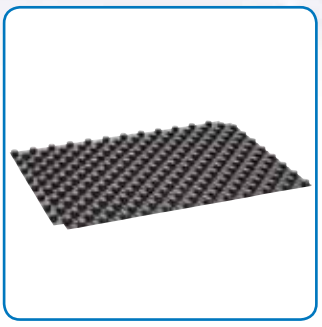
EMMETI UK

Engineered Water Solutions



Underfloor Heating Systems

Manifolds • Controls • Pipes • Accessories

www.emmeti.co.uk

Underfloor Heating Systems

Company Overview

The Group

Our parent company Emmeti S.p.A. was founded in 1976, initially marketing components for heating systems before making a shift in 1984 to focus on automated assembly and distribution. Since then Emmeti have expanded rapidly and now operate in more than 65 countries worldwide with sales and marketing offices in Italy, Spain, France, Brazil and North America as well as the UK.

Emmeti has a wide range of products targeted at the heating, plumbing, renewable and air conditioning markets and is committed to developing products which reduce and monitor energy consumption. In recent years they have developed significant renewable energy products, and continue to innovate in this emerging field. They also operate to the highest possible standards and satisfy the requirements of ISO 9001:2000 for their Quality Management System and ISO 14001:2004 for their Environmental Management System. Emmeti have two large manufacturing and assembly plants in Italy and in 2009 developed and built a third factory, the Multi-layer pipe facility. This factory covers 10,000m^2 with a dedicated laboratory and 2 working lines which have the capacity to produce up to 30,000,000 metres of pipe per year.

In 2015 the industrial Group RETTIG ICC acquired a controlling share in the Emmeti Group. RETTIG ICC - Indoor Climate Control is part of the Finnish group RETTIG Ltd, and is the European leader in the production and distribution of radiators in steel, with a growing presence in the markets of radiant systems, valves and controls for HVAC systems. The acquisition of Emmeti Group provides an excellent synergy between the two organisations and will support the strategic plans for growth and innovation of RETTIG ICC, allowing entry into new geographic markets and the transfer of new technologies.

Emmeti UK

We established Emmeti UK in Burford, Oxfordshire in 2004, to support Emmeti Group from a UK base. Distributing Emmeti and OEM products through wholesalers, merchants, system houses and renewable companies nationwide who serve the needs of the rapidly growing underfloor heating market as well as the heating and plumbing sector. We have achieved a reputation for excellence in fast order turnaround together with sales and technical support for our customers.

From our central warehouse located near Oxford we are able to offer ex-stock next day. This is supported by weekly shipments from our manufacturing base in Italy.

We are able to offer innovative new products to the UK market, with the substantial resources and back-up of the Emmeti Group as well as tailoring products to a customer's own specification. We have recently gained BBA approval for our manifold and pipe and many of our products are WRAS approved for use with potable water systems.

Products

We have developed a product portfolio specially designed to cater for the UK plumbing and heating markets, in particular the underfloor heating, wall hung radiator heating and hot and cold water sectors. Core products for the markets we serve are:

- Manifolds and fittings for hot and cold water distribution
- Emmeti Gerpex Multi-layer composite pipe and press fittings
- Manifolds and fittings for radiator and underfloor heating systems
- Pipe, insulation and accessories for underfloor heating
- Zone controls for radiator and underfloor heating, including thermostats, actuators and wiring centres
- Expansion vessels for both heating and potable water applications
- Manual and thermostatic radiator valves
- Manual and motorised ball valves
- Pressure reducing valves

Product Standards & Customer Support

All of our products are manufactured to comply with European standards wherever possible. Additionally, where appropriate, our products also satisfy the requirements of WRAS for use in potable water systems. More recently, we have gained BBA approval for our manifold systems as can be seen in our technical product guides available on-line. In addition, we have provided individual installation guides with each product and copies can be obtained by going on-line or by contacting our sales office.

We have designed this brochure to showcase the range of hot and cold manifold systems available to our customers and included technical information designed to make the job of decision making as simple as possible.

If you would like to receive regular product updates, news and technical articles, please register via our website or, if you are viewing this page electronically, simply click on the link http://www.emmeti.co.uk/news-update

Our Emmeti UK website offers on-line access to literature, product data, technical information, articles, and the latest product launches: www.emmeti.co.uk

For further details such as **product codes** and **prices** please refer to our **Emmeti product price list** or visit our website **www.emmeti.co.uk**, or alternatively please call us on 01993 824900

Underfloor Heating Overview

Underfloor heating has become increasingly more popular in the UK because of its ability to provide an efficient and uniform heat. The radiant heat provided at floor level creates a large heated surface that dissipates heat evenly into the living space whereas a radiator will produce convection currents that rise to the highest part of the room, meaning that the majority of the heat is lost at ceiling height.

This makes underfloor heating more efficient for two main reasons;

- The heat emitted is used more effectively, resulting in less wasted heat
- The heat required to enable this is generally delivered between 35-55°C compared with 65-75°C for radiators which means that the heat source will operate for a shorter amount of time and therefore use less energy.

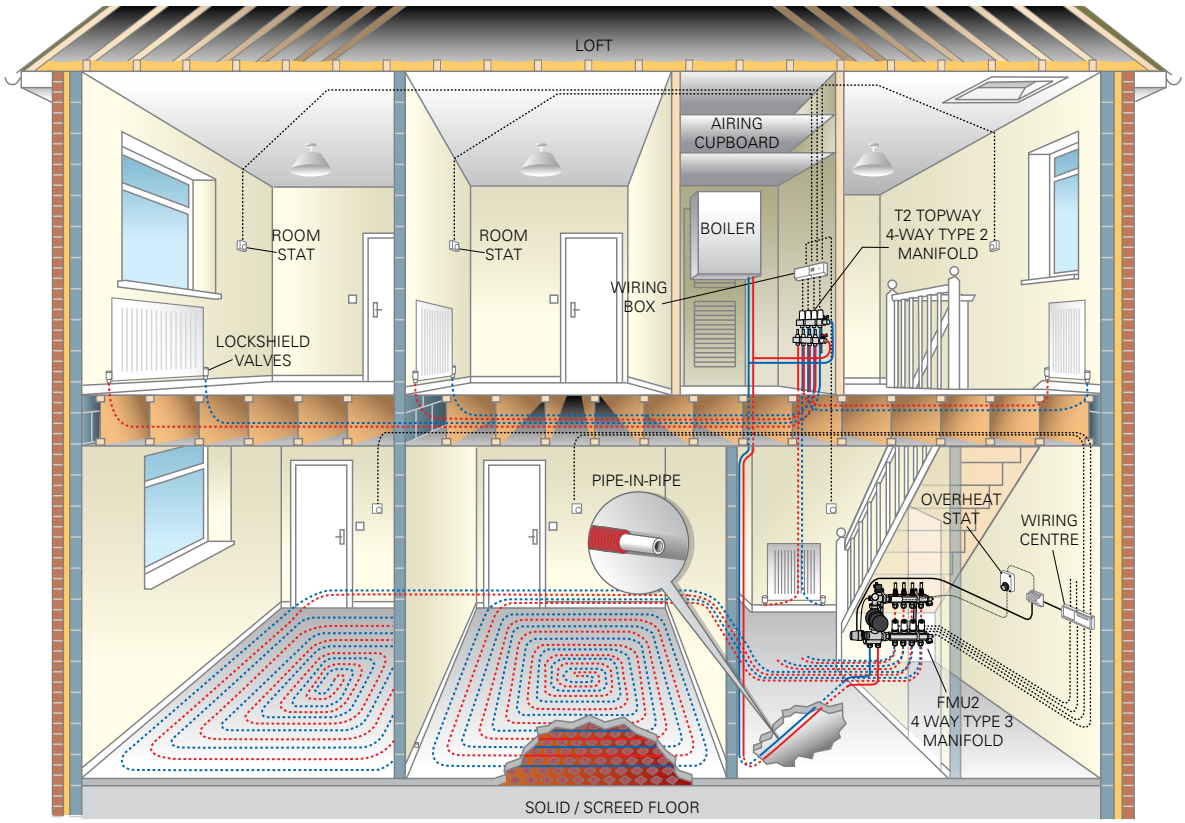
These energy savings combined with silent running and increased flexibility for room layouts gives a solution that will add real value to a property.

Underfloor heating can work with a variety of heat sources such as gas and oil fired boilers as well as renewable technologies such as air and ground source heat pumps. It can also be installed to almost any floor type from concrete slab, timber joist and as a retro fit system over existing floors.

In addition to the pipe work a key component is the Underfloor Heating manifold and the associated controls. At Emmeti we offer an extensive range of high quality manifolds and controls plus the thermostats, pipes, and accessories required to form a full system solution.

Example showing a hybrid heating system with UFH on ground floor controlled by a FMU2 (Type 3) manifold and WHR on first floor controlled by a T2 Topway (Type 2) manifold.

8 ErP Class +5%
Multi Zone



Example showing a house with a Type 3 (FMU2) (see pages 6-8) manifold supplying an underfloor heating system in two of the ground floor living rooms. As can be seen here the system integrates seamlessly with wall hung radiators, if for example you require a hybrid solution (e.g. ground floor underfloor heating and upper floor radiators).

