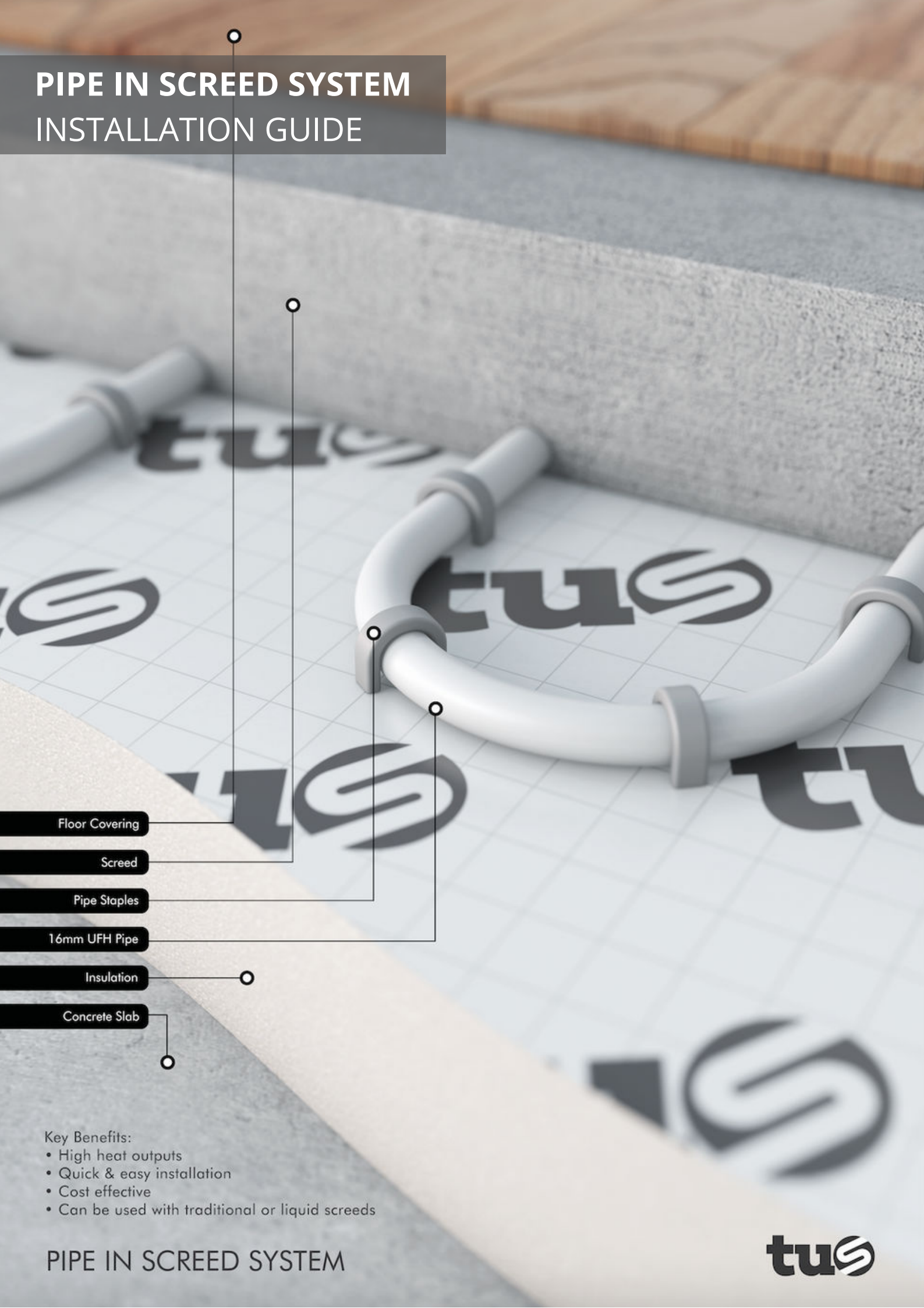
PIPE IN SCREED SYSTEM
INSTALLATION GUIDE



Key Benefits:
- High heat outputs
- Quick & easy installation
- Cost effective
- Can be used with traditional or liquid screeds

PIPE IN SCREED SYSTEM

PIPE IN SCREED UFH SYSTEM

INTRODUCTION

Our InScreed® underfloor heating solution is a traditional system which is installed on top of rigid floor insulation typically of around 100mm in depth.

This system is most commonly used in new floors either in new build projects or in renovation projects where the existing floor has been removed to add insulation improving its thermal properties.

