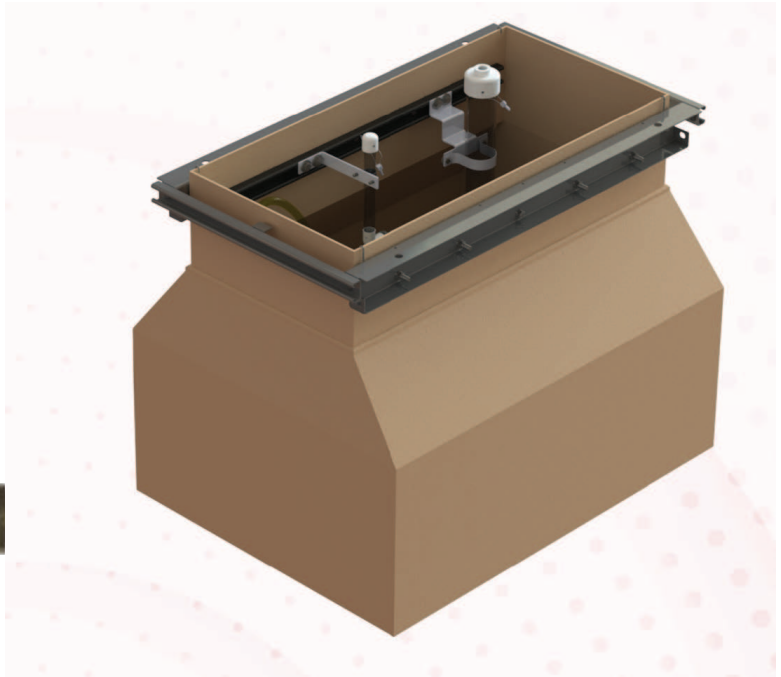
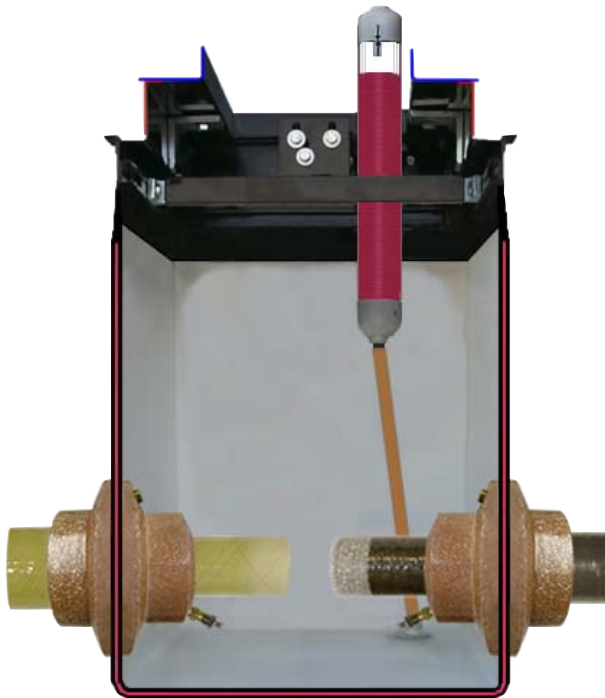


B1000/B-8000/9000 D-AB DOUBLE WALL

UDC INSTALLATION INSTRUCTIONS *FOR HYDROSTATIC AND VACUUM MONITORING*



B-8000-D /B-9000-D-Series

REQUIRED TOOLS

(NOT PROVIDED)

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

**K-900, Hydro Vac Kit/
VAC-KIT-D-AB** per site

Bravo FS Sand Kit



ii-B-1000-B8000-9000-DW-19

S. Bravo Systems, Inc. - The Leader in Secondary Containment

2929 Vail Ave. | Commerce, CA | 323-888-4133 | FAX: 323-888-4123 | www.sbravo.com



The B8000/9000 DoubleWall UDC 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

IMPORTANT

READ THESE INSTRUCTIONS - KEEP FOR FUTURE REFERENCE

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- Closely adhere to all directions and warnings indicated on the product or contained in these instructions.

- Warranty is void if there is any evidence of modification, abuse, negligence or improper installation.

- For assistance please call Bravo for technical support at (800) 28-BRAVO. Outside the U.S.A. please call (323) 888-4133.



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

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 packaging report **Vacuum level**, **signature of observer**, **date** and **time** the shipment is received **at every destination**.

Bravo 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 manner.
- C)** There is a failure to handle Bravo Systems equipment with the utmost care.
- D)** 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.
- E)** If there is any indication or suspect damage, you must mark the freight paperwork

NEW INSTALLATION

IMPORTANT

During installation, cover the UniBox with cardboard, plastic sheeting or equivalent to keep debris from falling into the box. Cover all threaded connections to prevent damage to threads.

A - Sump Positioning

A.1- Determine the permanent position of the UniBox inside the island according to your specs. Place two support bars across the island widthwise. (Fig. A.1)

A.2- Rest UniBox on top of a bed of peagravel and ensure the UniBox is level. The Angled supports should make contact with the support bars of the island (Fig. A.1).

NOTICE Containment boxes are marked "A" for Junction box side. Refer to dispenser manufacturers Junction box position.

IMPORTANT Box should be approximately 1/4" above top edge of island to allow water to drain away from containment box.

