

Quick Installation Guide

FIP PVC-U Pressure Fittings

Important: Always use the correct Solvent Cement for the application.

The recommended Solvent Cement for jointing Large Bore FIP PVC-U Pressure Fittings is Type G Solvent Cement.

Type G is for pressure or non-pressure applications, designed for its gap filling properties in parallel or clearance fit joints (imported pipes and fittings such as FIP, IPEX, Durapipe ranges)

Priming fluid is suitable for use in conjunction with Type G Solvent Cements.

Procedure

- 1) Cut the pipe perpendicular to its axis to obtain a clean square section, preferably using a wheeled pipe cutter designed specifically for thermoplastic pipes (Fig. 1).
- 2) Chamfer the outer edges of the pipe in order to ensure that it enters the socket of the fitting at an angle of 15°. The chamfering operation must be carried out at all costs, otherwise the lack of chamfer can lead to the Vinidex Solvent Cement being scraped off the surface of the fitting (Fig. 2).
- 3) Measure the depth of the socket of the fitting to the internal shoulder and mark the corresponding distance on the end of the pipe (Fig. 3 and 4). For more details, refer to the table below.

Nominal Diameter Pipe (mm)	Pipe/Fitting diameter OD (mm)	Cement Length (mm)	Chamfer Sm (mm)
200	200	118.5	5/6
225	225	131	5/6
250	250	146	5/6
300	300	163.5	5/6
375	375	206	5/6

- 4) Using a clean paper towel or applicator soaked in Vinidex Priming Fluid, remove any traces of dirt or grease from the outer surface of the pipe for the entire cementing length. Repeat the same operation on the internal surface of the socket of the fitting: leaving the surfaces softened (Fig. 5).

Leave the surfaces to dry for a few minutes before applying the Vinidex Type G Solvent Cement. Remember that, in addition to cleaning the joint surfaces, the Vinidex Priming Fluid also performs the important role of softening and preparing the surface to receive the solvent, an operation that enables a perfect joint to be obtained.

- 5) Apply the Vinidex Type G Solvent Cement in a uniform manner longitudinally over both parts to be assembled (outer surface of the pipe and internal coupling surface of the fitting) using an applicator or suitably sized coarse brush.



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5

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Procedure (cont.)

It is advisable to use an applicator/brush of dimension not less than half the diameter of the pipe. The Vinidex Type G Solvent Cement must be applied along the entire length of the joining surface of both the pipe and the fitting:

- for the entire joint length of the pipe previously marked on the outer surface (Fig. 6)
- for the entire depth of the socket as far as the internal shoulder (Fig.7)

6) Fully insert the pipe into the fitting (Fig. 8).

7) The pipe must be inserted in the fitting as soon and as quick as possible (after no more than 20-25 seconds is recommended). Mechanical pipe-pullers will be required for jointing of large diameter pipes and fittings.

8) Immediately after fully inserting the pipe in the fitting, apply pressure to the joined parts for a few seconds. Then use a clean cloth to remove any excess solvent cement from the outer surfaces, and from internal surfaces where possible (Fig. 9).

9) Vinidex Type G Solvent Cement drying: the joined parts must be left to stand in order to allow the solvent cement to set naturally without generating any unnecessary stress.

The setting time depends on the amount of stress that the joint will be placed under. In particular, the following minimum setting times must be respected according to the ambient temperature:

- before handling the joint:
 - from 5 to 10 minutes for ambient T. > 10°C
 - from 15 to 20 minutes for ambient T. < 10°C
- for repair joints on pipes of any size or pressure not subject to hydraulic testing:
 - 1 hour for each atm of applied pressure
- for joints in pipes and fittings of any diameter subject to pressure testing up to PN 16:
 - minimum 24 hours

The solvent cement setting times indicated are valid at ambient temperature (approx. 25°C.). For particular climatic conditions (humidity, temperature, etc.), we recommend you contact our technical services department for more information (Fig. 10).



