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ABS PIPE & FITTINGS

INSTALLATION

VIADUX VERSION 2

ABS PIPE & FITTINGS
INSTALLATION

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INTRODUCTION

DURAFLO ABS pipe systems are easy to install. It requires minimum trade skill and training of personnel for a successful installation.

HANDLING AND STORAGE

ABS pipes and fittings are relatively light and easily handled.

However, care must be taken during handling to prevent scoring or gouging of the pipes and fittings:

- Pipes and fittings shall not be dropped, indented, crushed or impacted.
- Metal slings, hooks, or chains shall not come into direct contact with the pipe surface. Fabric slings shall be used and shall be attached at two points on the load.
- Do not sling from the middle of the pipe.
- Spreader bars may be necessary to prevent slings slipping during lifts.
- Care shall be taken to prevent damaging the external surfaces of pipes by rough handling or by dragging along the ground.
- Pipe packs and individual pipes can be lifted by forklift or by using slings in conjunction with a crane or other lifting device such as a backhoe or other suitable equipment.
- Lengths in excess of 6 metres must be lifted from two points at least 3 metres apart. This can be achieved by using a forklift with wide tynes or by using slings and spreader bar at least 3 metres long.
- If mechanical lifting equipment is not available, large diameter pipes may be rolled down planks from the transport unit. Ropes shall be employed to control the pipes on the way down.
- Smaller diameter pipes can be lifted and carried manually.
- Pipes shall be stored in the packs supplied.
- Packs shall be stored on level ground free from stones or projections, which could damage the pipe.
- For short term, storage packs can be stacked to a height of maximum 2.8 meters.
- Multiple packs are not to be lifted.
- For longer term storage- more than 3 months -packs shall be stacked to a height of maximum 1.8 meters.
- Where pipes are to be stored individually or without being strapped in packs, they shall be supported with 75mm wide horizontal timber supports at 1.5m spacing.
- Unpacked pipes shall not be stacked higher than 1.8 m without vertical support.
- When stacking pipes with solvent cement welded sockets fitted to one end, alternate and stagger the pipe end to end so that the sockets do not bear upon each other.
- DURAFLO ABS pipes need not to be stored under cover except when storage period is likely to exceed 6 months. When extended storage periods are expected, pipes shall be covered with a light colour screening, which allows airflow between layers.

- Fittings shall be stored in the original packaging until ready for use.
- Under high solar radiation, pipe should be shaded at least 24 hours prior to joining.

JOINING SYSTEMS

Pipes and plain ended fittings may be joined by the following methods:

- Sockets—cold solvent cement welded (SWJ)
- Flanges
- Shoulder style coupling (e.g. Victaulic)
- Threaded adaptors
- Tapping saddles
- Unions
- Mechanical couplings (e.g. Gibaults, Straub, Wang, etc.)

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COLD SOLVENT CEMENT WELDED SOCKETS (SWJ/SWJ)

Cold solvent cement welded sockets are the quickest, most economical joining method for ABS pipes and plain ended fittings and are available for all pipe sizes.

Cold solvent cement welding eliminates the need for thrust blocks as the longitudinal stress is taken in the pipe wall.

This type of joint is permanent and cannot be disassembled.

CEMENTING ABS TO PVC

The cementing of these two dissimilar materials is not recommended, however AS/NZS 3879 allows for the joining of ABS to PVC in non-pressure drainage applications only.

Mechanical connection such as a threaded connection or a flange is recommended where such joints are necessary.

BRANCH CONNECTIONS

The preferred branch connection is by use of tees.

Tapping saddles, which permit branch connections to be made without removing a section of the main pipe are useful where additions are required to an existing installation.

Contact Viadux for further details regarding the use and installation of ABS tapping saddles.

CONNECTING ABS TO OTHER PIPE SYSTEMS

There are several recommended methods of connecting other pipe systems directly to ABS pipe.

- Flanges
- Threaded adaptors (Refer page 8)
- Shouldered end style couplings
- Mechanical couplings

COLD SOLVENT CEMENT WELDING

The cold solvent cement welding of ABS is a welding process and not a glueing process.

The solvent acts by temporarily dissolving the two surfaces to be welded. When they are brought together, the two surfaces reconstitute into a single homogeneous solid mass as the solvent quickly evaporates.

Sustained axial loading of pipe into the fitting is required to form a satisfactory joint.

