dPP HYDRONIC HEATING

HYDRONIC HEATING SPECIALISTS

30 YEAR WARRANTY

Industry Leading 30 Year Warranty on Underfloor Systems

dpphydronics.com.au | 1300 303 471

Clean, stylish and healthy.

dPP Hydronic Heating are the preferred hydronic heating installers by many of Melbourne and Sydney's top Architects and Builders. dPP brings many years of experience in designing, installing and servicing hydronic heating systems. We specialise if slab heating and radiator panels in new builds, renovations and existing homes.

Contact us today for any hydronic heating advice, system design and estimating.

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Introduction to Underfloor Heating

Due to its supreme level of comfort and great heating efficiency, underfloor heating has become the popular way to heat Australian homes.

The feeling of well-being is something we shouldn't take for granted. Feeling warm and comfortable in our homes helps maintain the feeling of well-being and promotes good health. There are numerous ways to experience warmth but only a few that guarantee real comfort.

Benefit from our expertise in underfloor heating system solutions. Radiant energy emitted by the floor is partly reflected by each surface and partly absorbed. Where it is absorbed, that surface becomes a secondary emitter. After a while, all surfaces become secondary emitters. Furnishings themselves radiate energy and the room becomes evenly and uniformly warmed. The energy and heat reaches into every corner of the room – no cold spot, no hot ceilings and no cold feet.

Our manufacturing research and development operations have allowed our product range to be created with the local climate, codes and building practices in mind. Equally, this enables the product range to evolve in quick response to future local market changes. Through the dPP Heating training process, installers obtain a complete understanding of the system and procedures for a compliant installation.

Heating Times

In Screed ~ 3 Hours
In Slab & Heat Emission Plates ~ 24 Hours

In slab heating and heat emission plates should be set to your desired temperature constantly. This will give you the most cost effective running costs as it will just 'top up' the temperature instead of working hard as it does on day one.

Simple, clean & efficient.

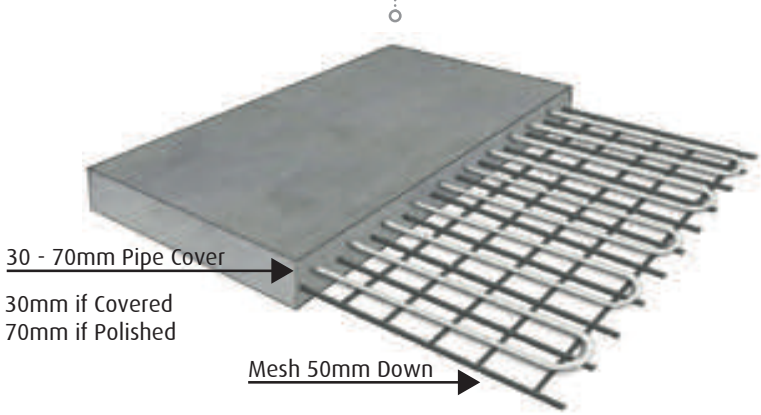
Underfloor Heating Methods & Solutions

Before choosing underfloor heating, many factors need to be considered; one of, if not the most important of which, is floor construction.

IN SLAB

In slab floor heating turns your whole floor into a radiant heater, producing that amazingly comfortable warm home that hydronic floor heating is known for.

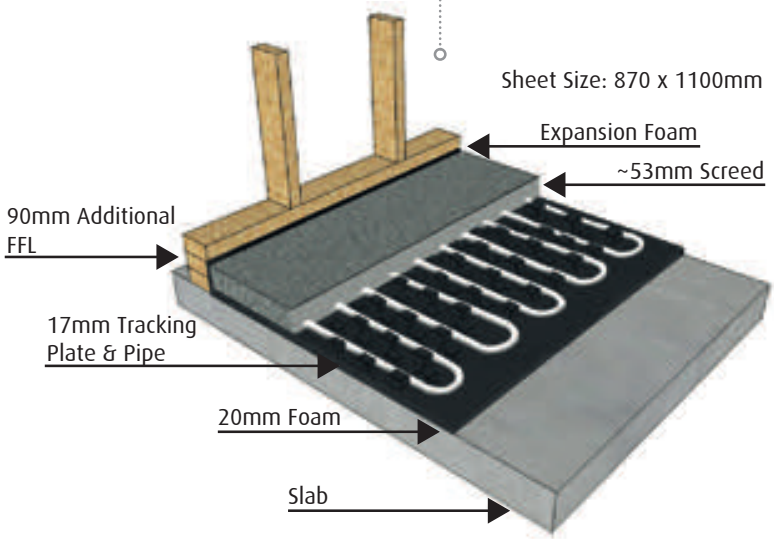
In slab floor heating is the standard method for hydronic underfloor heating.
Pipes are secured to metal reinforcement 200mm apart, in either a spiral or serpentine layout at lengths no more than 100m. Concrete is then poured, encompassing the underfloor pipe, creating a structural slab to build on.
When connected, heated water will flow through the underfloor pipework, transferring heat into the concrete, in turn radiating heat to within the property.



IN SCREED

In screed floor hydronic heating is the most efficient and responsive method of under floor hydronic heating, it can be installed in both new and existing homes. Like structural floor heating, in screed heating turns your whole floor into a radiant heater, producing that amazingly comfortable warm home that hydronic floor heating is known for, but does it in a far more responsive and efficient way.

Under floor heating pipe is located and secured into Pipe Positioning Board, at a distance of 200mm apart, which is laid directly on top of a pre poured structural slab. The under floor heating pipe and Pipe Positioning Board are then screeded over with a minimum of 50mm thick concrete screed.

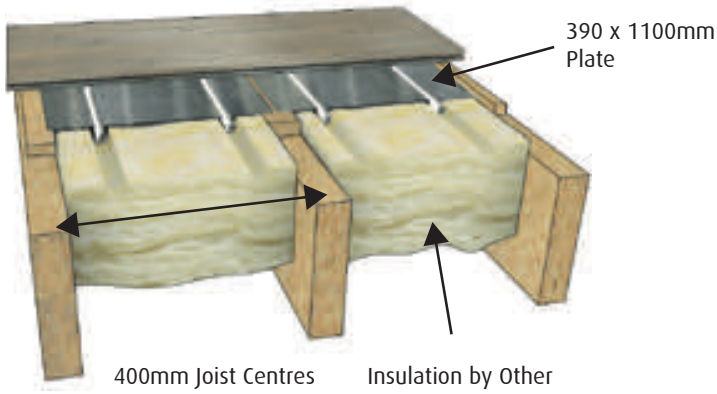


Underfloor Heating Methods & Solutions
(CONTINUED)

TIMBER JOIST METHOD

This method of underfloor heating is facilitated by securing a long, thin sheet of Aluminium called 'Heat Emission Plate', between floor joists, with floor boards laid directly on top. Heat Emission Plate has a groove running along its centre line, designed to locate and secure our specialist PEX-a underfloor heating pipe in place, sandwiching the pipe between Heat Emission Plate and floor boards. A slimmer version of Heat Emission Plate can also be secured directly to the underside of floor boards under an existing floor between joists.

