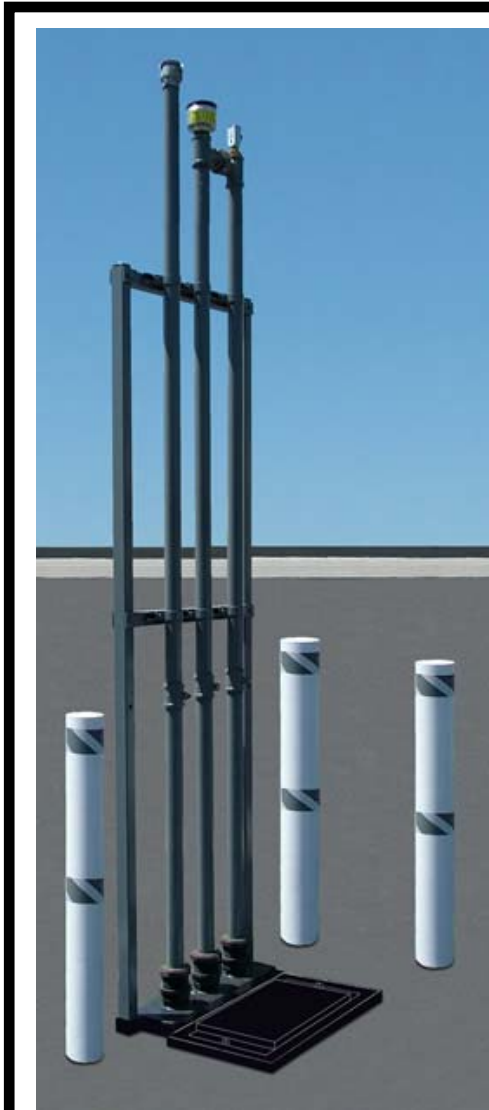


# B-500 / B-600 DB SERIES

VAPOR VENT TRANSITION INSTALLATION GUIDE

## *HYDROSTATIC & VACUUM*



**B-500 DOUBLEWALL VENT SHOWN  
3 VENT LINES & RACK SYSTEM.**



**B-500 VENT TRANSITION DOUBLEWALL  
SERIES SHOWN WITH WATERSPLASH LID,  
AND SUPPORT FOR 5 VENT LINES.**



**B-600 VENT TRANSITION DOUBLEWALL  
SERIES SHOWN WITH WALKOVER DIAMOND  
PLATE LID, AND SUPPORT FOR 3 VENT LINES.**



## REQUIRED TOOLS

(NOT PROVIDED)

Power/air Sanders. Acetone to clean up tools/applicators. Power Cutting Tools.

Tech Support: 323-888-4133



# MANDATORY

The B-500/600 DoubleWall Vent/Piping Transition Sump Series from S. Bravo Systems, Inc. **MUST** be installed by, and only by, **Bravo Certified Installation Contractors**. Details can be found at [www.sbravo.com/cert.htm](http://www.sbravo.com/cert.htm)

# IMPORTANT

## READ THESE INSTRUCTIONS - KEEP FOR FUTURE REFERENCE TABLE OF CONTENTS

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C) Testing Bravo's Standards - Pressure Test.....	p. 6
D) Mandatory Hydrostatic Fill .....	p. 7-8
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# NOTICE

- *Closely adhere to all directions and warnings indicated on the product contained in these instructions.*
- *Warranty is void if there is any evidence of modification, abuse, tampering, negligence or improper installation.*
- *For assistance please call Bravo for technical support at (800) 28-BRAVO.*



**Filling Bravo Systems Double Wall Products with Brine (saline) solution will void the product warranty. You must use only Bravo-Supplied Interstitial Fluid.**

***SAFETY FIRST! S. Bravo Systems, Inc. urges you to carefully adhere to the normal safety procedures and precautions followed by your company. Please follow the mandates and compliances decreed by OSHA, local, State and federal regulations regarding the use of this product.***

### WARRANTY

All containment systems sold by S. Bravo Systems, Inc. are warranted to be free from defects in material and workmanship for a period of one year from date of purchase. This warranty will be limited to the repair and replacement of parts only and will exclude all claims for labor or consequential damage. No other express warranties given and no affirmation of S. Bravo Systems, Inc., or its agents and/or representatives, by words or action, will constitute a warranty. IT IS EXPRESSLY AGREED THAT THIS WARRANTY WILL BE IN LIEU OF ALL WARRANTIES OF FITNESS AND IN LIEU OF THE WARRANTY OF MERCHANTABILITY.

This warranty is void if there is any evidence of modification, abuse, negligence, or improper installation. If any fittings or components, other than S. Bravo Systems approved fittings or components, are used in conjunction with any S. Bravo Systems product, the warranty pertaining to these products is immediately void.

# EQUIPMENT DRY-FIT

- BEFORE INSTALLING PENETRATION FITTINGS
  - BEFORE CUTTING OPEN SUMP INTERSTICE
- DRY-FIT YOUR SUMP PIECES AND INTERNAL EQUIPMENT.

## WARNING

### BEFORE PENETRATING FIBERGLASS WALLS ENSURE THAT THE DOUBLE WALL FRP SUMP IS HOLDING VACUUM



It is **REQUIRED** to visually check the Vacuum gauge on each and every BravoSystems Double Wall product and write on its FAX report Vacuum level, name of observer, and date for every DoubleWall Sump.

