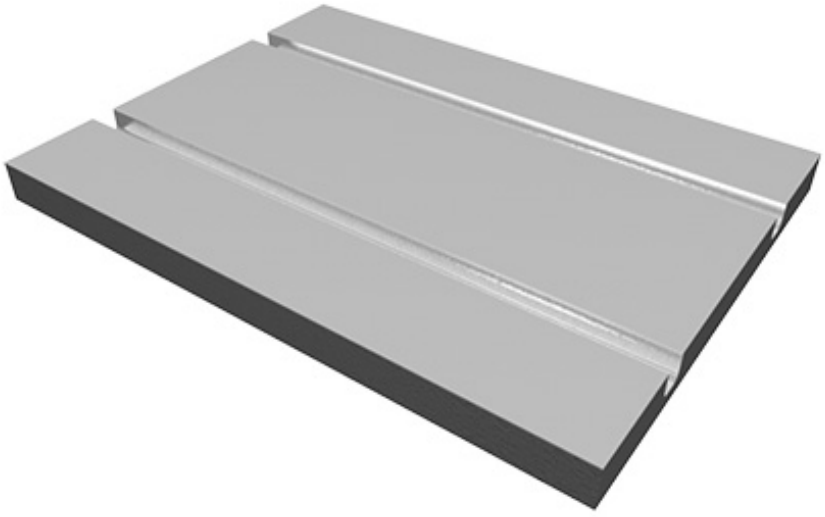
EN

# 4517GRF

## “DRY” ROUTED INSULATION PANEL FOR LOW THERMAL INERTIA RADIANT SYSTEMS (DRY SYSTEMS)



### DESCRIPTION

DRY is the **innovative dry system created by TIEMME to meet the demand for low thermal inertia radiant systems**.
It can be used in radiant heating and cooling systems both in new builds, to guarantee the thermal resistance values required by the UNI EN 1264 standard, and during renovations, where the priority becomes limiting the overall thicknesses of the system.

It is characterised by its **extremely fast laying, as there are no screed drying times, and its high heat conductivity, thanks to its aluminium foil** which is supplied pre-coupled to the panel's EPS layer.

Available with 100 mm and 150 mm pipe laying distance for maximum performance in both winter and summer operation. Made of sintered expanded polystyrene with added graphite for high mechanical strength (EPS 300), it can be coupled with COBRAPEX Ø 16x2 mm pipe.

CAUTION: The panels must be protected from direct sunlight and stored in dry and ventilated places, away from sources of heat and open flames.

### ADVANTAGES / STRENGTHS

- Panel with added graphite for a high degree of thermal insulation.
- Reduced system thickness.
- High conductivity thanks to coupling with an aluminium foil layer.
- Low thermal inertia.
- Extremely quick to put into full operation (less than 1 hour).
- High mechanical strength EPS 300.
- Suitable for new builds and renovations.
- Quick laying: no screed drying times.
- Suitable for radiant heating and cooling systems.
- Can be combined with Ø 16x2 mm pipe: guaranteeing excellent flow rates with low pressure drops.

### PRODUCTION RANGE

| Art. | Code | Total panel size (mm) | Insulation thickness (mm) | Pipe laying distance (mm) | Thermal resistance ($m^2$ K/W) | C.R 10% (kPa) | Packing unit ($m^2$) | No. panels per packing unit (pcs.) |
|---|---|---|---|---|---|---|---|---|
| 4517GRF | 450 0562 | 1400 x 800 x 26 | 26 | 100 | 0.75 | 300 | 11.20 | 10 |
| | 450 0563 | 1400 x 800 x 42 | 42 | 100 | 1.27 | 300 | 6.72 | 6 |
| | 450 0564 | 1400 x 750 x 26 | 26 | 150 | 0.75 | 300 | 10.50 | 10 |
| | 450 0565 | 1400 x 750 x 42 | 42 | 150 | 1.26 | 300 | 6.30 | 6 |

