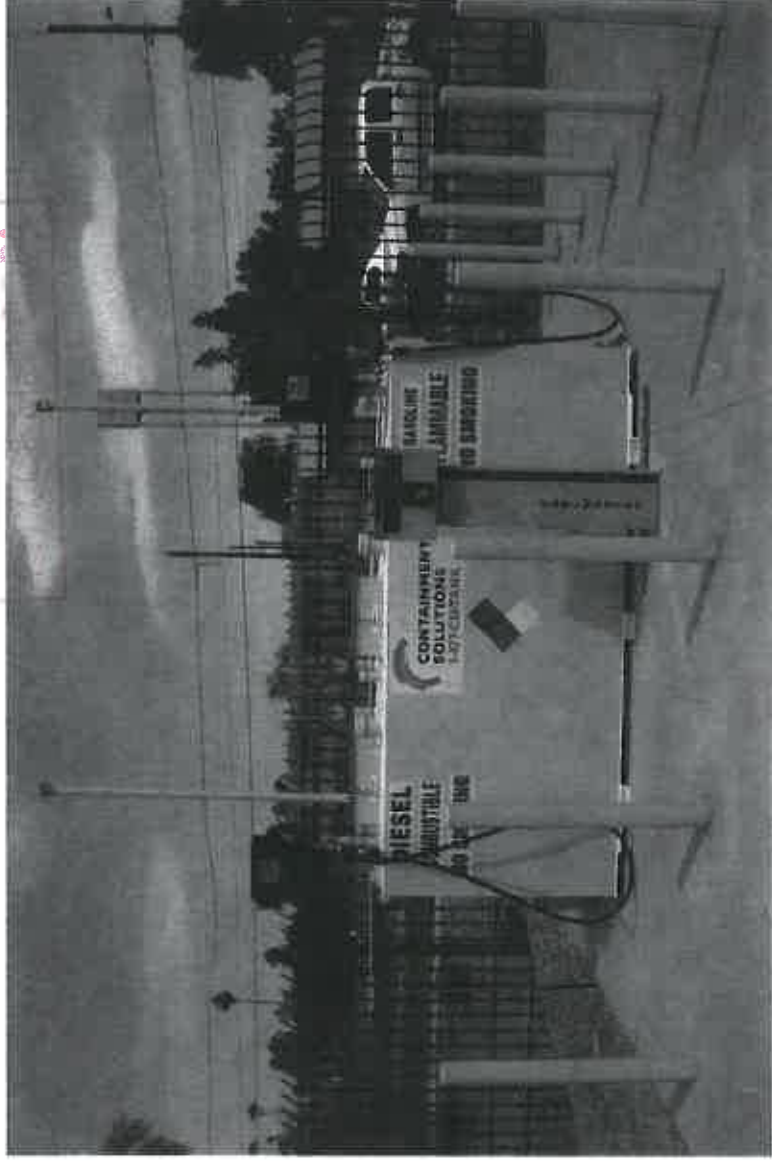


04/14/14

RECEIVED  
JUN 12 2014



## CITY OF MARICOPA, ARIZONA

### VEKOL REGIONAL PARK / COPPER SKY MAINTENANCE FACILITY ABOVEGROUND FUEL SYSTEM

**Overview:** *Legal Contracting Services Inc.* has been issued a P.O. by the City of Maricopa to provide and install one 2,000 gallon UL-2085 fire-rated aboveground fuel vault. The tank is to be a dual compartment consisting of capacities of 1,000 gallons each. Unleaded & Diesel fuels will be stored in the compartments for use of City maintenance equipment. Each compartment will contain fill/spill containment boxes and overfill shut off valves and alarms. The tank will be housed on a reinforced concrete pad and will be protected by steel crash bollards on all access sides. Each compartment will contain a UL dispensing pump fitted with safety dispensing features such as breakaway valves and auto shut off nozzles. The tank and all components are constructed under NFPA/IFC codes as well as Arizona ASEQ, State and local Fire Marshal codes. All electrical in the fuel system's declared hazardous area will be Class I Div. 1 & 2 for fuel storage and dispensing. An ESO Emergency Shut Off will be located no less than 20ft. and no more than 100ft from the fueling area per code.

The tank will be located in the fenced area of the Copper Sky Maintenance Yard and set along the back east fence.

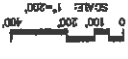
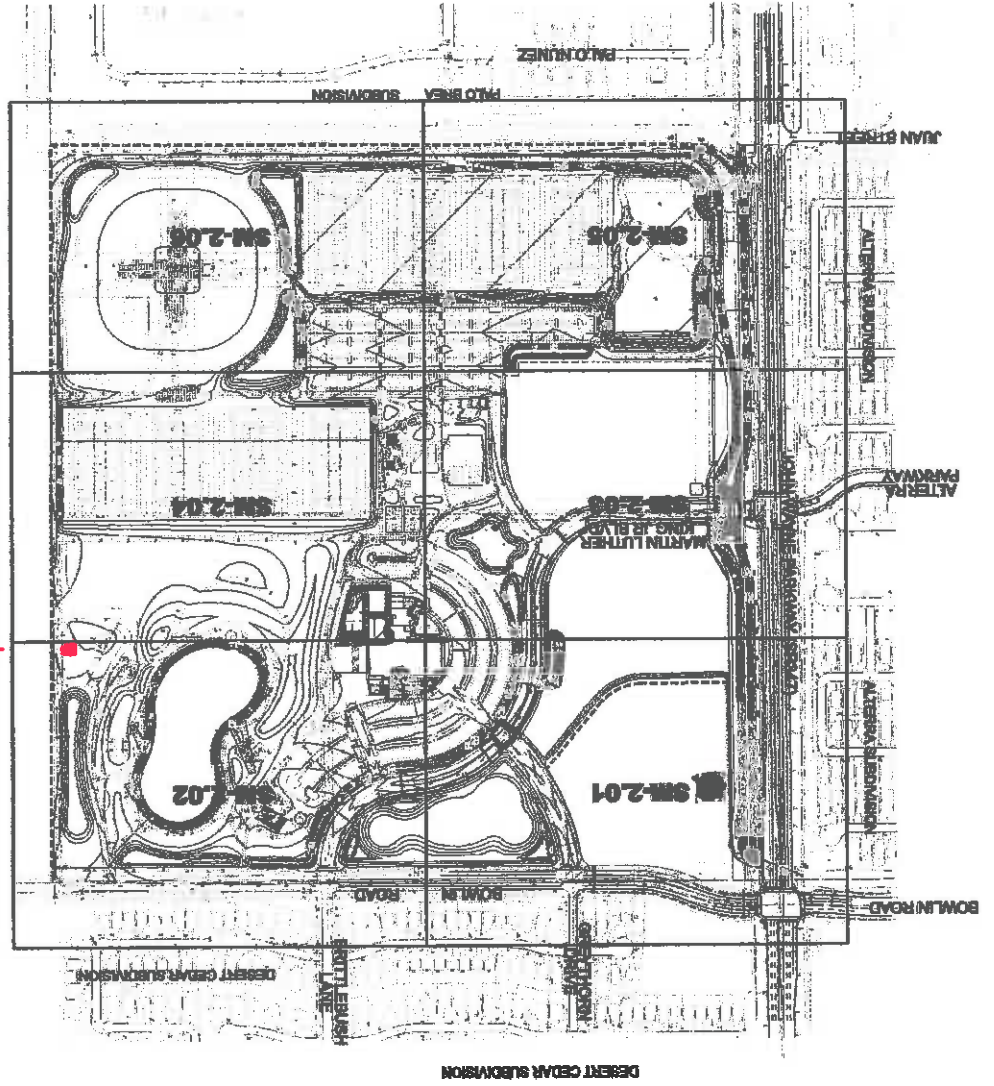
RECEIVED  
APR - 8 2014  
CITY OF MARICOPA

Planning

04-24-14

201400383

**SURFACE MATERIAL SHEET INDEX ONLY**



CITY APPROVED SEALS

SM-1.01 134-187  
 12.05.09  
 2/28/13

DESIGNED BY: K. MONTER  
 CHECKED BY: T. ENGELMANN  
 1"-200'

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
| 1   |      |             |
| 2   |      |             |
| 3   |      |             |
| 4   |      |             |
| 5   |      |             |
| 6   |      |             |
| 7   |      |             |
| 8   |      |             |
| 9   |      |             |
| 10  |      |             |



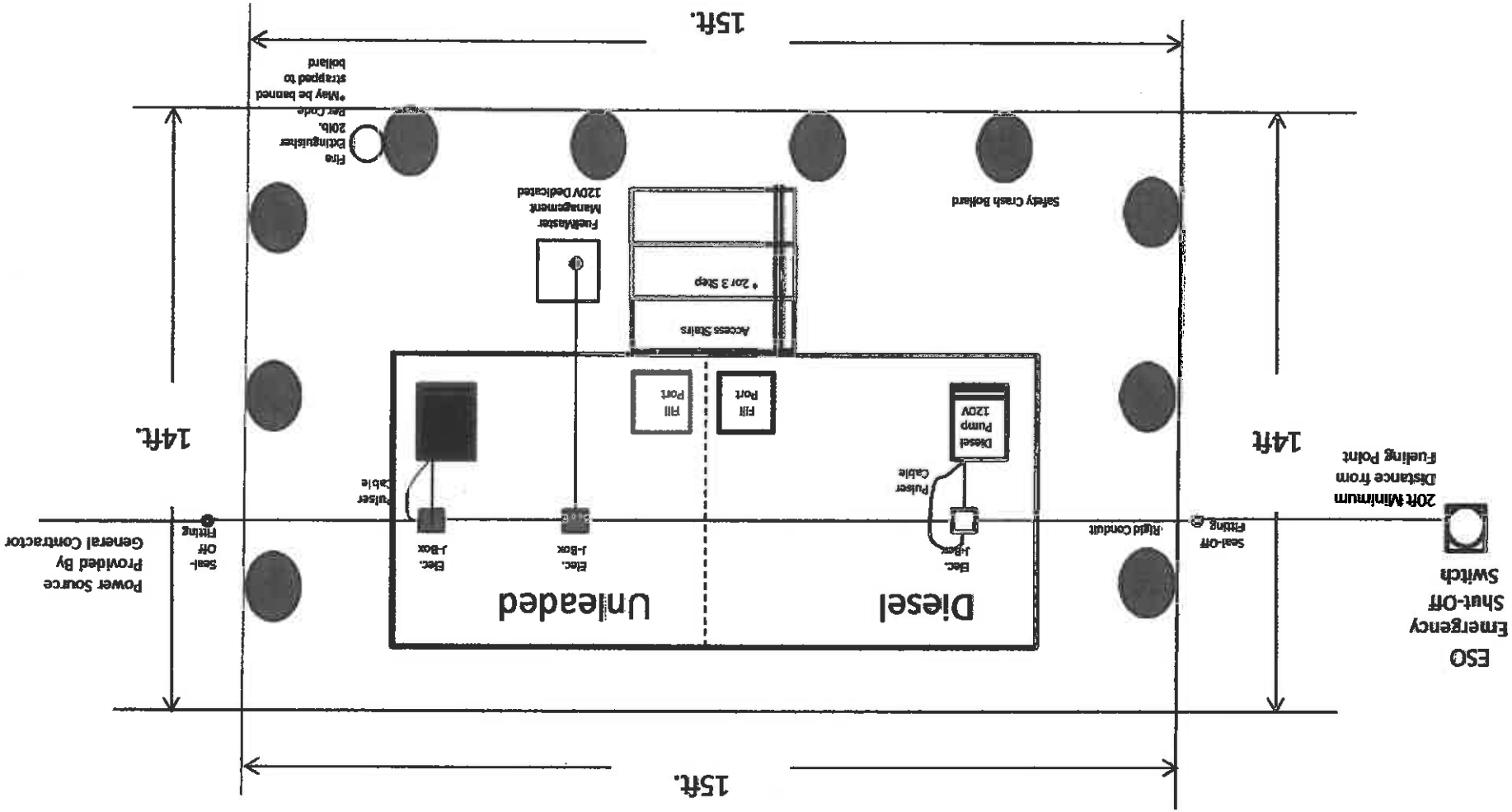
**City of Maricopa**  
**Vekol Regional Park**  
**GMP-4 VEKOL REGIONAL PARK**  
**SURFACE MATERIAL SHEET INDEX**

City of Maricopa  
 4444 W. Madison Ave.  
 P.O. Box 419  
 Maricopa, AZ 85138  
 Phone: 623.400.0000





CITY OF MARIJOPA  
 COPPER SKY FACILITIES MAINTENANCE  
 2,000 Gallon Fuel Tank  
 1,000-Unleaded / 1,000-Diesel



Crash Bollards:  
 Bollards are to be sch. 40 Steel  
 And concrete filled.  
 6ft. Overall Length  
 3ft. Buried w/ 3ft. A.F.F.  
 4" Dia. Spaced 4ft on Center.

