (Pounds/Kilograms)	11/4.99	12.38/5.62	12.38/5.62



Dual Point Vapor Recovery Elbow Parts List



#	Part Name	Part Number	#	Part Name	Part Number
1	#10 - 24 x 1/2" Socket Head Cap Screw	11170-12	8	Locking Cam	880-245-01
2	Handle Retainer Block	880-246-01	9	Grooved (Straight) Pin	11126-01
5	Vapor Elbow Locking Bar	880-391-01	10	Adapter Flange Gasket	880-247-01
6	Grooved (Straight) Pin	11126-07	12	3" Coupling Adapter	880-396-01
7	Elbow Seal	870-200-01	13	3" NPT Adapter	880-397-01

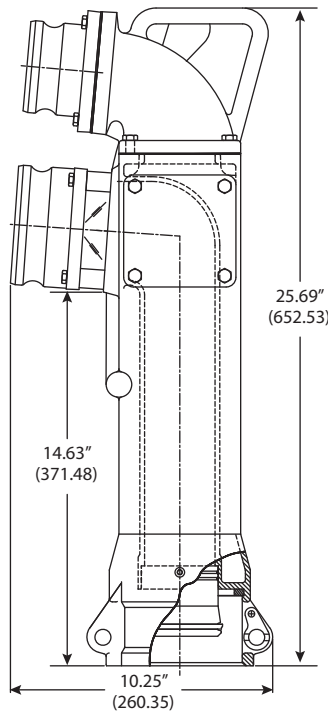
Part Number	Description
880-460-01	Body Only
880-465-01	3" Male Cam & Groove Adapter
880-465-02	3" Male NPT Adapter

Coaxial Delivery Elbow

This longer Coaxial Delivery Elbow is designed to accommodate the needs of the tank truck industry. The longer elbow is made of durable lightweight cast aluminum. The elbow connects to the product line and vapor recovery line at the same time, allowing for single point drop and vapor recovery. This elbow meets Stage I and II vapor recovery standards.



880-490-01



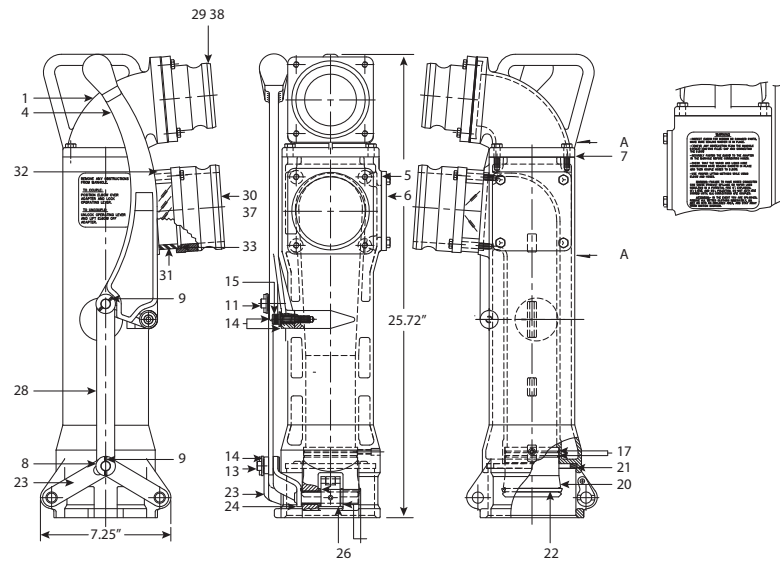
Advantages

- Cast aluminum.
- 4" product line inlet (male cam and groove adapter).
- 3" vapor line outlet (male cam and groove adapter).
- Unique cam locking handle for easy on/off coupling.
- Accommodates all coaxial drop tube adapters.
- Four bolt flange pattern vs. threaded.

Model Unit	880-490-01	880-490-02	880-490-03	880-491-01	880-495-01
Size (inches)	4 × 3	4 × 3	4 × 3	4 × 3	—
Weight (Pounds/Kilograms)	22.0/9.98	22.0/9.98	22.0/9.98	22.0/9.98	18.5/8.39



Coaxial Delivery Elbow Parts List



#	Part Name	Part Number	#	Part Name	Part Number
1	Flanged, Coaxial Elbow	880-380-01	21	Coaxial Elbow Seal	880-141-01
4	Operating Handle	880-482-01	22	Fuel Connection Seal	880-146-01
5	Gasket	880-281-01	23	Rear Arm Assembly	880-136-01
6	Vapor Outlet Block Off Plate	880-229-01	24	Front Arm Assembly	880-135-01
7	Top Gasket	880-282-01	26	Cam Assembly Insert	880-121-01
9	Rollpin - 1/8" x 1"	1100403	28	Long Connecting Link	880-139-02
11	Connecting Pin	880-138-02	29	Cam & Groove 3" Adapter	880-396-01
13	Connecting Pin	880-138-01	30	Cam & Groove 4" Adapter	880-284-01
14	Wave Spring	1119001	31	Sight Tube	880-162-01
15	Screw - 3/8", 16 x 1/2" Hex Socket	1119601	32	Sight Tube Spacer	880-151-01
17	O-ring Seal	880-147-01	33	Sight Tube Seal	880-140-01
20	Fuel Connection Adapter	880-285-01	37	4" NPT Adapter	880-289-01
			38	3" NPT Adapter	880-397-01

Part Number	Description
880-490-01	Over and Under Tall 4" x 3" Cam & Groove
880-490-02	Over and Under Tall 4" x 3" NPT
880-490-03	Over and Under Tall 4" NPT x 3" Cam & Groove
880-491-01	Side by Side 4" x 3" Cam & Groove
880-495-01	Body Only

Gasket Kit*



880-248-01

Model Unit	880-248-01
Weight (Pounds/Kilograms)	6.0/0.17

Sight Glass Kit*



880-249-01

Model Unit	880-249-01
Weight (Pounds/Kilograms)	13.0/0.37

*All items are optional and must be ordered separately.



