EMMETI

GIACOMINI
WATER E-MOTION

Floor Heating Systems

HYDRO HEAT SUPPLIES

QUALITY HYDRONIC HEATING EQUIPMENT

Hydronic Floor Heating.
Warmth From the Bottom Up.

Hydronic floor heating is one of the most efficient ways to heat a residential home or commercial space. Utilising the floor effectively transmits conductive heat delivering silent, radiant warmth, maintaining a consistent temperature throughout the building footprint. Due to the lack of fan forced dust particles floor heating is allergy free, and the system can also be used in conjunction with other hydronic components such as panel radiators, heated towel rails, trench heaters and even pool heating.

The Clean, Green Way to Heat Your Home

Floor heating is the healthy, green alternative to traditional air forced or ducted heating systems. The system is water based and sealed providing radiant and allergen free heat without airborne dust particles. Because it uses the highest proportion of radiant heat transfer, underfloor heating is the most efficient of all residential heating systems.

As it is a closed system, water is re-used once commissioned and does not need to be refilled. The heat source used is a high efficiency BAXI Hydronic Condensing Boiler which minimises energy costs and fossil fuel use. The system can also be integrated with renewable energy sources such as solar and geothermal which futher enhances energy efficiency.

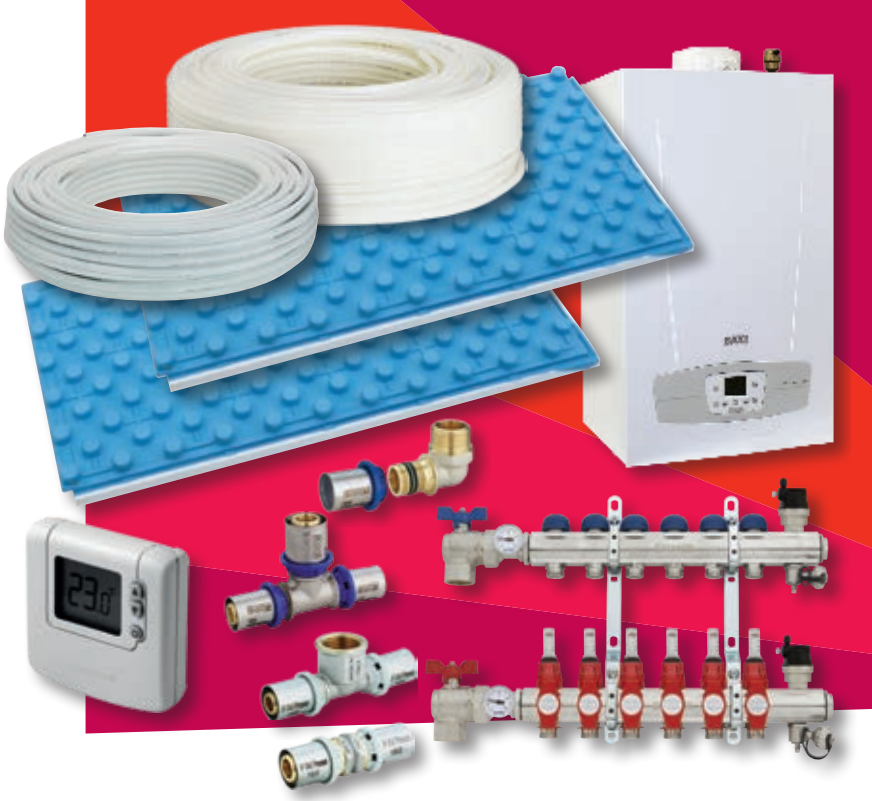
HydroHeat source only the best floor heating systems direct from renowned European manufacturers to ensure quality installations and peace of mind.

- **The clean, green, home heating solution**
- **Quality European brands EMMETI, Giacomini, BAXI**
- **Low operating cost, reduce heating bills by up to 40%**
- **Reduced NOx and CO emissions**
- **Beautiful radiant heat, retains core building temperature**
- **Eliminates Dust Mites common to ducted heating**
- **No air forced ducting minimises circulation of allergens**
- **Reduces dampness and condensation**
- **AGA (Australian Gas Association) approved**

Complete Floor Heating Systems

HydroHeat are the premier Hydronic Heating supplies company in Australia and leaders in the specialised field of floor heating. HydroHeat supply complete system components to fufil every aspect of floor heating project installations:

- Emmeti Polystyrene Floor Panels
- Emmeti Gerpex Multi Layered Pipe
- Emmeti PE-Xa Floor Barrier Pipe
- Gerpex Pipe Fittings and Accessories
- Emmeti Manifolds and Brassware
- Giacomini Valves and Manifolds
- Fluid Management, BackFlow prevention
- Partage Controllers, Relay Boxes
- BAXI Hydronic Condensing Boilers
- Thermostats and Controls



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How Hydronic Floor Heating Works

Hydronic floor heating is beautiful in its simplicity. A floor heating system simply heats water via a boiler heat source and then moves it through sealed pipes to flooring areas throughout the home. The system then transfers the its heat mainly by thermal radiation into the room. Floor heating reduces air temperature stratification, and thus reduces heat loss through ceilings. As radiant heat is emitted effciently from the floor a lower air temperature can still maintain a comfortable room tempertaure. This is acheived without tainting indoor air quality as their is no fan forced air ducts or split systems.

