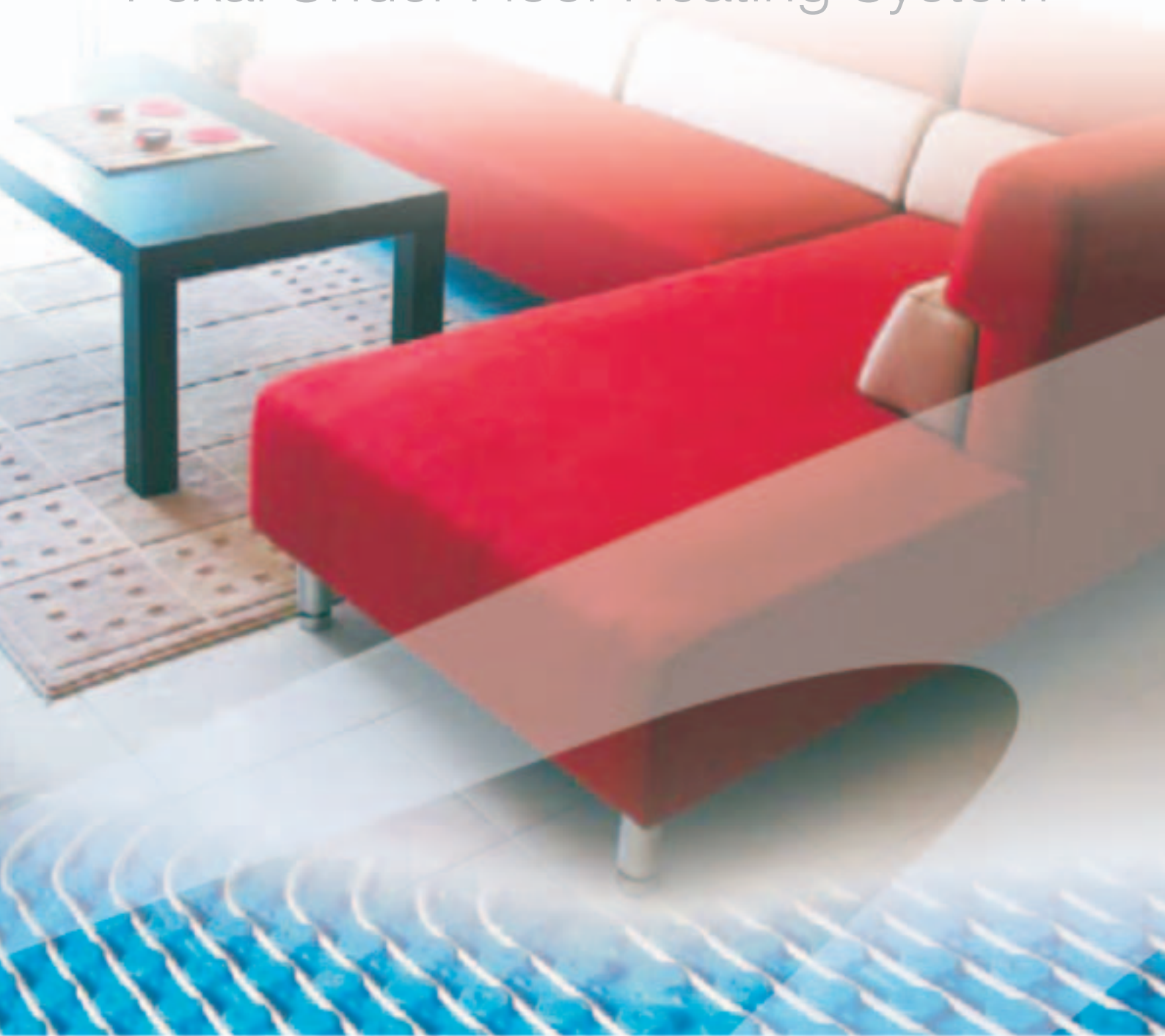




Under Floor Coil

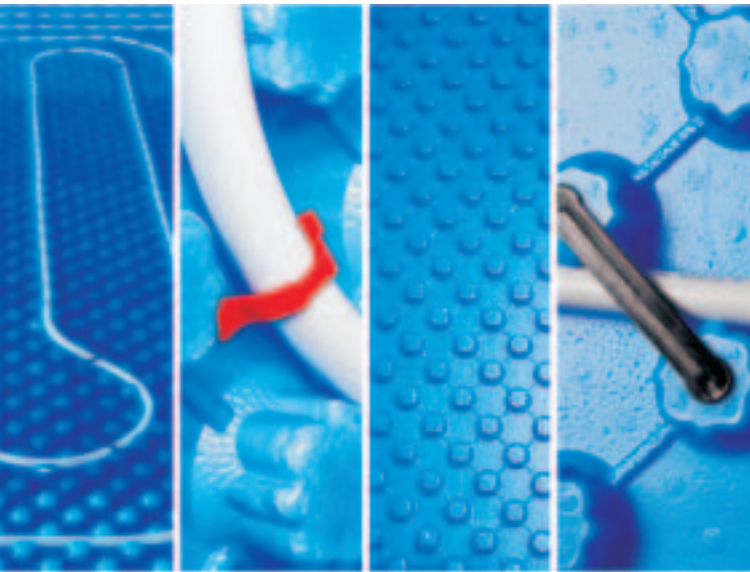
Pexal Under Floor Heating System



Automatic Heating
efficiency □ performance □ solutions



Pexal Under Floor Coil System



Pexal Under Floor Coil System Modern technology for every type of building

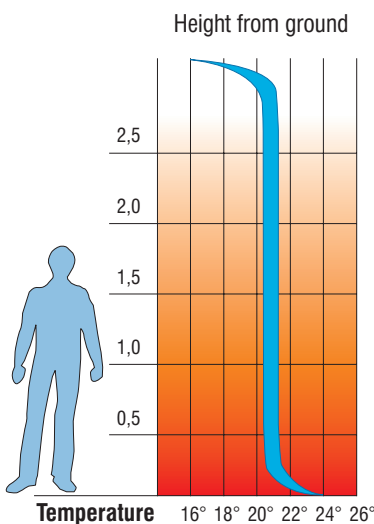
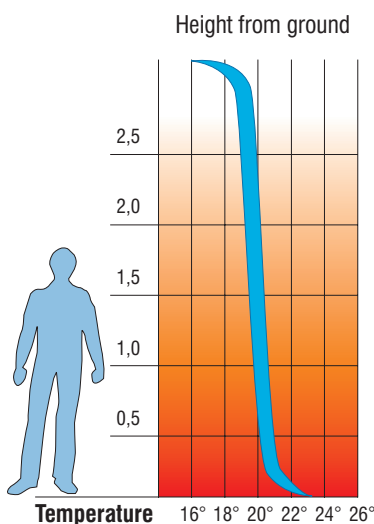
The technology

Floor heating today is without doubt the most technically valid heating solution for the residential, commercial and industrial sector.

The various system solutions available allow maximum flexibility and adaptability to all types of buildings and construction requirements. Furthermore, the use of a low temperature heating fluid combined with the particular heat stratification of the room result in significant energy savings.

Why Install Under Floor Heating?

- Greater thermal well-being.
- Greater heating surface at low temperature.
- Uniform distribution of room temperature
- Respect of room humidity and hygienic conditions
- No alteration of plaster, wooden floors and door and window frames.
- No Limit in architectural design.
- Highly reliable and flexible for design and installation purpose.
- Greater energy saving as compared with traditional systems.
