

INSTALLATION INSTRUCTIONS F-SERIES **D-BLR-S** SPLIT RETROFIT

For Blue Line Kwik-Fit fittings

FOR FIBERGLASS PIPE AND STEEL CONDUIT ONLY

SPLIT

ELIMINATE REPAIRS

NO BREAKING CONCRETE

BUILT LIKE A TANK

High-end materials match UST spec UL1316 to ensure longevity and fuel compatibility

BRAVO **SWAT**
INSTALLER REQUIRED

READ THIS MANUAL FRONT TO BACK

ii-F-Series-D-BLR-S-13B



WWW.SBRAVO.COM
800-AT-BRAVO



MANDATORY

CRITICAL

The F-Series D-BLR-S DoubleWall FRP Retrofit Fittings may only be installed only by a **Bravo S.W.A.T. Certified Specialist**

This special certification class is not available online.

You must also be **Confined-Space Certified** when working within Tank Sumps.

COMPLETE

KEEP TRACK of your job by taking advantage of the "Complete" checkboxes paired with each major step.

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LIMITED WARRANTY

The D-BLR-S fitting 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 are 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 - including but not limited to installation or maintenance by a Non-Specialist Certified individual. 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.

VENTILATE YOUR AREA
WEAR MASK, SAFETY
GLASSES, GLOVES AND
OTHER PROTECTION



NO

> ELECTRIC TOOLS
> IGNITION SOURCES



MANDATORY

Ensure that the workspace is operating below the LEL (lower explosive limit). Test regularly or monitor continuously.

WARRANTY IS VOID OR YOUR CERTIFIED STATUS WILL BE REVOKED:

IF ANY OF THE FOLLOWING OCCUR

- A) **NOT** Installing a D-BLR-S retrofit fitting with Bravo **ADHESIVE-RETROFIT-EPOXY-KIT**.
- B) Installing a D-BLR-S retrofit fitting with adhesives that are not specified in this manual.
- C) D-BLR-S retrofit fittings are **NOT** installed by a **Bravo Certified SWAT / Specialist**.
- D) Installing a D-BLR-S retrofit fitting on polyethylene sumps or polyethylene / flexible pipe.
- E) Installing a D-BLR-S retrofit fitting without monitoring the lower explosive limit (LEL).

D-BLR-S COMPONENTS

Included Parts (Per fitting)

- A) 1x Fiberglass Insert (two halves)
- B) 1x Fiberglass Flange (two halves) with SS Pipe Clamp
- C) Bravo **ADHESIVE-RETROFIT-EPOXY-KIT**: (quantity chart below)
 - 1x Bravo Epoxy Adhesive Can 6oz
 - 1x Bravo Epoxy Catalyst bottle 1oz
 - 2x Pair of Industrial Nitrile gloves (Large)
 - 1x Stir stick
 - 1x 1" chip brush
- D) 1x 60 grit emery cloth strip
- E) 1x 80 grit sheet of sandpaper
- F) 1x 3-bolt compression clamp

REQUIRED TOOLS

(NOT PROVIDED)

Air Sander and Air Drill
 Eye protection
 Respiratory protection

Approved Bonding Adhesive:

Bravo "ADHESIVE-RETROFIT-EPOXY-KIT"

Router Tool: SWAT Installers only

Bravo "T-ROUTER-V1"

MANDATORY

A Confined-space
 Certification is required
 when installing this fitting
 inside Tank Sumps

FITTING SPECS

CONSULT PRICELIST FOR ROUND MODELS.

Model Number	Wall type	Pipe type and size	Default pipe angle	O.D.	Length	Adhesive Included
F-17-SS-D-BLR-S	Flat	3/4" galvanized conduit	0 -10° deg.	6.75"ø	1.5"	2
F-17-RR-D-BLR-S	Flat	3/4" RobRoy conduit	0 -10° deg.	6.75"ø	1.5"	2
F-10-SS-D-BLR-S	Flat	1" galvanized conduit	0 -10° deg.	6.75"ø	1.5"	2
F-10-RR-D-BLR-S	Flat	1" RobRoy conduit	0 -10° deg.	6.75"ø	1.5"	2
F-20-SS-D-BLR-S	Flat	2" fiberglass secondary	0 -10° deg.	9"ø	1.5"	3
F-30-SS-D-BLR-S	Flat	3" fiberglass secondary	0 -10° deg.	9"ø	1.5"	3
F-40-SS-D-BLR-S	Flat	4" fiberglass secondary	0 -10° deg.	11"ø	1.5"	5

Summary of Installation

These critical steps are not a substitute for the detailed installation steps contained in the following pages.

DO NOT INSTALL ANYTHING WHILE READING THIS PAGE

- 1) Read the entire manual front to back, read carefully. Do not just view images.
- 2) Evaluate the sump, ensure sump material is FRP, and the piping is FRP or conduit.
- 3) Remove any necessary components that will obstruct your access to the sump wall.
- 4) Clean each sump. Remove all contaminants, water and debris. Ensure each sump will be completely dry during all installation steps.
- 5) Secure conduit endpoints so they do not move or act as a lever.
- 6) Remove the interior boot, housing, bolts and locating pins.
- 7) Dry fit back side of Insert to wall on pipe and trace it's outline.
- 8) Use the Bravo router to cut open the interior wall following the outline.
- 9) Remove interstitial material and abrade all contact surfaces.
- 10) Tape off the interstice so that the tape can be removed later.
- 11) Dry-fit insert for proper fit and clearance.
- 12) Apply adhesive to the wall and all contact surfaces of the insert and bond it to the wall. Use stir stick edge to scrape excess adhesive off.
- 13) Use pusher clamp to hold it in place while it cures.
- 14) Dry fit the Flange for proper fit and ensure it sits flat against the wall. Sand down the insert surface if necessary.
- 15) Apply adhesive to contact surfaces of the flange and bond it to the wall. Use pusher clamp to hold it in place while it cures.
- 16) Bead adhesive with finger at the seam at the wall and the pipe.
- 17) Clean up excess adhesive from the face with acetone / rags.
- 18) Allow the entire fitting to fully cure. Remove clamp if possible.
- 19) Pressure / Soap test each penetration fitting.

