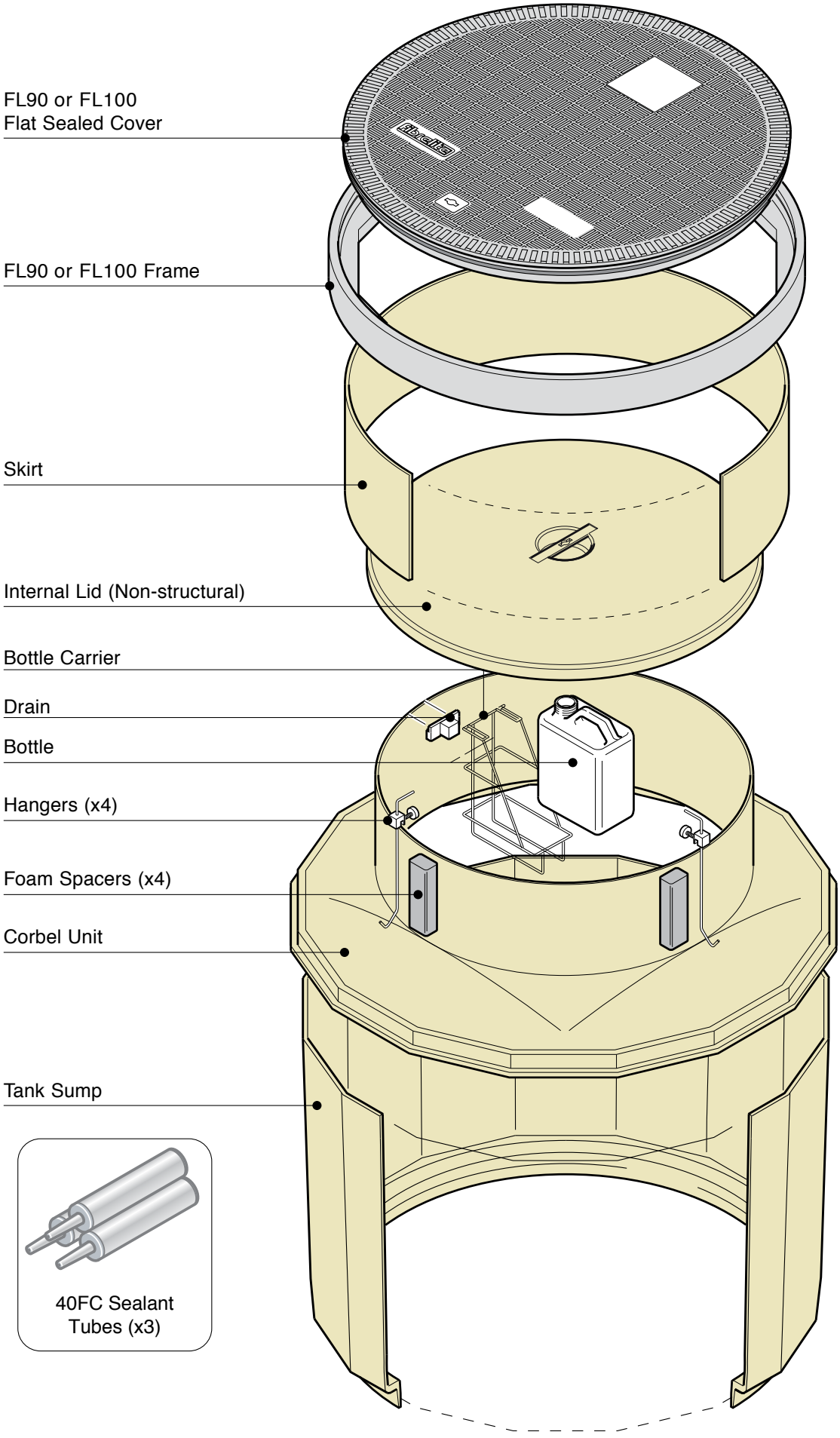


Issue: 12/06/2016

INSTALLATION INSTRUCTIONS

(Preparing tank collar and sump base for fiberglassing)

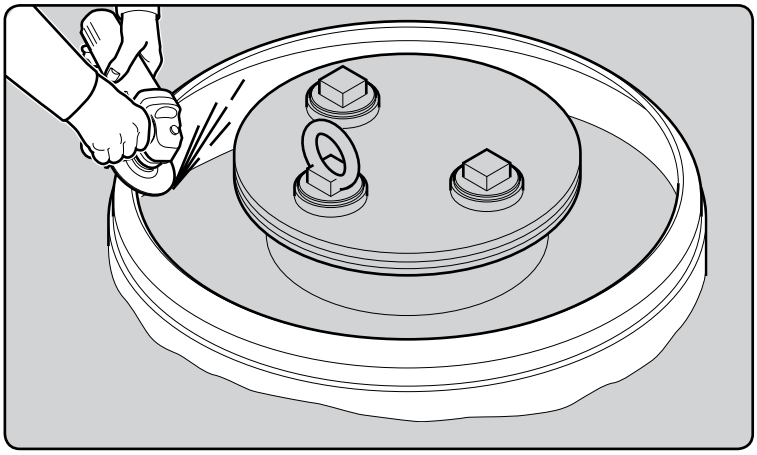
FIBRELITE
PART OF OPW A DOVER COMPANY

NB: - Correct preparation is essential!
Failure to correctly prepare the surface prior to bonding may result in a "WEAK" joint and subsequent failure.

1

The surface of the tank collar must be prepared properly prior to bonding – use an angle grinder to expose the fiberglass surface to ensure good bonding. (or sand paper can be used by hand)

STOP Do not grind the tank collar with an electric grinder unless all appropriate safety procedures for open tank pits have been followed. If there is any risk that gasoline vapours may be present in the tank pit, use only explosion-proof or air-powered tools or sand the collar by hand.

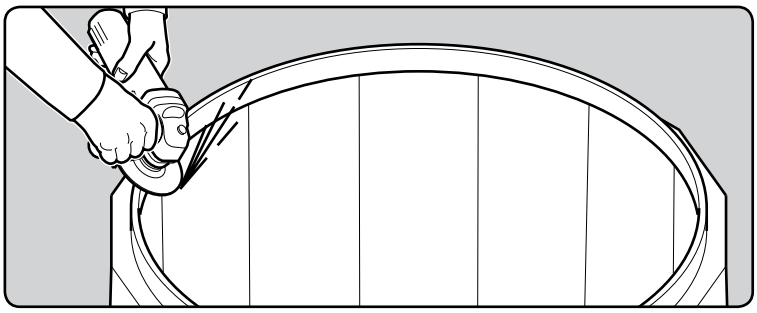


2

The surface of the tank sump collar must also be properly prepared prior to bonding.

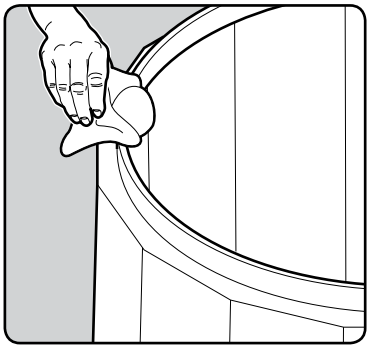
Sand both the internal and external sides of the collar.

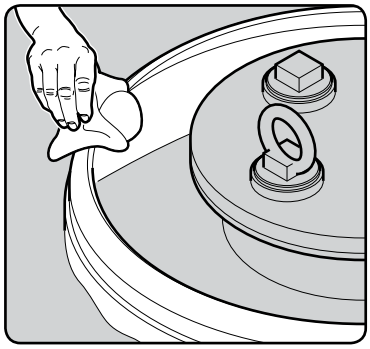
This can also be sanded by hand.
(Sumps supplied to ExxonMobil sites are pre-sanded)



3

All abraded surfaces must be wiped clean with acetone immediately prior to bonding to ensure that no dust or dirt is present on the surfaces.



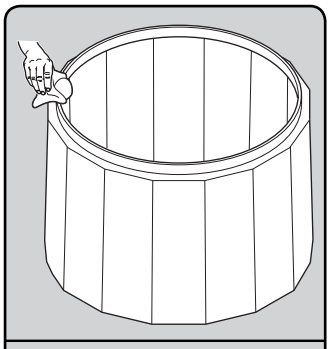


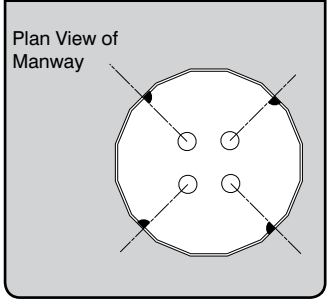
4

Immediately after cleaning, install the tank sump onto the tank collar.

4a

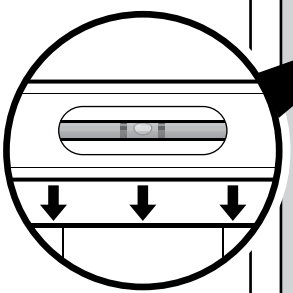
NB:
When installing the sump and immediately prior to bonding it is critical to ensure that the sump facets align perpendicular to the pipework exit points. This will ensure that the pipe entry seals are not unduly stressed.

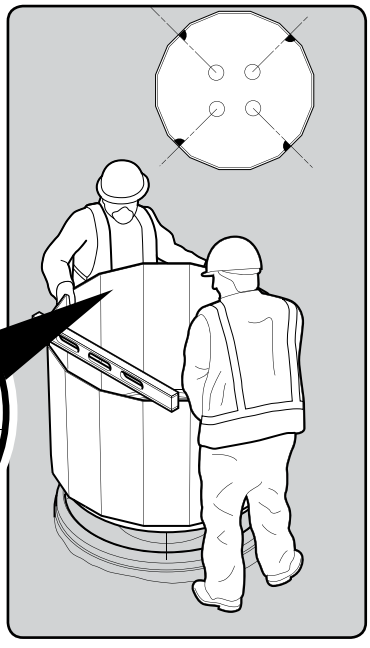




5

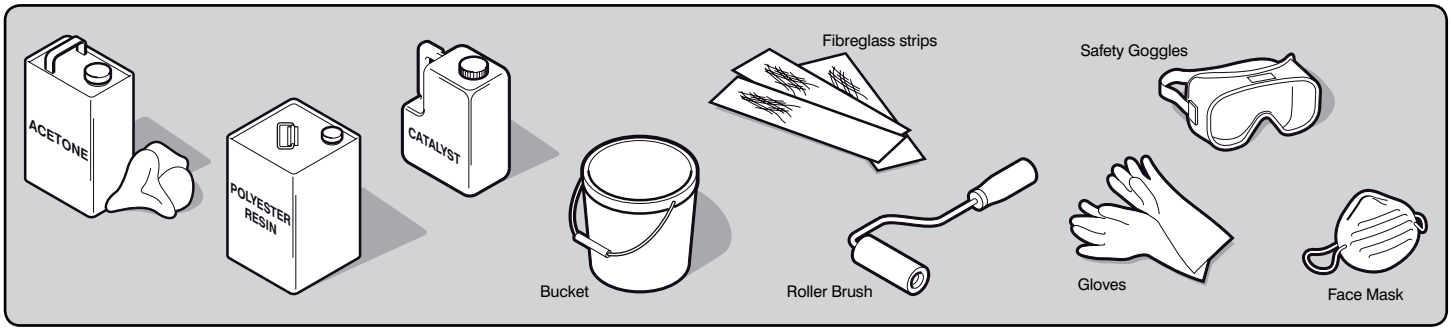
Use a level to properly set the tank sump in place – make sure the sump will be level to finished grade.