- Uniform distribution of room temperatures.
- Less heat loss as compared with a traditional heating system.
- Great reliability and flexibility to all types of building and construction requirements.
- Elevated heating surface.
- No irritated throats thanks to the optimum hygienic conditions.
- No dust deposits.
- Elimination of mildew on walls and deterioration of wooden floors or window frames.



Pexal Underfloor Heating Pipe

Used with each of the Underfloor Heating Systems

Pexal heating pipe has been an outside diameter of 18mm with a 2mm wall thickness rated at 6 bar at 90°C. It is very strong, yet flexible, and can be laid in temperatures well below freezing, and withstand ultra violet light.

It offers 15% improved flow rate over most other plastic pipes.

Roll Sizes: 100m, 200m, 240m

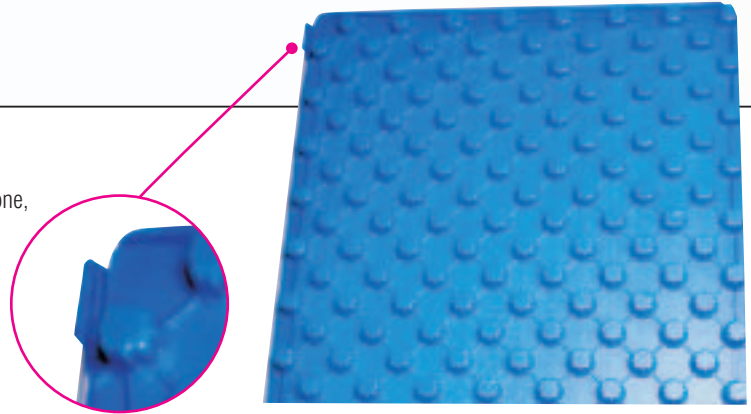
Automatic Heating reserves the right to change specifications without notice.



Poly Foam Under Foot

Polyfoam under foot provides you with the convenience of the polystyrene-foamed insulation and a hydronic pipe template in one, saving money on installing and heating

Each panel interlocks with its neighbor, giving a seamless finish and strong loose to work with.