▲ CRITICAL

**USE ONLY BRAVO SYSTEMS BRAND RETROFIT ADHESIVE
WHEN INSTALLING THIS FITTING**

STEP 1

COMPLETE

BEFORE BEGINNING WORK ON YOUR JOBSITE. YOU MUST EVALUATE THE EXISTING SUMPS, PIPE, CONDUIT AND FLEXIBLE ENTRY BOOTS YOU WILL BE RETROFITTING.

FOLLOW THESE RULES:

- A) Ensure the sump material is fiberglass only.
- B) Ensure the piping is fiberglass, galvanized steel or PVC coated steel only.
- C) If the PVC coated conduit is Ocal-Blue brand, **you must strip the PVC away** from the fitting area and rough up the steel conduit beneath.
- D) Ensure that the conduit has not rusted through. If it is, you need to replace it.
- E) “**POTHOLING**” - In certain situations you may need to pothole outside of a containment sump in order to install the D-BLR-S split retrofit fitting. This is permitted.

WHEN READY, BEGIN WORK ON YOUR JOBSITE BY ENTERING ALL THE SUMPS YOU WILL BE INSTALLING THE F-SERIES D-BLR-S FITTING IN AND REMOVE:

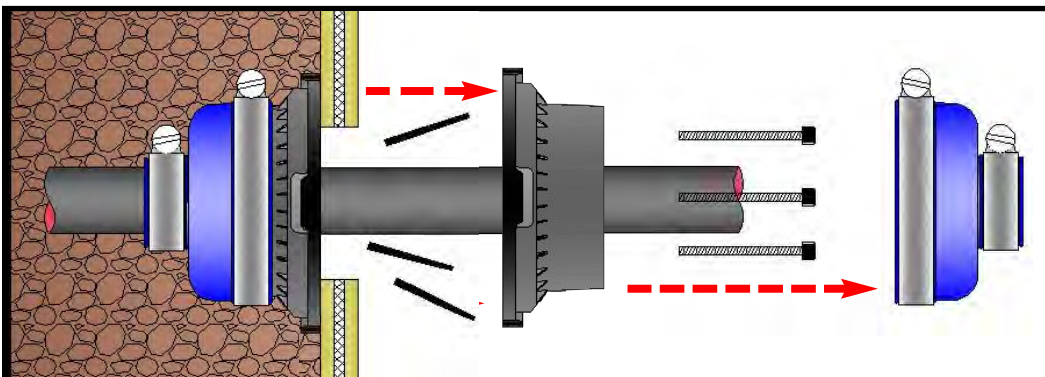
- F) Any components that will obstruct your access to the sump wall.
- G) Any and all fuel, oils, contaminants, water or debris. Dispose of HAZMAT per local codes.

FOLLOW THESE STEPS IN ORDER

- DONE** 1) Excavate to gain access to all fittings on each sump.
- DONE** 2) Remove any components that will obstruct access to the fittings.
- DONE** 3) Drain sump of any interstitial fluid and dispose. Do not re-use.
- DONE** 4) Clean interior and bottom of each sump. Remove contaminants, water and debris. Dispose of HAZMAT per local codes.
- DONE** 5) Ensure each sump will be completely dry during installation.
- DONE** 6) Secure all conduit lines by bracketing them to at least one rigidly connected conduit or the riser. Do not allow conduit endpoints to move or act as a lever.

STEP 2

COMPLETE

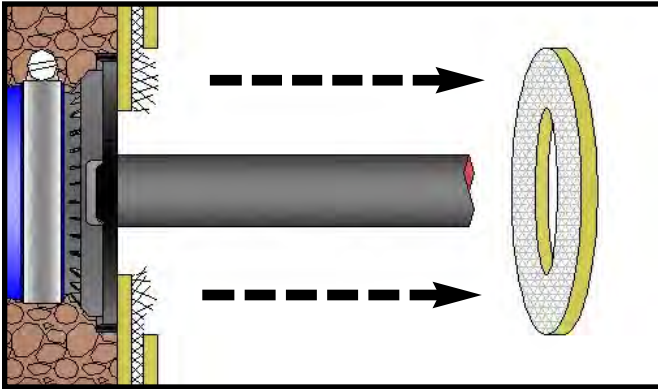


Remove interior boot, bolts, housing and any locating pins to expose the bare sump wall

Repeat for all flexible entry boots

STEP 3

COMPLETE



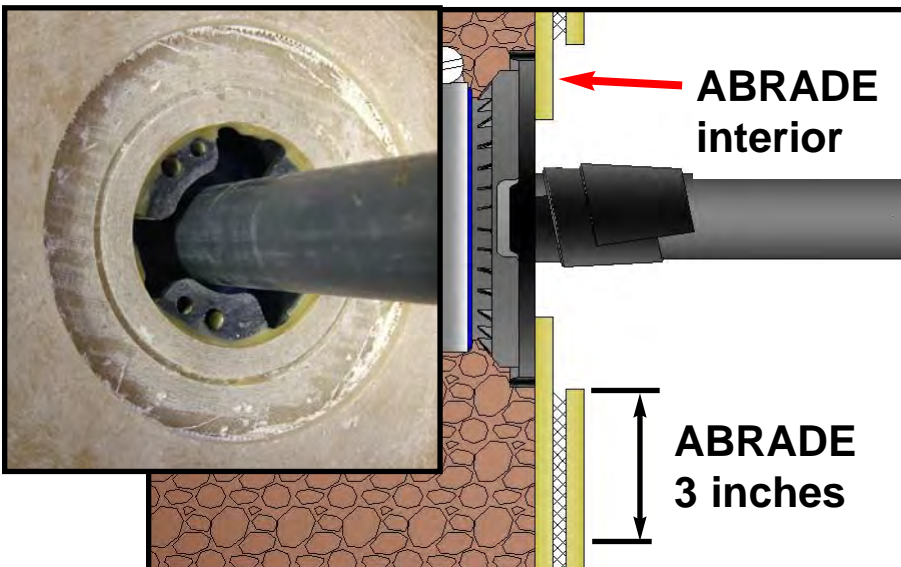
Dry-fit your insert with the widest flat part against the wall and trace its outline with a marker.