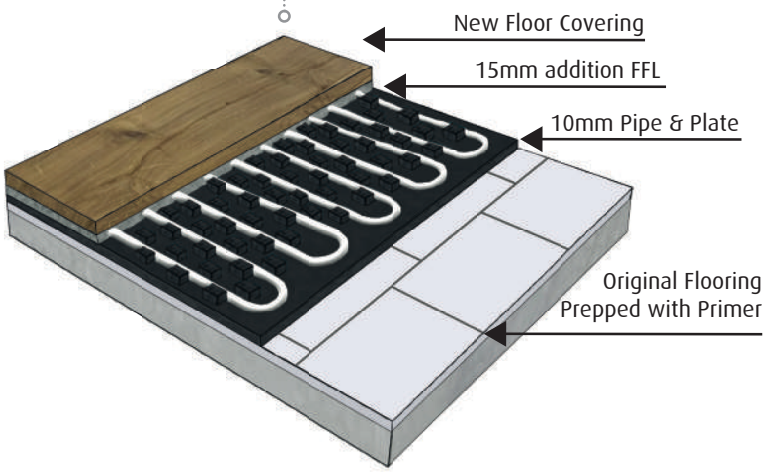
Heat Emission Plate is designed to conduct heat energy from the underfloor heating pipe that's located within, creating a larger heat transfer surface area.



RENOTEC 15MM FLOOR HEATING FOR EXISTING HOMES

The positioning sheet installations are designed for renovations or retrofitting of underfloor heating on an existing building. A thin, rigid plastic sheet is placed on top of existing flooring and the pipework is then laid within. Raised knuckles allow for easy placement of pipework making the installation quick and easy. After pipework is laid, a self levelling compound is poured on top, to a height just over the knuckles.

The perforation in the knuckles ensure perfect adhesion of levelling compound to the base level below. Due to the minimal height of the panel, the shallow depth method means the floor level is only raised around 17mm (plus flooring).



Floor Coverings

The main difference between flooring types and their suitability for use with underfloor heating is the materials thermal conductivity - meaning how quickly and efficiently heat generated transfers to the floor surface.

TIMBER

Different types of wood flooring have different thermal properties, as such there are differences in their suitability for use with an underfloor heating system. The more dense and the thinner the floor boards are, the better they conduct heat and typically more suitable they are for use.

CONCRETE

Polished concrete is an ideal finish for underfloor heating. The concrete is the direct conductor of the heat energy that is transferring into the room, combined with high thermal mass allows for full benefit of the underfloor heating system.

CARPET

Carpet is suitable for use, provided carpet or underlay does not act as an insulator blocking the heat. Most carpets can be used, however wool or high pile is a thermal insulator and will slow the transfer of heat from floor to the air above, the thicker the carpet the greater the thermal resistance

TILE & STONE

Similar to concrete, tiled and stoned flooring are one of the most suitable finishes as they have high thermal mass and good conductivity. Heat from the pipes can quickly transfer to the surface and increasing the thickness wont affect the output.

Tiles can be heated to 29°C or more, meaning that you can also achieve one of the highest heat outputs.

Underfloor Heating System Components

IVAR

Made in Italy

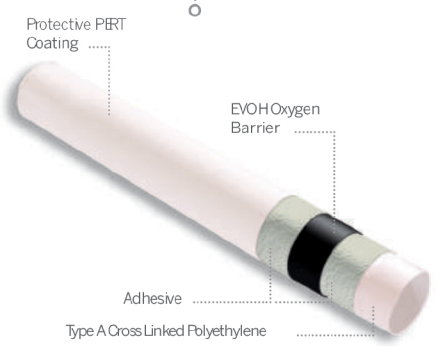
PEX-A PIPE

PEX-A underfloor heating pipe is one of the most flexible and durable pipe's on the market, with a bend radius of as little as 250mm for a 16mm pipe. The main and thickest layer is the inner, made up of a PEX-A (polyethylene) crosslinked section.

Our PEX-A underfloor heating pipe is also manufactured with an ever so important EVOH oxygen barrier, which completely surrounds the inner PEX-A layer.

This EVOH layer prevents air from penetrating the pipe and entering the heating system.

Unlike many other underfloor heating pipes, the oxygen barrier is protected with an external layer of PERT (Polyethylene Raised Temperature). The external PERT layer gives extra protection and aids in the resistance to abrasions and markings, meaning the pipework can withstand rough treatment on site.

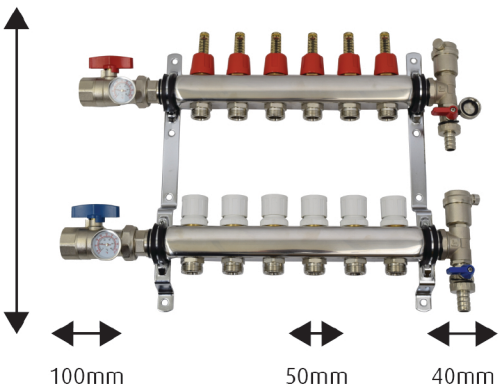


MANIFOLDS

Underfloor heating manifolds are an essential component of any hydronic underfloor heating system. Our manifolds are made from stainless steel providing both a means of water distribution and water flow regulation.

Manifolds are supplied water from the heat source via pipework which can be connected either from left or right, by simply rotating the manifold around to suit system design. Manifolds are supplied with; 1" ball valves, air bleeds, wall brackets, drain cocks, flow regulators and temperature gauges. Optional extras include free standing support frames and electric actuators.

Each modular port on the manifold is threaded, allowing them to lock together in both vertical planes, 180° different to one another. This allows simple connection to circuits located above and below the manifold.



Manifold Width = 100mm+(50mm x Circuits)+40mm
Height = Allow 800mm Floor to Top

Underfloor Heating System Components
(CONTINUED)

PIPE POSITIONING BOARD

Pipe Positioning Board is one of the most significant developments in modern times, if installed during construction; positioned directly onto a pre-poured structural slab, pipework installed then screeded over. The thermal and acoustic properties of Pipe Positioning Board, mean reaction time of the slab is reduced significantly, in turn reducing energy bills significantly.

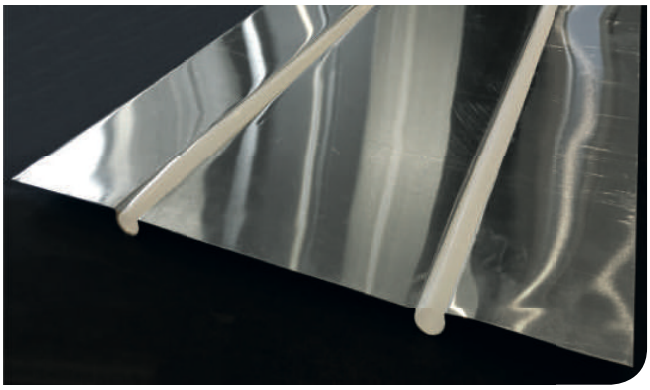
Achieving a thermal resistance (R) valve of 1, Pipe Positioning Board is made of sintered foam polystyrene, in accordance with EN13163.

37 mm in total thickness, made up of 15mm sheet, 22mm mushroom, Pipe Positioning Board is extremely quick and easy to install; thanks to the tongue and groove system surrounding each panel, polystyrenes light weight properties and ease to shape.

Laying underfloor heating pipe is also made easier, with 22mm mushrooms pipe is loaded and secured into the board, not on top, protecting it during concreting. With 50mm centres accurate and even pipe layouts are easily achievable.