## DIMENSIONAL SPECIFICATIONS

| | | Panel code | | | |
|---|---|---|---|---|---|
| | | **450 0562** | **450 0563** | **450 0564** | **450 0565** |
| Insulation thickness | (mm) | 26 | 42 | 26 | 42 |
| Total thickness | (mm) | 26 | 42 | 26 | 42 |
| Aluminium foil thickness | (mm) | 0.15 (Alloy 1050) | | | |
| Applicable pipe diameter | (mm) | 16 | | | |
| Minimum pipe laying step | (mm) | 100 | | 150 | |
| Panel size | (mm) | 1400 x 800 | | 1400 x 750 | |
| Usable panel surface | ($m^2$) | 1.12 | | 1.05 | |

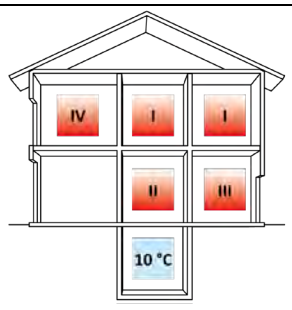
## TECHNICAL SPECIFICATIONS

| | | Panel code | | | | Reference standard |
|---|---|---|---|---|---|---|
| | | **450 0562** | **450 0563** | **450 0564** | **450 0565** | |
| Declared thermal conductivity **$\lambda_D$** | (W/mk) | 0.031 | | | | UNI EN 12667 |
| Thermal resistance **$R_D$** | ($m^2$ K/W) | 0.75 | 1.27 | 0.75 | 1.26 | UNI EN 13163 |
| Compressive resistance at 10% deformation **σ10** | (kPa) | 300 | | | | UNI EN 826 |
| Reaction to fire classification | (Euroclass) | E | | | | UNI EN 13501-1 |

* Minimum compressive resistance at 10% crushing: σ10 ≥ 300 kPa
Therefore, a pressure greater than, or equal to, 300 kPa (3 kg/$cm^2$ - 3000 kg/$m^2$) must be applied for the panel to be crushed by 10%

## HOW TO CHOOSE: THICKNESSES IN ACCORDANCE WITH UNI EN 1264

The insulating layer that houses the radiant system has the function of reducing heat dispersion downwards.
The UNI EN 1264 standard shows the minimum thermal resistance values of the insulating layer, which are summarised in the table below:




| Thicknesses that comply with standard UNI EN 1264 | **CASE I** | **CASES II and III** |
|---|---|---|
| Thk. insulation: → | 26 mm | 42 mm |
| Panel code → | **450 0562** or **450 0564** | **450 0563** or **450 0565** |
| **CASE IV [External T ≥ 0°C]** | **CASE IV [-5°C ≤ External T < 0°C]** | **CASE IV [-15°C ≤ External T <-5°C]** |
| 42 mm **450 0563** or **450 0565** | - - | - - |

## THERMAL YIELDS

**WINTER OPERATION - CERAMIC 10 mm** (ceramic, terracotta, marble, quartz, etc. with a thermal resistance of 0.01 $m^2K/W$)

| | | | |
|---|---|---|---|
| Thermal resistance of flooring (**ceramic 10 mm**) | $R_{\lambda,B}$ | 0.01 | [$m^2K/W$] |
| Pipe thermal conductivity (Tiemme COBRAPEX pipe) | $\lambda_R$ | 0.38 | [W/mk] |
| External diameter of the pipe | $D_a$ | 16.0 | [mm] |
| Pipeworks thickness | $S_r$ | 2.0 | [mm] |
| Room temperature | $\theta_i$ | 20.0 | [°C] |

**SPECIFIC POWER AND AVERAGE FLOOR SURFACE TEMPERATURE** (Values in compliance with the operating conditions indicated above)