## WARRANTY IS VOID:

IF ANY OF THE FOLLOWING OCCUR

- A) There is a failure to comply with the Required written report guidelines as stated above.
- B) Double Wall Products are DOUBLE-STACKED, stored or shipped in a negligent way.
- C) There is a failure to handle Bravo Systems equipment with the utmost care.
- D) Any packaging or wrapping materials are removed before the item reaches It's destination.
- E) Double Wall Sump Products, Failure to call Bravo Systems If Vacuum level on product is less than 12" HG (Vacuum) (323) 888-4133, refer to sump for further details.
- F) Double Wall Sump Products are tested by hydrostatic fill. The interior of these sumps must **NOT** be filled with liquid to any level.
- G) If there is any indication or suspect damage, you must mark the freight paperwork "*Suspect Freight Damage*"

## REQUIRED TOOLS

(NOT PROVIDED)

Power/air Sanders. Acetone to clean up tools/applicators. Power Cutting Tools.

## T-F-33-SAND-KIT

5/8" sanding disc backs and centralizers for all Bravo Systems Fittings

**SVA-BARB** per sump

**VAC-KIT-D-AB** per site



# VAPOR VENT INSTALLATION INSTRUCTIONS

## A - VENT BOX POSITIONING

**A.1** - Determine the permanent position of the UniVent according to your specs. During positioning, leave the access cover dry-fit to the top of the vent box. Rest the Vent Box lightly on a bed of peagravel while you position it and make it level.

**IMPORTANT** THE TOP OF ACCESS COVER (WHEN DRY - FIT) NEEDS TO BE:

**B500 VENT BOX - 2 INCHES ABOVE THE FINISH FLOOR**

**B600 VENT BOX - 1 INCH ABOVE THE FINISH FLOOR**

**A.2** - Using leveling stakes, stake the target area for vent box to be set and frame or scaffold the box into a permanent fixed position allowing access to front end of box for penetration fitting installation and to prevent any shifting or movement prior to pouring of concrete. (Fig. A.1)

**IMPORTANT** MAKE SURE VENT BOX IS PLUMB VERTICALLY AND LEVEL FOR CLEAN RACK SYSTEM INSTALLATION.

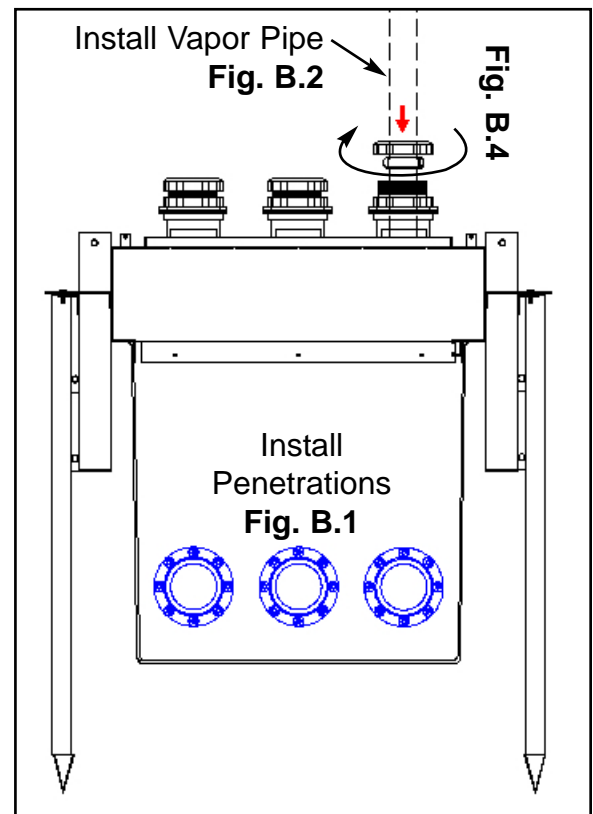
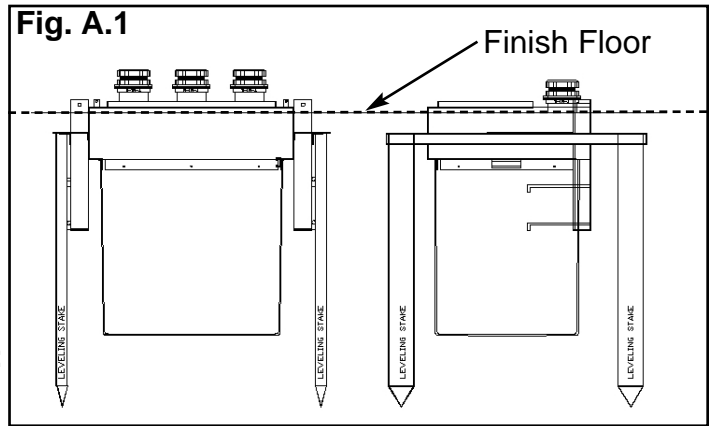
**IMPORTANT**

**A.3** - PRIOR TO CUTTING OPEN VENT TRANSITION SUMP ENSURE THAT THE SUMP IS HOLDING VACUUM. IF THE FACTORY-PROVIDED VACUUM GAUGE WAS REMOVED PRIOR TO THIS STEP, YOUR PRODUCT WARRANTY MAY BE VOID.

**A.4** - If the gauge was removed, you must hold the Vent Box under **20 INCHES OF MERCURY** for no less than 24 hours. Failure to comply with Bravo Quality Standards will result in your product warranty being revoked.

**A.5** - If the gauge reads at or **ABOVE 12 INCHES OF MERCURY** at this time, break pressure and proceed to **Step B.1**.

If the gauge reads **BELOW 12 INCHES OF MERCURY** at this time **CONTACT THE FACTORY AT 323-888-4133**. If the gauge shows a failure under pressure at a later time, **S. Bravo Systems, Inc.** is not responsible for any future Damage or leaks. Follow **Step C.2** to repair leaks.