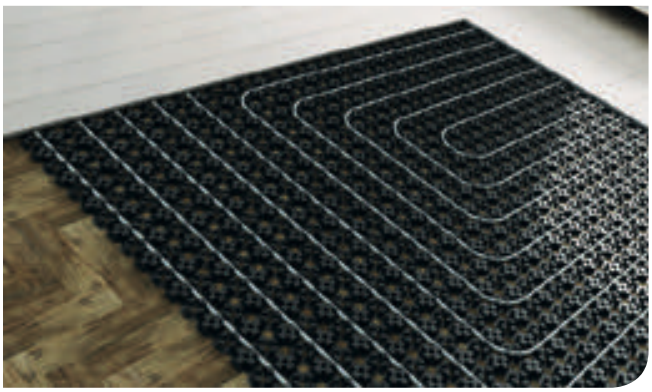
HEAT EMISSION PLATE

Aluminium Heat Emission Plate used to facilitate suspended floor heating, secured to joists or directly under timer floor boards will maximise the heat transfer area of the underfloor heating pipe running its length.



RENOTEC SYSTEM

With a minimal depth of around 1cm, Renotec is an ideal system for renovation projects. The Renotec sheeting element with specialised PEX-A pipes measuring 9.9 x 1.1 mm, is easy to lay on existing screed, timber or tiles. The adhesive layer on the back of the sheet guarantees a secure bond during installation. The leveling layer is installed just above the raised knuckles, resulting in an increase in floor height of only 15 mm.

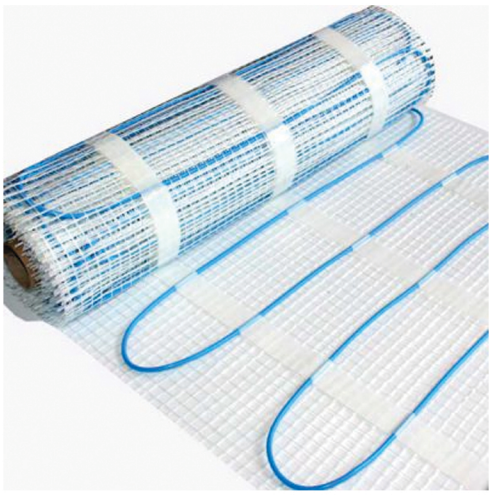


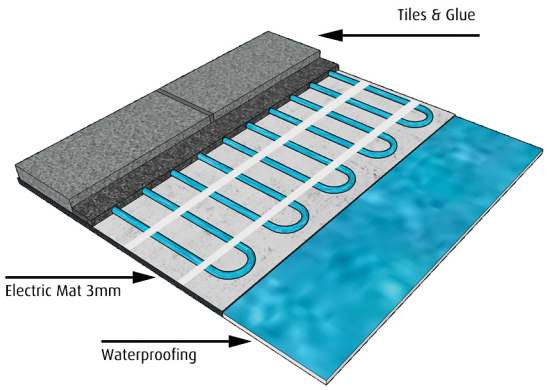
Electric Undertile Heating

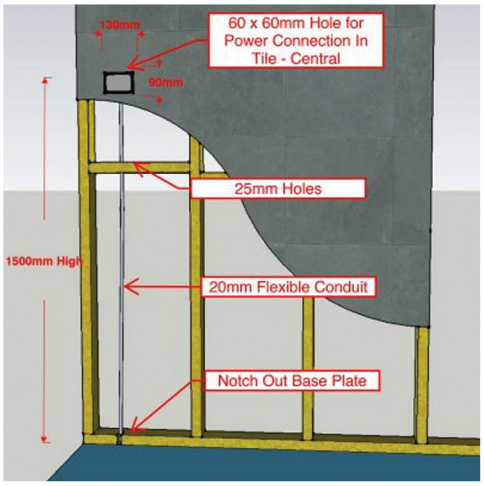
WARM FEET AND A REALLY COMFORTABLE BATHROOM

Electric Under tile Heating provides a warm floor underfoot complimenting a hydronic system perfectly. The electric under tile heating mat is laid on top of your waterproofing and tiled directly over. Once operating it will heat your tiles which in turn radiate and heat your bathroom.

They are affordable to run due to being controlled by a programmable thermostat and only heating small spaces. For large in-floor heating you should consider in slab heating for a new home, or Renotec for an existing renovation.







SPECIFICATIONS

Output - 150 Watts per square meter

Roll Width - 500mm

Height - 4mm

Electrician Required for Mains power and Connection

INSTALL NOTES

Installed on top of the Waterproofing

Not installed in shower area

Install a conduit for power cord

Check Test Alarm is working before installing

Check Test Alarm is working before tiling

| Radiator Heating

SUPERIOR CONTROL & COMFORT

BRUGMAN

Radiator Panel Heating is a type of hydronic heating system where water is heated to 70°C and pumped through a closed pipe circuit through a home. Panel heating is highly efficient and incredibly comfortable.

Each room in the home then has a radiator panel hung on the wall and connected to the pipe. Each panel can be turned on/off at the valve, and can be temperature controlled with the addition of a thermostatic head.

The hot water heats the steel panel radiator which creates both radiant and convective heat to warm the room.

Modern hydronic radiators are designed to be both elegant and efficient. Steel radiator panels are manufactured with convector fins, welded directly to the waterways, increasing the effective heated surface area and thus giving a dramatic increase in the warm up speed and the general efficiency of the heating system.

BRUGMAN COMPACT 4 - STANDARD PANEL SIZE RANGE

NOTES

Panels are usually hung with 100mm clearance at the bottom.

Valves are connected at the bottom left and right sides of the panel adding 100mm

Panels should have noggins behind for the hanging bracket to be fixed to

Painting is completed before panels are hung

USUALLY STOCKED in Type 22 only

900 High

400 Wide up to 2000

600 High

400 Wide up to 3000

300 High

600 Wide up to 2200

All other heights and widths are available as

a special order with a lead time of 3 - 4 months

| Hydronic Towel Tails

FINISH OFF YOUR BATHROOMS WITH CLASS

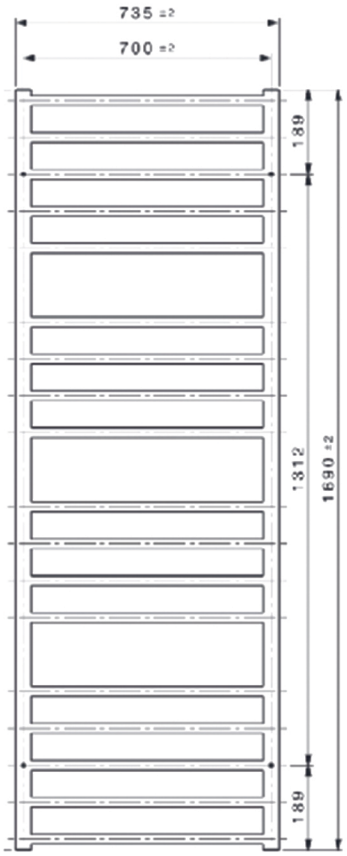
Hydronic Towel Rails are a classy finish to a modern bathroom and provide enough heat to warm the room, while keeping your towels fresh and warm.

Available in Chrome, White and Matt Black off the shelf we can also powdercoat them any colour available.

