Interplast

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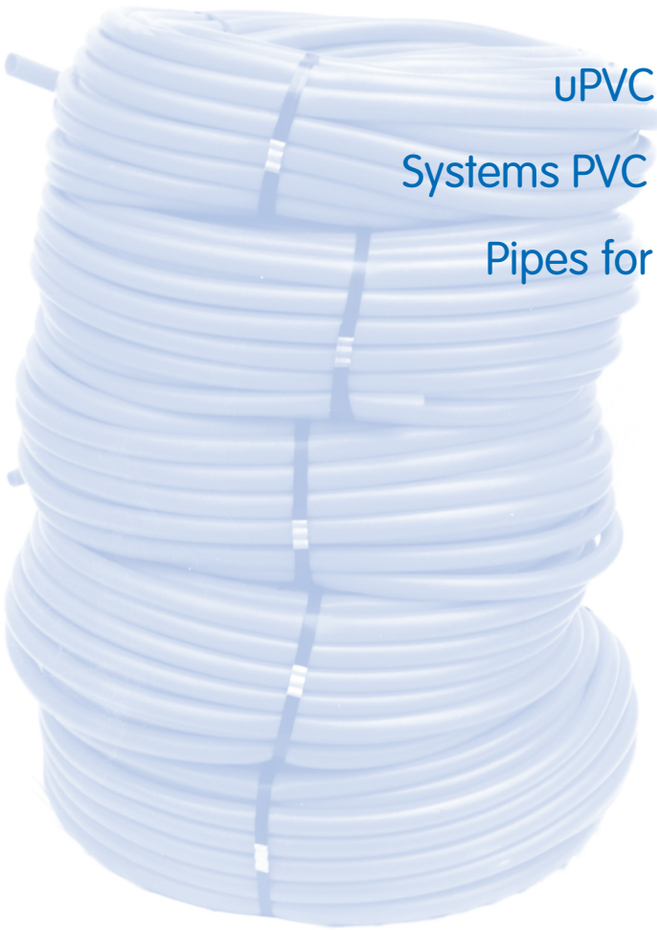


This brochure is an aid for engineers involved in the design, construction and installation of water mains, distribution, sewerage and bore-hole systems. In addition, engineers involved in the selection of uPVC pipes for electrical installation and telecommunications cable ducting will also find this brochure useful.

Interplast is located in Accra and is equipped with the most modern machinery available, using up to date techniques to produce uPVC pipes to exacting standards. The factory has all the production equipment and test facilities to produce and test pipes to meet BS 3505, DIN 8062 and ISO 4452-2 specifications.

Our trained engineers and technical advisors are always available to offer technical advice to our clients on the correct use of Interplast uPVC pipes and fittings.

Stocks of pipe fittings are always available to accompany all sizes of pipes produced.

Consultants and engineers are welcome to visit our factory and laboratory to assure themselves of our commitment to produce and test pipes of the highest quality.

Manufacturing Standards

Interplast manufactures uPVC pipes to British Standard **BS 3505** and **DIN 8062 /ISO 161** and **ISO 4452-2** specifications. All pipes are tested and certified by the Ghana Standards Board.

Manufacturing Range

Interplast presently manufactures a comprehensive range of uPVC pipes to the following specifications:

BS 3505: 1/2" to 8" diameter in various pressure classes. Pipes from 1/2" to 1 1/2" outside diameter are available with plain spigot and solvent weld socket joints. All pipe sizes 2"diameter and above are available with mechanical rubber ring joints, as well as plain spigot and solvent weld socket joints.

DIN 8062 and ISO 4452-2: 20mm to 400mm outside diameter in various pressure classes. Pipes from 20mm to 50mm outside diameter are available with plain spigot and solvent weld socket joints. All pipe sizes 63mm outside diameter and above are available with mechanical rubber ring joints, as well as plain spigot and solvent weld socket joints.