A.3 - After positioning dispenser box, secure with tie wire to the island support to prevent shifting during concrete pour. Bolting angled supports to the support bars through provided 1/4" holes is recommended. (Fig. A.4)

PRODUCT AND VAPOR SHEAR VALVE

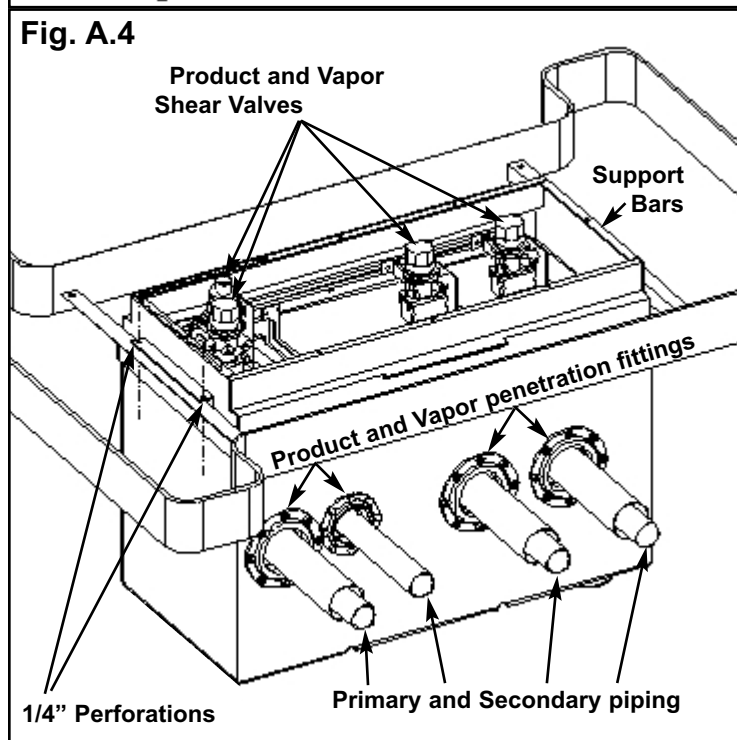
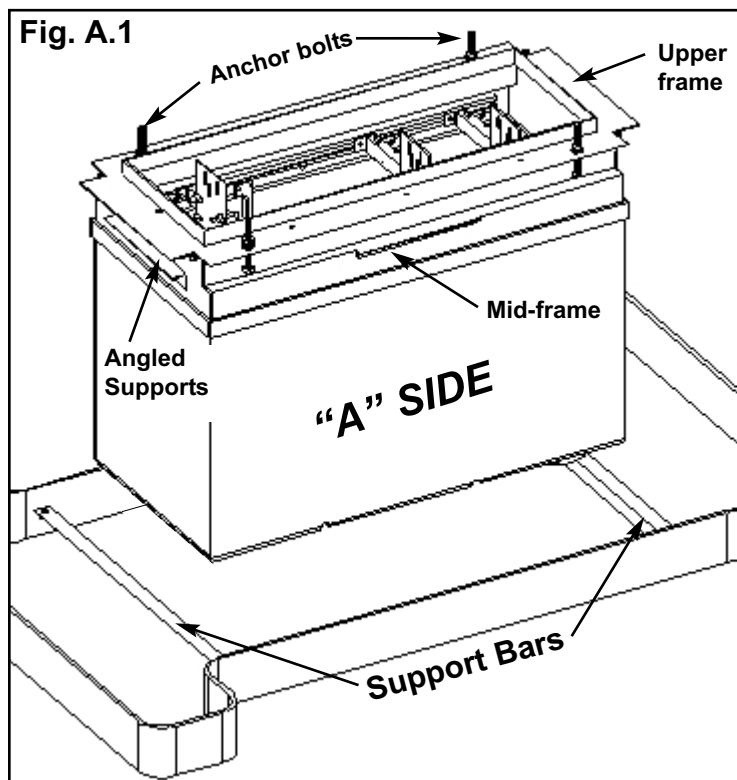
A.4 - Remove top frame. If not factory installed, connect either the flex connector and/or riser pipe to the bottom of the shear valves outside the sump, then install all product and vapor shear valve assemblies according to the dispenser configuration to the provided brackets. If adjustments to the position of the shear valves are required, check with dispenser manufacturer's configuration (Fig. A.4). See also "Section D" on page 8.

A.5 - PRIOR TO CUTTING OPEN DISPENSER SUMP ENSURE THAT THE SUMP IS HOLDING VACUUM.

READ PAGE 4 & 5 CAREFULLY !!!

If the gauge reads at or **ABOVE 12 INCHES OF MERCURY** at this time, break vacuum and proceed to **Step A.6**.

If the gauge reads **BELOW 12 INCHES OF MERCURY** at this time **CONTACT THE FACTORY AT 323-888-4133**. Follow **Step B.2** to repair leaks.