The axial loading for the welding is provided by ensuring that the two parts being welded together have an interference fit. It is for this reason that sockets are designed with a taper (Fig.1)

The recommended brush size for ease of use is shown in the following table:

Pipe diameter	Brush size
Up to DN 50	20 mm
DN 50 - DN 200	50 - 80 mm
DN 200 and above	100 mm
Tee Branch	100mm

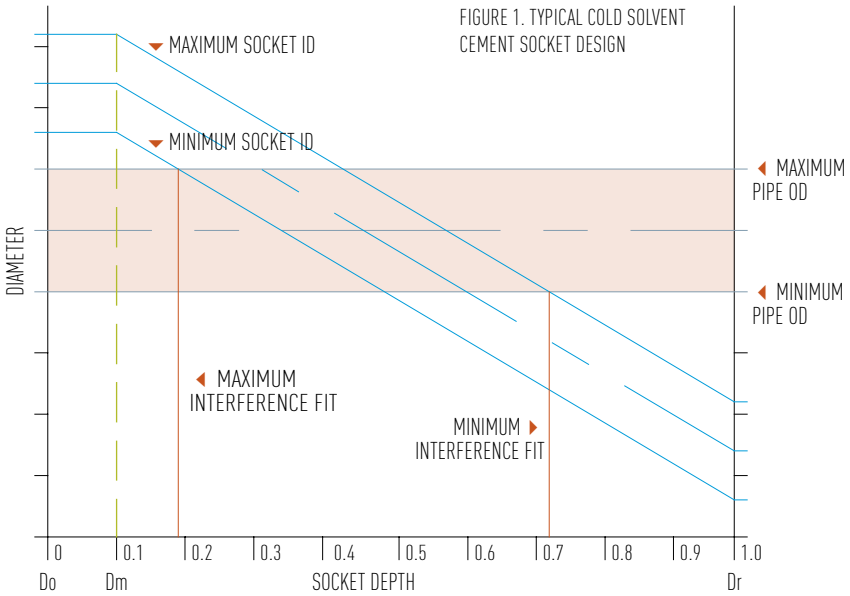
SAFETY PRECAUTIONS

The following requirements are in addition to any government safety legislation or established company work practices:

- Read safety precautions on ABS cement and MEK primer tins.
- Work area must be well ventilated.
- As cement and primer are flammable liquids ensure work area is clear of falling sparks or other sources of ignition e.g. smoking.
- Wear safety glasses and protective gloves at all times when using ABS cement and MEK primer.

Material Safety Data Sheets are available from Viadux.

FIGURE 1. TYPICAL COLD SOLVENT CEMENT SOCKET DESIGN



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IMPORTANT NOTES ON COLD SOLVENT CEMENT WELDING

- Work in a well ventilated area clear of hazards.
- Use only DURAFLO ABS solvent cement and MEK primer. PVC solvent cement and primer are not suitable for use with DURAFLO ABS pipe and fittings.
- Treat ABS cement and MEK cleaner with care, as they are volatile flammable liquids. Replace lids tightly after use.
- An indication of the number of joints likely to be made with DURAFLO ABS Solvent cement when following the recommended procedure is as follows.

SOLVENT CEMENT USAGE

Size	Solvent Weld Joints Per Litre
DN 50 S1	135
DN 80 S1	45
DN 100 S1	35
DN 125 S1	20
DN 150 S1	20
DN 200 S1	10
DN 225 S1	4
DN 300 S1	4
DN 350 S1	3
DN 375 S1	2
DN 400 S1	1
DN 450 S1	1
DN 500 S1	0.5
DN 575 S1	0.5
DN 650 S1	0.3
DN 750 S1	0.3

- The usage of primer is approximately 50% that of ABS cement
- ABS cement shall be stirred before use.
- If solvent cement becomes thickened through evaporation of solvents or becomes contaminated dispose cement safely and use a fresh tin.

Do not thin cement with primer.

Only use DURAFLO Solvent Cement.

- Ensure there is no contamination to the solvent cement joint from dirt, dust and oil.
- Solvent cement may be removed from your hands with soap and water or industrial hand cleaning soaps.

Do not use Primer for removing ABS solvent cement from your skin.

- The key to fast efficient joining, particularly with large pipe diameters is preparation.
- Solvent cement joining must be completed as quickly as practicable, typically within 2 minutes of applying the first coat of cement.
- Pipe and socket must be dry for effective joining.
- Use only clean cotton rags and clean brushes.
- Check alignment of fittings before making the joint.
- When using a lever winch, have everything ready before applying solvent cement.
- When installing fittings, ensure that winching operations do not bear on branches of tees.
- A canopy over the joining area is desirable when working in full sun.
- In hot conditions shading of joining areas of pipe for a minimum of 1 hour before joining will enable easier joining.
- In hot or wet conditions a canopy over the joining area to prevent direct sunlight or precipitation on the joining process will enable easier joining. Ensure adequate ventilation.
- Where a lever winch is used, leave it connected applying the axial load until the joint sets.
- It is good practice to leave the tension on the winch until it is needed for the next joint.

Full rated pressure shall not be applied for 48 hours after joining.