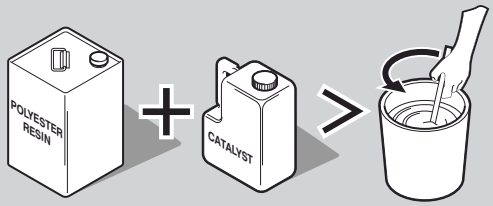


INSTALLATION INSTRUCTIONS
(Laminating the sump to the tank collar)

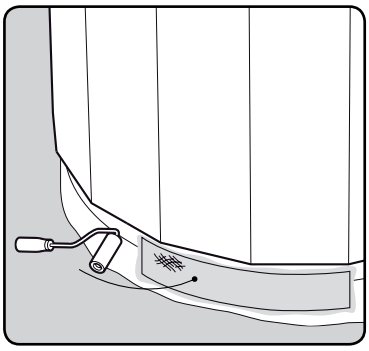
FIBRELITE
PART OF OPW A DOVER COMPANY



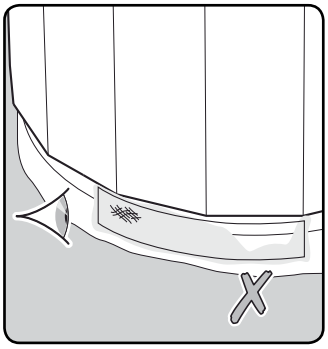
6 Add 2% catalyst to resin eg. 20ml catalyst to 1L resin - stir well.



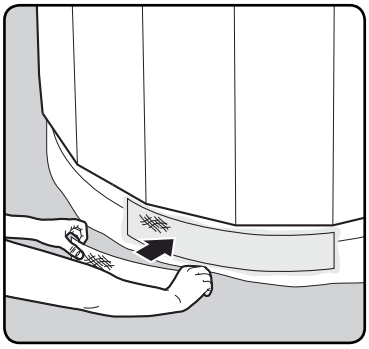
7 Brush resin onto the joint surface, apply a strip of fibreglass over the joint and apply resin over strip using a roller brush.



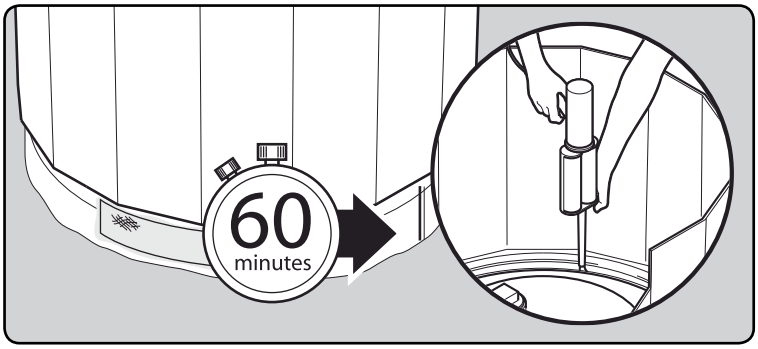
8 Ensure the resin covers the fibreglass strip, do not leave any dry areas.



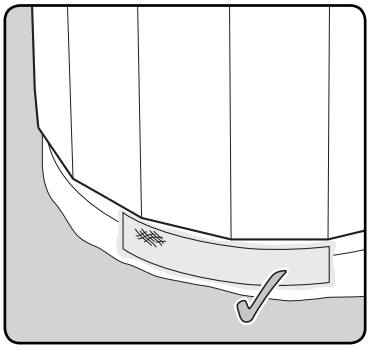
9 Apply a second and third layer of fibreglass as per 7 & 8

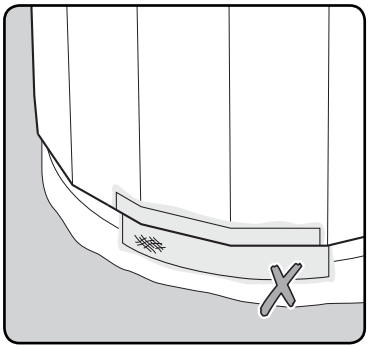


10 Leave to dry for a minimum of 1 hour, ensure the resin has hardened before applying the bonder to the internal joint. The fibreglass strips must overlap at the joints by a minimum of 50mm and each layer must be staggered.



11 **Warning – do NOT cut fibreglass strips too large. If the base of the sump is laminated too high, it may distort the shape of the sump when it dries.**





SPECIAL NOTES: Fiberglassing the Tank Collar Joint: Fibrelite recommends fiberglassing the outside of the tank collar joint with 3 layers of glass as an added precaution against water intrusion (especially in high water areas).

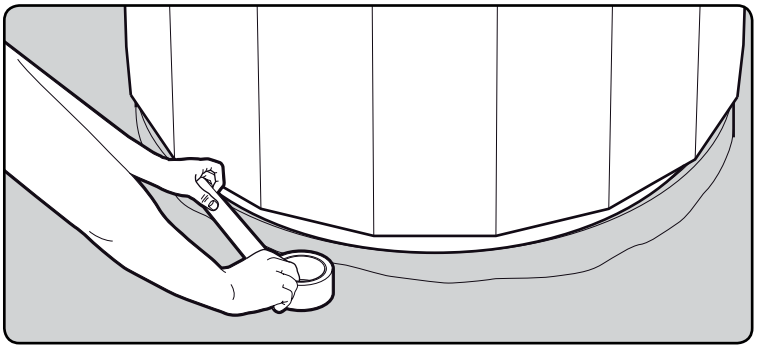
INSTALLATION INSTRUCTIONS
(Fiberglassing the sump base to the tank collar)

FIBRELITE
PART OF OPW A DOVER COMPANY

12

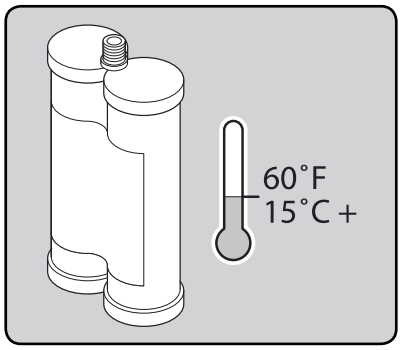
NB. If the outside joint of the sump/tank collar has been laminated, there is no need to do this.

Apply duct tape at the seam where the base of the sump meets the collar to prevent the bonder from leaking through the seam.



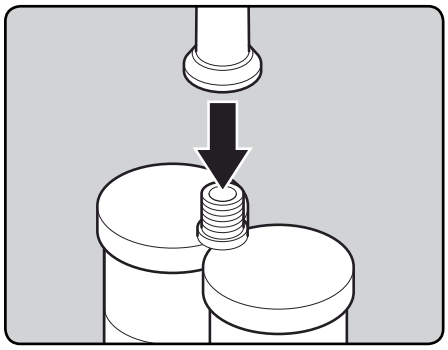
13

Prepare 800 Bonder tube for bonding procedure (material should be kept above 60 degrees F or 15 degrees C).



14

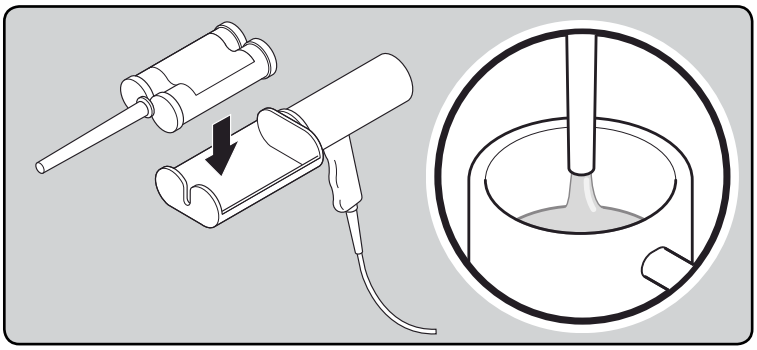
Install nozzle onto 800 Bonder tube and replace black cap by sliding over the nozzle and threading onto the tube.



15

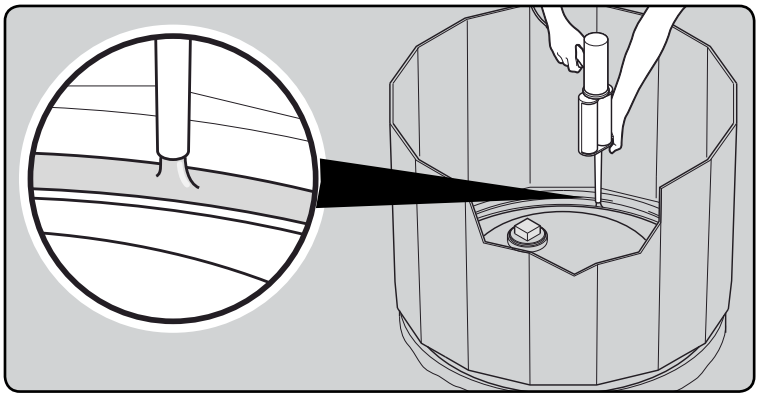
Insert the 800 Bonder tube into the applicator (using a pneumatic or the basic hand-operated applicator).

Eject a small amount of bonder into a cup to ensure the 2-parts are properly mixed before application – save the cup as a sample to ensure that the bonder material hardens properly.



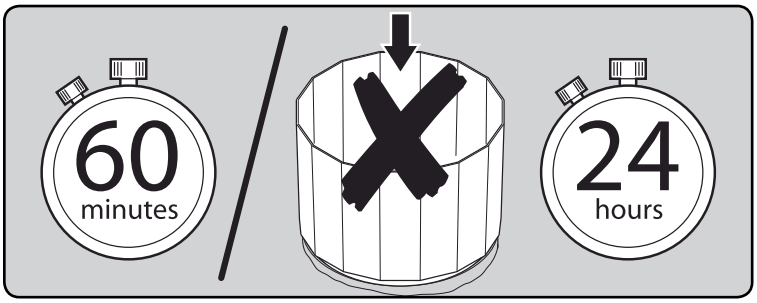
16

Apply the 800 Bonder into the gap between the tank collar and the sump wall – use the entire tube of 800 Bonder or until the material is at the top of the tank collar.
Note: The gap between the tank collar and sump wall must be completely filled with 800 bonder so that the bonder is level with the top of the tank collar. The amount of material required to fill this void will depend on the tank collar size and may take up to 2/2.5 cartridges



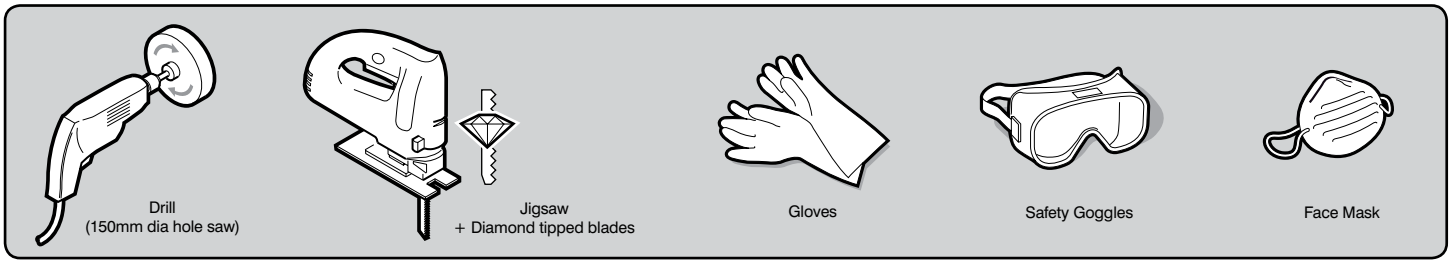
17

Cure Time: Allow 1 hour for the 800 Bonder to cure properly – this may take less time at higher temperatures. Allow 24 hours prior to putting any stress on the sump.

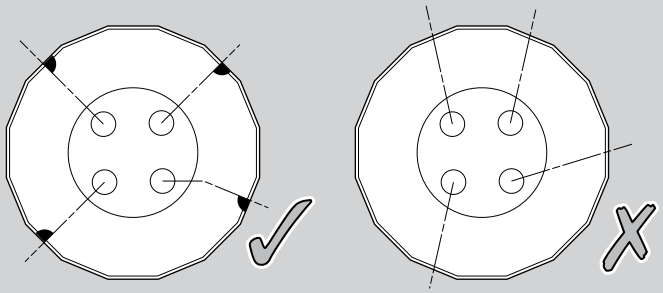


INSTALLATION INSTRUCTIONS
(Pipework and Entry Seal Kits)

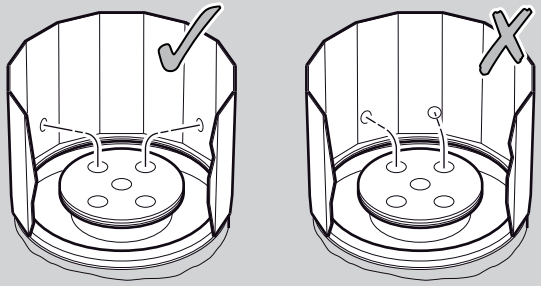
FIBRELITE
PART OF OPW A DOVER COMPANY



18 **WARNING** Care must be taken to position the pipework and conduit so it exits the sump at 90˚ angle to the sump wall. Otherwise undue stress will be placed on the sump wall and entry boot, which may lead to leaks in the future.