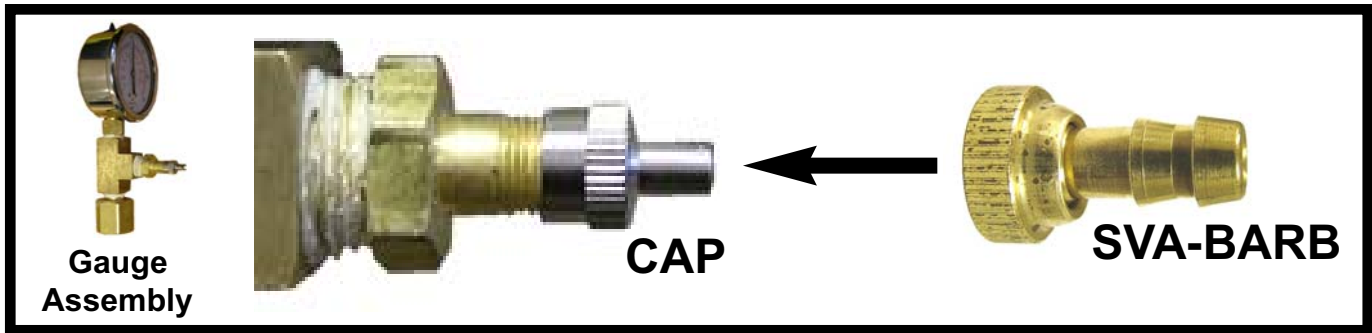
WARNING

Pressure test the primary line following the pipe manufacturer's Installation Instructions. Refer to shear valve manufacturer's Installation Instructions for details on testing.

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.



PRIMARY LINE PENETRATION FITTINGS

A.6 - Install all the required number of doublewall penetration fittings per their respective Installation Instructions (Fig. A.4).

IMPORTANT

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

ELECTRICAL FITTINGS & CONDUITS

A.7 - Bravo UDC's feature an electrical offset frame that allows you to install your conduits on the exterior of the sump and up into the side panel of your dispenser.

A.8 - Following your installation of the doublewall penetration fittings, you must **FIRST TEST THE INTEGRITY OF THE BOX, SINCE THE INITIAL VACUUM HAS BEEN LOST.**

A.9 - Using the factory-provided & installed pressure/vacuum combination gauge, Perform Positive Pressure Test, carefully apply **4 PSI** to the sump and Spray Soapy Solution on **ALL** fittings, and any field repairs, inside and outside. **If bubbles form or foaming leaks are found, Skip to Step B.2.**

PRIMARY AND SECONDARY PIPING

A.10 - Please refer to your pipe manufacturer's Installation Instructions.

A.11 - When finished with the installation of pipe lines, pressure sump again to no more than **4 PSI** and **Positive Pressure Test** of all penetration fittings, inside and outside. Again, if leaks are found, skip to **Step B.2**

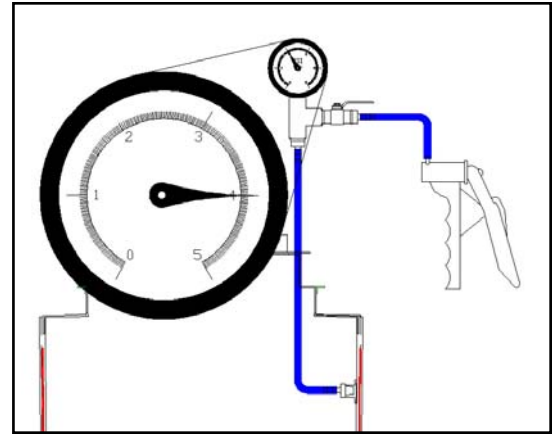
IMPORTANT

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

B - Air Integrity Test

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

B.1 - Use test assembly and pressure sump to **4 PSI**. Close off with ball valve and resume other work. Allow **1 Hour** before recording pressure.



NOTICE
BRAVO
QUALITY
STANDARD

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.**

Hold pressure for a minimum of 1 hour for a Field Integrity Inspection Test. The Under Dispenser Containment 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 C**.

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

B.2 - IF ANY LEAKS ARE FOUND!!

- a:** On factory-installed gauge, **pressure** sump Interstice to **EXACTLY 4 PSI**.
- b:** Close off interstice with ball valve and soap exterior of dispenser sump body, paying close attention to penetration fittings, edges and corners.
- e:** Locate leak point(s) and identify the source, use a marker to locate larger area that needs corrected 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 fiberglass material has been exposed or is visible. Remove dust with shop brush or compressed air and a fabric rag with acetone should be used to ensure dust is removed. S. Bravo Systems recommends Bravo Epoxy or Smith Adhesive Kit to repair and reinforce Bravo Fiberglass products. Make sure the area is completely dry and apply Epoxy generously while pulling -2 PSI vacuum to draw adhesive into void for 2-3 minutes. For anything larger than pinhole leaks or a bruise in the Fiberglass, four layers of fiberglass lamination will be the correction for issues larger than a pinhole. Consult with Bravo Representative for assistance.
- g:** Conditions or Environment at the site will affect the Cure Cycle reference the chart on the epoxy jar to determine the planned cure cycle.

B.3 - If additional any repairs are made, after the cure cycle, Repeat Steps B.1 to

B.2 prior to proceeding to Hydrostatic Vacuum Filling of the interstice.

For Hydrostatic Monitoring - PROCEED TO STEP B.4.

FOR CONTINUOUS VACUUM MONITORING - The B8000 and 9000 Series Sump cannot exceed 16" of Mercury. Follow your vacuum system manufacturer's installation instructions to install, seal, and monitor the doublewall system with vacuum. Continue on to Step E.