3" Cam & Groove Adapter



880-396-01

Model Unit	880-396-01
Weight (Pounds/Kilograms)	1.19/0.45

4" Cam & Groove Adapter



880-284-01

Model Unit	880-284-01
Weight (Pounds/Kilograms)	1.44/0.65

3" NPT Male Adapter



880-397-01

Model Unit	880-397-01
Weight (Pounds/Kilograms)	1.44/0.65

4" NPT Male Adapter



880-289-01

Model Unit	880-289-01
Weight (Pounds/Kilograms)	1.50/0.68

Cam and Groove Adapters

Hose shank end bands to hose. The coupler comes in two sizes for use with most hose configurations.



Advantages

- Heat-treated, aluminum alloy body and brass probe.
- Forged bronze cams and stainless steel pins.

Part Number	Description
774-212-20	2" Cam and Groove Dust Cap
774-212-40	4" Cam and Groove Dust Cap



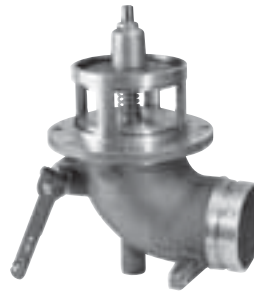
Advantages

- High flow rate.
- Fits standard 4" TTMA sump.
- Shear section per TTMA, RP84-92 and meets DOT 49 CFR 178.345-8.
- Force ratings from TTMA RP86-92.
- Shear groove meets DOT 406 requirement.
- Optional external air cylinder available.
- Available in Victaulic™ or flanged version.
- Fluorocarbon O-ring.

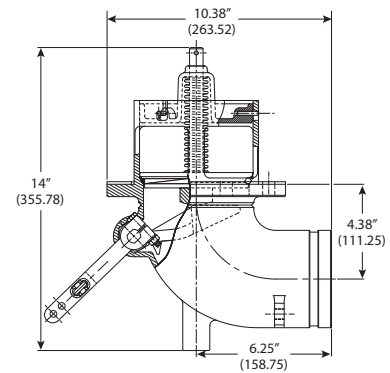
Mechanically Operated 90 Degree Emergency Valve & Parts List

Emergency Valves make product handling safer. These Emergency Valves have a shear groove that meets 49 CFR 178.345-8. The seat area of the valve is located inside the tank shell as required by DOT regulations.

This valve gives you the advantage of a faster flow rate while fitting a standard 4" TTMA sump. The high flow rate is established by a full opening throat area. Emergency Valves are available in 90 degree elbow type or straight type, 4" TTMA flanges or Victaulic™ outlet, and mechanical or air assisted.



880-430-01

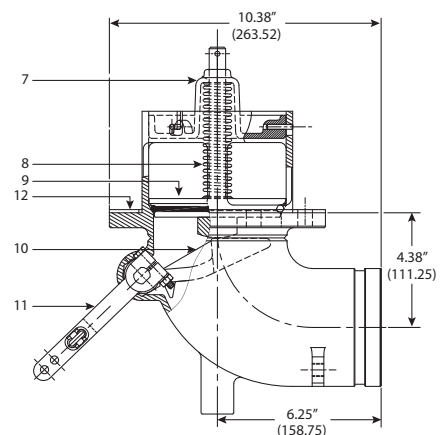
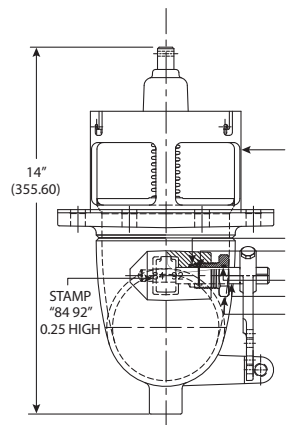


Model Unit

880-430-01

Weight (Pounds/Kilograms)

11.0/4.99

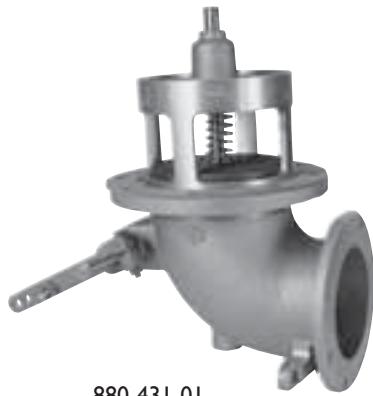


#	Part Name	Part Number	#	Part Name	Part Number
1	Emergency Valve Victaulic™ 4" Body	880-428-01	8	Poppet Spring	1135701
2	3/16" SYN PTFE Packing	1135801	9	Poppet Assembly	880-263-01
3	O-ring FLC #2-114	1103920	10	Cam	880-233-01
4	Spirol Retaining Ring	1109008	11	Cam Lever Assembly	880-265-01
5	Cam Shaft	880-241-01	12	Emergency Valve Sump Gasket	1138801
6	Stuffing Box Nut	880-242-01			
7	Emergency Valve Retainer Assembly	880-264-01			