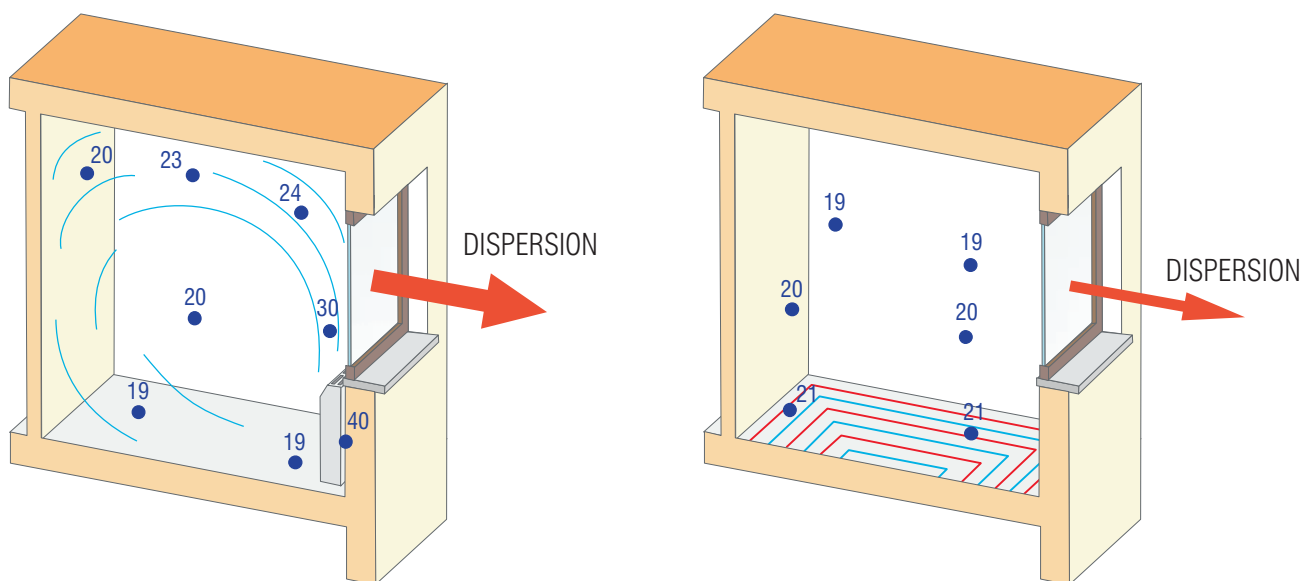


Technical Specifications

Panel Size	1200mm x 800mm x 55mm (30mm base)
Material Grade	Flame Retardant Expanded Polystyrene
Density	30kg/m ³ or 24kg/m ³
Compressive Strength	160kPa @ 10% deformation
Cross Braking Strength	260 kPa minimum
Maximum Contact Temperature	70°C
Thermal Resistance	1.00R or 0.83R
Hydronic Pipe Supported	Up to 20mm O.D.
Panel Jointing	10mm interlock on all sides
Cutting Tools	Hand knife, handsaw or hot knife

Traditional System

Floor System



With a floor heating system it is possible to maintain an average air temperature of 19°C compared to a traditional system where the average temperature is 20°C, just one degree centigrade less can generate a saving in energy of approximately 7%.



Pexal Under Floor Coil System

Quality comfort





The system that allows total freedom in furnishing



Thermal well-being

The so-called "thermal well-being", that is, the sensation of comfort, which is created within a room, is present when the temperature takes on a particular distribution in relation to the height of the room.

Such a temperature distribution is defined as the ideal curve of thermal wellbeing. To create "thermal well-being" there must be slightly warmer areas near the floor and slightly cooler areas near the ceiling.

A temperature distribution curve can be traced for all heating systems. With floor heating, the particular positioning of the radiant panels and the heat transfer by radiation generates a temperature stratification, which is closest to the ideal curve.

Hygienic conditions

Floor heating systems do not favour the formation of damp areas on the floor and therefore, conditions are not generated that would favour the formation of dust mites or bacteria or of mildew on the walls. Moreover, floor heating operates at low temperatures and does not alter the relative humidity of the air, maintaining the best conditions for personal health.

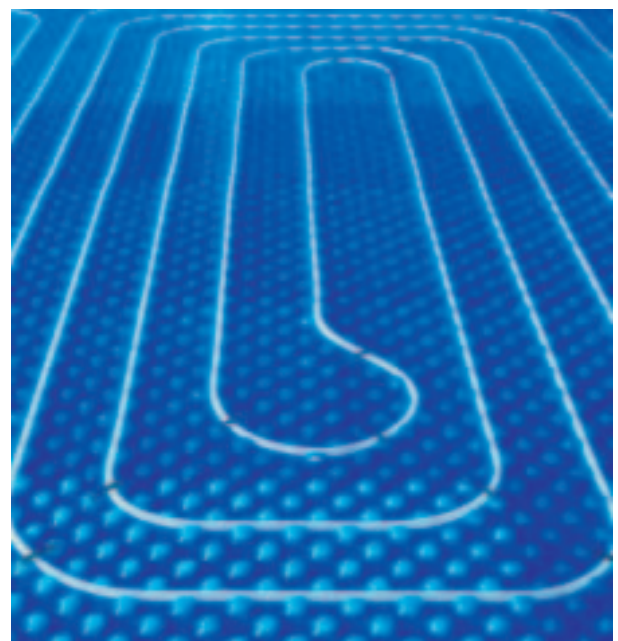
Underfloor heating systems allow the owner to make use of all available space; it is also valuable in the case of buildings of architectural and artistic importance where it is fundamental that the surroundings do not undergo change.



Aesthetical advantages

There are no architectural limits linked to the presence of radiators/fan heaters, hence there is total freedom in furnishing a room.

Wall mildew is eliminated as is deterioration of wooden floors and window frames.





Pexal Under Floor Coil System

*Output with elevated **energy saving***





A modern environmentally friendly system

Output

The thermal gradient that is generated with floor heating systems is such that heat loss is less than in a traditional heating system. Unlike traditional systems, floor heating offers the possibility of recovering heat that is usually wasted due to the stratification effect of the air, which reaches higher temperatures near the ceiling; the higher the ceiling the greater the heat recovery.

With a floor heating system the condition of well-being achieved at an average room temperature, which is generally 1°C below the temperature achieved with traditional systems and therefore, at equal comfort, energy saving is possible. Furthermore, the use of insulating panels to hold the pipe, significantly reduces heat loss and contributes to the increase of system output; traditional heating systems do not require such panels, from a design point of view, and therefore they are never used.



Energy saving

Radiant panel systems allow an average energy saving of 25% depending on the climatic conditions of the surroundings.

This important energy saving can be attributed to the fact that the large surface area of the floor is heated with a low temperature heating fluid.

It is therefore convenient to use heat sources whose performance increases as the temperature required decreases, such as heat pumps, condensation boilers, solar panels, heat recovery systems, zone heating systems.