Physical Properties of uPVC pipes

Resistance to corrosion

uPVC pipes and fittings exhibit excellent resistance to aggressive environments both naturally occurring and as a result of industrial activity. They are resistant to almost all types of corrosion, either chemical or electrochemical in nature. Since uPVC is a non-conductor, galvanic and electro chemical effects do not occur in uPVC pipes.

Due to it's non-metallic nature, the material used is totally resistant to all forms of metallic corrosion.

Aggressive water resulting from high sulphate soils and low hardness water will not attack uPVC pipes. Our pipes are therefore resistant to a wide range of industrial waters and chemicals and offer an advantage in long-term systems life and manufacture costs.

Naturally non-toxic

Being made of a tasteless and odourless material, uPVC pipes remain neutral to all transported fluids.

Low flow losses

Because of their mirror-smooth inside surface, uPVC pipes have minimum flow head loss. There is also no build up of inside deposits, a particular advantage in the construction of sewerage systems.

Weather resistance

The physical properties of uPVC pipes are not affected by neither direct sunshine, nor wind or rain. However, to avoid surface browning due to long exposure to direct sunlight, it is recommended that the pipes are kept protected from direct sunlight.

Fire proofness

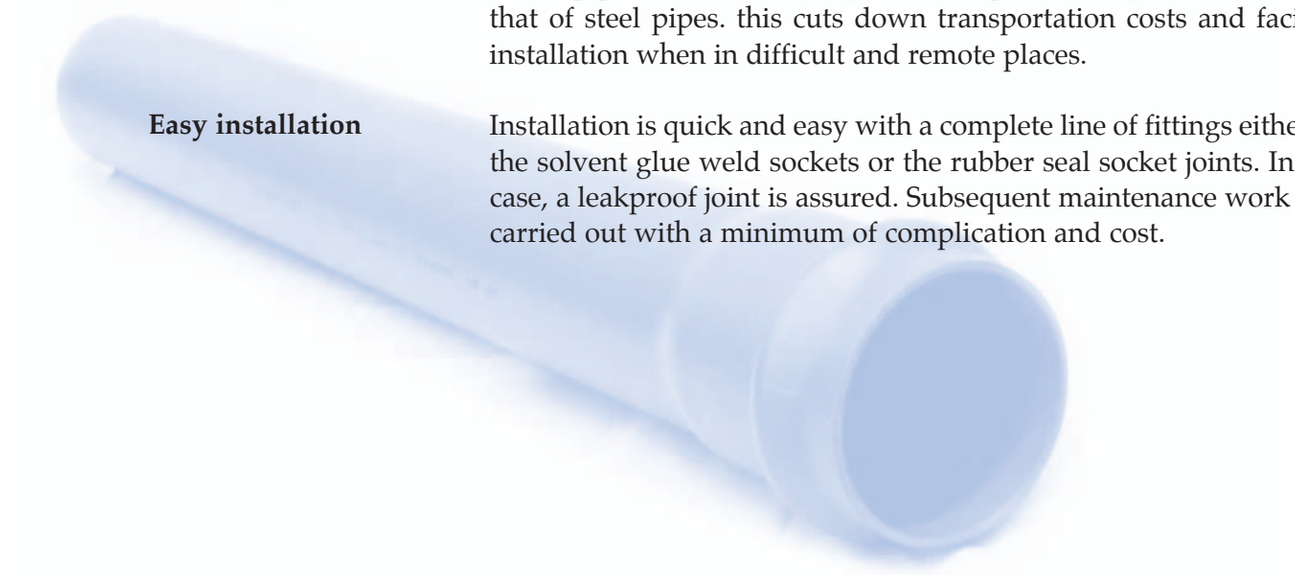
Rigid PVC is not conductive to combustion. In the event of a fire, flames are unable to travel on uPVC pipes. They therefore offer added safety when used for electrical installations, both domestic and industrial.

Light weight

uPVC pipes are relatively light. Their specific weight 1.43 is one-fifth that of steel pipes. this cuts down transportation costs and facilitates installation when in difficult and remote places.