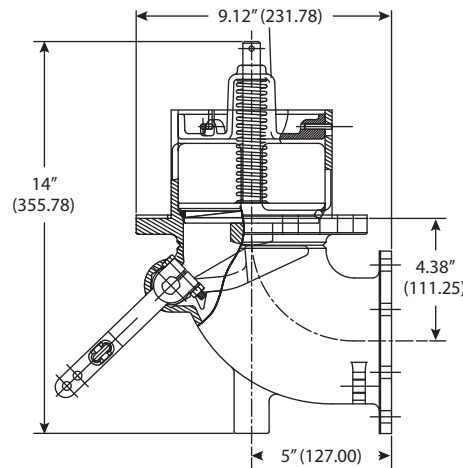
Part Number	Description
880-430-01	4" Standard Victaulic™ Outlet Seal

Victaulic™ is a trademark of Vitaulic Company of America.

Mechanically Operated 90 Degree Emergency Valve (Flanged)

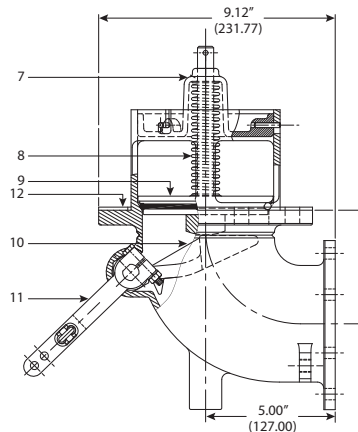
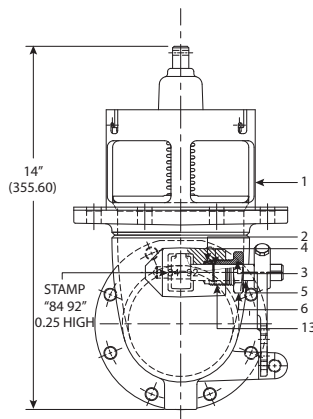


880-431-01



Model Unit	880-431-01
Weight (Pounds/Kilograms)	11.0/4.99

Mechanically Operated 90 Degree Emergency Valve (Flanged) Parts List



#	Part Name	Part Number	#	Part Name	Part Number
1	Emergency Valve Flanged 4" Body	880-429-01	8	Poppet Spring	1135701
2	3/16" SYN PTFE Packing	1135801	9	Poppet Assembly	880-263-01
3	O-ring FLC #2-114	1103920	10	Cam	880-233-01
4	Spirol Retaining Ring	1109008	11	Cam Lever Assembly	880-265-01
5	Cam Shaft	880-241-01	12	Emergency Valve Sump Gasket	1138801
6	Stuffing Box Nut	880-242-01			
7	Emergency Valve Retainer Assembly	880-264-01			

Part Number	Description
880-431-01	4" Standard Flanged Outlet Seal

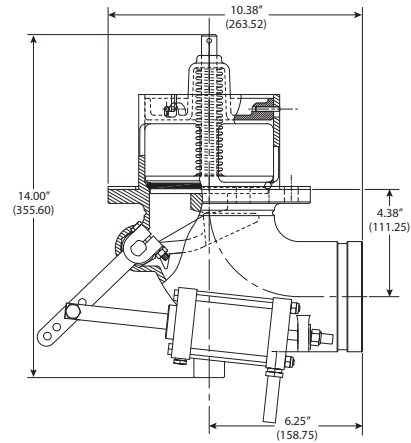


Air Assisted 90 Degree Emergency Valve (Victaulic™) & Parts List

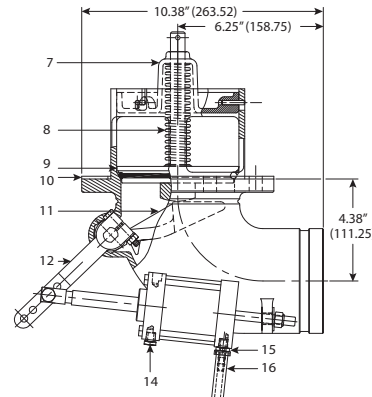
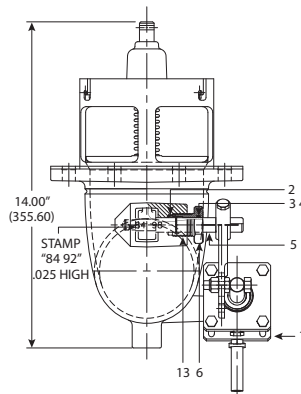
Air assisted emergency valves make product handling safer and installation more convenient. The emergency valve has a shear groove that meets 49 CFR 179.345-7. The seat of the valve is located inside of the tank shell as required by DOT regulations. One valve has the capability to be converted to either right or left hand control.