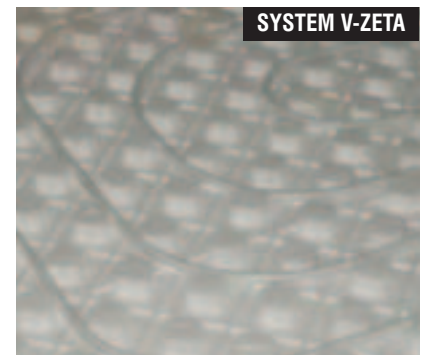
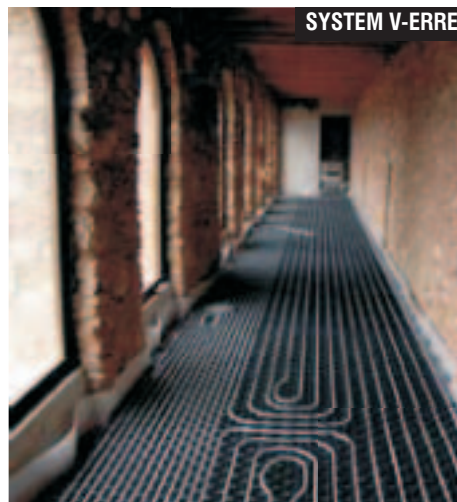
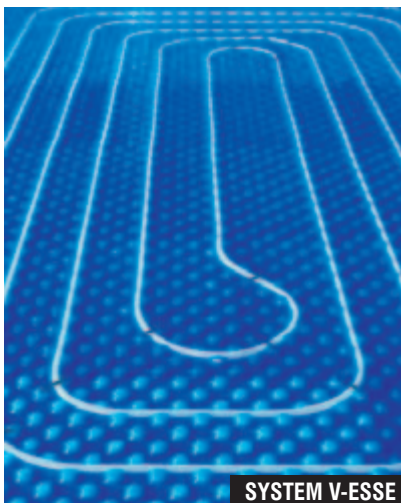




The ideal pipe for radiant systems

Mechanical behaviour

The mechanical characteristics of the PEXAL and MIXAL pipes make them ideal for use in floor heating systems. The bending radius corresponds to 2.5 times the pipe diameter and the circular section at the bend remains constant. The pipe, once bent, remains in the desired position like a metal pipe; hence the use of anchor clips is not required as with all-plastic pipes.



Heat output comparison

The presence of the aluminium layer, its thickness and position, result in excellent heat conductivity characteristics.

With PEXAL and MIXAL pipes it is possible to carry out floor heating systems with higher heat outputs, in fact the greater conductance generates higher temperatures on the pipe surface as compared with all-plastic pipes (PEX and PERT) and this advantage is reflected, for example in the possibility of obtaining relatively low supply temperatures.

The greater performance of PEXAL and MIXAL pipes compared with all-plastic pipes means greater system output at equal flow conditions.

An example: the 16x2 MIXAL pipe has the same thermal output as the 17x2 PEX pipe.



Barrier against oxygen and UV rays

The inner layer in aluminium acts as a perfect barrier against the passage of gaseous molecules thus avoiding the danger of corrosion due to oxygen infiltration and damage caused by exposure to UV rays.

The table shows a comparison of the oxygen transmission coefficients (Oxygen Transmission Rate) of aluminium, of EVOH (the material used as an oxygen barrier in all-plastic pipes) and of crosslinked polyethylene (PEX).

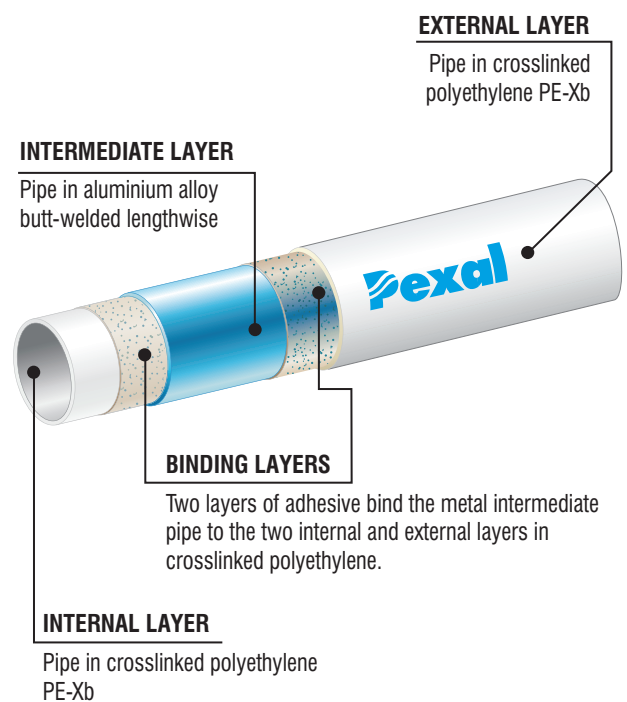
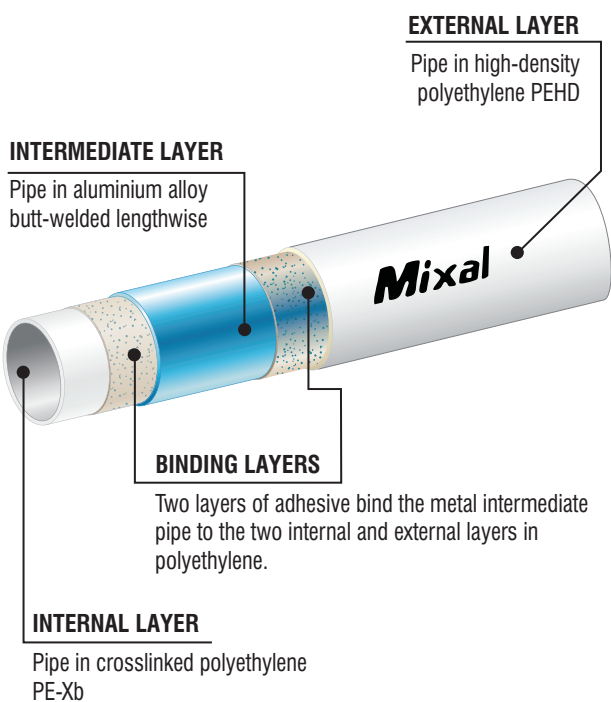
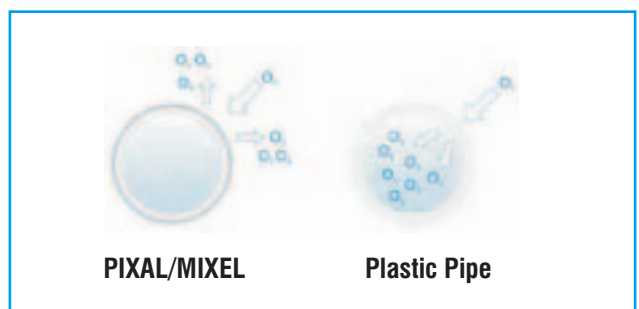
OXYGEN TRANSMISSION COEFFICIENT OTR

