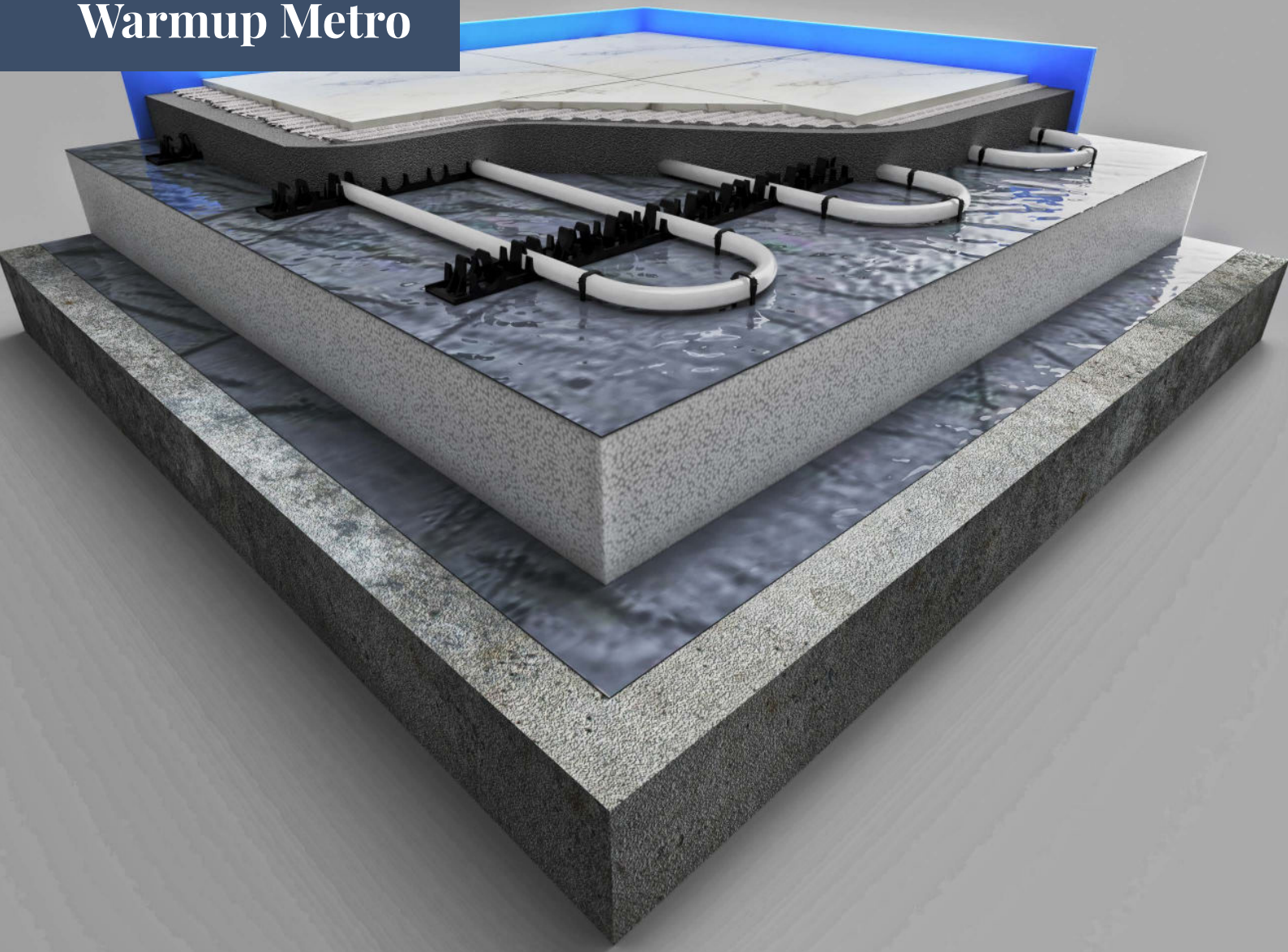
Warmup Metro



For a Variety of Floor Finishes
The Metro system can be installed with almost any floor finish and in particular where the flooring may be replaced from time to time.

Specially Designed Rails to Hold the Pipe
The Metro rail utilises a track that fixes to the insulation, holding the 16 mm PE-RT pipe at the correct level prior to screeding to ensure there are no hot spots.

Perfect for Screed and Concrete Subfloors
A great choice for a hydronic heating solution in new-build projects.

Designed for Quick and Easy Installation
The rail provides guidance to ensure the pipework is installed quickly and at the correct design spacing.

SAFETY Net™ Installation-Guarantee

LIFETIME WARRANTY Warmup

Overview

The Warmup Metro System is designed for use within either a floating or a bonded screed floor. The Metro Rail allows for quick, consistently spaced installation of the 16 mm PE-RT pipe prior to laying either a standard or a proprietary screed.