880-432-01



Model Unit	880-432-01
Weight (Pounds/Kilograms)	13.0/5.9

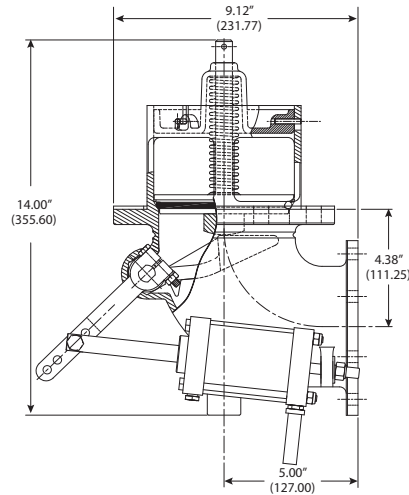


#	Part Name	Part Number	#	Part Name	Part Number
1	Emergency Valve Air Cylinder	880-350-02	9	Poppet Spring	1135701
2	4" Victaulic™ Emergency Valve Body	880-429-01	10	Poppet Assembly	880-263-01
3	3/16" SYN PTFE Packing	1135801	11	Emergency Valve Sump Gasket	1138801
4	O-ring FLC #2-114	1103920	13	Cam Lever Assembly	880-265-01
5	Spirol Retaining Ring	1109008	14	Fusible Metal Pipe Plug, 1/8-27" NPT	1152601
6	Cam Shaft	880-241-01	15	Male Push-on Hose Fitting	1149401
7	Stuffing Box Nut	880-242-01	16	Rubber Hose - Push-on Fitting	880-159-01
8	Emergency Valve Retainer Assembly	880-264-01			

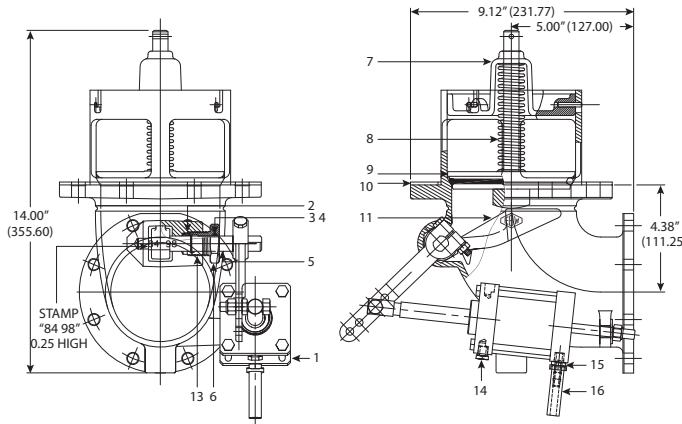
Part Number	Description
880-432-01	4" Standard Victaulic™ Outlet Seal with External Air Cylinder

Victaulic™ is a trademark of Victaulic Company of America.

Air Assisted 90 Degree Emergency Valve (Flanged) & Parts List



Model Unit	880-433-01
Weight (Pounds/Kilograms)	13.0/5.9



#	Part Name	Part Number	#	Part Name	Part Number
1	Air Cylinder	880-350-02	9	Poppet Spring	1135701
2	4" Flanged Emergency Valve Body	880-428-01	10	Poppet Assembly	880-263-01
3	3/16" SYN PTFE Packing	1135801	11	Emergency Valve Sump Gasket	1138801
4	O-ring FLC #2-114	1103920	13	Cam Lever Assembly	880-265-01
5	Spirol Retaining Ring	1109008	14	Fusible Metal Pipe Plug, 1/8-27" NPT	1152601
6	Cam Shaft	880-241-01	15	Male Push-on Hose Fitting	1149401
7	Stuffing Box Nut	880-242-01	16	Rubber Hose - Push-on Fitting	880-159-01
8	Emergency Valve Retainer Assembly	880-264-01			

Part Number	Description
880-433-01	4" Standard Flanged Outlet Seal with External Air Cylinder



Advantages

- High flow rate.
- Fits standard TTMA sump.
- Cable Operator can be mounted right-handed or left-handed.
- Optional External Air Cylinder available.
- Air Cylinder can be mounted right-handed or left-handed.
- 3" Victaulic™ Outlet only.

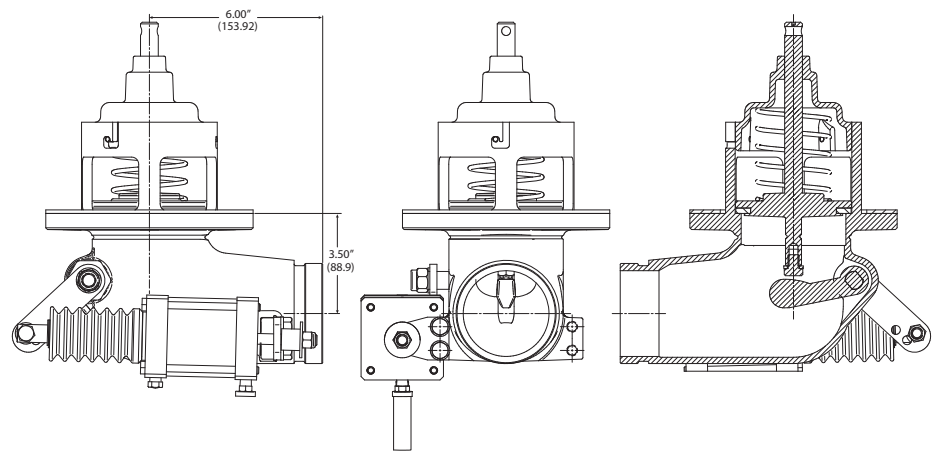
Certifications/Listings

- TTMA, RP84-92: Shear Section.
- DOT 49 CRF 178.345-8: Shear Section.
- DOT 406: Shear Groove.
- TTMA, RP86-92: Force Rating.

3" Emergency Valve

Emergency Valves make product handling safer and installation more convenient. The emergency valve has a shear groove that meets 49 CFR 179.345-7. The seat of the valve is located inside of the tank shell as required by DOT regulations. One valve has the capability to be converted to either right- or left-hand control.