Material	OTR at 25°C and 0% UR [cm ³ /20 mm-m ² -day-bar]
Aluminium	0
EVOX barrier	0,21
PE-X	12000

Many PEX pipes sold today are manufactured with the oxygen barrier on the outside of the pipe.

This layer is hence notably exposed, not only to superficial damages, but also to the negative effect of humidity, which drastically increases the porosity of the pipe.

TOTAL OXYGEN BARRIER

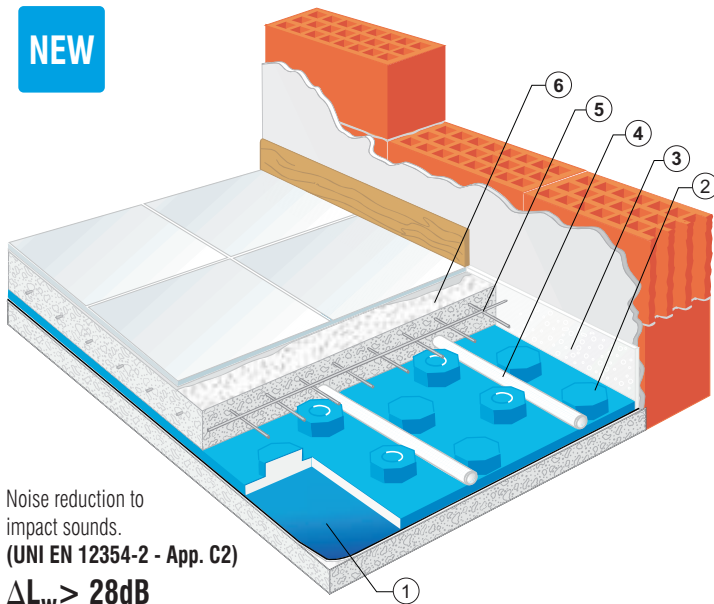




The possible applications

Anti-noise V-ESSE SYSTEM

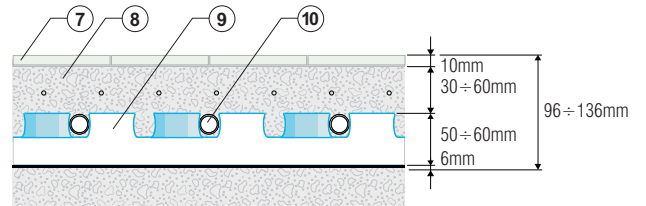
NEW



Noise reduction to impact sounds.
(UNI EN 12354-2 - App. C2)
 $\Delta L_w > 28\text{dB}$

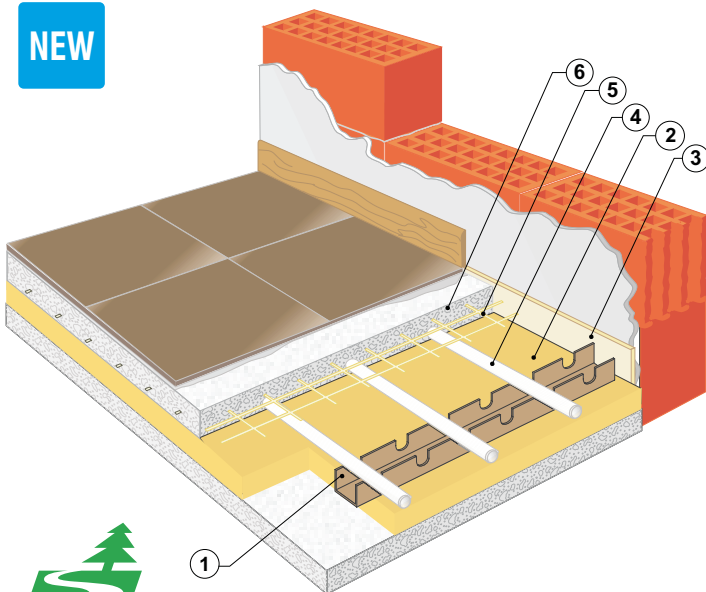
To reduce the noise intensity of walking, Valsir proposes an extremely efficient solution that can be used with all of the Valsir heating and cooling systems. By using the V-Acoustic multi-layer soundproof floor covering over screed of 100 kg/m², performance improvements of 28 dB are achieved.