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

Mandatory 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.

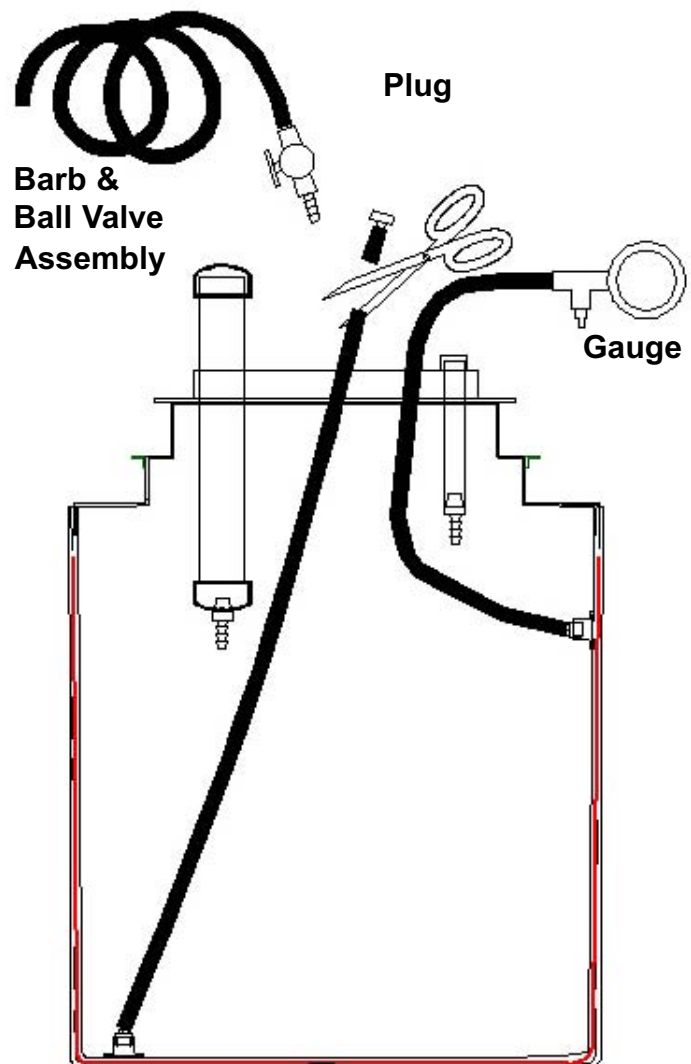
NOTICE

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

B.4 - After passing the Field Air Integrity Test, per the Installation Instructions, you have now verified the penetration fittings are sealed and bonded. You may now proceed to cut the plug from the tubing connected to the communication port on the bottom of the UDC. This assembly is provided by the factory and the connection at the bottom is not to be tampered with.

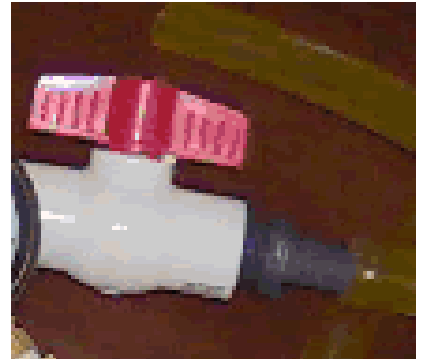
B.5 - Connect (newly cut) open end of tubing to barb-and-ball-valve assembly (sold separately), this will be the supply side of the vacuum fill process. The upper port is connect to the gauge assembly which is the wher the vaccum source will be connected.

After the penetration fittings have been installed, the vacuum has been lost. Positive Pressure Tests should have been conducted prior to filling the sumps with Bravo Interstitial Fluid.



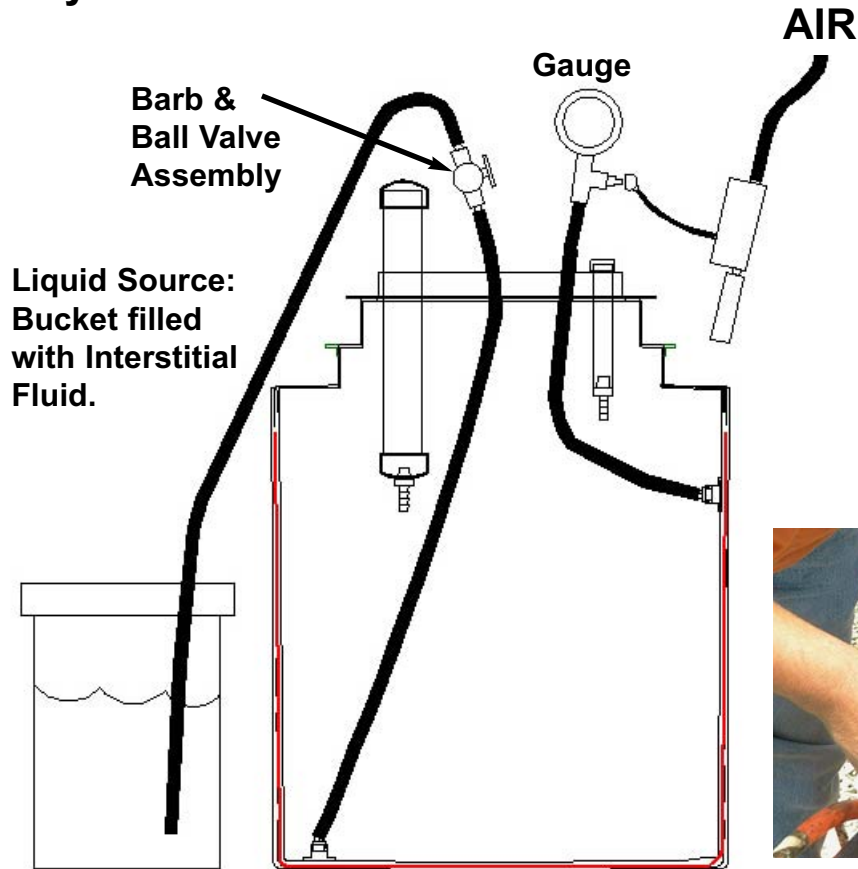
Bravo Fill method uses Vacuum to remove air and draw in the interstitial Fluid. K-900, Hydro Fill Kit Sold Separately

