

Underfloor Heating Division
The Dart Building
Grenadier Road
Exeter Business Park
Exeter EX1 3QF



Clever ideas don't have to be complicated. Technology is best when it's made easy to understand and use. Just like UFH from Thermoboard. We've solutions for screeded and timber floor constructions, for all floor levels. We also offer straightforward support should you need it.

Need more information?
Get straightforward guidance from people who really understand UFH

Call us on:

01392 444122

or email:

info@thermoboard.co.uk

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UF425

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Step-by-step Installation Guide

For Screeded and Timber Floors



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Technology that's special

What makes new technology great? It's more than just its ability to solve a problem or deliver superior performance.

Technology is best when it's also made easy to understand and use.

That's what makes Thermoboard Underfloor Heating special.

THERMOBOARD UFH SYSTEMS

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Thermoboard Underfloor Heating in 6 systems

1

Staples

For SCREEDED floors.

Complete versatility for pipe layout and independent choice of insulation. It's an ideal solution for small and irregularly shaped floors – with lowest material cost.



2

System Plates

For SCREEDED floors.

Interlocking sheets with vacuum-formed grid of clips to hold 16mm UFH pipe. Enables fast installation and is easily configured to suit individual projects.



3

Pocketed Polystyrene

For SCREEDED floors.

Insulation with machined channels to hold the pipe at fixed centres. Extra time-saving option.



4

Foiled Polystyrene

For TIMBER floors.

Insulation with machined channels fitted with aluminium foil diffusers, to hold the pipe at fixed centres.



5

Modular Wood

For TIMBER floors.

Standard tongue-and-groove panels with pre fitted 10mm UFH Pipe. Allows simultaneous installation of floor and UFH.



6

Raised Access Floors (RAF)

Ideal method of incorporating warm water underfloor heating/cooling with standard RAFs.



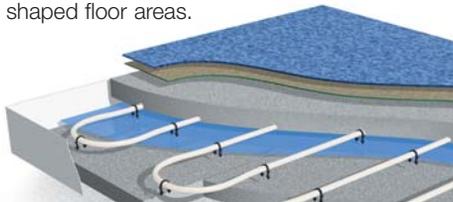
Options for SCREEDED floors

For installation on a solid floor slab

STAPLES

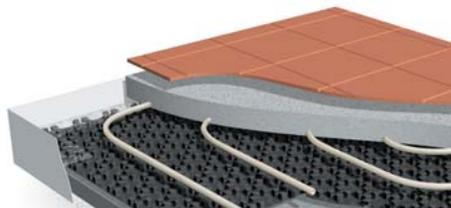
The Thermoboard UFH basic system. It gives you full layout flexibility: you decide the pipe spacing and choice of insulation.

It's especially suitable for small and irregularly shaped floor areas.



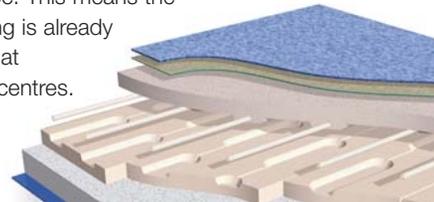
SYSTEM PLATES

A cleverly designed method for fast placement of UHF pipe but which still gives you full layout flexibility. You decide the pipe spacing and choice of insulation.



POCKETED POLYSTYRENE

A real time-saving option because it enables you to fit insulation and the base for the UHF pipe simultaneously. Insulation panels have machined channels and screed pockets to grip the pipe. This means the pipe spacing is already set for you at consistent centres.

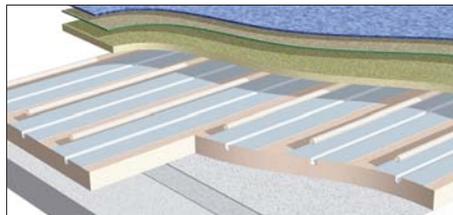


Options for TIMBER floors

For suspended floor constructions and fully floating floors

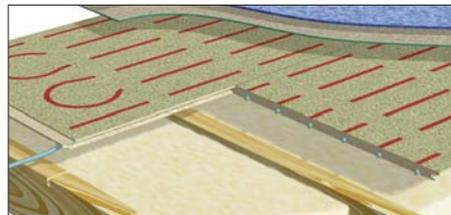
FOILED POLYSTYRENE

Insulation panels with factory-fitted aluminium foil diffusers for machined channels that hold pipe in place. Versions for joisted, battened or fully floating floors available.