Easy installation

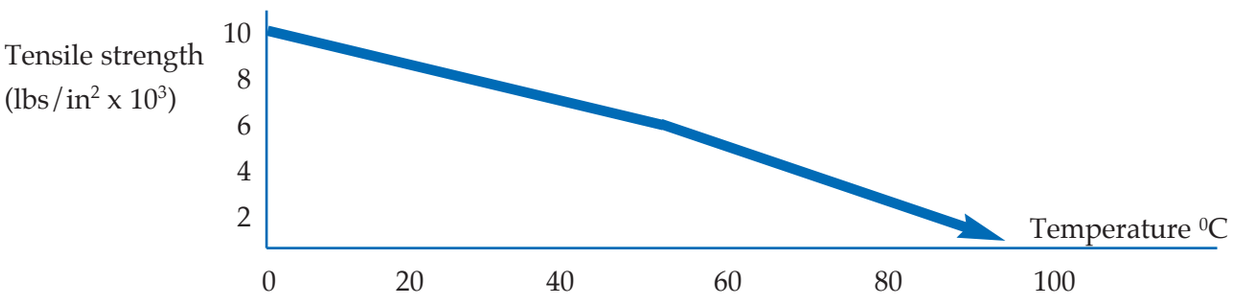
Installation is quick and easy with a complete line of fittings either with the solvent glue weld sockets or the rubber seal socket joints. In either case, a leakproof joint is assured. Subsequent maintenance work is also carried out with a minimum of complication and cost.



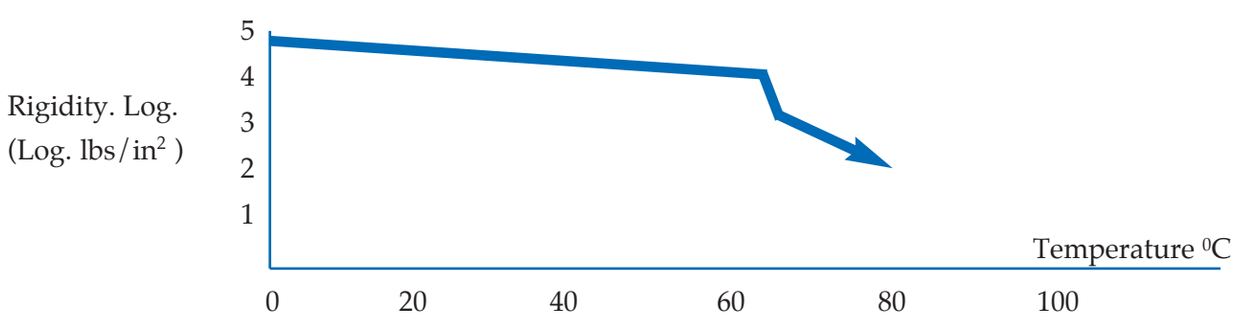
General Properties at 20°

TEST	UNIT	VALUE	REMARKS
Specific Gravity	-	1.42 -1.43	Usually 1.43
Shore Hardness	Deg	70 - 90	Equivalent to the hardness of Aluminium. Varies with Temperature
Tensile Strength	Kg/Cm^2	500	
Bending Strength	Kg/Cm^2	950	Varies with Temperature
Modulus of Elasticity	Kg/Cm^2	3.2 x 10	
Impact Strength Izod	JOULES	4.7 -5.4	
Water Absorption	mg/Cm^2	1.05	
Elongation at Break		>80%	
Softening Point (V.S.P) 5kg	^0C	80 ^0C	
Fabricating Temperature	^0C	110 - 140	
Co-efficient of Linear Expansion at Temp ^0C - 70^0		0.08mm/m^0C	
Specific Heat	KCal/Kg^0C	0.25	
Heat Reversion		<2.5%	
Specific Volume Resistivity	Ohm/Cm	>3-5 x 10^{15}	uPVC is non-conductor of electricity and is not subject to galvanic or electrolytic attack.
Dielectric Strength	KV/mm	>40	Electrical equipments must not be earthed to uPVC pipes