Legal Contracting Inc.  
 Peoria, AZ  
 Perry Keliman  
 480-650-6978  
 pkeliman@legalcontractinginc.com





# CITY OF MARICOPA, ARIZONA

## VEKOL REGIONAL PARK / COPPER SKY MAINTENANCE FACILITY

### ABOVEGROUND FUEL SYSTEM

#### Utility Tank Pad Housing

&

#### Safety Crash Bollards

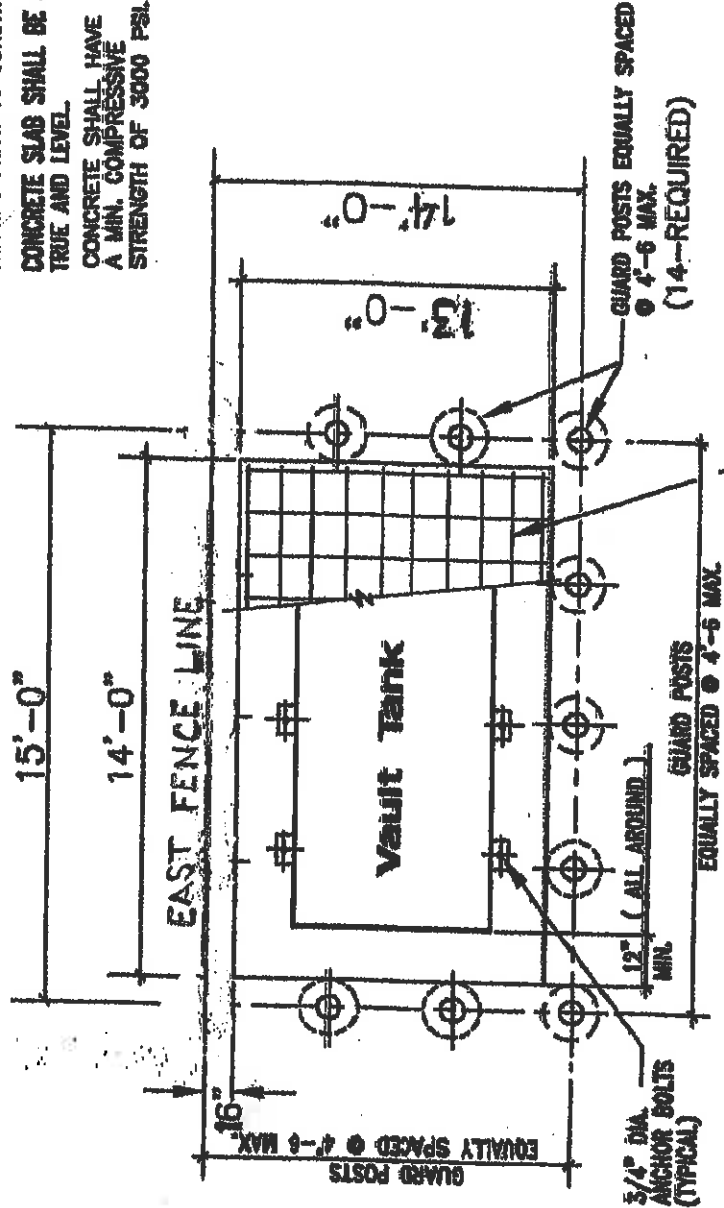
**CONCRETE PAD:** This work is being done on the current construction site under the Haydon Building Corp. All compaction test and documentation have been submitted prior to this scope of work. We are being contracted directly by the City of Maricopa to supply the Fuel Tank and Housing Pad.

The 2,000 gallon aboveground fuel vault will be housed on a 14' x 13' x 6" 3,000 psi concrete pad. The pad will be reinforced by matted #5 rebar. The pad will be set at the existing current finished grade of the maintenance yard which is compacted AB awaiting asphalt paving. We will set our pad and safety crash bollards prior to completed asphalt grade.

**SAFETY CRASH BOLLARDS:** The protective crash bollards shall be 4" steel dia. X 6' length. The bollards will be buried 3ft deep in a minimum of a 12' diameter of embedded concrete. In addition the bollards will be concrete filled and smoothed at the top. Each bollard will be painted caution yellow.

**VERIFY TO ACCOMMODATE STEPS WHEN REQUIRED**

**NOTES:**  
 VERIFY SLAB SIZE WITH TANK  
 DRAWING PRIOR TO CONSTRUCTION.  
 CONCRETE SLAB SHALL BE SET  
 TRUE AND LEVEL.  
 CONCRETE SHALL HAVE  
 A MIN. COMPRESSIVE  
 STRENGTH OF 3000 PSI.

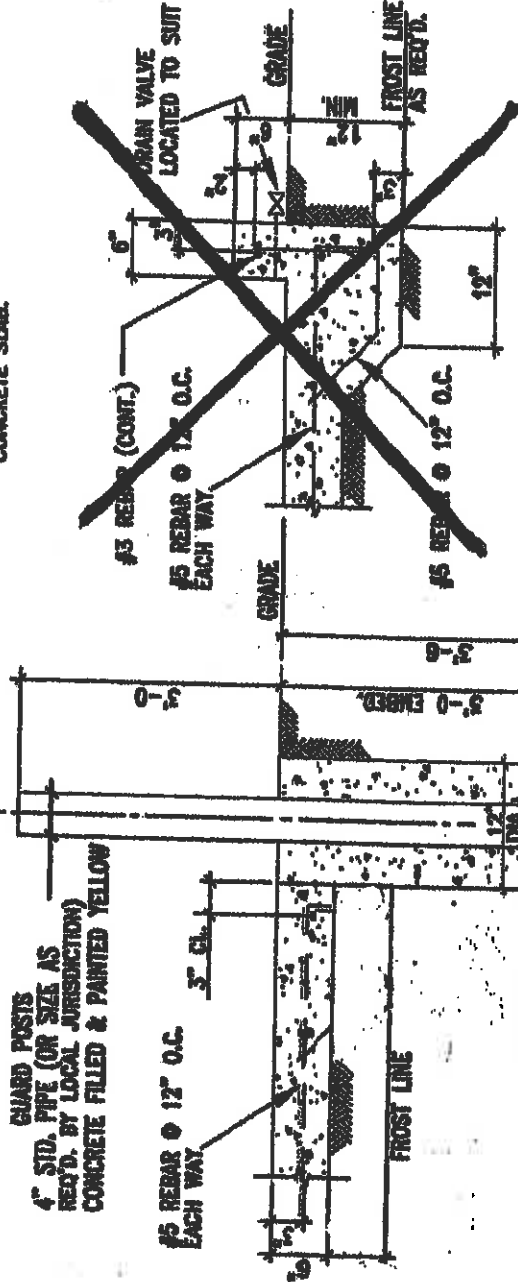


**FOUNDATION PLAN**

GUARD POSTS  
 4" STD. PIPE (OR SIZE AS  
 REQ'D. BY LOCAL JURISDICTION)  
 CONCRETE FILLED & PAINTED YELLOW

#5 REBAR @ 12" O.C. EA. WAY  
 IN CENTER OF 6" THICK  
 CONCRETE SLAB.

GUARD POSTS EQUALLY SPACED  
 @ 4'-6" MAX.  
 (14--REQUIRED)



**TYPICAL  
 GUARD POST**

**TYPICAL CURB  
 (When Required)**



**CONTAINMENT  
 SOLUTIONS**  
 A DENALI COMPANY

2,000 GALLON  
 VAULT TANK  
 FOUNDATION PAD

DRAWING: FDC005  
 DATE: 6-01-99  
 DRAWN BY: V. EDWARDS

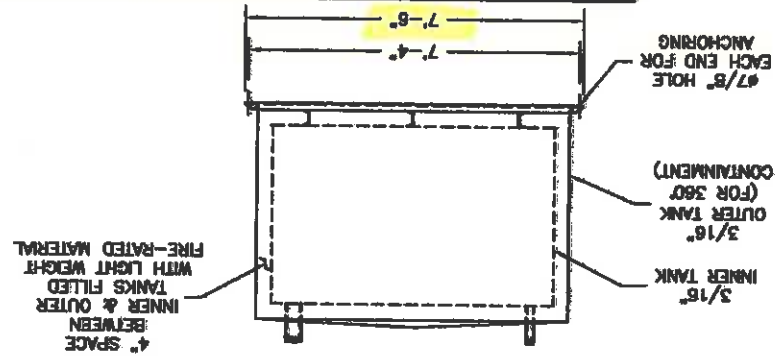
# City of Maricopa: Facilities Maintenance/Copper Sky

## FUEL EQUIPMENT SCHEDULE

| Item   | Qty. |
|--|------|
| (A.) UL-2085 2,000 Gallon Fuel Vault split 1K/1K | (1)  |
| (B.) Internal Spill/Fill Containment Box 15ga.   | (2)  |
| (C.) Overfill Prevention Valve 90%-95%           | (2)  |
| (D.) Primary Emergency Vent 6"                   | (2)  |
| (E.) Secondary Emergency Vent 6"                 | (1)  |
| (F.) Atmospheric Pressure Vent 2"                | (1)  |
| (G.) Atmospheric (Diesel) Vent 2"                | (1)  |
| (H.) Clock Gauge with 90% Overfill Alarm         | (2)  |
| (I.) Interstitial Leak Gauge                     | (1)  |
| (J.) Step-up                                     | (1)  |
| (K.) Fire Extinguisher 20lb.                     | (1)  |
| (L.) Fill-Rite Tank Mounted Pump --Unleaded      | (1)  |
| (M.) ¾ x 14ft. FlexSteel Fuel Hose               | (1)  |
| (N.) ¾" Breakaway, Swivel & Whip Hose            | (1)  |
| (O.) ¾" Auto Shut Off Unleaded Nozzle            | (1)  |
| (P.) Fill-Rite Tank Mounted Pump-Diesel          | (1)  |
| (Q.) ¾ x 14ft. FlexSteel Fuel Hose               | (1)  |
| (R.) ¾" Breakaway, Swivel & Whip Hose            | (1)  |
| (S.) ¾" Auto Shut Off Diesel Nozzle              | (1)  |
| (T.) FuelMaster Fuel Management System           | (1)  |



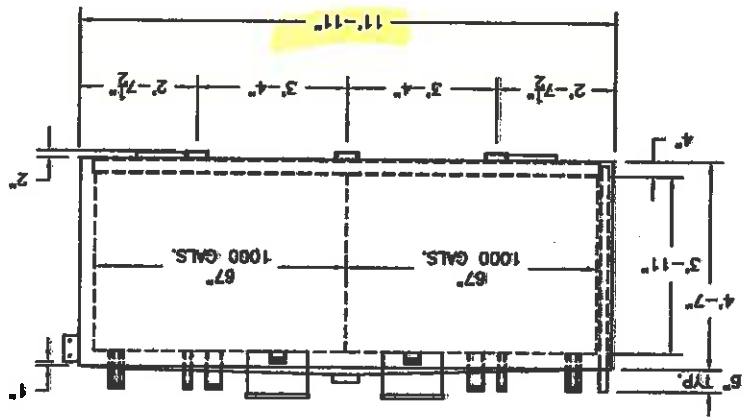
|  |  |
|--|--|
| PRODUCT CODE: V4AA202MVSS24<br>CONTAINMENT SOLUTIONS A DENNY COMPANY   |  |
| U/L TANKS: U/L-2085<br>SR#: 1 OF 1<br>DRAWN BY: D. ROVANG<br>DATE: 07-20-04  | REVISIONS: [ ]<br>DATE: [ ]<br>DRAWING #:<br>SCALE: 1:48 |
| THIS DRAWING AND THE DESIGN SHOWN HEREON IS THE PROPERTY OF THE DESIGNER. NO USE OR COPY THEREOF SHOULD BE MADE WITHOUT WRITTEN CONSENT. |  |
| DESCRIPTION: 2,000 GALLON SPLIT 1000/1000 VAULT TANK   |  |