- | | |
|------------------------------|------------------------|
| ① V-ACUSTIC anti-noise layer | ⑥ Concrete |
| ② V-ESSE insulation panel | ⑦ Flooring |
| ③ V-BAND edging strip | ⑧ Self leveling Screed |
| ④ MXAL 16x2 pipe | ⑨ Poly foam under foot |
| ⑤ anti-shrinkage grid | ⑩ Pexal Pipe |



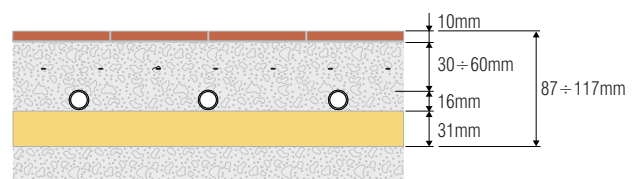
V-ENNE SYSTEM

NEW



The “eco-compatible” heating and cooling system that unites the advantages of components made of natural energy saving materials that are typical of radiant floor systems. By using the V-Acoustic/N linen felt floor covering with the wood fibre panel, improvements in the noise levels produced by walking are gained, thus achieving a soundproof floor heating system.

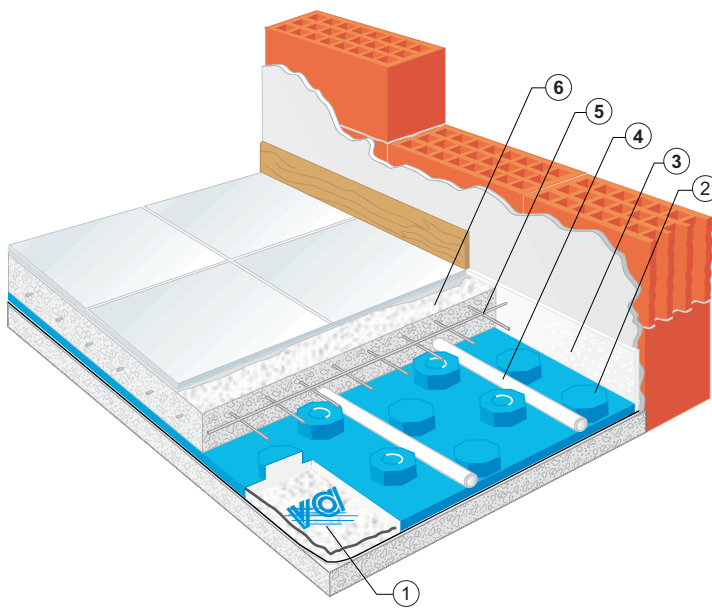
- | |
|------------------------------|
| ① V-RAILO1 pipes fixing rail |
| ② V-ENNE insulating panel |
| ③ V-BAND/N edging strip |
| ④ MIXAL 16x2 pipe |
| ⑤ PP anti-shrinkage grid |
| ⑥ Concrete |





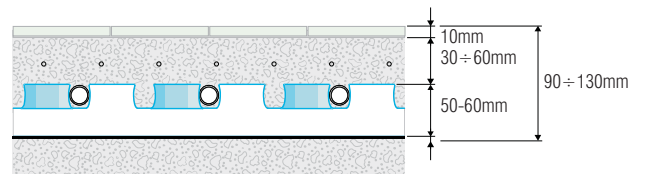
Residential and Industrial systems

V-ESSE SYSTEM

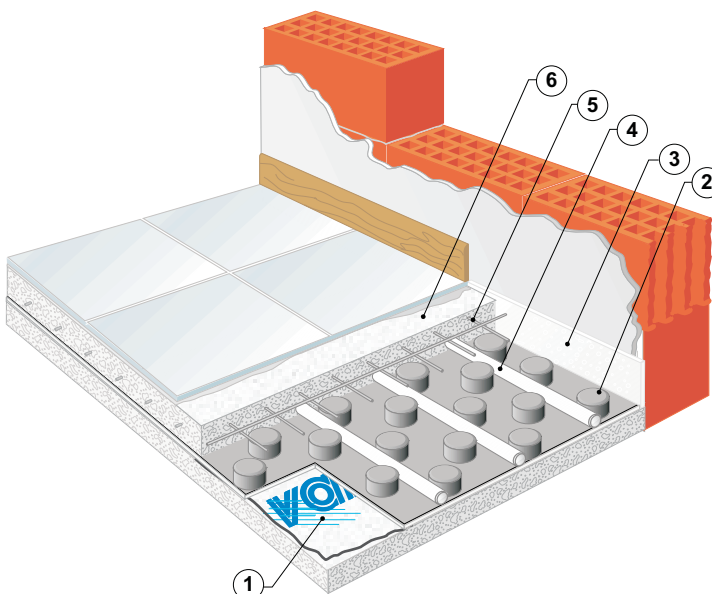


The heating and cooling system designed specifically for residential buildings and offices where the laying height is at least 90 mm. The panel, covered with a protective film, is characterised by an excellent trampling resistance.

- ① V-FOIL anti-humidity film
- ② V-ESSE insulating panel
- ③ V-BAND edging strip
- ⑥ MIXAL 16x2 pipe
- ⑦ Anti-shrinkage grid
- ⑧ Concrete



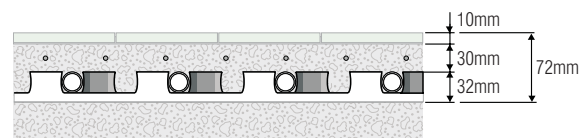
V-ERRE SYSTEM



The reduced system is the ideal solution in buildings where laying space is limited but we don't want to forego the advantages of a Valsir floor heating and cooling system.