B.6 - Close off ball valve completely and prime the open ended 36" length of clear tubing with provided Bravo 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 Interstitial Fluid.



B.7 - 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.)

B.8 - When ready, pull vacuum using the Venturi Vacuum Assembly (sold separately) to 20 Inches of mercury. Then **SLOWLY** open ball valve to 25% and allow Interstitial fluid to flow freely into the system. Visually you will see the fluid fill the walls in a Bravo UDC or Sump up to the upper port.

⚠ CRITICAL ...SLOWLY open ball valve...

B.9 - 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.

C) ADVANCED LEAK DETECTION PROCEDURE

A Bravo Systems Exclusive detection method

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

C.2 - Apply Vacuum to the sealed interstitial space with the Venturi Vacuum Assembly (P/N K-900), and generate 20"-30" inches of Hg.

Check with your equipment manufacturers installation manuals for guidelines or equipment limitations for vacuum levels that are allowable.

C.3 - The space above the upper fluid level will provide an area for visual inspection of any air movement within the interstice.

C.4 - Leaks will show as small air bubbles originating from a source. Visually inspect the interior walls for signs of trailing (very small) bubbles floating to the top of the liquid level within the interstitial space.

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

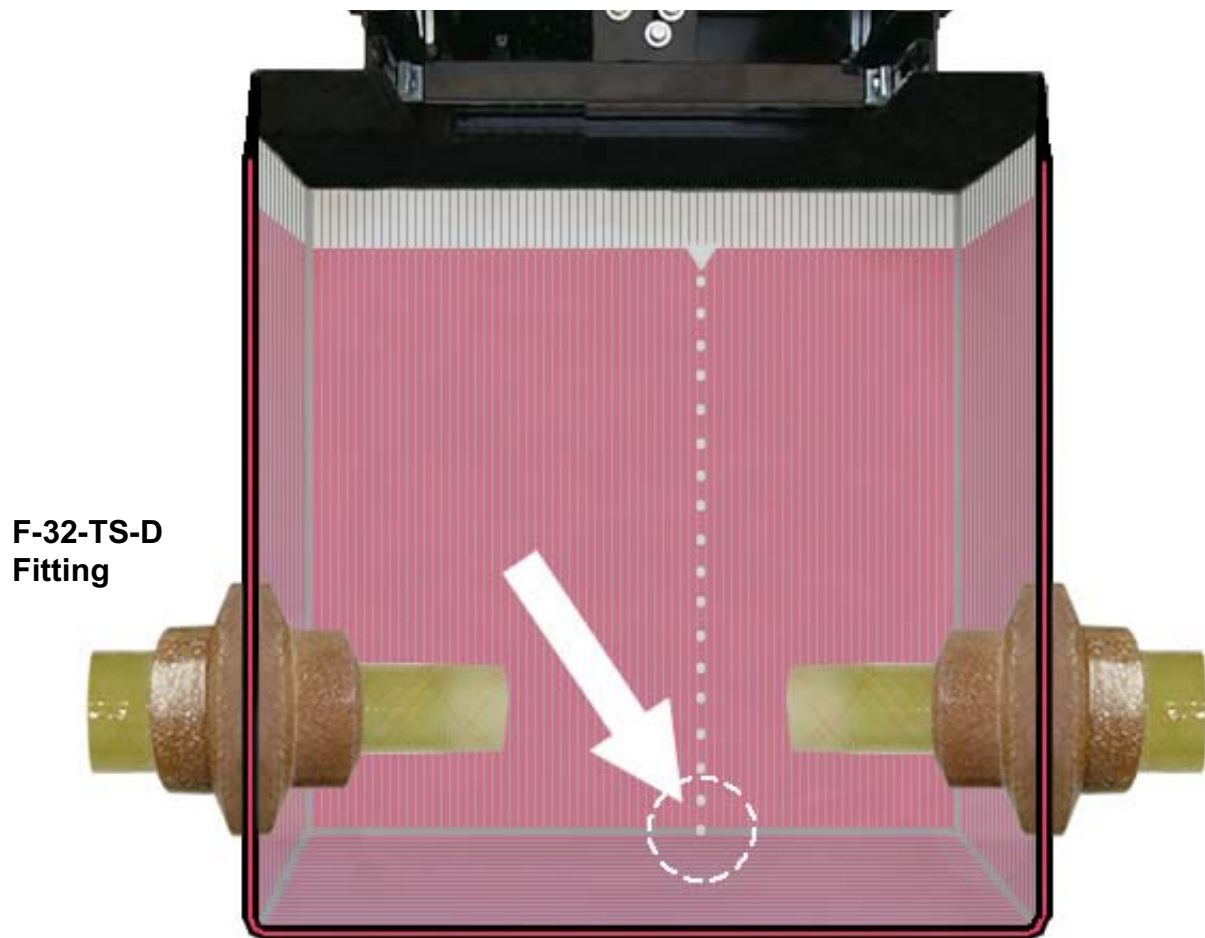
NOTICE

Pay special attention to field installed penetrations and FRP joints on tank sumps.

