FIBER WOOD CATALOGUE FIBERTHERM 2019

FiberTherm

FIBER WOOD NATURAL PANELS WITH HIGH THERMAL DISPLACEMENT

Beton Wood

Dry building system for greenbuilding

www.fiberwood.com

INTRODUCTION

The wood, renewable raw material, is appreciated for the thermal and air conditioning qualities of the habitat.
Our expertise, the result of years of experience and research, together with technological innovations in the field of manufacturing, allow us to maintain all the qualities of wood in our products.
FiberTherm wood fiber insulation materials contribute considerably to improving the quality of life, both for the thermal comfort it is able to guarantee, and for its sustainability.
The material is recyclable, with relative certification and made exclusively with wood from controlled forests in according to **FSC guidelines**, without the addition of chemicals.
The product contains an exceptionally high proportion of renewable raw materials; its production and installation generate very few substances harmful. In fact the only raw material used is wood coming from thinning and untreated sawmill cuts. The material is also guaranteed by constant checks carried out by external organizations, which attest its high quality.

FiberTherm wood fiber insulation panel is produced with a wet system, the only one that guarantees the realization of a completely natural product. Wood fiber panels are available in both low density for flexible insulations and high-density for high compressive strength insulations.

Taking into consideration the life cycle of a building, from design to construction, promoting an approach based on the principles of eco-sustainability (**Green Building**), our products participate in a percentage share in the supply of the following LEED credits: MR5, MR7, EA1 , IEQ 4.4, IEQ 4.1.
For further information contact our **technical office.**

The catalogue describes in particular:
• the high thermal displacement of the wood fiber insulation
• the main physical and mechanical properties of the FiberTherm® materials
• production of wood fiber panels
• specific building uses by panel type

Main properties od insulating wood fiber panels FiberTherm®:
• versatile insulation panels for different applications
• free from formaldehyde, asbestos and other toxic substances
• free from recycled inks
• tested dermatologically, with no negative effect on the skin
• breathable, promotes a comfortable and healthy environment
• building material tested and authorized according to current European standards
• recyclable, ecological, respects the environment

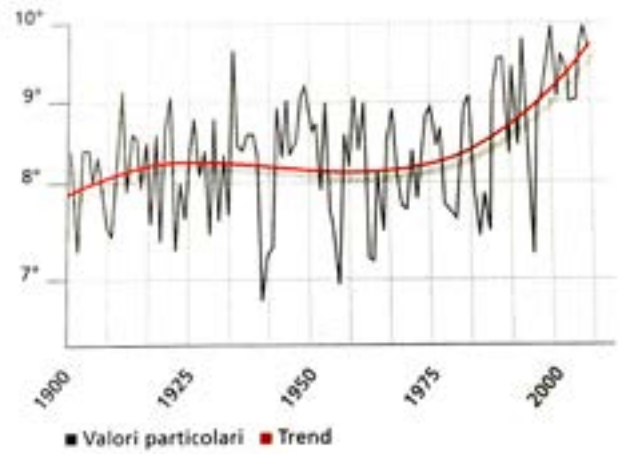
THERMAL DISPLACEMENT

Heat protection in summer

PERFECT CLIMATE TO EXTREME TEMPERATURES

As pleasant as summer may be, it's hard to feel at home in rooms with tropical temperatures. FiberTherm insulating materials ensure, even on hot days, the maintenance of a cool temperature within the walls of the house - without the use of air conditioning systems.

It is known that in the last decades the "tropical days" have quadrupled with temperatures above 30 ° C. It is no wonder that in the context of new buildings and renovations protection from the summer heat is becoming increasingly important.
With adequate structures and a certain attention to materials it is possible to create a pleasant living climate even in the hottest season of the year, in a completely natural way.



FiberTherm materials, in construction elements such as walls and roof and attic surfaces, can keep the heat out.
Attics tend to heat up a lot in summer, not only because thermal insulation is insufficient, but also because of the reduced storage capacity of the structural element layers. Many structures are not able to offer sufficient resistance to the high thermal radiation of the summer sun. The heat can reach living spaces.

The solution consists of constructive elements with a particularly high thermal mass, such as **FiberTherm** insulating materials. In the very hot afternoon hours the wood fiber panel absorb the heat and "dab it" until the evening hours. When the accumulated heat is released, it no longer weighs on the living area, but it can be diverted to the outside by ventilating the rooms.

THERMAL DIFFUSION: PROTECTION FROM SUMMER HEAT

To optimize insulation, the choice of insulating materials is decisive. The materials that ensure a very slow transmission of heat, ie those with the lowest possible thermal diffusion, are indicated. They are materials with good thermal insulation and with their low thermal conductivity they have a high storage capacity (high specific weight and high specific heat storage capacity). With heavy materials and having a good insulation capacity, heat transfer can be reduced and delayed, for example through the roof. FiberTherm insulation materials have a particularly favorable relationship between thermal storage conductivity and apparent specific weight and therefore low thermal diffusion.

THERMAL DISPLACEMENT

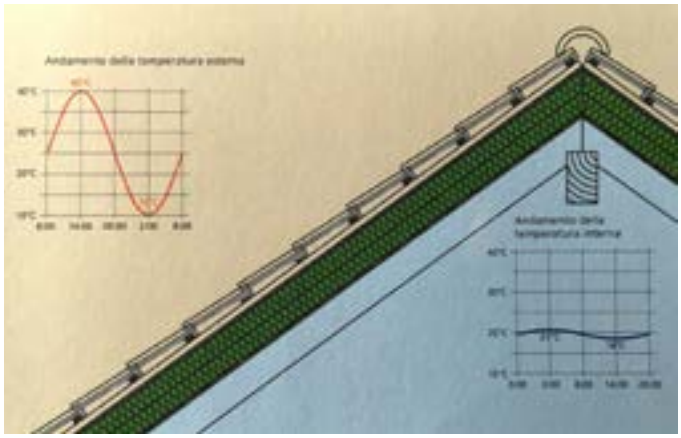
Heat protection in summer

Thermal diffusion $a = \frac{\text{Thermal conductivity } \lambda}{\text{Apparent specific weight } \rho \text{ x specific heat capacity c}}$ $\frac{cm^2}{h}$