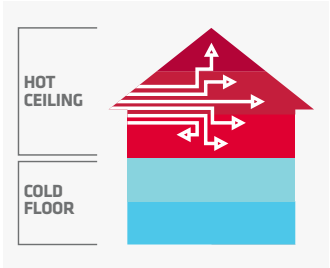
The air temperature variations which occur when using air-conditioning or fuel burning flame heaters are eliminated as floor heating distributes heat evenly by releasing radiant heat across the whole floor mass.

By utilising a dual (Partage) system, a common hydronic system can be used for both floor heating and panel radiators. The dual system uses a mixing manifold to supply lower temperature water for floor heating (max 50º) and higher temperature water for radiators (approx 80º) via separate circuits.

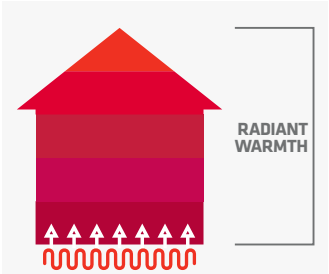
This commonly used 'dual heating' approach is ideal for homes featuring carpeted or timber floors as well as exposed aggregate / concrete floors, or for two storey houses where there is no slab on the second level and radiators in carpeted 2nd level bedrooms to maximise the benefits of both systems.

The lower operational termperature required by floor heating also makes it ideally suited to integration with solar roof collectors or geothermal heating as these methods heat water to a lower temperature ideal for floor heating.

- **Lower operating temperature (approx 3Øc) maximises thermal efficiency and energy use**
- **Heat supplied radiantly and evenly across floor areas**
- **Zoning Individual roooms with thermostats and actuators enables further energy savings**
- **Combine floor heating and radiator heating in one dual system via Partage mixing manifold**
- **No appliances or fitments increases usable floor area**
- **Suitable for new build or retrofit to existing homes**
- **No naked flame source, no exposed hot surfaces**
- **Simple individual room temperature control**
- **Sealed system, virtually maintenance free**
- **Ideal for integration with Solar or Geothermal**



FORCED AIR HEATING

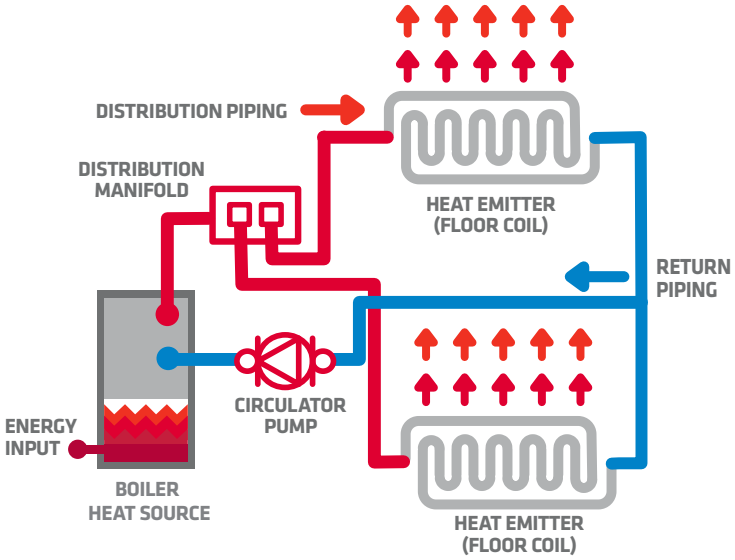


HYDRONIC FLOOR HEATING

Design of a Floor Heating System

Correct design and installation is important to ensure efficient operation. The heat source (boiler) can be located internally in a plant room, or externally adjacent to the building. The boiler provides heat to the system via a sealed piping system. The flow and return pipes from the boiler are run to a header or manifold. The manifold mixing valve adjusts the water temperature and is typcially installed as near to the centre of the system as possible to ensure even distribution. The water is then sent through the floor via coil piping layed within the slab or floor screed.
A circulator pump pressurizes and returns the water flow to the boiler to be reheated.

The temperature for different rooms or house zones can be controlled independently via seperate actuators and thermostats attached to the manifold. In larger installations, 2 pump, 2 manifold systems are also used.



Floor Heating Types

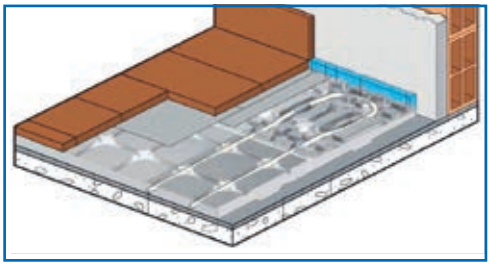
The most efficient and commonly used methods of floor heating are In Slab and In Screed heating. HydroHeat floor heating systems are purpose designed for these systems and stock is readily available for all components. In addition a Dry Floor system can be used for under floating and timber floors. Floor heating is ideal for new home builds and can also be retrofitted to existing homes.