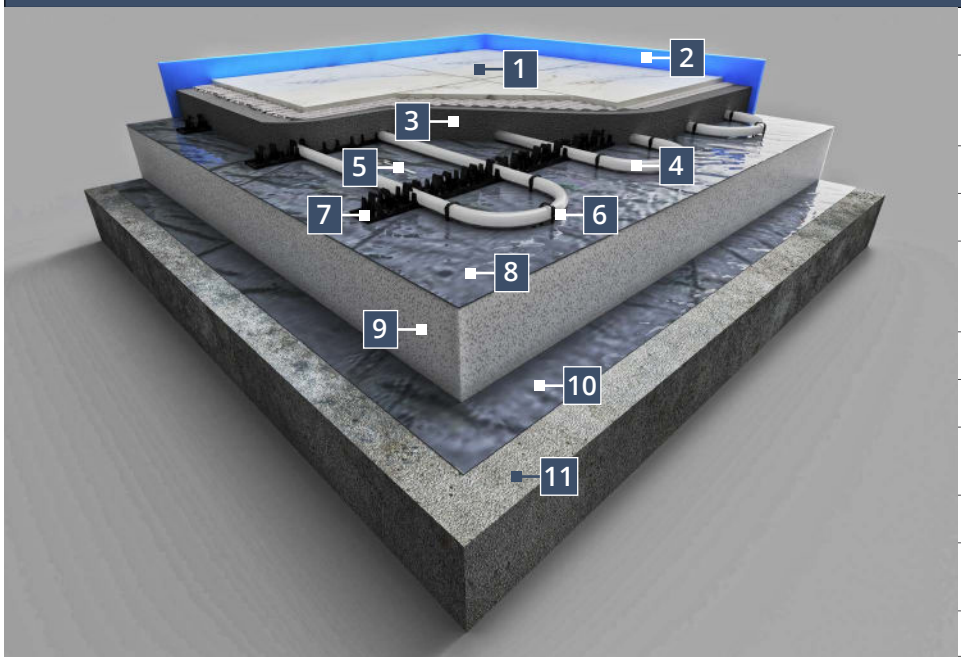
The Metro rails have clips spaced at 50 mm intervals, enabling the pipe to be fitted with a level of installation precision which is difficult to achieve with the Clypso System.

The rails feature a self-adhesive backing for quick installation and are laid perpendicular to the planned pipe direction. The rails and insulation are separated by a plastic membrane, which acts as a moisture barrier.

Warmup®

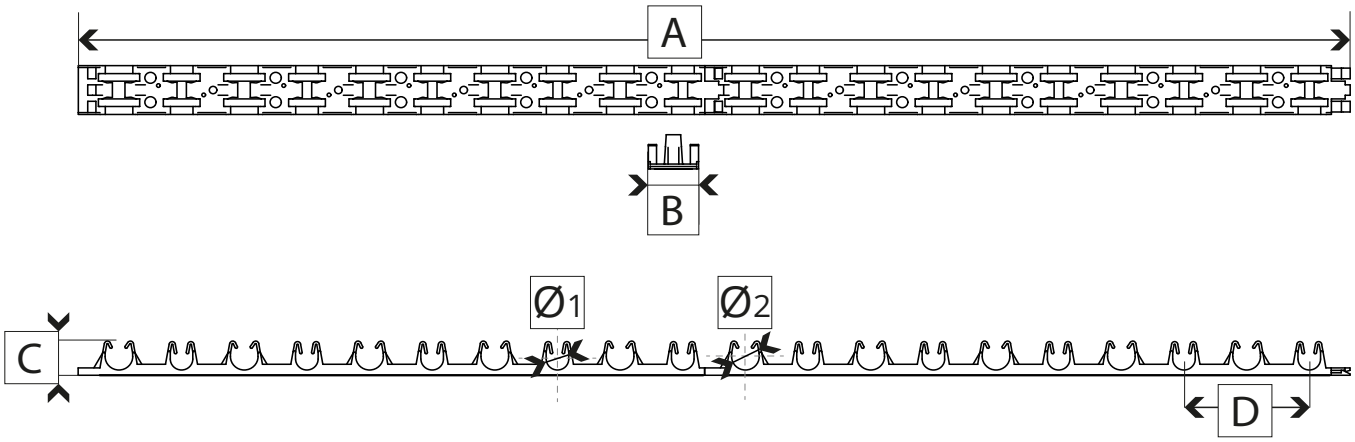
Typical Floor Build-Up

Recommended Subfloor - All Floor Finishes



1	**Floor Finish**
2	**Perimeter Strip** *To allow for differential movement between finished floor level and walls*
3	**Screed Layer**
4	**Warmup PE-RT Pipe**
5	**Floor Sensor** *Tab tape the sensor to the subfloor. Do not tape over the sensor tip!*
6	**Warmup Clips**
7	**Warmup Metro Rail**
8	**Vapour Control Layer (VCL)** *To prevent water ingress*
9	**Insulation Layer**
10	**Damp Proof Membrane (DPM)** *To prevent water ingress*
11	**Concrete subfloor**