CAUTION

Even though Bravo DoubleWall product corners and edges are thicker than the rest of the Containment sump, These areas are 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

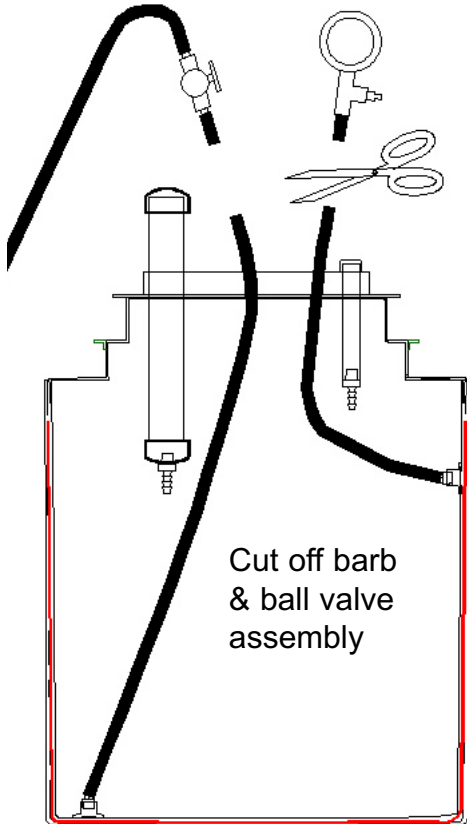
PAY CLOSE AND SPECIAL ATTENTION TO FIELD-INSTALLED PENETRATION FITTINGS and FRP JOINTS ON TANK SUMPS. THESE ARE COMMON LEAK POINTS.

⚠ CAUTION

Even though Bravo DoubleWall product corners and edges are thicker than the rest of the Containment sump, These areas are 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.

D) ATTACHING THE MANOMETER

D.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.



D.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.

D.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.

D.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 below the top of manometer.

D.5 - Hydrostatic Field Integrity Test

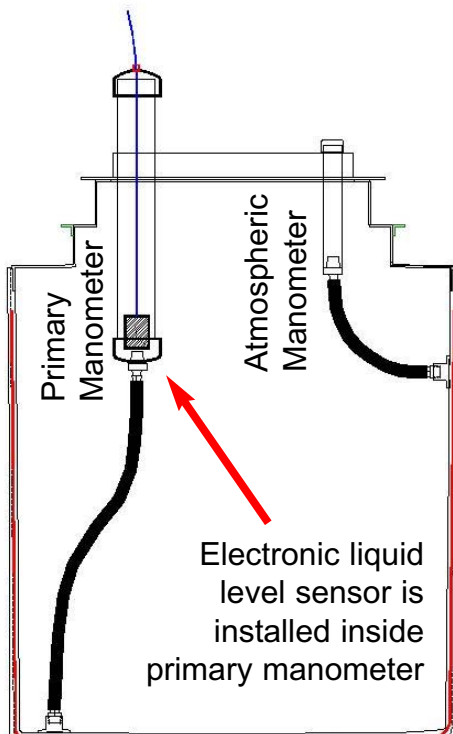
Mark the date and time of test and manometer level. **Allow 1 hour to look for a change in level.** No change in level or visible leaking means box passes test.

D.6 - If interstitial test fluid changes its level more than 3/4", 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.

D.7 - If interstitial monitoring is required, install a California Listed Hydrostatic Sensor (LG-113) using the sensor manufacturer's fitting. Run the sensor cable through the cap assembly. The electronic liquid level sensor should be set at the bottom of the primary (larger) manometer reservoir. Follow your leak detector manufacturer's installation instructions. Cover the manometer with cap and fasten with wire and lead crimp seal.

P-Traps OK since vacuum fill method leaves no room for air.