Use a Bravo router tool to cut open the interior wall by following the marked outline of the insert.

**DO NOT USE A RIGID TEMPLATE
DO NOT BREACH THE OUTER WALL**

STEP 4

COMPLETE



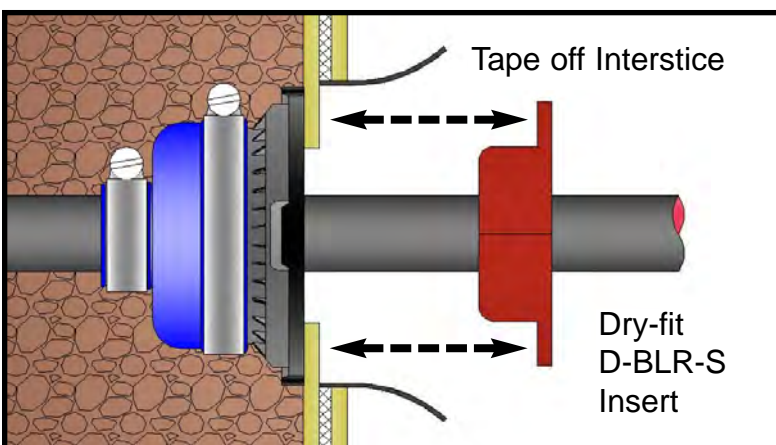
Abrade the wall and any fiberglass fabric that is showing. Sand the wall 3" away from the cut edge 360° around.

Properly protect your piping from air powered & sharp tools. **DO NOT DAMAGE PIPE!**

SECURE ALL CONDUIT LINES BY BRACKETING THEM TO AT LEAST ONE RIGIDLY CONNECTED CONDUIT OR THE RISER. DO NOT ALLOW CONDUIT ENDPOINTS TO MOVE OR ACT AS A LEVER.

STEP 5

COMPLETE

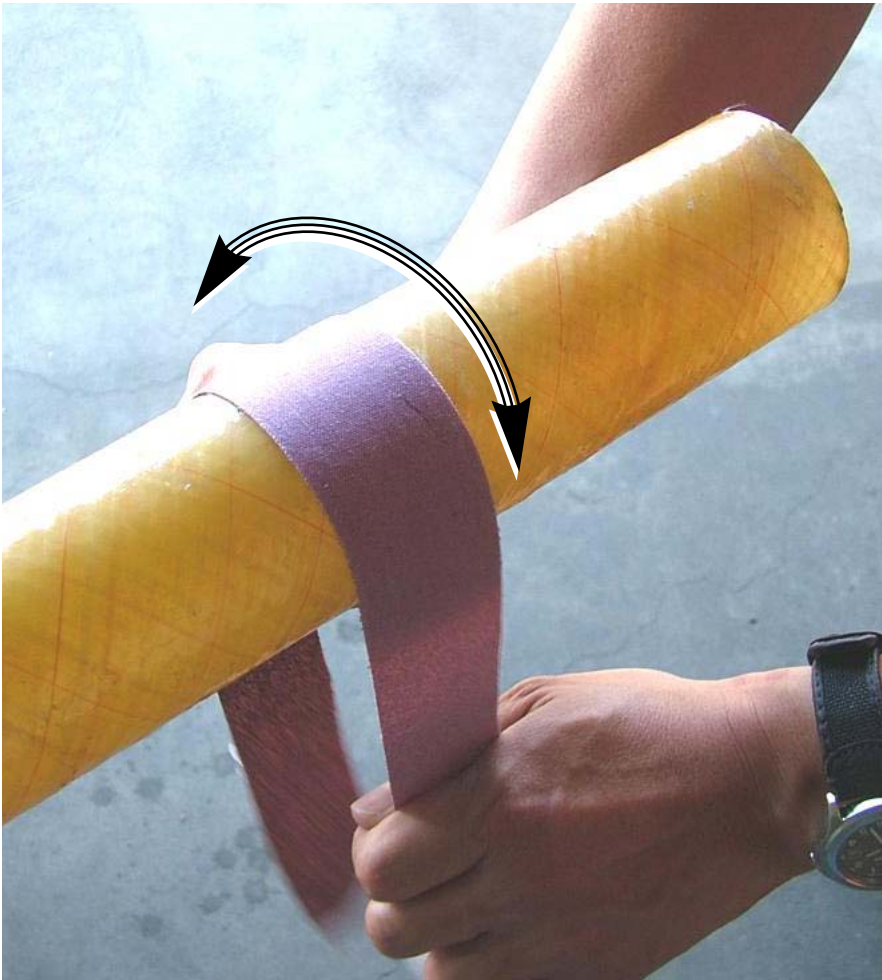


Dry-fit the insert into the new hole. Remove any part of the blue line housing that interferes with a clean dry-fit. The Fiberglass split insert must slide all the way home to rest squarely against the outer wall.

Tape off the interstice but do not place tape on the outer wall where it might be covered by the insert.

STEP 6

COMPLETE



ROUGHING-UP YOUR FRP PIPE WITH SAND STRIP

⚠ CRITICAL

Any surface you will be bonding to must be abraded and clean of all adhesives, sealants, contaminants and be completely dry.

You must sand fiberglass pipe, the PVC coating of RobRoy conduit, and the bare steel of galvanized conduit.

Use the provided emery strip to abrade your pipe. This works best for the underside of each pipe or conduit.



Your pipe must be hand roughed before adhesive application

DO NOT USE ANY POWER TOOLS ON PIPE, EVER!

MIXING YOUR ADHESIVE

Your adhesive should be stored in a cool place until ready to be mixed. You should warm your adhesive and fiberglass fitting components if the ambient temperature is below 70°F.