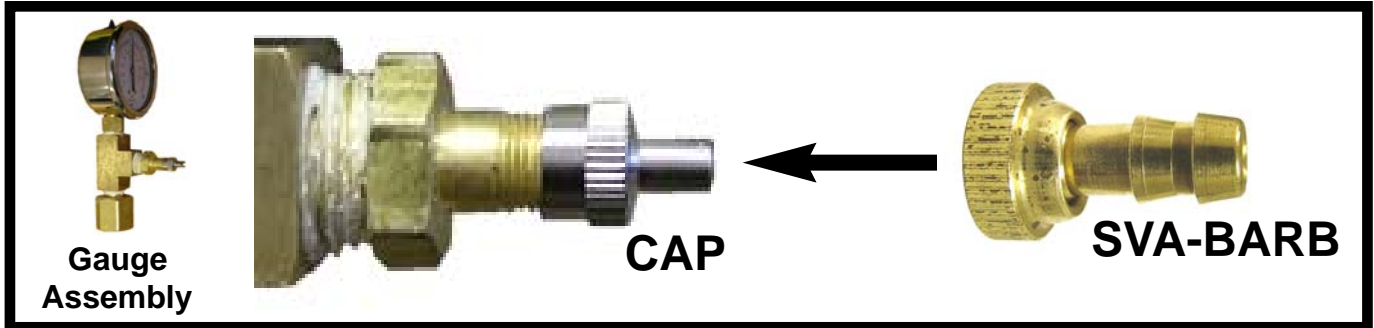


## B - DOUBLE WALL PENETRATION FITTINGS

### IMPORTANT

While Fiberglassing, curing, or sitting overnight, keep the SVA-BARB in place. This will relieve stress on the Interstice while the sumps are heating up or cooling off.

**SAVE THESE PIECES, DO NOT LOSE THEM!** Remove the SVA-BARB when ready to test.



**B.1** - Remove Access Cover from Vent Box, set aside.

**B.2** - Install all required number of Doublewall penetration fittings (**Fig. B.1 on previous page**). Please refer to your doublewall penetration fitting Manufacturer's installation instructions and install accordingly.

### IMPORTANT

**YOU MUST ABRABE THE SUMP WALLS FLAT PER THE T-F-33-SAND-KIT INSTALLATION INSTRUCTIONS**

### IMPORTANT

**DO NOT FILL DOUBLE WALL PENETRATION FITTINGS WITH FOREIGN MATERIALS, SEALANTS or ADHESIVES!**

## ELECTRICAL FITTINGS & CONDUITS

**B.3** - Install the required amount of electrical penetrations and connections.

### NOTICE

**FOR ELECTRICAL OFFSET FRAMES (E.O.) DO NOT CONDUCT A PRESSURE/SOAP TEST.**

**B.4** - Following your Installation of the doublewall penetration fittings, you must **FIRST TEST THE INTEGRITY OF THE BOX, SINCE THE INITIAL VACUUM HAS BEEN LOST.**

**B.5** - Install a stub / dummy pipe in each penetration fitting and Pressure the sump to **4 PSI** and soap **ALL** fittings, inside and outside. **If foaming leaks are found, Skip to Step C.2.**

### IMPORTANT

**S. Bravo Systems, Inc. Highly recommends the Field Integrity Test (Step C.1) to be completed at this time, after the penetration fittings have been installed correctly.**

**B.6** - When finished with the installation of pipe lines, pressure sump again to **4 PSI** and soap all penetration fittings, inside and outside. Again, if leaks are found, skip to **Step C.2**

**B.7 - The Compression Fittings are Factory Installed.** The Compression Gasket is also pre-greased by the factory. When Installing vent risers you must fit the Compression Gasket over the pipe, (**Fig. B.4**) down onto the Compression Fitting, and thread over the Compression Nut. Use the Bravo Compression nut tool (**Part No. WR-3**) to torque down the compression nut **1/4 to 1/2 turns past hand-tight.**

## C - Testing Sump Integrity.

Remove & save the SVA-BARB from the Gauge Assembly Schrader Valve

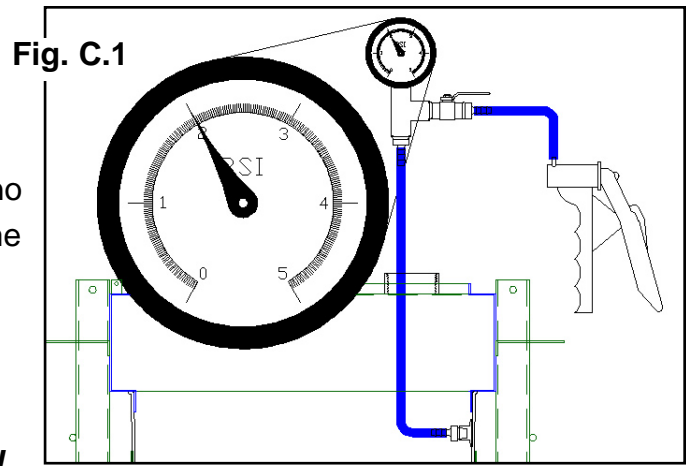
**C.1** Use test assembly and pressure Vent Box to no more than **4 PSI**. Close off with ball valve and resume other work. Allow **1 Hour** before recording pressure.

**FIELD AIR INTEGRITY INSPECTION TEST :**  
Hold pressure for a minimum of **1 hour** for a **Field Integrity Inspection Test**.