The use of manifolds supplying both the underfloor heating and radiators in this example allows for independent air temperature control of each room/zone by using one thermostat per room/zone. This will allow the home owner or building occupier to tailor their heating system to suit their lifestyles. This is a more accurate method for maintaining a comfortable temperature within a space as each thermostat is mounted in an optimum position rather than a TRV (Thermostatic Radiator Valve) which is fitted directly on a conventional radiator which can often be behind furniture and can give inaccurate readings. The use of one thermostat per room/zone makes it much easier to create ideal comfort levels and prevents the unnecessary heating of unoccupied rooms improving the energy efficiency of the building.

Underfloor Heating Systems

Key Benefits of Underfloor Heating Over Traditional Heating

For the Installer

- Provides you with individual isolation of underfloor heating (UFH) loops if required. You are able to isolate parts of the system whilst the rest remains operational, reducing disruption for installation and maintenance.
- Each room is supplied by a continuous loop of flexible pipe, the only connections are at the flow and return on the manifold, eliminating all concealed intermediate joints that could potentially leak both during and post installation.
- Ensures that you have good accessibility in the event of a problem – No concealed intermediate joints under floorboards or solid floors limits the points at which a leak could occur to the manifold, significantly reducing the time for fault finding.

For the Main Contractor / Developer

- Gives you peace of mind. Having fewer and easier to access joints reduces the risk of delays and call backs.
- Benefits health and safety on your project and cuts down the amount of hot works on site.

For the Specifier

- By specifying this system it allows you to add value to the project with improved comfort for the building occupier.
- Specifying a manifold system will allow your clients you to tailor their heating to suit the building activities by allowing rooms to be controlled individually.
- The water in the UFH system will typically be between 35°C and 55°C compared with 65-75°C found in radiators, providing a more energy efficient solution, saving money on heating bills for the client and reducing CO2 emissions for the environment.
- Innovative concept that will distinguish your project from other designers.

For the Distributor

- We offer you a comprehensive range of products available with next day delivery to branch or site, together with excellent sales and technical support.

For the Building Occupier / Owner

- Using an UFH system with zone control will enable you to tailor your heating to suit the building activities by allowing rooms to be controlled individually, preventing rooms being heated when unoccupied.
- The water in the UFH system will typically be between 35°C and 55°C compared with 65-75°C found in radiators, providing a more energy efficient solution, saving money on heating bills and CO^2 emissions.
- Using an UFH system with continuous loops of pipe promotes the smooth flow of water around the system, minimising running noise and giving you a more comfortable environment.
- The radiant heat produced by UFH provides a very desirable environment by providing a more uniform heating across a room than radiators can.
- Increased flexibility around room layouts by not using radiators will allow you freedom when decorating and more usable space when planning furniture layouts.
- No need to paint radiators or struggle to decorate behind radiators.
- Gives you the flexibility of central and individual control – when maintenance and repair is required, rather than isolating a whole system the service engineer can isolate individual loops without the need to drain the entire system.
- In the unlikely event of a leak, you have the significant advantage of being able to isolate only the loops that has the leak, whilst continuing to use the rest of the system, until remedial work can be arranged.
- Your manifolds can be installed in a convenient location such as a riser or service cupboard for easy access meaning less disruption to the building occupiers and ease of repair/ maintenance for engineers and contractors.
- BBA approval has been gained on all UFH manifolds which offers peace of mind that the product has been subject to a detailed and maintained manufacturing quality plan. The manufacturing plant in Italy is subject to twice yearly inspections to ensure that the quality plan is adhered to.

For further details such as **product codes** and **prices** please refer to our **Emmeti product price list** or visit our website **www.emmeti.co.uk**, or alternatively please call us on 01993 824900

Emmeti Underfloor Heating Products

Manifold Types

Emmeti offer three types of manifold for heating applications, with the second two lending themselves to underfloor heating systems. These are:

Type 1 (T1): These are distribution manifolds which are designed for wall hung radiator (WHR) systems with a Thermostatic Radiator Valve (TRV) and Lockshield valve (LS) on the radiator.

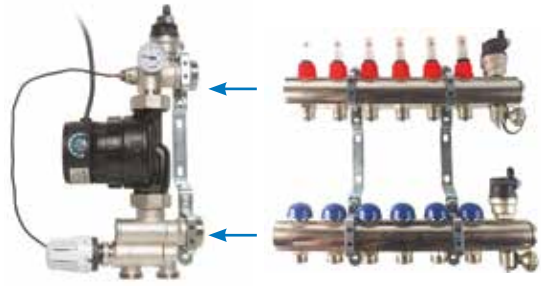
Type 2 (T2): These are distribution and control manifolds which are designed for either wall hung radiator or underfloor heating (UFH) systems. The manifold is fitted with an electrothermic valve and two-stage lockshield (or flowmeter) to control each circuit; this replaces the TRV on a radiator. The electrothermic valves are controlled by a thermostat or programmable thermostat, via a wiring centre.

Type 3 (T3): These are underfloor heating (UFH) systems only and have a temperature controller and pump to ensure that the water is at the correct temperature for the underfloor heating circuits, and there is sufficient flow for the greater amounts of pipe used.

Each type has its own section on our website (www.emmeti.co.uk) which gives further details of each manifold.

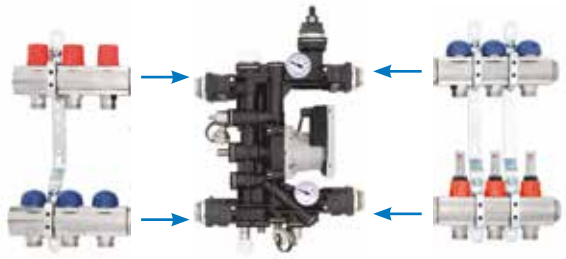
The Emmeti Underfloor Heating Manifold Range

Underfloor heating requires a lower temperature as well as flow measurement per circuit. Emmeti has developed a range of Type 3 Controllers which provide flow and temperature management to accommodate this requirement.



TM3 Mixing Unit T2 Topway Manifold

FMU2 Floor Mixing Unit



T2 Topway Manifold LHS - WHR | M3V-HE Controller | T2 Topway Manifold RHS - UFH

FCU-HE Floor Control Unit

Standalone Control Groups

There are two variations of stand-alone control groups, suitable for all UFH applications. The TM3 Mixing Unit and the M3V-HE Controller can be fitted to an existing manifold such as a Type 2 (T2), to provide flow temperature management.

NB. The M3V-HE Controller is designed to cater for both high temperature (wall hung radiators) and low temperature (underfloor heating) applications in a single unit

Pre-Assembled Control Units

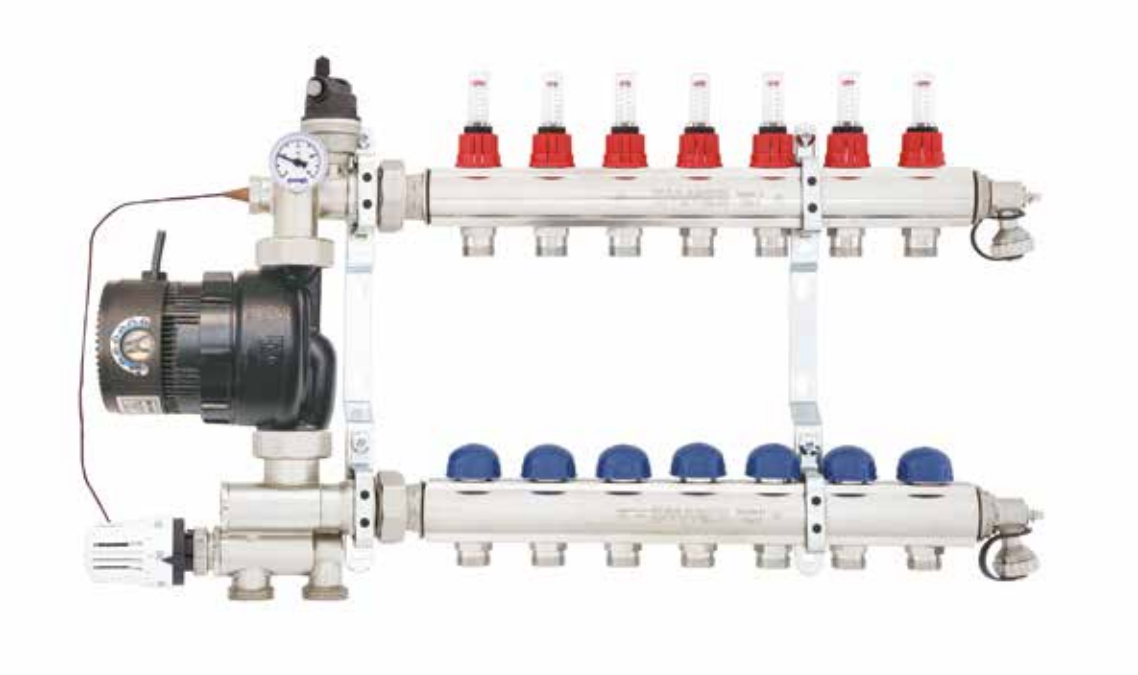
We also provide two Type 3 manifold arrangements which are supplied pre-assembled as a plug and play set; FMU2 Floor Mixing unit and FCU-HE Floor Control Unit.