Material	Apparent specific weight [kg/m³]	Thermal conductivity [W/(m*K)]	Specific heat capacity [J/(kg*K)]	Thermal diffusion a [cm²/h]
Spruce, pine, fir	600	0,13	2500	3
FiberTherm universal underroof and wall panels	270	0,048	2100	3
FiberTherm protect thermal insulation system	190 - 265	0,042 - 0,048	2100	3
FiberTherm special insulation for renovations	240	0,046	2100	3
FiberTherm stable thermal insulation	160	0,039	2100	4
FiberTherm protect dry thermal insulation system	110 - 180	0,037 - 0,043	2100	3
FiberTherm flex 60 flexible thermal insulation	60	0,036	2100	15
BetonWood	1350	0,26	1880	-
Full bricks	1800	0,8	1000	16
Reinforced concrete	2200	1,4	1050	22
Foamed polystyrene	40	0,040	1380	26
Rigid polyurethane foam	30	0,030	1380	26
Fiber glass	30	0,035	800	52
Construction steel	7800	58	600	446
Aluminum	2700	200	921	2895

WIDTH ATTENUATION AND PHASE DISPLACEMENT

The equivalent of the U value for thermal protection in winter, for thermal protection from summer heat, is represented by the amplitude attenuation and phase displacement. While the amplitude attenuation shows how intensely the heat transfer can be reduced through the building element, the phase displacement indicates how many hours the transition is postponed to the maximum temperatures.



Roof with amplitude attenuation of and phase displacement of 12 hours

THERMAL DISPLACEMENT

Heat protection in summer

With amplitude attenuation (1/TAV) we can define both the ratio of the external temperature fluctuation and the fluctuation of the internal temperature. If, for example, the outside temperature fluctuates during the day between 10 and 40°C and the inside temperature between 18 and 21°C, the external temperature fluctuation corresponds to 30K (Kelvin) and the fluctuation of the internal temperature to 3K.
The amplitude attenuation as a ratio of these two values in the example corresponds to 10 (=30K/3K). Expressed differently: the thermal fluctuation is reduced by one tenth (10%) in the path from the outside to the inside through the constructive element. It is aimed at an attenuation of the minimum amplitude of 10.

Structure comparison

Roof with mineral fiber insulation

- U = 0,17 W/m²*K
- 1/TAV = 6
- Phase displacement = 7 hours

- Roof cover
- Battens
- Counter-battens
- Sarking membrane
- Mineral fiber 200 mm
- Vapour barrier
- Mineral fiber 40 mm
- Plasterboard 12 mm

Roof with wood fiber insulation FiberTherm flex

- U = 0,18 W/m²*K
- 1/TAV = 12
- Phase displacement = 11 hours

- Roof cover
- Battens
- Counter-battens
- Sarking membrane
- FiberTherm flex 200 mm
- Vapour barrier
- FiberTherm flex 40 mm
- Plasterboard 12 mm

The phase displacement corresponds to the time period between the substitution of the maximum outside temperature and the substitution of the maximum temperature inside. In the above example this corresponds to 12 hours, extending from 2.00 pm to 2.00 am. One of the objectives of protection from the summer heat is to delay the passage of heat through a roof or a wall so that in the room the maximum temperature of the day is reached only when outside has already cooled sufficiently to prevent the heating of the rooms simply with good ventilation.

A phase displacement of at least 10 hours should be aimed at. A part of the accumulated heat in the construction element is then again diverted outwards. Consequently on the internal side of the building the same temperature levels are not generated on the external side. Adjustment of amplitude attenuation and phase displacement is particularly important for the roof. In the roof the ratio of the external surface to the cubing is very unfavorable. This is because the attic rooms have a large heat transmission surface compared to the cubic size.
In summer, high temperatures (up to 80°C) are generated under the roof covering, which intensify the heating of the rooms below. Furthermore, the roof structures very often have very low thermal masses, so that they are particularly suitable for use with FiberTherm natural insulating materials.

With the exception of the roof covering and the paneling of the rooms, the thermal mass of the roof structure is generated exclusively by the insulating material. It follows, therefore, the great importance of defining the amplitude attenuation and phase shift with an insulating material that has a low thermal diffusivity. A value of 10 (TAV 10%) must be applied for the amplitude attenuation and a phase displacement of at least 10 hours. With an external temperature of 35°C underneath the roof cover can be established until

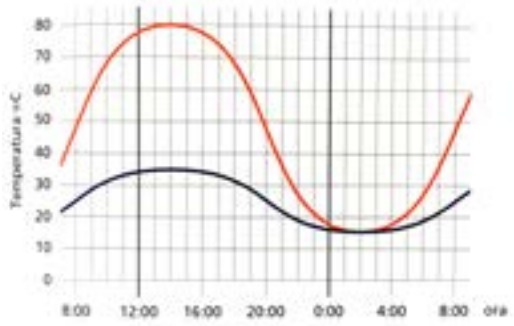
THERMAL DISPLACEMENT

Heat protection in summer

80°C values. Through a good structuring of the construction elements it should be ensured that this thermal load goes to influence the climate of the inner rooms in more delayed way as possible.

If, in the presence of these summer temperature conditions, two roofs with the same thermal transmittance of 0,18 W/(m²*K) are compared, the roof with mineral fiber insulation belongs to the group of thermal conductivity 035 with a specific heat capacity of 20 kg/m³, an attenuation of the mathematical amplitude of 6 and a phase displacement of 6,8 hours. On the inward side of the roof there is a too high increasing temperature to allow a restful sleep.
At that time the outside temperature will still be at a similar level; consequently aeration will not lead to any sensitive relief. If , keeping the same structure, we replace the mineral fiber-based insulation material with the flexible wood fiber insulation **FiberTherm flex** with the same thermal conductivity of 50 kg/m³, the volume of heat storage of the insulating layer is fivefold, thanks also to the higher specific thermal mass of the insulating material. For the roof itself, the attenuation of the amplitude doubles to 12, while the phase shift improves by four hours, rising to 11 hours. Here the temperature curve increases to a maximum of 21°C and reaches the inside of the roof only at 1:00 am.
At this time the outside temperature is already so low that, if these 21°C were to be disturbed, they could be further reduced by ventilating the rooms.