Position pipeway at 90º angles to the sump wall.



Ensure pipe entry boot is positioned away from the joints.

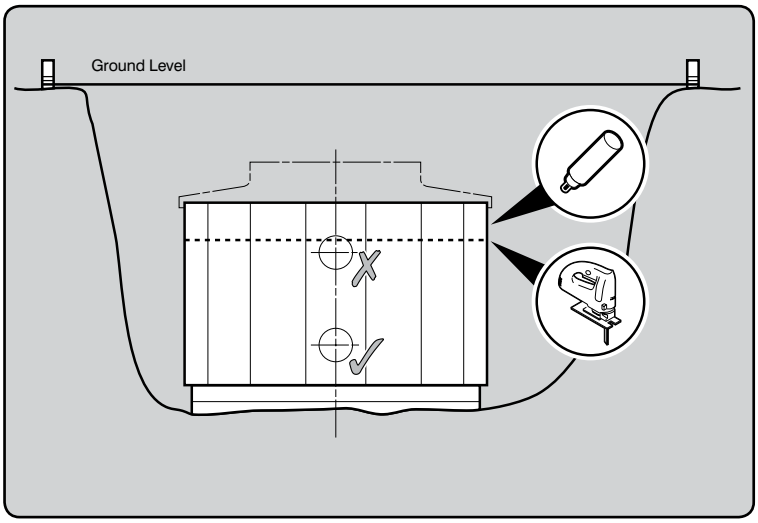
19 Before installing pipework, fix a string line at ground level across the sump to check if material needs to be cut off the sump. If so, mark the sump with a line along the cut mark.

Check to ensure you have the necessary minimum clearance required from the top of the sump to the centreline of the pipework/pipe entry kits.

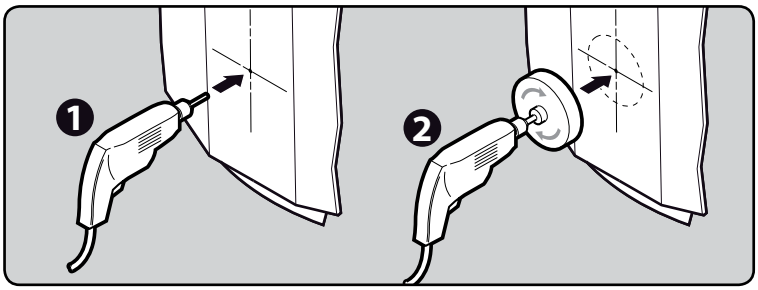
Standard Entry Kit = 145mm
Large Entry Kit = 170mm

For shallow burials, it may be necessary to cut less material off the sump, and cut the remainder off the corbel and skirt to allow pipe entry boots to be fitted. **PLAN THIS CAREFULLY.**

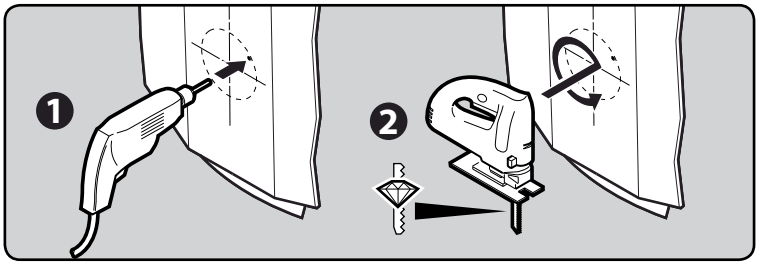
Refer to measurement chart.



20 Mark a centre point in the centre of a sump panel. Drill a pilot hole to ensure the hole saw can be positioned and used safely.



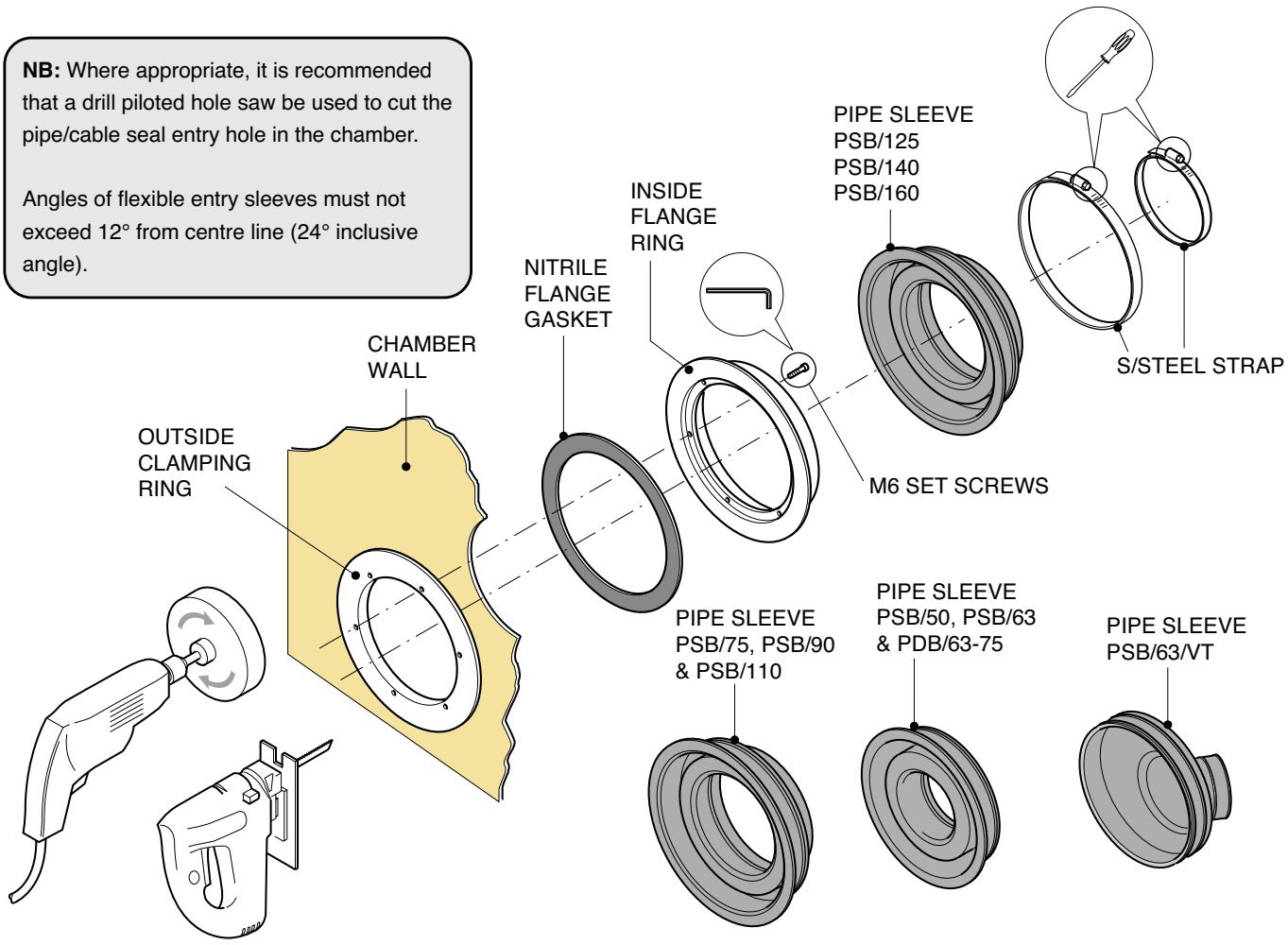
21 For larger holes (190mm) we recommend that the hole is marked and jigsaw is used to cut the hole. Firstly, drill a hole through the wall, so the jigsaw can be inserted and used easily and safely. *(Fibreglass will blunt normal blades very quickly, we recommend diamond tipped blades or blades to cut ceramics).*



NOTE : When backfilling ensure the pipework is not disturbed.
WARNING : Do not backfill until the sump has been vacuum tested.

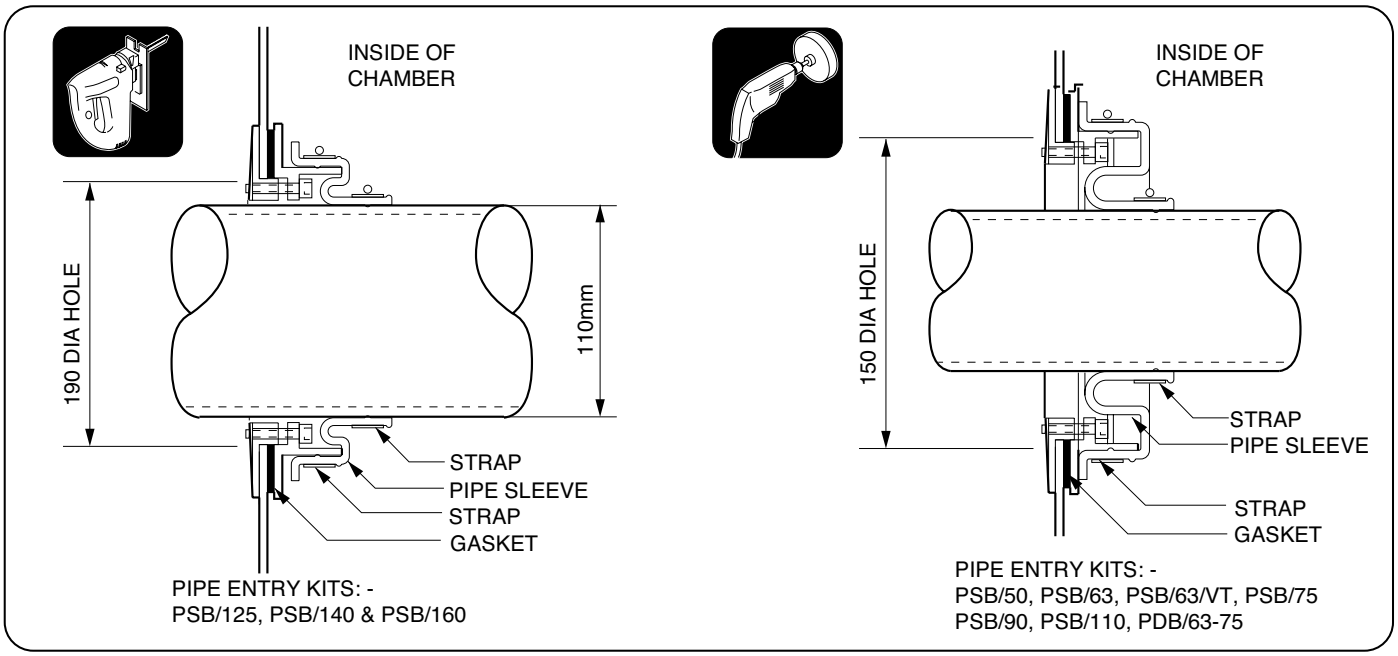
NB: Where appropriate, it is recommended that a drill piloted hole saw be used to cut the pipe/cable seal entry hole in the chamber.

Angles of flexible entry sleeves must not exceed 12° from centre line (24° inclusive angle).



DRILL AND HOLE SAW
ATTACHMENT OR JIGSAW

NB: Straps/clips are to be tightened in accordance with the pipe manufacturers recommendation



The exit position of the pipework through the chamber wall must be as close as possible to 90°. The pipe kit should be fitted so that the pipework is centrally positioned to the seal. When backfilling ensure that the pipework is not disturbed from this central position.