MODULAR WOOD

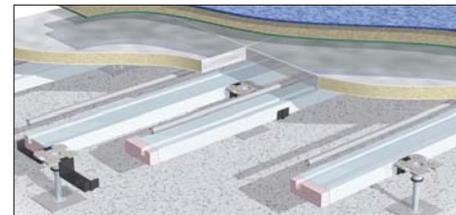
Standard sized tongue-and-groove chipboard panels with pre-fitted UHF pipe. Enables simultaneous installation of floor deck and UHF over joisted or battened floor.



Options for RAF

RAISED ACCESS FLOOR

Brackets plug into the pedestal caps of the RAF, and the heating module sits on the bracket. Brackets and modules can be retro-fitted to older types of RAF and modules can be repositioned at any time in the future.



INSTALLATION – Project Preparation

Sub-floor

- Ensure that the sub-floor is
 - Flat and level
 - Clean of loose debris
 - Dry

Heat source

- Confirm whether the UFH is to be connected to:
 - An existing radiator circuit
 - OR
 - Direct to the boiler

If adding UFH to an existing radiator circuit

- Identify suitable connection point
- Decide position for UFH manifold

- Check that the boiler capacity is sufficient for the needs of UFH
 - Heating output
 - Pump

If installing UFH in a house extension and connecting direct to the boiler

- Check that the boiler has sufficient capacity to serve the additional circuits

Insulation (screeded only)

All Thermoboard UFH systems for screeded floors require edge insulation (*see page 7 below*).

*If you are installing **Staples** or **System Plates***, you will also need rigid insulation panels to cover the entire floor area.

*If you are installing **Pocketed Polystyrene***, insulation panels are an integral part of the system.

INSTALLATION – General Techniques

Cutting pipe

When it is necessary to cut or trim **Thermoboard 16mm UFH pipe** for jointing or connection to the Manifold, follow normal plumbing Good Practice:

- Ensure pipe is cut square, using an appropriate cutter
- DO NOT cut pipe with a hacksaw, wheeled tube cutter or utility knife
- Check the pipe end for burrs and roughness – and remove if found

Edge Insulation (screeded only)



This helps to minimise heat loss and allow for thermal movement of the floor screed.

BEFORE installing Thermoboard UFH system

- Place **Thermoboard Expansion Foam** around the perimeter: ensure the integral gaiter is facing the floor space



AFTER installing rigid insulation panels and pipe

- Ensure the gaiter lies on top of the installed insulation panels and pipe

This gaiter will help ensure screed does not reach the underside of the insulation panels.

Sealing (screeded only)

- Tape all joints between insulation panels

This is to prevent liquid screed reaching the underside.

Screeding (screeded only)

This **MUST NOT** begin until the installed UFH pipe circuits have been **pressure tested** (*see pages 30-31*).

- When screeding, keep pipe under pressure so that any fault can be immediately detected



1 General

Insulation

Remember that underfloor heating circuits should not be installed in floor areas that will be covered by major fixtures: (e.g.)

- **Kitchens:** EXCLUDE areas to be fitted with cupboards, work surfaces, oven, fridge-freezer etc.
- **Bathrooms:** EXCLUDE areas to be fitted with bath, shower, sanitaryware etc.