Our range of Type 3 UFH controllers include temperature management, circulating pump, built-in temperature gauge, mounting bracket and swivel joints for connection to the manifold assembly.

Mixing water to the desired flow temperature can be achieved either by using a thermostatic mixing valve to give a 'fixed' temperature or with a motorised valve which can give either a 'fixed' or 'variable' temperature. This is suitable for use with electronic systems such as the RCE weather compensator.

Underfloor Heating Systems

FMU2 Floor Mixing Unit 2 & TM3 Thermostatic Control Group



The FMU2 Manifold and Mixing Assembly

The FMU2 is a pre-assembled manifold and control group designed for underfloor heating systems.

The combination of TM3 control group and manifold is factory tested to 10 bar and includes remote sensing thermostatic mixing valve, high efficiency circulating pump, temperature gauge, integral automatic air vent and non-return valve for easy system filling.

The pre-assembled unit can be simply fixed to the mounting surface and connected to pipework and electrical components making installation extremely simple.

Available in 2-12 ways with optional two-stage flowmeters or lockshield valves fitted to the flow rail. The return include electrothermic valves which are designed to be opened on demand by Control T electrothermic heads.

The mixing valve assembly is designed to supply a set mixed temperature between 20°C and 70°C which will suit a wide range of applications. The low range has been designed to ensure that the screed drying process can be carried out in accordance with BS EN-1264-4.

An electronic actuator can be fitted to the mixing valve to give electronic control of the system when used with the RCE weather compensator.

The addition of the ErP 2015 Compliant Lowara Ecocirc circulating pump gives high efficiency operation with combined anti-block technology. The pump can be set to variable or fixed speed to overcome high resistance systems or large installations.

Technical Data

Max. temperature on primary circuit	90°C
Maximum Operating Pressure	10 Bar
Primary circuit max ΔP:	1 Bar
Temperature range adjustment, mixed water	20-70°C
Heating output	(ΔT 10°C, ΔP available 0.25 bar)
Thermostatic regulation:	10 kW flow increase valve pos. 0
Thermostatic regulation:	18 kW flow increase valve pos. 5*
Electronic regulation:	11.5 kW
Mixing valve pressure drops (thermostatic regulation)	Kv 3
Pressure drops with open bypass valve (thermostatic regulation)	Kvmax 4.8
Mixing valve pressure drops (electronic regulation)	Kv 4
Temperature Gauge Range	0-80 °C
Manifold Connections	24x19 - takeoffs 50 mm
Circulator Pump Connection	1"½ - takeoffs 130 mm

* With circulator set to max.

FMU2 Floor Mixing Unit 2 & TM3 Thermostatic Control Group

TM3 Thermostatic Mixer Control Group

- Thermostatic mixing valve with remote sensor for accurate control of flow temperature
- Easy to use thermostatic head with temperature locking feature
- Flow increase valve to increase flow rate for larger manifolds / heat outputs
- Adjustable temperature range from 20°C to 70°C. The low range makes it suitable for screed floor drying BS EN 1264-4
- Lowara Ecocirc Class A pump with unique anti-block operation. ErP 2015 compliant
- Built-in non-return valve to aid filling during commissioning
- Built -in automatic air-vent and temperature gauge
- Mounting bracket for additional stability and noise reduction
- 1" male close coupled primary flow and return connections
- 1" male manifold connections with union for fast assembly and removal
- Suitable for Topway Type 2 manifolds or any manifold with connections on 210mm centres
- Optional ball valve set for fitting to 1" M primary connections
- Tested to 10 bar post assembly
- Valves Kvs 3 - 4.8, 10KW - 18KW
- TM3 Electronic version available which allows electronic actuation of the mixing valve when controlled by an electronic control system such as the RCE controller.

FMU2 - Floor Mixing Unit 2

Pre-assembled manifold and control group:

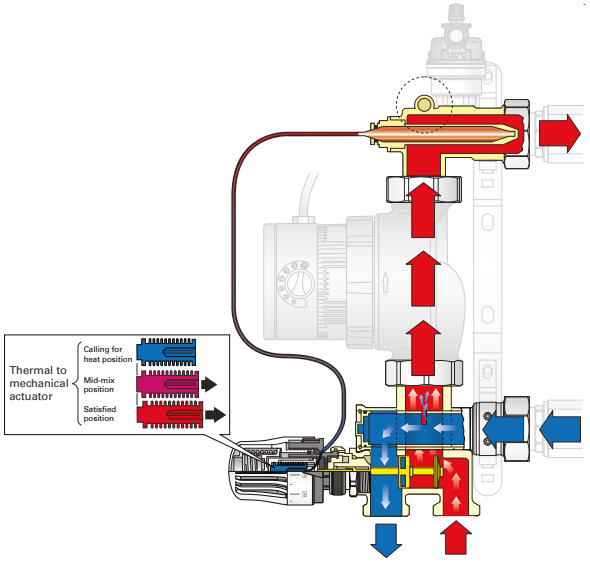
- Combined manifold and control group that is factory tested to 10 bar meaning that it can be installed quickly and easily on site
- Includes the TM3 control group with features such as ErP 2015 Compliant Lowara Ecocic pump, remotes sensing thermostatic mixing valve, automatic air vent, temperature gauge and non-return valve for easy system filling
- Available between 2 and 12 ways
- Optional two-stage flow meters or lockshields depending on application
- An electronic actuator can be fitted to the mixing valve to give electronic control of the system when used with the RCE weather compensator.

Underfloor Heating Systems

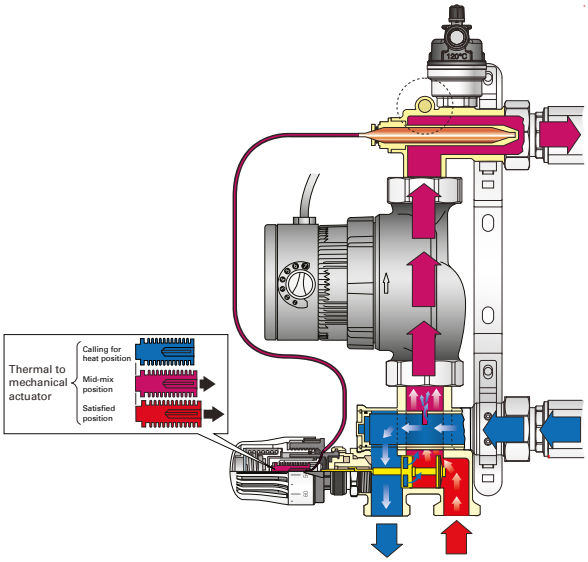
FMU2 Floor Mixing Unit 2 & TM3 Thermostatic Control Group

TM3 Thermostatic Mixer Control Group

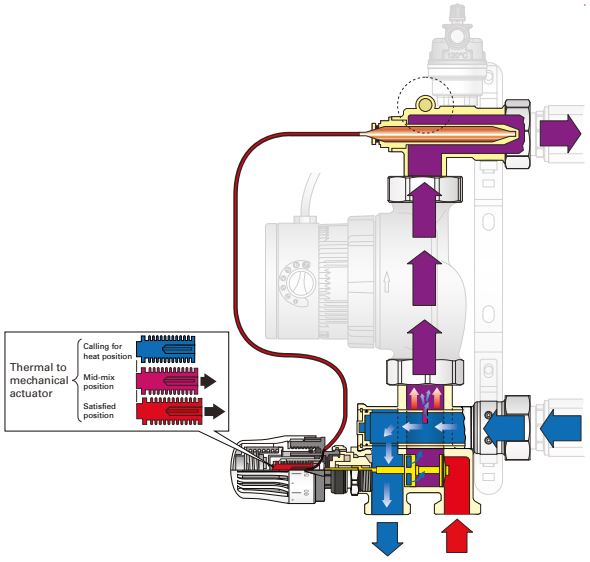
The TM3 Control Group has an Emmeti designed mixing valve included which ensures accurate temperature control of underfloor heating. The unique design of the internal mixing valve components ensure that hot water from the heat source and return water from the underfloor circuit are mixed together in the valve body to produce a temperature range of between 20°C and 70°C. This temperature range will suit a wide range of underfloor heating applications, from commissioning new floor screeds to operating with very thick floor screeds in commercial applications. The illustrations below show how the mixing valve operates through its remote sensing thermostatic head:



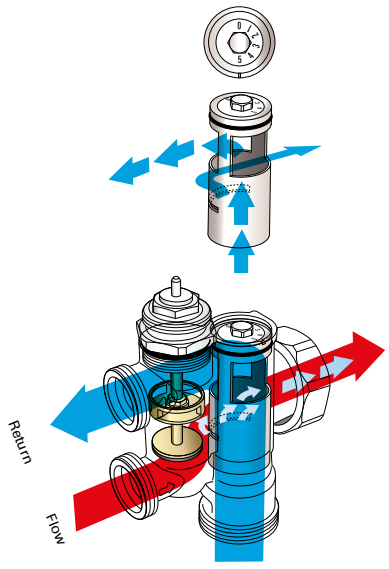
Initially the cool liquid in the remote sensing probe, allows almost all of the primary hot water from the heat source through the valve. Gradually the temperature sensed by the probe rises as the underfloor circuits begin to heat up.