*After passing the pressure test, the sump should immediately be filled with interstitial monitoring fluid for the rest of the construction period.*

**NOTICE**  
**BRAVO**  
**QUALITY**  
**STANDARD**

Hold pressure for a minimum of 1 hour for a Field Integrity Inspection Test. The B500 or B600 Vent Transition Sump PASSES the integrity test if the Sump shows NO signs of continuous pressure decay. **IF TEST PASSES - CONTINUE ON TO THE HYDROSTATIC FILL & INTEGRITY TEST, outlined in SECTION D.**



**IMPORTANT**

**S. Bravo Systems Highly Recommends an Extended pressure test.**

## C.2 - IF ANY LEAKS ARE FOUND!!

- a: On factory-installed gauge, **pressure** sump Interstice to **EXACTLY 4 PSI**.
- b: Soap exterior of Vent Box body, paying close attention to penetration fittings, edges and corners.
- e: Locate leak point(s) and mark with marker so you can locate it / monitor it.
- c: Repair or reinstall penetration fittings according to your doublewall penetration fitting manufacturers' Installation / Maintenance Instructions.
- d: **Occasionally...** Bravo Fiberglass Series Products may suffer mild damage in transit or field installation. Please take a close look at edges and corners.
- f: Abrade a 2" diameter area centered on the leak point until flow coat is gone and natural resin/fiberglass material can be seen. Dust with shop brush or compressed air and do not use shop towels or acetone on the abraded area(s). S. Bravo Systems recommends "**Smith Fibercast Adhesive Kit #8014**" to repair and reinforce Bravo Fiberglass products. Make sure area is completely dry and apply resin generously while pulling -2 PSI vacuum to suck adhesive into pinhole leak for 1 minute. For anything larger than pinhole leaks you must consult the factory.
- g: Let cure for a minimum of 4 hours @ or above 75° Fahrenheit.

## C.3 - IF ANY REPAIRS ARE MADE, After Cure, Repeat Steps C.1 and C.2.

FOR HYDROSTATIC MONITORING - PROCEED TO STEP D

FOR CONTINUOUS VACUUM MONITORING - The B500/600 Series Vent Box cannot exceed 16" of Mercury (Vacuum) follow your vacuum system manufacturer's installation instructions to install, seal, and monitor the doublewall system with vacuum. Continue to Step F.8.



Connect the SVA-BARB to your factory-installed gauge for vacuum monitoring

**WARNING**

**Ensure that the fittings that are being used with the Vacuum Monitored System can withstand the amount of Vacuum your Monitoring System will generate.**

# D

## Hydrostatic Fill Instructions

**IMPORTANT**

FIELD AIR INTEGRITY INSPECTION TEST :

**YOUR PRODUCT WARRANTY WILL BE VOID IF YOU DO NOT** Hold pressure for a minimum of 1 hour for a Field Integrity Inspection Test. *After passing the pressure test, it is **HIGHLY RECOMMENDED** that the 4 PSI is maintained for as long as possible, up until the time of backfill.*

**WARNING**

**YOUR PRODUCT WARRANTY WILL BE REVOKED IF YOU CHOOSE TO SKIP THE AIR INTEGRITY TEST OUTLINED IN YOUR COPY OF YOUR PRODUCT INSTALLATION INSTRUCTIONS. YOU *MUST* COMPLETE THE PRESSURE TEST PRIOR TO HYDROSTATIC FILLING OF THE SUMPS.**

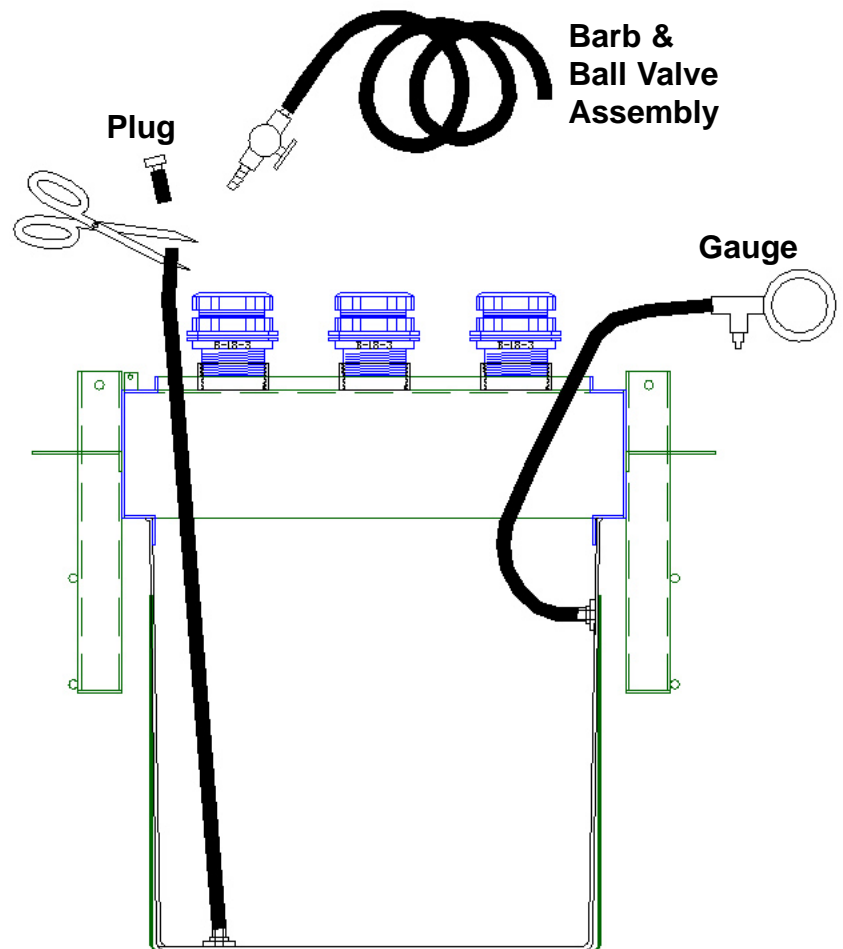
**NOTICE**

The Bravo Double Wall product's ship from the factory with a combination gauge factory-installed and held under 20" of mercury / vacuum.