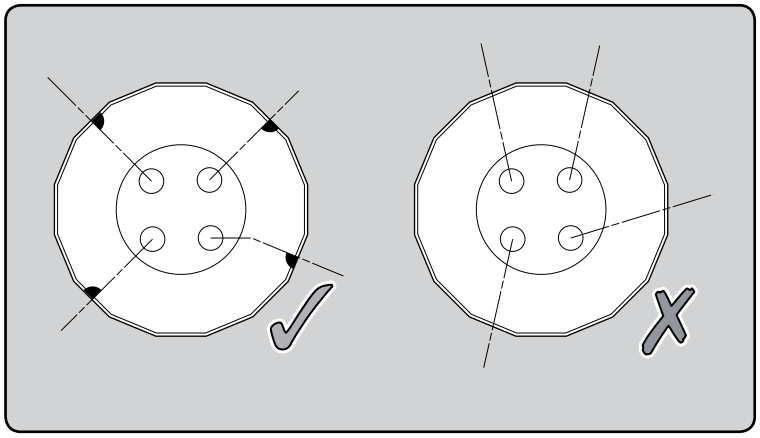
22 PEC KITS

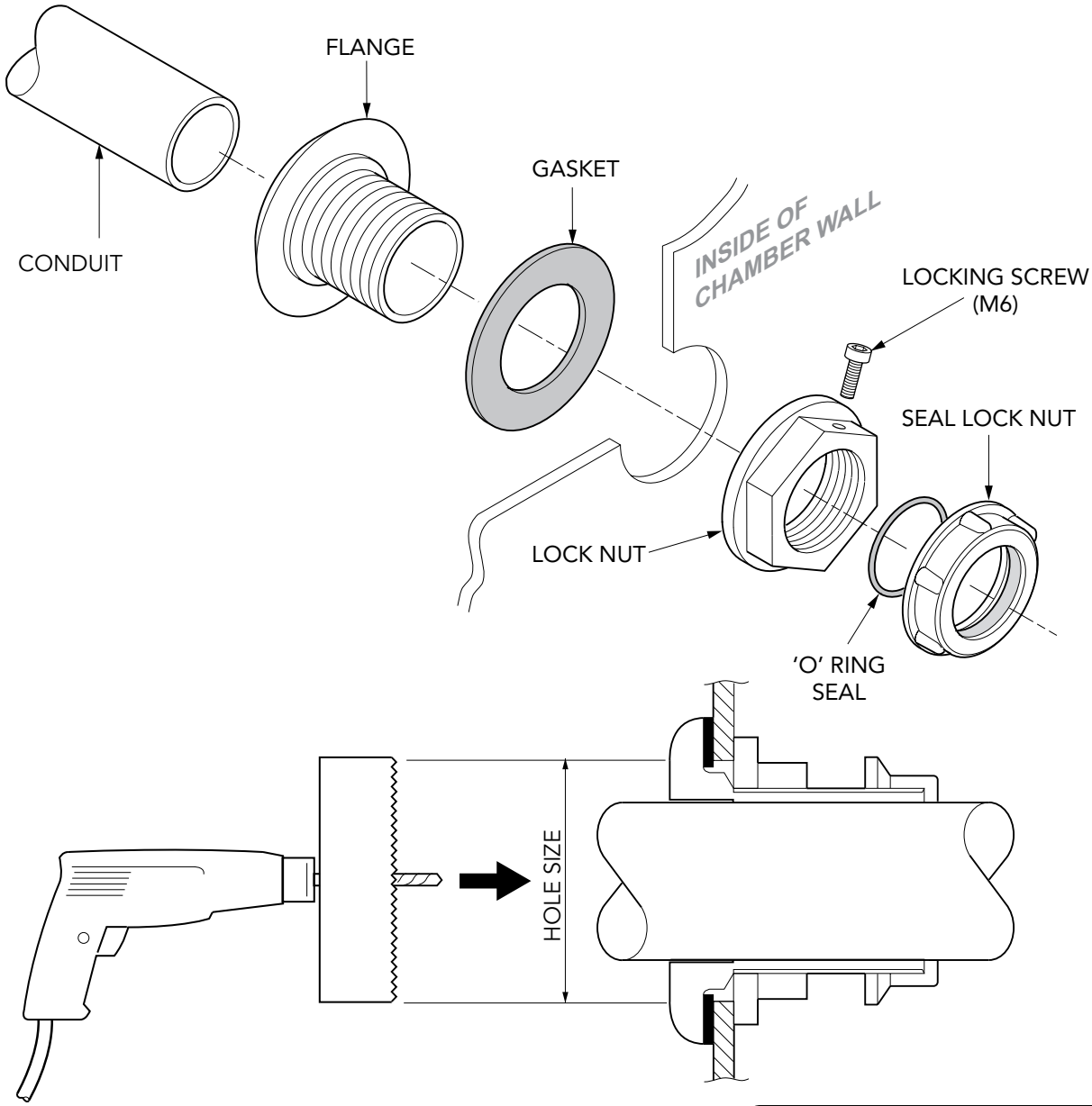
Refer to pipe entry boot instructions on positioning of the hole.

Conduit must be installed at 90º angle to the side wall.

Use Fibrelite entry seal kit model PEC/32 to fit UPP + NUPI 32mm conduit.

PEC/27, PEC/33, PEC/50 to fit metal conduit sizes ¾", 1" and 1½" respectively.





NB: Use the correct size drill piloted hole saw for each entry kit. The cable entry seal must be fitted perpendicular to the chamber wall and the conduit must enter the entry kit perfectly aligned. When backfilling ensure the conduit is not disturbed.

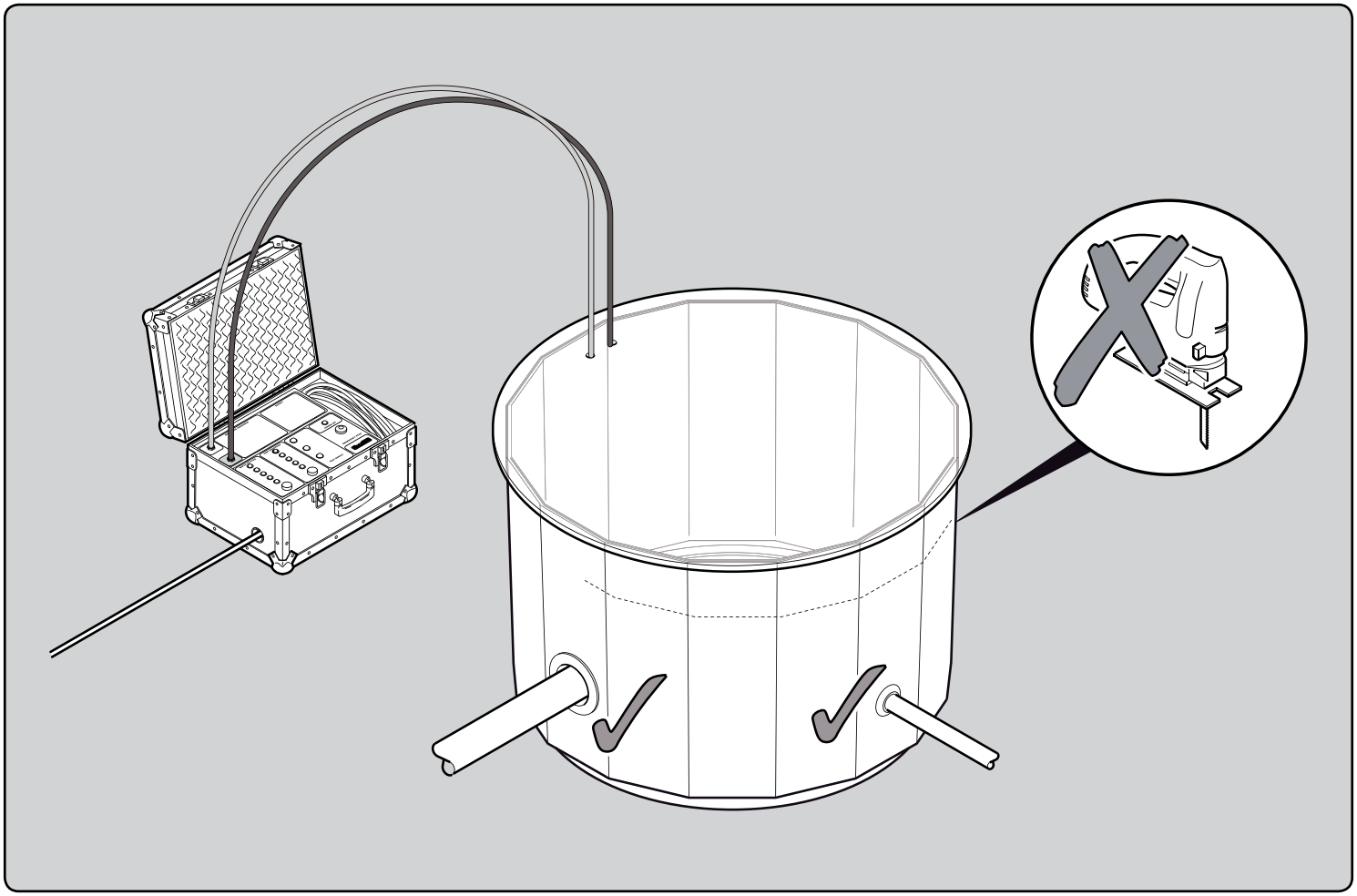
ENTRY KIT	HOLE SIZE
PEC/27	Ø51mm
PEC/32	Ø51mm
PEC/33	Ø60mm
PEC/50	Ø73mm

23 After penetrations have been fitted, ensure all connections on the manway lid are sealed.

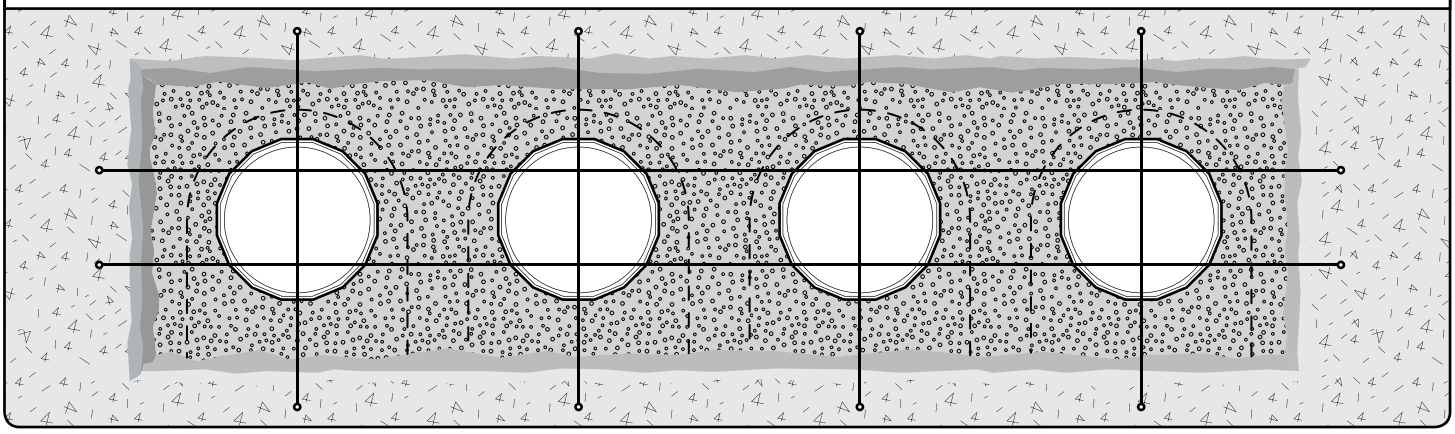
Perform vacuum test.

Refer to Vacuum test instructions.

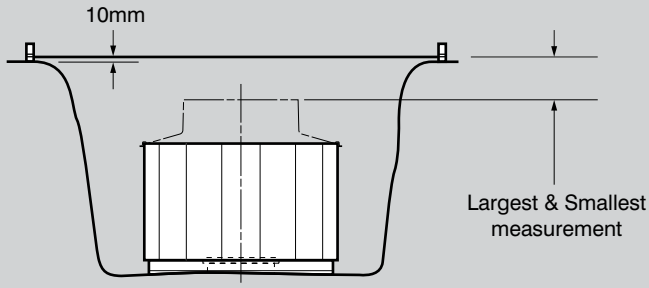
Do not backfill around sump or cut material off the sump until the test has passed successfully.



24 Fix string lines 10mm above grade level across the sump - across length and width of the tank farm to highlight falls in grade level.

