

MecFlow Fusion is a reliable, multi-layer, WRAS approved water supply system, ideal for medium to high-rise commercial and multi-occupancy buildings.

This simple alternative to traditional water supply systems brings all the benefits of PP-RCT, including its strength, durability and a B-s1, d0 fire classification rating according to EN 13501.

The MecFlow Fusion system of pipes and fittings has 3 methods of thermo-weld jointing – socket, electro and butt fusion - which all use a source of heat to facilitate an effective weld process.

This bulletin outlines the tooling required to prepare and weld the MecFlow Fusion system as per the Polypipe Building Services guidelines outlined in the Technical Manual, focusing on tool use for different pipe sizes.

Cleaning and Marking

Prior to any socket or electrofusion welding, the MecFlow Fusion surfaces should be cleansed using a lint-free cotton cloth and an isopropyl alcohol-based cleaner (91% by volume or greater). The most appropriate method of marking MecFlow Fusion pipes for cutting, scraping and welding is to use a chinagraph pencil.

Cutting

There are several methods of correctly cutting MecFlow Fusion pipe. In all cases, the cut should be square and smooth.

MecFlow Fusion pipe can be cut by hand, please refer to the following table of cutters available by diameter. Tube cutters, with a cutting wheel deep enough for the MecFlow Fusion wall thickness can be used for diameters up to 160mm. A fine-toothed hand saw is also a suitable method.

Cutting using powered saws, such as circular, band and reciprocating, is typically more appropriate for diameter larger than 160mm.

It is important that, post cutting, any debris is removed and the pipe is de-burred using a de-burring tool.



Scraping

Pipe scraping is only required when utilising electrofusion welding to joint MecFlow Fusion pipes with MecFlow Fusion Electrofusion Couplers. This process removes the oxidation layer which, if not removed, could compromise the quality of the joint.

There are two main types of pipe scraper/peeler:

Turbo scrapers are rotating tools which, in conjunction with a power drill, allow fast and precise scraping of MecFlow Fusion pipes up to 125mm in diameter. Up to 63mm in diameter, the turbo scrapers also comprise a pipe end plan blade that can be used to correct unevenly cut pipes.

Rotary scrapers are manually operated tools which allow precise scraping of MecFlow Fusion pipes above 50mm in diameter. When utilising an electrofusion coupling as a slip-coupling, please ensure the rotary scraper has the capacity to undertake the extended length of peeling required (at least double the socket depth).

Socket Fusion Welding

Pipes will require bevelling with a pipe beveller just prior to this method of jointing.

When socket welding MecFlow Fusion pipes to MecFlow Fusion socketed fittings, Type A socket and spigot welding irons are required.

All socket fusion welding requires a hot plate, male and female irons (Type A, in the relevant diameter, for MecFlow Fusion products) and a temperature probe with thermometer.

Depending on the diameter being welded, a bench based machine or portable jig with clamps that can move the pipes or pipe and fitting into place for welding, may also be required.

Jig-based socket welding machines, used in conjunction with a power drill and socket fusion welder with the relevantly sized socket and spigot welding irons, are suitable for in-situ socket fusion jointing of pipes to socketed fittings up to 125mm in diameter.

Bench-based fusion welding machines are suitable for pre-fabrication of assemblies, using socket fusion jointing of pipes to socketed fittings between 25 and 125mm in diameter. Generally, bench based machines come complete with welding irons, please ensure they are Type A.

It is advisable to use a contact temperature probe & digital thermometer to ensure hot plates have reached their optimum welding temperature prior to the weld.

Please see electrofusion and butt fusion welding below for details of larger diameter MecFlow jointing.

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Electrofusion Welding

39.5V pressure pipe electrofusion welding machines, with a barcode scanner and 4mm terminal connections, are suitable for the electrofusion of MecFlow Fusion pipes using MecFlow Fusion electrofusion couplings.

Butt Fusion Welding

MecFlow Fusion pipes of 40mm in diameter and above can be jointed using this method. 160mm diameter MecFlow Fusion pipes also use this method to join to the MecFlow Fusion fittings of the same diameter.

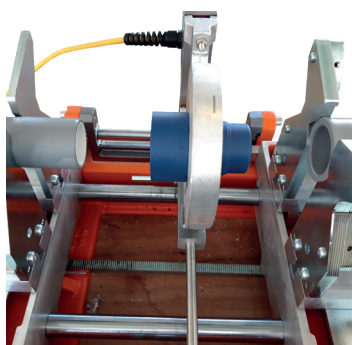
Several pressure pipe butt fusion welders are available, ranging from manual to fully automatic operation. The welding machine used should be suitable for use with PP-RCT pipes and fittings with a standard dimensional ratio (SDR) of 11. It must have correctly sized clamp sets for the pipe diameter being jointed, a planer, a hot plate and a manometer. For ≤ 125 mm diameter the drive system can either be a mechanical hand or hydraulic, for >125 mm diameter a hydraulic drive system must be used.

It is advisable to use a contact temperature probe & digital thermometer to ensure hot plates have reached their optimum welding temperature prior to commencing welding.

The vast majority of tooling mentioned in this Technical Bulletin are available for hire or purchase though most leading tool hire companies.

Please remember, more detailed information on the design, specification and installation of the MecFlow Fusion system is available in the Technical Manual.

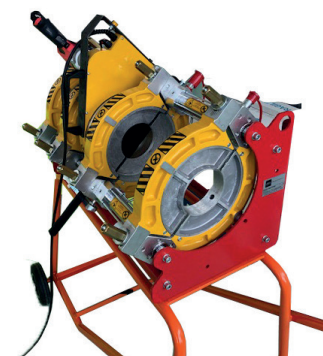
Please go to www.polypipe.com/commercial-building-services/technical-hub/mecflow to download your copy.



Socket Fusion Welding



Electrofusion Welding



Butt Fusion Welding

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