The benefit of installing an InScreed® system are:

- Easy and efficient installation
- Most cost effective underfloor heating system to install
- Can be laid with a variety of screed depths and types
- Offers the best heat output of UFH systems

There are typically three different methods of installing underfloor heating into a screed floor. These are:

***Clip or Staple System**
***Clip Rail System**
***Castellated Tray System**

The only difference between these systems is how the pipes are laid before they are embedded within the screed.

This installation guide focusses on the most commonly used screed system - the Clip or Staple system.

COMPONENTS USED:
UFH Manifold & Control Pack: Size dependant on UFH design
Pipe: 16x2mm PE-RT or PE-RT/AL/PE-RT (Coil Sizes: 100m/240m/500m)
Pipe Clips: 40mm/60mm
Clip Rail (Optional): 1mtr lengths

TOOLS REQUIRED:
Tacker Gun, Pipe De-Coiler, Pipe Shears, Pipe Reamer, Adjustable Spanner

TECHNICAL INFORMATION

UFH DESIGN

Prior to installation please ensure you have received your detailed UFH CAD proposal from your account manager and you are happy that the system design meets your requirements.

INSULATION

Provided by others - In accordance with Part 'L' of the current Building Regulations, a suitable layer of insulation material should be included within the floor construction. It is the responsibility of the Architect or Builder to ensure compliance. However, in all instances insulation must be installed beneath the underfloor heating system in order to ensure that any downward heat loss does not exceed 10W/m2, in accordance with BS EN 1264.

HEAT OUTPUTS

	Tile/ 6mm ply*	Engineered Wood Floor	Carpet 1.5 TOG/ 6mm ply
Flow/Return Temp	Heat Output W/m2		
35/30	60	38	33
40/35	85	53	46
45/40		68	59
50/45			72

Not allowed as per BS EN 1264

*PLEASE NOTE: The above are typical heat outputs based upon BS EN 1264, 20°C room temperature, and a delta T of 5°C.

This is not necessarily representative of the system you are installing. A number of variables including screed depth, flow temperature, pipe spacings, floor covering and insulation levels will dictate heat output levels.

Details of heat outputs specific to your project are displayed on the UFH CAD design provided.

If you are unsure about any aspect of your design or installation please contact TUS on 01283 850040 or email info@tradeunderfloor.co.uk

INSTALLATION

IMPORTANT - Prior to installation of the UFH components, take time to ensure the base floor has been made level, flat and is free of dust.
Use self-levelling compound if required to ensure a smooth, level surface upon which to lay the installation boards .

1 - INSTALL THE EDGE INSULATION

Edge insulation strip should be placed around the perimeter of the room prior to the laying of the floor insulation panels.

Once the pipes have been installed and the screed poured, the edge strip fills the gap around the slab allowing for any expansion. It also minimises heat loss through the surrounding walls by forming an insulation barrier around the slab.

2 - INSTALL THE FLOOR INSULATION

While most types of thermal floor insulation boards are suitable for use with underfloor heating, foil-faced high density polyurethane foam is likely to suffer less damage on site due to its high compressive strength. Pipe fixing clips also hold very well when fixed into this type of insulation.

Insulation thickness and type is usually specified by the architect or builder in accordance with current regulations.

3 - INSTALL THE VAPOUR BARRIER

If the insulation boards are porous e.g polystyrene, a vapour barrier should be installed on top of the boards and turned up at the edges around the perimeter. A polyethylene film of at least 0.15mm thicknesss is generally used.

This should not be confused with a heavy gauge damp proof membrane (DPM) that must be provided to the structural slab below the insulation boards.

4 - INSTALLING THE MANIFOLD

The manifold location will be shown on your UFH CAD design. When you have located the correct positioning fix the manifold firmly to a wall ensuring there is adequate space available for access to either side of the manifold for future servicing and maintenance.

Manifolds are usually fitted at least 600mm from the floor to allow pipes to be connected up to the manifold easily.

Refer to the manufacturers instructions provided for detailed installation instructions regarding the manifold, ball valves and pipe connectors.

5 - LAYING THE PIPE

Prior to laying the pipe check your CAD design to familiarise yourself with the proposed pipe layout. If you are using castellated trays or clip rail these should be installed at this point prior to laying any pipe.

Check pipe lengths on the CAD design and ensure the coil you are laying is long enough to complete the loop and return to the manifllld for connection comfortably.

When you are ready to lay the pipe, work methodically in accordance with the CAD design laying one loop at a time and ensuring pipe spacings are consistent.

If you are not using castellated trays or clip rail an easy way to get even spacings throughout is to measure and cut a piece of timber at the required distance e.g 200mm, and place it between the pipe as it is being laid.

