

Forte Grid System

Overview

The Warmup Forte Grid System is the logical choice for reinforced concrete and screed floors with the pipe tied to the steel reinforcement. The steel grid enhances the system performance by conducting the heat away from the pipe to create a warmer and more even surface temperature.

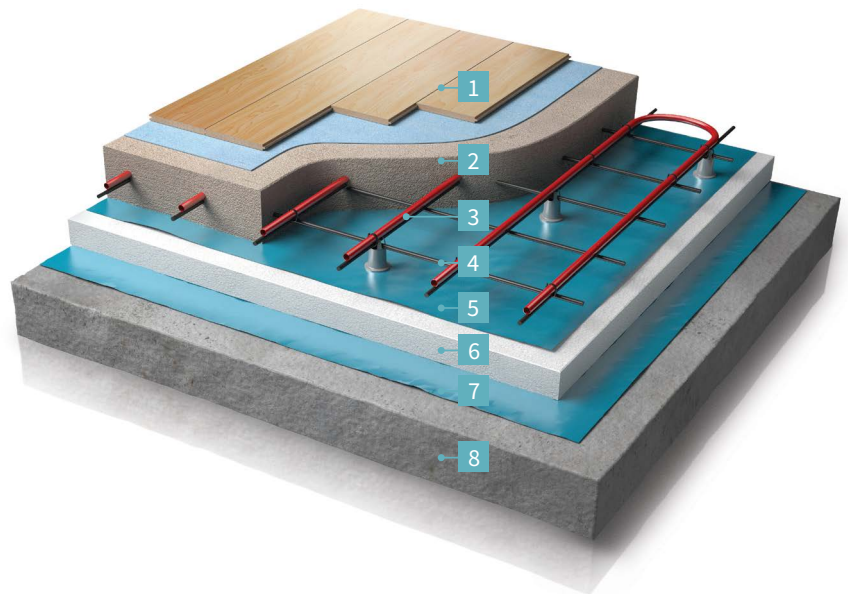
The Forte System is quick and simple to install with the pipe simply zip tied to the reinforcement being used. Once in place the pipe is resilient to disruption on site

and suitable to receive a power floated concrete floor. Reinforced concrete floors typically have higher thermal mass than thinner, lighter floating screed floors.

This will extend the time the system takes to warm up and cool down, generally making the system better suited to continuous operation.

FLOOR CONSTRUCTION

- 1 Floor finish
- 2 Concrete Slab
- 3 Warmup 16mm Pipework
- 4 Steel Reinforcement
- Supported at mid depth of concrete
- 5 Moisture Control Layer
- 6 Rigid Insulation
- 7 DPM
- 8 Subfloor



Hydronic
Heating System

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www.warmup.co.uk

Warmup

The world's best-selling floor heating brand™

Features

- When casting a structural concrete floor, before erecting any walls the flow and return pipes can take very efficient routes back to the manifold reducing installation time associated with routing the flow and return pipes through doorways and around the perimeters of existing rooms
- Pipework is fastened using zip ties to the reinforced bars without impacting the integrity of the floor
- To ensure the most heat responsive floor the pipe can be installed in the centre of the concrete zone
- The heat diffusion of the steel reinforcement means the Forte System typically emits 5-10% more heat than a system without reinforcement
- Lifetime Warranty when PEX-A pipe is used / 50yr Warranty for PE-RT or AL/PE-RT pipes

SAFETY Net™
Installation-Guarantee



WARMUP COMPONENTS

Insulation Boards

Warmup supplies both Expanded Polystyrene (EPS) and foil faced Polyisocyanurate (PIR) insulation boards. The EPS boards provide excellent thermal performance with quick and easy install.

The PIR insulation boards have a tough woven aluminium foil composite grid on both sides. The foil face distributes the heat upward evenly. PIR insulation boards have a lower thermal conductivity making the boards much thinner than EPS insulation.