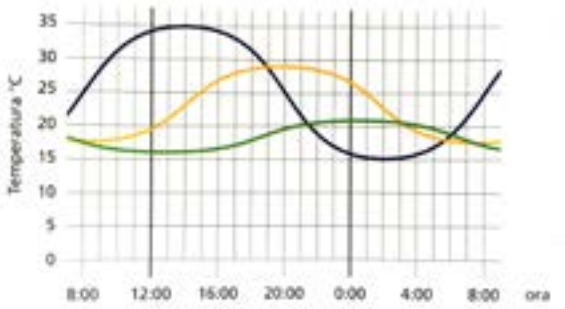
Hypothesis of thermal trend during the day



Temperature under the roof cover
External temperature

With an external temperature trend of 35°C at 2.00 pm eand of 15°C at 2.00 am in the roof covering a maximum temperature of 80°C is generated, which at night can be reduced, at best, by 15°C.

Temperature variation in correspondence with the roof with different insulation



External temperature
Ambient temperature of the roof with insulation based on mineral fiber
Ambient temperature of the roof with insulation based on wood fiber

With FiberTherm wood fiber insulation materials, extreme thermal peaks are prevented, creating an ideal temperature for people's well-being both at night and during the day.

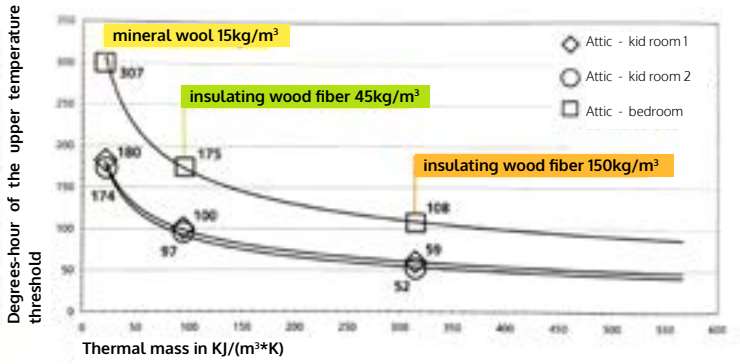
THERMAL DISPLACEMENT

Heat protection in summer

PRACTICAL USE HIGHLIGHTS THAT FIBERTHERM WORKS

The fact that this temperature behavior also has a direct impact on the comfort of the rooms is particularly clear from the analysis of Prof. Hauser, one of the fathers of the German energy saving ordinance: on the single-family home analyzed, for example, by replacing mineral wool with a light wood fiber insulation it is possible to halve the degrees-hour of the upper temperature threshold. If wood-fiber insulation boards with an apparent specific weight of 150 kg/m^3 are used compared to mineral wool insulation, the degrees-hour of the upper temperature threshold can be reduced from 1/3 to 1/4. This "climatic inertia" of FiberTherm insulating materials based on wood fiber repays both in summer and winter, significantly increasing indoor climate well-being.

The higher the thermal mass of an insulating material, the lower the "degrees-hour of the upper temperature threshold", ie the time when we feel annoyed by the heat. **FiberTherm** wood fiber insulators show excellent performance.



RENOVATION OF EXTERNAL ROOF

Ideal renovation variant if the attic has already been made habitable and you do not intend to compromise the indoor environment.

Once the old roof is removed, the gaps in the beams are insulated with FiberTherm flex flexible insulation material. To maximize the insulation effect, a rigid FiberTherm special rehabilitation panel is also installed directly on the beams. The panel is hydrophobed (water repellent) so that with a tripping it is possible to obtain a triple functionality: non-hydrophilic layer, wind resistance and insulating effect.

RENOVATION OF INTERNAL ROOF

Renovation variant where no scaffolding is needed, or a new existing roof covering.

Once the old internal lining (if present) is removed, the gaps are insulated with flexible insulating material such as FiberTherm flex. To maximize the insulating effect, an additional insulation can be mounted using a transversely applied batten. Double advantage: this layer can be used as an installation surface, e.g. for laying electric cables for ceiling lights.

RENOVATION OF WALLS

A long-lasting restoration of the façade.

The great advantage over polystyrene facades: the upper thermal mass actively acts against molds on the façade. The facade cools slowly at night, so that the humidity in the air can not settle on the surface.
FiberTherm universal or FiberTherm special in combination with a flexible insulating material such as FiberTherm flex are proposed for the wooden or clinker façades.

FiberTherm zell
Insulation in wood fiber for insufflation

- Open to the diffusion of water vapor
- Insulation without thermal bridges
- Durability without settling problems

FiberTherm
Rigid thermal insulation

- Stable thermo-acoustic panels in roofs and walls
- Floor rigid insulating panels
- Suitable also as FiberTherm dry

FiberTherm flex
Flexible thermal insulation

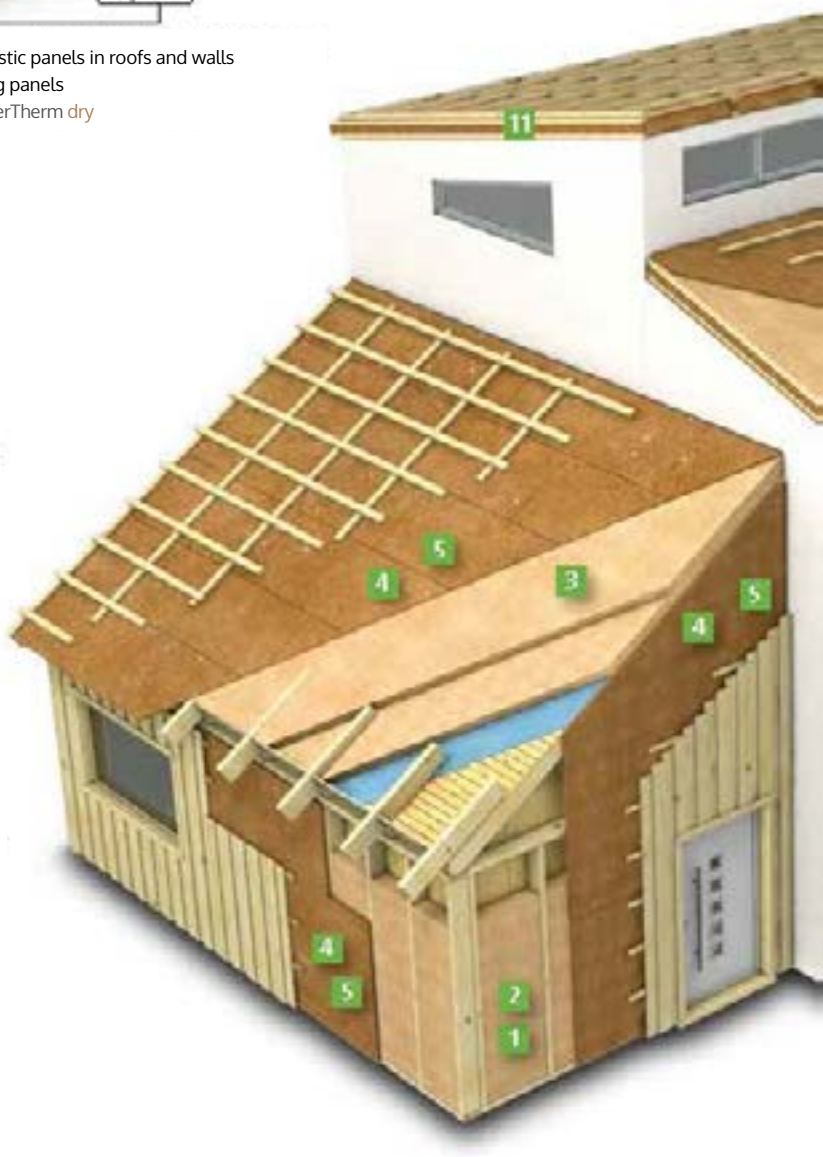
- Flexible thermal insulation between battens in roofs, walls and floors
- Simplicity of workmanship

