

# Installing plastic pipes

## Overview

Thermoplastic piping is comparatively easy to join. By using one of five jointing methods below and by carefully following the jointing instructions, permanent, leak free joints are possible:

- Solvent Cement Jointing of PVC-U, PVC-C and ABS
- Socket Fusion Jointing of PP, PE and PVDF
- Butt Fusion Jointing of PP, PE, PVDF and ECTFE
- Electrofusion Jointing of PP, PE and PVDF
- Infra Red (IR) Fusion Jointing of PP, PVDF and ECTFE

Technique	Description	Features	Used For:
Solvent Welding	A solvent cement is used to soften and bond the jointing surfaces of the pipe and fitting. The joint must be fully cured before the system is pressurised.	<ul style="list-style-type: none"> <li>- Simple manual operation</li> <li>- No specialist equipment</li> </ul>	PVC-U, PVC-C and ABS in all sizes
Socket Fusion	Jointing surfaces of the pipe and fitting are heated to the welding temperature by contact with a heating socket and bush. The parts are brought together manually or by machine. The system can be used once the joint has cooled.	<ul style="list-style-type: none"> <li>- Relatively simple to use</li> <li>- Fast jointing and cooling</li> </ul>	PP, PE and PVDF in sizes up to 110m
Butt Fusion	Welding faces of the pipe or fitting are heated to the welding temperature by contact with a heating plate. A machine brings the parts together under pressure until the joint is cool and can be used.	<ul style="list-style-type: none"> <li>- Alignment is controlled</li> <li>- Pipe to pipe joints possible</li> <li>- Lower material costs</li> </ul>	PP, PE, PVDF and ECTFE in all sizes
Electrofusion	The fitting contains wires that heat the material to the welding temperature by electrical resistance. Once cooled the joint may be used.	<ul style="list-style-type: none"> <li>- Little manual input needed</li> <li>- Simple, fast and reliable</li> <li>- Pre-assembly possible</li> </ul>	PP, PE and PVDF in sizes up to 400mm
IR Fusion	Welding faces of the pipe or fitting are heated to the welding temperature using an infra red heating element that needs no contact with a welding plate. A machine brings the parts together under an automatic welding process and holds the parts together until the joint is ready for use.	<ul style="list-style-type: none"> <li>- No joint contamination</li> <li>- Smaller weld beads</li> <li>- Consistent weld quality</li> <li>- Reduced weld cooling time</li> </ul>	High purity PP, PVDF and ECTFE in sizes up to 315mm

Work crews installing plastic piping systems must always be trained in the correct methods for handling and installing plastic materials. The size of the work crew required can vary according to the complexities of the installation, the diameter and weight of the pipe, site and weather conditions and the type of jointing method to be used. As a general guide, the following table shows a minimum crew size required to safely handle and install plastic piping in a range of sizes:

### Guide to Crew Size for Joining Plastic Pipe

Pipe Nominal Diameter	Jointing Team (Minimum)
1/2" - 1 1/4"      6mm - 32mm	1
1 1/2" - 3"        40mm - 75mm	2
4" - 8"            100mm - 200mm	3
10" +              250mm +	4