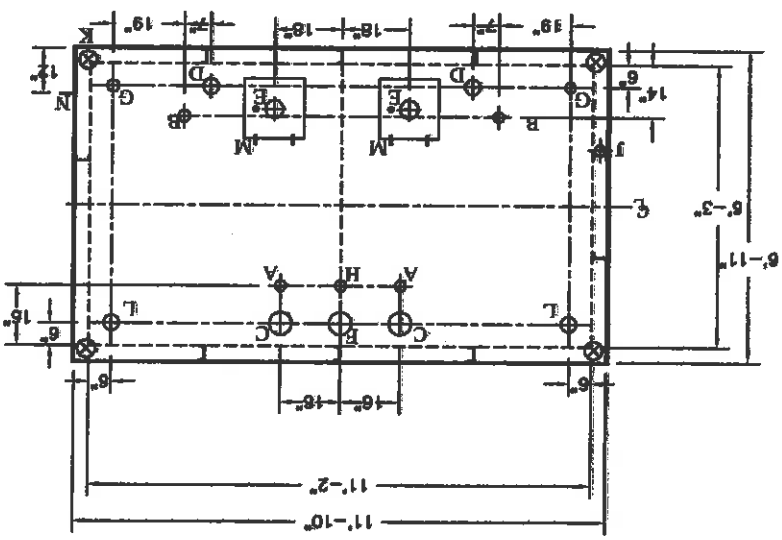
OPENINGS LABELED "SPARE" MAY BE CHANGED TO ACCOMMODATE CUSTOMER'S NEEDS

| ITEM | SIZE    | FUNCTION                             |
|------|---------|--------------------------------------|
| A    | 2"      | PRIMARY WORKING VENT                 |
| B    | 2"      | MECHANICAL GAUGE/SPARE               |
| C    | 6"      | PRIMARY TANK EMERGENCY VENT          |
| D    | 4"      | VAPOR RECOVERY/SPARE                 |
| E    | 4"      | FILL                                 |
| F    | 6"      | SECONDARY CONTAINMENT EMERGENCY VENT |
| G    | 2"      | SUCTION PUMP/SPARE                   |
| H    | 2"      | SECONDARY WORKING VENT               |
| J    | 2"      | MONITORING PIPE                      |
| K    | 4"      | FIRE-RATED MATERIAL FILL             |
| L    | 4"      | SUBMERSIBLE PUMP/SPARE               |
| M    | 15 GAL. | 15-GALLON SPILL BOX, DWG. "SB8001"   |
| N    | N/A     | HIGH HOSE RET. DWG. "MC8002"         |

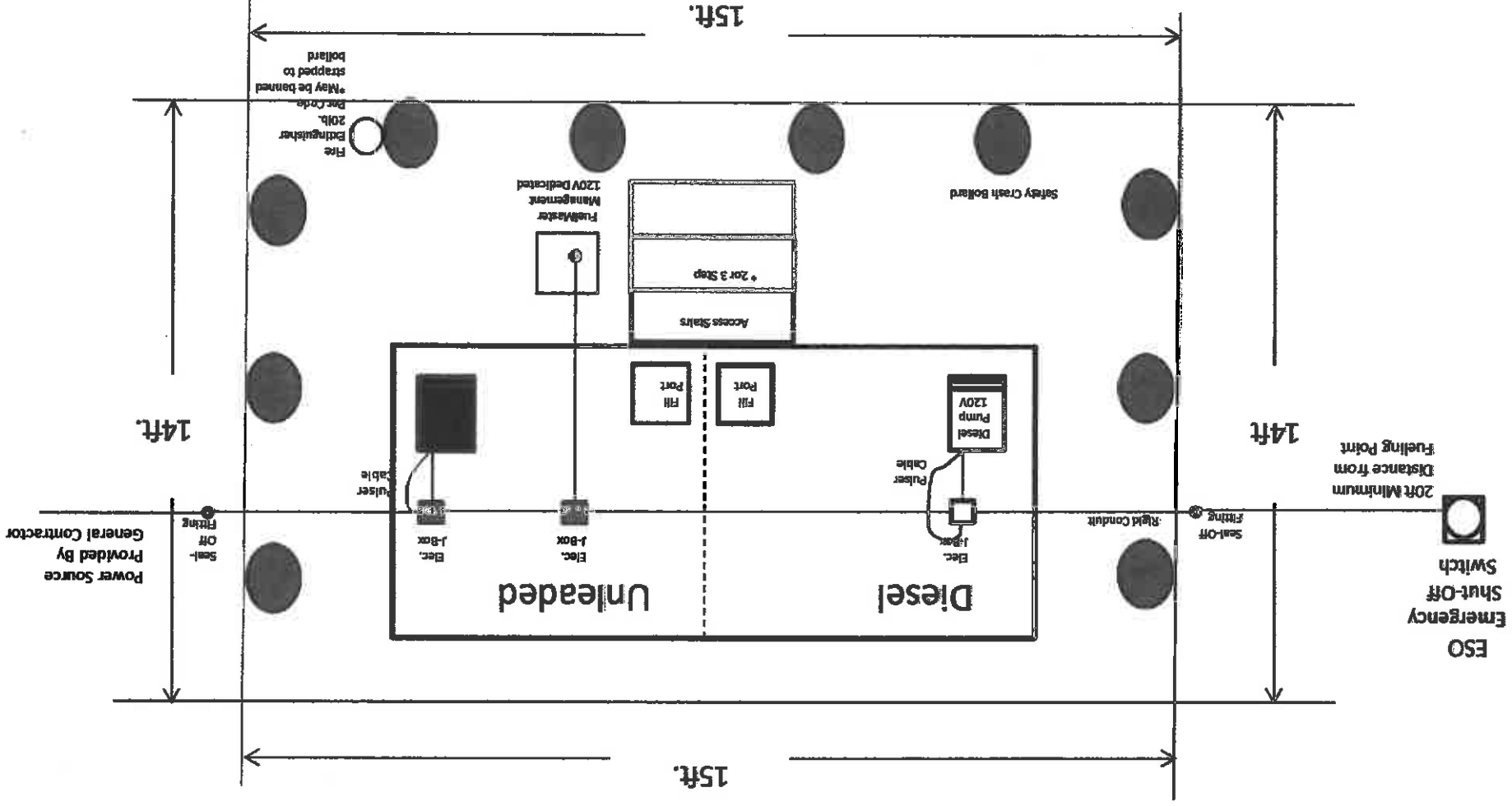
DATE: \_\_\_\_\_  
 SIGN: \_\_\_\_\_  
 APPROVED AS SHOWN  
 REVISIONS AS INDICATED  
 DISAPPROVED



TOP VIEW



CITY OF MARICOPA  
COPPER SKY FACILITIES MAINTENANCE  
2,000 Gallon Fuel Tank  
1,000-Unleaded / 1,000-Diesel



**Crash Bollards:**  
 Bollards are to be sch. 40 Steel  
 And concrete filled.  
 6ft. Overall Length  
 3ft. Buried w/ 3ft. A.F.F.  
 4" Dia. Spaced 4ft on Center.

Legal Contracting Inc.  
 Peoria, AZ  
 Perry Kellman  
 480-650-6978  
 pkellman@legalcontractinginc.com



## SPECIFICATIONS

### **HOOVER VAULT™ TANK UL LISTED 2085 PROTECTED SECONDARY CONTAINMENT TANK (RECTANGULAR DESIGN)**

#### **1.0 GENERAL TANK DESCRIPTION:**

- 1.1 Hoover Vault™ Tanks are constructed and listed in accordance with Underwriters Laboratories Inc. Standard 2085 for Insulated Secondary Containment Aboveground Tanks for Flammable and Combustible Liquids, Protected Type. This 2 Hour fire rating shall exceed all requirements of The National Fire Protection Association Sections 30 and 30A for "fire resistant" tanks and meet the requirements of The Uniform Fire Code Articles 52 and 79, Appendix II-F and Appendix Standard A-II-F-1 for "protected" aboveground tanks.
- 1.2 The standard model Hoover Vault Tank is constructed as a UL 142 listed secondary containment tank, utilizing steel inner and outer tanks.
- 1.3 All Vault Tank designs are resistant to bullet penetration according to Appendix II-F of the Uniform Fire Code.
- 1.4 Lightweight concrete surrounds the primary storage tank and shall be UL listed to allow the detection of leaks from the primary tank.
- 1.5 The tanks shall have Certification from CARB for Phase I and II Vapor Recovery.  
Note: If tank is required to have CARB certification in accordance with Executive Order VR-302-B, "Standing Loss Control Vapor Recovery System for New Installations of Aboveground Storage Tanks, then all tanks less than 1,000 gallons in capacity will be fabricated with 6" of insulating material, and will be painted white.
- 1.6 The anchoring tie downs shall be welded to the bottom of the secondary tank and meet Zone 4 Seismic requirements.
- 1.7 The tanks must be off-loaded on site with a crane.
- 1.8 All openings shall be from the top, with threaded NPT risers.
- 1.9 The Vault Tank to include a Warranty for 30 years, see warranty documents.
- 1.10 The tank manufacturer shall provide proof of a minimum 10 years of manufacturing vault tanks.

**2.0 PRIMARY STORAGE TANKS:**

- 2.1 The standard primary storage tank shall be rectangular in design. It shall be constructed of UL 142 specified steel thickness, with continuous welds.
- 2.2 The primary storage tank shall be constructed of optional ASTM A-569 or A-36 carbon steel, or ASTM A-240 type 304 or 316 stainless steel, as required for compatibility of product being stored.
- 2.3 The primary storage tank shall be constructed and listed in accordance with UL 142 Standards.
- 2.4 The primary tank shall be fitted with: a 4" or 6" Fill Port, a 2" Normal Vent Port, either a 4", 6", 8", or 10" Emergency Vent Port, a 2" Liquid Gauging Port, a 2" Port for Dispensing Pump, a 4" Phase I Vapor Recovery Port, and a 18" manway (for tanks with capacities 5,000 gallons and greater). An optional 15 gallon Spill Containment with Lockable Lid and Drain Port to the primary tank is available.
- 2.5 The primary tank shall be pressure tested to UL 142 Standard (minimum 3 to maximum 5 psi) at the factory, and shall be field tested by the contractor to a maximum 3 psi.
- 2.6 The primary steel tank shall be designed to store M85 (methanol), alcohol and petroleum blends.

**3.0 FIRE PROTECTION:**

- 3.1 The standard fire protection material shall be lightweight concrete and surround the primary tank. The tank design shall provide a minimum two (2) hour fire rating per UFC Appendix Standard A-II-F (formerly UFC 79-7), and UL 2085 Protected Secondary Containment Tanks.
- 3.2 The fire protective material shall allow liquid leaking from the primary tank to penetrate the material and communicate with the leak detection tube according to UL 2085 Protected Secondary Containment Tanks.
- 3.3 The fire protective material shall be of a monolithic pour, poured at the factory.
- 3.4 The fire protective material shall provide a minimum of an R-10 insulating factor.

**4.0 BULLET RESISTANCE:**

- 4.1 The fire protected primary tank shall be tested by a qualified engineering firm to be resistant to penetration of the primary tank by a 150 grain, M 2 Bullet, traveling at a velocity of at least 2700 feet per second, when fired from a .30 caliber rifle, located a maximum of 100 feet from the target.
- 4.2 The fire protected tank must be able to be repaired in the field by a factory representative, when impacted by a bullet.
- 4.3 The factory representative must be able to certify that the primary and secondary containment do not leak, and that the fire protective material regains its minimum two (2) hour protection.

**5.0 SECONDARY LEAK CONTAINMENT TANK:**

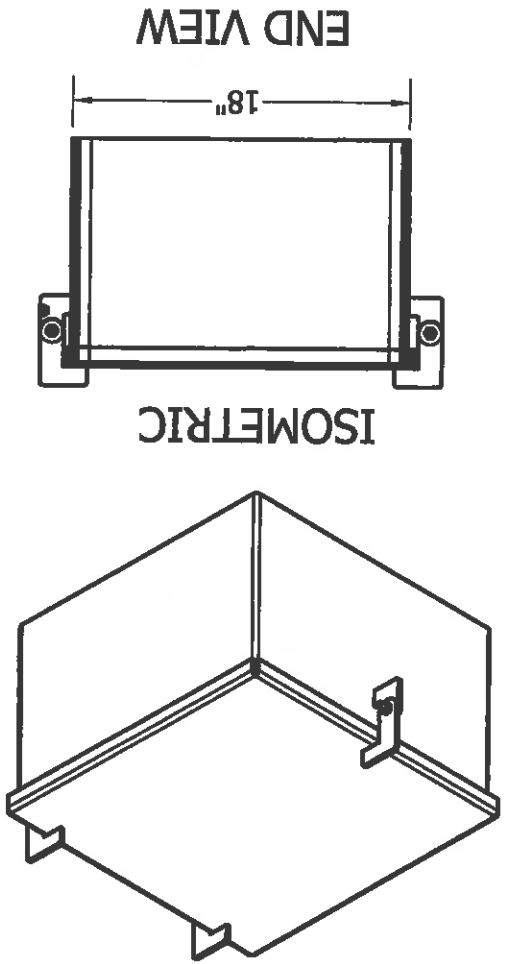
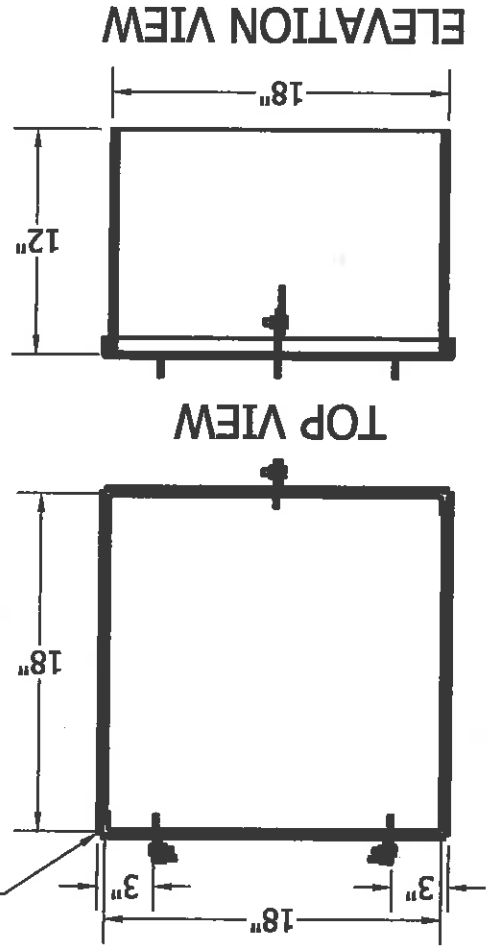
- 5.1 The secondary leak containment tank shall be rectangular in design and listed according to UL 2085 insulated secondary aboveground tanks for flammable and combustible liquids, protected type.
- 5.2 The secondary tank shall be tested liquid tight at the factory (minimum 3 to maximum 5 psi), and shall also be field tested by the contractor to a maximum 3 psi.
- 5.3 The secondary tank shall provide reinforcement for the lightweight concrete to remain in place around the primary tank.
- 5.4 The secondary tank shall provide true 360° Radius "pressure testable" containment for the primary tank.
- 5.5 The secondary tank shall be fitted with : a 2" Annular Space Monitoring Tube, a 2" Normal Vent Port and either a 4", 6", 8" or 10" Emergency Vent Port, in addition to openings for all ports in the primary tank.
- 5.6 The port openings in the top of the secondary tank shall be constructed with full welds to prevent moisture from seeping between the fire proofing material and secondary and primary tanks.
- 5.7 The top of the secondary tank shall be sloped so that water will not accumulate on top of the tank.
- 5.8 The secondary tank shall have a two (2) inch monitoring port including a tube which provides a means to detect product leakage from the primary tank into fire protection material that directly surrounds the primary tank. This design shall be listed under UL 2085.