**D.1 - After passing the Field Air Integrity Test** per the Installation Instructions and not one of the penetration fittings are showing signs of leaks, you must cut the pipe plug from the tubing connected to the bottom of the box. This assembly is provided by the factory and the connection at the bottom is not to be tampered with.

**D.2 - Connect (newly cut) open end of tubing** to barb-and-ball-valve assembly. (sold separately)

**A 36" length of clear tubing** is factory installed to the barb-and-ball-valve assembly.



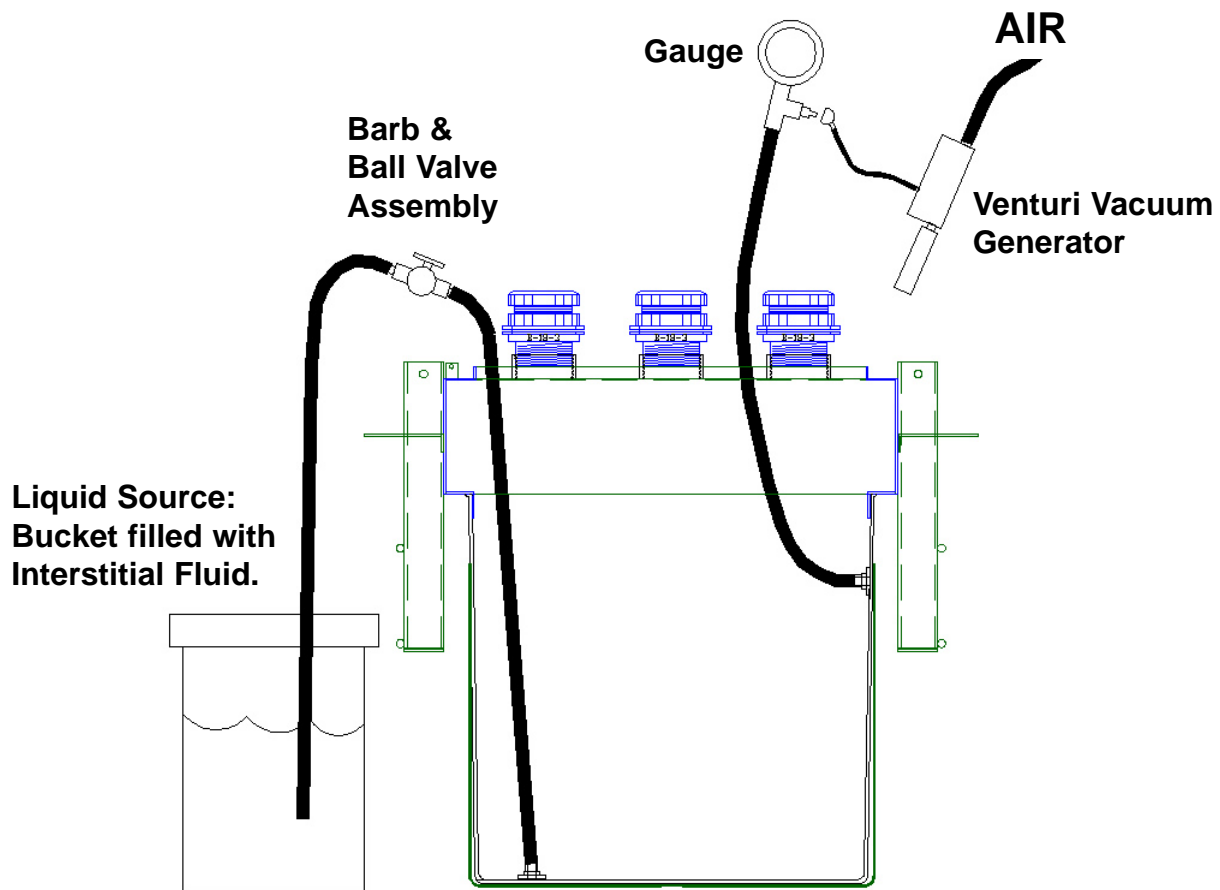
You must cut off the barbed plug and connect the provided Barb & Ball Valve Assembly. Close off the ball valve and prepare the Venturi Vacuum Generator and air supply to be used to fill Sump with liquid.

**D.3 - Close off ball valve completely and prime the open ended 36" length of clear tubing with provided Interstitial Fluid. A liquid funnel is recommended.**



**WARNING**

**Filling Bravo Systems Double Wall Products with Brine (saline) solution will void the product warranty. You must use only Bravo-Supplied Interstitial Fluid, part # IMF-1GAL**



**D.4 - After filling the tubing all the way to the ball valve, insert open end into your liquid source. (5 gallon bucket filled with fluid is recommended.)**

**D.5 - When ready, pull vacuum using the Venturi Vacuum Assembly (sold separately) to 20 Inches of mercury. Then **SLOWLY** open ball valve and allow Interstitial fluid to flow freely into the system at a rate of about 2 gallons a minute.**

**CRITICAL ...SLOWLY open ball valve...**

**D.6 - STOP PULLING VACUUM WHEN THE LIQUID IS 2-3 INCHES FROM THE VERY TOP OF THE INTERSTITIAL SPACE / TEST PORT. This is easily visible while filling the DoubleWall Product.**



# E) ADVANCED LEAK DETECTION PROCEDURE

## A Bravo Systems Exclusive detection method

**E.1** - Clear debris from the top open area of the DoubleWall Product and ensure that the interior walls are clean of debris and visible.