Part Number	Description	Size
880-456-01	Air Operated Valve	3" TTMA Flanged × 3" Victaulic™ Outlet
880-449-01	Cable Operated Valve	3" TTMA Flanged × 3" Victaulic™ Outlet



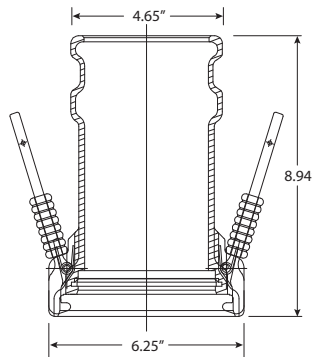
Side Seal Adapter

The Side Seal Adapter is designed to give flexibility to top seal drop elbows. Your 4" top seal delivery elbow can now be used on a side 4" seal fill adapter. You don't have to bring a separate side seal elbow, which reduces cost and the number of fittings required on your truck.

Two lever clamps secure the adapter to the station's side seal fitting and allow a 4" elbow to attach to the adapter. Special locking rings prevent accidental cam arm release during filling. Cast aluminum makes the side seal adapter light and strong. The specially designed seal gives you the added insurance that no leaks will occur.



880-445-01

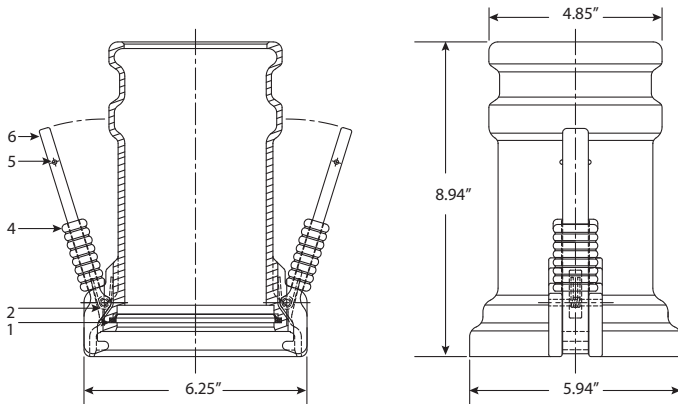


Advantages

- Designed for use with 4" side seal service station fittings.
- Lightweight.
- Cast aluminum body.
- Special innovative seal design.
- No separate side seal elbow to transport.
- Locking rings to prevent accidental cam arm release during filling.

MODEL UNIT	880-445-01
Weight (Pounds/Kilograms)	10.0/4.58

Side Seal Adapter Parts List



#	Part Name	Part Number	#	Part Name	Part Number
1	Seal	881-202-01	5	Pin, 0.125 × 0.875", Groove Type "E"	11459-01
2	Release Lever Spring	881-103-01	6	Release Lever	881-200-01
4	Release Lever Interlock	881-201-00			

Part Number	Description
880-445-01	Side Seal Adapter



Advantages

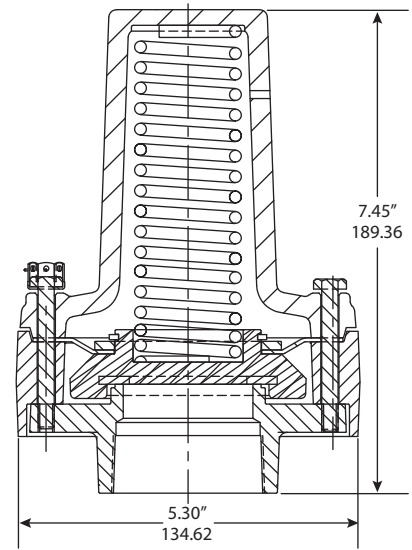
- 2" female NPT mount.
- Tamper-proof seal.
- Reinforced silicone rubber diaphragm, rated -60 °F to +400 °F.
- Non-galling zinc-aluminum base.
- Unique three piece body reduces ice build-up, offers high air flow and ease of maintenance.

Dry Bulk Pneumatic Pressure Relief Valve

Three models are available, 15 lb. pressure relief valve for the trailers, and 18 lb. and 20 lb. relief valves for the blower applications. All three models are available in female 2" NPT thread. A unique three piece body that reduces ice build-up offers high air flow and reduces maintenance costs.



881-224-01

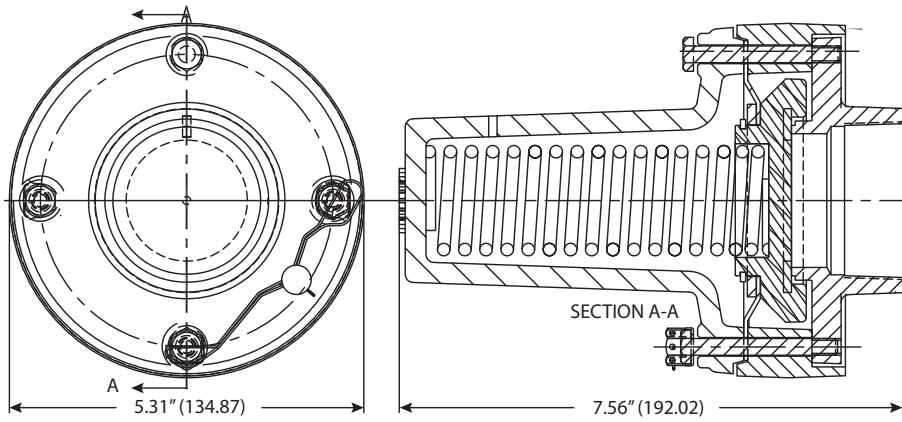


Non-galling zinc-aluminum base.