Testing must not be carried out until the following times have elapsed since completion of the last joint:

Sizes DN 10 - DN 200 : 48 hours

Sizes DN 225 - DN 350 : 72 hours

Sizes DN 400 - DN 750 : 96 hours

INSTALLATION OF BOLT ON SADDLES

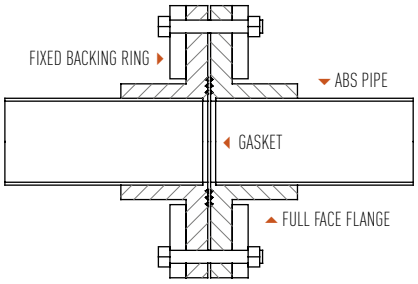
- Assemble clean elastomeric seal carefully into band, making sure no dirt is in the tapping band groove. Extra care must be taken when fitting curved E-lips.
- Match any positioning lug into the mating notch in the band groove to ensure they are aligned correctly.
- Position band on a clean section of pipe, tighten bolts until band is secure. Over tightening is not necessary and could cause the stainless steel nuts to gall.
- Tap the pipe trough the band being careful not to damage the band or force swarf under the seal. It is good practice to mark the pipe so that if the band is removed it may be replaced exactly and centrally over the tapped hole.
- The take-off branch is a plain socket. Reduced or threaded branch configurations may be formed by using the appropriate DURAFLO fitting.
- Ensure that all take-off pipes are aligned and free to flex with expansion to avoid undue stress on the saddle.
- Ensure that any instrument connected by this method is independently supported and not presenting any concentrated load to the main pipe.

FLANGED JOINTS

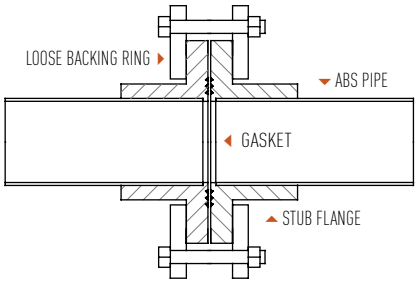
DURAFLO manufacture two styles of flanged joining systems.

- Full face flanges, available in sizes 15mm to 150mm.
- Stub flanges, available in sizes DN 50 to DN 750.

FULL FACE FLANGE ASSEMBLY



STUB FLANGE ASSEMBLY



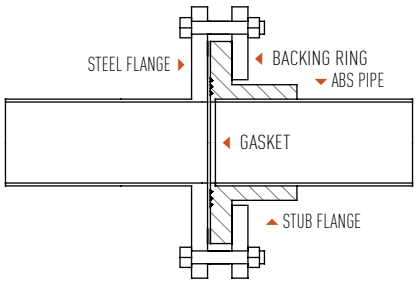
Stub flanges are the preferred style as they offer a more economical fitting and are easier to install than the full face style. Stub flange assemblies have the same pressure rating as full face flanges assemblies.

Backing rings must be used with both full face and stub flanges and are available in all standard drilling configurations.

Gaskets must be used with flanges.

ABS stub flange and full face flange assemblies may be bolted directly to other flanged pipe systems of the same flange drilling i.e. ANSI 150, AS 2129 etc.

FLANGE ASSEMBLY—STEEL TO ABS STUB FLANGE



Flange bolt torque values for ABS pipes will not be as high as those commonly used on steel pipe systems.

The recommended torque values are suitable for the maximum pressure rating of ABS pipe systems.

Higher torque values may result in distortion of the flange face.

Standard butterfly valves may be placed between ABS stub flange or full face flange assemblies without modification. Valves should be checked for full and free movement prior to final tightening of flange bolts.

Care needs to be exercised as the valve disc may interfere with the bore of the pipe.

Spacers or special stub flanges can be provided.

RECOMMENDED BOLT TORQUES AND BOLT SIZES FOR AS 2129 TABLE E FLANGES (ABS TO ABS FLANGES)

Pipe Size	Bolt Size	Torque (N/m)	Bolts/ Flange
DN 15 S1	M12 x 50	7	4
DN 20 S1	M12 x 50	10	4
DN 25 S1	M12 x 50	14	4
DN 32 S1	M12 x 50	13	4
DN 40 S1	M12 x 50	16	4
DN 50 S1	M16 x 65	22	4
DN 65 S1	M16 x 65	25	4
DN 80 S1	M16 x 70	33	4
DN 100 S1	M16 x 80	25	8
DN 125 S1	M16 x 90	34	8
DN 150 S1	M20 x 90	42	8
DN 200 S1	M20 x 100	63	8
DN 225 S1	M20 x 130	80	12
DN 250 S1	M20 x 150	108	12
DN 300 S1	M20 x 150	108	12
DN 350 S1	M24 x 160	133	12
DN 375 S1	M24 x 170	163	12
DN 400 S1	M24 x 180	157	16
DN 450 S1	M24 x190	185	16
DN 500 S1	M27 x 230	191	16
DN 575 S1	M27 x 240	190	16
DN 650 S1	M27 x 280	200	20
DN 750 S1	M33 x 300	200	20

Torque values are based upon the use of lubricated bolts complying with the relevant standards. Care should be taken with galvanised bolts as increased friction may be encountered.