Relationship between tensile strength and temperature



Relationship between rigidity and temperature



Pressure ratings comparison table

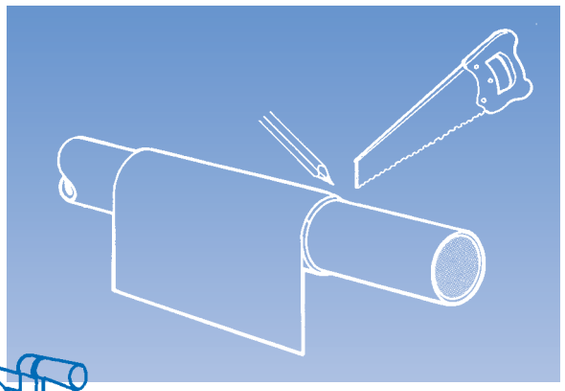
DIN 8062

Class	2	3	4	5
Bar	4	6	10	16
Kg/cm²	4.08	6.1	10.2	16.32
Meter of water head	40.8	61.2	102	163.2
Feet of water head	134	201	335	535

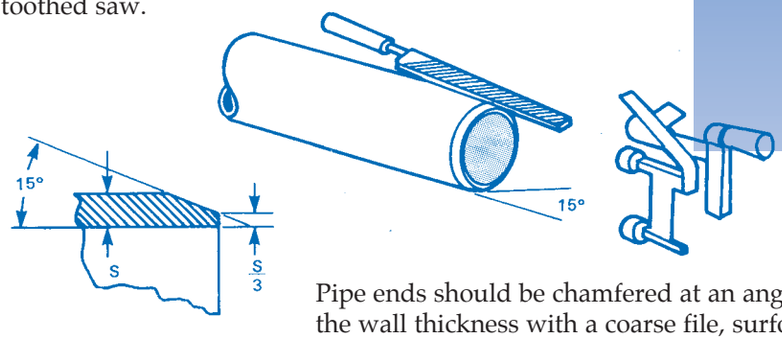
BS 3505

Class	B	C	D	E
Bar	6	9	12	15
Kg/cm²	6.12	9.18	12.24	15.3
Meter of water head	61.2	91.8	122.4	153.0
Feet of water head	201	301	401	502

Cutting and Chamfering



Pipe should be cut square. A simple method of cutting pipes square is to wrap newspaper or similar sheet paper around the pipe with no overlap of the edges. Mark line around pipe (felt pen is ideal). Cut to line with a fine toothed saw.



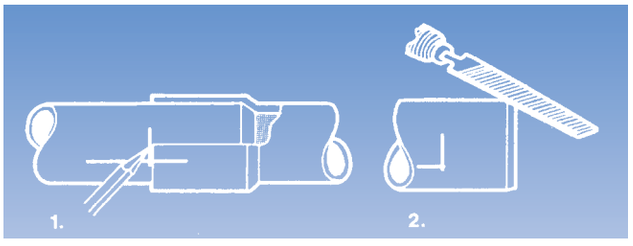
Pipe ends should be chamfered at an angle of approximately 15^0 to about $^1/_3$ of the wall thickness with a coarse file, surform tool or chamfering tool.

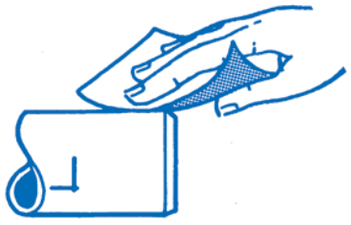
Solvent Weld Joints

Pipes up to 75mm may be jointed easily with solvent adhesives. Larger sizes require special techniques and require two men to make such joints.