| Flow temperature [°C] | ΔT [°C] | Pipe distance 100 [mm] | | Pipe distance 150 [mm] | |
|---|---|---|---|---|---|
| | | Q [W/m²] | Surf. T [°C] | Q [W/m²] | Surf. T [°C] |
| 33 | 5 | 66.0 | 26.3 | 51.0 | 24.8 |
| | 6 | 62.0 | 25.9 | 48.0 | 24.6 |
| | 7 | 58.0 | 25.6 | 44.0 | 24.3 |
| | 8 | 54.0 | 25.3 | 41.0 | 24.1 |
| 35 | 5 | 80.0 | 27.5 | 62.0 | 25.8 |
| | 6 | 76.0 | 27.2 | 59.0 | 25.5 |
| | 7 | 72.0 | 26.9 | 55.0 | 25.3 |
| | 8 | 68.0 | 26.6 | 52.0 | 25.0 |
| 38 | 5 | 100.0 | 29.3 * | 78.0 | 27.3 |
| | 6 | 96.0 | 29.0 | 75.0 | 27.0 |
| | 7 | 92.0 | 28.7 | 72.0 | 26.8 |
| | 8 | 88.0 | 28.4 | 69.0 | 26.5 |
| 40 | 5 | 113.0 | 30.6 * | 88.0 | 28.2 |
| | 6 | 110.0 | 30.3 * | 85.0 | 28.0 |
| | 7 | 106.0 | 30.0 * | 82.0 | 27.7 |
| | 8 | 102.0 | 29.6 * | 79.0 | 27.5 |

* Value higher than the maximum floor temperature of 29°C foreseen by the UNI EN 1264 standard in living areas. In the perimeter areas the surface temperature of the floor can reach 35°C.

**Surf. T** = Average surface temperature of the floor. **Q** = Emission expressed in $W/m^2$.

**SUMMER OPERATION - CERAMIC 10 mm** (ceramic, terracotta, marble, quartz, etc. with a thermal resistance of 0.01 $m^2K/W$)

| | | | |
|---|---|---|---|
| Thermal resistance of flooring (**ceramic 10 mm**) | $R_{\lambda,B}$ | 0.01 | [$m^2K/W$] |
| Pipe thermal conductivity (Tiemme COBRAPEX pipe) | $\lambda_R$ | 0.38 | [W/mK] |
| External diameter of the pipe | $D_a$ | 16.0 | [mm] |
| Pipeworks thickness | $S_r$ | 2.0 | [mm] |
| Room temperature | $\theta_i$ | 26.0 | [°C] |

**SPECIFIC POWER AND AVERAGE FLOOR SURFACE TEMPERATURE** (Values in compliance with the operating conditions indicated above)

| Flow temperature [°C] | ΔT [°C] | Pipe distance 100 [mm] | | Pipe distance 150 [mm] | |
|---|---|---|---|---|---|
| | | Q [W/m²] | Surf. T [°C] | Q [W/m²] | Surf. T [°C] |
| 14 (51%) * | 3 | 49.0 | 18.5 | 41.0 | 19.7 |
| 15 (56%) * | 3 | 44.0 | 19.2 | 37.0 | 20.3 |
| 16 (60%) * | 3 | 39.0 | 19.9 | 33.0 | 20.9 |

* According to the UNI EN 1264 standard, the flow temperature of the system in cooling mode must be no less than 1K compared to the dew-point value calculated in the presence of a dehumidification system. For example, considering an environment at 26°C and relative humidity of 51%, the dew point temperature is 15°C, the flow temperature of the radiant floor system cannot be lower than 14°C.

**Surf. T** = Average surface temperature of the floor. **Q** = Emission expressed in $W/m^2$.

## THERMAL YIELDS

**WINTER OPERATION - PARQUET 15 mm** (wood, linoleum, etc. with a thermal resistance of 0.06 $m^2K/W$)

| | | | |
|---|---|---|---|
| Thermal resistance of flooring (**parquet 15 mm**) | $R_{\lambda,B}$ | 0.06 | [$m^2K/W$] |
| Pipe thermal conductivity (Tiemme COBRAPEX pipe) | $\lambda_R$ | 0.38 | [W/mK] |
| External diameter of the pipe | $D_a$ | 16.0 | [mm] |
| Pipeworks thickness | $S_r$ | 2.0 | [mm] |
| Room temperature | $\theta_i$ | 20.0 | [°C] |