In Slab Heating

In Slab is ideal for new builds and is installed directly into the base slab during construction. In Slab heating uses coil piping which is fixed directy to the steel reinforcement in the slab before pouring and plumbed into the boiler heat source. Then the wet concrete is poured to form the slab floor and encase the system. Ideal for exposed floors as the complete floor mass is heated. Can also be used with floor coverings such as tiles, stone or carpet.

In Screed Heating

In Screed heating can be retrofitted to existing homes or used for new home builds. Pre-formed polystyrene floor panels are laid on top of the already poured slab, then coil piping is pushed into the perforated pattern of the panels. A thin (50-60mm) additional wet screed layer of concrete is then applied to encase the system. A benefit of screed heating is that energy responsiveness is brought closer to the surface by heating only the thin screed layer as opposed to heating the whole base slab.



Dry Panel Floor Heating

Dry panel floor heating is designed to be installed on top of an existing slab or floor substrate and underneath the top layer of flooring such as floating timber floors. The dry floor system panels hold piping in place within the panel and no wet pouring of screed is required to encase the system. A galvanised dispersing panel is used as a barrier to protect the top layer of flooring and evenly disperse the heat across the surface of the floor. The dry panel system is ideal for no fuss ease of installation.

Trench Convection Heating

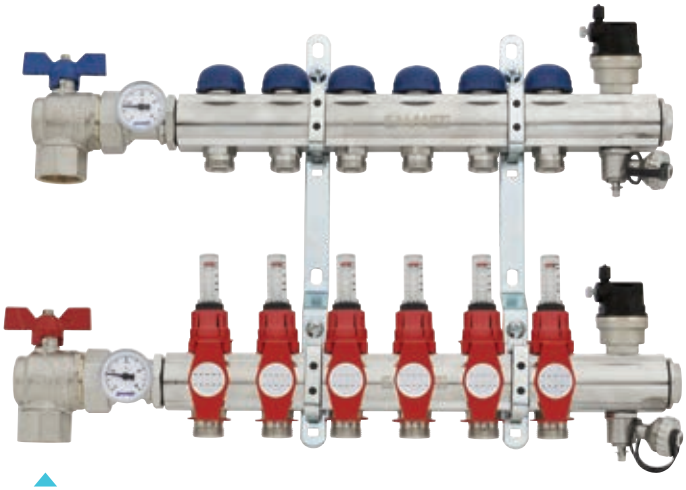
Trench heating is often used in front of windows to create a 'wall' of warm air as a heat loss barrier. Trench convectors are simply radiators mounted in the floor, they do not heat the floor itself. They emit heat the same way panel radiators emit heat from their wall mounted positions. For more info on Trench Convector radiators view the HydroHeat **Radiator Range Brochure.**

Floor Coil Manifolds

TM2 Top Way Bar Manifolds

The pre-assembled Top Way Bar Manifold is the perfect solution for most hydronic systems. It offers flexibility for various system configurations, with speed and ease of installation. Nickel plated brass, available in 1" from 2 - 12 circuits. Designed for either panel radiator or underfloor heating systems, the TM2 manifold uses a standard type thermostat and double regulating lockshield (or flowmeter).

Can be fitted with electrothermic valves controlled by a thermostat or programmable thermostat via a wiring centre. Top Way manifolds are tested by Emmeti prior to packaging.



Emmeti TM2 Nickel Plated, Preassembled Bar Manifold

Technical Data TM2 Topway Manifold

Flow Adjustment	0 - 0.67 ltr/min
Material:	Nickel Plated Brass
Maximum working pressure	6 bar
Maximum working temp	90°C
Pressure drops (Kv)	0,15 (1 l/min) to 0,55 (4 l/m)
Maximum pressure drop off	5.5kPa @ 0.67 ltr/min
Pressure test (25°C max)	10 bar / 1000kPa
Connections	1" BSP
Material (seals)	EDPM

Construction & Materials

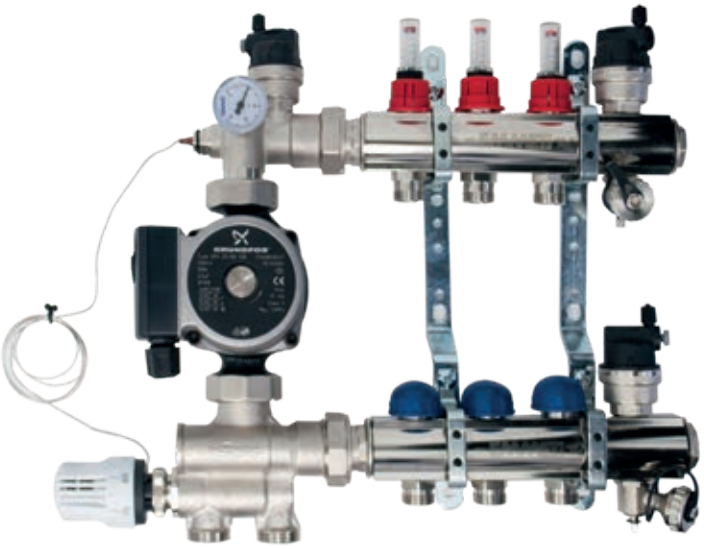
- Manifold in nickel plated brass
- Brass header retrieved through bar drawing process UNI EN 12168
- Seals in EPDM
- Brackets in chrome plated steel