Technical Specification

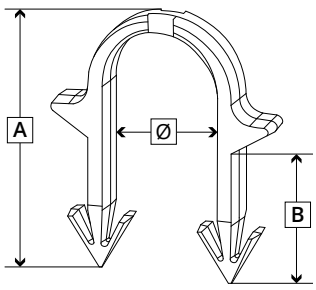


Warmup Metro Rail

Code	Composition	Length A (mm)	Width B (mm)	Height C (mm)	Pipe Centres D (mm)	Max Ø1: Ø2 (mm)
WHS-MT-RAIL01	Polypropylene rails with self-adhesive back	516	40	27.5	100	16 - 18: 20 - 22

Warmup Clips

Code	Composition	A (mm)	B (mm)	Max. Ø (mm)
WHS-CL-T40	Polypropylene clips	40	20	20
WHS-CL-T60		57	37	20



System Performance

k_H Value - W/m²K													
Resistance of Floor Covering, tog	**0.00**	**0.25**	**0.50**	**0.75**	**1.00**	**1.25**	**1.50**	**1.75**	**2.00**	**2.25**	**2.50**	**2.75**	**3.00**

Pipe Centres	**Warmup Metro - 65 mm Sand & Cement Screed, Thermal Conductivity λ = 1.20 W/m.K**												
100 mm	6.26	5.32	4.63	4.10	3.68	3.34	3.06	2.82	2.62	2.44	2.29	2.15	2.03
150 mm	5.41	4.66	4.10	3.67	3.32	3.03	2.80	2.59	2.42	2.27	2.13	2.01	1.91
200 mm	4.69	4.09	3.64	3.29	3.00	2.76	2.56	2.39	2.24	2.10	1.99	1.88	1.79
250 mm	4.07	3.60	3.24	2.95	2.72	2.52	2.35	2.20	2.07	1.96	1.85	1.76	1.68
300 mm	3.55	3.18	2.89	2.66	2.46	2.30	2.15	2.03	1.92	1.82	1.73	1.65	1.58

q = Specific Heat Output, W/m²	**k_H = System Performance Factor, W/m²K**
T_{water} = Mean water Temperature	**T_{air} = Room Air Temperature**

Using the system k_H value to calculate the system heat output:

$q = k_H \times (T_{water} - T_{air})$

Example:
The heat output through an 18 mm thick, ≈ 1.25 tog timber floor, over Warmup Clypso, fitted with pipe at 200 mm centres, in a 21 °C room heated with 40 °C water is;

$q = 2.76 \times (40 - 21) = 2.76 \times 19 = 52.44$ W/m²

Alternatively, using the system k_H value to calculate the required water temperature, knowing the required heat output:

$T_{water} = (q / k_H) + T_{air}$

Example:
The water temperature required to produce a heat output of 55 W/m², through a 3 mm thick ≈ 0.25 tog LVT floor finish, over Warmup Clypso, fitted with pipe at 200 mm centres, in a 22 °C room is;

$T_{water} = (55 / 4.09) + 22 = 13 + 22 = 35$ °C

Components

PE-RT Pipe - WHS-P-PERT-xx
Warmup PE-RT (Polyethylene of Raised Temperature Resistance) pipe. The pipe guarantees leak free performance with a smooth internal structure for improved flow, reduced pressure loss and deposit formation.

Warmup 6iE - 6iE-01-OB-DC / 6iE-01-BP-LC
The world's first UFH thermostat with a smartphone touchscreen providing effortless control at your fingertips. Connected to the internet by WiFi, it can be controlled from a smart phone, tablet or computer as well as its own touchscreen interface. Working automatically; it learns your routines and location through background communication with your smartphone. Using this knowledge it suggests ways to save energy.

Warmup Element - RSW-01-WH-RG (ELM-01-WH-RG) / RSW-01-OB-DC (ELM-01-OB-DC)
Warmup's Element WiFi Thermostat has been designed with simplicity and stylish functionality in mind. It brings energy-efficient heating control to all Warmup floor heaters. Combining smart technology with simple, contemporary design, the Element WiFi Thermostat is the perfect all-rounder to control Warmup heating systems.

Warmup Clips - WHS-CL-T40 / WHS-CL-T60
The clips are used to securely hold the heating pipe in place on the insulation layer below. This ensures minimal movement and maintains the intended pipe spacing once the screed layer is applied on top of the system.

Warmup Metro Rail - WHS-MT-RAIL01
Polypropylene self-adhesive rail for holding the heating cable in place to allow for quick, consistently spaced installation.

Pipe bend supports - WHS-P-BEND
The bend support is used for supporting pipes to make a smooth 90-degree turn where needed & provides a rigid bend which changes the pipes direction without causing excessive bending

Warmup perimeter strip - WHS-X-EDGE50
High quality foam perimeter strip, to allow for differential movement between finished floor level and walls when layer the screed over the Inscreed system.

Pipe Conduit - WHS-CL_CONDUIT
A standard flexible conduit used to cross expansion joints and insulate flow and return pipework, reducing its heat output as it passes through other rooms.

Contact

Warmup plc
www.warmup.co.uk **T:** 0345 345 2288
uk@warmup.com **F:** 0345 345 2299

Warmup plc ■ 704 Tudor Estate ■ Abbey Road ■ London ■ NW10 7UW ■ UK
Warmup GmbH ■ Ottostraße 3 ■ 27793 Wildeshausen ■ DE