The coupling of a rigid pocketed sheet with a molded polystyrene sheet allows the space occupied to be significantly reduced.

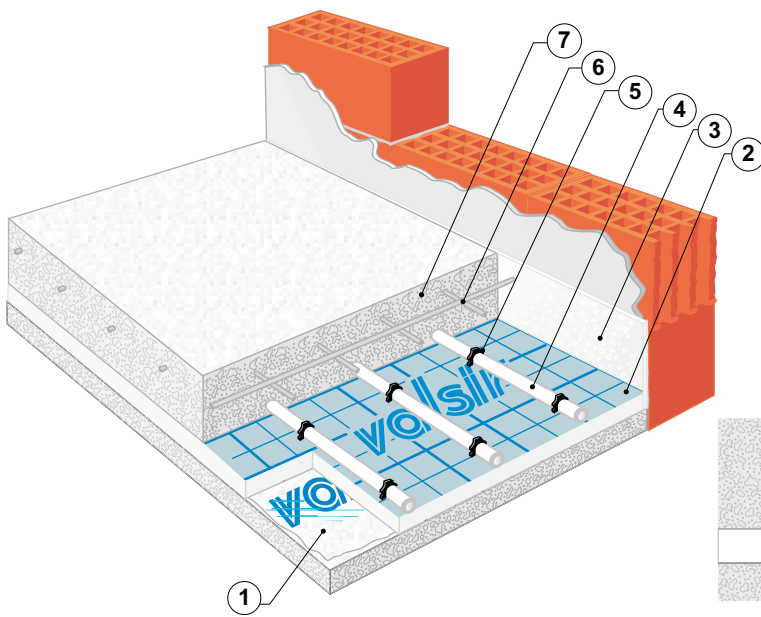
- ① V-FOIL anti-humidity film
- ② V-ERRE insulating panel
- ③ V-BAND edging strip
- ④ MIXAL 16x2 pipe
- ⑤ anti-shrinkage grid
- ⑥ Concrete





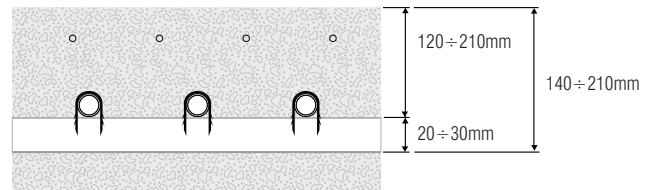
We design your well-being

V-ELLE SYSTEM

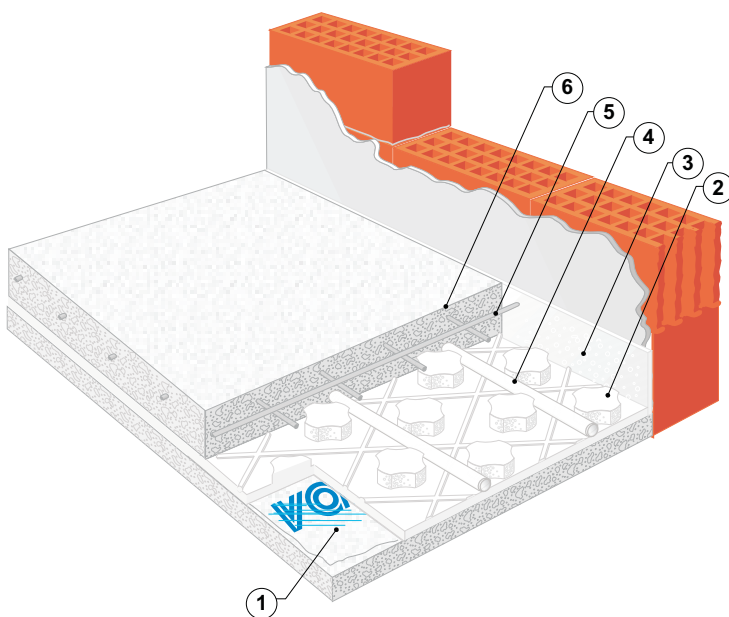


For industrial situations where an elevated load resistance is requested due to heavy vehicles or industrial machines. The smooth panel enables rapid installation of the system where the Valsir multi-layer pipe is anchored with the use of hooked clips. This solution is widely used for the elimination of ice and/or snow from external surfaces such as yards, ramps, helipads, car parks and also soccer and rugby fields (where the insulation layer is removed).

- ① V-FOIL anti-humidity film
- ② V-ELLE insulating panel
- ③ V-BAND edging strip
- ④ MIXAL 20x2 pipe
- ⑤ Anti-shrinkage grid
- ⑥ Concrete

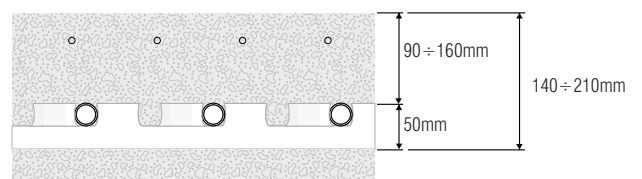


V-ZETA SYSTEM



This system is employed for the creation of floor heating systems in industrial buildings without renouncing the ease of installation of the Valsir multi-layer pipe on socketed panels. It is an economically valid solution that is also suitable in residential buildings and offices.

