ADVANTAGES

System height from 3.2 to 5cm along with final flooring. A key feature of the floor are the special gypsum fiberboards, produced under pressure from gypsum reinforced with cellulose fibers and specially treated with hydrophobic additives for high moisture resistance.

Ideal system for **insulating building floors from air-carried sounds.**

Immediate heating distribution and elimination of inertia phenomenon. Due to its low mass and excellent conductivity as a system (pipe - gypsum fiberboard) heats the space immediately.
It warms up to 8% faster than classic radiators.

Total energy saving 20% compared to classic floor heating and 50% compared to radiators. The new system achieves nearly the same performance per square meter as the conventional underfloor system, with approximately **60%** less water mass in its network.

Low weight load.
The weight of the new system without final floor is 20kg / m² compared to the conventional 90kg / m² system.

Certified system performance
with a constant coefficient of thermal conductivity that is not dependent on any other factor (eg thermal concrete).

The new system does not require thermal concrete.

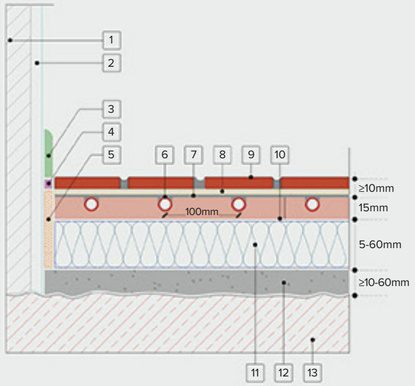
No drying procedure of the floor is required.

Low floor thermal expansion.

Reduction of distribution manifolds and cabinets by up to 30%.

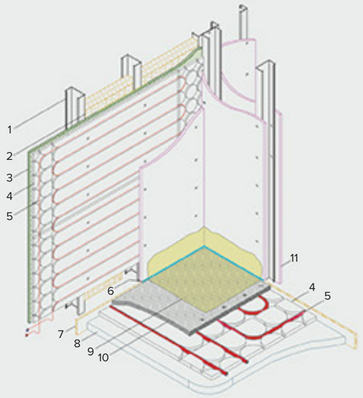
It is combined with all heat sources.

EcoFloor Plus Floor Section Plan, Gypsum Fiber Board



1 Wall
2 Roughcast
3 Skirting board
4 Elastic grout
5 Perimetric insulation tape PE
6 Como Floor Pipe with Oxygen Barrier PE–Xb Ø 10x1,1mm
7 FullMasse
8 Tile adhesive
9 Ceramic Tile
10 Gypsum finer board 15mm
11 Thermal Insulation substrate EPS or XPS 200 (kPa)
12 Primer Eco Plus, self-leveling plaster
13 Reinforced concrete

Heated Floor and Wall Section Plan Floor - wall sealer for bath areas



1 CW AQUAPROFIL pillar
2 NaturBoard KR POD 100
3 Hydrophobic gypsum board 1200x2500x125mm
4 Gypsum fiber board 15mm with notches
5 Como Floor Pipe with Oxygen Barrier PE–Xb Ø 10x1,1mm
6 Elastomer
7 Perimetric insulation tape PE
8 Thermal insulation substrate EPS or XPS 200 (kPa)
9 Roof sealant
10 Gypsum finer board 9mm without notches
11 Hydrophobic gypsum board or gypsum fiber board

CERTIFICATES

Como-Floor pipes and fittings exceed the requirements set by European norms, the world-wide accepted German **DIN** standards and British **BS**.

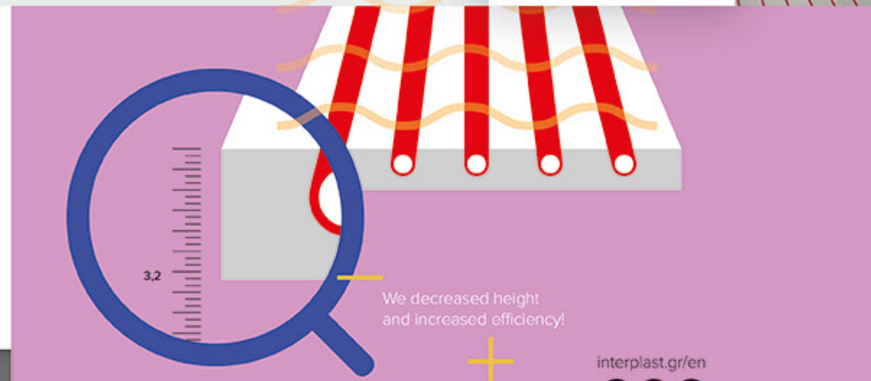
As a result, Como-Floor pipes do not fail to meet the regular biannual tests carried out by official institutes that deal with random samples from production and storage.

As a result, the pipes are certified as end products by the following organizations:

- **ISO 9001**: 2015 by **TÜV Germany**.
- **MIRTEC** Greece, **SKZ** Germany, **CSA** Canada, **ZIK** Croatia, **PCT** Russia, for mechanical strength of pipe.
- **MPA-NRW** Germany for oxygen permeation of pipes.
- **WRAS** Great Britain, **ZIK** Croatia, **PCT** Russia, on the suitability of pipes in drinking water.

ecoFloor PLUS

Underfloor Heating and Cooling System



interplast.gr/en
HOUSE OF INNOVATION

ecoFloor PLUS SYSTEM

Eco floor is a heating - cooling surface system appropriate for underfloor and wall mounting installations. Consists of fiber plasterboard reinforced with cellulose fibers. Plasterboards, have prefabricated slots (channels). Their height is 15 mm and channels have 10 mm depth. Pipes are placed in these channels Ø 10x1.1 mm where cold or warm water flows. The distance between the channels is 100 millimeters.