FiberTherm universal
Panel for under-coverage and wall

- Attic and wall panel, with tongue&groove profile
- Suitable also as FiberTherm universal dry

FiberTherm special
Wood fiber insulating system

- Promotes the spread of water vapor ideal for the renovation of attics and walls
- Suitable also as FiberTherm special dry



FIBERTHERM PRO

FiberTherm roof dry
Roof battens insulation

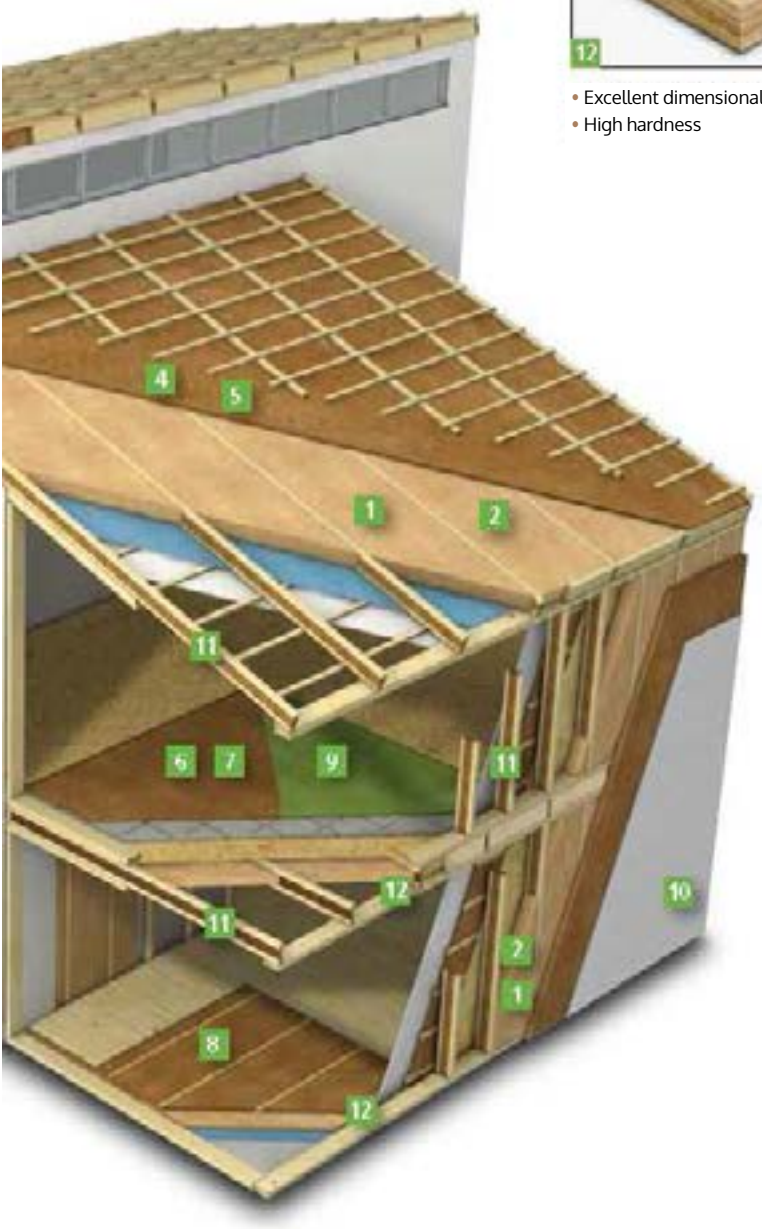
- Insulating panel for flat roofs, walls and floors
- High compressive strenght

FiberTherm top
Insulation of upper floors

- Insulation of the upper ceiling

FiberTherm isorel
Versatile wood fiber panel

- Versatile wood fiber panel
- Open to the diffusion of water vapor



ODUCT OVERVIEW

FiberTherm LVL

Laminated Veneered Lumber

- Excellent dimensional stability
- High hardness

FiberTherm joist/wall

Roof beams and single beam system

- Dimensional stability
- Low weight, easy maintenance

FiberTherm protect

Wood fiber thermal insulation system

- System tested and approved for thermal insulation
- Suitable also as FiberTherm protect dry

FiberTherm internal

Wood fiber internal thermal insulation system

- Ideal for rebuilding traditional masonry (inside)

FiberTherm underfloor

Underlay for parquet and laminate flooring

- Improves ambient acoustics and high comfort of impact noise

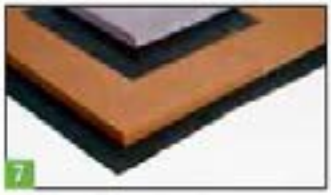
FiberTherm install

Insulating system for pipes/cables installation

- Ideal for creating structures for laying cables in wooden constructions

FiberTherm base

Stable insulating panels for floors stabile



- Optimal combination for high-strength dry and wet screeds

FiberTherm floor

Floor insulation system

- Insulating panel for flat roofs, walls and floors
- High compressive strenght

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm flex density 60kg/m^3

DESCRIPTION

The FiberTherm flex 60 wood fiber panel is a flexible insulation, suitable to compression and it is ideal to roof, wall and middle floor insulating in a completely natural way. FiberTherm flex presents all the advantages of wood and is also breathable and hygroscopic, thus allowing the realization of isolated environments with high living comfort, where there is a natural regulation of internal humidity.
Low thermal conductivity means greater thermal displacement. With a thermal conductivity of only 0.036 λ_D [W / (m * K)] FiberTherm flex 60 has the lower value than all other known natural insulation materials. This makes it possible to perform more efficient isolation solutions; with FiberTherm flex 60 is possible to realize excellent structural thermal insulations and provide heat in winter.
FiberTherm flex 60 hasn't only a low thermal conductivity, but it has a density equal to 60 kg/m^3 and a very high heat storage capacity. This combination protects the rooms from overheating in the summer.