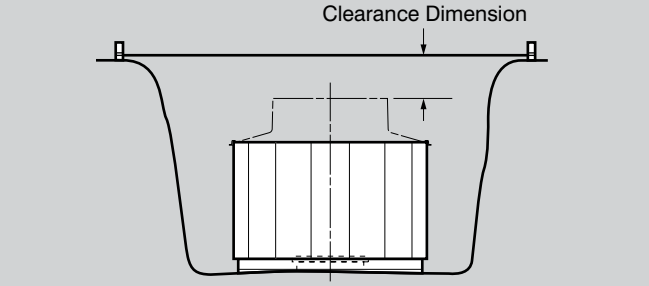


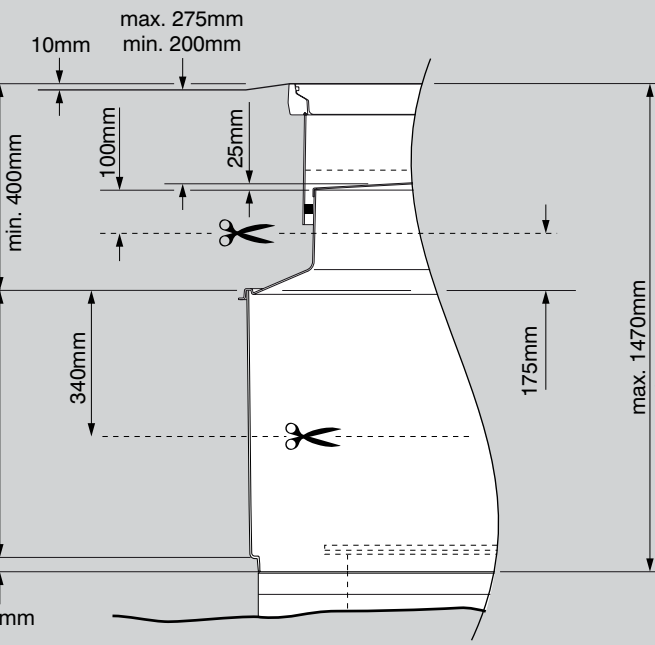
25 Place the corbel onto the sump (only 'dry fit' the corbel do not bond at this stage). Check the measurement from the top of the corbel to the string line, which is set 10mm above the general grade level. Check all sides of the sump and select the largest and smallest measurement to take account of falls across the forecourt.



26 Refer to this measurement chart;

Measurement (clearance dimension)	Action
Max. 275mm Min. 200mm	No trimming required, corbel can be bonded onto the sump. Adjust frame height using hangers.
less than 200mm	Option 1: If by trimming material (max of 100mm) from the corbel turret brings the 'clearance dimension' into the 275 to 200mm range then material only needs to be trimmed from the corbel turret and skirt. Trim the skirt so that the overlap between the corbel turret and skirt is between 90 and 120mm. Option 2: If by trimming 100mm from the corbel turret does not bring the 'clearance dimension' into the 275 to 200mm range then the remaining material must be removed from the sump. A maximum of 340mm can be removed from the sump. Trim the corbel and skirt as described above in option 1.
more than 275 mm	The burial depth of the tank is greater than the maximum burial depth of the standard S14CR sealed system. Bond a 300mm extension onto the sump. Then proceed as above.

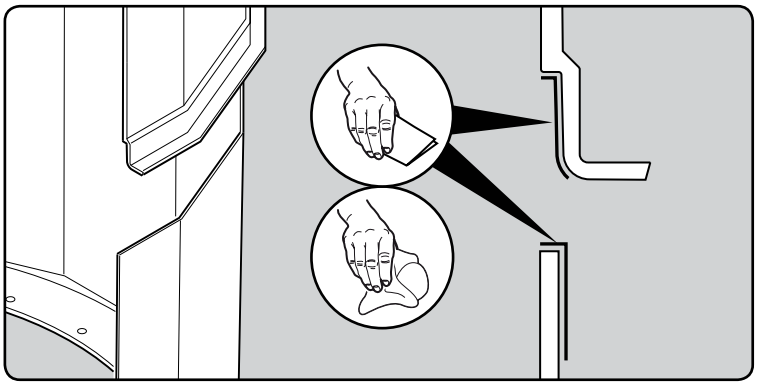




See following page for extension bonding instructions

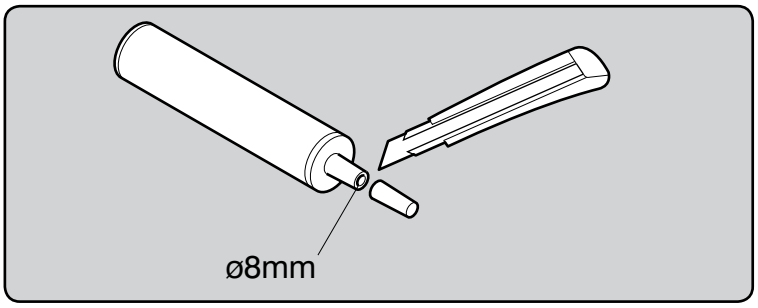
27

Abrade and wipe with a degreasing solvent the chamber top edge / wall and the extension recess shoulder



28

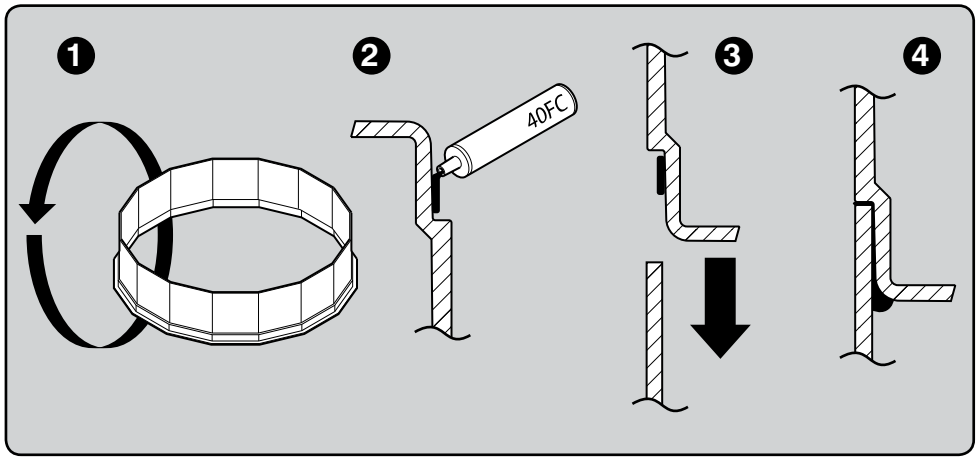
Cut nozzle of the adhesive sealant tube to approx. ø8mm.



29

To permanently fix the extension, invert the extension and apply a bead of adhesive sealant to the vertical wall of the extension recess.

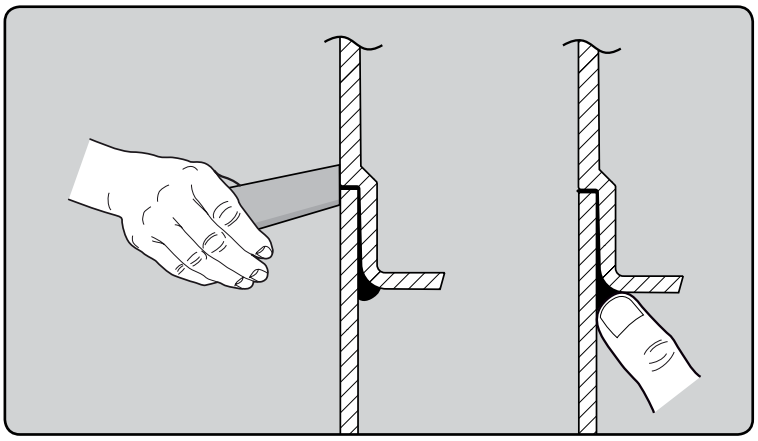
Position the extensions(s) onto the chamber, ensure the extension is horizontal and press down uniformly.



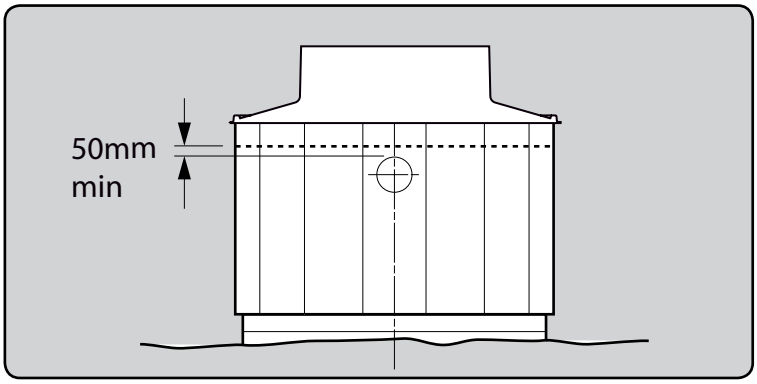
30

Remove excessive adhesive sealant from the internal joint with a scraper and smooth off.

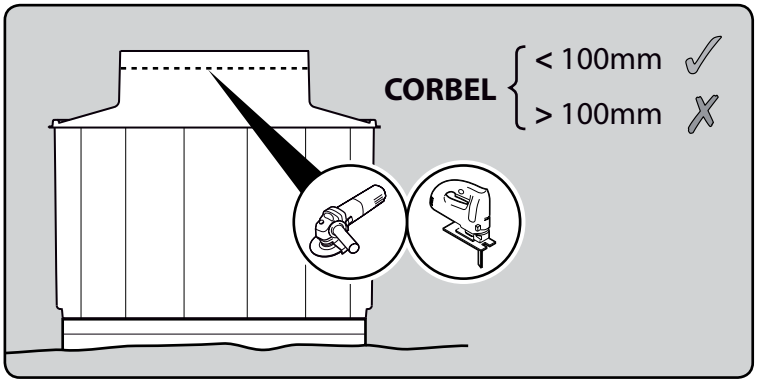
Apply a fillet of adhesive sealant (same nozzle size) to the external horizontal joint and smooth off.

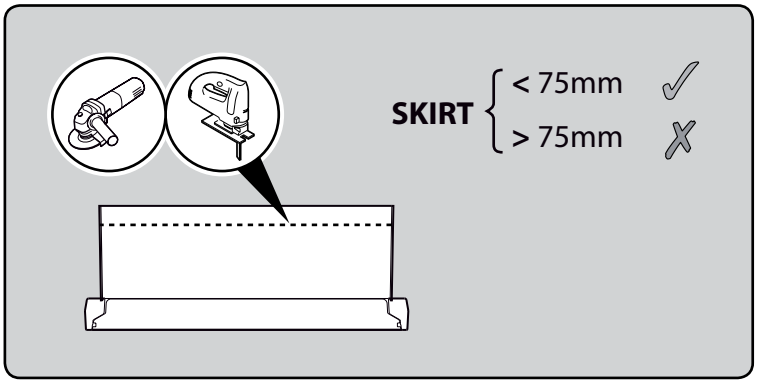


31 Before trimming the sump check pipe entry positions allow 50mm from top edge to be able to fit the corbel in position.
If necessary cut a smaller amount off the sump height, then cut the remaining material from the corbel and skirt.



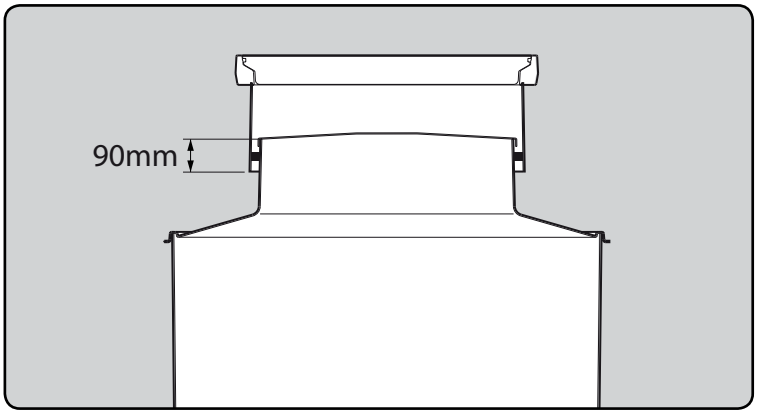
Important Note: Trim the corbel and skirt so that the clearance from the top of the frame to the top of the corbel falls in the range 225 to 300mm and that the overlap between the skirt and corbel ranges between 90 and 120mm.