- Nickel plated extruded brass manifolds pre-assembled, for both radiator and underfloor systems
- Available in 1" from 2 - 12 circuits with integral double regulating flow control valves to suit a wide range of system sizes
- Double regulating lockshield per circuit on flow rail allows independent isolation and flow balancing each circuit
- Return rail integrated electrothermic bodies (ready for electrothermic heads), complete with 24x19 takeoff connections
- Can be surface mounted, or concealed in a purpose designed plastic or metal cabinet within a partition wall
- Manifold flow and return outlets offset for easy pipe installation
- Ball valves, threaded fittings and Monobloc pipe connectors available to accommodate a wide range of pipe types and sizes

TM3 Mixing Manifolds

The TM3 Mixing Manifold adjusts the incoming temperature from the heat source to a common output temperature ideal for floor heating (approx 45º).

- Pre-assembled, available in Thermostatic (manual)
- Integrated Grundfos UPS 25-60 pump and mixing valve with remote probe actuation giving a temperature range of 20 - 70º
- Temperature management using thermostatic mixing valve, built in temperature gauge and swivel joints for connections to the manifold
- Includes throttle to adapt Kv for larger systems. Compatible with the TM2 Topway Manifold 210mm centre
- Metal brackets for wall mount or cabinet
- 1" manifold connections with EPDM O-ring seals and 1"M connections for primary flow and return



TM3 Mixing Manifold pre-assembled with integrated Grundfos UPS 25-60 Circulator pump

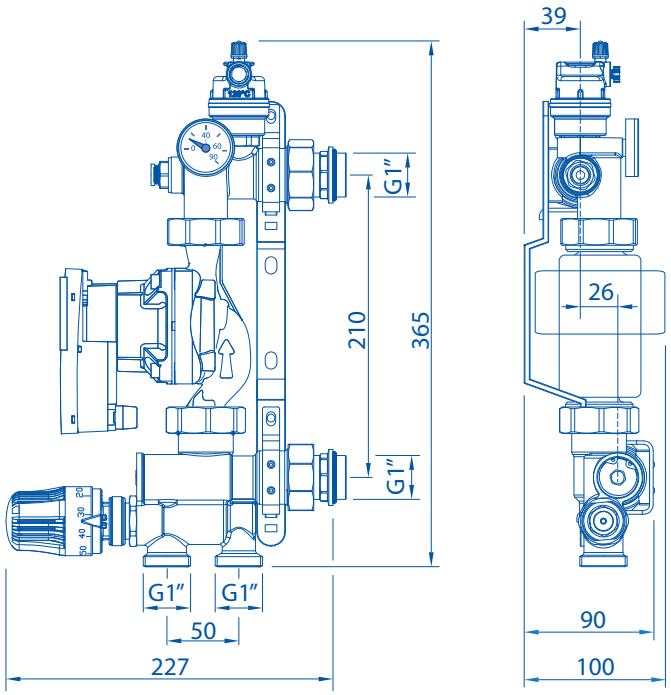
Technical Data TM3 Mixing Manifold

Primary circuit maximum temperature	90°C
Maximum pressure	10 bar
Primary circuit max ΔP	1 bar
Secondary control range *(thermostatic regulation)*	20 - 65°C
Heating capacity that can be exchanged	ΔT 7°C, ΔP avail on 0.25 bar)
Thermostatic regulation	10 kW by-pass pos .0
Thermostatic regulation	12.5 kW by-pass pos .5
Climatic regulation	11.5 kW
Mixing valve pressure drops *(thermostatic regulation)*	Kv 3
Pressure drops with open bypass valve *(climactic regulation)*	Kvmax 4.8
Thermometer Scale	Kv 4
Mixing unit head threads	0 - 80°C
Topway collectors head threads *(where applicable)*	1" male
Topway collectors end threads	24 x 19 - takeoffs 50mm
Circulator connections : pipe union	1" ½ takeoffs 130mm

Construction & Materials

- Manifold in nickel plated brass
- Mulitfunction valves in nickel plated brass
- EPDM seals
- Brackets in chrome plated steel

TM3 Technical Dimensions



Grundfos Circulating Pumps

Grundfos UPS 25-60 130mm circulator pump used in manifolds, made specifically for circulation of liquid in hydronic heating systems. 1-phase motor (230v), rated power output 60W, max operating pressure 10 bar.