METRO PIR INSULATION BOARDS - TECHNICAL SPECIFICATIONS

CODE	DIMENSIONS	THICKNESS	COMPRESSIVE STRENGTH @10% (kPa)	THERMAL CONDUCTIVITY @ 10°C	R-VALUE (m ² K/W)	FIRE CLASS EN 13501
WHS-MT-INS25	2.4m x 1.2m	25mm	150	0.022	1.14	E
WHS-MT-INS30	2.4m x 1.2m	30mm	150	0.022	1.36	E
WHS-MT-INS35	2.4m x 1.2m	35mm	150	0.022	1.59	E
WHS-MT-INS40	2.4m x 1.2m	40mm	150	0.022	1.82	E
WHS-MT-INS45	2.4m x 1.2m	45mm	150	0.022	2.04	E
WHS-MT-INS50	2.4m x 1.2m	50mm	150	0.022	2.27	E
WHS-MT-INS60	2.4m x 1.2m	60mm	150	0.022	2.73	E
WHS-MT-INS65	2.4m x 1.2m	65mm	150	0.022	2.95	E
WHS-MT-INS70	2.4m x 1.2m	70mm	150	0.022	3.18	E
WHS-MT-INS75	2.4m x 1.2m	75mm	150	0.022	3.41	E
WHS-MT-INS80	2.4m x 1.2m	80mm	150	0.022	3.63	E
WHS-MT-INS90	2.4m x 1.2m	90mm	150	0.022	4.09	E

METRO EPS INSULATION BOARDS - TECHNICAL SPECIFICATIONS

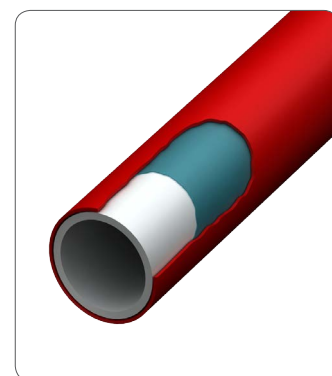
CODE	DIMENSIONS	THICKNESS	COMPRESSIVE STRENGTH @10% (kPa)	THERMAL CONDUCTIVITY @ 10°C	R-VALUE (m ² K/W)	FIRE CLASS EN 13501
WHS-MT-B07025	2.4m x 1.2m	25mm	70	0.038	0.66	F
WHS-MT-B07050	2.4m x 1.2m	50mm	70	0.038	1.32	F
WHS-MT-B07075	2.4m x 1.2m	75mm	70	0.038	1.97	F
WHS-MT-B070100	2.4m x 1.2m	100mm	70	0.038	2.63	F
WHS-MT-B10025	2.4m x 1.2m	25mm	100	0.036	0.69	F
WHS-MT-B010050	2.4m x 1.2m	50mm	100	0.036	1.39	F
WHS-MT-B10075	2.4m x 1.2m	75mm	100	0.036	2.08	F
WHS-MT-B10100	2.4m x 1.2m	100mm	100	0.036	2.78	F
PREMIUM RANGE						
WHS-MT-B07025+	2.4m x 1.2m	25mm	70	0.030	0.83	E
WHS-MT-B07050+	2.4m x 1.2m	50mm	70	0.030	1.67	E
WHS-MT-B07075+	2.4m x 1.2m	75mm	70	0.030	2.5	E
WHS-MT-B070100+	2.4m x 1.2m	100mm	70	0.030	3.33	E
WHS-MT-B10025+	2.4m x 1.2m	25mm	100	0.030	0.83	E
WHS-MT-B010050+	2.4m x 1.2m	50mm	100	0.030	1.67	E
WHS-MT-B10075+	2.4m x 1.2m	75mm	100	0.030	2.5	E
WHS-MT-B10100+	2.4m x 1.2m	100mm	100	0.030	3.33	E

Warmup Insulation Boards have zero Ozone Depletion Potential (ODP) and a Global Warming Potential (GWP) of less than 5

Pipework

The Warmup PEX-A pipe is formed as a single extrusion with an adhesive layer and EVOH oxygen barrier. The EVOH layer restricts the ingress of oxygen into the heating system, reducing oxidation of critical components in the primary system and extending their service life.

The minimum 70% cross linking within the PE material provides superior mechanical properties to the pipe, with a maximum working temperature and pressure of 95°C and 6 bar respectively. The PEX-A pipe has a high thermal conductivity of 0.41W/mK, substantially greater than an equivalent polybutylene pipe at 0.22W/mK. This enables our systems to emit between 3% and 6% more heat from the same water temperature as equivalent systems using PB pipe.