Pressure testing

- Use a Hydraulic Pressure Tester (available from most hire shops)



Pipe

- 1 Do NOT bend Thermoboard UFH pipe more tightly than a radius of 100mm
- 2 If pipe is kinked, it MUST be repaired or replaced
- 3 Any fittings used to repair a pipe must be kept accessible for inspection
- 4 During pipe placement, use the pipe packaging to control it while uncoiling

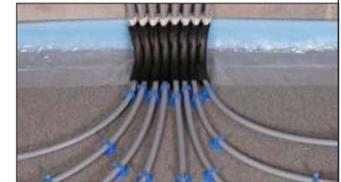


Sealing (screeded only)

- Before screeding, ensure edge gaiter is fully deployed around room perimeter

Screed (screeded only)

- Allow screed to dry naturally
- NEVER use heated UFH circuits to accelerate the drying and curing process



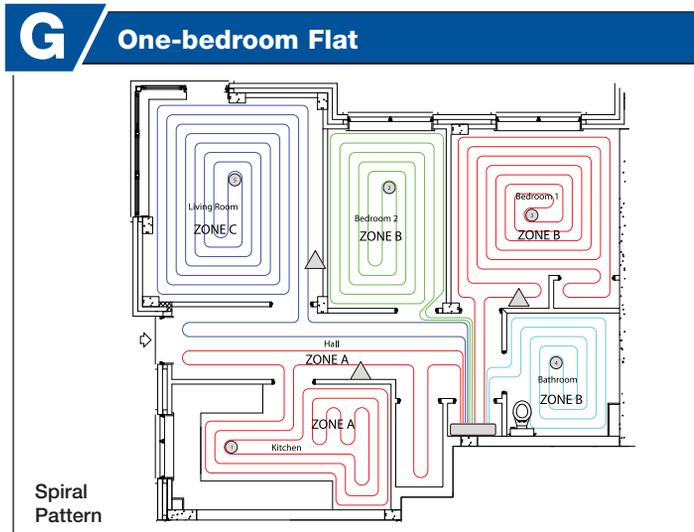
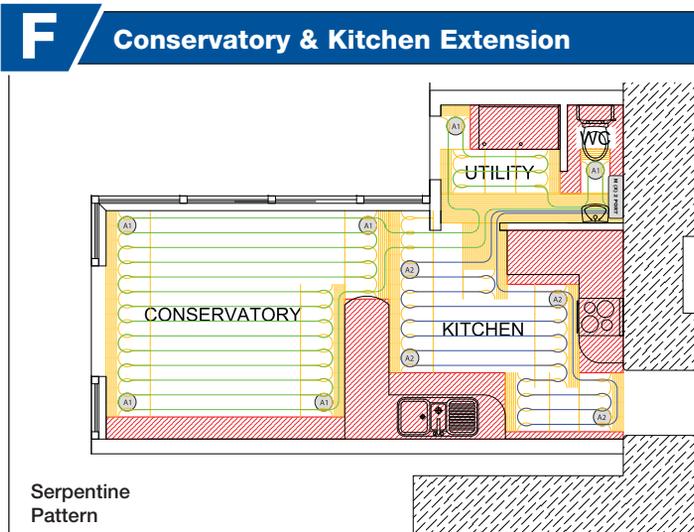
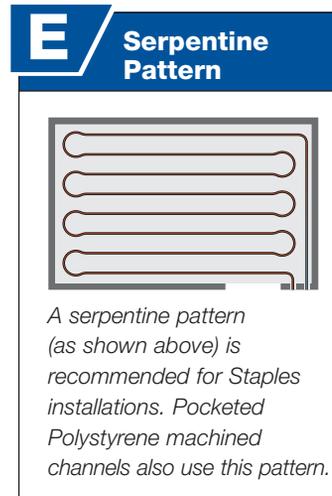
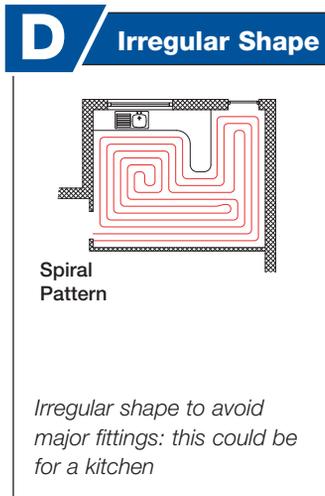
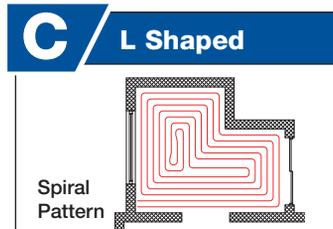
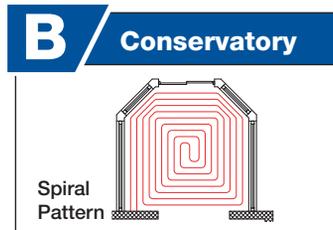
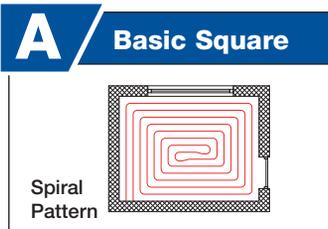
Pipe convergence (screeded only)