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THREADED CONNECTIONS

DURAFLO offer a range of threaded ABS fittings up to DN100(4"). For normal water supply purposes, the cutting of threads on ABS pipes is not recommended. A moulded threaded fitting should be used. When joining threaded fittings the following points should be observed:

- All threaded fittings are rated up to 1500kPa at 20°C
- PTFE tape only should be wound onto male threads for a satisfactory seal. Hemp, grease liquid thread sealants or solvent cement should NEVER be used
- Add sufficient PTFE tape to enable screwing in by hand to half the full engagement depth. Under no circumstances should the thread "bottom" against a stop on either the male or female fitting

  Tightening should only be done by hand with a maximum of an extra quarter turn with a strap wrench (preferred) or pipe wrench (with caution)

  There is often a tendency to over-tighten threads however this only causes distortion and creates stress on the fitting, which can result in cracking/leaks
- When joining to metal fittings, consider the effect of changes in temperature. ABS expands and contracts with temperature five times as much as steel. If it's cold, a male plastic threaded fitting will over-tighten once at room temperature. If it's hot, the reverse will apply
- Only use male threaded ABS fittings with female metal fittings. A male metal fitting in a female ABS fitting will create too much stress in the ABS and ultimately will fail
- PTFE TAPE IS THE RECOMMENDED THREAD SEALANT
- DO NOT USE LIQUID SEALANTS, E.G. LOCTITE OR PTFE PASTE, AS THEY CONTAIN CHEMICALS WHICH WILL ATTACK PLASTIC MATERIALS

Caution DO NOT OVERTIGHTEN

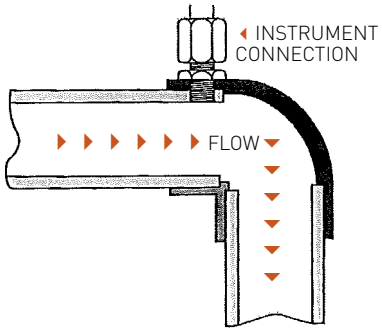
CONNECTION TO THE INSTRUMENTS

Instrumentation connections can be made by drilling through pipe and socket where the material is at its thickest and tapping the hole to receive a threaded fitting, as shown below:

Pipe size	Connection Size
DN 15, DN 65	Use tees, reducing bushes and threaded fittings
DN 80, DN 100	Max tapping ½" BSP
DN 125	Max. tapping ¾" BSP
DN 150	Max. tapping 1" BSP

Such connections , if correctly drilled and tapped with full thread form, will be limited to Class C/PN 10 pressures. For connection to straight pipe we recommend either a saddle strip, WANG clamp or SUPREME tapping saddle be used with drilling and tapping.

Instrument connections should be on the entry side of the flow for any bend or change of direction to avoid potential issues with axial thrust.



BURIED PIPELINES

TRENCH PREPARATION

Trenches shall be excavated in accordance with AS/NZS 2566 Buried flexible pipelines. Installation and the specified design and relevant installation codes.

The bottom of the trench shall be even and stable and prepared in accordance with the prescribed pipeline gradient and depth.

A bedding layer of a minimum thickness as determined by the code shall be laid in the bottom of the trench.

Ensure that the bedding is free from hard objects or sharp projections.

The bedding shall be graded to continuously support the pipe.

The bedding shall be compacted according to the required specifications.

Where the joining fitting will lay on the trench bottom, scallop out a bell hole in the bedding. The bell hole shall be twice the length of the socket joiner to allow sufficient room for joining.

After joining, the bell hole shall be filled and compacted.

Ensure that after joining has been completed joining sockets are neither unsupported nor on points of concentrated load.

PRE-ASSEMBLY OF COLD SOLVENT CEMENT WELDED PIPES AND LAYING

Joining above ground and 'snaking' into the trench is suitable for solvent cement welded pipes in sizes up to DN 200.

With this method, the pipes are joined together in a continuous length of several hundred metres alongside the trench.

Care must be taken not to strain the pipe or pipe joints.

If this method is to be considered, refer to Viadux.

JOINING IN TRENCH

This method is appropriate for all joining methods and for all sizes of pipe.

The pipes shall be laid in the trench so that the socketed end of the pipe is facing in the direction of laying.

The next pipe is then placed in the trench and inserted into the socket.

Pipes can be supplied with one joining socket fitted to one end and the other end chamfered. Where this is not the case, or the pipe is cut to a specific length, a chamfer shall be formed (see procedure for cutting) and a socket shall be welded to one end of the pipe above ground before laying in trench.