- flexible panels suitable for insertion between rigid supports;
- high breathability;
- excellent protection from summer heat and from winter cold;
- open to the water vapor diffusion;
- hygrometric regulator thanks to the great absorption capacity;
- provides a truly healthy indoor atmosphere and natural comfort;
- recyclable, ecological, respects the environment;
- building material tested and authorized according to European standards.

UTILIZATION

The wood fiber insulating panel FiberTherm flex is suitable for any type of thermal and acoustic insulation which requires the use of a flexible material, such as:

- insulation of hollow parts in partitions, floors and beams;
- insulation of the roofs under the supporting structures;
- insulation that requires a material that adapts to the shapes of the profiles, especially for curved and non-rectilinear surfaces;
- insulation between trusses, or between beams for floors;
- false ceilings insulations.

The wood fiber insulating panel FiberTherm flex are characterized by:

- effective protection against summer heat thanks to its considerable intrinsic insulating properties;
- opening to the water vapor diffusion which contributes to the creation of transpiring buildings;
- high capacity for absorbing ambient humidity, a natural hygrometric regulator system;
- quality assurance, thanks to continuous checks and tests carried out according to European standards.

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm flex density 60kg/m^3

AVAILABLE SIZES

Size	Thickness	Weight/m²(kg)	Panels/Pack	Packs/Pallet	m²/Pallet	kg/Pallet
1220x575 mm	20 mm	1,20	24	10	168,4	approx. 227
1220x575 mm	30 mm	1,80	16	10	112,2	approx. 227
1220x575 mm	40 mm	2,40	10	12	84,2	approx. 227
1220x575 mm	50 mm	3,00	9	10	63,1	approx. 215
1220x575 mm	60 mm	3,60	8	10	56,1	approx. 227
1220x575 mm	80 mm	4,80	6	10	42,1	approx. 227
1220x575 mm	100 mm	6,00	4	12	33,7	approx. 227
1220x575 mm	120 mm	7,20	4	10	28,1	approx. 227
1220x575 mm	140 mm	8,40	4	8	22,4	approx. 227
1220x575 mm	160 mm	9,60	3	10	21,0	approx. 214
1220x575 mm	180 mm	10,80	3	8	16,8	approx. 227
1220x575 mm	200 mm	12,00	2	12	16,8	approx. 227
1220x575 mm	220 mm	13,20	22 panels/pallet		14,0	approx. 210
1220x575 mm	240 mm	14,40	22 panels/pallet		14,0	approx. 226

TECHNICAL CHARACTERISTICS

Density (kg/m^3)	60
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,036
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	1÷2
Hydraulic resistance relative to the length [(kPa · s)/m²]	≥5
Thermal resistance RD [(m² · K)/W]	0,55(20) / 0,80 (30) / 1,10 (40) /1,35(50) / 1,65(60) / 2,20(80) / 2,75(100) / 3,30 (120) / 3,85 (140) /4,40 (160) /5,00 (180) / 5,55 (200) /6,10 (220) / 6,65(240)
Identification of the panels	WF - EN 13171 - T3 - TR1 - AF5
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood strip rolls FiberTherm soundstrip density 60kg/m^3

DESCRIPTION

The wood fiber roll FiberTherm soundstrip is a flexible insulating strip, suitable to compression and to be used in flooring system correcting the differences in level between joints and in the perimeter of the screed. FiberTherm soundstrip is natural, breathable and hygroscopic, allowing the realization of isolated environments with high living comfort, where there is a natural regulation of internal humidity.
Thanks to its low thermal conductivity and its high thermal strenght, FiberTherm soundstrip greatly improves the insulation of dry screeds. The density, approximately **60 kg/m^3** and the high specific heat capacity, 2100 J/kgK (more than double the mineral wool), prevent heat from entering even during the hottest days.

- insulating roll with alternative organic PE;
- dermatologically tested, with no negative effect on the skin;
- excellent acoustic insulation;
- dimensionally stable, resistant to pressure and rigid;
- breathable, it favors a comfortable and healthy environment;
- recyclable, ecological, respects the environment.

AVAILABLE SIZES

Thickness	Width	Lenght	Pieces/Pack.	Packaging/Pallet	kg/Pallet
10 mm	100 mm	10 m	6	24	approx. 150
10 mm	100 mm	10 m	3	48	approx. 150

TECHNICAL CHARACTERISTICS

Density (kg/m^3)	60
Reaction to fire according to the standard EN 13501-1	E
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	1÷2
Flexural strenght to 10% of compression [kPa]	≥ 8
Thermal resistance RD [(m^2 · K)/W]	0,26
Raw materials	wood fiber (pine)
Waste code (EAK)	030105 /170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm dry density 110kg/m^3

DESCRIPTION

The wood fiber insulating panel FiberTherm dry is a thermo-acoustic insulation suitable for installation under roof and wall cover. It has the ability to expand the insulation of wooden elements.
The insulating panel FiberTherm dry are particularly stable and light, and produced by dry process. Availble with tongue & groove, stepped or sharp edges.
These panels have a density of **110 kg/m^3**.
With FiberTherm dry is possible to obtain a thermo-acoustic insulation of roofs and walls to contribute considerably to improving the quality of life within home walls.
Thanks to its low thermal conductivity, FiberTherm dry protects your rooms also from summer heat and from winter cold. The density, approximately **110 kg/m^3** and the high specific heat capacity, 2100 J/kgK (more than double the mineral wool), prevent heat from entering even during the hottest days.

The wood fiber insulating panel FiberTherm dry is an excellent thermo-acoustic insulation in roofs and walls:
- dermatologically tested, with no negative effect on the skin;
- available with tongue & groove, stepped or shap edges;
- produced with dry method;
- particularly rigid and light wood fiber insulating panel;
- excellent insulating panels, both in summer and in winter;
- breathable, it favors a comfortable and healthy environment.