- Use curved pipe supports and pipe clamps to secure pipework where it converges below the manifold



Your project may not precisely match any of these examples, but they can help you plan your pipe layout.

For individual rooms

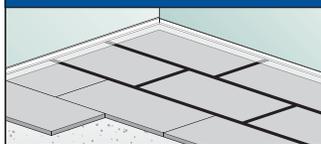


For multi-zone projects

Preliminary

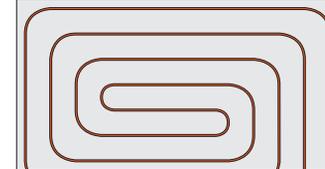
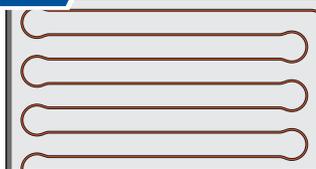
- Ensure flat and level sub-floor
- Place edge insulation around the room perimeter (see page 7)

1 Insulation Panels



- Lay plain insulation
- Use staggered joints to cover the whole floor area, as illustrated above
- Seal joints with tape or cover with vapour barrier as applicable

2 Mark Out Pipe Layout



- Start from the point in the room nearest to the location of the manifold and heating supply
 - Follow a serpentine pattern, with pipe at 200mm centres
 - Pipe runs should preferably follow the longest direction of the room
- Alternative layout*
- Use a spiral pattern, with pipe at 200mm centres

3 Placing Pipe

- Place the pipe into position in accordance with the marked layout
- Feed the pipe from the centre of the coil: **DO NOT REMOVE THE PACKAGING FROM THE PIPE COIL**

4 Securing Pipe

- Secure the pipe to the insulation at regular intervals using **Thermoboard Staples** at approx. 500mm intervals
- A Staple Gun is available: this enables stapling from a standing position
- To ensure loop turns are secure, staple the pipe at the apex of each turn, as shown



5 Completion and Commissioning

The final stages include:

- **Pressure testing** (see pages 30-31)
- Installation of, and connection to, the **Manifold** (see pages 33-34)
- **Screeding** (see page 7)
- **Controls** (see page 35)

Preliminary

- Ensure flat and level sub-floor
- Place edge insulation around the room perimeter (see page 7)

1 Insulation Panels

- Lay plain insulation
- Use staggered joints to cover the whole floor area, (as illustrated page 12)

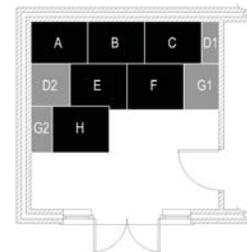
2 Position System Plates



- Place the first System Plate in the corner of the room with the large plain faced nodule in the corner
- Note position of castellations showing rectangles on their faces: other plates should be laid in the same orientation



- Lay and fix other plates, overlapping castellations
- NOTE: For pipe spacing, each castellation group = 75mm



- Follow block laying sequence guide to minimise cutting and wastage

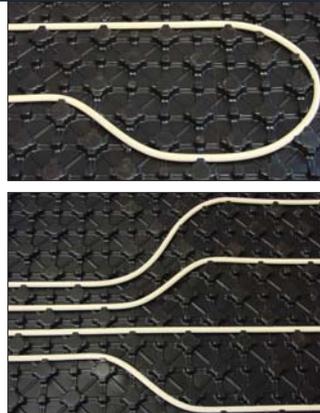
3 Placing Pipe



- Start 75mm from wall securing gaiter of edge insulation foam under the first run of pipe
- Place pipe in a spiral pattern (see **Tips** page 8) with 450mm centres to the centre of the room - then reverse out to achieve 225mm centres