Where it is necessary to fit a joining socket to a pipe in a trench, the trench will need to have sufficient room around the end of the pipe to perform joining.

When solvent cement welding in trenches, ensure that any spillage of solvent cement or primer is completely removed immediately.

THRUST BLOCKS

Thrust blocks are not required for solvent cement jointed buried pipelines at changes of direction, terminations, changes in pipe diameter or tees.

BACKFILLING AND COMPACTING

Backfilling and compaction of embedment material, overlay and backfill shall be in accordance with AS/NZS 2566.

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REPAIR OF DAMAGED PIPES

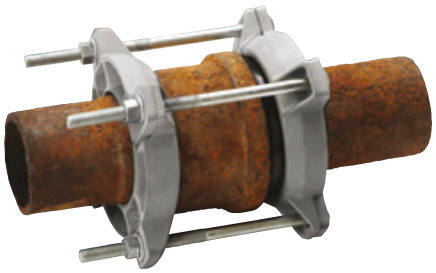
ABOVE GROUND

For above ground repairs, the recommended method is to remove the damaged section of pipe and replace with a new section.

Sockets, flanges, socket unions, or shoulder style joints are all suitable methods to rejoin the pipe. Metal couplings are also suitable where pipe has adequate restraint against axial thrust.

BELOW GROUND

Where damage to the pipe is minimal (less than 25-30% of circumference of pipe) a repair saddle may be used. These are available from Viadux. A temporary repair may be quickly prepared on site from a sectioned ABS socket with the centre stop removed. A repair saddle properly fitted will restore the pipe to its maximum rated working pressure.



Where the damage is more extensive, the damaged section of pipe must be replaced. The joining method may be selected from the following table.

REPAIR METHOD

Method	Size	Axial Restraint
Shoulder Style Coupling	DN 50-DN 150	No
Mechanical Coupling*	DN 15 - DN 750	No

*Temporary restraint may be required

TEE OFF-TAKE LEAK

FLANGED OFF-TAKE CLAMP

A flanged offtake clamp is designed to provide a flange connection off a new or existing pipeline. This clamp is ideal for tapping pipelines under pressure, or for repairing a leaking branch of a tee on existing pipes. This can be achieved by completely removing (cut flush with tee body) the branch and fitting the offtake clamp over the tee body.

Material: 316 stainless steel skin,
Nitrrile rubber gasket,
316 stainless steel fasteners.
Certification: StandardsMark
Lic No. QAS1785

PIPE LEAK

STAINLESS STEEL REPAIR CLAMP

A fast, permanent and economical repair to most damaged pipes, with pinholes, cracks and full circumferential damage. Clamp OD range means that clamp has multi-pipe repair capabilities.

Material: 316 stainless steel skin,
Nitrile rubber gasket,
316 stainless steel fasteners.
Certification: StandardsMark
Lic No. QAS1785

ABOVE GROUND PIPELINES

DURAFLO ABS pipe is particularly suitable for installation as an above ground line. Typical examples are in tailings disposal or de-water applications. Contact Viadux for information.

HYDROSTATIC PRESSURE TESTING

The test procedure outlined in AS/NZS 2566 should be followed where installations must be pressure tested. Alternatively, the following procedure may be employed.

Note. Testing must not be carried out until the following times have elapsed since completion of the last joint:

Sizes DN 10 - DN 200 : 48 hours

Sizes DN 225 - DN 350 : 72 hours

Sizes DN 400 - DN 750 : 96 hours

For hot and humid conditions the following curing times are recommended:

Sizes DN 10 - DN 200 : 3 days

Sizes DN 225- DN 350 : 4 days

Sizes DN 400- DN 575 : 5 days

Sizes up to DN 750 : 7 days

Similarly, allow adequate time for any concrete encased fixtures to cure, e.g. puddle flanges set in valve pit concrete walls.

- For large installations split the system into sections for testing
- Fill section with clean ambient temperature water (20°C is ideal). Do not pressurise
- Ensure no air is trapped in the system
- Inspect system for air leaks
- Allow the system to stand for one hour to allow temperature to stabilise and equilibrium reached
- If there are no leaks remove any remaining air and increase pressure to 300kPa. Leave at this pressure for 15 minutes and inspect for leaks
- If pressure remains constant, increase pressure to recommended test pressure

Once a pipe has been selected, then the pressure test conditions and commissioning conditions need to be limited so not to risk adversely affecting the expected 50 years design life of the system i.e. these conditions are CONSEQUENCES of a pipe selection and should not be considered a pipe selection CRITERIA.

The AS/NZS 2566 specifies that the hydrostatic test pressure at any point in the pipeline shall be:

a) not less than the design pressure; and

b) not more than 25% above the rated pressure of any pipeline component.

Note. The design pressure includes the short-term surge pressure (water hammer) as determined by analysis.

