





# DRY SYSTEM

Dry System is the innovative dry system created by TIEMME to meet the demand for low thermal inertia radiant systems. The wide range of thicknesses allows the application both in new buildings, yet ensuring the thermal resistance values required by UNI EN 1264, and during renovations when the containment of the overall dimension is priority. Very fast laying, no need for screed drying time. High heat conductivity thanks to the 0.15mm aluminum foil pre-coupled to the EPS panel. Available with 150mm and 100mm step for the best performance in both winter and summer. Made of sintered expanded polystyrene with graphite with high mechanical resistance (EPS 300), it can be coupled with 16x2mm pipes, it is designed to deliver high flow rates and low pressure drops.

# DRY SYSTEM / EXTRA BENEFITS

Tiemme DRY SYSTEM allows the application of different ceramic or wooden floors. Since no screed is needed the set-up times are extremely fast, allowing intermittent time programming. The presence of a 0.15 mm aluminium foil favours the uniform propagation of heat providing high yields. The strengths of DRY SYSTEM are briefly described below:

- 1 EPS with graphite for high thermal insulation
- 2 High conductivity thanks to the coupling with a 1050 aluminium foil thickness 0,15 mm
- 3 Low thermal inertia
- 4 High resistance to mechanical stress EPS 300
- 5 Suitable for new constructions and renovations
- 6 Quick installation: no screed drying tim
- 7 Suitable for radiant heating and cooling systems
- 8 Extremely low operating times (less than 1 hour)



**IDEAL FOR BUILDING  
RENOVATIONS AND NEW  
BUILDINGS**

**LOW THERMAL INERTIA AND LOW  
WEIGHT**

Classification AAA

Classification AA

Classification A

Classification B

Classification C

Classifications D

# DRY / WHAT IS IT?

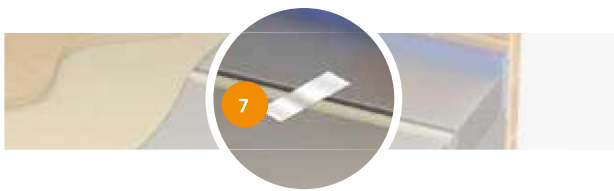
Dry System is the innovative dry system created by TIEMME to meet the demand for low thermal inertia radiant dry systems. The wide range of thicknesses allows the application both in new buildings yet ensuring the thermal resistance values required by UNI EN 1264, and during renovations where the containment of the overall dimension is priority. Very fast laying, no need for screed drying time. High heat conductivity thanks to the 0.15 mm aluminium foil pre-coupled to the EPS panel. Available with 150mm and 100mm step for the best performance in both winter and summer. Made of sintered expanded polystyrene with graphite with high mechanical resistance (EPS 300), it can be coupled with 16x2mm pipes, it is designed to deliver high flow rates and low pressure drops. The ceramic floorings can be glued directly to the panel after being protected by means of a special aluminium foil primer. Floating or glued laying in combination with a special cement lowered level is recommended for wood flooring.



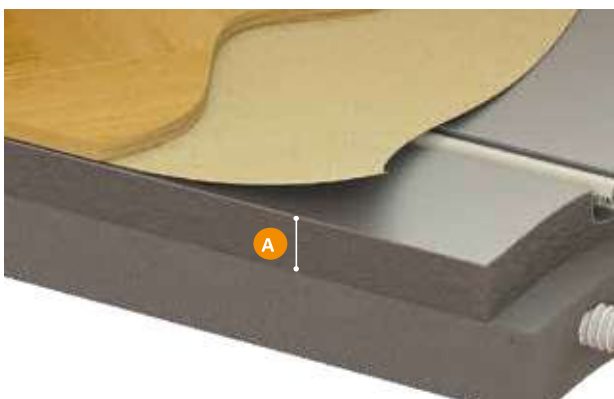
- 1 Skirting boards
- 2 Parquet
- 3 TNT
- 4 Tube
- 5 Thermally insulating panel
- 6 Perimeter strip



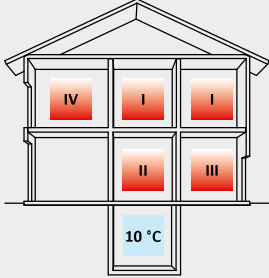
- 1 Skirting boards
- 2 Ceramic coating
- 3 Glue
- 4 Tube
- 5 Thermally insulating panel
- 6 Perimeter strip



- 7 Adhesive tape (for pipe elbow locking)



Codes	Dimensions [mm]
	A
450 0562	26
450 0563	42
450 0564	26
450 0565	42

	<b>THICKNESS COMPLYING TO THE UNI EN 1264:2009 STANDARD</b> <b>Dim. A mm</b> Cod. pannello	<b>CASE I</b> <b>26 mm</b> 450 0562 (450 0564)	<b>CASE II and III</b> <b>42 mm</b> 450 0563 (450 0565)
	<b>CASE IV</b> [external T ≥ 0 °C]	<b>CASE IV</b> [-5°C ≤ external T < 0 °C]	<b>CASE IV</b> [-15°C ≤ external T < -5 °C]
-	-	-	-
-	-	-	-

## DRY / PANEL

### 4517GRF

Insulating panel for dry floor radiant systems in EPS 300, with graphite additive, pre-coupled to a 1050 aluminium foil with high thermal conductivity. Low thermal inertia due to the absence of screed allowing a fast regulation. Suitable for heating and cooling systems and available at 100 or 150 installation steps.