DO NOT MIX MORE THAN ONE CAN AT A TIME
DO NOT ATTEMPT TO MIX HALF A CAN
ONLY USE 1 BOTTLE OF CATALYST PER ADHESIVE CAN

⚠ CRITICAL

USE ONLY BRAVO SYSTEMS ADHESIVE WHEN INSTALLING THIS FITTING TO FIBERGLASS PIPE OR CONDUIT
DO NOT SUBSTITUTE ADHESIVES, MIX THEM OR ADD LIQUIDS SUCH AS WATER OR ANOTHER RESIN. DO NOT USE ANOTHER CATALYST OTHER THAN WHAT IS PROVIDED.

⚠ CRITICAL

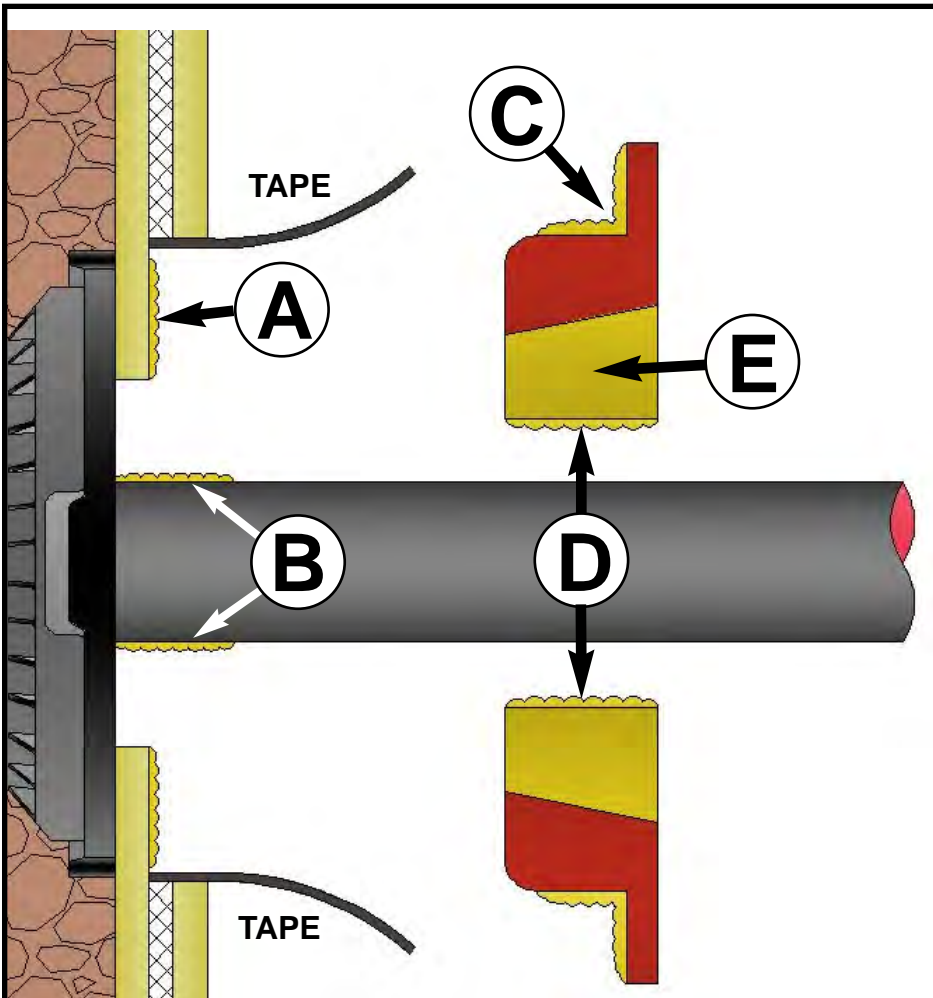
ADHESIVE HAS AN ACTIVE COLORANT

ADD CATALYST TO ADHESIVE AND MIX THOROUGHLY UNTIL THE COLOR IS EVEN AND CONSISTENT WITH NO SWIRLS



STEP 7

COMPLETE

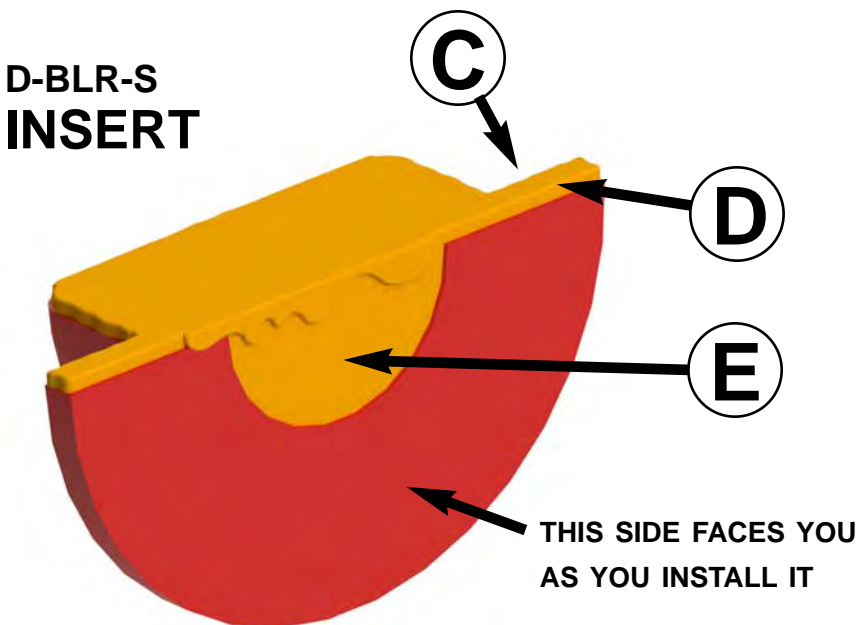


⚠ CRITICAL

Take your time and do not rush this critical step. Carefully apply adhesive to the points below... or else!

Mix your Bravo epoxy adhesive per Page 9 and apply to all contact surfaces listed below.