An electric element can also be included so that you can keep your towels warmand fresh in the months where you do not have your hydronic system operating.

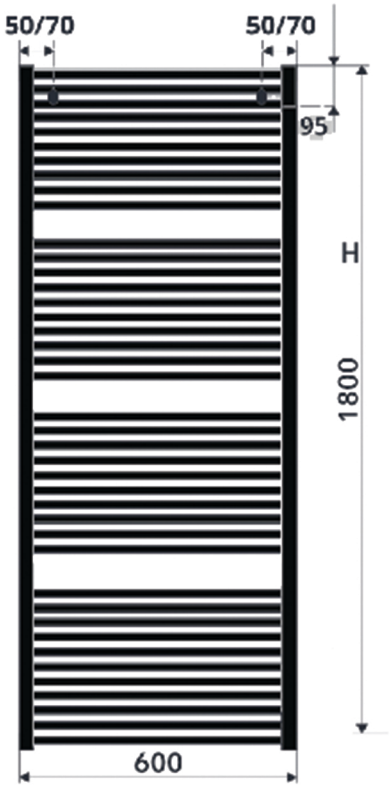
DIMENSIONS

DESIGNER



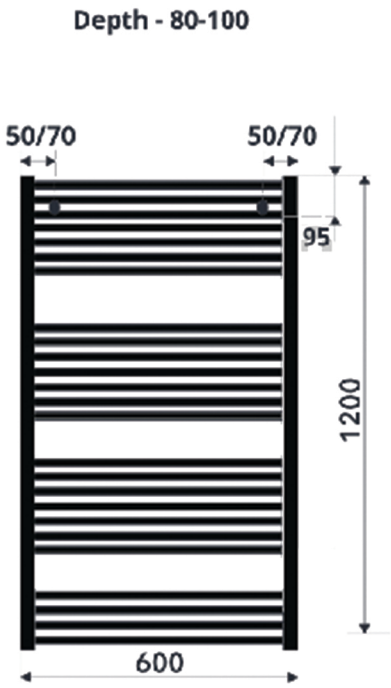
Size 1690 high x 735 wide (pipe centers 700)
KW Output 1.012

STANDARD 1800



Size 1800 high x 600 wide
(pipe centers 550) (HB-R0120)
KW Output Range 0.84 - 1.24

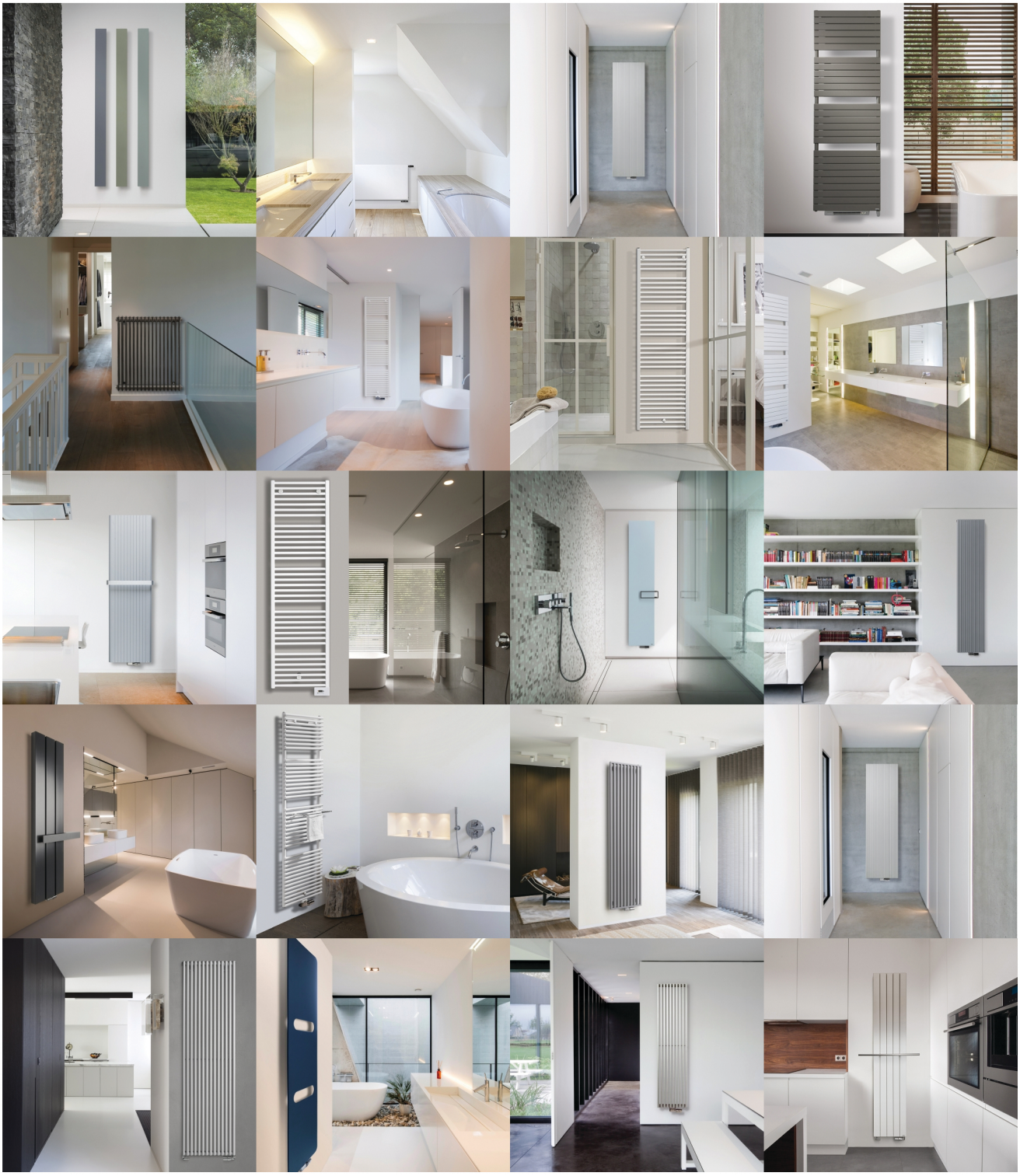
STANDARD 1200



Size 1200 high x 600 wide
(pipe centers 550) (HB-R0118)
KW Output Range 0.53 - 0.72

VASCO

Designer Panels to suit all projects



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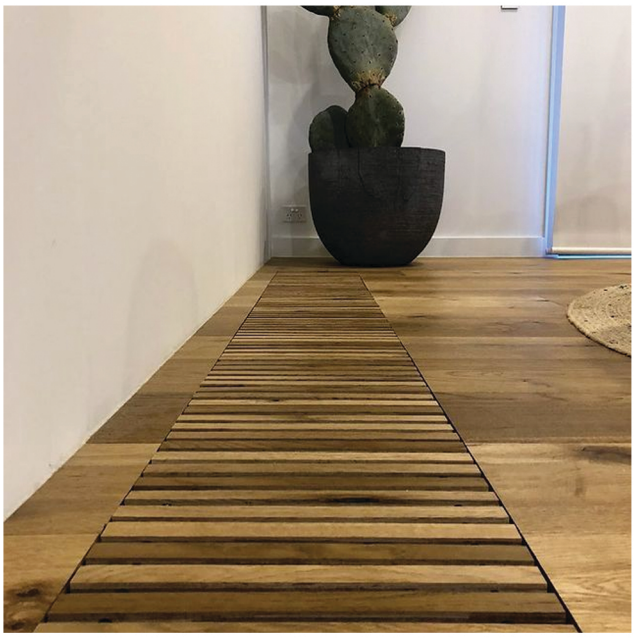
Trench Heating

STYLISH, SILENT AND UNOBTRUSIVE

Trench heating is a stylish way to heat a room with large expanses of glass or little wall space for panels. A trench convector is covered with a grill that can be designed to match your floor covering or taste.