### Codes

Code	Thickness	Interasse	R.C. 10%	m <sup>2</sup> /Packaging.	Panels/ Packaging
450 0562	26 mm	100 mm	300 kPa	11,20	10
450 0563	42 mm	100 mm	300 kPa	6,72	6
450 0564	26 mm	150 mm	300 kPa	10,5	10
450 0565	42 mm	150 mm	300 kPa	6	6,30



### Technical specifications

FEATURES	450 0562	450 0563	450 0564	450 0565
EPS compression strength class	EPS 300			
Aluminium alloy	1050			
EPS λD declared thermal conductivity	0,031 W/mk			
Thermal resistance Rλ,ins	0,75 m <sup>2</sup> K/W	1,27 m <sup>2</sup> K/W	0,75 m <sup>2</sup> K/W	1,26 m <sup>2</sup> K/W
Compressive strength at 10% deformation σ10	300 kPa			
Reaction to fire class	Euroclasse E			

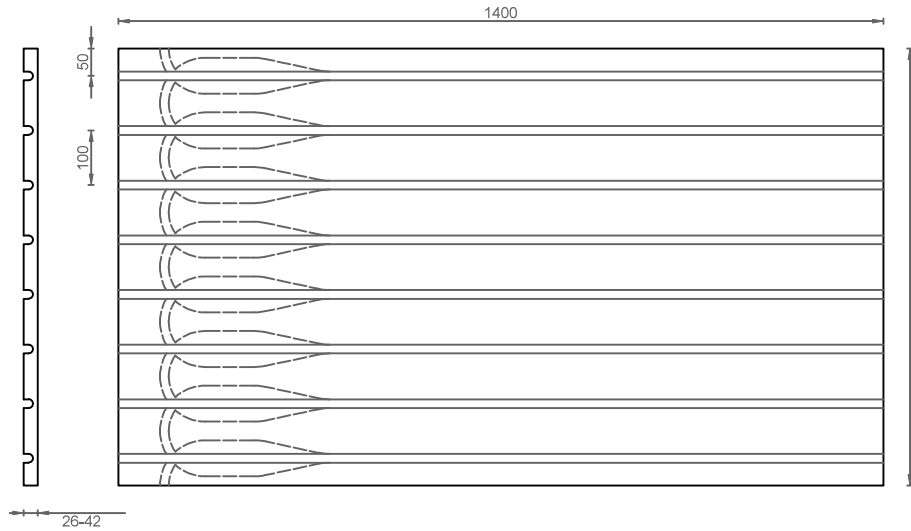
### Item Specifications

Insulation for dry radiant floor systems in compliance with the UNI EN 1264 standard, made of closed-cell expanded polystyrene EPS 300, and added graphite, pre-coupled with a layer of aluminium alloy 1050, high thermal conductivity of 0.15 mm thickness. The absence of screed allows regulation short timings. The panel complies with the UNI EN 13163: 2009 standard and is CE marked, complying with the requirements in the guidelines for the insulation of underfloor systems with Euro fire reaction class E, according to EN 13501-1. Plan dimensions 1400 x 800 mm as for the 100 mm step and 1400 x 750 as for the 150 mm step. Insulation thicknesses available: 26mm with thermal resistance according to UNI-EN 1264 0.75 m<sup>2</sup>K / W, 42 mm with thermal resistance according to UNI EN 1264 of 1,27 m<sup>2</sup>K / W. Thermal conductivity 0.031 W / (m K) and compressive strength at 10% deformation of 300 kPa.

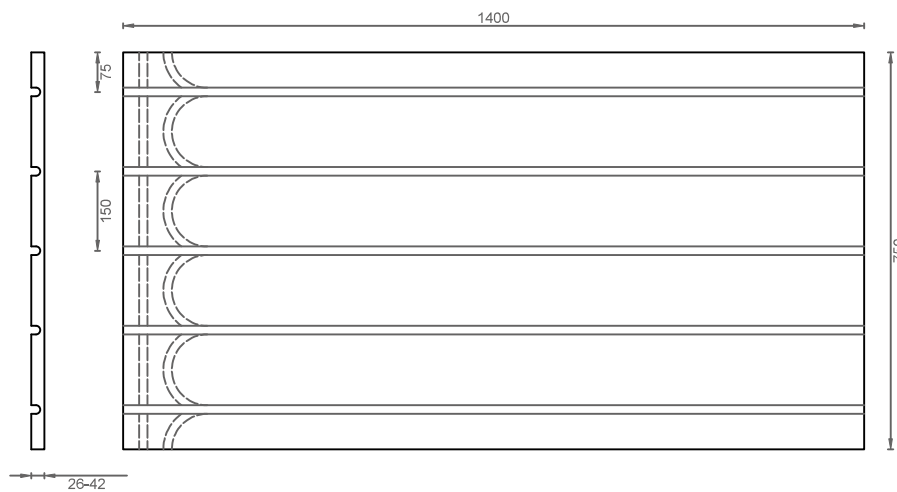
# DRY / PANEL

## Dimensional characteristics

FEATURE	450 0562	450 0563
Length	1400 mm	
Width	800 mm	
Thickness	26 mm	42 mm
Step	100 mm	
Useful area	1,12	