- A)** Apply to wall next to the taped-off interstice.
- B)** Apply to the pipe approximately 1" from the sump wall.
- C)** Apply to the outside of the insert as indicated where it will contact the outer wall of the sump.
- D)** Apply to the surfaces of each insert half that will contact each other.



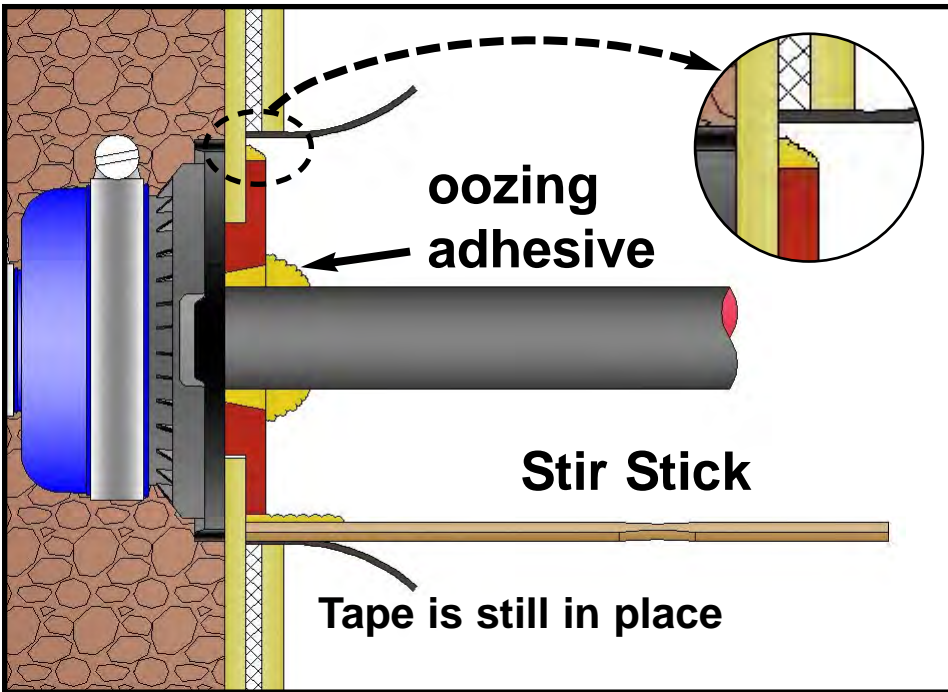
⚠ CRITICAL

E) Pack the interior of the insert with adhesive. For conduit, you can fill it solid. For 2" pipe and above, you will apply ~ 1/2" of adhesive to the interior of each half.

Once A-E is fully coated, apply the insert to the pipe and firmly press it against the outer sump wall.

STEP 8

COMPLETE

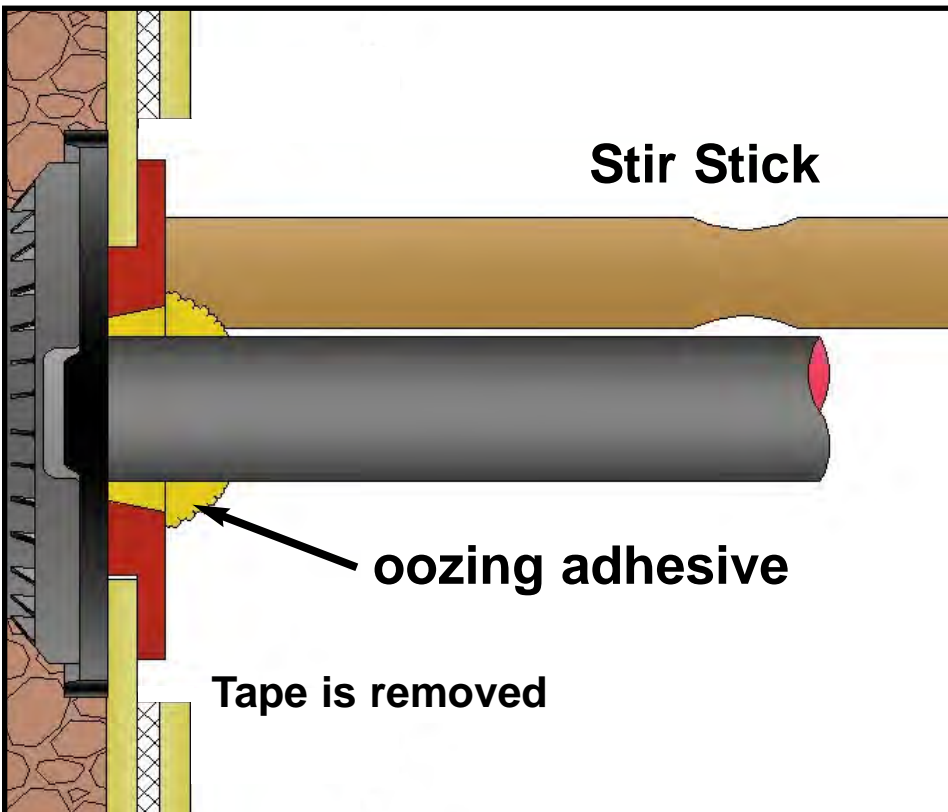


When you press the adhesive-loaded insert to the sump wall, adhesive will ooze from all seams. Press firmly until the insert is flat against the sump wall and until both halves are firmly joined together.

Use a clean wooden mixing stick to scrape any adhesive that oozes within the area near the tape. Remove the adhesive in this area and then remove the tape.