The test section shall then be allowed to stand under pressure without make-up for at least 15 minutes or for the time necessary to inspect all joints in the completed section (12 hours maximum).

A second consequence of pipe pressure class selection is limiting the duration of commissioning time. In any single attempt the maximum period allowed is 24 hours if the system pressure is at the maximum operating pressure.

Note. There can be subsequent or repeated commissioning attempts as long as the pipe system has been 'stress relieved' (release pressure in the system) for a minimum of 24 hours between prolonged high temperature - high pressure combination events.

CAUTION: Under no circumstances should pressure tests be carried out using high pressure air. Water is the preferred pressurizing medium.

When testing above ground lines, the Poisson's effect may reduce the length of line. This may impose excessive loads on bulk heads or equipment greater than the design.

It is recommended that final closures are made after the hydrotest and in-service test.

MAXIMUM TEST PRESSURE ALLOWED

Test Temperature	PN rating				
	4.5	6	9	12	15
20ºC	5.7	7.5	11.3	15.0	18.8
25ºC	5.4	7.2	10.7	14.3	17.8
30ºC	5.1	6.8	10.1	13.5	16.9
35ºC	4.8	6.4	9.6	12.8	15.9
40ºC	4.5	6.0	9.0	12.0	15.0

Note. If extended times are required to achieve the test pressure either leakage is occurring or there is air trapped in the system. Inspect for leakage and if none apparent, reduce the pressure and check for trapped air which must be removed before the test can continue.

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SOLVENT WELD JOINING - SMALL DIAMETER AND LARGE DIAMETER

The skill to perfect solvent cement welded joint increases proportionately with the increase in diameter of the ABS pipework being installed. The larger the diameter ABS pipe and fittings the more skill is required to deliver a successful joint.

DURAFLO Solvent Cement and Primer should only be used when joining DURAFLO ABS Pipe and Fittings.

Listed below is the equipment need for joining small diameter and large diameter ABS pipe and fittings.

SMALL DIAMETER UP TO DN 150

- Sharp wood saw or cutting tool
- Tape measure and marker pens
- Lint free rags/paper towels
- Paint brush (25mm to 50mm)
- Coarse file
- DURAFLO Solvent Cement and Primer
- Emery or light sand paper (120 grit)
- Gloves and safety glasses

LARGE DIAMETER DN 200 AND LARGER

- Circular saw. Tungsten Tip Blade
- Tape measure and marker pens
- Lint free rags/paper towels
- Paint Brush x 2 (50mm to 100mm)
- Coarse file
- DURAFLO Solvent Cement and Primer
- Emery or light sand paper (120 grit)
- Gloves and safety glasses
- Mechanical Tirfor®/come-a-long
- Spare containers (decanter solvent) —optional

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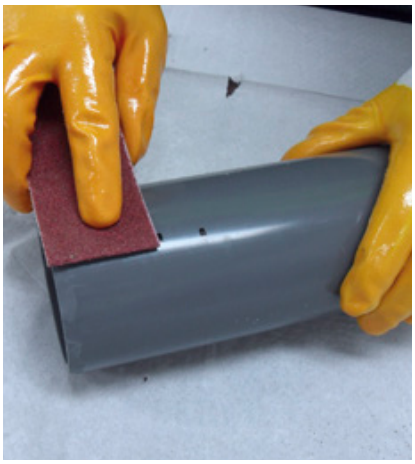
SMALL DIAMETER SOLVENT WELDING PROCEDURE—DN 15 TO DN 150

1 Measure and cut pipe to length ensuring that the ends are cut square. De-bur removing any swarf and file a chamfer (3 to 10mm x 45°). Chamfer prevents solvent cement being scraped from the surface of the fitting during assembly.

2 Measure socket depth of fitting and using a marker pen mark the end of the pipe at an equal distance to the socket depth of the fitting. Add an additional mark 20mm further along the pipe this enables a visual check to be made that the pipe has been fully inserted. A good practice is to dry fit the pipe and socket. The pipe will enter the socket and meet resistance before reaching full depth, if it won't enter or meets NO resistance STOP and seek advice.



3 Using emery / sand paper lightly abrade the surface of both the pipe and fitting. This is only to remove the shiny finish on the pipe and fitting and will help absorb the primer. Ensure the pipe and fitting are wiped over with a clean rag after abrading to remove any dust.

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SMALL DIAMETER SOLVENT WELDING PROCEDURE—DN 15 TO DN 150

4 Immediately before joining, thoroughly wipe both abraded surfaces with a rag moistened with the primer to initiate the chemical reaction.

5 For sizes DN 150 and smaller generally only 1 person is required for the solvent welding process. Remove the lid of the DURAFLO ABS Solvent Cement and stir thoroughly. Apply 1 coat to the pipe surface first, then 1 coat to the socket and then apply a second coat to the pipe (when required—see table below).