- Ceramic shaft and radial bearings
- Carbon axial bearing
- Stainless steel rotor can and bearing plate
- Corrosion-resistant impeller, PES/PP
- Cast iron pump housing
- 2nd pump can be added to large systems to maintain pressure
- Power 60W
- Max Pressure 10 bar

Grundfos UPS 25-60 130mm

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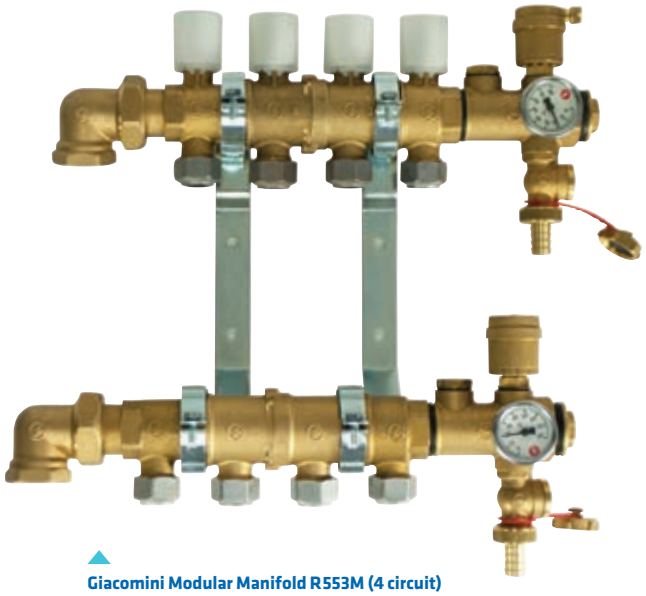
Modular Manifolds

Modular Distribution Manifolds available in 2 - 12 circuits. Adjustable modular system can be assembled to suit the amount of circuits required. Ideal for use with circuits pre-blended to lower heating temperatures such as floor heating.

- Simple click and twist to assemble modular components and create manifold to custom specification
- Delivery manifold bar with balancing lockshield valves with mechanical memory, return bar with control shut-off valves with manual handwheel
- Solid brass construction
- Connectors for 20mm O.D. poly pipe
- End fittings with manual air vent, drain cock and mains connnectors
- Metal supports / brackets
- Also available with flow meters



Giacomini Modular Manifold R553M (4 circuit)

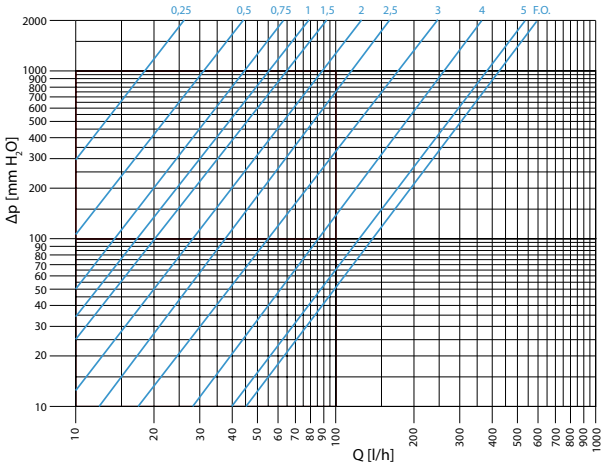
Technical Data Modular Manifolds

Temperature range	5 ÷ 110°
Maximum Working Pressure	10 bar
Max operating pressure of air vent	7 bar
Centre distance between the manifold outlets	50 mm
Number of outlets available	2 - 12

Construction & Materials

- Manifold and terminal plugs in brass
- Mulitfunction valves in brass
- EPDM seals
- Brackets in galvanised steel

Flow Rate / Pressure to System



No of turns lockshield opening valve	0,25	0,5	0,75	1	1,5	2	2,5	3	4	F.O.
Kv	0,06	0,10	0,14	0,17	0,28	0,37	0,55	0,85	1,20	0,89

Brass Distribution Manifolds

HydroHeat also carry an extensive range of Giacomini Brass Distribution Manifolds for replacement of older style manifolds (with varying pipe centres). These sturdy brass manifolds are suitable for a wide range of applications and are ideal for refurbishment of older systems.

Manifold Fittings & Accessories

HydroHeat stock a range of manifold fittings and accessories to allow expansion and customisation for any floor heating system. Contact HydroHeat for complete range details.

- Ball valves
- Air vents
- Caps
- Drain fittings
- Brackets
- Flow meters
- Temperature gauges
- Electric actuators
- Insulating cells
- Manifold sections
- End fittings
- Union tees
- Hex nipples
- Regulatory valves
- Plugs
- Manifold Cabinets

Floor Coil Piping

Gerpex Multilayer Pipe

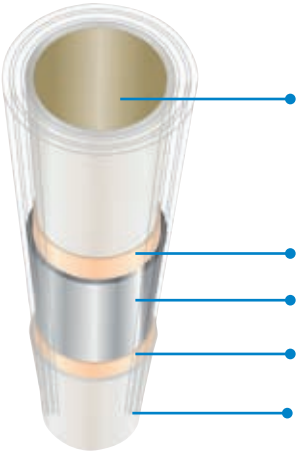
For In-Screed Floor Heating Panel Systems

Emmeti Gerpex Multilayer Pipe is the ideal solution for use with In-Screed floor panel heating systems. The malleable, easy to bend properties of the aluminium core make the pipe ideal for installation to castellated polystyrene floor panels. Gerpex Multilayer combines the flexibility and durability of a plastic pipe with the stability to temperature and pressure of a metal pipe.

The multilayer construction is a hi-tech composite material in which a PE-Xb (cross linked polyethylene) pipe is bonded to an aluminium core (min thickness 0.2mm) and welded on top, then coated on the outside with another layer of PE-Xb.

Gerpex pipe is an ideal all round solution also suited to higher temperature radiator installs (80ºC) and general plumbing use. Certified to international standard ISO 9001.