STEP 9

COMPLETE

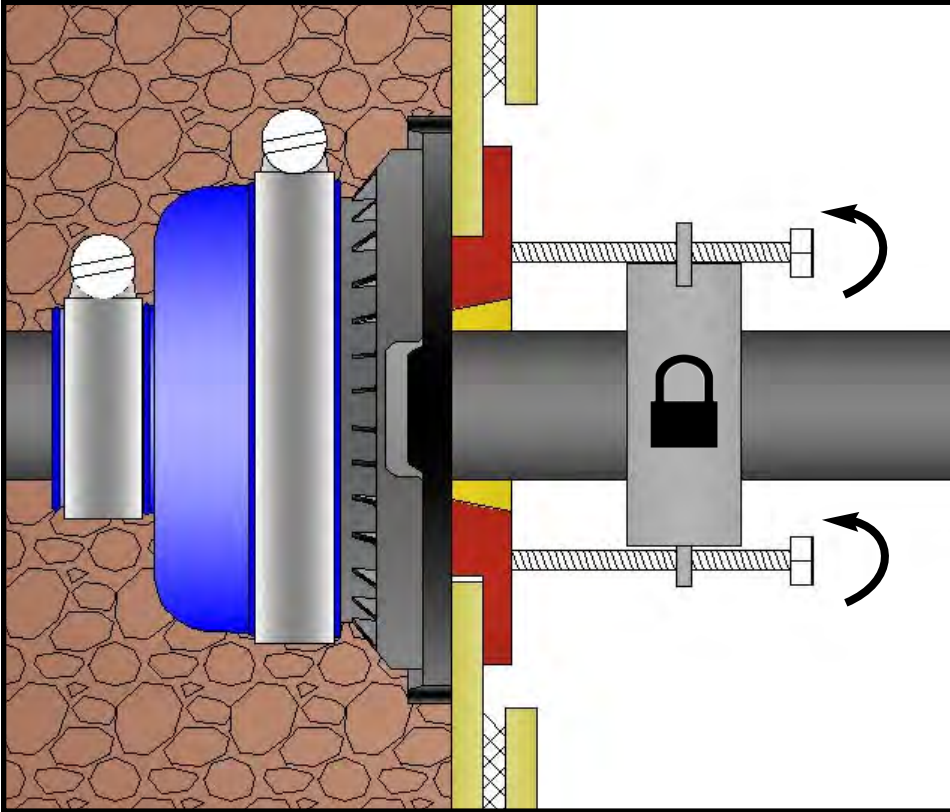


Use the stir stick again to remove excess adhesive from the face of the insert closest to the pipe.

If the adhesive is allowed to cure here, it may interfere with the flange, and you can avoid needing to sand this area down.

STEP 10

COMPLETE



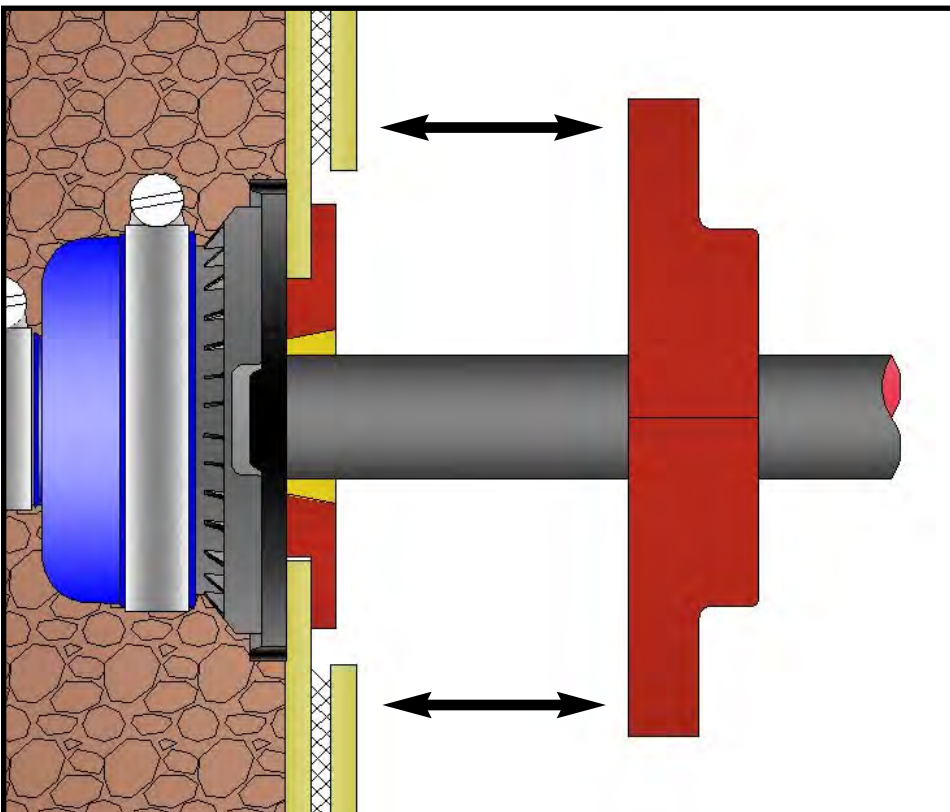
When the excess adhesive has been removed per Step 8 and 9, install your provided pusher clamp to the pipe close to the insert and tighten the three bolts until they press firmly against the insert.

If more adhesive oozes from the seams, clean it with the stir stick or other implement.

Allow for a full cure time.