Fig. 6



Fig. 7



Fig. 8



Fig. 9



Fig. 10

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In the case where the external diameter of the pipe and the internal diameter of the fitting are at opposite extremes of their tolerance values, the dry pipe cannot be inserted in the dry socket of the fitting. Insertion will only be possible after having applied the Vinidex Priming Fluid and Type G Solvent Cement to both parts to be joined.

- The Vinidex Solvent Cement is manufactured from the same PVC resin used for the production of the pipes, fittings and valves. Unless otherwise specified, the solvent cement used on the surfaces to join must also be usable with the following tolerances:
 - maximum interference 0.2 mm
 - maximum clearance 0.6 mm
- When using the Vinidex Priming Fluid and Solvent Cement, the following precautions should be adopted:
 - Use gloves and safety glasses to protect hands and eyes.
 - Use the Vinidex Priming Fluid and Solvent Cement in a working environment with sufficient ventilation to avoid the formation of pockets of air containing concentrations of evaporated solvent, which can irritate the respiratory tract and eyes.
 - Due to the volatile nature of the solvents in the priming fluid and solvent cement, the containers must be closed immediately after use.
 - Solvents in the gaseous phase tend to form flammable mixtures. Therefore, remove any ignition sources such as welding operations, accumulation of electrostatic charges, etc. from the work area, and do not smoke. In all cases, it is advisable to adhere strictly to the Vinidex Solvent Cement manufacturer's instructions written on the packaging.
 - In order to prevent a deterioration in the performance of the Vinidex Priming Fluid and Solvent Cement, the joining operations should be carried out within an ambient temperature range of between + 5 and + 40° C.
- The amount of Vinidex Solvent Cement used on the joints depends on a number of factors (environmental conditions, pipe size, cement viscosity, operator experience, etc.) which are often difficult to quantify.

In this respect, the table below "Rigid PVC-U Pipes and Fittings, Theoretical Solvent Cement Consumption" reports the approximate quantities of Vinidex Priming Fluid and Solvent Cement normally used for joining various diameter pipes and fittings.

Rigid PVC-U Pipes and Fittings, Theoretical Solvent Cement Consumption

Nominal Diameter Pipe (mm)	Pipe/Fitting diameter OD (mm)	Number of Joints per 1L of Solvent Cement	Number of Joints per 1L of Priming Fluid
200	225	6	50
225	250	4	30
250	280	2	24
300	315	2	24
375	400	1	16

- After having completed all the joints and prior to putting the lines into service, make sure that the insides of the pipes and fittings are completely free of any solvent traces/vapours. This will prevent contamination of the fluids conveyed.
- Table "Most Common Defects" below reports the most common types of defect found if the correct solvent welding procedure is not followed.

Most Common Defects

Excess solvent cement	
Immediate effect	Internal and external runs beyond the joint zone.
Consequence	Weakening of the outer surface of the joint area and formation of bubbles with micro-cracks/sources of fracture in the base material
Excessively dense solvent cement due to evaporated solvent	
Immediate effect	Cementing failure
Consequence	Joint separation or leaks from between the pipe and fitting. Possible surface cracks triggering cracks in the base material.
Insufficient and/or incorrect distribution of solvent cement	
Immediate effect	Cementing failure or local weakness
Consequence	Joint separation or leaks from between the pipe and fitting.
Incorrect pipe insertion (incomplete, excessive, misaligned)	
Immediate effect	Imperfect Joint
Consequence	Transmission of mechanical stresses from the pipe to the fitting and/or leaks from the joint.
Impurities and/or humidity on the surfaces of the parts to join	
Immediate effect	Imperfect Joint
Consequence	Joint separation or leaks (fluid seepage) from between the pipe and fitting

Vinidex recommends that PVC Pressure pipes are installed in accordance with AS/NZS 2032 Installation of PVC Pipe Systems.