Depending on the temperature setting of the thermostatic head, as the temperature sensed by the probe rises, the shuttle starts to close off the primary hot water allowing return water to maintain the temperature set on the head, up to 70°C if required



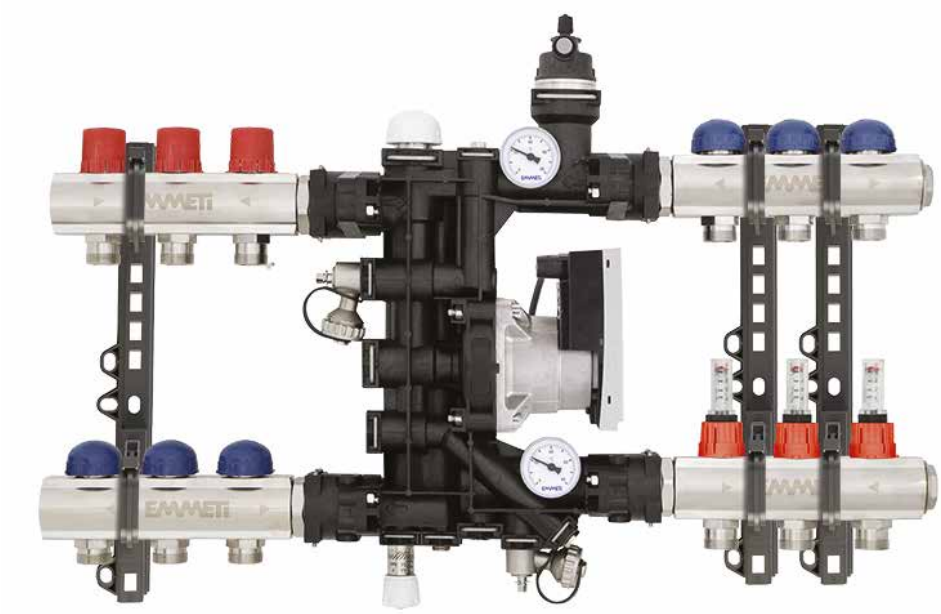
Once the temperature set on the head has been reached at the probe, the shuttle balances the right amount of primary hot water and secondary return water to maintain this temperature. Depending on the thermostat setting, the hot water could be almost completely closed off allowing very low temperatures suitable for commissioning screed floors down to 20°C if required



The thermostatic mixing valve has a flow increase valve which allows return water to flow directly into the mixed water outlet. This cools the mixed water temperature sensed by the remote sensing probe and causes the mixing valve to open allowing more primary hot water through the mixing chamber.

FCU-HE Floor Control Unit & M3V-HE Control

The in-line solution for both high and low temperature systems



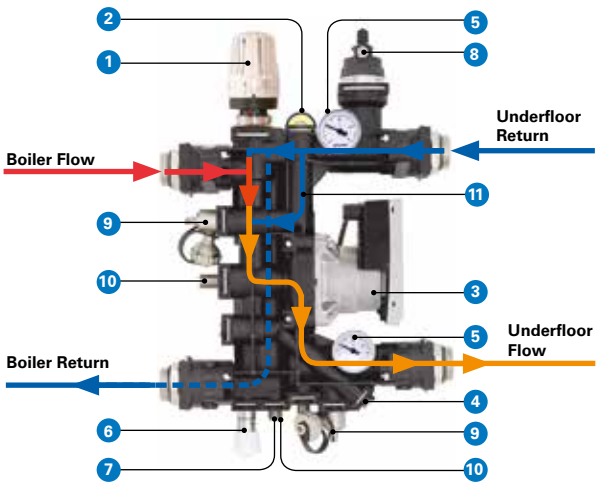
The FCU Floor Control Unit is designed for use with combined underfloor and wall hung radiator systems. Integral to the unit is the M3V-HE composite control group which provides temperature and flow management to the underfloor heating system while allowing a T2 Topway Type 2 manifold to be connected to its inlet to supply higher temperature water to the wall hung radiators.

This unit is ideal for use where systems have underfloor heating in the majority of the property but still require towel rails or wall hung radiators in certain areas. This method of installation allows the point to point plumbing principle to be used for both systems meaning less joints and therefore less chance of leaks.

The M3V-HE control group incorporated within the FCU-HE Floor Control Unit includes a circulating pump, mixing valve assembly that can be thermostatically or electronically controlled, drain/fill valves, automatic air vents and differential pressure bypass valves.

When controlling the mixing valve electronically the RCE weather compensating system can be used to manage the mix temperature depending on external weather conditions.

How does it work?



1. Thermostatic mixing valve with thermostatic head and remote sensor, delivering temperatures between 20 and 70°C*
2. Underfloor flow increase adjusting valve
3. Wilo Yonos Para HU 15/6 Class A Pump
4. Remote sensing probe pocket
5. Flow (mixed) and return temperature thermometers between 0 and 80 °C
6. Differential pressure by-pass valve (between 0.1 and 0.6 bar)
7. Circulator Isolating and balancing valve, for servicing
8. ½" automatic air vent
9. A pair of drain/fill valves with swivel connection and cap
10. Circulator isolating valve, for servicing pump
11. Underfloor flow increase channel controlled by 2, for flow management

* *3-point actuator available for heating or heating and cooling applications*

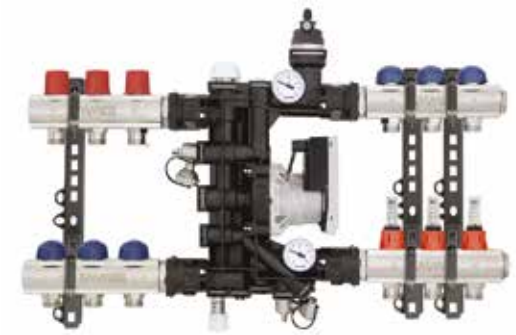
Underfloor Heating Systems

FCU-HE Floor Control Unit & M3V-HE Control Group

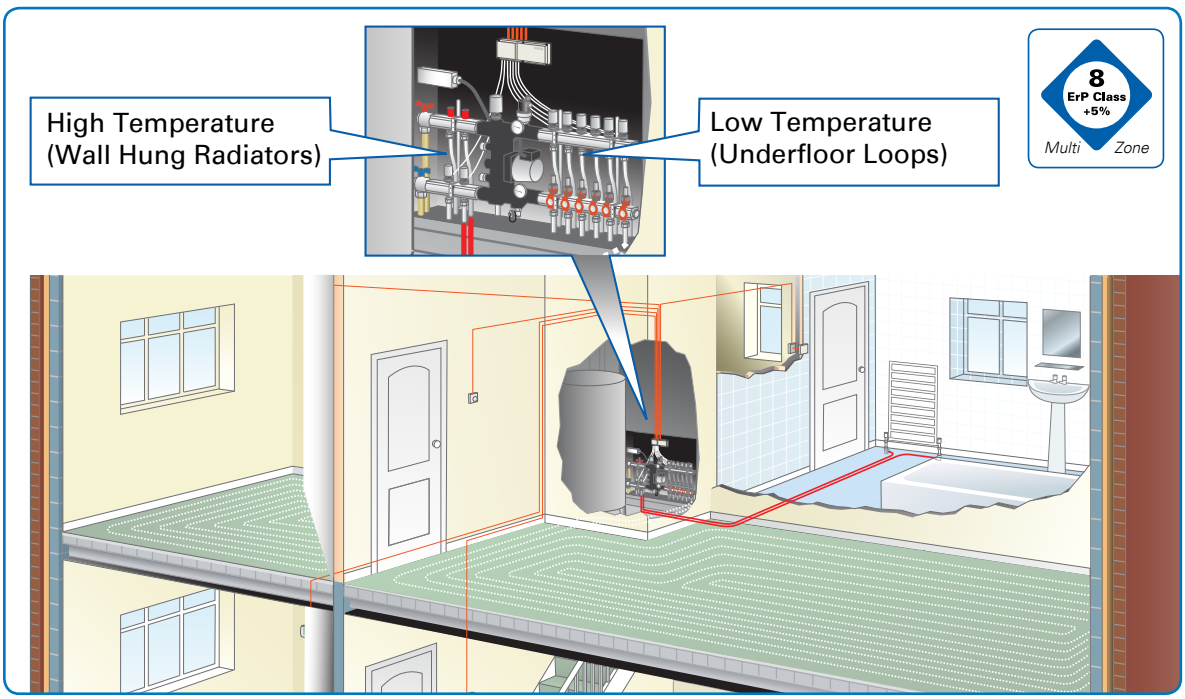
M3V-HE Control Group

- Pre-assembled M3V-HE Control group constructed from PPA composite with four swivel joints for connection to Topway T2 manifolds on left and right side
- The in-line connection format enables high temperature and low temperature circuits to be connected to each side of the mixing set as one compact unit
- Fitted with a Wilo Yonos Para HU 15/6 Class A Pump
- Built-in automatic air vent and drain/fill valves
- Integrated mixing valve with thermostatic or motorised actuator options (both purchased separately) for fixed or variable temperature applications
- Differential pressure bypass valve included to ensure correct system balancing when commissioning
- Thermostatic mixing valve with remote mixed water sensor provides underfloor heating flow temperatures between 20 - 70°C