STEP 11

COMPLETE



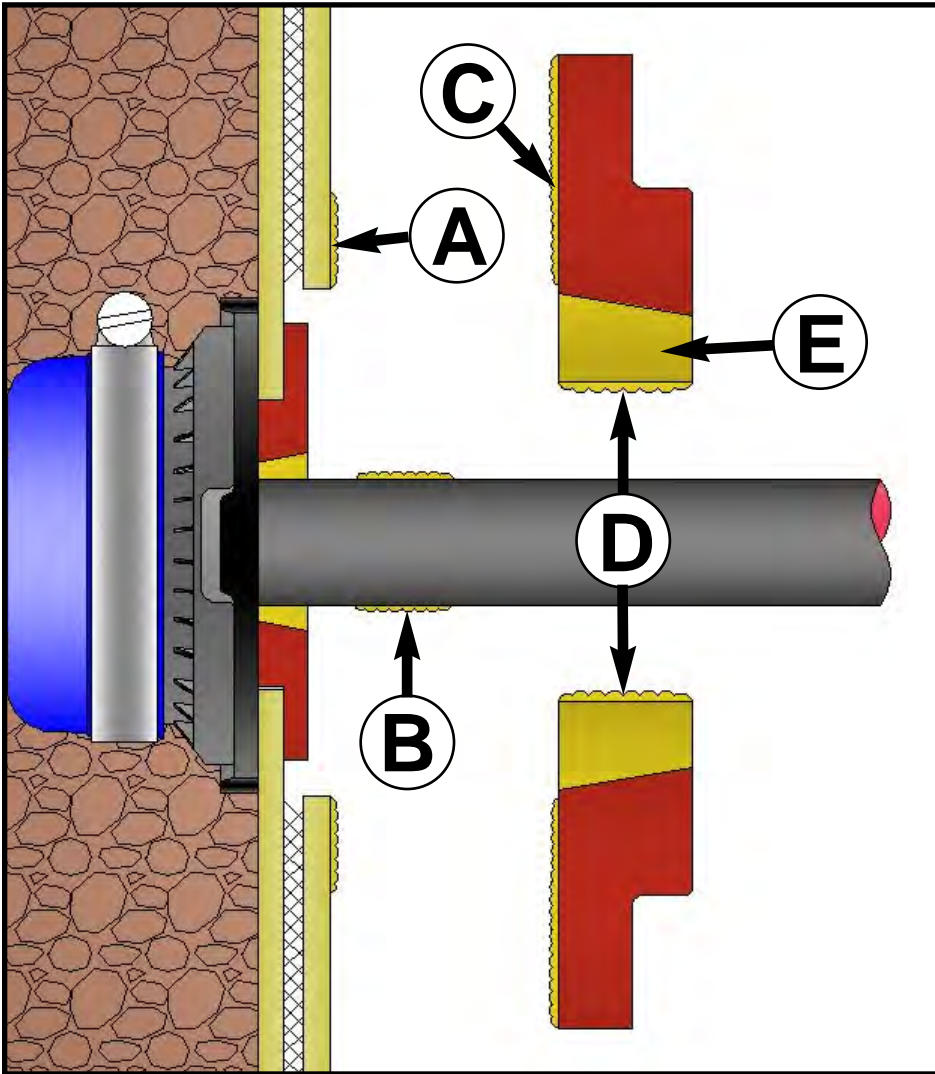
After the Insert has cured, remove the clamp.

Dry-fit the Flange to the sump wall. It should not contact the insert or the adhesive between the insert and the pipe. **ONLY** Sand down any adhesive that interferes with a clean dry-fit. **DO NOT** sand any part of the split insert.

The split Flange must be able to rest squarely against the sump wall.

STEP 12

COMPLETE



⚠ CRITICAL

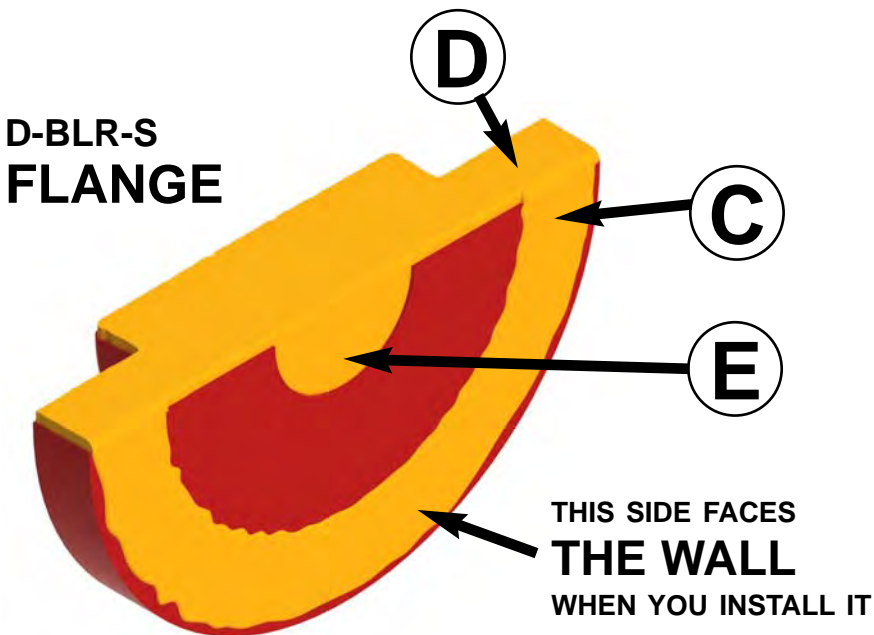
Take your time and do not rush this critical step. Carefully apply adhesive to the points below... or else!

Mix your Bravo epoxy adhesive per page 9 and apply to all contact surfaces listed below.

- A)** Apply 1" of adhesive to wall next to the cut edge
- B)** Apply to the pipe approximately 1/2" from the installed insert.
- C)** Apply to the outside of the flange where it will contact the inner wall of the sump.
- D)** Apply to the surfaces of each flange half that will contact each other.