**SPECIFIC POWER AND AVERAGE FLOOR SURFACE TEMPERATURE** (Values in compliance with the operating conditions indicated above)

| Flow temperature [°C] | ΔT [°C] | Pipe distance 100 [mm] | | Pipe distance 150 [mm] | |
|---|---|---|---|---|---|
| | | Q [W/m²] | Surf. T [°C] | Q [W/m²] | Surf. T [°C] |
| 33 | 5 | 32.0 | 23.1 | 26.0 | 22.4 |
| | 6 | 31.0 | 22.9 | 24.0 | 22.3 |
| | 7 | 29.0 | 22.7 | 22.0 | 22.2 |
| | 8 | 26.0 | 22.6 | 21.0 | 22.0 |
| 35 | 5 | 39.0 | 23.7 | 31.0 | 22.9 |
| | 6 | 37.0 | 23.5 | 30.0 | 22.8 |
| | 7 | 35.0 | 23.4 | 28.0 | 22.7 |
| | 8 | 33.0 | 23.2 | 26.0 | 22.5 |
| 38 | 5 | 49.0 | 24.6 | 32.0 | 23.7 |
| | 6 | 47.0 | 24.4 | 40.0 | 23.6 |
| | 7 | 45.0 | 24.3 | 38.0 | 23.4 |
| | 8 | 43.0 | 24.1 | 36.0 | 23.3 |
| 40 | 5 | 56.0 | 25.2 | 38.0 | 24.2 |
| | 6 | 54.0 | 25.0 | 45.0 | 24.1 |
| | 7 | 52.0 | 24.9 | 44.0 | 23.9 |
| | 8 | 50.0 | 24.7 | 42.0 | 23.8 |

**Surf. T** = Average surface temperature of the floor. **Q** = Emission expressed in $W/m^2$.

**SUMMER OPERATION - PARQUET 15 mm** (wood, linoleum, etc. with a thermal resistance of 0.06 $m^2K/W$)

| | | | |
|---|---|---|---|
| Thermal resistance of flooring (**parquet 15 mm**) | $R_{\lambda,B}$ | 0.06 | [$m^2K/W$] |
| Pipe thermal conductivity (Tiemme COBRAPEX pipe) | $\lambda_R$ | 0.38 | [W/mK] |
| External diameter of the pipe | $D_a$ | 16.0 | [mm] |
| Pipeworks thickness | $S_r$ | 2.0 | [mm] |
| Room temperature | $\theta_i$ | 26.0 | [°C] |

**SPECIFIC POWER AND AVERAGE FLOOR SURFACE TEMPERATURE** (Values in compliance with the operating conditions indicated above)

| Flow temperature [°C] | ΔT [°C] | Pipe distance 100 [mm] | | Pipe distance 150 [mm] | |
|---|---|---|---|---|---|
| | | Q [W/m²] | Surf. T [°C] | Q [W/m²] | Surf. T [°C] |
| 14 (51%) * | 3 | 28.0 | 21.7 | 24.0 | 22.3 |
| 15 (56%) * | 3 | 25.0 | 22.1 | 21.0 | 22.7 |
| 16 (60%) * | 3 | 23.0 | 22.5 | 19.0 | 23.1 |

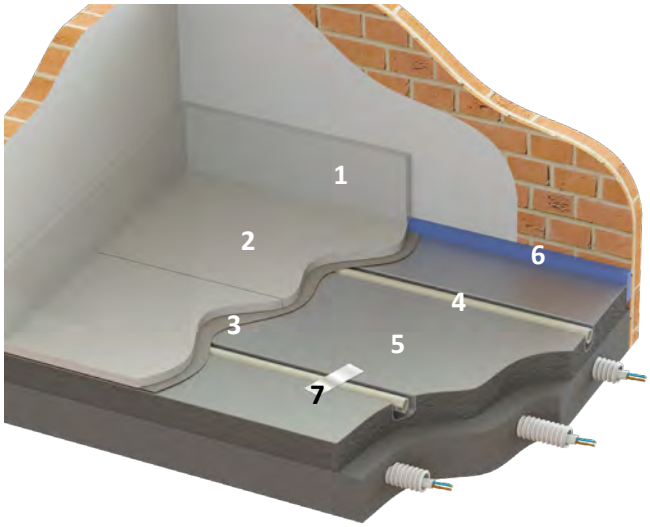
* According to the UNI EN 1264 standard, the flow temperature of the system in cooling mode must be no less than 1K compared to the dew-point value calculated in the presence of a dehumidification system. For example, considering an environment at 26°C and relative humidity of 51%, the dew point temperature is 15°C, the flow temperature of the radiant floor system cannot be lower than 14°C.