16mm Gerpex Multilayer Pipe



- Cross linked Polyethylene inner pipe (PE-Xb)
- Adhesive layer bonding the inner pipe to the aluminium core pipe
- Butt welded aluminium core pipe min. thickness 0.2mm
- Adhesive layer bonding the outer pipe to the aluminium core pipe
- Cross linked Polyethylene outer pipe (PE-Xb)

Technical Data Gerpex Multilayer Pipe

Construction:	Multilayer composite aluminium core
Coil length:	50m & 100m rolls
Max operating temperature	95°C
Max operating pressure	10 bar / 1000kPa
Minimum bending radius:	5 x O/diameter
Water Capacity	0.11 - 0.53 ltr/m
Thermal conductivity (at 40°C)	0.45 W/m°C
Thermal expansion coefficient:	0.026 mm/m °C
Surface roughness of internal pipe	7µm
Fire reaction class	E (EN 13501-1)
Insulating Sheath Material	Closed-cell expanded polyurethane, covered with a film in extruded LD-PE
Applications:	In-Screed Floor Heating, General Plumbing
Pipe Diameter	16mm OD x 2mm

Gerpex Multi Layer pipe with Emmeti floor insulation panels in Screed application

PE-Xa Barrier Pipe

For In-Slab Floor Heating Systems

Emmeti PE-Xa is a durable, quality plastic pipe ideal for use with In-Slab floor heating applications. PE-Xa holds its form and rigidity with good stiffness, making it well suited for in slab applications where the piping is attached directly to the slabs steel reinforcement and may be exposed to impact during installation. The high conductive qualities of PE-Xa are also suited to the lower temperature (50ºC max) of floor heating applications.

Certified to UNI EN 15875/2 and with an EVOH oxygen barrier in conformity with standard DIN 4726.

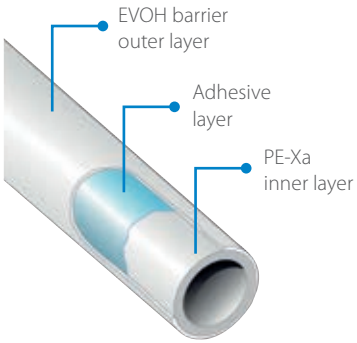
Technical Data PE-Xa Pipe

Construction:	3 Layer: UFH PE-Xa barrier pipe
Coil length:	240m rolls
Max operating temperature	80°C
Max operating pressure	6 bar / 600kPa
Minimum bending radius:	5 x O/diameter
Water Capacity	0.133 ltr/m
Thermal conductivity (at 40°C)	0.35 W/m°C
Thermal expansion coefficient:	0.014 mm/m °C
Surface roughness of internal pipe	7µm
Oxygen Barrier	DIN 4726; EN 15875
Applications:	In-Slab Floor Heating
Pipe Diameter	17mm OD x 2mm

17mm PE-Xa Barrier Pipe

Using a simple contruction, PE-Xa has an inner layer of high-density PE-Xa (cross linked Polyethelene), an adhesive layer and an outer oxygen barrier layer of EVOH (Ethylene Vinyl-Alcohol Resin).

The EVOH layer prevents permeation of oxygen throught the tubing which eliminates corrosion of the metal components in a heating system such as mixing valves, boilers etc.



Emmeti PE-Xa in slab application, attached directly to the slab reinforcement

Pipe Lifespan Expectancy

Gerpex Multilayer Pipe: At 80°C and maximum working pressure of 10 bar / 1000kPa achieves a minimum of 50 years life expectancy.

PE-Xa Barrier Pipe: At 50°C and maximum working pressure of 6 bar / 600kPa achieves a minimum of 50 years life expectancy.

Pipe Fittings & Accessories

Gerpex Fittings

Emmeti Gerpex press fit pipe fittings for hassle free installation including connectors & pipe preparation tools, also available Giacomini compression fittings for use with Gerpex pipe.