**E.2** - Apply Vacuum to the sealed interstitial space with the Venturi Vacuum Assembly, and generate 20"-30" of vacuum for a *MINIMUM* of Five [ 5 ] Minutes.

### **WARNING**

CHECK WITH YOUR EQUIPMENT MANUFACTURERS  
INSTALLATION MANUALS FOR INSTALLATION  
GUIDELINES AND/OR EQUIPMENT LIMITS REGARDING  
VACUUM AND PRESSURE LEVELS.

**E.3** - As stated in your Instructions, the liquid level is deliberately not filled to the very top of the interstitial space. This pocket of air is necessary to visually check the topmost level of liquid all the way around the Sump for indication of a leak.

**E.4** - Visually inspect the interior walls for signs of trailing (very small) bubbles floating to the top of the liquid level within the interstitial space.

### **NOTICE**

These air bubbles are visible within the vertical and horizontal channels of the walls. For Tank Sumps look below the reducer.

### **NOTICE**

On the top hat reducer of a Tank Sump, any bubbles will burp consistently.

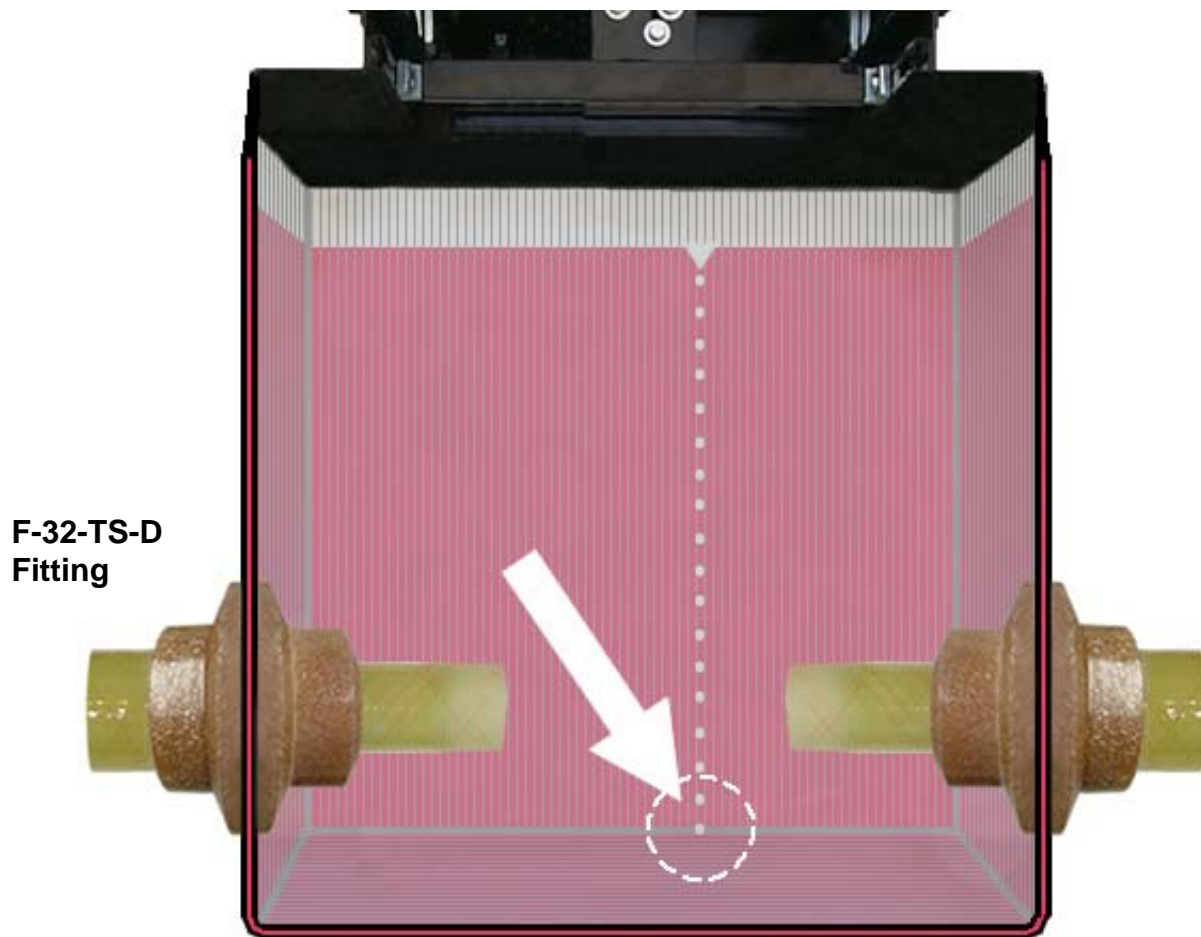
### **CRITICAL**

PAY CLOSE AND SPECIAL ATTENTION TO FIELD-INSTALLED  
PENETRATION FITTINGS and FRP JOINTS ON TANK SUMPS.  
THESE ARE COMMON LEAK POINTS.

### **CAUTION**

Even though Bravo DoubleWall product corners and edges are thicker than the rest of the Containment sump, These areas receive the most susceptible to physical damage by Installing Contractors. You would do well to be extremely careful with these DoubleWall products while storing, moving, transporting and Installing these critical environmental components.