FCU-HE Floor Control Unit



- Pre-assembled for immediate installation, from 3 ways to 12 ways low temperature and up to 3 ways high temperature
- The FCU-HE Floor Control Unit integrates both temperature and flow management, making the single piece unit very easy to install, saving time on site
- Supplied with the M3V-HE Control group, it offers a full system solution that includes flow regulation to underfloor heating and wall hung radiator/ towel rails as well as electrical zonal control of each circuit
- Supporting brackets for stability and noise reduction with offset flow and return rails for easy pipe access
- Ideal for mounting in Emmeti cabinets



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T2 Topway Pre-Assembled Heating Manifold

T2 Topway Manifolds

T2 Topway manifolds can be used for both Underfloor Heating and Wall Hung Radiator applications. The integrated two-stage flowmeters or lockshields on the flow rail allow for individual circuit flow control to ensure correct balancing of systems. They also allow for independant isolation without losing flow regulation setting, and the integrated electrothermic valves on the return rail allow for electrical control of each circuit via electrothermic actuators.

For Underfloor Heating applications a Type 3 Control Group such as the TM3 or M3V-HE should be used to manage the temperature delivered to the system

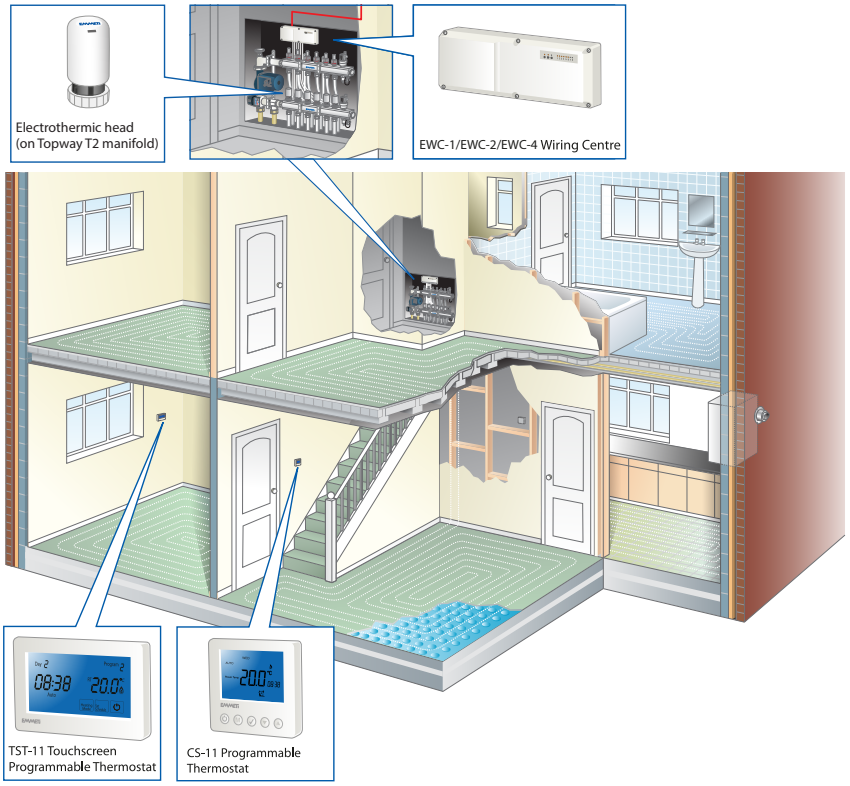
BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 14/5087

Product Features

- A range of nickel plated extruded brass manifold pre-assembled, for both radiator and underfloor systems
- Available in 1" and 1¼" sizes, from 2 ways to 12 ways to suit a wide range of system sizes
- The Topway T2 FM pre-assembled has a two-stage 0 - 4 l/min flow meter per circuit on the flow rail. This allows the installer when commissioning to read the dynamic flow for setting. This two-stage function allows flow setting and isolating independently
- The Topway T2 LS pre-assembled has a two-stage lockshield per circuit on the flow rail. This two-stage function allows isolation and flow balancing of each circuit.
- The return rail has integrated electrothermic bodies (ready for electrothermic heads) per circuit. Complete with 24×19 takeoff connections
- Can be surface mounted, concealed in a choice of purpose designed plastic or metal cabinets or within a partition wall
- Manifold flow and return outlets are offset for easy pipe installation
- Ball valves, threaded fittings and Monoblocco pipe connectors available to accommodate a wide range of pipe types and sizes

Underfloor Heating Systems

Zone Controls



Zone Controls Explained

All heating systems require electrical zone controls of some description, underfloor heating is no different. Emmeti offer a wide range of heating controls that will suit most projects.

Controls required on a standard underfloor heating system, generally include individual room thermostats (temperature or time & temperature), electrothermic actuators for individual flow control and wiring centres for central electrical connection & pump/boiler interlock.

Thermostats

The Emmeti thermostat range includes digital display, electronic and mechanical thermostats that have a wide range of features and will suit most applications.

The CS-11 digital thermostat range includes programmable, simple night setback (NSB) and touchscreen versions available in 230V or 24V with remote sensor included as standard. The CS-11 range also includes a single channel digital time switch in 230V or 24V.

The simple dial thermostat range includes electronic 230V and 24V dial and tamperproof version with night set back & remote sensing and mechanical simple dial thermostats.

Wiring Centres

The Emmeti developed wiring centre range includes 4, 8 and 12-way wiring centres in a 230V version and an 8-way version for 24V applications. The wiring centre allows all electrical controls to be centrally connected including room thermostats, electrothermic actuators, pump, boiler and/or heating zone valve if required. The EWC1 range also offers zonal indication and the ability to isolate the wiring centre from the mains supply in order to carry out investigative

	EWC1	EWC2	EWC4
Number of channels	8	8/12	4
Voltage	230/24V	230V	230V
Time switch terminals	Y	Y	Y
Boiler Interlock	Y	Y	Y
Pump Output	Y	Y	Y
Isolation Switch	Y	N	N
Power ON LED	Y	Y	Y
Circuit LED	Y	N	N
Pump Delay	Y	N	N
Earth Terminals	Y	Y	N

Electrothermic heads

The electrothermic head performs a similar function to a conventional 2-port zone valve by opening and closing the return path to each circuit when activated by the zone thermostat.

The electrothermic heads are fitted to the return bar and are available in 230V OR 24V versions with an option to incorporate an auxiliary switch if required for boiler interlock.

Wireless Zone Controls

Where installation of electrical cabling is not suitable or for retro-fit systems we offer a wireless range of heating system controls:

The range includes:

- Single, 2 way and 8 way wireless receiver wiring centres
- Digital programmable and digital non programmable wireless thermostats.
- Simple battery operated wireless dial thermostats

Zone Controls Range

CS-11 LCD Simple NSB Digital Thermostat

1 ErP Class +1% — Single Zone

8 ErP Class +5% — Multi Zone

A wall mounted electronic digital night setback (NSB) thermostat. Large LCD, simple, clear, backlit display. NSB function enables the thermostat to lower the room temperature at night between 2°C to 7°C, via timeswitch. Temperature range limiting function is a feature on this thermostat, as well as frost protection. Includes remote sensor to enable the thermostat to control air temperature only, floor temperature only or air and floor temperature together. 230V and 24V versions available.

CS-11 LCD 7-day Programmable Digital Thermostat

1 ErP Class +1% — Single Zone

8 ErP Class +5% — Multi Zone

A wall mounted electronic digital programmable thermostat with a large backlit LCD display, 5+2 day, 6+1 day or 7 day programming, frost protection, manual override, optimum start and holiday mode. The thermostat has 6 time/temperature settings per day, between economy and comfort levels. It has a remote sensor included which enables the thermostat to control air temperature only, floor temperature only or air and floor temperature together. Temperature range limiting function is a feature on this thermostat. 230V and 24V versions available.

TST-11 Touchscreen Programmable Thermostat

1 ErP Class +1% — Single Zone

8 ErP Class +5% — Multi Zone

The TST-11 programmable wall mounted thermostat has an extra large backlit touchscreen LCD display with a simple user interface to set the programme times and temperatures. It offers 5+2 day, 6+1 day or 7 day programming with up to 6 time/temperature settings per day, between economy and comfort levels. It also includes frost protection, manual override, optimum start and holiday mode functions. It includes a remote sensor which enables the thermostat to control air temperature only, floor temperature only or air and floor temperature together. 230V and 24V versions available.