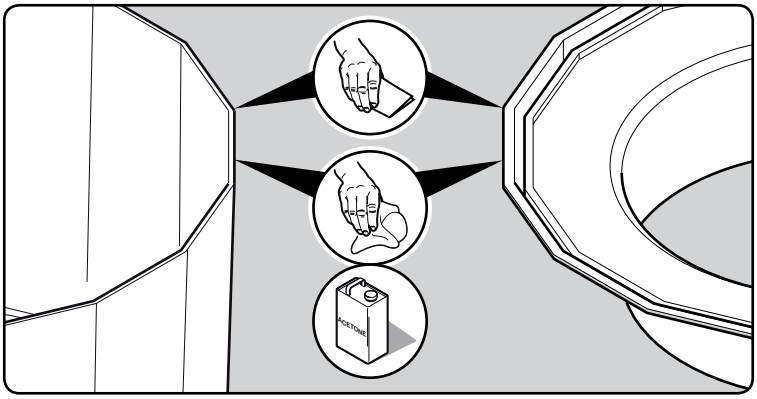
32 Ensure that you have a min overlap of 90mm between the skirt and corbel, to allow space to install the seal kit.

NB. On installations with very high water tables (up to concrete pad) refer to special instructions, overlap increases to 120mm.



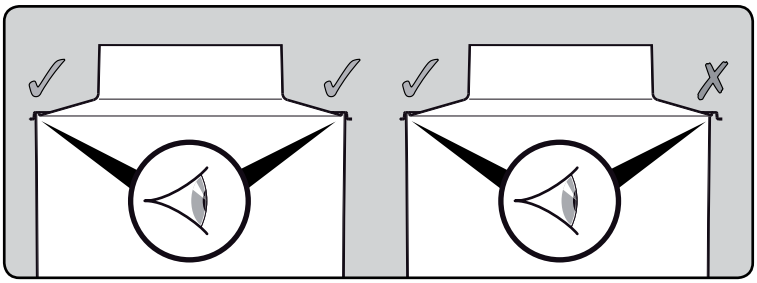
WARNING Do not trim sump until sump has been vacuum tested with pipework installed and completed.

33 Abrade and wipe with a degreasing solvent the groove of the corbel and the internal and external walls of the sump to a depth of 50mm.



34 Dry fit the corbel on the sump to ensure it fits - push corbel groove onto sump wall,

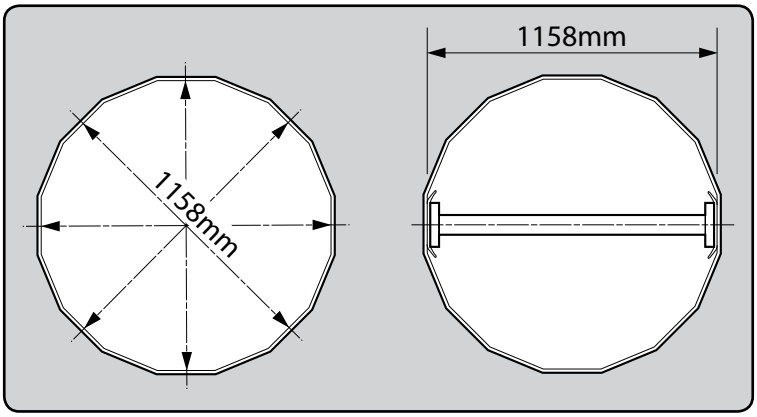
If it does not fit, pipework or lamination may have distorted the sump wall shape.



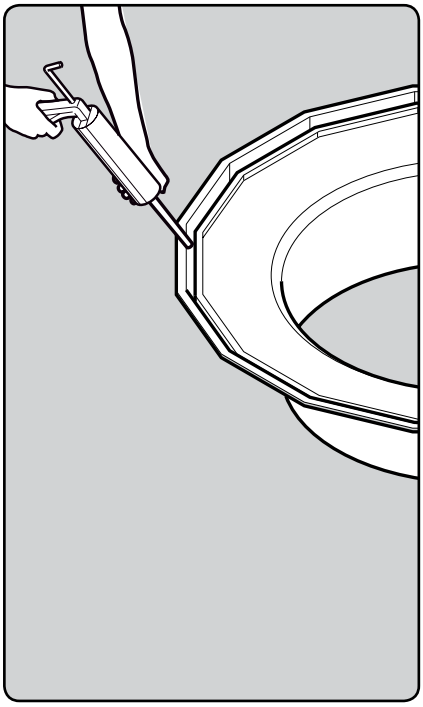
35 Measure distance between opposite walls, this should be 1158mm. If less than this you will need to brace out the sump.

Using wooden batons (1158mm ±5mm long) with timber spreader plates (150 x 150) to spread the load, brace out the sump to the correct size.

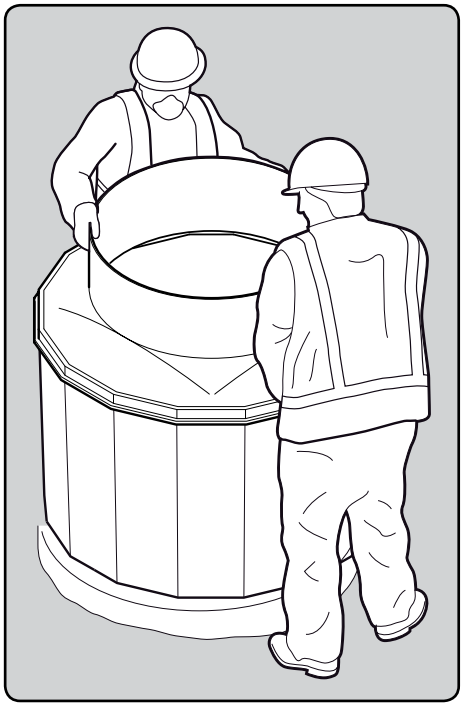
Repeat this process on all walls to get the correct shape.



36 Apply 2 tubes of soudaflex 40fc sealant in the groove of the corbel. Sealant should fill 1/2 the groove.

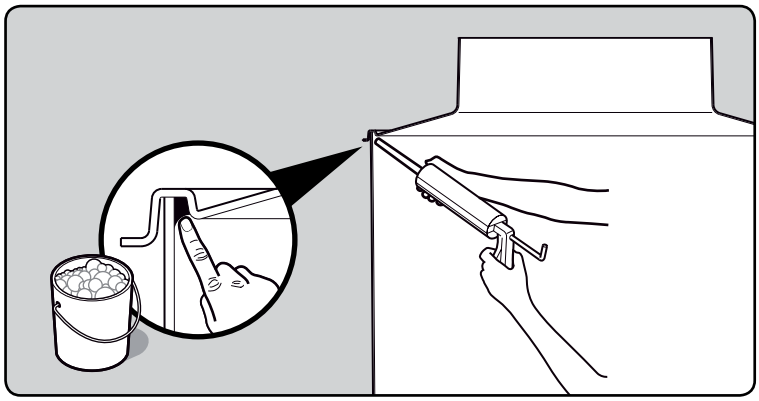


37 Place the corbel on the sump using 2 people and push it into position.



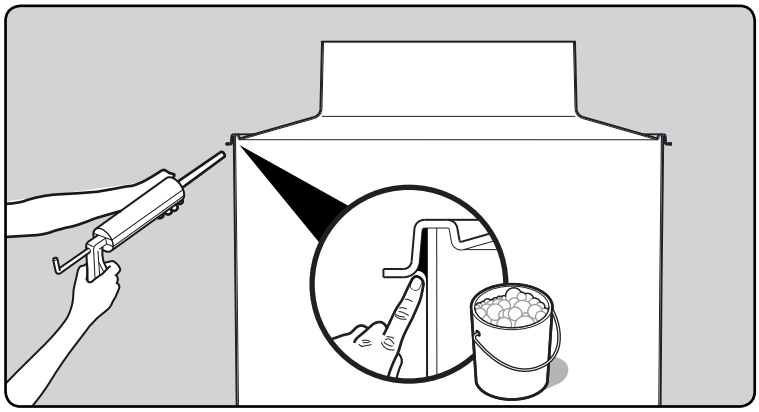
38 Seal around the inside edge of the corbel joint from inside the sump. Smooth off the sealant with soapy water.

Use 1.5 tubes of soundaflex 40FC sealant.



39 Seal around the outside joint and smooth off sealant with soapy water.

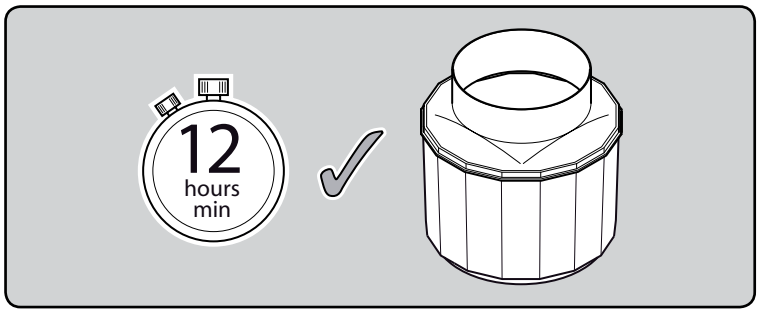
Use 1.5 tubes of 40FC sealant.



(Performing Corbel Vacuum Test)

40 Wait a min of 12 hours before vac testing, preferably overnight to allow sealant to set before vacuum testing.

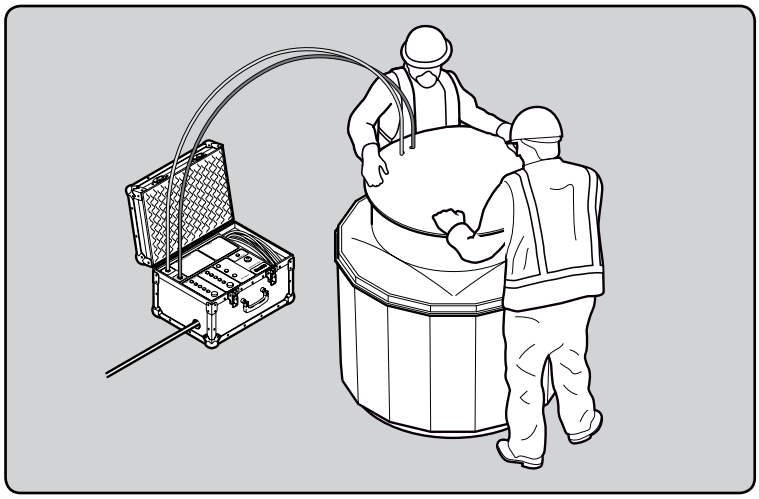
Do not disturb the sump during this time.



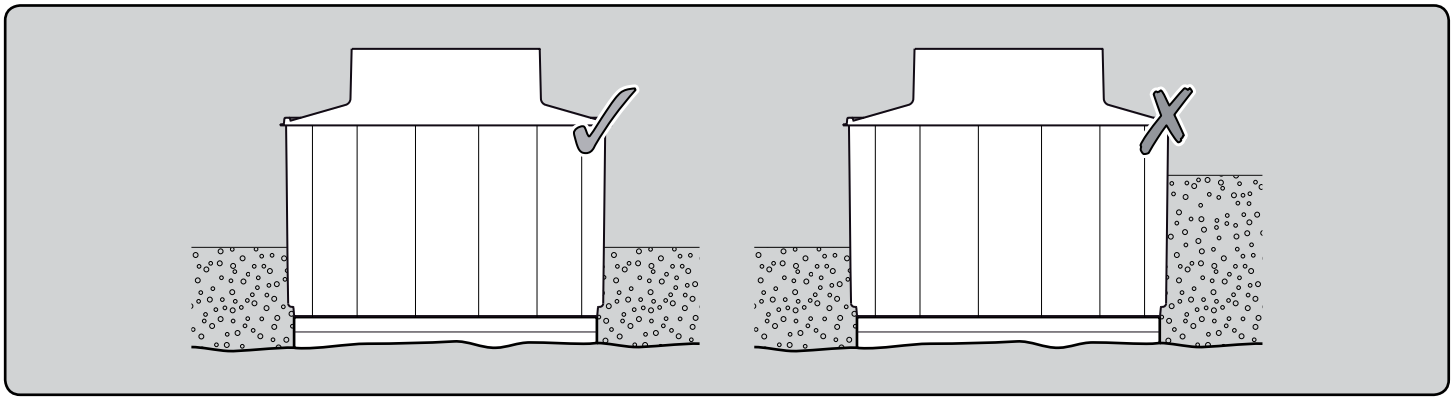
41 Ensure all pipework and electrical entries have been completed before vacuum testing, this is a final test for all penetrations in the sump.