1 Jointing Procedure. Mark depth of entry of the pipe into the socket and alignment mark.

2 Make small chamfer on the edge of the pipe end with medium file.

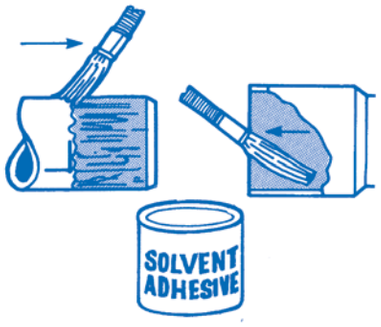




3 Roughen the outside of the pipe and the inside of the socket using sand paper or emery cloth up to the entry mark.

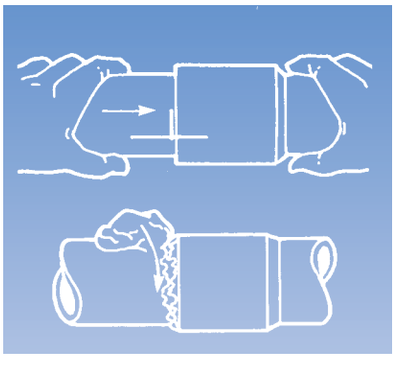
4 Clean both surfaces and remove all dust, grease and swarf using a dry clean cloth and cleaner.

5 Stir adhesive thoroughly.



6 Apply adhesive without delay after cleaning, using a flat clean brush. Apply an even unbroken layer brushing axially to the pipe end and socket mouth with a heavier layer on the pipe. Where loose fits are found, the pipe should be given a second coat.

7 Immediately insert the pipe into the socket up to the entry mark, align pipe and socket. Hold in position for a few seconds, then wipe off excess adhesive (DO NOT TWIST).



Solvent Weld jointing of large diameter pipes require special care and our Technical Service Department should be contacted in case of difficulty. Always replace the lid of the can after making a joint and follow the instructions on the can observing any warnings.

After Jointing

Joints should not be moved or disturbed for 10-15 minutes then the jointed pipe may be handled with care. Allow 4 hours if the jointed pipe lengths are to be laid in a trench.

Testing

Allow 8 hours to elapse before applying working pressures or 24 hours for test pressures. With pipe sizes up to 50mm, it is possible to reduce this time. Allow 1 hour for each 3.5 atmospheres of pressure.

Precautions

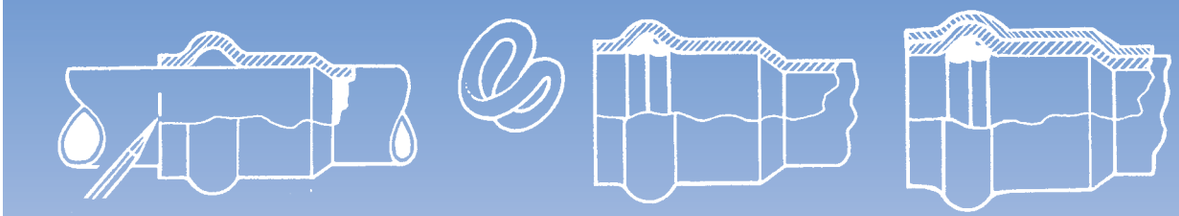
Brushes must be clean and dry before commencing solvent welding. Brushes must be thoroughly cleaned after use by washing in cleaning fluid.

Do not dilute solvent adhesive with cleaning fluid.

Use Solvent adhesive and cleaning fluid in a well ventilated area. Keep away from naked flames and do not smoke. Always replace lids of containers. In any event, attention is drawn to the instructions printed on the containers.

When laying continuous runs of pipe, joints may be made quicker than the setting times advised above. The joint will not be disturbed with long lengths, providing that the pipe is not twisted or the previously made joint lifted out of place.

Rubber Seal Joints



Ensure that the spigot and socket are free from dust, grit, grease and as dry as possible.

Insert pipe into the socket without seal ring in place and mark pipe when it is fully inserted.

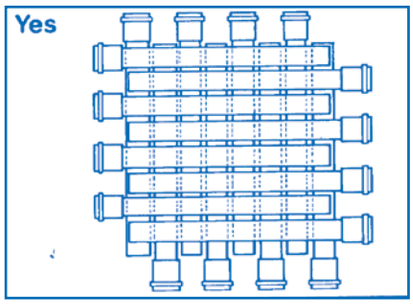
Place seal in groove of socket ensuring that seal is correct way round. Anger seal rings should be fitted with tapered section facing the outside of the socket.