**Surf. T** = Average surface temperature of the floor. **Q** = Emission expressed in $W/m^2$.

## LAYING THE SYSTEM

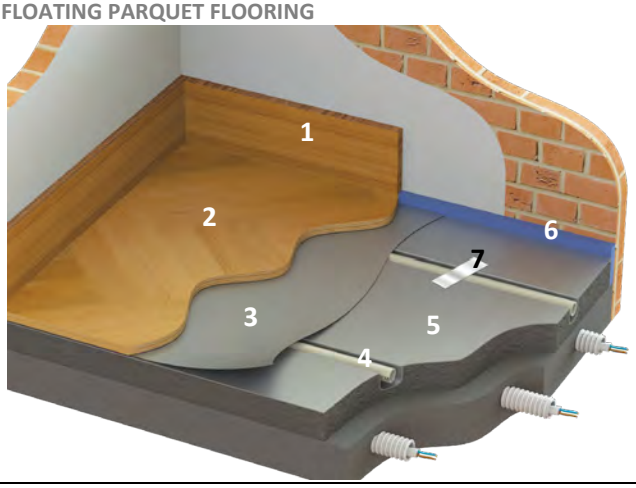
Installing the DRY system is very quick as there is no screed drying time, which allows for a significant reduction in time for laying the flooring. Characterised by very high compression resistance, the system makes it possible to lay the flooring directly onto the panel, according to the different types of floor coverings and laying instructions described below:

### CERAMIC FLOORING



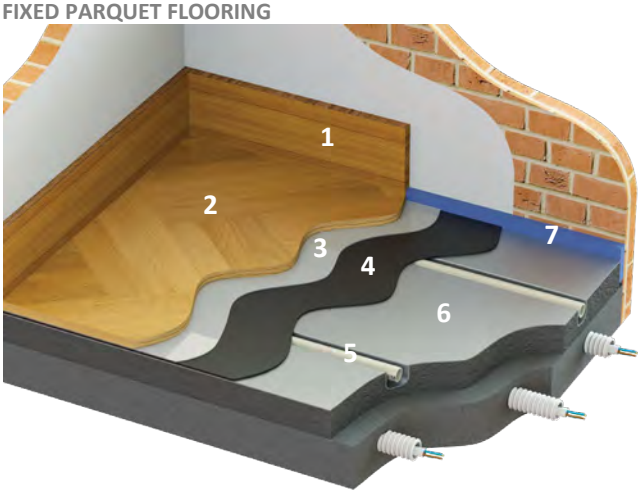

- Make sure you have a perfectly flat, clean and even foundation;
- Position the perimetral joint (**6**);
- Position the DRY panels before fixing them to the foundation to define any routing that may be needed for the pipe in addition to the pre-cut routes (**5**);
- Fix the DRY panel to the foundation using a suitable adhesive (not supplied by Tiemme) specifically for EPS panels (e.g.: cladding adhesive) or using MAPEI MAPECONTACT double-sided adhesive strips (not supplied by Tiemme);
- Lay the COBRAPEX pipe Ø 16X2 mm (**4**);
- Block the pipe near the curves, if necessary, using aluminised adhesive **Art. 4517NA** (**7**);
- Use a roller to apply a suitable aluminium protecting primer, such as MAPEI PRIMER MF (not supplied by Tiemme);
- If necessary, apply a layer of suitable bond-promoting primer for the type of adhesive and flooring, such as MAPEI ECO PRIM (not supplied by Tiemme);
- Apply a layer of ceramic adhesive (not supplied by Tiemme) (**3**);
- Lay the flooring (**2**) - Use tiles with a minimum size of 25x25 cm / 15x30 cm to avoid issues in the event of concentrated loads;
- Position the skirting board (**1**).