AVAILABLE SIZES

sharp edges panels

Size	Real size	Thickness	kg/m^2	Panels/Pallet	m^2/Pallet	kg/Pallet
1350x600 mm	1350x600 mm	40 mm	4,40	56	45,4	approx. 215
1350x600 mm	1350x600 mm	60 mm	6,60	38	30,8	approx. 218
1350x600 mm	1350x600 mm	80 mm	8,80	28	22,7	approx. 215
1350x600 mm	1350x600 mm	100 mm	11,00	22	17,8	approx. 211
1350x600 mm	1350x600 mm	120 mm	13,20	18	14,6	approx.207
1350x600 mm	1350x600 mm	140 mm	15,40	16	13,0	approx. 215
1350x600 mm	1350x600 mm	160 mm	17,60	14	11,3	approx. 218
1350x600 mm	1350x600 mm	180 mm	19,80	12	9,7	approx. 215
1350x600 mm	1350x600 mm	200 mm	22,00	12	9,7	approx. 215
1350x600 mm	1350x600 mm	220 mm	24,20	10	8,1	approx. 215
1350x600 mm	1350x600 mm	240 mm	26,40	10	8,1	approx. 215
1350x600 mm	1350x600 mm	260 mm	28,60	8	6,4	approx. 215
1350x600 mm	1350x600 mm	280 mm	30,80	8	6,4	approx. 215
1350x600 mm	1350x600 mm	300 mm	33,00	8	6,4	approx. 215

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm dry density 110kg/m^3

AVAILABLE SIZES

stepped edges panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
1350x600 mm	1335x585 mm	140 mm	13,20	16	12,7	approx. 215
1350x600 mm	1335x585 mm	160 mm	17,60	14	10,9	approx. 215
1350x600 mm	1335x585 mm	180 mm	19,80	12	9,4	approx. 207
1350x600 mm	1335x585 mm	200 mm	22,00	12	9,4	approx. 229
1350x600 mm	1335x585 mm	220 mm	24,20	10	7,8	approx. 211
1350x600 mm	1335x585 mm	240 mm	26,40	10	7,8	approx. 229

AVAILABLE SIZES

tongue & groove panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
1880x600 mm	1855x575 mm	60 mm	6,60	38	38,4	approx. 293
1880x600 mm	1855x575 mm	80 mm	8,80	28	31,6	approx. 293
1880x600 mm	1855x575 mm	100 mm	11,00	22	23,5	approx. 288
1880x600 mm	1855x575 mm	120 mm	13,20	18	19,2	approx. 283
1880x600 mm	1855x575 mm	140 mm	15,40	16	17,1	approx. 293
1880x600 mm	1855x575 mm	160 mm	17,60	14	15,0	approx. 293

TECHNICAL CHARACTERISTICS

Density (kg/m^3)	110
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,037
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	3
Hydraulic resistance relative to the length [(kPa · s)/m²]	≥5
sd value [m]	0,12(40) /0,18(60) /0,24(80) /0,3(100) /0,36(120) / 0,42(140) / 0,48(160) / 0,54(180) /0,6(200) / 0,66(220) /0,72(240)/0,78(260)/0,84(280)/ 0,9(300)
Thermal resistance RD [(m² · K)/W]	1,0(40) /1,6(60) /2,1(80) /2,7(100) /3,2(120) / 3,6(140) /4,1(160) /4,6(180) /5,1(200) /5,6(220) / 6,1(240)/6,5(260)/7,6(280)/ 8,1(300)
Flexural strenght to 10% of compression (N/mm²)	0,05
Compressive strenght (kPa)	50
Resistance to tearing (kPa)	5
Water absorbing (kg/m²)	≥1,0
Manufacture controlled according to the standard EN 13171	WF - EN 13171 - T2 - TR1 - AF5
Panels identification	WF - EN 13171 - T5 - CS(10\Y)50 - TR5 - WS1,0 - MU3
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm top density 140kg/m³

DESCRIPTION

FiberTherm top is a wood fiber thermal insulating panel suitable for floors. The panels are light and are suitable to be laid in narrow spaces, such as those usually found in attics and the passage from retractable stairs.
Particularly permeable, if moisture penetrates, it can easily evaporate. No additional steam protection is required. Significantly reduces mold formation.

The insulating panels FiberTherm top are able to occupy large areas. Since the panels are sharp-edged, without beveled profiles, they are completely suitable for difficult assembly in confined spaces. If you work on two layers, we recommend installing vertical joints.
A further covering with Betonwood cement bonded particle board can be useful for environments subjected to heavy loads or those requiring fire resistance. FiberTherm top has a density equal to **140 kg/m³**.
The panel FiberTherm top is an excellent thermo-acoustic insulation for attics and upper floors.

BASIC INSULATION

The first 100 mm of FiberTherm top brings to maximum energy savings. Depending on the substructure, the requirements may already be considered achieved.

STANDARD INSULATION

To achieve higher performance, a double layer of FiberTherm top.is recommended. With two layer thick 80 mm we obtain a U value of 0,24 W/(m²·K).

ADVANCED INSULATION

A cover in FiberTherm top complete the insulation and creates a directly usable surface. So, with 220 mm of insulation we achieved a U value of 0,18 W/(m²·K).

AVAILABLE SIZES

tongue & groove panels

Size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
1200x400 mm	80 mm	11,20	28	13,44	approx. 150
1200x400 mm	100 mm	14,00	22	10,56	approx. 150

TECHNICAL CHARACTERISTICS

Density (kg/m³)	140
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,041
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	3
sd value [m]	0,24 (80) /0,30 (100)
Thermal resistance RD [(m² · K)/W]	1,95 (80) /2,40 (100)
Flexural strenght to 10% of compression (N/mm²)	0,07
Compressive strenght(kPa)	70
Tensile strength perpendicular to the faces (kPa)	≥10
Panels identification	WF - EN 13171 - T4 - CS (10 \Y)70 - TR10 - AF100
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm special dry density 140kg/m^3

DESCRIPTION

Wood fiber insulating panel FiberTherm special dry: the new generation of insulating materials for roof's external renovation. Much thermal energy is lost thanks to the large roof area.
As a result, potential savings in the restructuring are lost. But what if the attic is already developed and inhabited?
At BetonWood we offer the FiberTherm special dry solution, a rigid wood-fiber insulating panel that can be placed directly from the outside on the beams.