# ALDP IN ACTION DIAGRAM



**Here a leak is visible** while a strong vacuum is pulled on the Interstitial space, forcing tiny air bubbles into the interstitial space to travel upwards. These streams of bubbles are easily spotted and can be traced down to its leak point or area.

**⚠ CRITICAL**

**PAY CLOSE AND SPECIAL ATTENTION TO FIELD-INSTALLED PENETRATION FITTINGS and FRP JOINTS ON TANK SUMPS. THESE ARE COMMON LEAK POINTS.**

**⚠ CAUTION**

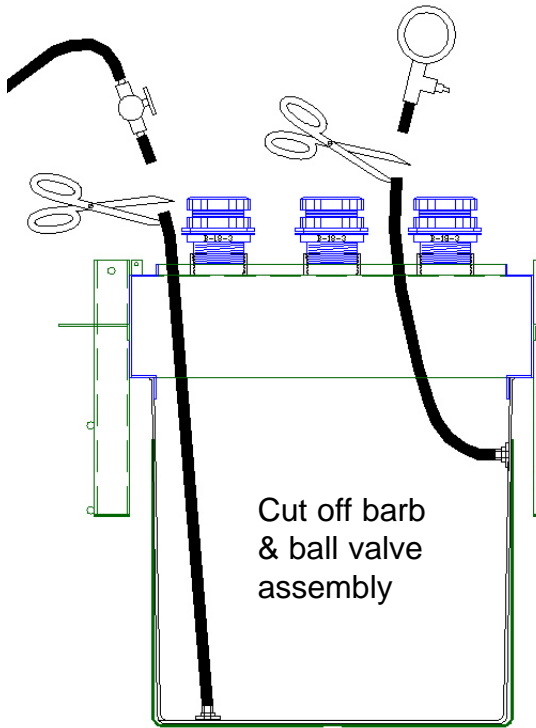
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# F) ATTACHING THE MANOMETER

**F.1** - At this point, after the ALDP test, the interstice should still be holding vacuum. Maintain 20" of Vacuum and **slowly** open ball valve to let fluid into the interstice until it exits the venturi assembly. Visually check whether the fluid level reaches the top of the interstitial space.

**F.2** - Cut the barb & ball valve assembly free by cutting the tubing just below it and **connect** open end of tubing to the bottom of the primary Manometer.

**F.3** - Cut the Tee and Gauge assembly free by cutting the tubing just below it and **connect** open end of tubing to the bottom of the atmospheric manometer. Adjust atmospheric manometer bracket so the manometer is in a position clear of obstructions.



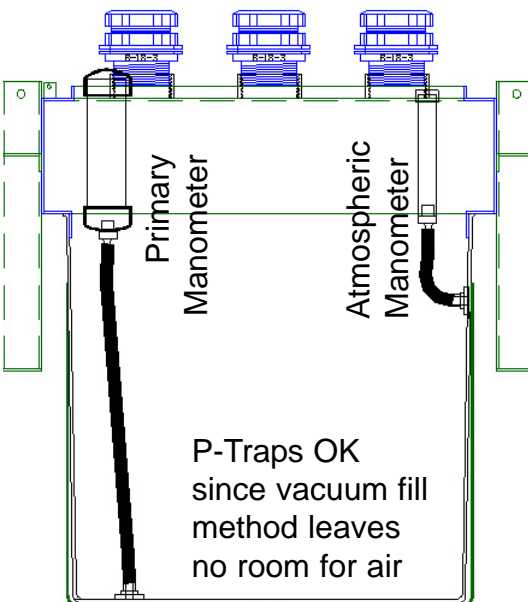
**F.4** - It is not uncommon for some interstitial fluid to be lost while connecting the tubing to the primary manometer. This is ok. Replace lost fluid by topping off manometer with interstitial fluid until the liquid level reaches just 2 inches from the top of manometer.

## F.5 - Hydrostatic Field Integrity Test

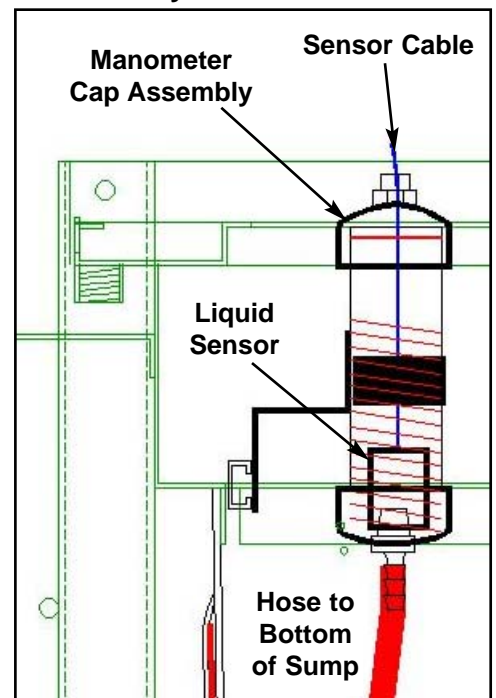
Mark the date and time of test and manometer level. **Allow 1 hour to look for a change in level.** No change in level or visible leaking means box passes test.

**F.6** - If interstitial test fluid changes its level more than 1/4", visually look for any signs of leaking around fittings both interior and exterior to sump. Pay special attention to field installed fittings.