Pipe Size	Coats Required	
	Pipe	Socket
Up to DN 50	1	1
DN 50 and above	2	1

6 Without delay push the pipe in a smooth even motion, until the end of the socket reaches the first witness mark. Do not push the pipe using a twisting motion. Continue to exert axial load until the joint sets. Sockets are tapered and the pipe will initially try to slide out of the socket (see table below).

If the solvent has dried and the pipe will not insert with relative ease stop the joint and pull it apart. Using a scraper lightly scrape off the solvent cement from both the pipe and fitting and start the process again.

Do not apply solvent cement onto the pipe over the first witness mark.

Do not pour the solvent cement onto the pipe or allow puddles to form.

Pipe Size	Holding Time
DN 15 - DN 50	20 - 60 sec
DN 80 - DN 200	1 -5 min
DN 225 - DN 350	5 - 10 min
DN 375 - DN 500	10 - 20 min
DN 575 - DN 650	20 - 30 min
DN 750	30 - 45 min

Do not disturb joints for 60 minutes after joining.

SMALL DIAMETER SOLVENT WELDING PROCEDURE—DN 15 TO DN 150

7 Using a rag thoroughly wipe excess solvent cement from all around the socket mouth and where possible, from inside the pipe. In typical solvent weld joints a bead of solvent should extrude out between the socket and the pipe when joining.

8 Replace lids on solvent cement and primer. Brushes can be cleaned with the primer.

IMPORTANT NOTES:

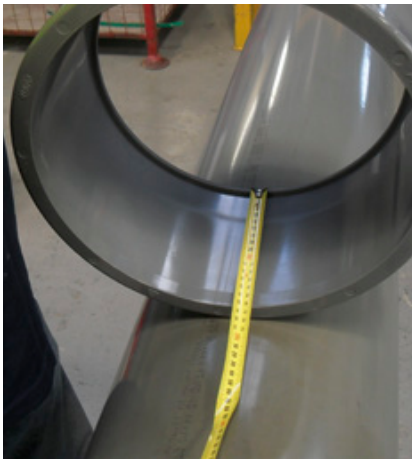
- All joints need to be clean of dirt, dust, water that could contaminant the joint and cause a potential leak path.
- Proper preparation is important when solvent welding ABS pipe and fittings
- The hotter the ambient temperatures the quicker the joints need to be put together. In summer conditions it is recommended that a canopy be used to shade the area where solvent welding is taking place.
- Do not dilute the DURAFLO Solvent Cement with the primer.
- MSDS are available for the solvent cement and primer

ABS PIPE & FITTINGS
INSTALLATION MANUAL

LARGE DIAMETER SOLVENT WELDING PROCEDURE—DN 200 TO DN 750

1 Measure and cut pipe to length ensuring that the ends are cut square. Debur, removing any swarf and file a chamfer (3 to 10mm x 45°). Chamfer prevents solvent cement being scraped from the surface of the fitting during assembly.

Note. For pipe DN 200 and larger it is recommended that the pipe is cut with a tungsten tip circular saw.



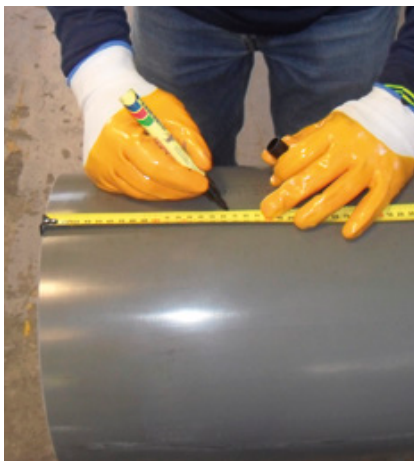
2 Measure socket depth of fitting and, using a marker pen, mark the end of the pipe at an equal distance to the socket depth of the fitting.

Add an additional mark 20mm further along the pipe. This enables a visual check to be made that the pipe has been fully inserted.

A good practice is to dry fit the pipe and socket. The pipe will enter the socket and meet resistance before reaching full depth. If it won't enter or meets NO resistance STOP and seek advice.

3 Using emery/sand paper lightly abrade the surface of both the pipe and fitting. This is only to remove the shiny finish on the pipe and fitting and will help absorb the primer when applied.

Ensure the pipe and fitting are wiped over with a clean rag after abrading to remove any dust. It is generally after this step that you will also get your mechanical assistance (Tirfor®/come-a-long) prepared and into position.