Ideally, the area must first be insulated between the beams, for example with FiberTherm flex, the flexible wood fiber insulation system. Often, only the old construction beams are too small to make modern insulation systems. With the wood fiber panel FiberTherm special dry is possible to provide the additional insulation required above the beams.
The living space under the roof is not compromised.

The wood fiber FiberTherm special dry is an ecological insulating panel for roofs in new buildings and renvations of buildings of all kinds. The insulating panels are made of natural wood fibers and are produced without dubious additives through a dry process. The link between fibers occurs not for added adhesives, but only thanks to its own lignin.

The wood fiber panel's edges FiberTherm special dry guarantees wind resistance, suitability and drainage of water, without additional joints for roofs with inclinations of at least 16 °. It reduces the thermal bridges of the building, protects from hail, protects from summer heat and guarantees excellent sound insulation. The thickness of the insulating material decreases. It has a density of **140 kg/m^3**.

The wood fiber insulating panel FiberTherm special dry iis an excellent thermo-acoustic insulation for new roofs or renovations:
- insulating wood fiber panel resistant to wind and humidity;
- waterproof insulating wood fiber panel idrofugo for roof renovations;
- dermatologically tested, with no negative effect on the skin;
- 3 main functions: wind protection, weather protection, thermal insulation;
- produced with dry method;
- greater structural security in the field of restructuring;
- panel type: UPD-A for roof inclinations ≥16°. Suitable also as temporary cover;
- excellent insulating properties, in summer as in winter and good soundproofing;
- recyclable, ecological, respects the environment.

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm special dry density 140kg/m^3

3 ADVANTAGES

• Very good thermal conductivity: FiberTherm special dry provides an excellent insulation value. The thermal conductivity value **λ** is equal to 0,041 [W /(m·K)].
Così, con FiberTherm special dry è possibile avere un' ottimo isolamento termico applicato anche su strutture del tetto particolarmente sottili.

• Safe protection against atmospheric agents: special tongue & groove profile of wood fiber panels FiberTherm special dry has a specially developed geometry for easy installation and long life. The roof is well protected from rain and wind.

• Lightness, ease of installation: with a density of **140 kg/m³** the panels FiberTherm special dry are particularly light and easy to process; the panels thick 120 mm weigh only 17 Kg and they can be laid by one person.

AVAILABLE SIZES

tongue & groove panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
1880x600 mm	1865x585 mm	40 mm	6,31	56	63,17	approx. 354
1880x600 mm	1855x575 mm	120 mm	16,80	18	20,3	approx. 360
1880x600 mm	1855x575 mm	140 mm	19,60	16	18,0	approx. 370
1880x600 mm	1855x575 mm	160 mm	22,40	14	15,8	approx. 370
1880x600 mm	1855x575 mm	180 mm	25,20	12	13,5	approx. 360
1880x600 mm	1855x575 mm	200 mm	28,00	12	13,5	approx. 390

TECHNICAL CHARACTERISTICS

Density (kg/m^3)	140
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,041
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	3
sd value [m]	0,36(120) /0,42(140) /0,48(160) / 0,54(180) /0,60(200)
Thermal resistance RD [(m² · K)/W]	2,90(120) / 3,40(140) / 3,90(160) / 4,35(180)/ 4,85(200)
Flexural strenght to 10% of compression (N/mm²)	0,1
Compressive strenght(kPa)	≥100
Tensile strength perpendicular to the faces (kPa)	≥10
Flexural strenght [(kPa·s)m²]	≥100
Panels identification	WF - EN 13171 - T5 - CS(10\Y)100 - TR10 - WS1,0 - AF100 - MU3
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm roof dry density 140kg/m^3

DESCRIPTION

The FiberTherm roof dry wood fiber panel is an insulating panel designed to be installed in extrados of floors and pitched roofs or flat roofs.
The FiberTherm roof dry wood fiber panels are ideal for flat roof insulation. These panels have a density equal to **140kg/m³** and provide an high security for their waterproof properties.

The FiberTherm roof dry wood fiber is a thermo-acoustic insulation designed to be installed in extrados of floors and pitched roofs or flat roofs:

- ideal for the insulation of sloped or flat pitched roofs;
- excellent insulating properties both in summer and in winter;
- high compressive strenght;
- high security for their waterproof properties;
- recyclable, ecological, respects the environment.

AVAILABLE SIZES

sharp edges panels

Size	Thickness	Weight/m²(kg)	Panels/Pallet	m²/Pallet	kg/Pallet
800x800 mm	60 mm	8,40	38	24,3	approx. 237
800x800 mm	80 mm	11,20	28	17,9	approx. 228
800x800 mm	100 mm	14,00	22	14,1	approx. 216
800x800 mm	120 mm	16,80	18	11,5	approx. 209
800x800 mm	140 mm	19,60	16	10,2	approx. 214
800x800 mm	160 mm	22,40	14	9,0	approx. 213
800x800 mm	180 mm	25,20	12	7,7	approx. 204
800x800 mm	200 mm	28,00	12	7,7	approx. 225

TECHNICAL CHARACTERISTICS

Density (kg/m³)	approx. 140
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,040
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	5
sd value [m]	0,18 /0,22 /0,30 /0,36 /0,42 /0,48 /0,54 /0,6
Thermal resistance RD [(m² · K)/W]	1,5/2,0/2,5/3,0/3,5/4,0/4,5/ 5,0
Compression stress for 10% distortion (N/mm²)	0,10
Compressive strenght (kPa)	100
Tensile strenght (kPa)	≥10
Specific resistance to airflow [(kPa·s)/m²]	≥100
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm / Therm SD density 160kg/m^3

DESCRIPTION

The wood fiber panel FiberTherm is a rigid insulation for roofs and walls, ideal to insulating in a completely natural way every type of building, ensuring the creation of roofs with a high living comfort as well as a truly healthy indoor atmosphere. The panel FiberTherm is a multi-use thermo-acoustic insulation, produced by a wet process, the only one to guarantee the complete compatibility of the material with the criteria of green building, because it is free from any type of toxic substance.

The wood fiber insulating panel FiberTherm has the following main characteristics:

- compression strenght 100 Kpa;
- high compressive resistance;
- effective protection against summer heat;
- high insulating properties;
- open to water vapour diffusion;
- hygrometric regulator thanks to the great absorption capacity;
- provides a truly healthy and natural internal atmosphere;
- recyclable, ecological, respects the environment.