### FLOATING PARQUET FLOORING




- Make sure you have a perfectly flat, clean and even foundation;
- Position the perimetral joint (**6**);
- Position the DRY panels before fixing them to the foundation to define any routing that may be needed for the pipe in addition to the pre-cut routes (**5**);
- Fix the DRY panel to the foundation using a suitable adhesive (not supplied by Tiemme) specifically for EPS panels (e.g.: cladding adhesive) or using MAPEI MAPECONTACT double-sided adhesive strips (not supplied by Tiemme);
- Lay the COBRAPEX pipe Ø 16X2 mm (**4**);
- Block the pipe near the curves, if necessary, using aluminised adhesive **Art. 4517NA** (**7**);
- Provide a special separation layer for laying floating parquet such as ISOLMANT TOP (not supplied by Tiemme) (**3**);
- Lay the parquet (**2**);
- Position the skirting board (**1**).

### FIXED PARQUET FLOORING




- Make sure you have a perfectly flat, clean and even foundation;
- Position the perimetral joint (**7**);
- Position the DRY panels before fixing them to the foundation to define any routing that may be needed for the pipe in addition to the pre-cut routes (**6**);
- Fix the DRY panel to the foundation using a suitable adhesive (not supplied by Tiemme) specifically for EPS panels (e.g.: cladding adhesive) or using MAPEI MAPECONTACT double-sided adhesive strips (not supplied by Tiemme);
- Lay the COBRAPEX pipe Ø 16X2 mm (**5**);
- Block the pipe near the curves, if necessary, using aluminised adhesive **Art. 4517NA**;
- Provide a special ISOLMANT ISOLTILE AD support mat for laying the fixed parquet (not supplied by Tiemme) (**4**);
- Apply a layer of parquet adhesive (not supplied by Tiemme) (**3**);
- Lay the parquet (**2**);
- Position the skirting board (**1**).

For practical advice on installing the DRY system, consult the special section on the following pages.

## WARNINGS / PRACTICAL ADVICE FOR LAYING THE SYSTEM

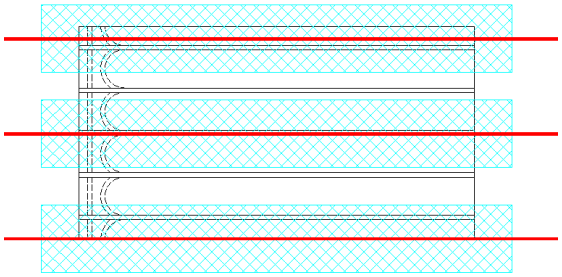
Please read the instructions on how to correctly lay the DRY system very carefully.
Use suitable protective devices such as gloves, glasses, etc. to avoid injuries from the aluminium covering on the panel.

**Preliminary checks:**
Make sure **the foundation that the system will be laid onto is perfectly flat, clean, not dusty, free from bond breakers, dry, free from rising damp and mechanically resistant**.

**Laying the perimetral band:**
Position the perimetral band along the entire perimeter of the premises and near construction elements such as pillars.

**Fixing the panel to the foundation:**
Before fixing the panels to the foundation, we recommend positioning and marking them to make sure, in advance, that they are placed correctly for creating circuits and so that any new routes that need to be made on the panels can be identified.

The DRY panel can be fixed to the foundation in various ways:
- Using **MAPEI MAPECONTACT** 240 mm wide double-sided adhesive strips (not supplied by Tiemme). These adhesive strips must be applied on the two long sides of the panel and in the middle as shown in the figure below. Once the double-sided adhesive tape has been applied, the upper film must be removed and the panels gently laid onto the foundation and then pressed to aid bonding.

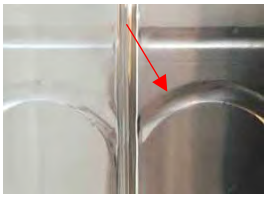
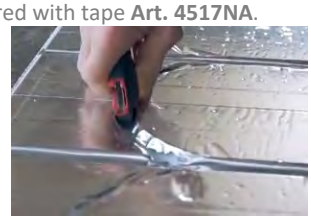


- If the support is not suitable for laying with double-sided adhesive strips, it must be fixed using a suitable cement-based adhesive such as **MAPEI ADESILEX P4** (not supplied by Tiemme) or a product with similar characteristics and components.
- The use of **water-based adhesives** is also possible. These adhesives can be applied with a 2 mm notched trowel. When applying the adhesive, carry out operations in distinct areas so as not to step on the adhesive while laying the panel. The adhesive must not be too moist but must have reached the correct level of grip to allow the panels to adhere well to the foundation without leaving areas uncovered or inadequately fixed. If the layer of adhesive is too dry, another layer can be applied.
- In the case of a concrete foundation, especially if placed on the ground or in particularly damp premises, we recommend using a **cement-based tile adhesive**, to be applied with a 3-4 mm notched trowel.
- **"Cladding" adhesives** can also be used where the foundation permits. The supplier's instructions must be followed carefully.