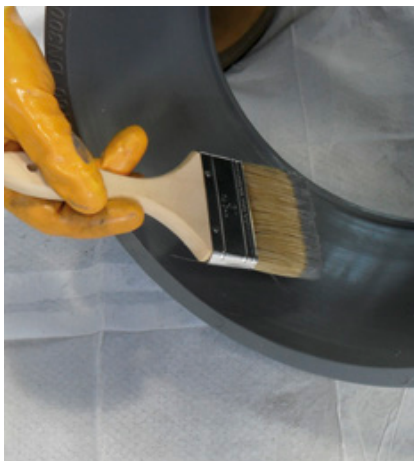


LARGE DIAMETER SOLVENT WELDING PROCEDURE—DN 200 TO DN 750

4 Immediately before joining, thoroughly wipe both abraded surfaces with a rag moistened with the primer to initiate the chemical reaction.

5 For sizes DN 200 and larger two people are required for the solvent welding process.

Remove the lid of the DURAFLO ABS Solvent Cement and stir thoroughly. Apply one coat to the pipe surface first, then one coat to the socket and then apply a second coat to the pipe (when required—see table below).



Pipe Size	Coats Required	
	Pipe	Socket
Up to DN 50	1	1
DN 50 and above	2	1

6 Without delay pull the pipe or fitting in a smooth even motion, using mechanical assistance, until the end of the socket reaches the first witness mark.

Continue to exert axial load through the use of the mechanical assistance until the joint sets. Sockets are tapered and the pipe will initially try to slide out of the socket (see table below).

If the solvent has dried and the pipe will not insert with relative ease stop the joint and pull it apart. Using a scraper lightly scrape off the solvent cement from both the pipe and fitting and start the process again.

Do not apply solvent cement onto the pipe over the first witness mark.

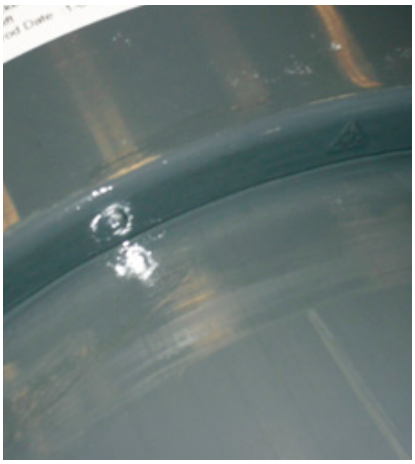
Do not pour the solvent cement onto the pipe or allow puddles to form.

Pipe Size	Holding Time
DN 15 - DN 50	20 - 60 sec
DN 80 - DN 200	1 -5 min
DN 225 - DN 350	5 - 10 min
DN 375 - DN 500	10 - 20 min
DN 575 - DN 650	20 - 30 min
DN 750	30 - 45 min

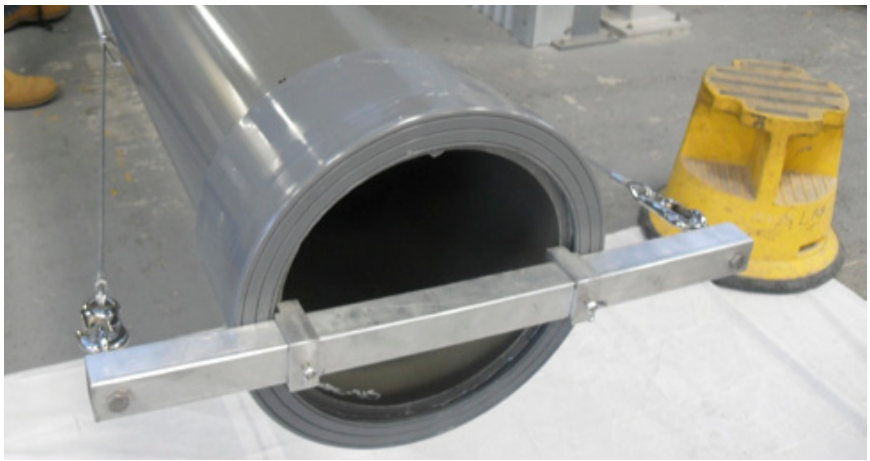
Do not disturb joints for 60 minutes after joining.

ABS PIPE & FITTINGS
INSTALLATION MANUAL

LARGE DIAMETER SOLVENT WELDING PROCEDURE—DN 200 TO DN 750



7 Using a rag wipe excess solvent cement from all around the socket mouth and where possible, from inside the pipe. In typical solvent weld joints a bead of solvent should extrude out between the socket and the pipe when joining.



8 Replace lids on solvent cement and primer. Brushes can be cleaned with the primer.

IMPORTANT NOTES

- All joints need to be clean of dirt, dust, water that could contaminant the joint and cause a potential leak path
- Proper preparation is important when solvent welding ABS pipe and fittings
- The hotter the ambient temperatures the quicker the joints need to be put together. In summer conditions it is recommended that a canopy be used to shade the area where solvent welding is taking place
- Do not dilute DURAFLO Solvent Cement with the MEK Primer
- MSDS are available for the solvent cement and MEK Primer

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