Model Unit	881-224-01	881-225-01	881-226-01
Weight (Pounds/Kilograms)	6.4/2.90	6.4/2.90	6.4/2.90

Bulk Pneumatic Pressure Relief Valves

Parts List



Part Number	Description
881-224-01	2" Female Pressure Relief Valve - 15 lbs.
881-225-01	2" Female Pressure Relief Valve - 18 lbs.
881-226-01	2" Female Pressure Relief Valve - 20 lbs.



Advantages

- Microprocessor base controller.
- Continuous self-testing of:
 - All probes attached
 - All probe and power wiring
 - Rack input signals for terminal
 - Proper input voltage
- Continuous self-diagnostics.
- Monitors external inputs.
- Internal relay outputs.
- Intrinsically safe inputs and outputs.
- Waterproof housing with clear viewing lens.
- Versatile mounting features.
- FMRC approved for Hazardous (Classified) Locations.

OCS Overfill Protection Solutions



OCS Optic Control Solutions excel where it counts: at the loading rack. The OCS Control Module is compatible with all existing rack monitors, designed for use with Overfill Probes and Retained Product Probes, and has external contact input and relay output capabilities.

All OCS Control Modules continuously self-test probes for dry, wet, or fault conditions. All OCS Control Modules perform continuous self-testing of the wiring between the probes and controllers. All OCS Control Modules self-test for broken wires, shorted ground wires, shorted power wires, and shorted signal wires. Our Control Modules monitor for proper input signals and voltages from the rack monitor. OCS Control Modules will permit to load only after the proper signals have been received.

All OCS Control Modules will monitor up to six overfill probes and six retained product probes, one input and one output are standard.

All OCS Control Modules are FMRC approved for Hazardous (Classified) Locations.

Certifications

FMRC

Class No. 3600 - Electrical Equipment for Use in Hazardous (Classified) Locations General Requirements.

Class No. 3610 - Intrinsically Safe Apparatus for Use in Class I, II and III Division 1 Hazardous (Classified) Locations.

Class No. 3611 - Electrical Equipment for Use in Class I, Division 2, Class II, Division 2 and Class III, Division 1 and 2 Hazardous Locations.

Two-Wire Controller

The OCS Two-Wire Controller (890-400-02) is designed with a large viewing window. The anodized aluminum housing is rated NEMA® 4 with ½" NPT openings for ease of wiring. The Control Module is a microprocessor-based controller that provides continuous self-testing of probes, wiring, rack inputs, input voltage and memory settings. Inputs and outputs are intrinsically safe and FMRC/CSA approved for hazardous locations.



Part Number	Description
890-400-02	Controller Mounted in Waterproof Housing
890-200-02	Control Module Only

Advantages

- Microprocessor base controller.
- Continuous self-diagnostics.
- Internal relay outputs.
- FMRC approved for Hazardous (Classified) Locations.
- Versatile mounting features.
- Continuous self-testing of:
 - All probes attached
 - All probe and power wiring
 - Rack input signals for terminal
 - Proper input voltage

Two-Wire Optic Overfill Probes

OCS Two-Wire Probes are manufactured with a leakproof aluminum body and anodized black aluminum tip to absorb stray light. For optimum performance, reliability and accuracy a glass ground prism is standard for all styles of probes. Optic Two-Wire Probes are thermistor compatible for connecting directly to the overfill monitor and require no dummy element.



Part Number	Description	Length
890-110-01	Two-Wire Optic Overfill Probe	8"

Advantages

- Probes feature surface mount military spec electronic components.
- Two-Wire Probes - thermistor compatible.
- Operating temperature -40 °F to +160 °F
- FMRC approved for Hazardous (Classified) Locations.



Advantages

- Optical sensor for the quickest and most reliable product sensing.
- Two-Wire Probes - thermistor compatible.
- FMRC approved for Hazardous (Classified) Locations.

Two-Wire Optic Retained Product Probes

Optic Retain Probes are manufactured using a cast aluminum, NEMA® 4 explosion proof housing with a machined shear section for safety. The 1/2" NPT openings are positioned to allow easy access for wiring. Retain Probes use a glass ground prism and a black anodized aluminum tip for greater accuracy and reliability. Retain Probes are FMRC approved for installation in hazardous locations.



Part Number	Description
890-120-A	Two-Wire Optic Retained Product Probe w/Coupling

OCS Probe Solutions

All FFS Optic Probes are manufactured with surface mount, military spec. components and are compatible with all existing control modules. Probes are manufactured with a glass ground prism and black anodized tip for greater reliability and accuracy in operating temperatures from -40 °F to +160 °F. Overfill Probes use a leakproof anodized aluminum tube with three seals that act as moisture and vapor barriers.



Advantages

- All probes feature surface mount military spec electronic components.
- All probes are compatible with all existing EBW Controllers.
- All probes are compatible with all existing rack monitors.
- Operating temperature -40 °F to +160 °F
- Optical sensor for quickest and most reliable product sensing
- Two-Wire Probes - thermistor compatible.
- Three-Wire Probes - OCS system compatible.
- Five-Wire Probes - optic compatible.
- FMRC approved for Hazardous (Classified) Locations.

