MecFlow Fusion

Specification Clause

1. General

The MecFlow Fusion system is a multi-layer, halogen-free, WRAS-approved, PP-RCT piping system, specifically engineered for potable, hot & cold plumbing and heating applications around commercial, high-rise and multi-occupancy buildings.

1.1. MecFlow Fusion Specification Clause

The multi-layer water supply system shall be a halogen-free, PP-RCT (Polypropylene - random copolymer with modified crystallinity and temperature resistance) system, with pipe comprising three engineered layers: a white inner layer that incorporates anti-microbial and anti-fouling protection to prevent biofilm build-up and will provide a high resistance to rigorous disinfection processes; a central layer that utilises a microfibre set in a mesh formation to reduce thermal expansion with a thermal coefficient of 0.04mm/m°C; an outer layer that contains a UV stabiliser that protects the pipework from ultraviolet light.

The multi-layer water supply system shall be installed using CLICKWELD™, Electrofusion, Socket or Butt-welding technologies.

The system must be tested to BS EN 13501 and achieve a fire classification of B-s1, d0.

1.2. Operating Pressure and Temperature:

The MecFlow Fusion system has been designed to work effectively for temperatures up to 95°C. Operation pressures vary depending on fluid temperature and the required service life. Please refer to the working pressures table within the **technical manual.**

1.3. System Sizes

The MecFlow Fusion system is available from Ø20mm to Ø315mm. For full dimensional details, please refer to the **technical manual**.

1.4. System Applications

The MecFlow Fusion system can be used for the following applications:

- Boosted Cold Water Systems (BCWS)
- Low Temperature Hot Water (LTHW)
- Chilled Water (CW)
- Heating Systems (HS)

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2. Quality Assurance

- BS EN ISO 9001 – Quality Management System
- BS EN ISO 14001 – Environmental Management System
- BS ISO 45001 – Occupational Health & Safety Management System
- PAS 99 – Integrated Management Registration

2.1. Standards Compliance and Certifications

The MecFlow Fusion multi-layer pipe for water supply installations complies with the requirements and operating conditions according to BS EN ISO 15874 and is certified according to WRAS.

3. Fire Protection

Where pipes penetrate through fire compartments, fire protection (e.g. intumescent fire pipe collars/ wraps) must be provided in accordance with BS EN 13501 and Building Regulations Part B. Fire protection is required for pipework with a minimum ID of Ø40mm and above where it passes through a designated fire barrier, compartment walls or floors.

Fixing instructions are to be as per the manufacturer's recommendations.

4. Installation Guidance

Ensuring the proper installation of the MecFlow Fusion system is vital to correctly optimise and maximise its performance over its service life. Please refer to the **technical manual** for further details and installation instructions.

4.1 Jointing Methods – Fusion Welding

- Electrofusion couplers are available from Ø20mm to Ø315mm.
- Socket welding is suitable for Ø20mm to Ø125mm.
- Butt welding is suitable for Ø160mm to Ø315mm.
- CLICKWELD™ electrofusion fittings are available from Ø50mm to Ø125mm.

4.2 Jointing Methods – Mechanical Jointing

- Socket-welded threaded connections are available in BSPM and BSPF thread types from Ø32mm to 3/4” up to Ø110mm to 4”.

4.3 Thermal Movement

It is important to control both the thermal expansion and contraction when designing any system. MecFlow Fusion's coefficient of thermal expansion is 0.04mm/m°C.

It is crucial to manage thermal movement to counteract the forces it generates. This can be done using a combination of installation methods, including anchor brackets, guide brackets, deflection legs and expansion loops.

4.4 Bracketry

Brackets must be rubber-lined to prevent the pipe surface from being damaged by the bracket ring. For noise-sensitive operations, the use of isophonic brackets is recommended.

5. Testing

The Mecflow Fusion system should be tested during commissioning for water tightness by using one of the two methods – hydrostatic pressure testing and/or air testing. It is not recommended to site test the MecFlow Fusion system using compressed air.

5.1. Disinfection – Chlorine Dioxide

The use of chlorine dioxide as a disinfectant is permitted; however, the level of constant dosing must be strictly controlled and shall not exceed 0.5mg/l. Guidance as to the use of this chemical as a disinfectant is provided in BS EN 806 and the addendum BS 8558:2015. Further guidance is provided in ACoP L8.