**6.0 COATINGS:**

- 6.1 The exterior surface of the secondary tank shall be cleansed of foreign material and coated with a corrosion resistant industrial paint (3 to 5 mils dry film thickness).
- 6.2 The standard color shall be desert sand.  
Note: Per section 1.5, if the tank is less than 1,000 gallons and needs to have CARB certification, the tank will be painted white. This requirement is only applicable to tanks storing gasoline in the state of California.
- 6.3 Optional FIBERVAULT® coating can be applied to the exterior surface of the secondary tank to provide resistance to corrosive environments such as salt water spray.
  - 6.3.1 The total dry thickness shall be a minimum of 1/8 inch.
  - 6.3.2 All threaded openings and flanges shall be protected during the coating process.
  - 6.3.3 The coating shall be applied only when the work area and the secondary steel tank are between the temperatures of 32 and 103 degrees F.
  - 6.3.4 The standard color shall be desert sand.
  - 6.3.5 The coating shall provide a 10 year warranty.

|  |  |                        |  |
|--|--|------------------------|--|
| APPROVED   |  | DATE:                  |  |
| CUSTOMER NAME  |  | REV:   REV BY:   DATE: |  |
| THIS DRAWING AND DESIGN SHOWN HEREIN IS THE PROPERTY OF CONTAINMENT SOLUTIONS. USE OR COPIES THEREOF CANNOT BE MADE WITHOUT WRITTEN CONSENT. |  | DRAWN BY: D. ROVANG    |  |
| SBB001R  |  | DWG NUMBER: SBB001     |  |
| 15   |  | SCALE: 1:10            |  |
| GALLONS  |  | DATE DRAWN: 07-01-09   |  |
| DESCRIPTION  |  | SHIP WT.               |  |
| SPILLBOX   |  | 48 LBS.                |  |
| OVERALL SIZE   |  | 18" L X 18" W X 12" H  |  |
| PRODUCT CODE   |  | CONTAINMENT SOLUTIONS  |  |

- NOTES:
1. SPILLBOX BODY SHALL BE 10 GA. CARBON STEEL.
  2. SPILLBOX LID SHALL BE ALUMINUM.
  3. ALL FASTENERS SHALL BE STAINLESS STEEL.
  4. SPILLBOX SHALL BE WELDED TO TANK.
  5. SPILLBOX LID SHALL OPEN NO LESS THAN 135° PAST HORIZONTAL.
  6. EXTERIOR COATING SHALL BE THE SAME AS TANK, UNLESS NOTED.





## Model 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 above ground tanks.

The Warden 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.

### Design Highlights & Advantages

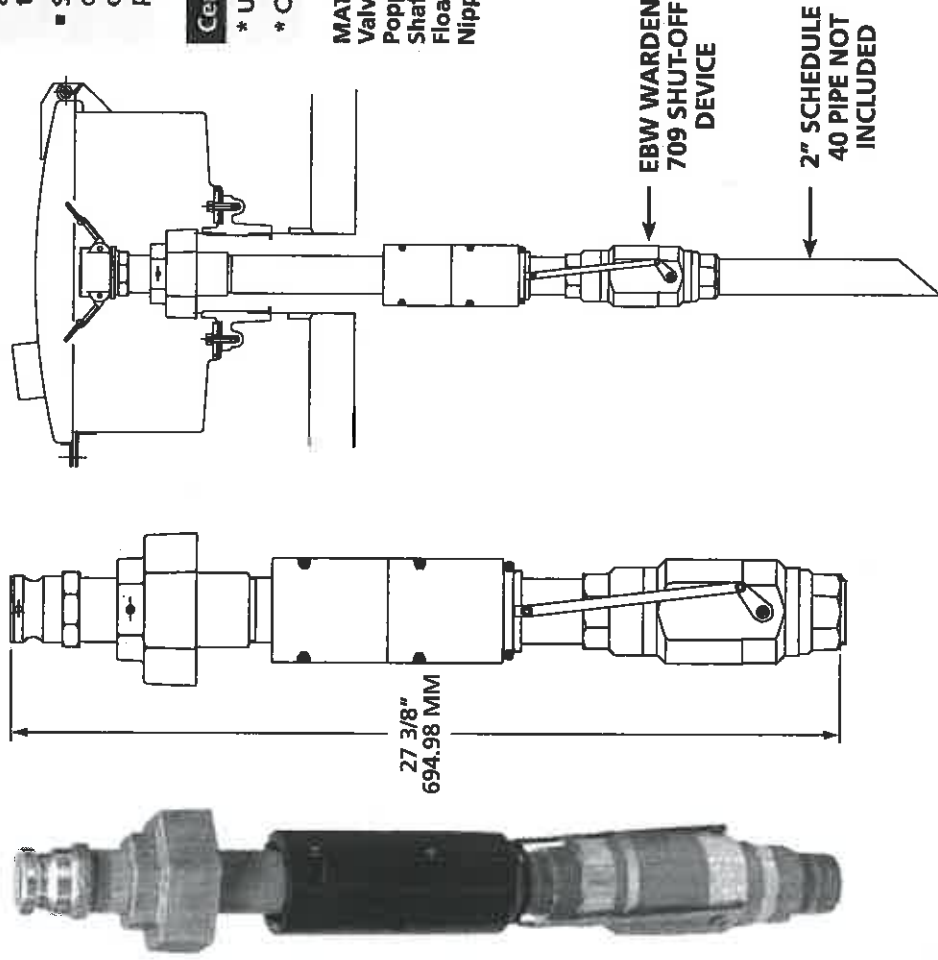
- Cylindrical float design eliminates interference with tank walls and cross braces.
- 100 psi working pressure rating.
- Flow rate 200 gpm at 20 psi.
- No minimum flow rate.
- Ships complete with upper nipple and tight fill adaptor with crossbar to prevent open fills.
- Simple installation - simply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

### Certifications/Listings

- \* ULC file CMH 21090
- \* CARB Approved AGT 98-1

### MATERIALS

- Valve Body: Aluminum 356-T6
- Poppet: Aluminum 356-T6
- Shaft: Stainless steel
- Float: High density polyethylene
- Nipple: Epoxy coated black iron pipe



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

709-420-01

| PART       | DESCRIPTION                      | LBS.  | KG   |
|------------|----------------------------------|-------|------|
| 709-420-01 | 4" overfill with inverted floats | 12.50 | 5.67 |
| 774-212-20 | 2" dust cap                      | 1.25  | .57  |

## Model 244 Emergency Vents | 6-inch

SPECIFICATION SHEET

UL Listed Emergency Vent (pressure relief only) used on aboveground storage tanks, as a code requirement, to help prevent the tank from becoming over-pressurized and possibly rupturing if ever exposed to fire. Vent must be used in conjunction with a "normal vent." Correct application of this vent requires proper vent size and selection for the tank system in order to meet the specific venting capacity requirement.



### Code Compliance

API 2000; International Fire Code; National Fire Code of Canada; NFPA 1, 30, 30A, 31, 37, 110; PEI RP200; PEI RP800; Underwriters Laboratories Inc. UL-142, UL-2085, UL- 2244; Underwriters Laboratories of Canada CAN/ULC S601-07, CAN/ULC S602-07, CAN/ULC S652-08.

### Additional References

NFPA 30, UL 142, Morrison Venting Guide

**WARNING: DO NOT FILL OR UNLOAD FUEL FROM A STORAGE TANK UNLESS IT IS CERTAIN THAT THE TANK VENTS WILL OPERATE PROPERLY.** Morrison tank vents are designed only for use on shop fabricated atmospheric tanks which have been built and tested in accordance with UL 142, NFPA 30 & 30A, and API 650 and in accordance with all applicable local, state, and federal laws. In normal operation, dust and debris can accumulate in vent openings and block air passages. Certain atmospheric conditions such as a sudden drop in temperature, below freezing temperatures, and freezing rain can cause moisture to enter the vent and freeze which can restrict internal movement of vent mechanisms and block air passages. All storage tank vent air passages must be completely free of restriction and all vent mechanisms must have free movement in order to insure proper operation. Any restriction of airflow can cause excessive pressure or vacuum to build up in the storage tank, which can result in structural damage to the tank, fuel spillage, property damage, fire, injury, and death. Monthly inspection, and immediate inspection during freezing conditions, by someone familiar with the proper operation of storage tank vents, is required to insure venting devices are functioning properly before filling or unloading a tank.

570 E. 7th Street, P.O. Box 238 | Dubuque, IA 52004-0238  
t. 563-583-5701 | 800.553.4840 | f. 563-583-5028

[www.morbro.com](http://www.morbro.com)

**MORRISON BROS. CO.**

Model 244 Emergency Vents | 6-inch (continued)