CS-11 LCD Timeswitch

Electronic single channel timeswitch designed for use with Emmeti EWC-1 and EWC-2 wiring centres. Via the wiring centres, it gives on/off signal to thermostats, for example a night set back of 3°C. It offers a choice of 5+2 day, 6+1 day or 7 day programming with up to three on-off periods per day. Includes override and holiday function. 230V and 24V versions available.

Electromechanical Dial Thermostats

1 ErP Class +1% — Single Zone

8 ErP Class +5% — Multi Zone

A range of electromechanical wall mounted thermostats. Simple to use dial operation with temperature range up to 30°C. Choice of models including 'call for heat' light, on-off switch and heating/cooling/off switch, 230V operation with 24V operation on basic model only. Temperature range limiting stops for use in care homes, public buildings etc. Can be centrally controlled via the CS-11 timeswitch and EWC wiring centre range for on/off periods.

Electromechanical Dial Thermostats

1 ErP Class +1% — Single Zone

8 ErP Class +5% — Multi Zone

A range of wall mounted electronic thermostats including dial operated and tamperproof solutions.
Simple to use dial operation with temperature range from 6°C to 30°C. Accurate temperature control for maximum comfort – differential 0.5°C, including night setback (NSB) models (2°C - 7°C). Choice of models including 230V and 24V. Optional remote sensors – enables thermostat use with bathroom applications.

Underfloor Heating Systems

Wiring Centres

Emmeti EWC-1 Wiring Centres

The Emmeti EWC-1, 8 way wiring centre available in 230V and 24V version designed to allow central electrical control of wall hung radiator and underfloor heating systems. Each heating zone can be controlled independently via the 8 channels.

Features include:

- Integrated on/off switch to allow safe isolation when carrying out commissioning or repair work on the system
- Time switch terminals to allow central time control of multiple zones and night set back to thermostats, if required
- Earth continuity terminal to ensure all electrical components in the system are earthed correctly
- Pump 230V output terminals with a 2.5 minute time delayed relay which allows the electrothermic heads to open before energising the manifold pump.
- Volt free boiler terminals allow connection to a wide range of heat sources
- Clearly marked terminals to ensure correct connection of components
- LED indicators to give visual identification of zone operation as well as pump 'ON' and boiler 'ON' LED's
- Potential to connect up to five electrothermic heads per channel for multi-loop zones
- Cable clamps included to ensure safe termination into the wiring centre
- Each channel allows connection of thermostat cable and electrothermic head which makes commissioning and fault finding simple
- Power 'ON' LED

Emmeti EWC-2 Wiring Centres

The Emmeti EWC-2 is a more commercially priced wiring centre available in 8 way and 12 way, 230V versions. Designed to allow central electrical control of wall hung radiator and underfloor heating systems. Each heating zone can be controlled independently via the 8 or 12 channels.

Features include:

- Time switch terminals to allow central time control of multiple zones and night set back to thermostats, if required
- Earth continuity terminal to ensure all electrical components in the system are earthed correctly
- Pump 230V output terminals to allow connection of the manifold pump
- Volt free boiler terminals allow connection to a wide range of heat sources
- Clearly marked terminals to ensure correct connection of components
- LED indicator to give visual identification of pump/boiler 'ON'
- Potential to connect up to five electrothermic heads per channel for multi-loop zones
- Cable clamping enclosure ensure safe termination into the wiring centre
- Each channel allows connection of thermostat cable and electrothermic head which makes commissioning and fault finding simple
- Power 'ON' LED

Emmeti EWC-4 hard wired wiring centres

The EWC-4 is a compact, 4 way wiring centre designed for small UFH and WHR systems. Available in 230V version only.

Features include:

- Connection for up to 4 room thermostats
- Central timeswitch terminals
- Manifold circulating pump terminals
- Boiler volt free terminals
- Electrothermic head connection (up to 4 per channel)
- LED indication for boiler/pump operation
- Power 'ON' LED

Wireless Controls

A range of single, 2 way and 8 way wireless wiring centres, receivers and battery powered thermostats ideal for installations where electrical cabling is not suitable or for retro fit systems.
With simple commissioning sequences the thermostats can be easily paired to the wiring centre to allow zonal control of the heating system in the same way that a standard wired system will. Night set back function and remote sensing is also available.

1 ErP Class +1% Single Zone

8 ErP Class +5% Multi Zone

Control T Electrothermic Heads

A range of 230V and 24V electrothermic heads for use with Topway Type 2 manifolds.
The electrothermic head is, essentially a 2 port zone valve and will open the individual circuit when energised by the wiring centre. Supplied with 1m cable for connection to wiring centres. Available in the following options:

- 230V/24V NC Normally Closed – The valve body is closed and will open when energised
- 230V/24V NO Normally Open – The valve body is open and will close when energised
- 230V/24V NC Normally Closed with micro switch – The valve body is closed and will open when energised. As the valve opens a volt free micro switch closes contact and can be used to energise a pump or boiler (most commonly used in single zone systems)

RCE Weather compensating kit for heating and cooling

The RCE is an electronic controller capable of delivering fixed temperature, modulating or weather compensated control to an underfloor or wall hung radiator system. Can be used with the FMU2, TM3 Electronic and M3V control groups when fitted with an electronic actuator.
Weather compensating will manage the delivered temperature to the underfloor or wall hung radiator system depending on the external temperature conditions giving an increased efficiency during warmer months.

Electronic Mixing Valve Actuators

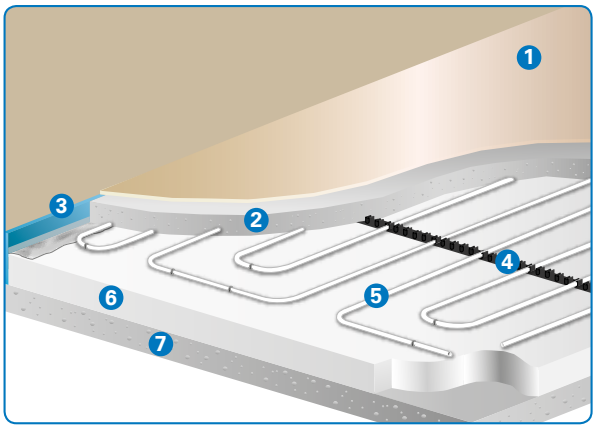
A 230V 3 point or 24V 0-10V DC electronic actuator for use with the FMU2, TM3 Electronic and M3V control groups when controlled by the RCE Electronic Weather Compensating kit.

Underfloor Heating Systems

Floor Systems

Emmeti offer a wide range of materials and fixings to suit a variety of installation requirements for screeded, concrete and floating floor types.

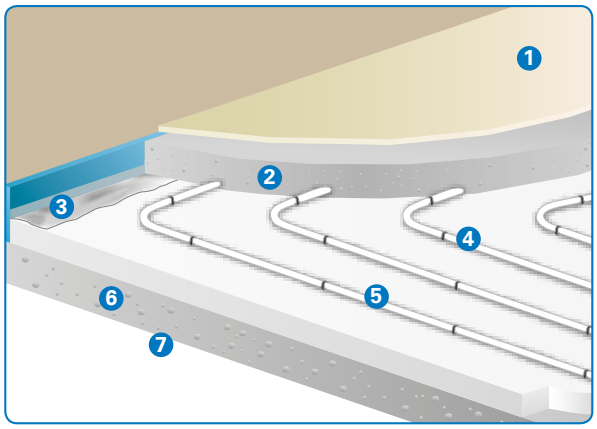
Solid Floor with Clip Rail



Underfloor heating pipe held into place with clip rail and additional clips prior to screeding.

1. Floor Covering
2. Screed
3. Edge Insulation Strip
4. Clip Rail
5. Pipe
6. Insulation
7. Concrete Slab

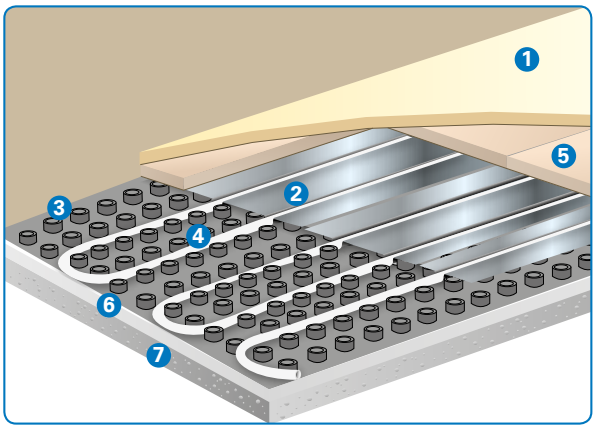
Solid Floor with Pipe Clips



Undefloor heating pipe clipped directly to insulation prior to screeding.