Pipes should be laid no less than 100mm from walls

TIP - A tacker gun (shown above) will help speed up installation and provide relief from bending down to insert clips manually.

The number of clips used will vary between installers. Typically we supply enough clips based on 1 clip per linear metre with more clips being used on the returns. However, some installers prefer to use more.

Compared to Multi layer composite pipe (MLCP) which retains it's shape when bent or formed, PEX/PERT pipes are more springy and may require extra clips to be used.

Complete the first circuit and connect the return pipe to the manifold using the pipe connectors supplied.

Repeat the process for all circuits shown on the UFH design.

Upon completion of laying and connecting all of the the underfloor heating pipe circuits to the manifold - ensure all pipe work Is pressured tested (conforming to BS EN 1264) - see below.

Expansion Joints

Expansion joints should be installed to allow for movement within screed floors when the underfloor heating system heats up and cools down.

Expansion joints should be installed in potentially high stress areas such as those where large areas meet small areas and where the UFH pipework passes through doorways.

An expansion joint can be easily created by using a strip of perimeter edge insulation strip with holes cut to allow pipes to pass through.

FILLING & VENTING THE SYSTEM

1. Once all of the circuits have been completed, and all connections are tight, connect a suitable hose to the upper drain valve and a second hose to the lower drain valve on the right hand side of the flow and return manifold.

2. Connect the Upper drain valve to the cold water fill. Ensure both the red and blue isolating ball valves are closed and all flow meters are closed on the flow rail. On the return rail, all actuator valves should be open. Working from the left open up the flow meter on the first manifold port. With all of the remaining circuits closed, open up both drain valves. You are now ready to flush out the first loop. Visually check the water coming out of the hose from the lower drain valve is flowing freely without any bubbles into a suitable drain/bucket.

3. Repeat the process on the remaining circuits. **IMPORTANT!** When each loop has been flushed correctly, ensure that the flow meter is closed before moving on to the next port. When flushing the underfloor heating system, only 1 loop at a time should be open. When all loops are flushed, open all flow meters and close the lower drain valve first and then the upper to maintain pressure within the manifold.

You can now vent any remaining air in the system through the manual or auto air vents.

PRESSURISING THE SYSTEM

Once all of the loops are flushed and air has been removed, the system should be pressurised to 6 bar, using a suitable pressure testing pump.

Open all of the circuit flow meters and close off the upper drain valve on the right hand side of the manifold. Connect the pressure tester to the lower drain valve, and raise the pressure to 6 bar.

TESTING PERIOD

We recommend holding the system at 6 bar pressure for 1 hour.
The pressure gauge may drop even though there are no leaks. This is due to the temperature change of the water. Generally in 1 hour you will recognise a leak.

IMPORTANT! make sure a suitably responsible person witnesses the pressure test, and signs to say the test was successful. Make sure you carry out a thorough visual inspection of all the pipework before you leave site.

CIRCUIT PRESSURE TESTING REPORT

Floor Name	Room Name	Circuit No.	Pass/Fail	Key Notes

Installer/Tester:
Name: Signature: Date:

Witness:
Name: Signature: Date:

SCREED INSTALLATION

The UFH pipe work should be left under pressure whilst the screed is poured / laid.

A Sand and cement screed should be laid between 65-75mm whereas a liquid screed should be a minimum of 50mm. Consult with your contractor or screed supplier to confirm depths inline with your architect drawings, ensuring building regulations are adhered to.

The drying time is dependant on environmental conditions and screed type, you will be guided by your contractor. As a general rule, for hand-mixed screeds, allow 1 day per mm for the first 40mm and 2 days per mm thereafter to complete the drying process. After two months the screed should be dry.

Liquid screeds dry quicker. The depth of screed is usually less and liquid screeds also have better drying characteristics and can be dried using dehumidifiers.

IMPORTANT - Do not use the underfloor heating system to speed up the screed drying process.

Turning on your underfloor heating system

Turn the underfloor heating on with an initial flow temperature set at 30 degrees (This is set using the thermostatic mixing valve on the pump set. For further guidance refer to the manufacturers product guide).

After 48 hours you can increase the flow temperature by 5 degrees per day until the maximum flow temperature required is achieved.

Please note - the above is a guide and we recommend you consult with your screed supplier/contractor to confirm the exact type of screed used and their recommendations for turning on the underfloor heating system and the rate at which the flow temperature should be increased.

Further help and guidance

If you require further assistance at any stage of your installation please call our technical sales support team on 01283 850040 or visit www.tradeunderfloor.co.uk where you will find additional technical support documents.

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