| Part Number     | A | B       | C  | D  | E | F  | G   | Diastix | Height | Weight | Screen |
|-----------------|---|---------|----|----|---|----|-----|---------|--------|--------|--------|
| 244O-0200 AV    | 6 | 278,660 | 8  | I  | A | AL | 9.1 | 9.1     | 3.9    | 19     | S      |
| 244O-0200AVEVR  | 6 | 278,660 | 8  | I  | B | AL | 9.1 | 9.1     | 3.9    | 19     | S      |
| 244O-0400 AV    | 6 | 278,660 | 16 | I  | A | AL | 9.1 | 9.1     | 4.9    | 36     | S      |
| 244O-0400AVEVR  | 6 | 278,660 | 16 | I  | B | AL | 9.1 | 9.1     | 4.9    | 36     | S      |
| 244OB-0200 AV   | 6 | 278,660 | B  | 8  | I | A  | AL  | 9.1     | 3.9    | 19     |        |
| 244OB-0200AVEVR | 6 | 278,660 | B  | 8  | I | A  | AL  | 9.1     | 3.9    | 19     |        |
| 244OI-0200 AV   | 6 | 278,660 |    | 8  | I | A  | I   | 9.1     | 3.9    | 22     |        |
| 244OI-0400 AV   | 6 | 278,660 |    | 16 | I | A  | I   | 9.1     | 4.9    | 39     |        |
| 244OS-0200 AV   | 6 | 232,638 |    | 8  | I | A  | AL  | 9.1     | 3.9    | 19     | S      |
| 244OS-0200AVEVR | 6 | 232,638 |    | 8  | I | B  | AL  | 9.1     | 3.9    | 19     | S      |
| 244OS-0400 AV   | 6 | 232,638 |    | 16 | I | A  | AL  | 9.1     | 4.9    | 36     | S      |
| 244OS-0400AVEVR | 6 | 232,638 |    | 16 | I | B  | AL  | 9.1     | 4.9    | 36     | S      |
| 244OSBSP0200 AV | 6 | 232,638 | B  | 8  | I | A  | AL  | 9.1     | 3.9    | 19     | S      |
| 244OF-0050 AV   | 6 | 278,660 | F  | 8  | I | A  | AL  | 9.1     | 3.2    | 21     |        |
| 244OF-0050AVEVR | 6 | 278,660 | F  | 8  | I | A  | AL  | 9.1     | 3.2    | 21     |        |
| 244OF-0075 AV   | 6 | 278,660 | F  | 16 | I | A  | AL  | 9.1     | 4.2    | 38     |        |
| 244OF-0075AVEVR | 6 | 278,660 | F  | 16 | I | B  | AL  | 9.1     | 4.2    | 38     |        |
| 244OFS0050 AV   | 6 | 232,638 | F  | 8  | I | A  | AL  | 9.1     | 3.2    | 21     | S      |
| 244OFS0075 AV   | 6 | 232,638 | F  | 16 | I | A  | AL  | 9.1     | 4.2    | 38     | S      |
| 244OM-0200 AV   | 6 | 278,660 | M  | 8  | I | A  | AL  | 9.1     | 5.9    | 20     |        |
| 244OM-0200AVEVR | 6 | 278,660 | M  | 8  | I | B  | AL  | 9.1     | 5.9    | 20     |        |
| 244OM-0400 AV   | 6 | 278,660 | M  | 16 | I | A  | AL  | 9.1     | 6.9    | 37     |        |
| 244OM-0400AVEVR | 6 | 278,660 | M  | 16 | I | B  | AL  | 9.1     | 6.9    | 37     |        |
| 244OMBS0400 AV  | 6 | 232,638 | M  | 16 | I | A  | AL  | 9.1     | 6.9    | 37     | S      |
| 244OMBSP0200 AV | 6 | 278,660 | MB | 8  | I | A  | AL  | 9.1     | 5.9    | 20     |        |
| 244OMBSP0400 AV | 6 | 278,660 | MB | 16 | I | A  | AL  | 9.1     | 6.9    | 37     |        |
| 244OMI0200 AV   | 6 | 278,660 | M  | 8  | I | A  | I   | 9.1     | 5.9    | 26     |        |
| 244OMI0400 AV   | 6 | 278,660 | M  | 16 | I | A  | I   | 9.1     | 6.9    | 43     |        |
| 244OMS0200 AV   | 6 | 232,638 | M  | 8  | I | A  | AL  | 9.1     | 5.9    | 20     | S      |
| 244OMS0200AVEVR | 6 | 232,638 | M  | 8  | I | B  | AL  | 9.1     | 5.9    | 20     | S      |
| 244OMS0400 AV   | 6 | 232,638 | M  | 16 | I | A  | AL  | 9.1     | 6.9    | 37     | S      |
| 244OMS0400AVEVR | 6 | 232,638 | M  | 16 | I | B  | AL  | 9.1     | 6.9    | 37     | S      |
| 244OMSB0200 AV  | 6 | 232,638 | MB | 8  | I | A  | AL  | 9.1     | 5.9    | 20     | S      |

Flange = 11" OD ; eight (8) .88" Diameter holes on 9.5" diameter B.C.

SPECIFICATION OPTIONS:

- A—Size: 6"
- B—Venting Capacity/CFH
- C—Mounting Connection: Female N.P.T. (BLANK); Male N.P.T.(M); Flanged (F); BSP (B)
- D—Pressure Settings: 8 or 16 oz/in<sup>2</sup>. Pressure Required to Open Vent.
- E—Cover: Cast Iron (I); Powder Coated
- F—Seat Material: O-Ring Viton A (A) or Viton B (B)
- G—Body Material: Aluminum (AL) or Iron (I)
- Diameter—Dimension Across Vent
- Height—Dimension from Base to Top When Closed
- Weight—Shipping Weight
- Screen—3 Mesh Stainless Steel
- Bolt—Zinc plated steel

Morrison Bros. Co.  
**Fig. 749 Pressure Vacuum Vents**  
*Specification Sheet*

The Fig. 749 Vent valve is used on underground & low volume aboveground tanks for motor fueling. The vent allows the tank to "breathe" during filling/dispensing operations. Poppets seal vapors in the tank when pressure is equalized. Settings are approximate. Fig. 749CRB0500 offers C.A.R.B. approval for Stage I vapor recovery systems. Fig. 749CRB0600 and 749CRBS600 offer C.A.R.B. approval for Stage I & II vapor recovery systems.

**WARNING:** Fig. 749 pressure/vacuum vents must only be used in conjunction with motor fueling and/or low capacity flow. Fluid handling in lines larger than that used for retail service station can cause tank to rupture or implode.



New Adaptor!

### SPECIFICATION OPTIONS:

| I.D. NUMBER    | A  | B     | C       | D | E | Height | Weight | S.C.F.H.            |
|----------------|----|-------|---------|---|---|--------|--------|---------------------|
| 749---0100 AV  | 2N | 8oz.  | 1/2 oz. | M | N | 4.33   | 1      | 6200 @ 20oz./in.sq. |
| 749CRB0500 AV  | 2N | 8oz.  | 5oz.    | V | Y | 4.33   | 1.45   | 6200 @ 20oz./in.sq. |
| 749---0200 AV  | 2N | 12oz. | 1/2 oz. | M | N | 4.33   | 1      | 7500 @ 25oz./in.sq. |
| 749CRB0600 AV  | 2N | 3"    | 8"      | V | Y | 4.33   | 1.45   | 3800 @ 8.5" H2O     |
| 749S--0100 AV  | 2S | 8oz.  | 1/2 oz. | M | N | 4.33   | 1      | 6200 @ 20oz./in.sq. |
| 749S--0200 AV  | 2S | 12oz. | 1/2 oz. | M | N | 4.33   | 1      | 7500 @ 25oz./in.sq. |
| 749BSP0100 AV  | 2B | 8oz.  | 1/2 oz. | M | N | 4.33   | 1      | 6200 @ 20oz./in.sq. |
| 749BSP0200 AV  | 2B | 12oz. | 1/2 oz. | M | N | 4.33   | 1      | 7500 @ 25oz./in.sq. |
| 749CRBS600 AV  | 2S | 3"    | 8"      | V | Y | 4.33   | 1.45   | 3800 @ 8.5" H2O     |
| 749---1100 AV  | 3N | 8oz.  | 1/2 oz. | M | N | 5.91   | 1.55   | 6200 @ 20oz./in.sq. |
| 749---1200 AV  | 3N | 12oz. | 1/2 oz. | M | N | 5.91   | 1.55   | 7500 @ 25oz./in.sq. |
| 749CRB1500 AV  | 3N | 8oz.  | 5oz.    | V | Y | 5.91   | 2      | 6200 @ 20oz./in.sq. |
| 749CRB1600 AV  | 3N | 3"    | 8"      | V | Y | 5.91   | 2      | 3800 @ 8.5" H2O     |
| 749S--1100 AV  | 3S | 8oz.  | 1/2 oz. | M | N | 6.28   | 1.65   | 6200 @ 20oz./in.sq. |
| 749S--1200 AV  | 3S | 12oz. | 1/2 oz. | M | N | 6.28   | 1.65   | 7500 @ 25oz./in.sq. |
| 749CRBS1600 AV | 3S | 3"    | 8"      | V | Y | 6.28   | 2.1    | 3800 @ 8.5" H2O     |
| 749T--0200 AV  | 2S | 8oz.  | 1/2 oz. | V | N | 4.33   | 1      | 7500 @ 25oz./in.sq. |

#### CHART KEY:

- A**—Body Connection: 2" N.P.T. (2N), 2" Slip-on style (2S), 2" BSP (2B), 3" N.P.T. (3N), or 3" Slip-on style (3S)  
**B**—Pressure Setting: 8 oz./sq. in. (8Z) - Red Label, 12 oz./sq. in. (12Z) - Yellow Label or 3" Water Column (3") - Gold Label  
**C**—Vacuum Setting: .5 oz./sq. in. (1/2Z), 5 oz./sq. in. (5Z) or 8" Water Column (8")  
**D**—Pressure Seal: Metal/Metal Seat (M) or Metal/Viton O-ring Seat (V)  
**E**—C.A.R.B. Approval: Yes/No (Y/N)  
**Height**—Height: Dimension from base to top of vent  
**Weight**—Shipping Weight

Body: Anodized Aluminum  
 Pressure Poppet: Anodized Aluminum  
 Vacuum Poppet: Brass  
 Body Seal: Buna-N  
 Screen: 40 Mesh Brass  
 Springs: Stainless Steel  
 Screws: Zinc-Plated Steel

**WARNING: DO NOT FILL OR UNLOAD FUEL FROM A STORAGE TANK UNLESS IT IS CERTAIN THAT THE TANK VENTS WILL OPERATE PROPERLY.** Morrison tank vents are designed only for use on shop fabricated atmospheric tanks which have been built and tested in accordance with UL 142, NFPA 30 & 30A, and API 650 and in accordance with all applicable local, state, and federal laws in normal operation, dust and debris can accumulate in vent openings and block air passages. Certain atmospheric conditions such as a sudden drop in temperature, below freezing temperatures, and freezing rain can cause moisture to enter the vent and freeze which can restrict internal movement of vent mechanisms and block air passages. All storage tank vent air passages must be completely free of restriction and all vent mechanisms must have free movement in order to insure proper operation. Any restriction of airflow can cause excessive pressure or vacuum to build up in the storage tank, which can result in structural damage to the tank, fuel spillage, property damage, fire, injury, and death. Monthly inspection, and immediate inspection during freezing conditions, by someone familiar with the proper operation of storage tank vents, is required to insure venting devices are functioning properly before filling or unloading a tank.

**Morrison Bros. Co.**  
 Established 1855

P.O. Box 238 • Dubuque, Iowa 52004-0238  
 563.583.5701 (tel) • 800.553.4840 • 563.583.5028 (fax)  
 www.morbros.com



# Morrison Bros. Co.

## Fig. 354 Updraft Vent

"Open" vent used on underground and aboveground tanks for petroleum storage tanks. Vent allows the tank to "breathe" during filling and dispensing operations. 1½" and 2" sizes are CARB approved.

Vents outward and upward in accordance with NFPA 30.

Note: Open vents will allow unrestricted evaporation of product.

- Body: Aluminum
- Cap: Aluminum
- Screen: 40 Mesh Brass

DIESEL



Figure 354

|     | Weight   | Venting Capacity |
|-----|----------|------------------|
| 1½" | .75 lbs  | 27,650 (CFH)     |
| 2"  | .75 lbs  | 27,650 (CFH)     |
| 3"  | 1.5 lbs  | 59,000 (CFH)     |
| 4"  | 2.25 lbs | 116,900 (CFH)    |

**WARNING:** Normal vents such as pressure vacuum and updraft vents for aboveground storage tanks should be sized according to NFPA 30 (2008) 21.4.3

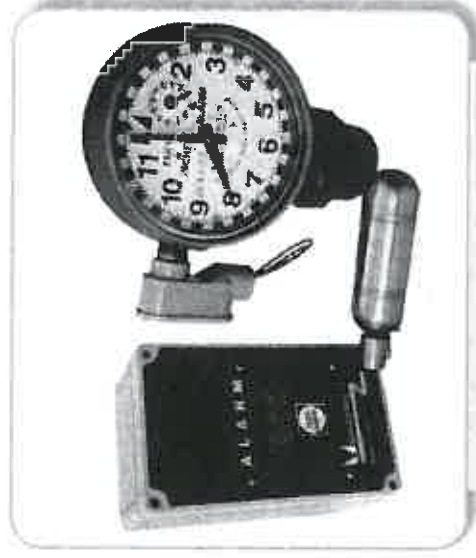
**WARNING: DO NOT FILL OR UNLOAD FUEL FROM A STORAGE TANK UNLESS IT IS CERTAIN THAT THE TANK VENTS WILL OPERATE PROPERLY.** Morrison tank vents are designed only for use on shop fabricated atmospheric tanks which have been built and tested in accordance with UL 142, NFPA 30 & 30A, and API 650 and in accordance with all applicable local, state, and federal laws. In normal operation, dust and debris can accumulate in vent openings and block air passages. Certain atmospheric conditions such as a sudden drop in temperature, below freezing temperatures, and freezing rain can cause moisture to enter the vent and freeze which can restrict internal movement of vent mechanisms and block air passages. All storage tank vent air passages must be completely free of restriction and all vent mechanisms must have free movement in order to insure proper operation. Any restriction of airflow can cause excessive pressure or vacuum to build up in the storage tank, which can result in structural damage to the tank, fuel spillage, property damage, fire, injury, and death. Monthly inspection, and immediate inspection during freezing conditions, by someone familiar with the proper operation of storage tank vents, is required to insure venting devices are functioning properly before filling or unloading a tank.

## Model 918 Clock Gauge Series

SPECIFICATION SHEET

The Morrison Fig. 918 Clock Gauge is used for measuring liquid level in aboveground storage tanks. It utilizes the Fig. 818 Clock Gauge with a built-in high level warning alarm. It contains a battery powered, intrinsically safe, alarm unit that is mounted remote from the gauge. Alarm is set for desired level during installation and can be re-set at any time for a change in alarm level requirements. The alarm features a 90 decibel high pitched "Beep" cycle alarm, a test/cancel switch, and is powered by two 9 volt batteries (included). Readout form at is on a standard 12 hour clock face. Small hand represents feet and the large hand inches. Gauge can be read up to 20-30 ft away to within 1/8". Maximum measurement capability is 12 feet (3.66 Meters). The gauge can be rotated 360° after mounting. Vaportight up to 5 psi.