1. Floor Covering
2. Screed
3. Edge Insulation Strip
4. Pipe Clips
5. Pipe
6. Insulation
7. Concrete Slab

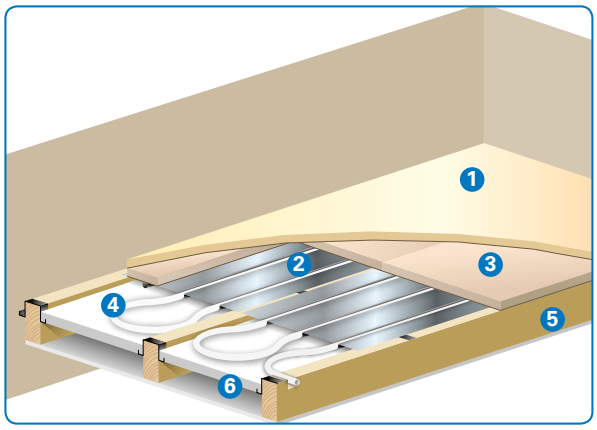
Spreader Plates with Castellated Panels



Underfloor heating pipe held in place using castellated panels and spreader plates, prior to floor being laid.

1. Floor Covering
2. Spreader Plates
3. Castellated Panel
4. Pipe
5. Sub-Floor
6. Insulation
7. Concrete Slab

Spreader Plates for Timber Suspended Floors

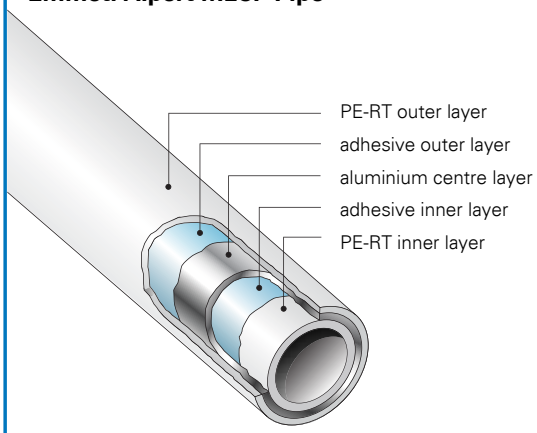


Underfloor heating pipe clipped to suspended insulation and placed into spreader plates prior to the floor being laid.

1. Floor Covering
2. Spreader Plates
3. Sub-Floor
4. Pipe
5. Joists
6. Insulation suspended on joist clips

PE-RT/AL/PE-RT Alpert MultiLayer Composite Pipe (MLCP)

PE-RT/AL/PE-RT
Emmeti Alpert MLCP Pipe



Advantages

Emmeti Alpert MultiLayer Composite Pipe is commonly used in Underfloor Heating and Wall Hung Radiator systems because of its flexibility and strength. The pipe can be easily formed and will retain its shape which makes installation of underfloor heating loops extremely simple.

A range of accessories and fittings are available to ensure hassle free installation including Monoblocco connectors, pipe preparation tools, tacker guns, pipe clips, castellated panels and bend supports.

Available in coils sizes up to 500m.

Composition

Multi-layer pipe for heating systems only, made from a 5 layer composite material using PE-RT as the inner and outer layers coupled with a 0.25mm thick aluminum core. The two further layers are adhesive, to bond the aluminium to the inner and outer PE-RT layer. Maximum operating pressure 10 bar; maximum operating temperature 70°C. The 5 layers are as follows:

- **PE-RT Outer Layer** - Protects the aluminium core from expansion as it can withstand high temperatures whilst maintaining its strength
- **Adhesive layer** - Permanently bonds the outer PE-RT layer to the aluminium core.
- **Aluminium layer** - thin layer of aluminium which provides a solid oxygen barrier to prevent corrosion of the heating system components.
- **Adhesive layer** - Permanently bonds the inner PE-RT layer to the aluminium core.
- **Inner layer** - Inner layer of clear, smooth PE-RT. Preventing pressure drops from water flow, and preventing deposit accumulation and corrosion.

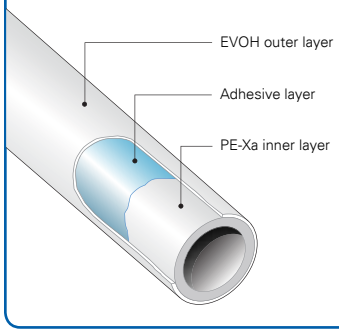
Technical Data

General	
Pipe range nominal dimensions	16mm OD x 12mm ID x 2.0mm wall thickness 20mm OD x 16mm ID x 2.0mm wall thickness
Operating temperature	70°C
Max. temporary peak temp.	95°C
Maximum operating pressure	10 bar
Minimum bending radius	5 x OD
Water capacity	16mm – 0.113 l/m, 20mm – 0.201 l/m
Thermal conductivity	0.45 W/m K
Thermal expansion coefficient	0.026 mm/m K
Standards	EN ISO 21003 (application class 4)

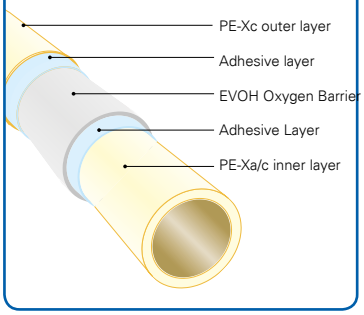
Underfloor Heating Systems

PE-X Barrier Pipe

PE-Xa Three layer Emmeti UFH barrier pipe



Pe-Xc Five layer Emmeti UFH barrier pipe



PE-Xa Three layer UFH barrier pipe

Using a simple construction, the pipe has an inner layer of PE-Xa (Cross Linked Polyethelene), an adhesive layer and an outer oxygen barrier layer of EVOH (Ethylene Vinyl-Alcohol Resin). Oxygen penetration in a heating system leads to corrosion of metalic parts and premature failure of system components. The EVOH layer in Emmeti PE-Xa prevents oxygen permeation through the tubing.

PE-Xc Five layer UFH barrier pipe

PE-Xc 5-layer pipe is the new Emmeti pipe in cross-linked polyethylene, supplied with EVOH oxygen barrier. Thanks to the 5 layer order, the oxygen barrier is protected from mechanical damage and at the same time the thickness of the inner layer of PEX is always equal to a 3-layer pipe equivalent measure. Emmeti PE-Xc 5-layer pipe is in compliance with European reference standards and certified SKZ

PE-X UFH Barrier Pipe

General	**PE-Xa**	**PE-Xc**
Pipe range nominal dimensions	16mm x 2mm, 17mm x 2mm, 20mm x 2mm, 25mm x 2.3mm	12mm x 2mm
Colour	Natural	Natural / Yellow
Coil sizes	16mm x 2mm 240m, 500m, 17mm x 2mm 240m, 600m, 20mm x 2mm 500m, 25mm x 2.3mm 500m	240m
Maximum working temperature	90°C	90°C
Maximum operating pressure	6.0 bar	10 bar
Construction	3 layer: PE-Xa- Adhesive Layer – EVOH (Ethylene Vinyl-Alcohol Resin)	5 Layer: PE-Xc - Adhesive Layer - EVOH (Ethylene Vinyl-Alcohol Resin) - Adhesive Layer - PE-Xc
Mechanical properties		
Pipe roughness	7µm	7µm
Bending radius	5 x D = 80mm	5 x D = 60mm
Water capacity	16mm - 0.11 l/m, 17mm - 0.13 l/m, 20mm - 0.20 l/m, 25mm - 0.32 l/m	0.05 l/m
Thermal properties		
Thermal conductivity	0.41W/m K	0.41W/m K
Thermal expansion coefficient	0.14mm/m K	0.15mm/m K
Standards		
Manufacturing	ISO 15875-2 , Application class 4/5	EN ISO 15875-2, Application class 4/10 bar, 5/10 bar
Oxygen barrier	DIN 4726	DIN 4726
Quality assurance	ISO 9001: 2000	ISO 9001: 2008

If the ambient temperature is below 10°C these pipes can be less flexible. When laying at or below 0°C the pipe is difficult to bend.

Advantages of PE-X Pipe

Installing PE-X pipe is less labour intensive than traditional pipe jointing methods. It also has the following benefits:

- resistance over time to temperature and pressure
- corrosion resistance
- chemical resistance
- low internal resistance
- excellent flexibility
- lightweight

PE-X can run straight from a distribution point to an outlet point without the need to cut the pipe. This reduces the requirement for joints and the possibility of leaks.

Underfloor Heating Accessories

Edge Insulation Strip - Insulating Perimeter Strip

Designed to provide an expansion and insulation layer between the wall and screed floor layer. Available in two sizes with optional overlap and adhesive strip.

Clip Rail

A range of mounting rails to cater for pipes from 16mm to 20mm, with options of self-adhesive tape or dual barb for secure fixing during underfloor heating installation.

Castellated Panel

Designed as a simple alternative to clip rails or staples as a method for holding pipe in place. The panels are non-insulated and are designed to lay on top of the insulation. The panels allow easy installation of UnderFloor heating pipework.

Pipe Decoiler

Three types of pipe dispensers available, Low Roll, High Roll and Low Roll with telescopic arms. Designed to allow for pipe to be uncoiled consistently and easily to aid installation.