4 Fixing Bends or Loops

- Insert pipe carefully between nodules: MINIMUM 225mm diameter for any turns – to relieve pipe stress
- Then reduce to desired spacing
- When creating offsets it may be necessary to crush smaller castellations



5 Completion and Commissioning

The final stages include:

- **Pressure testing** (see pages 30-31)
- Installation of, and connection to, the **Manifold** (see pages 33-34)
- **Screeding** (see page 7)
- **Controls** (see page 35)

Preliminary

- Ensure flat and level sub-floor
- Place edge insulation around the room perimeter (see page 7)



1 Lay End Panels



- Lay loop return end panels at each end of the room

2 Lay Main Panels

- Lay main pocketed panels to cover the remainder of the floor
- Ensure the machined channels match up with channels in adjacent panels and/or in the loop return end panel

3 Placing Pipe



- Feed pipe into channels, pressing down carefully into the pre-cut channels
- On long runs, pipe can be unrolled from a standing position, and pressed into place with your foot



4 Completion and Commissioning

The final stages include:

- **Pressure testing** (see pages 30-31)
- Installation of, and connection to, the **Manifold** (see pages 33-34)
- **Screeding** (see page 7)
- **Controls** (see page 35)



for **Fully Floating Floors****Preliminary**

- Ensure flat and level sub-floor

1 / Lay End Panels

- Lay loop return end panels at each end of the room

2 / Lay Main Panels

- Lay main foiled panels to cover the remainder of the floor
- Trim main panel lengths as necessary
- Ensure the machined channels match up with channels in adjacent panels and/or in the loop return end panel

**3** / Placing Pipe

- Feed pipe into channels, pressing down carefully into the pre-cut channels
- On long runs, pipe can be unrolled from a standing position, and pressed into place with your foot

**4** / Completion and Commissioning

The final stages include:

- **Pressure testing**
(see pages 30-31)
- Installation of, and connection to, the **Manifold**
(see pages 33-34)
- Laying of **Floor deck**
- **Controls** (see page 35)



for **Timber Joists****Preliminary**

Crawling boards should be used at all times.

Please refer to relevant health & safety regulations for further information.

1 **Fix Panel Supports**

- Fix L brackets or battens to both sides of each joist at a depth such that the insulation panels will sit with the top surface proud of the joist by 1-2mm

2 **Lay Panels**

- Lay loop return end panels at each end of the room
- Lay long foiled panels between the loop return end panels
- Trim main panel lengths as necessary

**3** **Notch Joists**

- Plan the pipe layout and notch joists where necessary

4 **Placing Pipe**

- Feed pipe into channels, pressing down carefully into the pre-cut channels and the connecting notches

5 **Completion and Commissioning**

The final stages include:

- **Pressure testing** (see pages 30-31)
- Installation of, and connection to, the **Manifold** (see pages 33-34)
- Laying of **Floor deck**
- **Controls** (see page 35)



for **Timber Battens****Preliminary**

- Ensure flat and level sub-floor

**1** Lay Battens and Panels

- Fix batten to one edge of room
- Lay loop return end panels up against batten at both ends
- Lay main foiled panels between the loop return end panels
- Trim main panel length as necessary
- Fix next batten up against insulation panels just laid
- Continue laying battens and panels to cover the floor area

**2** Notch Battens

- Plan the pipe layout and notch battens where necessary

3 Placing Pipe

- Feed pipe into channels, pressing down carefully into the pre-cut channels and into the connecting notches
- On long runs, pipe can be unrolled from a standing position, and pressed into place with your foot

4 Completion and Commissioning

The final stages include:

- **Pressure testing**
(see pages 30-31)
- Installation of, and connection to, the **Manifold**
(see pages 33-34)
- Laying of **Floor deck**
- **Controls** (see page 35)