The Alarm Box is UL Listed.



### Construction Details

- Body... Aluminum with 2" NPT Connection
- F bat... Stainless Steel
- Cable... Stainless Steel
- Alarm Control Box... Polyester weather-proof housing

### SPECIFICATION OPTIONS:

- A—Optional Alarm Box: Included: Yes/No
- B—Body Connection: Male - (M), Female - (F), BSP - (Ø)
- C—Faceplate: Standard 2" Faceplate (ST), Drop Tube Faceplate (DT)
- D—Faceplate: Standard (S), Metric (M)
- E—Gauge height: (inches)
- F—Gauge width: (inches)
- G—Clock diameter: (inches)
- H—Shipping Weight (lbs.)

| ID# Part Number   | A | B   | C              | D | E    | F    | G    | H    |
|-------------------|---|-----|----------------|---|------|------|------|------|
| 9180000AG EVR     | N | M   | ST             | S | 8.42 | 3.48 | 6.06 | 6.25 |
| 9182000AG EVR     | N | M   | DT             | S | 8.42 | 3.48 | 6.06 | 6.25 |
| 918-0100 AG       | Y | M   | ST             | S | 8.42 | 3.48 | 6.06 | 7.45 |
| 918-0400 AG       | Y | M   | DT             | S | 8.42 | 3.48 | 6.06 | 7.45 |
| 918F-0100 AG      | Y | F   | ST             | S | 9.62 | 3.48 | 6.06 | 7.95 |
| 918F-0400 AG      | Y | F   | DT             | S | 9.62 | 3.48 | 6.06 | 7.95 |
| 918E-0000AG EVR   | N | F   | ST             | S | 9.62 | 3.48 | 6.06 | 6.25 |
| 918E-2000AG EVR   | N | F   | DT             | S | 9.62 | 3.48 | 6.06 | 6.25 |
| 918M EB0100 AG    | Y | M B | ST             | M | 8.42 | 3.48 | 6.06 | 7.45 |
| 918M EB0400 AG    | Y | M B | DT             | M | 8.42 | 3.48 | 6.06 | 7.45 |
| 918M EF0000AG EVR | N | F   | ST             | M | 8.42 | 3.48 | 6.06 | 7.95 |
| 918M EF2000AG EVR | N | F   | DT             | M | 8.42 | 3.48 | 6.06 | 6.25 |
| 918M EF0100 AG    | Y | F   | ST             | M | 9.62 | 3.48 | 6.06 | 7.95 |
| 918M EF0400 AG    | Y | F   | DT             | M | 9.62 | 3.48 | 6.06 | 7.95 |
| 918M ET0000AG EVR | N | M   | ST             | M | 8.42 | 3.48 | 6.06 | 6.25 |
| 918M ET2000AG EVR | N | M   | DT             | M | 8.42 | 3.48 | 6.06 | 6.25 |
| 918M ET0100 AG    | Y | M   | ST             | M | 8.42 | 3.48 | 6.06 | 7.45 |
| 918M ET0400 AG    | Y | M   | DT             | M | 8.42 | 3.48 | 6.06 | 7.45 |
| 918T-0400 AG      | Y | M   | DT             | S | 8.42 | 3.48 | 6.06 | 7.45 |
| 918T-2000 AG      | N | M   | DT             | S | 8.42 | 3.48 | 6.06 | 7.45 |
| 918FT-0400 AG     | Y | F   | DT             | S | 9.62 | 3.48 | 6.06 | 7.95 |
| 918FT-2000 AG     | N | F   | DT             | S | 9.62 | 3.48 | 6.06 | 7.95 |
| 918M EFT400 AG    | Y | F   | DT             | M | 9.62 | 3.48 | 6.06 | 7.95 |
| 918M ETT400 AG    | Y | M   | DT             | M | 8.42 | 3.48 | 6.06 | 7.45 |
| 918-1000 AA       | Y | A   | Alarm Box only |   |      |      |      | 1.80 |

570 E. 7th Street, P.O. Box 238 | Dubuque, IA 52004-0238  
 t: 563-583-5701 | 800-553-4840 | f: 563-583-5028

www.morribros.com

MORRISON BROS. CO.





# KRUEGER SENTRY GAUGE

## The Leak Gauge—Type K

Price Book Page 6 <http://www.ksentry.com/leak.htm>

| Model                                    | Calibration                                 | Indicator | Lock Nut                     | Bushing  | Internal Rods      | Union                 | Flats               | Gasket     |
|--|---|-----------|------------------------------|----------|--------------------|-----------------------|---------------------|------------|
| Standard<br>(6" - 76")                   | Cellulose<br>Acetate-Plastic                | HDPE      | HDPE                         | Aluminum | Aluminum-<br>1/8"  | Plated<br>Nickel—1/8" | Polypropylene       | Nitrile    |
| Standard<br>(6" - 144")                  | Cellulose<br>Acetate-Plastic                | HDPE      | HDPE                         | Aluminum | Aluminum—<br>3/16" | Brass—3/16"           | Poly coated<br>cork | Nitrile    |
| Options<br>available for<br>all of above | GLC -Glass<br>internal, plastic<br>external |           | ALN-<br>Aluminum<br>Lock Nut |          |                    |                       |                     | VITN—Viton |

- Sample Part Number—K-2-76-GLC

## Other Options Available on the Type K Gauge

Price Book Page 6

| Level Gauge Accessory          | Description  | Web Link  |
|--------------------------------|--|---|
| At-A-Glance Alarm              | Audible Hi or Lo Level Alarm Accessory. Retrofits right to gauge. 110 decibel alarm. 9volt lithium battery.  | <a href="http://www.ksentry.com/alarm.htm">http://www.ksentry.com/alarm.htm</a>     |
| Gauge Guard<br>Aluminum or PVC | Durable sleeve that covers the plastic components on top of the gauge. Extend the life of the exposed parts of the gauge, and protect it from physical damage. | <a href="http://www.ksentry.com/replace.htm">http://www.ksentry.com/replace.htm</a> |

Krueger Sentry Gauge  
1873 Siesta Lane  
Green Bay, WI 54313  
<http://www.ksentry.com>



KRUEGER  
SENTRY  
GAUGE

Contact us for more info or a local distributor:  
Ph: 920-434-8860  
Fax: 920-434-8897  
Email: [info@ksentry.com](mailto:info@ksentry.com)

# FILL-RITE®

# Cabinet Pumps and Meters

UNLEADED



FR702VR



FR902R



FR713V

## Fill-Rite's Complete Range of Cabinet Pumps, Meters and Remote Fueling Systems for Gasoline/Diesel/B20/E-15/Kerosene

### FR702 Cabinet Pumps and Meters · Heavy Duty

20 GPM  
115/230 Volt  
• For Pedestal Mounting or Direct Tank Top Mounting

|                            | FR702VR                             | FR702VLRJ      | FR702VLR        | New Model<br>FR702VLRJU |
|----------------------------|-------------------------------------|----------------|-----------------|-------------------------|
| Flow Rate (GPM/LPM)        | Up to 20/75                         | Up to 20/75    | Up to 20/75     | Up to 20/75             |
| Voltage                    | 115 Volt                            | 115 Volt       | 115 Volt        | 230 Volt                |
| Inlet/Outlet               | 1 1/4" / 3/4"                       | 1 1/4" / 3/4"  | 1 1/4" / 3/4"   | 1 1/4" / 3/4"           |
| Bung Mount                 | 2" NPT                              | 2" NPT         | 2" NPT          | 2" NPT                  |
| Metal of Cabinet / Housing | Cast Iron                           | Cast Iron      | Cast Iron       | Cast Iron               |
| Horse Power                | 1/3                                 | 1/3            | 1/3             | 1/3                     |
| H2                         | 60                                  | 60             | 60              | 50                      |
| Amps                       | 5.5                                 | 5.5            | 5.5             | 5.5                     |
| Duty Cycle                 | 30 Min                              | 30 Min         | 30 Min          | 30 Min                  |
| Construction               | UL/cUL                              | UL/cUL         | UL/cUL          | UL/cUL                  |
| Included Accessories       | 3/4" x 12' Hose, 3/4" Manual Nozzle | Liter Register | Gallon Register | Gallon Register         |



### Flexsteel® Hardwall

#### APPLICATION:

Flexsteel® Hardwall is for dispensing pump applications that require a hardwall construction for full flow and no internal spring guards. The wire-braid construction provides excellent kink resistance, low computer creep, and long service life. UL 330 and CUL approved.

#### CONSTRUCTION:

TUBE: Nitrile synthetic rubber (ORS)

COVER: Green, red, blue, or yellow Chemivic™ synthetic rubber (ORS)

REINFORCEMENT: Wire Braid

TEMPERATURE: -40°F to 140°F (-40°C to 60°C)

PACKAGING: 5/8" and 3/4" Reels or coupled lengths, 10 pieces per box / 1" Reels or coupled lengths, 5 pieces per box

BRANDING (SPIRAL): Example: Goodyear® 559N, Made in USA, 3/4" (19 mm) UL, CUL, Listed Flexsteel® Hardwall Gasoline Hose

COUPLINGS: Contact fitting manufacturer for proper fitting recommendation and coupling procedure.

NON-STOCK/SIZES: For special production run minimum requirements, contact customer service.

ORDER CODES: 532-331 (green) / 532-332 (red) / 532-333 (blue) / 532-335 (yellow)

| ID  | NOM. OD |      | WEIGHT  |        |
|-----|---------|------|---------|--------|
|     | in.     | mm.  | lb./ft. | kg./m. |
| 5/8 | 15.9    | 1.00 | 0.38    | 0.57   |
| 3/4 | 19.1    | 1.13 | 0.43    | 0.64   |
| 1   | 25.4    | 1.38 | 0.58    | 0.86   |

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# HUSKY SAFE-T-BREAK® VALVES

## FOR STANDARD FUELING APPLICATIONS

All Husky Safe-T-Breaks® stop the flow of fuel on both sides of the separation.

All Husky Safe-T-Breaks® have passed the demanding UL test requirements on separations without leaking or failing.

Husky Model #3360 and #3385 Reconnectable Safe-T-Breaks®

- Retains UL listing after reconnection.

Features a pre-loaded spring and a single turn wave spring that enables valve to resist sudden pressure build-up in the hose causing nuisance separations.

- Separates at less than 200 lbf / 889.6 N which minimizes "backlash" force of separation, reducing damage to equipment.

**Husky Model #5230 Reconnectable Low-Pull Safe-T-Break®**

- Retains UL listing after reconnection.

- Uses the same pre-loaded spring and a single turn wave spring as Model #3360.

- Separates at less than 115 lbf / 511.5 N.



Model #3360



Model #6130



Model #2273

### SPECIFYING INFORMATION

| Model Number         | Description   | Shipping Weight <sup>lbs (kg)</sup> |
|----------------------|---|-------------------------------------|
| <b>NPTF Threads:</b> |   |                                     |
| 3380*                | 3/4" F x 1/4" F Reconnectable Safe-T-Break® with scuff guard          | .59 (.26)                           |
| 2273                 | 3/4" F x 3/4" F Non-Reconnectable Safe-T-Break®                       | .78 (.35)                           |
| 6130*                | 3/4" F x 3/4" F PCC Non-Reconnectable Safe-T-Break® with scuff guard  | .52 (.23)                           |
| 5230*                | 3/4" F x 3/4" F Reconnectable Low-Pull Safe-T-Break® with scuff guard | .59 (.26)                           |
| <b>BSPF Threads:</b> |   |                                     |
| 3385*                | 3/4" F x 3/4" F Reconnectable Safe-T-Break® with scuff guard          | .57 (.25)                           |
| 2774                 | 3/4" F x 3/4" F Non-Reconnectable Safe-T-Break®                       | .73 (.33)                           |
| 2774A                | 3/4" F x 3/4" F Non-Reconnectable Safe-T-Break® - Atex                | .73 (.33)                           |

\*See page 2 for guard color options

### CONSTRUCTION

#### Reconnectable Safe-T-Breaks

- Body: Aluminum
- Seals: Fluorocarbon
- Springs: Stainless Steel
- Stainless steel load and latch spring reverse mechanism.
- Hardened stainless steel latch ring and balls.

#### Non-Reconnectable Safe-T-Breaks

- Body: Zinc Alloys and Aluminum

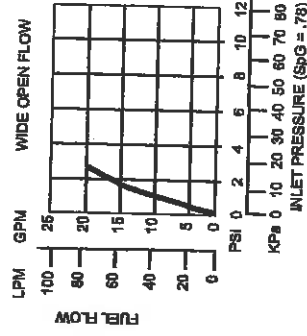
### LISTINGS

Listings: **cULus**

Model #2774A **Ex** II 1 G EN 13617-2



MADE IN THE U.S.A.