**N.B.:**
**- It is important to use products that are not aggressive to EPS.**
**- Gaps must not be created under the panel, whatever adhesive system is chosen.**
**- It is advisable not to walk on the panels before the adhesive has dried.**
**- The panels must be placed in close proximity to each other, with no spaces or empty areas. Make sure that the routes for laying the pipe match.**

**Laying the pipe:**

Laying the pipe is an extremely simple operation. The panel is equipped with grooves for housing the pipe and pre-marked curves that can be used after they have been cut with a cutter and the aluminium restored with tape **Art. 4517NA**.

Make sure there are no machining residues on the panel and remove any material that may be produced for making new routes before laying the pipe in the special grooves.
To secure the pipe, especially near the curves, use the aluminised tape **Art. 4517NA**.

**Creating a new route for laying the pipe:**

To lay the system correctly, it may be necessary to make a new route on the panel, e.g. near the collector (**fig. 5**).
The quickest and safest way to make a new route is using an electric router which, using a special tip, makes it possible to create a groove that is 16 mm wide and 17 mm deep.
- Trace the path to be made on the aluminised surface with a felt-tip pen (**fig. 1**).
- Create a guide by using a cutter to trace the path on the aluminium layer (**fig. 2**).
- Use the router to cut the new route and clean the residues of aluminium and EPS from the panel (**fig. 3**).
- Press the aluminium inwards using the back of the box cutter (**fig. 4**).
- Restore the aluminium surface layer inside the new route, using the tape **Art. 4517NA**.

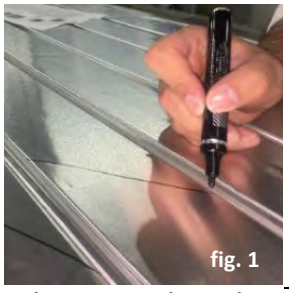
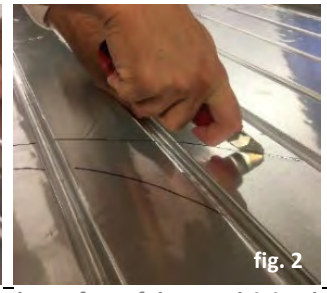


fig. 1

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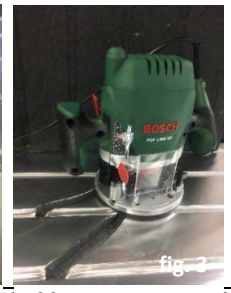


fig. 3

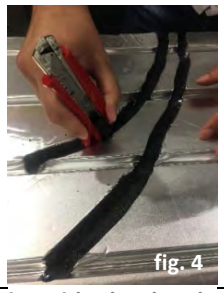



fig. 4

fig. 5

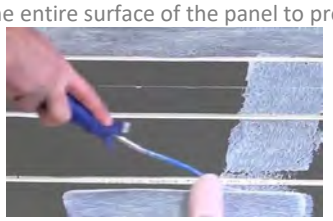
**If several routes must be made on the surface of the panel, it is advisable to cover everything with a level so that the flooring support surface is rigid enough.**

**Filling and testing the system:**

Test the system in compliance with the UNI EN 1264 standard.