APPLICATIONS

- Newly built houses, renovations and cottages.
- Office buildings, stores, hospitals, medical offices.
- Appropriate for internal use on buildings.
- Applied to any kind of substrate that has autonomous carrying capacity (wooden construction, concrete substrate, mosaic floors, metal structures etc.)

FLOOR COVERING

It has no restriction on choosing floor covering products that are suitable for heating surfaces.
It is possible to use ceramic tiles, marbles, wooden floors or laminate, linoleum, natural stones, pressed cement mortar etc.

BASIC SYSTEM COMPONENTS

ComoFloor Ø 10x1,1 mm pipe, which contains a special additive that doubles the thermal conductivity of tubes.
The new pipe was the result of an **Interplast** research in collaboration with the **Aristotle University of Thessaloniki**, by whose report we are mentioning some of the pipe characteristics and the results of their use:

Increased mechanical strength *compared to the typical ones.*

Increased Elasticity by 10%.

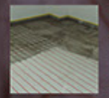
Excellent material homogenization.

Decrease of inertia phenomenon *during start up of the system.*

More economic operation *due to the double thermal conductivity of the pipes.*

PLASTERBOARD

Placing the gypsum fiberboard requires a flat surface, clean without any elevation differences. Its properties are different from those of structural gypsum board or cement board. **The new product is hydrophobic (water repellent), of high density and of high thermal conductivity.** Using common woodworking tools (jigsaw, router) it is easy to cut and shape the gypsum fiberboards.
Produced and tested in accordance with European specifications DIN EN 15823, EN 10456 and has ETA (European Technical Approval) certification.
Interplast has five types of gypsum fiberboard. **15mm thick plate with knots, 15mm thick plate with notches (channels), 15mm thick plate with notches (channels) and turns (directions changes)**, 15mm thick plate without notches and **9mm thick plate without notches.**



FULLMASSE

Mortar suitable for filling in voids, where no pipe is placed, as well as overlaying the gap between pipe and gypsum fiberboard.
It mechanically strengthens the gaps (grooves) and bridges the pipe with the fiberglass, effectively aiding the heat transfer.

Available in 25kg bags.
It is mixed with water at a ratio of 6lt / 25kgr.
Coverage 1kgr / m^2.

DISTRIBUTION MANIFOLD

We use the same successful distribution manifold type as the classic system.
In the inlet we connect 1" supply circuit nipple with thermometer and all 3/4" return nipples have thermometers for better and easier adjustment of the circuits. At each outlet of the collector (supply / return) we attach a reducer 3/4" to 3/8" and a special tee piece accessory with two press lock Ø10 mm.
The **distribution cabinet** is made of metal, suitable for built-in installations, made of 1mm thick galvanized steel and painted with electrostatic paint.
It is adjustable in depth and height and has a removable frame.

STUDY

As Aristotle said, ***'well begun is half done'***.
For Interplast, the study of composite surface heating and cooling systems is of particular value. The accuracy of the calculations guarantees the combination of optimal efficiency and economical operation. The design of the system varies based on the geographical location, thermal insulation adequacy, possible specific requirements and geometry of the building.
The energy applications department is staffed by specialized Mechanical Engineers with many years of experience.

Ongoing updating and training on new materials and technology requirements lends a similar theoretical background to the department's human resources, enabling it to meet any requirements of the scholar partner and installer-technician.

Interplast using state-of-the-art technologies **has been equipped with advanced calculation software for the new dry screed system, the results of which are absolutely accurate.**

Thermal performance table for underfloor heating, dry screed

Thermal performance data were calculated by numerical simulations according to EN 15377.
Heat flow density and temperature limits according to EN1264.

Thermal resistance Coefficient			RΛΒ=0,01m²K/W	RΛΒ=0,05m²K/W	RΛΒ=0,10m²K/W	RΛΒ=0,15m²K/W
Final Flooring			Ceramic Tiles	Parquet / Laminate (max 10mm)	Carpet or Parquet (Max 20mm)	Thick Carpet (max 10mm)
Room Temperature		Ta	20°C	20°C	20°C	20°C
System Thermal Power, Thermal Flowing Density q/A to w/m²	60W/m²	Tw	36,4	39,0	42,4	46,0
		Ts	25,6	25,7	25,7	25,7
	80W/m²	Tw	40,9	44,3	48,9	53,7
		Ts	27,4	27,4	27,3	27,3
	95W/m²	Tw	44,3	48,4	52,2	59,5
		Ts	28,6	28,6	28,2	28,6
	100W/m²	Tw	45,5	49,7	53,8	
		Ts	29,0	29,0	28,6	

☐ Ta [°C] Room temperature
☐ Tw [°C] Inlet water temperature (add)
☐ Ts [°C] Temperature on the final floor surface
Temperature difference: Δt = 5°C, Pipe distance: 10cm, Gypsum board panel 15mm

Interplast S.A. -Como-Floor

ecoFloor PLUS

AUTOMATIONS

The control of the system is carried out through a stand-alone special equipment consisting of: 6-zone digital control base, room thermostat, temperature / humidity sensors, ambient sensors and zone electric motor.
The equipment is available in three types: **wired, cordless and cordless with the option of web-based management** of smartphones, tablets, computers at 24 / 230V respectively.

All types have: self diagnosis, pump control, cooling / heating switching, source activation.
The expandable structure of the equipment enables the addition of modules for controlling a three-way mixing valve, additional circulators, digital / analog BMS inputs, compensation of the system based on external ambient temperature, as well as the extension of numerous control zones (base interface).