Warning: Test the corbel at a 0.6m depth setting only or irreparable damage may occur.

Refer to vacuum testing instructions for correct method.

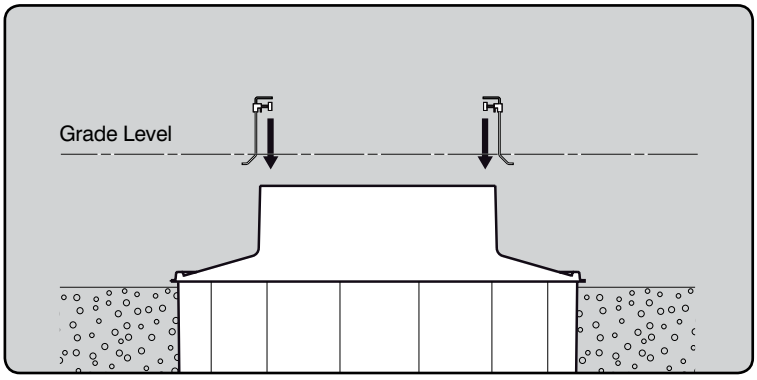


42 Once the corbel test has been performed with a PASS result, the area around the sump can be carefully backfilled with peagravel or sand. Back-fill equally around the sump in layers to prevent damage or deformation.



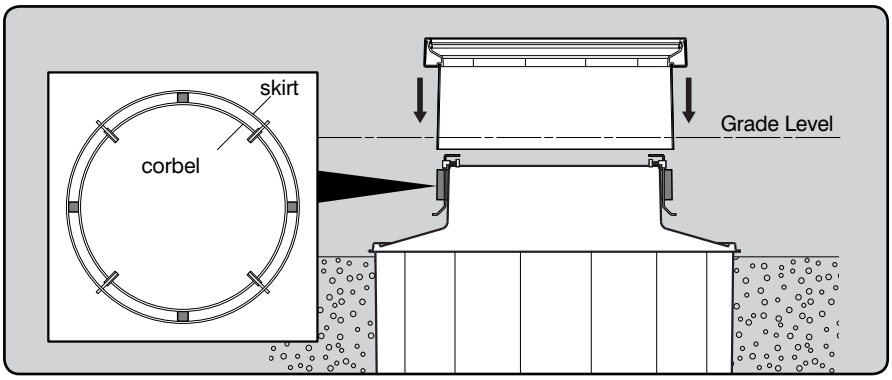
(Adjusting the Skirt & Frame to Grade Level)

43 Fix a string line 10mm above grade level across the sump, fix 4 hangers on the corbel top with base support facing out.

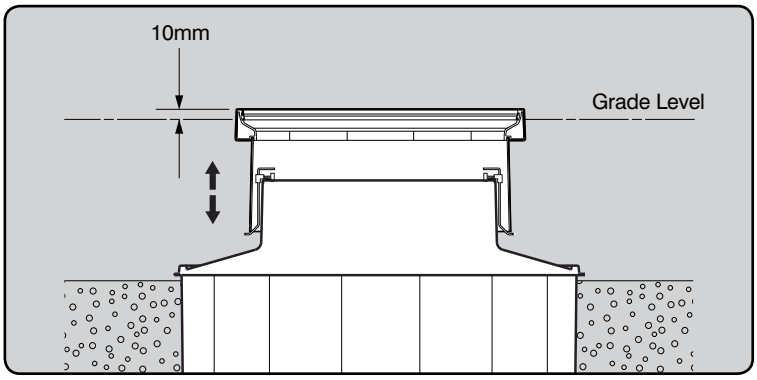


44 Put the skirt and frame on the hangers.

Locate the 4 foam blocks supplied between the skirt and corbel turret to centralise the skirt about the corbel. Failure to this may result in the internal lid fouling.

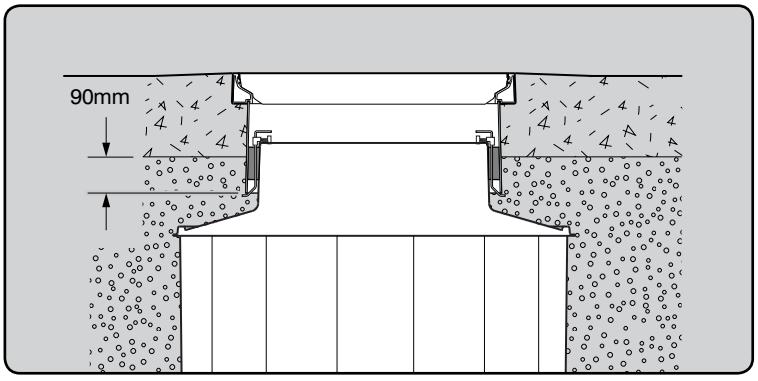


45 Adjust knobs to set the frame to stringline level, adjust for fall in grade. Set the frame 10mm above grade level.



46 Ensure the void between corbel and skirt is kept free from concrete and a depth of 90mm overlap minimum is maintained, (120mm on high water table installations).

Ensure foam spacers are in position to locate the skirt centrally around the corbel.



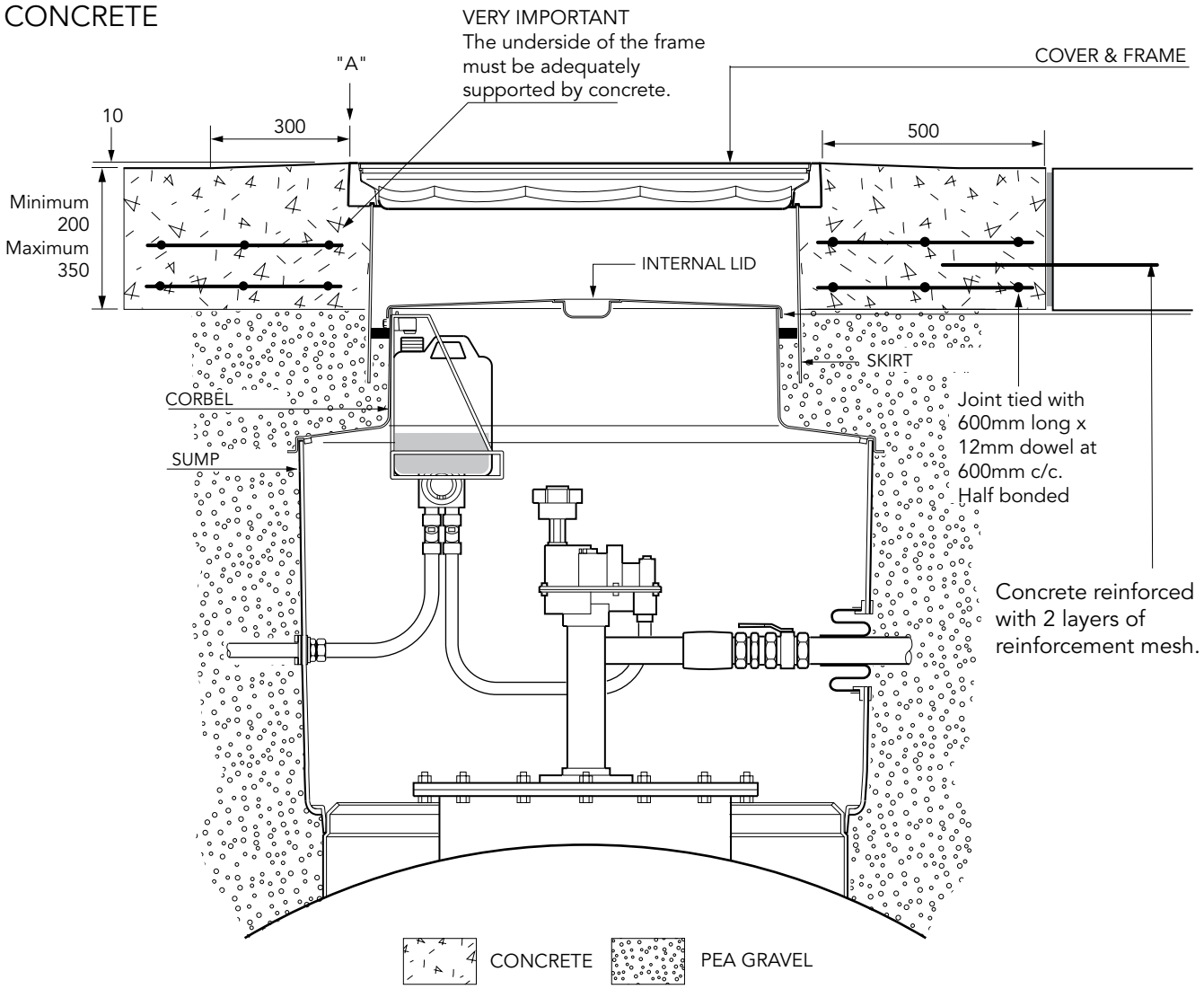
47 Complete backfilling to appropriate level. Frame must be supported by a minimum depth of 200mm of concrete

Concrete reinforcement must be positioned as close to the frame as possible. Minimum block of 500mm square around the frame. Joint must be tied as per diagram. Continuous pour preferred if possible.

VERY IMPORTANT
OUTER EDGE "A" OF FRAME SET 10MM ABOVE GENERAL GRADE AREA WITH CONCRETE RAMPED AWAY OVER 300MM.

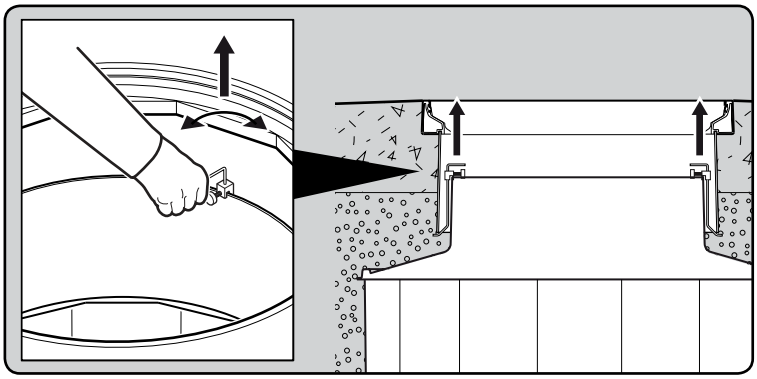
TYPICAL INSTALLATION

CONCRETE



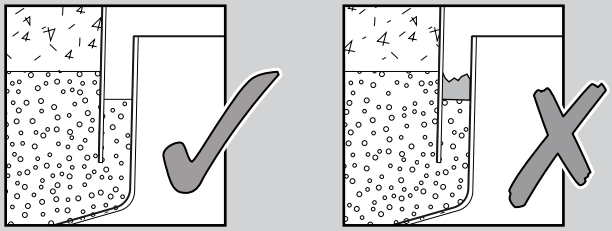
48 After minimum concrete cure time, hangers can be removed. Loosen the 'T' knob, push down on the rod, turn the rod through 90˚ and pull rod up to remove.

Complete other third party equipment installation inside the sump.



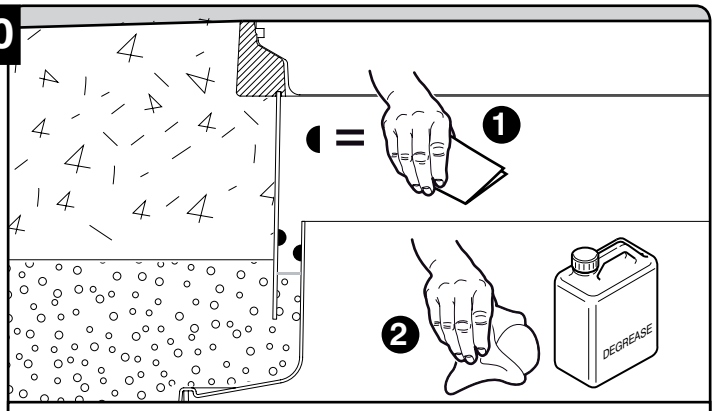
(Installation of corbel / skirt sealant)

49



Ensure void is free of concrete to a depth of 90mm (120mm on a high water table installation).