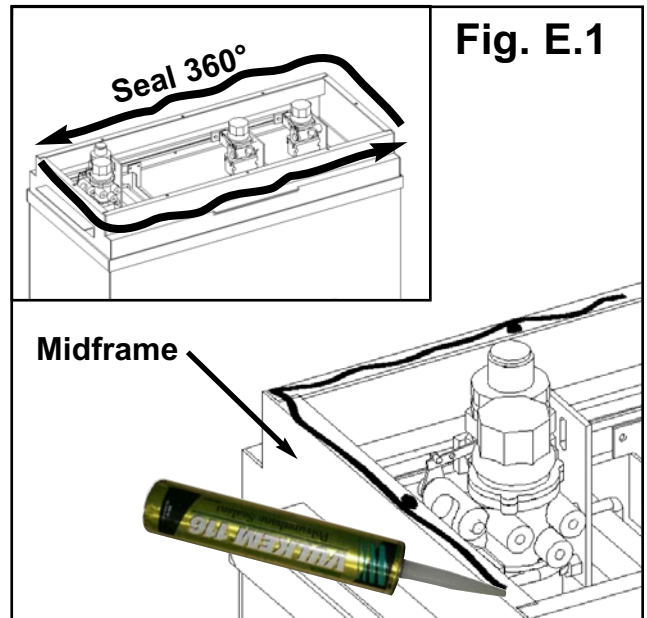
E-Upper Frame Installation

(Applicable to B8000/9000 Series)

E.1 - Clean all surfaces. Apply a generous bead of provided Vulkem to the top edge of the Midframe. Be sure to apply Vulkem to the bolt holes. (Fig. E.1)

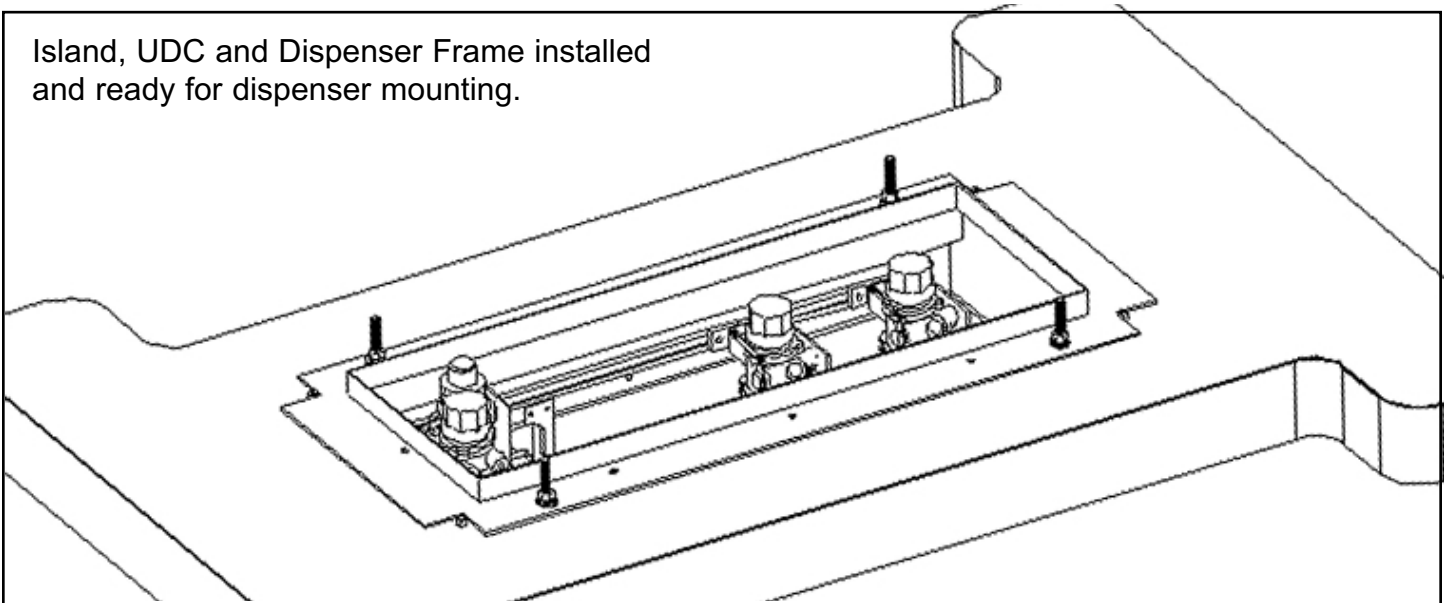
E.2 - Place the dispenser frame on top of the midframe and align the holes. Secure using provided truss head screws. Apply Vulkem to threads and between parts you are bolting to. **Apply Vulkem to the external gap between the midframe and upper frame.** After tightening bolts and/or nuts provided and upper frame is secure, apply generous amount of vulkem to seal the nut and threads.

E.3 - Loosen valve bolts on bracket to allow for adjustability for when you align dispenser and make valve connections.