# HUSKY X BSPP NOZZLE

## AUTOMATIC SHUT-OFF NOZZLE

Automatic shut-off nozzle for full-service and self-service stations.

- X nozzle shuts off when the gas tank is full.

- Equipped with a unique Flo-Stop™ device that shuts off the nozzle if it falls from the fill tank or raises above the horizontal.

- Aluminum reinforced spout bushing keeps spout tip round and acts as a captive fastener to prevent tip-end sensor damage.

- StreamShaper™* reduces turbulence for straighter fuel flow and less splash back spillage.

- Comes standard with smooth full grip guard.



## CONVENTIONAL FUELING

### SPECIFYING INFORMATION

| Model Number                 | Description  | Shipping Weight <small>(lb) (kg)</small> |
|------------------------------|--|--|
| <b>New Unleaded Nozzles:</b> |  |  |
| 159418                       | with Three Notch Hold Open Clip and Full Grip Guard                                      | 3.0 (1.3)                                |
| 159418A*                     | with Three Notch Hold Open Clip and Full Grip Guard - ATEX                               | 3.0 (1.3)                                |
| E159416                      | with Three Notch Hold Open Clip and Mate Guard   | 3.0 (1.3)                                |
| E159418A*                    | with Three Notch Hold Open Clip and Mate Guard - ATEX                                    | 3.0 (1.3)                                |
| 159487A*                     | with Three Notch Hold Open Clip, Full Grip Guard and Flo-Equalizer™                      | 3.0 (1.3)                                |
| E538488                      | with Three Notch Hold Open Clip, Double Poppet, Waffle Splash Guard and POPD™ Mate Guard | 3.0 (1.3)                                |
| 159420                       | without Hold Open Clip, with Full Grip Guard   | 3.0 (1.3)                                |
| E159420                      | without Hold Open Clip, with Mate Guard  | 3.0 (1.3)                                |

### New Light Duty Diesel Nozzles:

|          |  |           |
|----------|--|-----------|
| 159415   | with Three Notch Hold Open Clip and Full Grip Guard                                      | 3.1 (1.4) |
| 159415A* | with Three Notch Hold Open Clip and Full Grip Guard - ATEX                               | 3.1 (1.4) |
| E159415  | with Three Notch Hold Open Clip and Mate Guard   | 3.1 (1.4) |
| 159488A* | with Three Notch Hold Open Clip, Full Grip Guard and Flo-Equalizer™                      | 3.1 (1.4) |
| E538499  | with Three Notch Hold Open Clip, Double Poppet, Waffle Splash Guard and POPD™ Mate Guard | 3.1 (1.4) |
| 159419   | without Hold Open Clip, with Full Grip Guard   | 3.1 (1.4) |
| E159419  | without Hold Open Clip, with Mate Guard  | 3.1 (1.4) |

### CONSTRUCTION

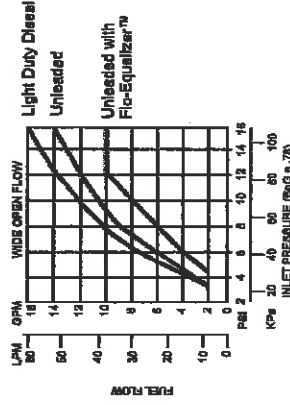
|         |   |
|---------|---|
| Body    | One piece die cast aluminum                             |
| Seals   | Fluorocarbon  |
| Packing | Double o-ring seal protected by fiber reinforced Teflon |
| Lever   | One piece contoured steel with hard plastic cover       |
| Inlet   | 3/4" / 19 mm BSPP                                       |

### LISTINGS

Listings: cULus



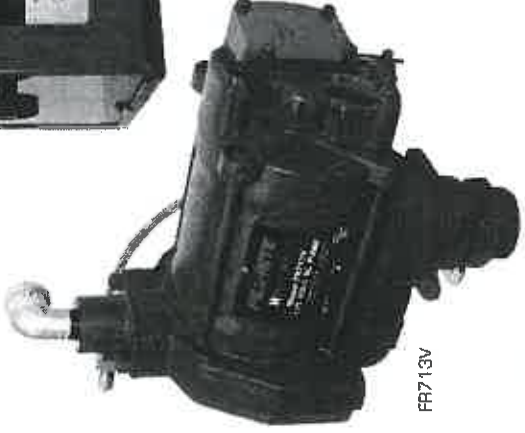
EN 13012 Type 1



# FILL-RITE®

# Cabinet Pumps and Meters

**DIESEL**



## Fill-Rite's Complete Range of Cabinet Pumps, Meters and Remote Fueling Systems for Gasoline/Diesel/B20/E-15/Kerosene

### FR702 Cabinet Pumps and Meters · Heavy Duty

20 GPM  
115/230 Volt

• For Pedestal Mounting or Direct Tank Top Mounting

|                              | FR702VR                                | FR702VLRU      | FR702VRU        | New Model<br>FR702VRLU |
|------------------------------|--|----------------|-----------------|------------------------|
| Flow Rate (GPM/LPM)          | Up to 20/75                            | Up to 20/75    | Up to 20/75     | Up to 20/75            |
| Voltage                      | 115 Volt                               | 115 Volt       | 115 Volt        | 230 Volt               |
| Inlet/Outlet                 | 1 1/4" / 3/4"                          | 1 1/4" / 3/4"  | 1 1/4" / 3/4"   | 1 1/4" / 3/4"          |
| Bung Mount                   | 2" NPT                                 | 2" NPT         | 2" NPT          | 2" NPT                 |
| Material of Const. - Housing | Cast Iron                              | Cast Iron      | Cast Iron       | Cast Iron              |
| Horse Power                  | 1/3                                    | 1/3            | 1/3             | 1/3                    |
| HZ                           | 60                                     | 60             | 60              | 50                     |
| Amps                         | 5.5                                    | 5.5            | 5.5             | 5.5                    |
| Duty Cycle                   | 30 Min                                 | 30 Min         | 30 Min          | 30 Min                 |
| Certification                | UL/cUL                                 | UL/cUL         | UL/cUL          | UL/cUL                 |
| Included Accessories         | 3/4" x 12' Hose,<br>9/4" Manual Nozzle | Liter Register | Gallon Register | Gallon Register        |



# HUSKY VIIS BSPP NOZZLE

## HEAVY DUTY DIESEL PRESSURE ACTIVATED AUTOMATIC SHUT-OFF NOZZLE

Pressure activated, automatic shut-off nozzle for truck stop and other high volume self-service, full-service and unattended stations.

- VIIS nozzle shuts off:
  - when the pump shuts off.
  - when the gas tank is full.
  - when the lever is opened before the pump is turned on.
  - when the leak detector has not completed its test cycle.
- Spout is reinforced with thick aluminum bushing that retains spout spring and keeps spout from rounding-in -- the two leading causes of clicking-off and splash-back spillage.
- Nozzle comes standard with full grip guard and waffle splash guard.

### SPECIFYING INFORMATION

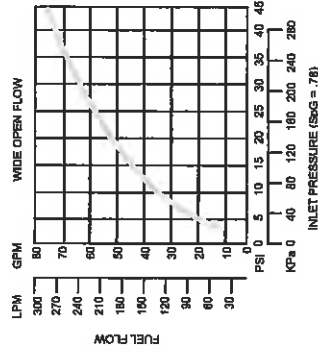
| Model Number   | Description  | Shipping Weight<br><small>lbs (kg)</small> |
|--|--|--|
| <b>New Heavy Duty Diesel Nozzles w/ NPTF Threads</b>     |  |  |
| 177638   | w/ Three Notch Hold Open Clip, Waffle Splash Guard and Spout Bushing | 3.9 (1.7)                                  |
| 177640   | w/o Hold Open Clip, w/ Waffle Splash Guard and Spout Bushing         | 3.9 (1.7)                                  |
| <b>Rebuilt Heavy Duty Diesel Nozzles w/ NPTF Threads</b> |  |  |
| 266038   | w/ Three Notch Hold Open Clip, Waffle Splash Guard and Spout Bushing | 3.9 (1.7)                                  |

### CONSTRUCTION

|         |   |
|---------|---|
| Body    | Aluminum  |
| Seals   | Fluorocarbon  |
| Packing | Double o-ring seal protected by fiber reinforced Teflon |
| Lever   | One piece contoured steel                               |
| Inlet   | 1" / 25.4 mm BSPP                                       |

### LISTINGS

Listings: 





### Flexsteel® Hardwall

#### APPLICATION:

Flexsteel® Hardwall is for dispensing pump applications that require a hardwall construction for full flow and no internal spring guards. The wire-braid construction provides excellent kink resistance, low computer creep, and long service life. UL 330 and CUL approved.

#### CONSTRUCTION:

TUBE: Nitrile synthetic rubber (ORS)

COVER: Green, red, blue, or yellow Chemivic™ synthetic rubber (ORS)

REINFORCEMENT: Wire Braid

TEMPERATURE: -40°F to 140°F (-40°C to 60°C)

PACKAGING: 5/8" and 3/4" Reels or coupled lengths, 10 pieces per box / 1" Reels or coupled lengths, 5 pieces per box

BRANDING (SPIRAL): Example: Goodyear® 559N, Made in USA. 3/4" (19 mm) UL, CUL, Listed Flexsteel® Hardwall Gasoline Hose

COUPLINGS: Contact fitting manufacturer for proper fitting recommendation and coupling procedure.

NON-STOCK/SIZES: For special production run minimum requirements, contact customer service.

ORDER CODES: 532-331 (green) / 532-332 (red) / 532-333 (blue) / 532-335 (yellow)

| ID  | NOM. OD |      | WEIGHT  |        |
|-----|---------|------|---------|--------|
|     | In.     | mm.  | lb./ft. | kg./m. |
| 5/8 | 1.00    | 25.4 | 0.38    | 0.57   |
| 3/4 | 1.13    | 28.7 | 0.43    | 0.64   |
| 1   | 1.38    | 35.1 | 0.58    | 0.86   |

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# HUSKY SAFE-T-BREAK® VALVES

## FOR TRUCK AND HIGH VOLUME FUELING APPLICATIONS

- All Husky Safe-T-Breaks® stop the flow of fuel on both sides of the separation.
- All Husky Safe-T-Breaks® have passed the demanding UL test requirements on separations without leaking or failing.

### Husky Model #2276, #3076 and #3076A Reconnectable Safe-T-Breaks®

- Retains UL listing after reconnection.
- Internal pressure balancing chamber prevents "line shock" nuisance separations.
- Separates at less than 200 lbf / 889.6 N which minimizes "backlash" force of separation, reducing damage to equipment.

### Husky Model #5812 and #6914 Non-Reconnectable Safe-T-Breaks®

- Lightweight, inexpensive and disposable.
- Same instant-closing duel poppet check valve design as Model #2276.

- Separates at less than 300 lbf / 1334.4 N.

### Husky Model #6301 PCC Non-Reconnectable Safe-T-Break®

- Internal Pressure Compensating Chamber (PCC) that prevents "line shock" nuisance separations.
- Same instant-closing duel poppet check valve as Model #2276.

- Separates at less than 225 lbf / 1000.8 N.

### Husky Model 5231 Reconnectable Low-Pull Safe-T-Break®

- Retains UL listing after reconnection.
- Uses same internal pressure balancing chamber as Model #2276.

- Separates at less than 115 lbf / 511.5 N.



Model #6301



Model #2276



Model #5812

## SPECIFYING INFORMATION

| Model Number         | Description                                      | Shipping Weight<br>lbs (kg) |
|----------------------|--|-----------------------------|
| <b>NPTF Threads:</b> |  |                             |
| 2276*                | 1" F x 1" F Reconnectable Safe-T-Break®          | .75 (.34)                   |
| 5812*                | 1" F x 1" F Non-Reconnectable Safe-T-Break®      | .61 (.27)                   |
| 6301*                | 1" F x 1" F PCC Non-Reconnectable Safe-T-Break®  | .69 (.31)                   |
| 5231*                | 1" F x 1" F Reconnectable Low-Pull Safe-T-Break® | .75 (.34)                   |
| <b>BSPP Threads:</b> |  |                             |
| 3076*                | 1" F x 1" F Reconnectable Safe-T-Break®          | .75 (.34)                   |
| 3076A*               | 1" F x 1" F Reconnectable Safe-T-Break® - Alex   | .75 (.34)                   |
| 6914*                | 1" F x 1" F Non-Reconnectable Safe-T-Break®      | .61 (.27)                   |

\*See page 2 for guard color options

## CONSTRUCTION

### Reconnectable Safe-T-Breaks®:

- Body: Aluminum
- Seals: Fluorocarbon
- Springs: Stainless Steel
- Stainless steel load and latch spring reverse mechanism.
- Hardened stainless steel latch ring and balls.