Probe Holder Solutions

Probe Holders are anodized aluminum with 1/2" NPT openings positioned for easy access and wiring. An O-ring seal is standard for short and tall caps. The three bolt locking ring prevents probe movement and seals the housing from product splash and vapors.

Two styles are available: a 2" Male NPT thread (908-262-01) or a cast lock nut (908-263-01).

Part Number	Description	Parts Included
908-262-01	Probe Holder with 2" Male NPT Thread	
908-262-02	Probe Holder with 2" NPT Male Thread, Tall Cap	
908-263-01	Probe Holder with 2" Cast Lock Nut	
908-208-01	Tall Probe Holder Cover	
890-257-02	Probe Holder with Probe Kit	1 Probe Holder (908-263-01) 1 Two-Wire Probe (890-110-01)

Advantages

- Anodized aluminum construction.
- 1/2" NPT connection ports.
- 2" NPT male thread.
- 2" NPT cast lock nut.
- Tall or short cover.
- O-ring sealed.
- Three bolt locking ring.
- For use with all EBW and other manufacturers' probes.



890-257-02
Two-Wire Probe



908-262-01



908-263-01



908-208-01



Advantages

- Ease of installation.
- Moisture proof.
- Stainless steel contact pins.
- Produced in accordance with API 1004.
- Available in all three API standard socket configurations.

Single Socket Solutions

Single Sockets are manufactured in accordance to API RP1004 and are compatible with all overfill monitor plugs. These sockets are moisture proof and have stainless steel contact pins in a bakelite housing. Hard-coated aluminum faceplates and J-Slots are long-lasting and come standard with black plastic caps. Optic, Thermistor and Float styles are available.



Part Number	Description
908-211-01	Thermistor Socket with Plastic Cap
908-221-01	Optic Socket with Plastic Cap
908-230-01	7-Pin Socket with Plastic Cap
908-119-01	Plastic Cap Only
908-110-01	Thermistor Conversion Kit
908-120-01	Optic Conversion Kit
908-231-01	7-Pin Conversion Kit

OCS Installation Kits



Advantages

- Seven conductor oil resistant cable included.
- Watertight connectors included.
- Controller included.
- Probes included.
- Probe holders included.

Part Number	Description	Parts Included
890-162-02	2 Compartment Kit	(2) 890-257-02 probe w/ holder, (1) 890-400-02 2-wire controller, (6) 908-131-01 watertight bushing 1/2", (1) 908-132-03 7-CON cable 50'
890-162-03	3 Compartment Kit	(3) 890-257-02 probe w/ holder, (1) 890-400-02 2-wire controller, (12) 908-131-01 watertight bushing, (1) 908-132-06 7-CON cable 100'
890-162-04	4 Compartment Kit	(4) 890-257-02 probe w/ holder, (1) 890-400-02 2-wire controller, (16) 908-131-01 watertight bushing, (1) 908-132-06 7-LON wire 100'

Wiring Kits



908-315-01

Part Number	Description	Parts Included
908-313-01	Three Compartment Wiring Kit	100' Cable and 12 Watertight Fittings
908-314-01	Four Compartment Wiring Kit	100' Cable and 16 Watertight Fittings
908-315-01	Five Compartment Wiring Kit	100' Cable and 22 Watertight Fittings
908-316-01	Six Compartment Wiring Kit	100' Cable and 30 Watertight Fittings
908-131-01	Watertight Fitting Only	N/A
908-132-06	100' Seven Conductor Cable Only	N/A
908-132-03	25' 7-CON cable	N/A