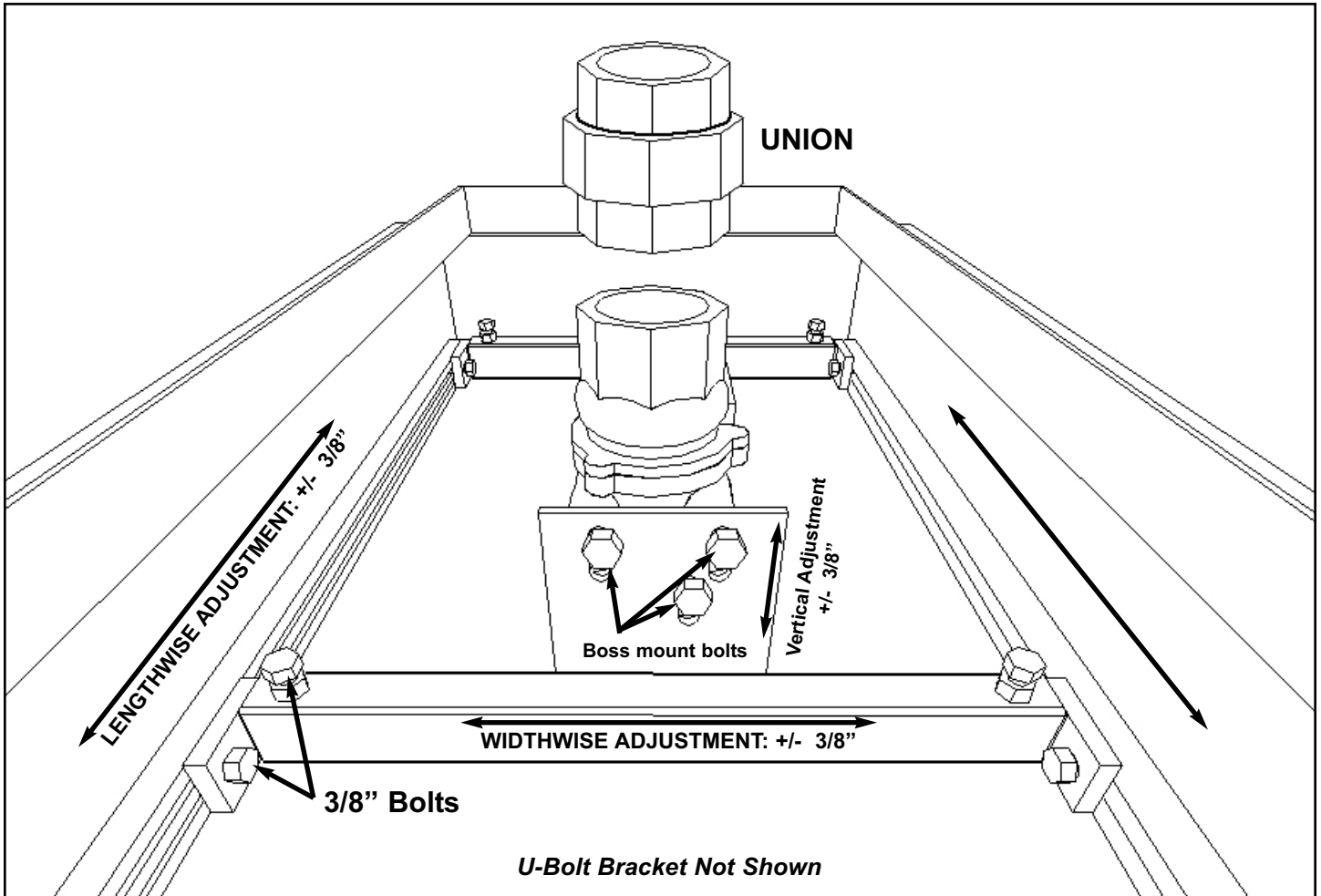


While it is common to bead silicone caulk or other sealant along the bottom edge of the dispenser paneling where it meets the island Bravo does not recommend this.

Bravo Systems dispenser frames and conversion frames are purpose built with a tailored Water Splash lip to prevent water from entering the bottom seams of the dispenser and into the sump below. When you seal this edge, it will cause water from rain or heavy fog to accumulate on the interior of the dispenser and, when it runs down the interior of the dispenser panels, it will accumulate between your seal and our water splash lip, and drain into the sump causing an alarm. If you **MUST** seal this area on the traffic-facing sides of the dispenser, we suggest leaving a 2-3" gap on the ends to allow water drainage from within.



F - ADJUSTING THE PRODUCT SHEAR VALVE



F.1 - When the dispenser is anchored properly, the dispenser inlet or pump inlet should be plumb with the product shear valve. If the product shear valves are positioned correctly, connect them with a union.

F.2 - If the valve and inlet are not aligned, determine the distance necessary for the valve to be moved. To adjust the valve lengthwise and/or widthwise, loosen the 3/8" bolts on the bracket ends and on the bracket inserts. Align valve to dispenser inlet and retighten bolts.

F.3 - Connect dispenser riser pipe to the product shear valve. A nipple may be required to extend the dispenser riser.

IMPORTANT For rigid piping apply a UL classified pipe sealant for use and handling of gasoline and petroleum oils to externally threaded connections.

F.4 - Now retighten bolts and/or nuts attaching the shear valves to the bracket. Use provided washers.

F.5 - Connect electrical and vapor lines to the dispenser as required by local regulations. Always follow electrical and vapor component manufacturers' Installation Instructions.

BRAVO ELECTRICAL OFFSET FRAME INSTALLATION INSTRUCTIONS

(Applicable to B8000 and B9000 models)

IMPORTANT

Make sure all electrical conduits and piping are clear of any equipment or other obstructions in the dispenser.

Physically check your hydraulic cabinet for obstructions before any installation begins.

BRAVO UNDER DISPENSER CONTAINMENT ELECTRICAL OFFSET INSTRUCTIONS

- 1)** The Frame should be fully installed and sealed with provided Urethane Sealant before conduit installation.
- 2)** Make sure all electrical conduits (piping) are clear of any equipment in the dispenser. Physically check your hydraulic cabinet for obstructions before any installation begins.
- 3)** Conduits must be run and tightly secured to the sump.
- 4)** Pour concrete around outside of Dispenser Sump and within the conduit area.