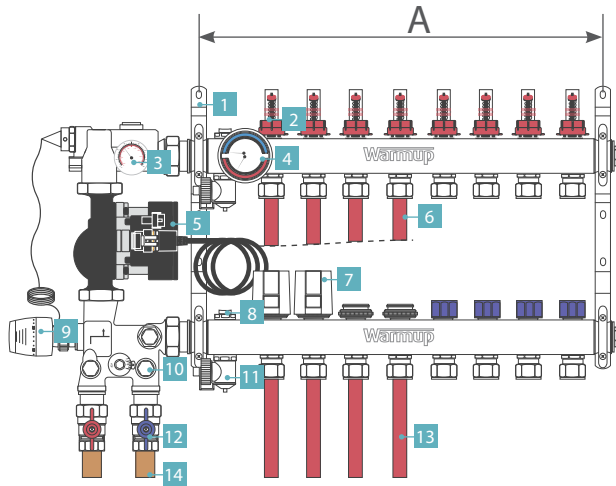
PEX-A PIPE - TECHNICAL SPECIFICATIONS

CODE	DIMENSIONS	MAX. WORKING TEMPERATURE	MAX. OPERATING PRESSURE	COMPOSITION	THERMAL CONDUCTIVITY	WATER CAPACITY
WHS-P-PEXA-25	PEX-A 16mm x 2mm x 25m	95°C	6 Bar	PEX-A 70% cross linked	0.41 W/mK	16mm pipe - 0.113 l/m
WHS-P-PEXA-50	PEX-A 16mm x 2mm x 50m					
WHS-P-PEXA-60	PEX-A 16mm x 2mm x 60m					
WHS-P-PEXA-70	PEX-A 16mm x 2mm x 70m					
WHS-P-PEXA-80	PEX-A 16mm x 2mm x 80m					
WHS-P-PEXA-90	PEX-A 16mm x 2mm x 90m					
WHS-P-PEXA-100	PEX-A 16mm x 2mm x 100m					
WHS-P-PEXA-110	PEX-A 16mm x 2mm x 110m					
WHS-P-PEXA-120	PEX-A 16mm x 2mm x 120m					
WHS-P-PEXA-200	PEX-A 16mm x 2mm x 200m					
WHS-P-PEXA-300	PEX-A 16mm x 2mm x 300m					
WHS-P-PEXA-500	PEX-A 16mm x 2mm x 500m					

NOTE: Range of PE-RT & PE-RT/AL/PE-RT pipes also available. Please contact Warmup on 0845 034 8270 for further information

Manifold

The Warmup Stainless Steel Manifold range provides flexible zoning and water regulation for 2 to 12 underfloor heating circuits. Supplied complete with Taconova TopMeters, Fill/Drain Valves, Air Vents and a Thermomanometer, it is equipped with all the features needed to commission an underfloor heating system quickly and confidently.



MANIFOLD - TECHNICAL SPECIFICATIONS

MATERIAL	304 Stainless Steel
PORTS AVAILABLE	2 - 12
TEMPERATURE RANGE	-5°C to +60°C
MAX OPERATING PRESSURE	6 Bar
MAX TEST PRESSURE	10 Bar
ADJUSTMENT RANGE	0 - 5 l/min
MEASURING ACCURACY	±10% (of highest nominal value)
MANIFOLD ARM DIMENSIONS	40 mm X 40 mm
PIPE FITTING CENTRES	50 mm / 55 mm
PIPE FITTING DIAMETERS	G-1/2" (20X1.5)

MANIFOLD & MIXING UNIT

- | | |
|----------------------------|----------------------------|
| 1 Mounting Bracket | 8 Manual Air Vent |
| 2 Flow Gauge | 9 Capillary Thermostat |
| 3 Thermometer - secondary | 10 Mixing Unit |
| 4 Thermomanometer | 11 Fill/Drain Valve |
| 5 Grundfos UPM3 Circulator | 12 Primary Isolation Valve |
| 6 Secondary - Flow | 13 Secondary - Return |
| 7 Electrothermic Actuator | 14 Primary pipework |

Thermostat



4iE[®] SMART WIFI THERMOSTAT

For Central Heating and Underfloor Heating Systems

Connected to the internet by WiFi, it can be controlled from a smart phone, tablet or computer as well as its own touchscreen interface. It learns how homeowners use their heating and the unique way each zone reacts. It uses this knowledge to suggest ways to save energy, such as what temperature should be set when the area is not in use and when the heating can be turned off earlier with no noticeable impact on comfort.

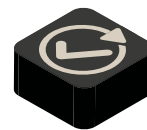
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EasySwitch™
Always on the best tariff, automatically. Saving on average £210.



Easy to use
Simple and secure set up using WiFi, with 24/7 technical support.