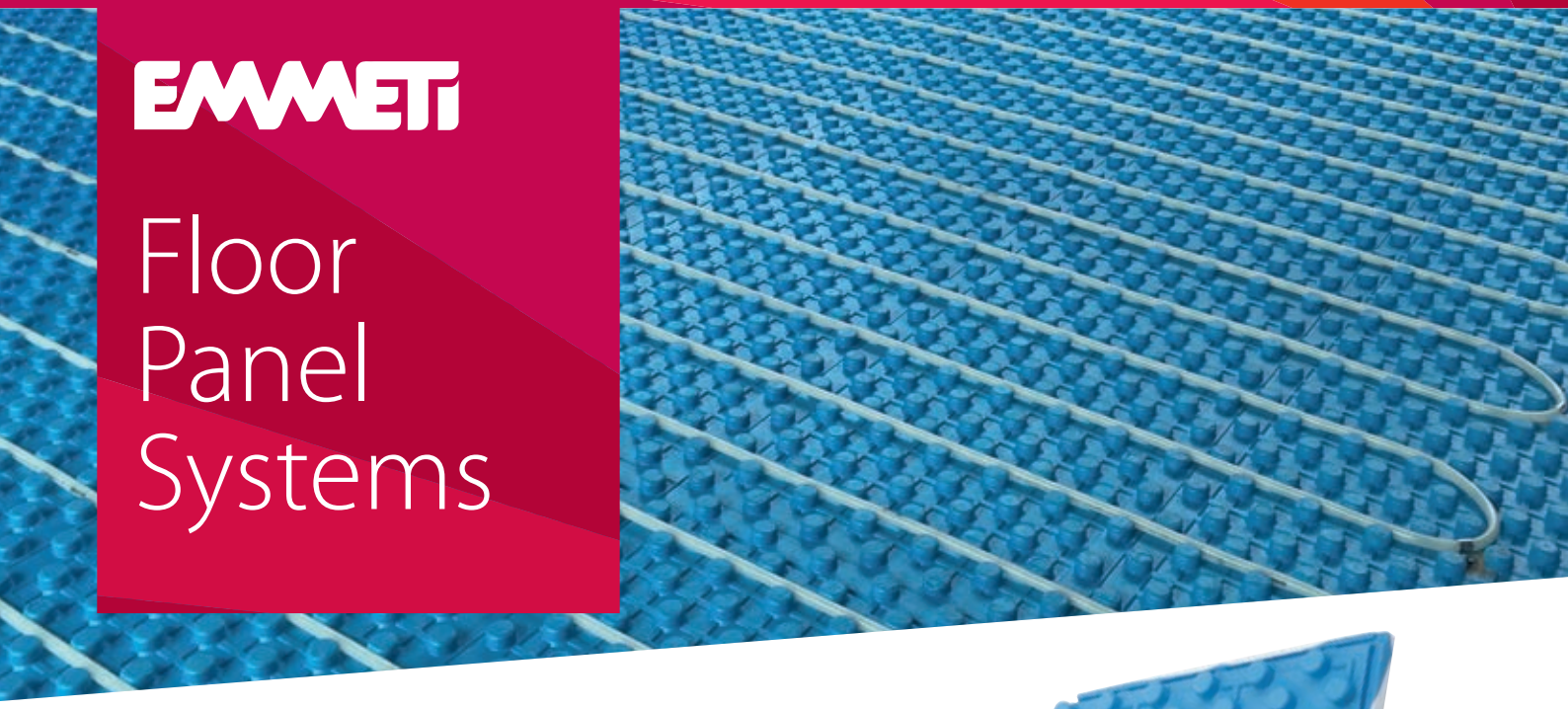
Floor Coil Dispenser

Floor Coil Roll dispenser for PE-Xa piping. Controls the installation of pipe to ensure a clean, trouble free install. Takes up to 600mtr rolls, adjustable for roll diameters 350mm-1m, Made from Gal Steel.

Pipe Fastening System

Complete pipe fastening system for ease and speed of installation including Pipe Clips, Pipe Clip Fixing Tool and pipe bend supports.

Floor Panel Systems



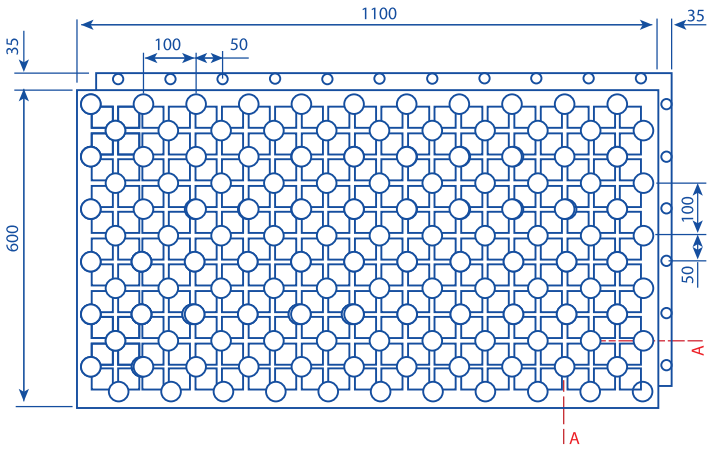
Castellated Floor Panels

Emmeti floor panels are one of the most widely used floor panel systems in Australia. Designed for screed applications the panels are thermo-formed in self-extinguishing expanded polystyrene (EPS), with surface bossed and cylindrical edges clad in a film of rigid polystyrene. Pipe spacing is 50mm. The castellated pattern is specifically designed for use with 16mm Gerpx multilayer pipe.

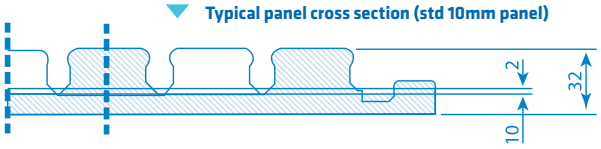
The Panels interlock into place for easy installation and are insulated to protect against downward heat loss to the slab. Available in standard thickness of 10mm, Emmeti castellated panels are compatible with HydroHeat floor heating system components and are ideal for residential and commercial applications.