The grills can be made from supplied timber flooring, hard wood that can be stained onsite or alluminium.

A trench heating system is made up of a box that will need to be designed into the construction of the sub-floor, a convection element and finishing grill in roll up timber or alluminium.



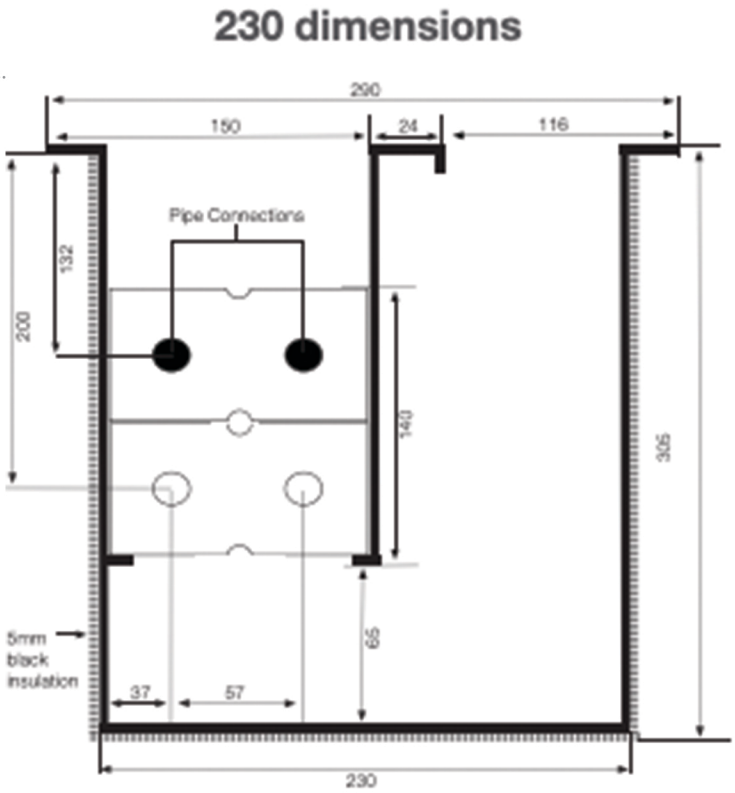
MEASURMENTS

TRENCH BOX

230mm Wide x 305mm Deep to be supported by joist and clear of any bearers. Lenths are determined by room size and calculated at quoting stage.

Grill is designed to sit on edge of yellow tongue flooring meaning that floor coverings should finish short to allow for this.

Manufactured in steel with 5mm of insulation



Hydronic Thermostats

HONEYWELL T4 - STANDARD INCLUSION

The Honeywell T4 programmable thermostat is a modern and wired 7-day Programmable Room Thermostat. It is designed to provide automatic time and temperature control of hydronic heating systems. T4 Series Programmable Thermostat is smart, simple and efficient.

The T4 builds on the sound programming technology of the CM907 to to provide an even simpler and smarter thermostat.

With effortless temperature control, simple temperature scheduling and levels of automated control, the T4 offers a level of intuitive usability customers expect from today's technology.

NEST 3RD GEN - UPGRADE OPTION (APP CONTROLLED)

The Nest Learning Thermostat learns every time you adjust the temperature, that's how it builds a schedule for your home. So, in your first week with Nest, teach it well - turn it up when you want to be cosy, turn it down when you want to save energy.

The Nest thermostat can be operated manually and by the app. As it is connected to the internet it also knows what the weather is and what the weather is going to be and will adjust accordingly.

Uniquly the Nest thermostat will educate you on how to be more energy efficient with a monthly email report.

| Boilers

NATURAL GAS & LPG BOILER

Our Bosch Boiler range is available in natural gas and LPG, with both internal and external installation options. The Bosch boiler range provides full flexibility to suit any situation. On top of the 30kW standard efficiency model, the high efficiency condensing range will provide the best efficiency and lowest running costs.

For larger homes and commercial environments, including aged care facilities, hospitals and education buildings, our large fully condensing cascade solutions are the perfect solutions to provide maximum outputs with minimum fuss. Multiple installation options and minimal footprint mean they can be tailored to suit any scenario.

As well as heating only boilers, our condensing boiler range includes a combination domestic hot water system.

BOSCH

Hydronic Specialist

SENSITIVE CHOICE

NATIONAL ASTHMA COUNCIL AUSTRALIA

BOILER DIMENSIONS

STANDARD BOILER

440mm

900mm

320mm

CONDENSING BOILER

500mm

400mm

1000mm

SUGGESTED WALL LAYOUT

BOILER BASE

200MM

SERVICES

1400MM

GROUND LEVEL

G W D

GAS CENTRED 3/4 COPPPER
130MJ
WATER 65MM RIGHT OF GAS
1/2 COPPER
DRAIN RIGHT SIDE OF BOILER
FOR CONDENSATING BOILERS
& OVERFLOW OF ALL BOILERS

| Heat Pumps

RENEWABLE ELECTRIC

STIEBEL ELTRON

With an increasing number of families looking into renewable means of keeping their homes warm over winter, hydronic heat pump systems have started to see a huge rise in popularity.

Heat Pumps absorb heat energy in the air, increase its temperature through compressed refrigerant and convert this into heat energy in the water of your hydronic system. Through this process you are using free heat energy in the air to heat your home, hence it being a renewable energy. 440mm

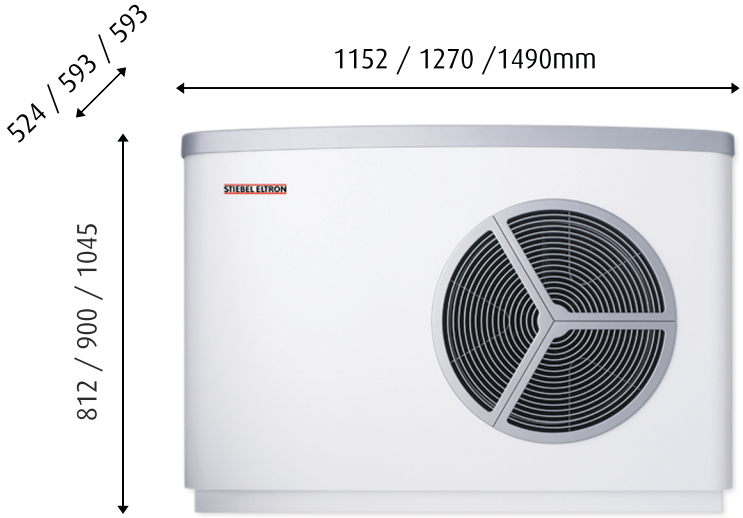
Stiebel Eltron Heat Pumps are the leaders in the market in terms of their efficiency. They are nearly 500% efficient meaning that every unit of energy you are using to power the heat pump, your are getting almost 5 units of heat energy back.