FEATURE	450 0564	450 0565
Length	1400 mm	
Width	750 mm	
Thickness	26 mm	42 mm
Step	150 mm	
Useful area	1,05 m <sup>2</sup>	





## TIEMME, INNOVATION FOR A STEADY GROWTH

Tiemme Raccorderie is an international leader in the production and marketing of plumbing and heating components. Experience, innovative capacity, creativity and exclusive Made in Italy production, tradition and culture, attentive customer care and environmental consciousness are the key values from which Tiemme creates solutions for plumbing and heating system engineering, in a perfect mix of technical competence and top material quality. That allowed Tiemme to develop through the years an extensive catalogue of products introducing itself to the world of systems engineering as an “all-in-one supplier”, able to meet the most diverse demands of the plumbing and heating industry. Tiemme prides itself in keeping the entire production chain on national territory so as to ensure high quality, unquestionable safety and reliability of its products and systems. Each year, Tiemme also invests considerable resources in the research and development of new solutions so as to anticipate the requests of an increasingly global market. 4,000,000 metres of PE-x extruded oxygen barrier tube.





# TIEMME - VIEW ON RENOVATION AND ENERGY REDEVELOPMENT

The renovation is an important opportunity to improve the energy performance of your home, to make it more efficient and therefore reduce the consumption of plant management.

An efficient renovation means replacing the heat generator and the old radiator heating system with more innovative solutions and higher performance.

Interventions of this kind are encouraged by providing tax benefits for the tax payers in the current regulatory framework. We will now consider a few interventions from a structural point of view, such as: structural consolidation, moisture infiltration inside the walls, windows replacement, floor loading capacity and its seismic adaptation.

TIEMME offers a very wide range of heating systems: underfloor and ceiling heating and cooling systems specifically developed to meet all the needs of any building under renovation.

A plant that is perfectly integrated in the environment, today more than in the past- that is our very goal.



# NZEB

The buildings designed with high quality thermal insulation standards, in line with the European directives (which impose the execution of "nearly zero energy" construction projects by 2020) will benefit the most from our winter and summer air conditioning solutions thanks to the wall-, ceiling- or floor-radiant system (low thermal inertia).

A house that follows today's energy standards should be featuring:

- reduced energy requirements for summer and winter air conditioning;
- discontinuous and time-limited power demand.

Radiant systems with low-thickness screeds prove to be the best solution to adopt, as they are characterised by reduced thermal inertia and reduced set-up times.

The regulatory framework is very clear and subsequently, the world of renovations and upgrading proceeds towards low-consumption and high-performance buildings, which is why TIEMME is providing a wide range of floor and ceiling heating and cooling systems especially designed to meet specific needs of new and renovated buildings. Tiemme technical department is ready to fulfil your requirements by offering the best solution according to your project.

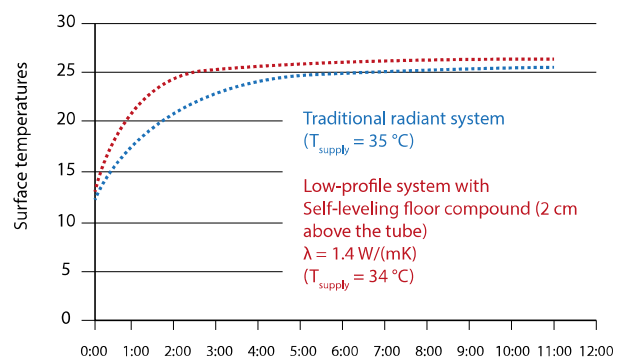


## Evaluation of inertia in radiant systems

In physics, and in mechanics particularly, the inertia of a body is the property that determines the resistance to changes in the state of motion, and is qualified by the inertial mass. Applying this concept to radiant systems is complex because there are many boundary conditions that affect its performance.

The factors that influence the inertia of the system are:

- Inertial temperature
- Temperature of the environment to be air-conditioned
- System placement (underfloor or outside)



A prompt and precise methodology for inertia evaluation is the execution of dynamic simulations to the finished elements on plant sections. An example of the obtainable results is shown in Figure 2 - the surface temperatures of two radiating systems as a function of time. For the low-profile system (shown in red in the figure), the time it takes to reach the desired surface temperature is less than 30 minutes. For the traditional system consisting of an insulator and a concrete screed it takes a longer time to reach the desired surface temperature.

This will have to be considered in the planning of the system regulation to ensure that the desired temperature is reached within 24 hours. The concept of thermal inertia is also important when the system is switched off: a low inertia system will take less time to cool off compared to a traditional system. The radiant systems with low profile screeds, and therefore low thermal inertia, allow an extremely effective room regulation and in perfect harmony with the new low-consumption building.