From Above**1** / Insulate

- Install insulation between the joists to minimise downward heat loss

2 / Lay Panels

- Lay tongue-and-groove panels according to layout drawings provided, leaving a minimum 10mm expansion gap around periphery of the deck
- Fully glue all tongue-and-groove edges
- Screw, or nail and glue all panels to joists
- Lay the panels so the piped end is positioned on the centre line of the joist



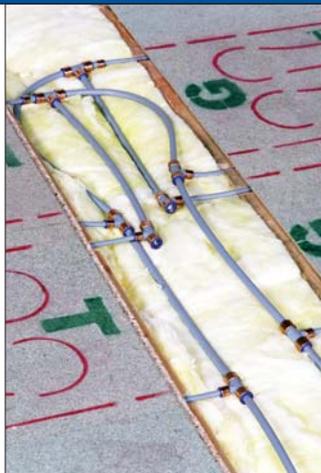
- Trim the opposite end to sit on the centre line of the relevant joist, or support with suitable noggin/dwang

3 / Notch

- Make a small notch in the joist to take tails into joist bay

4 / Connect Pipe Work

- Connect the pipe tails to flow and return pipes as shown in the layout drawings provided

**5** / Pressure Test

- It is important that fittings should be exposed during the **Pressure Test** (see pages 30-31)
- Once the pressure test has been completed satisfactorily, fit an **Access Panel**, to cover over the fittings and interconnecting pipe



From Below



1 Lay Panels

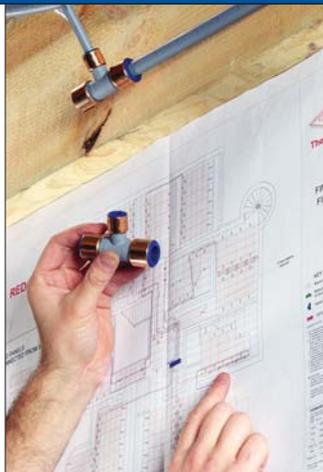
- Lay tongue-and-groove panels according to layout drawings provided, leaving a minimum 10mm expansion gap around periphery of the deck
- Fully glue all tongue-and-groove edges
- Screw, or nail and glue all panels to joists
- Lay the panels so the piped end is positioned on the centre line of the joist



- Trim the opposite end to sit on the centre line of the relevant joist, or support with suitable noggin/dwang

2 Connect Pipe Work

- Pull back pipe tails 15-20cm from end of panels
- Connect the pipe tails to flow and return pipes as shown in the layout drawings provided
- P-clip flow and return pipework to joists at 300mm centres



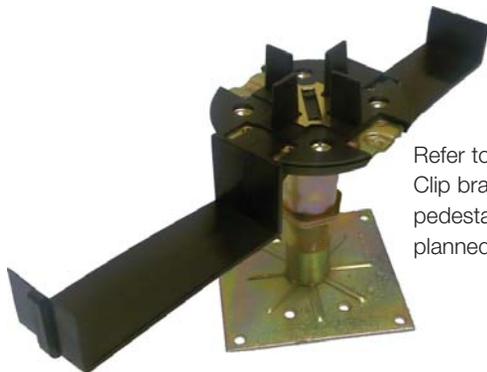
3 Pressure Test



- It is important that fittings should be exposed during the **Pressure Test** (see pages 30-31)

4 Insulate

- Make a small notch in the joist to take tails into joist bay

1 / Attach Brackets

Refer to plans supplied.
Clip brackets onto each pedestal adjacent to the planned line of the pipe.

2 / Fit Modules

Line up each module end on the centre-line of a bracket (i.e. so that the end of the next in-line module can share that same bracket). When pressing each module into the brackets, ensure it is orientated so that the pipe groove is away from the pedestal head.

**3** / Lay Pipe

Install the pipe into the grooves as per the design.

Recommendation:

At the end of pipe runs, secure the pipe in the module by wrapping a 300mm length of tape around both.

**4** / Flow and Returns

Run multiple flow and return pipe runs in the brackets as required. Modules are not needed for these.

Recommendation:

Secure flow and return pipes in brackets using cable ties.

Introduction

Once the pipe has been laid, each circuit should be pressure tested. This is to ensure that there are no leaks in the pipe or connections.