Stiebel Eltron Heat Pumps can also provide passive cooling to slab systems, and can be connected to Solar PVC systems to produce free heat when an excess of solar energy is detected.

MAIN HEAT PUMP SYSTEM COMPONENTS *not to scale

External

WPL 17 (8.5KW)/WPL-A 07(11KW)/WPL 25(14KW)



91 / 135 / 175kg

Heat Pump

Internal

100/207/415/720/1006/1503 LITRES

510 - 1220

Buffer Tank

72H 146W 96D

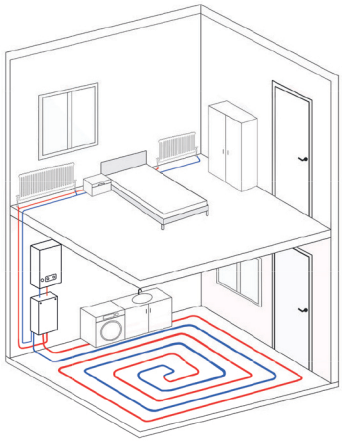
Heat Pump Manager

Combining Panels & Slab Heating

INCORPORATING SLAB HEATING WITH PANELS ON A SINGLE BOILER

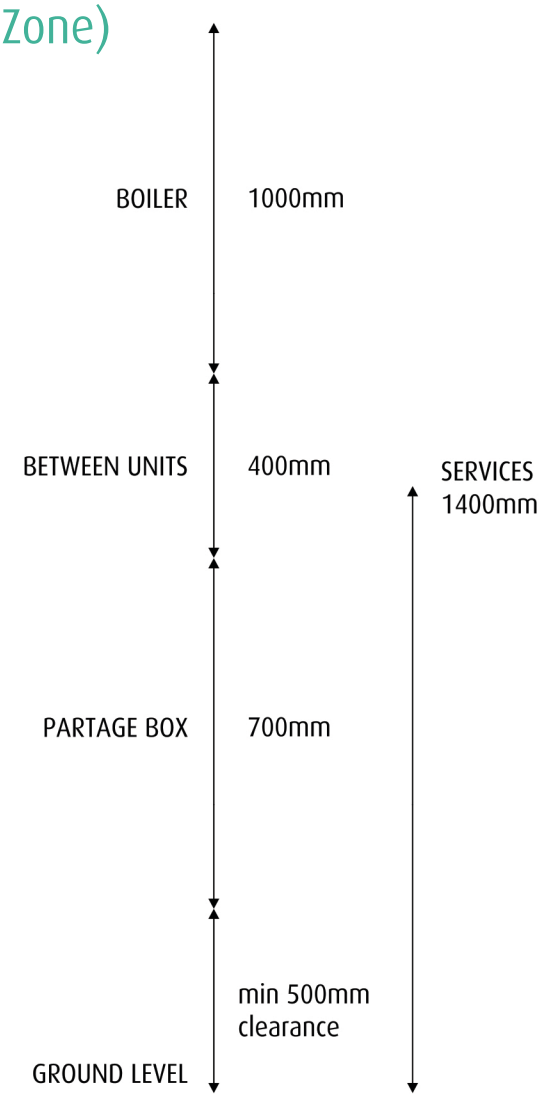
A Partage box is designed to separate hydronic heating systems into more than a single controlled zone without needing an additional boiler. This is common with a home that has both a floor heating and panel heating system. Panels are designed to run at 70° while floor systems run at 50° so not only does a partage box create two zones, in this case it also manages the water temeratures.

Partage boxes are also used to create additional controllable zones. whether a system be a complete panel or floor heating system. A partage box separates the main lines so that a thermostat can be added to control an additional zone. A great example is when you have a multi level home with panel heating. By adding a partage box you can now control both levels independently.



MEASUREMENTS

Partage Box (2 or 3 Zone)



G W

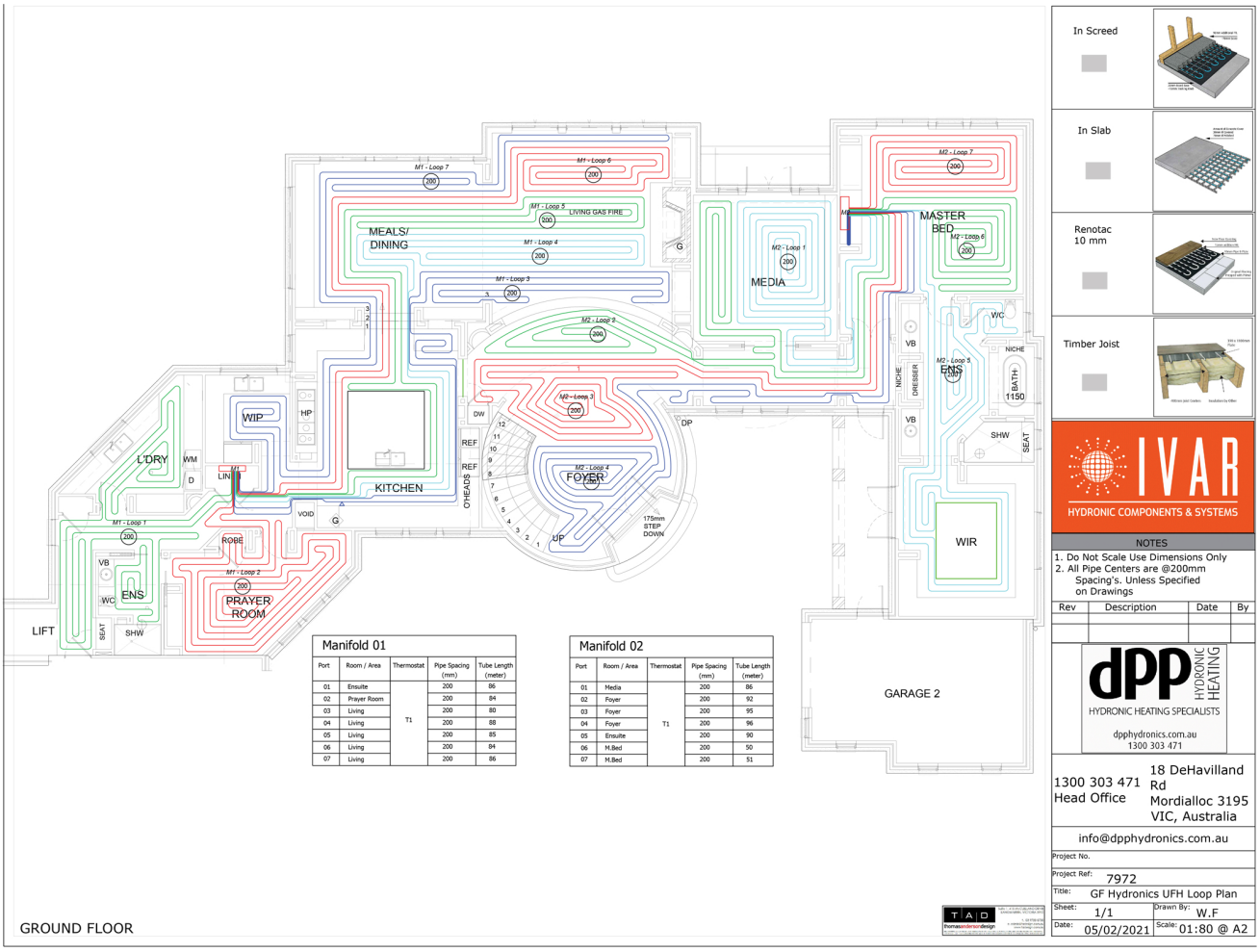
GAS CENTRED 3/4 COPPER
WATER 65MM RIGHT OF GAS
1/2 COPPER

Hydronic Heating Design & Quotation Service

Our team of hydronic heating experts take a holistic approach at the consultation phase, and will take into consideration all aspects of your home, including outdoor temperatures, external walls, insulation levels, and whether or not any adjacent rooms in your home are already heated.