⚠ CRITICAL

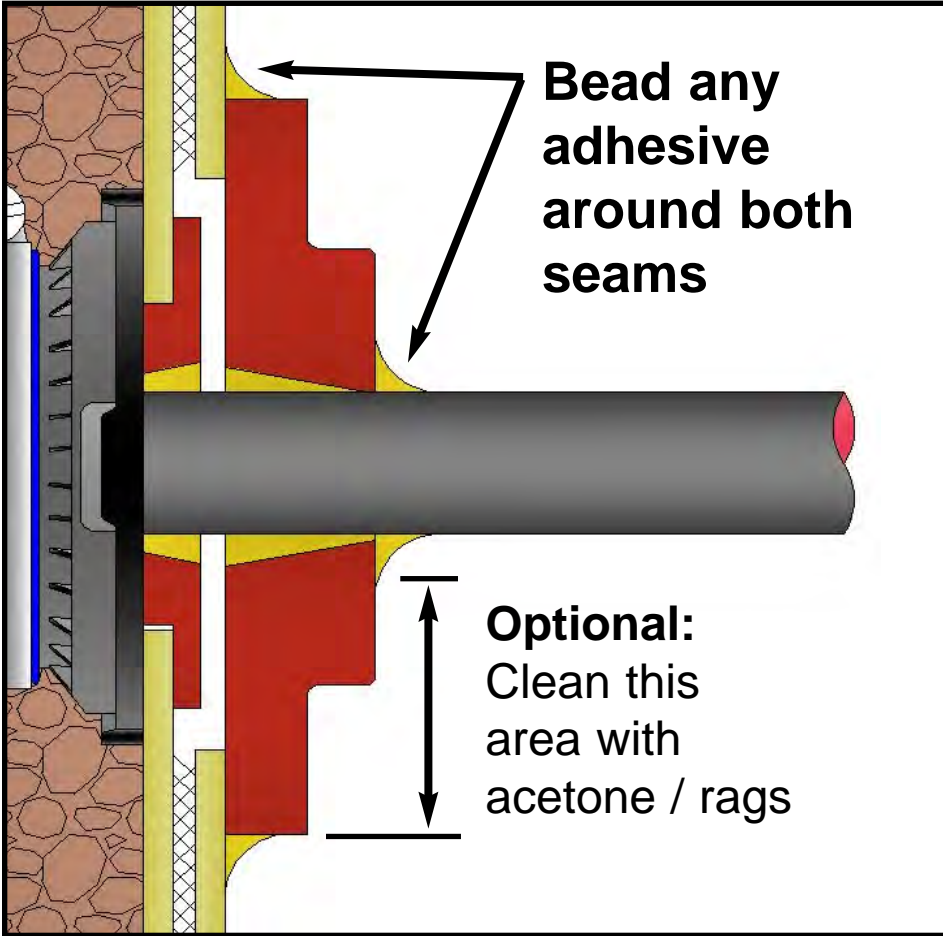
E) Pack the interior of the insert with adhesive. For conduit, you can fill it solid. For 2" pipe and above, you will apply ~ 1/2" of adhesive to the interior of each half.



Once A-E is fully coated, apply the Flange to the pipe and firmly press it against the inner sump wall.

STEP 13

COMPLETE



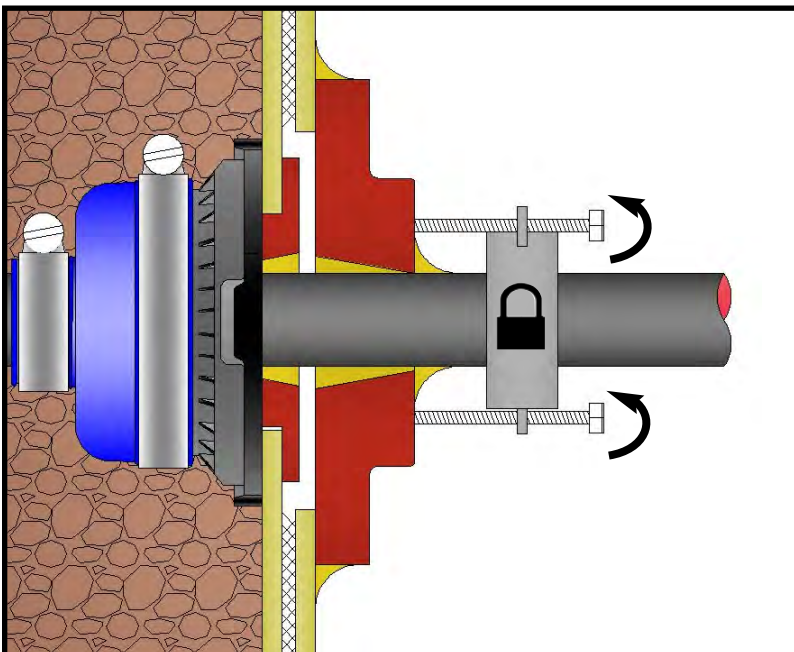
Press both halves to the pipe and the wall at the same time, and press firmly until they stop moving. Make sure both halves are pushed against each other evenly. Adhesive will ooze from the split seam, and the seam at the wall and at the pipe.

Bead the adhesive around both seams with a gloved finger.

Optional: Clean the face of the fitting with acetone and rags so it looks like a new install.

STEP 14

COMPLETE



When the Flange has been cleaned and adhesive beaded around the seam at the wall and the seam at the pipe, install your provided pusher clamp to the pipe close to the insert and tighten the three bolts until they press firmly against the insert.

Allow for a full cure time.

DO NOT CAUSE PIPE OR CONDUITS TO MOVE OR TWIST DURING CURE

STEP 15 - Testing

COMPLETE

After the Insert has cured, remove the clamp on each retrofit fitting if possible.

MANDATORY PRESSURE TESTING:

To test your complete fitting installation after a full adhesive cure time, conduct a pressure/soap test on all fittings. Ensure your pressure supply is regulated.

Bravo Systems DoubleWall Containment Sump: Maximum 4 PSI and minimum 20"hg Vacuum.

Other Manufacturer: Follow manufacturers written guidelines

EXTENDED TESTING (RECOMMENDED):

When extended testing is possible and you feel it is necessary, the following recommended guidelines are provided. The results and procedures are not supported by Bravo Technical Support unless the sumps are of Bravo manufacture.

If you use **Pressure**, a minimum test of **8 hours** is the guideline.

Test per all local, State or federal regulations.

BRAVO STAINLESS STEEL HOSE CLAMPS

Some Regulators / Inspectors do not approve of any kind of metal hose clamps on the outside of Underground Storage or Containment Equipment, in the backfill. Note that these clamps are **NOT** associated with the primary seals between the fiberglass pipe or steel conduit, the split fiberglass flange, and the fiberglass sump wall. The clamp that may be installed exists only to keep the fitting halves pressed together while its adhesive cures.

***THE CLAMPS ARE NOT USED TO
MAKE A SEAL OF ANY KIND***