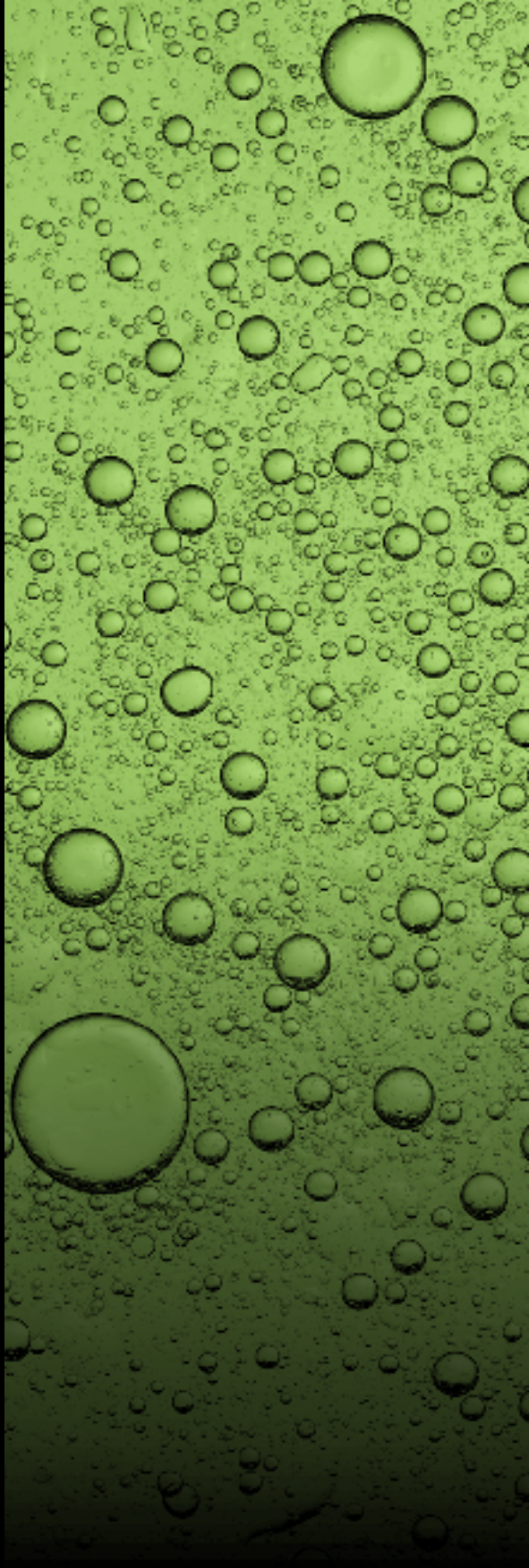
Cross Reference Guide

Description	EBW	Civacon	Emco Wheaton	Bayco
Bottom Loading Adapters				
Short Stroke	880-500-02	861-0400	F-501-003	N/A
Short Stroke with S.G.	880-500-03	861SG	N/A	N/A
Female Gravity Drop Adapters				
4" API	880-330-01	871-B	N/A	N/A
Buna-N Gasket for Hose End	774-202-04	H-8347-M	N/A	N/A
Male Gravity Drop Adapters				
3" Male Cam Groove	880-410-01	871-A	F459-006	N/A
4" Male Cam Groove	880-411-01	871-A-0074	F459-007	N/A
3" Male Thread	N/A	N/A	N/A	N/A
Vapor Check Valves				
3" NPSM Thread with Poppet	301-300-01	633FPV	N/A	N/A
3" NPSM Thread no Poppet	303-333-03	N/A	N/A	N/A
4" NPSM Thread with Poppet	301-300-02	611-TAL40-NPT	F529-001	N/A
4" NPSM Thread no Poppet	303-444-04	610-T-0610	F529-002	N/A
Flanged Vapor Check Valves				
Poppeted with Sight Glass	302-300-11	611FB	F530-010	N/A
Vapor Caps				
Nylon without Chain	N/A	N/A	N/A	N/A
Nylon with Chain	304-200-02	N/A	F532-001	N/A
Aluminum without Chain	N/A	N/A	N/A	N/A
Air Interlock Valves				
1/4" - 1" Button	880-150-01	100-0001	F527-002	N/A
1/4" Six-way 1" Button	880-256-01	101-002	F-528-001	N/A
Dust Cap				
4" API Dust Cap	880-403-01	873-0070 874-0874	F499-001	5000-24
Air Operated Sequential Vapor Vent Valves				
Flanged without Hood	880-341-01	N/A	N/A	N/A
Threaded without Hood	880-342-01	N/A	N/A	N/A
Flanged with Hood	880-343-01	1998	F592-001	N/A
Vent Valve Only	880-344-01	T1966SV	F592-001	N/A
Threaded with Hood	N/A	T195SV	N/A	N/A
Vapor Return Hose Couplers				
4" x 3" with Probe	774-320-02	633-CV-6070 633-CPV-6051 633-CPV-6053	F800-002	VR403CS
4" x 4" with Probe	774-320-03	633-CV-6075 633-CPV-6051	N/A	N/A

Cross Reference Guide

Description	EBW	Civacon	Emco Wheaton	Bayco
Cable Operated 90 Degree				
4" TTMA Flange/4" Victaulic™ Outlet	880-430-01	VA-1111	N/A	N/A
Cable Operated Straight				
4" TTMA Flange/4" Victaulic™ Outlet	880-451-01	VA-3111	N/A	N/A
Air Operated 90 Degree				
4" TTMA Flange/4" Victaulic™ Outlet	880-432-01	VA-1121	N/A	N/A
4" TTMA Flange/4" TTMA Flanged Outlet	880-433-01	VA-2121	N/A	N/A
Air Operated Straight				
4" TTMA Flange/4" Victaulic™ Outlet	880-453-01	VA-3121	N/A	N/A
4" TTMA Flange/4" TTMA Flanged Outlet	880-454-01	VA-4121	N/A	N/A
Product Delivery Elbow - Dual Point				
4" Grooved Male Cam with Sight Glass	880-455-01	60TT-0095	F523-006	N/A
Vapor Recovery Elbow - Dual Point				
3" Grooved Male Cam	880-465-01	1711-VL-0300	N/A	VR6200

Description	EBW	Civacon	Flotech	Scully
2-Wire OCS Controller	890-400-02	3100	FT103	8687
Sockets & Caps				
Thermistor Socket with Plastic Cap	908-211-01	4402	FT301	7720
Optic Socket with Plastic Cap	908-221-01	4102	FT300	7974
7-Pin Socket with Cap	908-230-01	4600	FT302	8116
OCS Probes & Holders				
8" 2-Wire Optic Probe	890-110-01	1650	FT150	22389/09409
16" 2-Wire Optic Probe	890-110-03	1650S	FT150-12	31483
2-Wire Optic Probe with 908-263-01 Holder	890-257-02	1550	FT151	8501
OCS Installation Kits & Parts				
Watertight Fitting Only	908-131-01	2510	FT402	N/A
100' Seven Conductor Cable 18AWG	908-132-06	2310	FT401	27382



Franklin Fueling Systems

franklinfueling.com

3760 Marsh Rd. • Madison, WI 53718, USA
Tel: +1 608 838 8786 • Fax: +1 608 838 6433
Tel: USA & Canada 1 800 225 9787 • Tel: Mex 001 800 738 7610



FFS-0216 01-12