THIS MUST BE DONE **BEFORE** SCREEDING.

1 Preparation

Ensure circuit is complete:

- Close isolation valves on primary connection to the manifold
- Open all circuit valves on Flow and Return
- Connect a hydraulic pressure tester to one fill/drain port

2 Testing

- Raise pressure to 1 bar. Hold this for 45 minutes and inspect system for leaks. If fittings are present within the system, it is recommended that they are flexed during this inspection
- Increase pressure to 6 bar. Hold this for 15 minutes and inspect for leaks
- Reduce the pressure to 2 bar. Hold this for 45 minutes and inspect for leaks



3 Recording



- Record time and date of test

4 After Testing

- Safely depressurise system



Introduction

- Entirely modular
 - Start with a Composite Manifold Starter Pack
 - Pick any number of ports, from 1 to 12
 - Connect to the Control Pack
- Lightweight and simple to install
- Retrofit another circuit to the manifold in minutes and at any time
- Install with ports facing up or down as required
- Unique 'Memory Ring' enables circuit isolation and balancing without tools
- Suitable for cooling as well as heating
- BBA certificated for 25 year service life



Installation procedure and system filling – A full Composite Manifold Installation Guide is also available

1 Manifold Packs

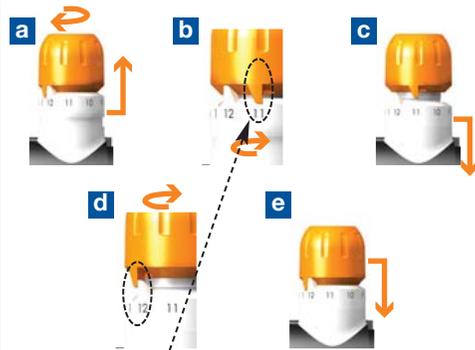
- Starter
- 1 Port
- 3 Port

2 Assembling Arms

3 Installing Gauges

4 Connecting Circuits

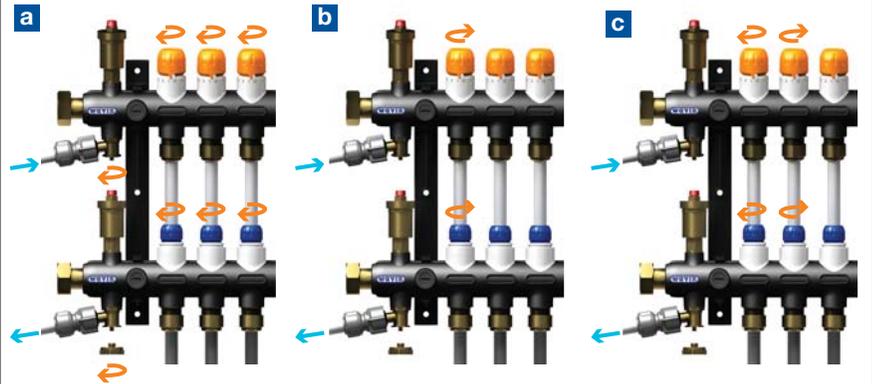
5 Quick Circuit Balancing



Circuit Length	Longest	-10m	-20m	-30m	-40m	-50m	-60m	-70m	-75m+
Setting	12.0	10.8	9.6	8.4	7.2	6.0	4.8	3.6	3.0

Circuit Setting = (Circuit Length - Longest Circuit Length) x 0.12 + 12

6 Flushing and Filling



Controls

- Mains powered standard Control Centre
- Can control up to 14 heating zones
- 'Pick and Mix' thermostats to fit your lifestyle: Mix hard wired and wireless, programmable and non-programmable, all compatible with one Control Centre
- 'Install now - assign later' design: eliminates cross wiring and associated costs
- Wireless thermostats means no chasing through walls and avoidance of wiring costs where used
- Thermostat operation self explanatory: makes setting heating to personal preferences extremely easy for homeowners
- Ideal for use in new build, extensions and renovations
- See Control System Installation Guide for full details of connection and operation procedures



Need any help? Call us on: 01392 444122