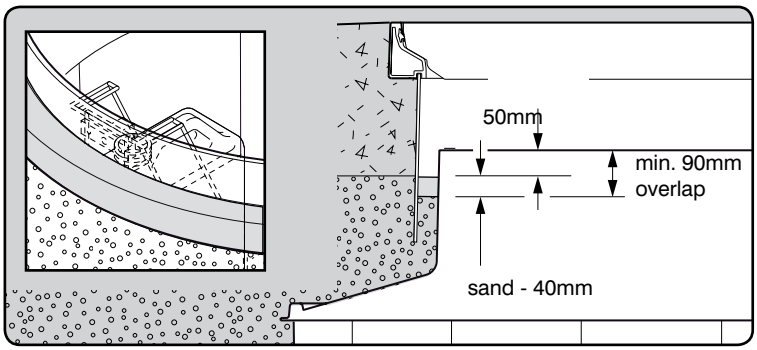
50



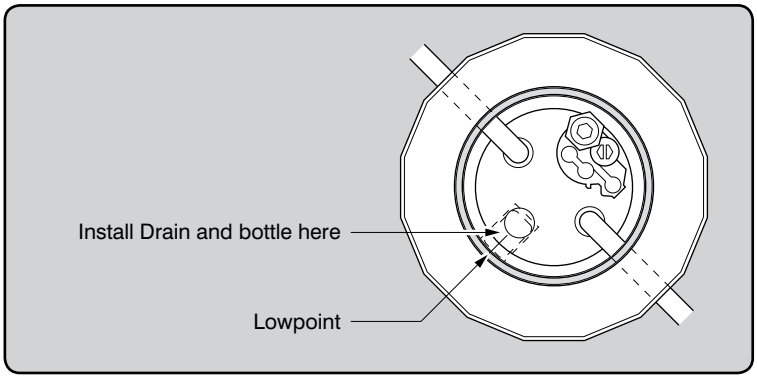
Abrade surface of corbel and skirt with sand paper.

Use acetone to clean surface of corbel and skirt. Ensure surfaces and channel are dry and free from dirt and grease.

51 Insert sand in the void to a depth of 50mm from top of corbel. Compact the sand.



52 Drain and bottle should be positioned away from pipe risers and stp. The drain must be installed at the created low point to do this. Compact the sand in a way to create a low point 10-15mm lower than the surrounding sand.



53 Mixing and Application

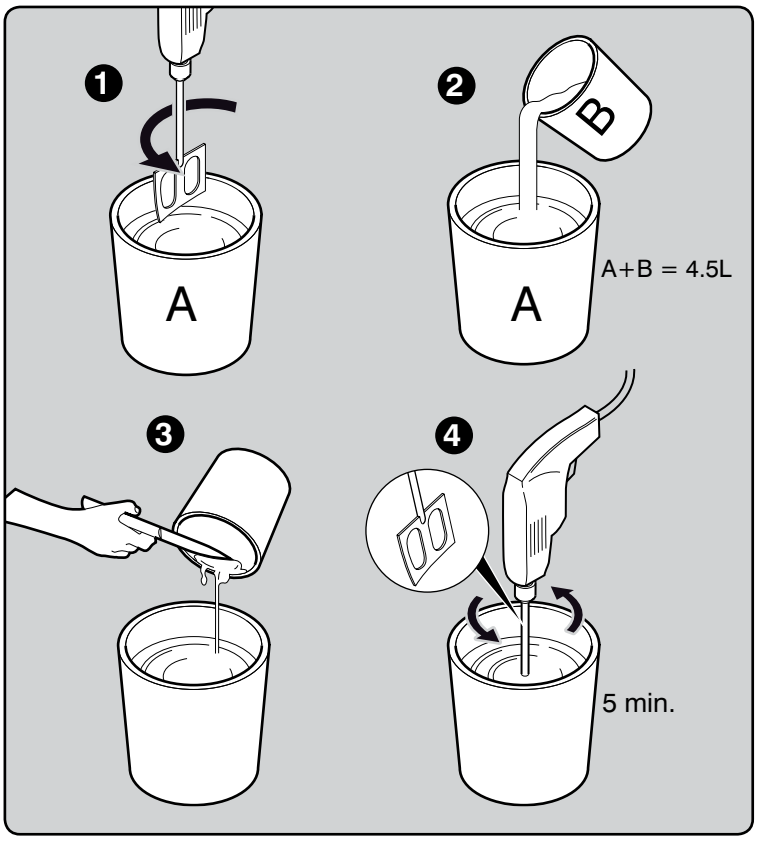
Application Temperature +5 to +45˚C

(Do not apply at temperatures below +4 degrees ˚C)

Pot Life	45 minutes @ 25˚C	
Cure Times @ 25˚C	Tack Free	2 1/2hrs
	Full Cure	2 days

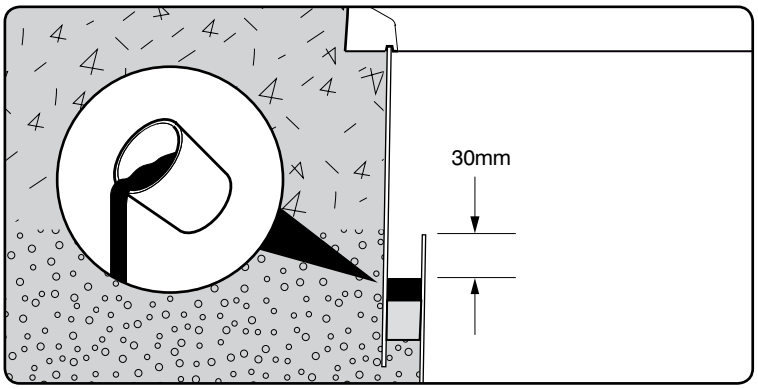
Using a suitable container stir the contents of Pack B and add the entire contents to Pack A to give a combined content of 4.5Ltrs. Ensure white sediment from can B is put into can A before mixing. Stir for a full 5 minutes using a slow speed electric drill (400 -500 rpm) with a mixer paddle until a completely homogeneous mix is obtained. Take care to avoid including excess air. Mixing is made easier if the Pack B is added and mixed in two stages.

WARNING If white sediment is not added to mixture, or contents are not mixed thoroughly using an electric mixer - the sealant will not set and will need replacing



54

1 set of cans A+B will seal 2 sumps. Decant mixture from can A into can B to have more control when pouring the mixture into the void, onto the sand base. Avoid spilling the contents to ensure a clean finish on the side walls of corbel and skirt. The sealant shall be poured to level 30mm below the top edge of the Corbel (the amount of sealant required is dependant on the height of the system but should be between 1.5 and 1.7 Litres).



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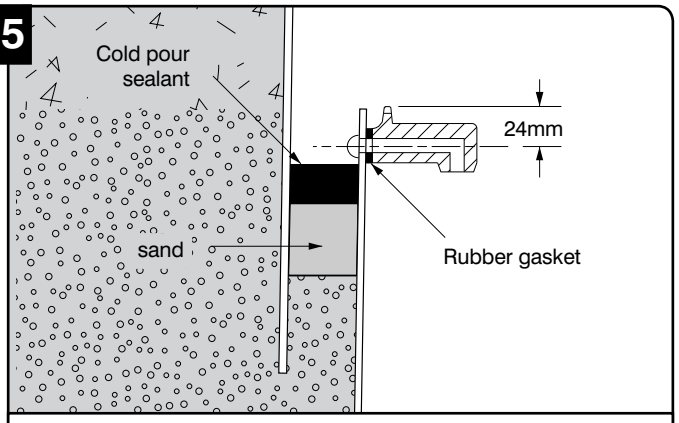
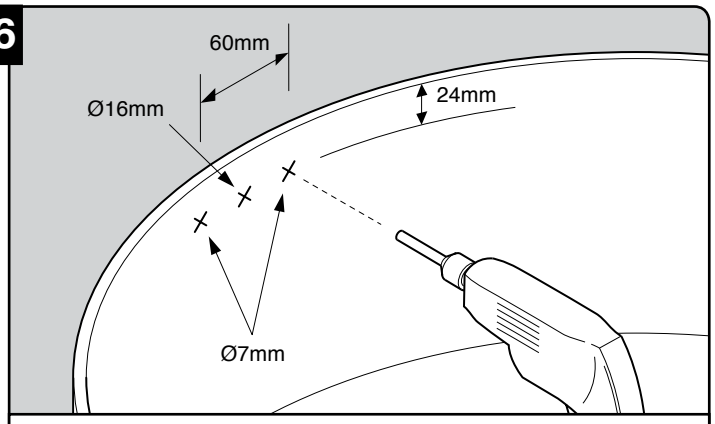


Fitting Bottle Hanger

When the sealant is tack free the bottle hanger may be fitted. Ensure that when the bottle hanger is fitted the water will drain down the spout.

56

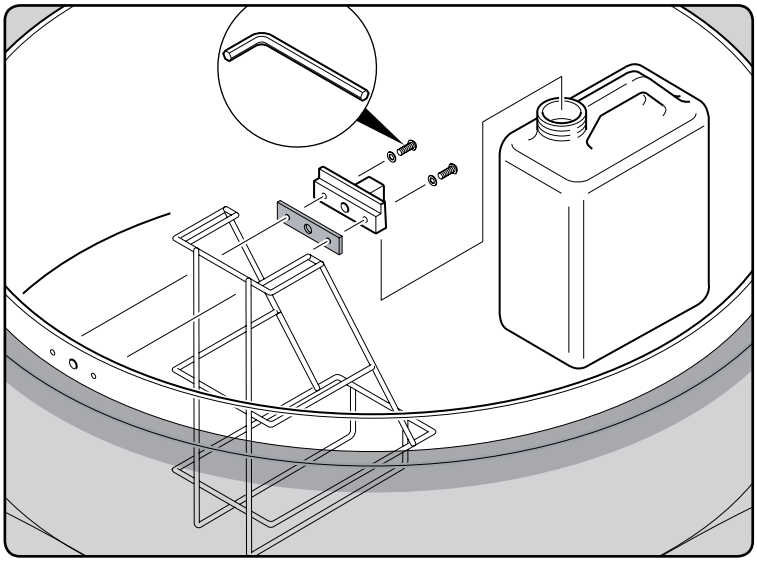


Mark out the position of the two holes to be drilled 24mm down from the top edge of the Corbel and 60mm cross centre. Drill the two Ø7mm holes into the Corbel walls.

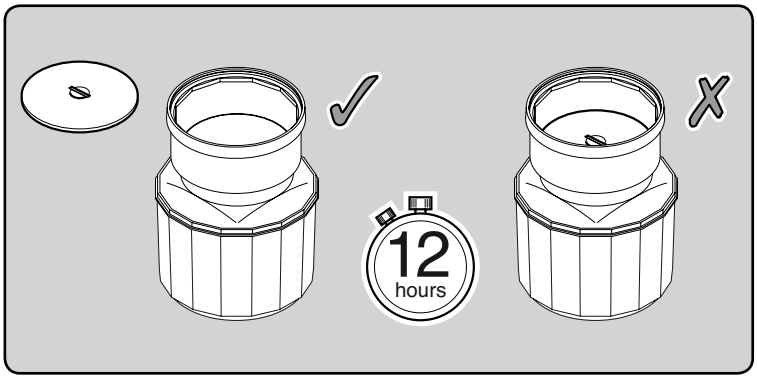
Also mark out the position of the drain hole to align with the hole in the drain spout and drill 1 No. Ø16mm through the corbel wall.

57 Ensure the rubber gasket is fitted to the mating surface of the bottle hanger. Secure the Bottle Hanger to the Corbel wall with 2 No. M6 x 15 Dome Head Screws and Washers.

Locate the Condensation Bottle into the Bottle carrier and suspend the Bottle Carrier from the Bottle Hanger.



58 Do not install the internal lid until the sealant has set. Wait overnight.



59 **Optional vacuum test on corbel.**

Once completed a final test can be performed. Ensure the corbel is supported from below by wooden batons (due to extra weight of concrete and backfill).

Warning: Test the corbel at a 0.6m depth setting only or irreparable damage may occur.

When testing at this stage the drain hole which is drilled in the corbel turret must be blanked off to achieve a test.