- ① V-FOIL anti-humidity film
- ② V-ZETA insulating panel
- ③ V-BAND edging strip
- ④ MIXAL 20x2 pipe
- ⑤ anti-shrinkage grid
- ⑥ Concrete





We supply you with a complete service

Project design and before-sale assistance

Valsir, thanks to the experience acquired over the years in the sector, assists the customer during the initial phases of system analysis and, through its internal project design office, supplies a complete design service. The systems designed by Valsir are dimensioned by means of the most modern software systems in compliance with current standard requirements UNI EN 1264-1,2,3:1999 and UNI EN 1264-4:2003. Thanks to the Silvestro software, also supplied to the project designers that work with Valsir, we are capable of rapidly satisfying requirements, providing projects, technical reports and a detailed materials list.



The supply of quality components and systems

Valsir has always differentiated itself on the market for the quality of its products. The elevated technological level of its production plants positions it at the top for product reliability and choice. The quality of the underfloor system components and in particular that of the PEXAL and MIXAL multi-layer pipe is recognized by the strictest international certification institutes.

After-sales service

The projects are supplied complete with all of the information necessary in order to create the system and that are also needed by the system installer. The technical assistance office is always at the customers disposal to answer the questions and satisfy the needs of those that install and utilise Valsir products. Territorial coverage is guaranteed around the world and ensures a direct relationship with the technical staff within the company.





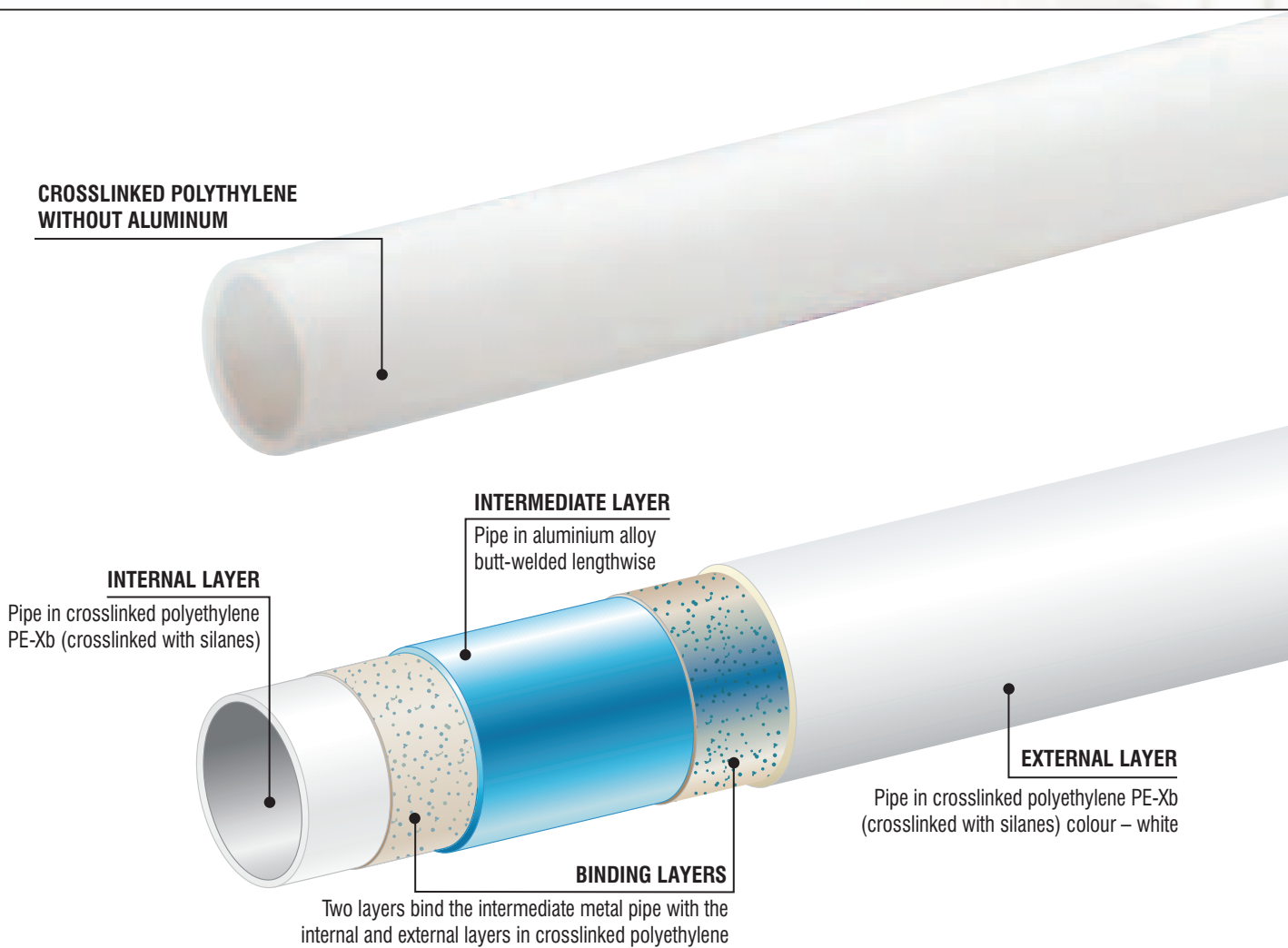
Pexal Under Floor Coil System

*The maximum **sensation of comfort***



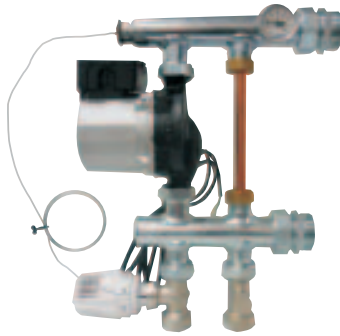


Routing Pexal Piping with Poly Foam Under Floor





Tools and Accessories



P110303



CTG



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