Apply jointing lubricant to the chamfer and the end of the spigot of the pipe or fitting only.

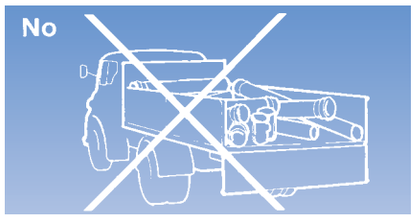
Push the pipe firmly into the socket up to the insertion mark previously made. If an expansion gap is required the pipe is then pulled back by the desired amount.

Handling and Storage

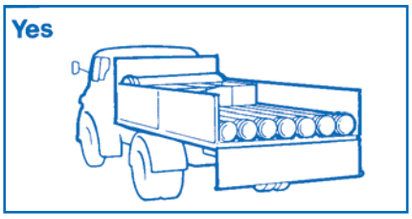
Unplasticised PVC pipes are strong yet light, their specific gravity being approximately one-fifth of Cast Iron. As a result, these pipes are more easily handled than their metal counterparts. Reasonable care, however, should be used at all times. When off loading, pipes should be lowered, not dropped to the ground.



Pipes should be given adequate support at all times. Pipes should not be stacked in large piles, especially in warm temperature conditions, as the lower layers may distort, resulting in difficulties in jointing and pipe alignment. Any pipe with ends prepared for jointing (Socket and spigot joints, 'A' joints, etc) should be stacked in layers with sockets placed at alternate ends of the stack and with the sockets protruding to avoid unstable stacks and the possibility of imparting a permanent set to the pipes.

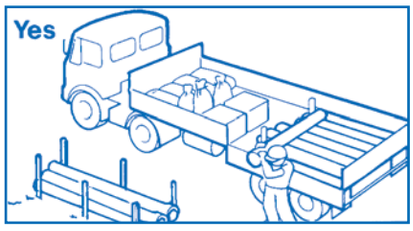


For long-term storage, pipe racks should provide continuous support, but if this is not possible, timber of at least 3in. (75mm) bearing width at spacings not greater than 3ft. (915mm) centres for pipe sizes 160mm and above, should be placed beneath the pipes and at 6ft. (1.8m) centres at the side, if the stacks are rectangular. These spacings apply to pipe sizes 160mm and above. Closer supports will be required for sizes below 160mm. In such pipe racks, pipes may be stored not more than seven layers, or 6ft. (1.8m) high, whichever is the lesser, but if different classes of pipe are kept in the same racks, then the thickest classes of largest diameter must always be placed at the bottom.



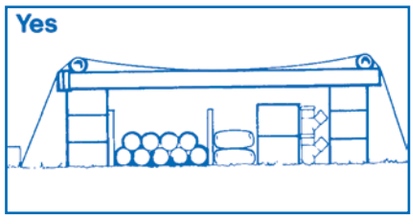
For temporary storage in the field, where racks are not provided, the ground should be level and free from loose stones. Pipes stored thus should not exceed three layers high and should be stacked to prevent movement.

Stack heights should be reduced if pipes are nested, i.e. pipes stored inside pipes of larger diameters. Reductions in height should be proportional to the weight of the nested pipe compared to the weight of the pipes normally contained in such stowages.



uPVC pipes, should be stored in the shade to avoid ultra-violet (U/V) degradation from the Sun's rays.

Since the soundness of any joint depends on the condition of the spigot and the socket, special care must be taken in transit, handling and storage to avoid damage to the ends.



When loading pipes on to vehicles, care must be taken to avoid their coming into contact with any sharp corners such as cope irons, loose nail-heads, etc., as pipes may be damaged by being rubbed against these during transit. Whilst in transit, pipes shall be well secured over their entire length and not allowed to project unsecured over the tailboard of the lorry. Pipes may be off-loaded from lorries by rolling them gently down timbers, care being taken to ensure that pipes do not fall one upon another, nor on to any hard or uneven surfaces.