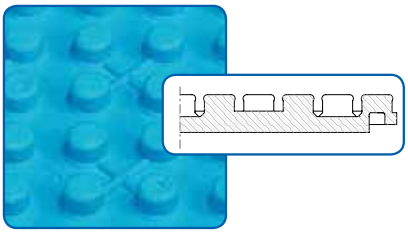
Pipe Bend Supports

Used to protect and support pipe between the manifold and where it enters the floor. An optional fixing lug available for smaller size pipe

Tacker Gun & Staples

Manual stapling tool designed to allow quick and continuous pipe fixing to insulation layer. For use with Emmeti tacker staples. Staples are available in three lengths and as single or double hooked versions.

Floor Insulating Panels



A range of floor insulating panels that allow underfloor heating pipe to be routed while also offering insulation properties. Various depth, density, acoustic property and panel sizes are available.

Spreader (Heat Emission) Plates

Made from 0.5mm thick brushed aluminium sheet, emission plates are designed to mount the UnderFloor heating pipework under suspended timber or battened floors or in conjunction with castellated panels to provide even heat dissipation.

Closing Bend for Spreader Plates

Working in conjunction with spreader plates, closing bends allow for easier application of pipework.

For further details such as **product codes** and **prices** please refer to our **Emmeti product price list** or visit our website **www.emmeti.co.uk**, or alternatively please call us on 01993 824900

Underfloor Heating Systems

Manifold Accessories and Associated Products

Monoblocco connector for MLCP multilayer composite pipes, including Gerpex, nickel-plated

Sizes: 12-26mm.
For use when connecting MLCP to 24x19 thread.

Monoblocco connector for plastic PB polybutylene pipe, nickel-plated

Sizes: 10-15mm.
For use when connecting Polybutylene pipe to 24x19 thread.
Please ensure you use the plastic pipe insert recommended by the manufacturer of the pipe.

Monoblocco connector for PE-X, Pure PE-RT and PP, nickel-plated

Sizes: 12-25mm.
For use when connecting PE-X, Pure PE-RT and PP to 24x19 thread.

Ball Valves

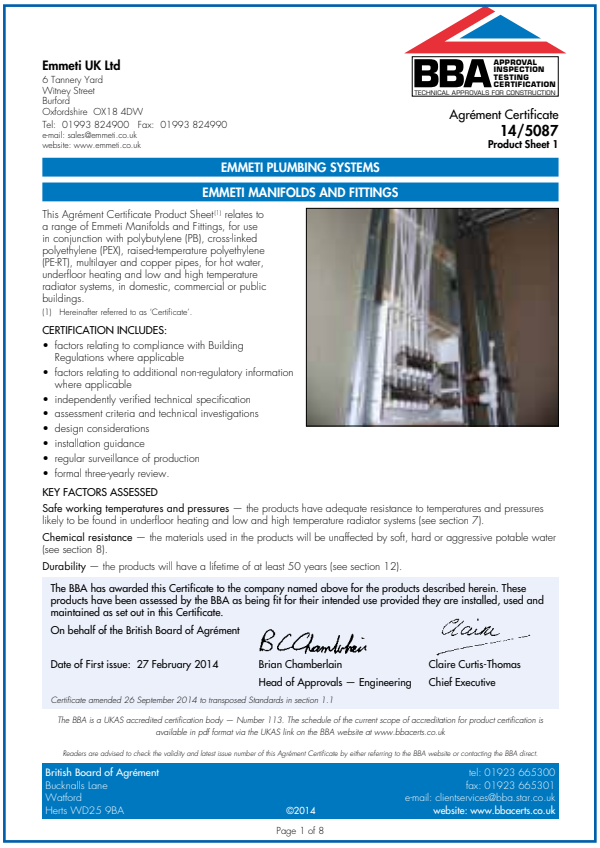
A wide range Ball valves are available, including male/female union and BSP connections for primary isolation of the manifolds. Option available with inline thermostats.

Spanners

Spanners designed for easy tightening of Monoblocco connectors onto manifolds with 36mm inter-axial outlet spacing.

For More Information

For more information please visit our website where you will find our price list, Technical Product Guides and installation guides, or call us on 01993 824900.



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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
14/5087
Product Sheet 1

EMMETI PLUMBING SYSTEMS

EMMETI MANIFOLDS AND FITTINGS

This Agrément Certificate Product Sheet[1] relates to a range of Emmeti Manifolds and Fittings, for use in conjunction with polybutylene (PB), cross-linked polyethylene (PEX), raised-temperature polyethylene (PE-RT), multilayer and copper pipes, for hot water, underfloor heating and low and high temperature radiator systems, in domestic, commercial or public buildings.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Safe working temperatures and pressures — the products have adequate resistance to temperatures and pressures likely to be found in underfloor heating and low and high temperature radiator systems (see section 7).

Chemical resistance — the materials used in the products will be unaffected by soft, hard or aggressive potable water (see section 8).

Durability — the products will have a lifetime of at least 50 years (see section 12).

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 27 February 2014

Brian Chamberlain
Head of Approvals — Engineering

Claire Curtis-Thomas
Chief Executive

Certificate amended 26 September 2014 to transposed Standards in section 1.1

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Underfloor Heating Systems

Case Study - America Field

Site Summary

The project is a bespoke, new build, 3 bedroom house located in Cumbria. This was a property set in a rural location and as a result an air source heat pump was specified as the heat source.

The application

Emmeti manifolds and controls used for both the underfloor heating and wall hung radiator systems.

The solution

The ground floor comprised of a T2 Topway heating manifold with 16 x 2mm ALPERT MLCP to supply the underfloor heating system, whilst the first floor again uses an Emmeti T2 Topway manifold but in this instance to supply six wall hung radiators using 16 x 2mm Gerpex MLCP.

To enable individual zone control, the project also used two Emmeti EWC-1 wiring centres. These are designed to provide central electrical control to all system components including room thermostats, electrothermic heads and heat source. The compact wiring centres, able to control up to 12 zones include individual channel terminals which allow the room thermostat to signal to the electrothermic head to open and also to active the heat source, when there is a demand for heat.

The Benefits

Underfloor heating has become increasingly more popular in the UK because of its ability to provide an efficient and uniform heat. The radiant heat provided at floor level creates a large heated surface that dissipates heat evenly into the living space which gives underfloor heating an efficiency advantage over conventional heating for two main reasons; The heat emitted is used more effectively, resulting in less wasted heat, and secondly, the heat required to enable this is generally delivered between 35-55o C compared with 65-75o C for radiators which makes air and ground source heat pumps the ideal heat source for this application. These energy savings combined with silent running and increased flexibility for room layouts gives a solution that will add real value to a property such as America Field.

The players

Working closely with Emmeti the heating system was designed and supplied by Tailored Heat Supplies, the installation was carried out by a local contractor.

The complete America Field project, a modern, attractive 3 bedroom property.

The Ground floor uses an Emmeti T2 Topway heating manifold (7 port) to supply seven individual UFH loops. The integrated double regulating flowmeters on the top flow rail allow for individual circuit flow control to ensure correct balancing of systems. The integrated electrothermic valves on the lower return rail allow for electrical control of each circuit via electrothermic actuators.

Case Study - Greenhall Farm

Site Summary

The project was an attractive 3 bedroom barn conversion project located in Lancashire. The barn is part of a larger building and the owner's objective was to develop a separate stand-alone property.

The complete Green Hall Farm project, an attractive barn conversion project.

The application

Emmeti manifolds and controls used for both the underfloor heating and wall hung radiator systems.

The solution

The first floor comprised of a T2 Topway heating manifold with 16 x 2mm Gerpex MLCP to supply five wall hung radiators, whilst the ground floor again used T2 Topway heating manifolds, this time to supply an underfloor heating system and two wall hung radiators using a mix of 16x2mm Gerpex and ALPERT MLCP.

T2 Topway manifolds can be used for both underfloor heating and wall hung radiator heating applications as a pre-assembled option or as single bars. The integrated double regulating flowmeters on the flow rail allow for individual circuit flow control to ensure correct balancing of systems. The integrated electrothermic valves on the return rail allow for electrical control of each circuit via electrothermic actuators, linked to CS-11 digital programmable wall thermostats which were also supplied by Emmeti on this project. By zoning each individual room energy usage can be reduced by up to 40% as each room becomes its own time and temperature controlled zone meaning that it will only be heated when required.

UFH manifold in the ground floor plant room showing the air source heat pump control unit and a T2 Topway manifold. In addition an Emmeti EWC1 wiring centre provides central electrical control to all system components including room thermostats, electrothermic heads and the heat source.

The Benefits

The use of zone control allows the home owner to tailor the temperature in different areas of the property to suit their living habits whilst also reducing energy usage. Using manifolds with individual zone control is proven to be a more accurate method for maintaining a comfortable temperature within a space as each thermostat is mounted in an optimum position rather than TRVs (Thermostatic Radiator Valves) which are fitted directly to the radiator at low level. The use of a thermostat per room/zone makes it much easier to create ideal comfort levels and prevents the unnecessary heating of unoccupied rooms improving the energy efficiency of the building.

The players

Working closely with Emmeti the heating system was designed and supplied by Tailored Heat Supplies and installed by a local contractor.

Respect the environment!
For a correct disposal, the different materials must be divided and collected according to the regulations in force.

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