### Non-Reconnectable Safe-T-Breaks®:

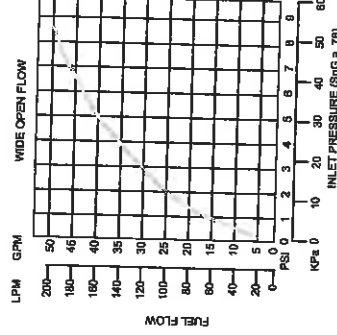
- Body: Zinc Alloys and Aluminum
- Seals: Fluorocarbon

## LISTINGS



Listings:

Model 3076A  EN 13617-2 Type 1

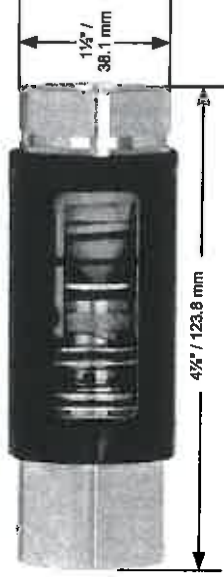


# HUSKY SAFE-T-BREAK® VALVES

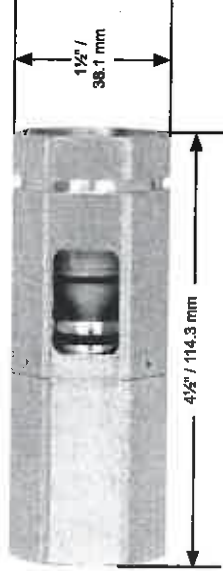
## FOR TRUCK AND HIGH VOLUME FUELING APPLICATIONS

- Dimensions
- Accessories

Model 2276, 3076, 3076A & 5231



Model 5812 & 6914



Model #6301



| Whip Hoses   |   |
|--------------|---|
| Model No.    | Description   |
| NPTF Threads |   |
| 2277         | 1" M x 1" M (25 mm M x 25 mm M) Whip Hose   |
| 227677*      | 1" M x 1" M Whip Hose connected to Model #2276<br>1" F x 1" F Reconnectable Safe-T-Break®     |
| 581277*      | 1" M x 1" M Whip Hose connected to Model #5812<br>1" F x 1" F Non-Reconnectable Safe-T-Break® |
| 2278         | 1" M x 1" M (25 mm M x 25 mm M) Whip Hose with Swivel Nut                                     |

| Guards    |                           |
|-----------|---------------------------|
| Model No. | Description               |
| 3098*     | Safe-T-Break® Scuff Guard |

| Color  | Suffix | Color    | Suffix |
|--------|--------|----------|--------|
| Blue   | - 01   | White    | - 06   |
| Red    | - 02   | Gold     | - 08   |
| Green  | - 03   | Silver   | - 09   |
| Black  | - 04   | BP Green | - 16   |
| Yellow | - 05   | Pink     | - 20   |

\*Safe-T-Breaks® and Safe-T-Break® Scuff Guards are to be ordered with the corresponding guard color options added to the model number.

Example: if BLUE guards are desired, add guard color option -01 to the model number (2276-01).

For custom colors, a minimum order of 4,000 guards will be required.

| Testing and Maintenance Equipment |                                 |
|-----------------------------------|---------------------------------|
| Model No.                         | Description                     |
| 7000                              | Safe-T-Break® Drain Cup         |
| 3813                              | Safe-T-Break® Demonstration Kit |



# HUSKY SWIVELS

## FOR TRUCK AND HIGH VOLUME FUELING

### All Husky Multi-Plane Swivels:

- Compatible with diesel fuels and Ethanol blends through E10.
- Compact and light weight for easy handling.
- High flow rates due to laminar flow design.
- High strength step shoulder bearing diameters and impact absorbing stops.
- Double o-ring seals at each swivel provide long life at low temperatures (-40° F/C).

### Husky Multi-Plane Restricted Swivels:

- Multi-Plane, 210° spherical rotation at the swivel nut.

### Husky High Volume Multi-Plane Swivels:

- Multi-Plane, Full 360° spherical rotation for easy movement of nozzle.
- For use with high flow nozzles with flow rates up to 100 gpm / 378 Lpm.
- Raised stainless steel ball bearings provide easy joint movement, greatly improving ease of swivel when used on higher pressure systems.
- 75% less back pressure.

### Warm Weather Swivels:

- Multi-Plane, Full 360° spherical rotation for easy movement of nozzle.
- Double o-ring seals at each swivel provide long life at high temperatures (482° F / 250° C).



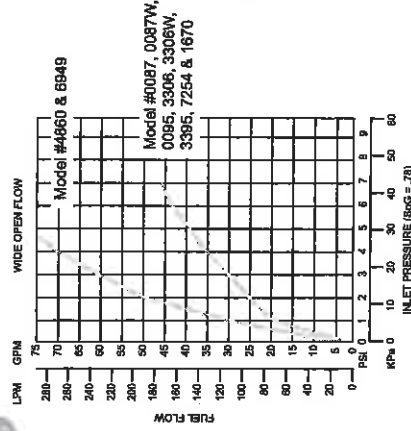
Model 4860



Model 0087



Model 0085



### SPECIFYING INFORMATION

| Model Number        | Description  | Shipping Weight<br>lbs (kg) |
|---------------------|--|-----------------------------|
| <b>NPTF Threads</b> |  |                             |
| 0087                | 1" M x 1" F Swivel                                   | .96 (.43)                   |
| 0087W               | 1" M x 1" F Swivel with Warm Weather Seals           | .96 (.43)                   |
| 4860                | 1" M x 1" F High Flow Swivel                         | 1.4 (.63)                   |
| 0095                | 1" M x 1" F 70° Pump Swivel                          | .76 (.34)                   |
| 3395                | 1" M x 1" F Restricted Swivel                        | .93 (.42)                   |
| <b>BSPP Threads</b> |  |                             |
| 3306                | 1" M x 1" F Swivel                                   | 1.1 (.49)                   |
| 3306W               | 1" M x 1" F Swivel with Warm Weather Seals           | 1.1 (.49)                   |
| 3306A*              | 1" M x 1" F Swivel with Atex certification           | 1.1 (.49)                   |
| 6949                | 1" M x 1" F High Flow Swivel                         | 1.1 (.49)                   |
| 6949A*              | 1" M x 1" F High Flow Swivel with Atex certification | 1.1 (.49)                   |
| 7254                | 1" M x 1" F Restricted Swivel                        | .93 (.42)                   |
| <b>BSPT Threads</b> |  |                             |
| 1670                | 1" M x 1" F Swivel                                   | .93 (.42)                   |

### CONSTRUCTION

| Body:         | Standard                 | Warm Weather                 | High Volume                          |
|---------------|--------------------------|------------------------------|--------------------------------------|
|               | High Aluminum Zinc Alloy | High Aluminum and Zinc Alloy | Aluminum, Zinc and Zinc Plated Steel |
| Inner O-ring: | Fluorosilicone           | Fluorocarbon                 | Fluorosilicone                       |
| Outer O-ring: | Fluorocarbon             | Fluorocarbon                 | Fluorocarbon                         |

### LISTINGS

Listings:  #1#  EN 13617-4 Type 1





# FuelMaster® 2500 Plus



NEXT GENERATION

FUEL MANAGEMENT

FUELMASTER

**Main Office and Plant:**  
100 Four Points Way, Tallahassee, FL 32305  
Tel: (850) 878-2558  
Toll Free: (800) 868-9436  
FAX: (850) 877-9327

**SYN-TECH SYSTEMS, INC.**  
[www.syn-tech-fuelmaster.com](http://www.syn-tech-fuelmaster.com)

For more information email:  
[marketing@syn-tech-fuelmaster.com](mailto:marketing@syn-tech-fuelmaster.com)

(Show above: FMU 2500 PLUS RF)



## Benefits

The best just keeps getting better! **FuelMaster®** saves you money by eliminating manual tracking of fuel transactions and increasing accountability. The same reliable **FuelMaster®** equipment that's been the fleet managers' choice for years has been upgraded to increase productivity and provide a quicker return on investment...usually within the first year!

**FuelMaster®** engineers and technicians provide the best product support service in the industry. Toll-free support directly to your fuel island, as well as PC to PC training and assistance, saves you time and money. **FuelMaster®** doesn't stop there! Its flexibility permits numerous, diverse uses; e.g., a gate opener, car wash activator, or controlling access to chemicals, to name a few. Consider a **FuelMaster® Fuel Management System ...** and start saving money today!

The **FuelMaster® 2500 Plus** series adds additional features that make it the most effective fuel management system on the market for many years to come. Flash memory has been added to permit updating the fuel island operating system without changing chips. The Plus system has increased memory and processor speed and the database has been upgraded to Access 2000. The Plus system also supports a network card to permit internet access. **FuelMaster®** software now has more flexibility in the customization of reports. **FuelMaster®** also communicates directly with electronic dispensers to permit interfaces with blended MPDs and the capability of remotely changing dispenser prices.

## Features

**Electronic Read/Write keys** and cards are great for fleet operations or gas club members. **PROKEE®s** are high strength, plastic composite keys containing nonvolatile, read/write memory chips, which can be encoded with confidential information to control access to dispensers and streamline product transaction data.

**FuelMaster®'s patented radio frequency tag system** takes driver data entry out of the information collection equation. The odometer or chronometer data, along with other information is automatically collected by the island fuel management unit without driver effort. An AIM (automotive information module) unit is installed on the equipment and collects and stores information and sends it to the fuel management unit by RF during fueling operations. This system works concurrently with the use of **PROKEE®s** or smart cards so that the (AIM) units may be added to equipment currently using electronic read/write access devices.

The **FuelMaster® 2500 Plus' capabilities** to support self-serve retail applications have also been increased. As well as being on an ever increasing number of credit card networks, prepaid smart cards and **PROKEE®s** can be issued to customers. The system operator may also enter up to 300 credit card numbers of repeat customers with a specified discount for each. The Plus system also returns more credit card information and settle-up data to the PC software for easier tracking of fuel purchases. The ability to price fuel at multiple remote sites has been enhanced to ensure you're in control of your fuel.

A real-time, on-site journal printer can provide hard copy backups of all transactions. A receipt printer is also available.

**FuelMaster®** is a leader in the alternative fuels arena... from CNG to E85. **FuelMaster®** can control and measure any liquid or gaseous fuel. Leaders in the alternative fuels field chose **FuelMaster®** because of its reliability and ease of maintenance.

Based on odometer/hour readings, the system calculates vehicle efficiency and fuel consumption and alerts the driver and supervisor to maintenance requirements.

The addition of a tank monitor interface kit permits automatic reconciliation of tank levels with **FuelMaster®'s** declining balance. **FuelMaster®** interfaces with most popular tank monitors.

The **FuelMaster®** system may be expanded to control an almost limitless number of fueling sites. Each site consists of a master unit with up to eight satellites.

**FuelMaster®** is warranted for one year from date of installation or fifteen months from date of shipment.

Modular design and construction ensure reliability and ease of maintenance of your **FuelMaster® Fuel Management System**. Site operators can quickly and easily change-out modular components, if necessary, with the assistance of **FuelMaster®** technicians.

The central controller (a PC operating on Windows 98 or higher) generates comprehensive transaction reports and invoices.

Transaction data can be easily exported to most fleet maintenance programs.

If you are looking for reliability and flexibility, look no further. The purchase price is only part of what you pay for a fuel management system. Repairs and system downtime also cost you money, making reliability a key ingredient in achieving return on your investment. We encourage you to talk with **FuelMaster®** owners, particularly those who have previously used other brands of fuel management.



"Performance with Experience and Quality"  
A Veteran Owned Contractor

## ARIZONA & FUELMASTER

FuelMaster is widely employed in Arizona by Federal Government, Counties, Municipalities, School Districts & commercial fleet for rugged reliable Fleet Fueling allocations and easy to use custom reporting. Originally designed by request of the United States Air Force, Syn-tech Systems was given the task of manufacturing a fuel management system that could be placed on military bases worldwide and withstand harsh environments while being easily maintained. The FuelMaster FMU2500PLUS & 3505PLUS are the standard used today specified by the Army Corp of Engineers without exception or equal for all military and DHS Border Patrol sites. But more than that, what sets FuelMaster aside is the best live support in the industry. Legal Contracting as Arizona FuelMaster ASRs offers full support of the systems we install. In addition the factory tech phone support is patient and concise allowing the end user to completely understand the benefits of your fuel management investment.

*Below is a partial list of FuelMaster customers here in Arizona*  
**Maricopa County Sheriff and County Fleet Vehicles**

City of Phoenix Aviation Fleet

City of Casa Grande Fleet Services

Town of Buckeye

Town of Kearny

Navajo Public Transit (Window Rock)

White River Police Department

Arizona Military Bases

Arizona US Border Patrol Maintenance

Grand Canyon University

Phoenix School Districts: Cartwright & Creighton

Buckeye School District

Higley School District

Casa Grande High School

Apache County School District

White River School District

Wal-Mart Distribution Center

Numerous Private Commercial Fleet sites