**NOTE:** If you have completed the Air Integrity Test without problems, and completed the Vacuum Hydrostatic Method of filling and still have problems with sump integrity, **Contact the Factory.**



**F.7** - If interstitial monitoring is required, install a California Listed Hydrostatic Sensor (LG-113) using the sensor manufacturer's fitting. Run sensor cable through the cap assembly. Level sensor should be set to bottom of manometer. Follow your leak detector manufacturer's installation instructions. Cover the manometer with cap and fasten with wire and lead crimp seal.



ii-B500/600-DW-12A

## **G - DRAINAGE LINES FOR B600 SERIES**

The PVC drainage pipes provided by the factory with your B600 transition sump are to be connected and secured just prior to peagravel backfill. Ensure that the drainage pipes drain to either the sidewalk or to ground on both sides of the transition sump.

Also be careful not to clog or otherwise seal the perforated PVC drain pipes with the concrete pour or other construction materials.

**The drain pipes and the interior drainage channel must be clear of peagravel, cement, dirt and debris.**



Drainage Pipes can drain in either direction or both. At least one per side of the vent box must drain to either the sidewalk, or to the ground below the concrete pour.

# H - Backfill and Pouring the Concrete

**IMPORTANT**

Do not remove Square caps from Rack sleeves until after concrete has been poured and firmly set.

**H.1** - Prepare site for concrete pouring. Backfill with peagravel around Vent Box, noting the elevations of peagravel around the box. Place your peagravel in such a way that the concrete poured around the Vent Box is even and within the dimensions shown in Fig. H.1.

**CAUTION** **DANGER**

**BRAVO SYSTEMS STATES THAT INSTALLING PERMANENT "BOLLARDS" (HEAVY POSTS) IS:**

**HIGHLY RECOMMENDED** if Vent Transition Sump is used for Vapor Vent Transition

**MANDATORY!** if Vent Transition Sump is used for Product Transition

Fig. H.1

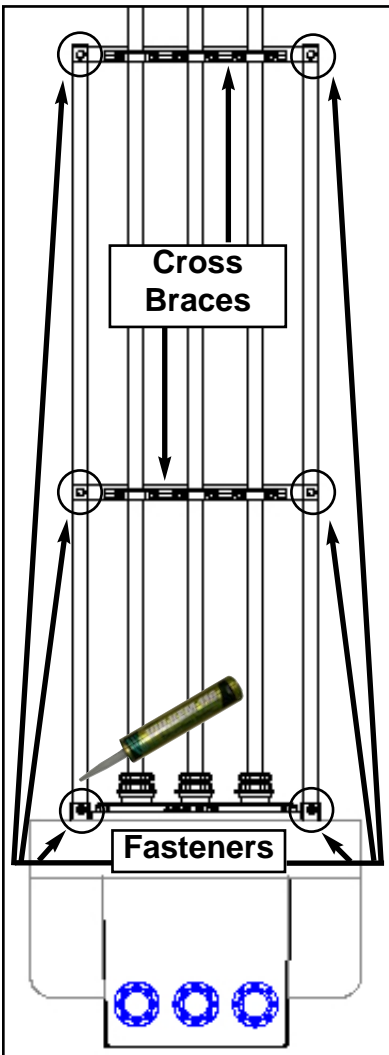
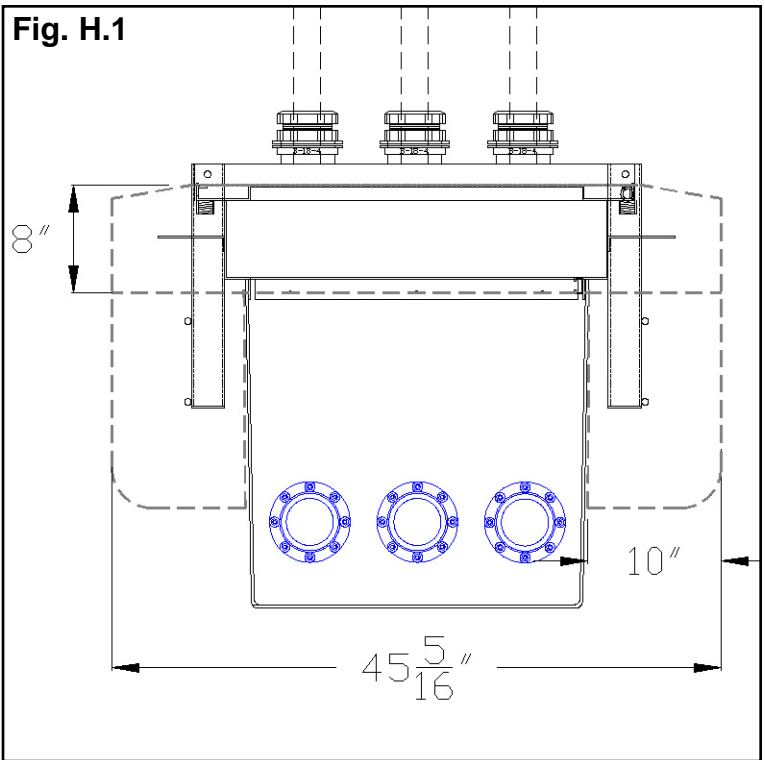


Fig. H.3

**H.2** - Level concrete away from Vent Box. If **NOT** installing rack system, do **NOT** remove the square caps from the rack sleeves. Use Vulkem to seal the caps to the tops of the rack sleeves to create a barrier for moisture.

**H.3** - After concrete has set, remove square caps from rack sleeves and assemble rack system. Drop rack system (RS500) into square tubing, or rack sleeves, secure, and seal off rack cross/brace and fasteners with Vulkem Sealant. (Fig. H.3)

**H.4** - Fasten to vent box. Install vertical riser pipe to appropriate height, according to your local regulatory requirements. Secure pipes using pipe clamps to the rack system.