▲ **Castellated panel 1100mm x 600mm**

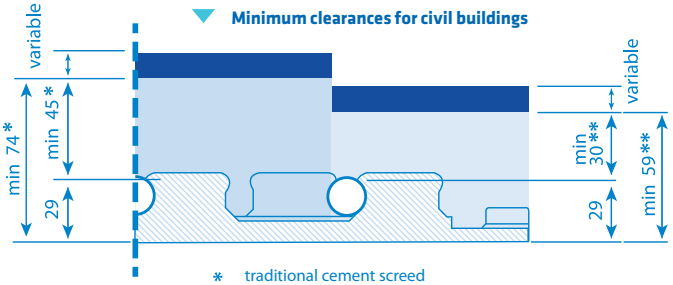
▼ **Panel dimensions**



▼ **Typical panel cross section (std 10mm panel)**

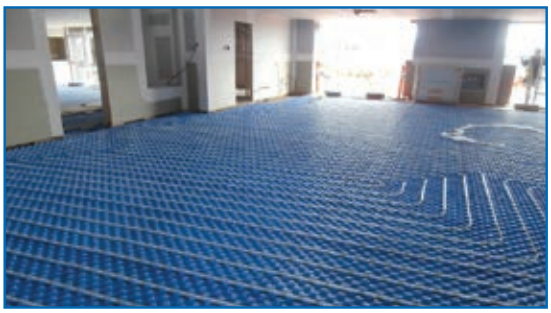


▼ **Minimum clearances for civil buildings**



* traditional cement screed
** self leveling screed
(screed not supplied by HydroHeat)

- Ideal for wet screed installations
- Purpose designed for 16mm Gerpex Multi Layer Pipe
- Quality Emmeti Italian made and designed
- Insulated against downward heat loss
- Compatible pipe fastening system available
- Std pack covers 14.52 sqm
- Std 10mm thickness (20mm, 30mm on special order)



Emmeti floor panels with Emmeti Gerpex Multi Layer 16mm pipe

Floor Panel Technical Data

	Compliance	Model H10
Type	UNI EN 13163	EPS 250
Density	UNI EN 1602	40kg/m^3
Compression resistance at 10% of crushing	UNI EN 826	≥250 kPa
Thermal conductivity	EN 12939	0.034 W/mK
Thermic resistance RD	EN 12939	0.45m^2 K/W
Class of reaction to fire	UNI EN ISO 11925	Euro class E
Water absorbption	ISO 2896	< 4%
Useful thickness	UNI EN 1264	10mm
Total length		1135mm
Total width		635mm
Total thickness		32mm
Film thickness		0.16mm
Pipe spacing		50mm
External diameter of installing pipes		16-17mm
Pack / m^2		14.52m^2

Snap and lock installation

50mm pipe spacing pattern

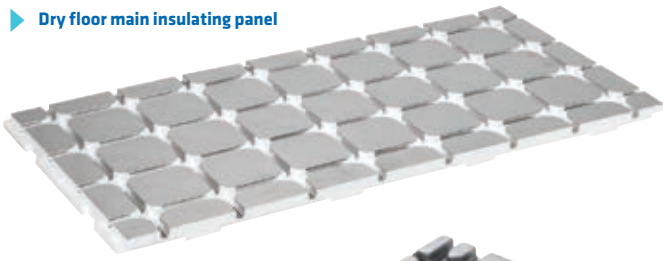
EMMETI

Dry Floor Panel System

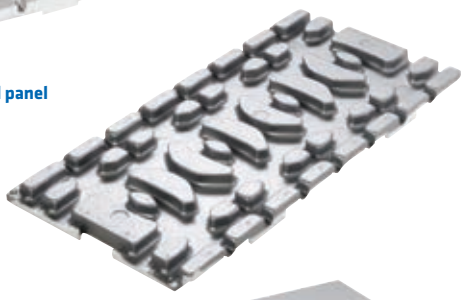
The Emmeti Dry Floor Panel system is an ideal solution for quick installation under top flooring layers such as floating timber floors. The dry floor system is applied on top of the existing slab or floor substrate and no wet pouring of screed or concrete is required during installation to encase the system.

The three main components of the system are the insulated moulded polystyrene floor panel with aluminium conductive foil topping, the moulded end panels which butt against the walls and allow for pipe curves, and the top layer consisting of a galvanised steel diffuser plate. The system is designed for use with Emmeti PE-Xa 17mm barrier pipe.

Dry floor main insulating panel



Dry floor end panel



Dry floor diffuser panel

Dry Floor Panels Technical Data

Type	Size	Complianace	Total Thickness	Sheet Thickness	Pipe Spacing	Density	m^2 / Pack
Main Insulating Panel	1215 x 615mm	UNI EN 13163	28mm	10mm	150mm	30kg/m^3	11.52
End Panel	615 x 315mm	UNI EN 13163	18mm	10mm	150mm	30kg/m^3	n/a
Disperser Sheet	600 x 600mm	n/a	1mm	1mm	n/a	n/a	n/a

Warmth from the bottom up.

HYDRO HEAT SUPPLIES

For more information on floor heating systems call ***03 9588 1299*** *or visit* ***hydroheat.com.au***

Available from

Floor_Heating_Ed No1.1_Jun_2021

Distributed in Australia by **HydroHeat Supplies Pty Ltd**
6 Helen Kob Drive Braeside, Victoria 3195. Exclusive Australian Distributor for Emmeti, Giacomini, & BAXI