Through a combination of the latest software and the expertise of our Customer Service Team, you can rest easy knowing that we'll design a bespoke solution that delivers superior comfort but is also completely environmentally friendly and energy efficient.

Whether you're looking at installing underfloor heating in conjunction with radiators, or you'd like a combination boiler that takes care of your entire home's hot water requirements, we can tailor a solution that works for you. We use only the leading products on the market, including Italian-made Sime boilers, which are renowned for their power, durability and efficiency.



Manifold 01				
Port	Room / Area	Thermostat	Pipe Spacing (mm)	Tube Length (meter)
01	Ensuite	T1	200	86
02	Prayer Room		200	84
03	Living		200	80
04	Living		200	88
05	Living		200	85
06	Living		200	84
07	Living		200	86

Manifold 02				
Port	Room / Area	Thermostat	Pipe Spacing (mm)	Tube Length (meter)
01	Media	T1	200	86
02	Foyer		200	92
03	Foyer		200	95
04	Foyer		200	96
05	Ensuite		200	90
06	M.Bed		200	50
07	M.Bed		200	51

Using our software and expertise the design of an underfloor heating system is a straight forward process consisting of 4 main steps:

- Determine manifold location
- Calculate number of circuits required
- Plan pipe layout
- Calculating the capacity of an underfloor heating system

System Service & Protection

SERVICING ENSURES AN EFFICIENT LONG LASTING SYSTEM

An annual system service is a requirement to maintain the warranty of your new system.

An annual service covers

- Check for Air in System (Air promotes rust forming and disrupts heating efficiency)
- Check Water, Gas and Expansion Tank Pressures (Incorrect Pressures can damage your system and effect its efficiency)
- Check and Fix Minor Leaks (avoid the potential of minor leaks turning into major problems)
- Check Water Quality (Poor water quality indicates the need for a power flush)
- Check the System gets up to Correct Temperature (Low Temperature can indicate the need for a Power Flush)

Service Agreements

3 Years pre-paid

$150pa

$450 upfront

5 Years pre-paid

$135pa

$675 upfront

Magnetic Filter

$399

5 Year Warranty

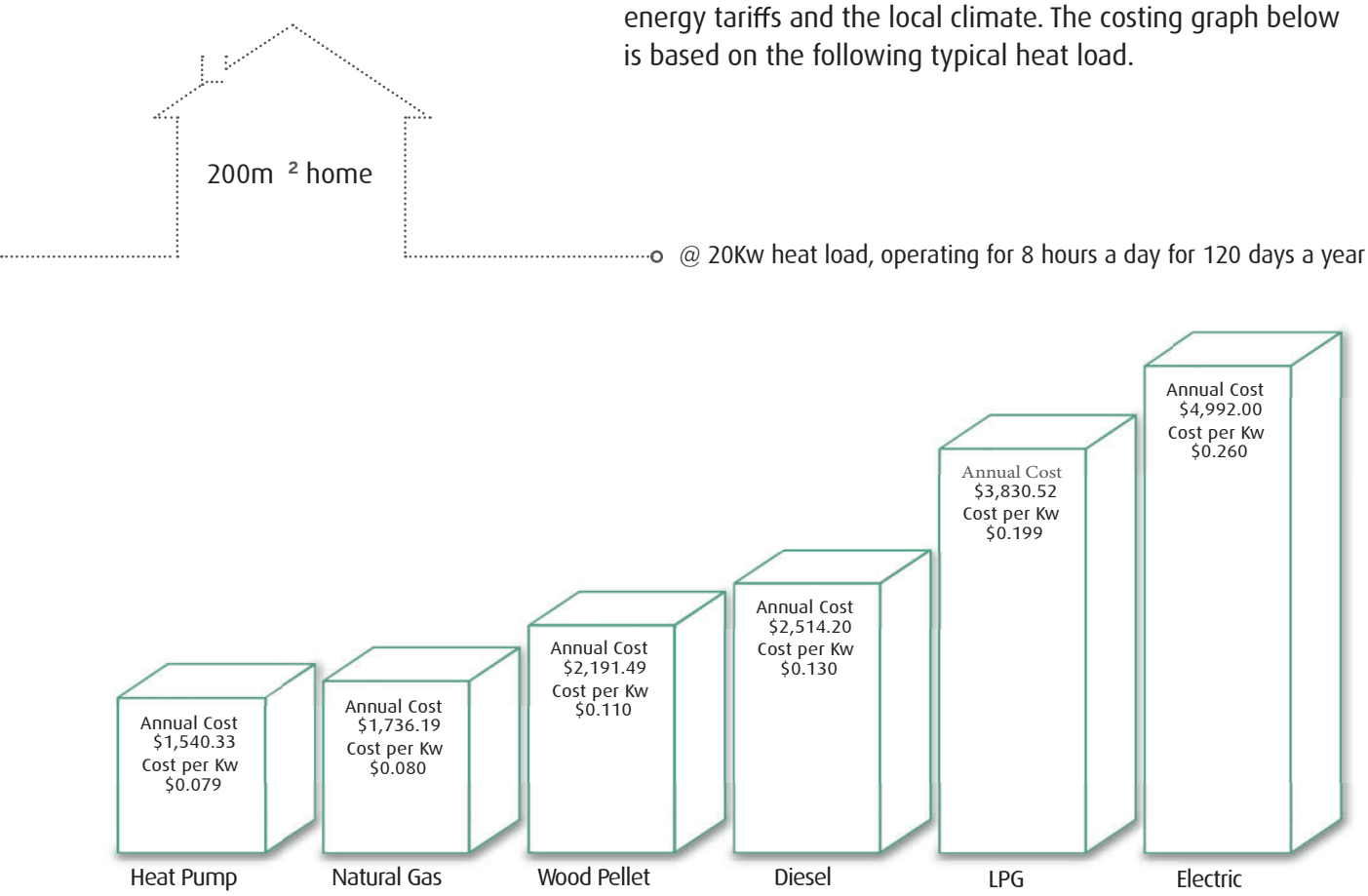
10 Year Warranty

Condensing Boilers with

Filter & Annual Service

Heat Sources Running Costs

Running costs are a key consideration and one which can be challenging to answer due to the variability in types of fuels and prices. Actual cost of heating will depend on the area heated, running time, thermostat settings, house insulation, energy tariffs and the local climate. The costing graph below is based on the following typical heat load.