**Laying the covering:**

**- *Ceramic floor:*** Before fixing the ceramic floor, the aluminum layer of the panel must be protected with a primer such as **MAPEI PRIMER MF** (not supplied by Tiemme), applied by roller. This primer is not aggressive to the pipes. After about 12 hours and within 36 hours, a coat of **MAPEI ECOPRIM T** (not supplied by Tiemme) or similar bond-promoting primer, can be applied to allow proper adhesion of the tile adhesive.
Subsequently, after about 4/5 hours but within 48 hours, the ceramic/natural stone flooring can be fixed (complying with the minimum sizes indicated) using special **MAPEI ELASTORAPID** or **MAPEI KERABOND** type adhesives mixed with **MAPEI ISOLASTIC** (not supplied by Tiemme). In any case, the adhesive must cover the entire surface of the panel to prevent the floor from cracking.




**- *Floating parquet*:** This solution does not require protection primer on the panel.
Apply the separation layer such as **ISOLMANT TOP** (not supplied by Tiemme) directly onto the panel.
Then lay the floating parquet directly onto the separation layer.

**- *Fixed parquet*:** Glue the **ISOLMANT ISOLTILE AD** adhesive support mat (not supplied by Tiemme) onto the panel. Then lay the covering, fixing it to the support mat, using parquet adhesive (not supplied by Tiemme).

**Cutting of the perimeteral band:**
The cutting of the perimeteral band must be carried out once the system has been installed (it also applies to floating flooring) so to avoid that normal dilations cause issues later.

*The above is exclusively a set of general recommendations/instructions for laying the DRY system. If in doubt about any of the information provided, follow the instructions of the manufacturer of the relevant accessories, or contact the Tiemme Systems office (sistemi@tiemme.com).*
*TIEMME RACCORDERIE S.p.A. accepts no responsibility in the event of failures and/or accidents resulting from the non-observance of these instructions and from improper use of the system. The information given does not exempt the user from scrupulously following the regulations and good technical standards in force.*

## INFORMATION FROM TIEMME

**LOW INERTIA RADIANT FLOOR: REDUCED THICKNESS AND ENERGY EFFICIENCY!**
Low inertia radiant floors are also called dry systems: they are the most innovative heating systems because they are made of prefabricated materials that reduce thickness, lighten the screed and guarantee optimal performance in terms of energy efficiency.
For example, these are the most suitable systems to use during restructuring.
One of the main advantages of low inertia radiant floors is **the speed with which the building heats up**, offering more competitive times compared to those of traditional radiators or other heating systems.
Compared to a traditional radiant system, the low inertia system is **quick to install, and it is possible to walk on the floor right after installation.**
This technology also requires less **thickness than traditional floor** radiant systems.

## ITEM SPECIFICATIONS

### Art. 4517GRF (100 mm pipe laying distance)

Insulating panel for dry floor radiant systems in compliance with UNI EN 1264, made of sintered expanded polystyrene (EPS) with the addition of graphite, pre-coupled to an aluminium foil, with a high thermal conductivity, 0.15 mm thickness. Provided with routing for holding pipe with an external diameter of 16 mm with 100 mm laying distance. Reduced commissioning time thanks to the absence of screed.
Conforms to European Standard UNI EN 13163 with CE marking, flame retardant Euroclass E reaction to fire (according to UNI EN 13501-1), compressive resistance at 10% crushing 300 kPa, declared thermal conductivity 0.031 W/mk.
Total plan dimensions: 1400 x 800 mm. Available insulation thicknesses: 26 mm ($R_D$ = 0.75 m² K/W) - 42 mm ($R_D$ = 1.27 m² K/W mm).

### Art. 4517GRF (150 mm pipe laying distance)

Insulating panel for dry floor radiant systems in compliance with UNI EN 1264, made of sintered expanded polystyrene (EPS) with the addition of graphite, pre-coupled to an aluminium foil, with a high thermal conductivity, 0.15 mm thickness. Provided with routing for holding pipe with an external diameter of 16 mm with 150 mm laying distance. Reduced commissioning time thanks to the absence of screed.
Conforms to European Standard UNI EN 13163 with CE marking, flame retardant Euroclass E reaction to fire (according to UNI EN 13501-1), compressive resistance at 10% crushing 300 kPa, declared thermal conductivity 0.031 W/mk.
Total plan dimensions: 1400 x 750 mm. Available insulation thicknesses: 26 mm ($R_D$ = 0.75 m² K/W) - 42 mm ($R_D$ = 1.26 m² K/W).

## CERTIFICATIONS

CE
UNI EN 13163