Heat Source Outputs & Cost Per Unit

- Heat Pump - three phase 21Kw based on 45° Water Flow Temp & 7° Day $0.2601 per KW
- Natural Gas Boiler - condensing 30Kw $0.0223 per MJ
- LPG Boiler - condensing 30Kw $1.23 per Litre
- Diesel Boiler - 26Kw $1.18 per Litre
- Wood Pellet Boiler - 22Kw $0.52 per KG
- Electric Boiler - Three phase 24Kw $0.2601 per KW

Running Cost Calculation Example - Wood Pellet

22.3 kw maximum power = 4.9 kg/h

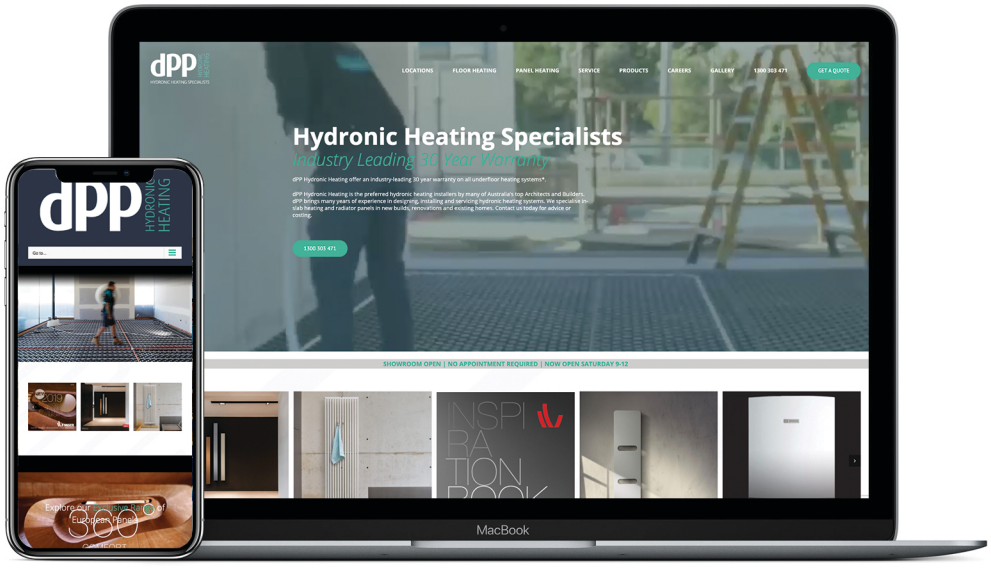
1 kg of wood pellets = $0.52

- To receive the required 20 kw the system needs 4.39 kg of wood pellets per hour
- 4.39 kg/h running at eight hour = 35.12 kg used per day
- 35.12 kg of pellets per day across a 120 day (4 month) period = 4,214.4 kg
- 4,214.4 kg & $0.5 = $2,191.49 annually

Please Note:

- Figures accurate as of 1st August 2017 and should be used as example only
- Excludes supply, rental and delivery charges
- Excludes on time payment, member discounts and government subsidies (eg agricultural diesel)
- Excludes GST

Further Product Information & Diagrams



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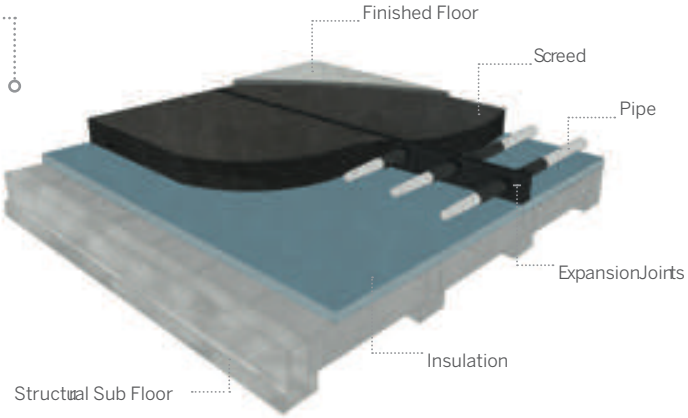
Technical Information

EXPANSION JOINTS

As concrete over an underfloor heating system dries, there is a potential for movements with the changes in temperature. In order to protect the floor by preventing cracking, expansion joints should be fitted during installation.

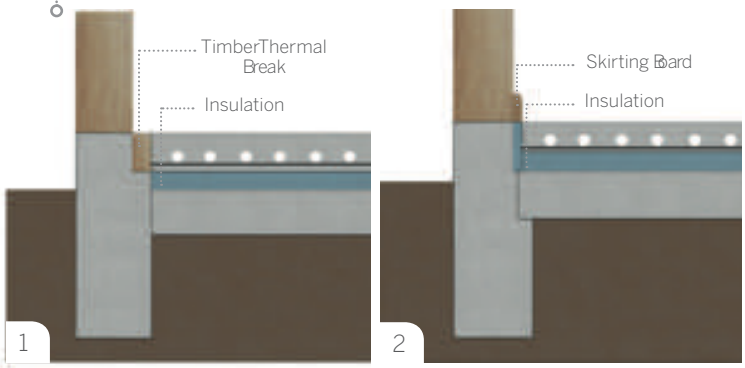
It is important the pipes are laid before the joint is fixed in place, otherwise laying the pipe underneath may be difficult. However, when pipe layout plans are being formulated, try to take expansion joints onto consideration and avoid running pipework though such joints.



THERMAL BRIDGING

Thermal bridging can take place from the heated slab to anything that it comes directly in contact with, causing unnecessary heat loss.

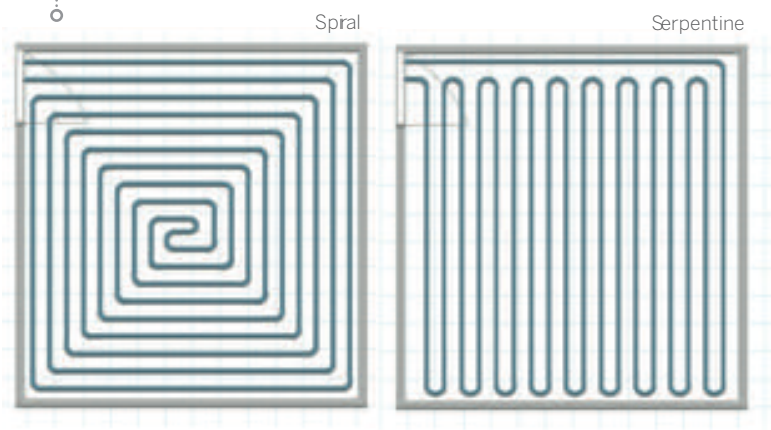
To stop or reduce heat loss in this way, we recommend using insulation to create a thermal break between the main heated slab and any surface it comes in contact with, cutting out heat loss entirely (fig 2). A great way to facilitate this is to use Pipe Positioning Board.



PIPE LAYOUT

When installing underfloor heating, installers choose from two pipe configurations; spiral and serpentine. The type of configuration used depends on the size and complexity of the area being heated, however the preferred method is always the spiral.

In general when pipe layout plans are being formulated, the flow pipe (hottest) should be laid closest to the room wall then spiral inwards towards the centre of the room, this will give an even distribution of heat across the floor area. Flow and return pipes in and out of room should always pass through doorways, never under walls or windows.



LOCATIONS

dPP Hydronics have installation teams in Melbourne, Sydney & Adelaide.

dPP Hydronics have proudly installed across these metro areas as well as Canberra, Regional Vic, Nsw & SA.

SHOWROOM OPEN BUSINESS HOURS

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