UTILIZATION

The wood fiber insulating panel FiberTherm is suitable for any type of thermal and acoustic insulation under coating that requires the use of a rigid material.
In particular this material can be used for the realization of:

- rigid insulating panels for walls and roofs, under coverings;
- external insulation of roofs, slabs and walls protected from the weather under cladding;
- insulation between trusses, between beams and beams, of wooden structures and frames;
- internal insulation under the cover or under the insoles or tables;
- internal insulation of walls and partitions.

AREAS OF APPLICATION

The installation is strictly linked to the type of the panel's utilization depending on which it will be appropriate to adopt the most appropriate method of application.
In general it is always necessary to protect this material from moisture both before laying, during the storage phase on site, and before the realization of the covering.
In case of exposure of the material to the water let the material dry.

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm / Therm SD density 160kg/m³

AVAILABLE SIZES

sharp edges panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
1350x600 mm	1350x600 mm	21/20 mm	3,20	116	94,0	approx. 300
1350x600 mm	1350x600 mm	31/30 mm	4,80	74	59,9	approx. 300

AVAILABLE SIZES

sharp edges panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
1350x600 mm	1350x600 mm	40 mm	6,40	56	45,4	approx. 310
1350x600 mm	1350x600 mm	60 mm	9,60	38	30,8	approx. 300
1350x600 mm	1350x600 mm	80 mm	12,80	28	22,7	approx. 310
1350x600 mm	1350x600 mm	100 mm	16,00	22	17,8	approx. 300
1350x600 mm	1350x600 mm	120 mm	19,20	18	14,6	approx. 300
1350x600 mm	1350x600 mm	140 mm	22,40	16	13,0	approx. 300
1350x600 mm	1350x600 mm	160 mm	25,60	14	11,3	approx. 300
1350x600 mm	1350x600 mm	180 mm	28,80	12	9,7	approx. 310
1350x600 mm	1350x600 mm	200 mm	32,00	12	9,7	approx. 325

AVAILABLE SIZES

tongue & groove panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
1880x600 mm	1850x570 mm	100 mm	16,00	22	24,8	approx. 420
1880x600 mm	1850x570 mm	120 mm	19,20	18	20,3	approx. 420
1880x600 mm	1850x570 mm	140 mm	22,40	16	18,0	approx. 420
1880x600 mm	1850x570 mm	160 mm	25,60	14	15,8	approx. 420

TECHNICAL CHARACTERISTICS

Density (kg/m³)	approx. 160
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,039
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	5
sd value [m]	0,1 /0,2 /0,3 /0,4 /0,5 /0, 6 /0, 7 /0, 8
Thermal resistance RD [(m² · K)/W]	0, 5 /1, 0 /1, 5 /2,0 /2,5 /3,0 /3,5 /4,0
Flexural strenght to 10% of compression (N/mm²)	0,05
Compressive strenght(kPa)	50
Resistance to tearing (kPa)	≥2,5
Hydraulic resistance relative to the length [(kPa·s)/m²]	≥100
Panels identification (21 /20 mm)	WF - EN 13171 - T7 - SD50 - CP2
Panels identification (31 /30 mm)	WF - EN 13171 - T7 - SD30 - CP2
Panels identification (80-240 mm)	WF - EN 13171 - T3 - CS(10 \Y)40 - TR2,5 - AF100
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm internal density 160kg/m^3

DESCRIPTION

The wood fiber panel FiberTherm internal is an insulation for internal side of building walls: reducing the costs of heating can improve one's lifestyle. The applications are many, compared to other types of internal insulation is also the most economical solution.

There are many good reasons to realize an internal insulation: in case in which the facades can not be changed, if you want to isolate an apartment, or if the exterior walls of an old building need better insulation. In addition to this, you can improve the interior insulation performance of buildings or rooms just used as holiday homes, public areas and guest rooms - through internal isolation, rooms can warm up quickly. Furthermore, the installation of an internal insulation is often easier: scaffolding is not used and it is possible to intervene independently from atmospheric conditions. However, external isolation is still more effective. And that is why we recommend the use of internal insulation only in the cases described above.

The wood fiber panel FiberTherm internal are also ideal in situations of limited space. Available with tongue & groove or with sharp edge. Density equal to **160 Kg/m^3**.
The panels FiberTherm internal diffuse the steam and allow the capillary transport of the steam.
FiberTherm internal protects the living area from molds as it provides an optimal moisture balance to create an environment in which mold is not formed.

The wood fiber insulating panel FiberTherm internal has the following characteristics:

- ecologic internal insulation;
- ideal for masonry and restoration of the wooden lining;
- excellent humidity control - maximum security;
- it can be used without additional anti-steam layers;
- it brings a truly healthy and natural internal atmosphere;
- recyclable, ecological, respects the environment.

General indications:
- stack horizontally and dry;
- pay particular attention to the edges of the panels;
- remove the pallet packing only when it is on flat, stable and dry ground.

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm internal density 160kg/m³

AVAILABLE SIZES

sharp edges panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
1200x380 mm	1200x380 mm	40 mm	6,40	84	38,3	approx. 260
1200x380 mm	1200x380 mm	60 mm	9,60	54	24,6	approx. 250
1200x380 mm	1200x380 mm	80 mm	5,84	42	19,15	approx. 245

AVAILABLE SIZES

tongue & groove panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
1200x380 mm	1186x366 mm	40 mm	6,40	84	38,3	approx. 260
1200x380 mm	1186x366 mm	60 mm	9,60	54	24,6	approx. 250

CARATTERISTICHE TECNICHE

Density (kg/m³)	approx. 160
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,038
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	5
sd value [m]	0,2 (40)/ 0,3 (60)/ 0,4 (80)
Thermal resistance RD [(m² · K)/W]	1,0 (40)/ 1,5 (60)/ 2,0 (80)
Compressive strenght(kPa)	50
Flexural strenght [(kPa·s)m²]	≥100
Compression load ≤5 kPa (mm)	≤2
Panels identification	WF - EN 13171 - T4 - CS(10\Y)50 -TR2,5 - AF
Waste code	100030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm floor density 160kg/m^3

DESCRIPTION

The FiberTherm floor wood fiber insulation system is excellent for reducing sound impact in wood flooring. Soundproof strips of wood are installed for the passage of the floorboards.
The wood fiber panel FiberTherm floor are available with special tongue &groove edges to be inserted with special strips of wood to fix the floor.
Density of **160 Kg/m^3**.

The wood fiber panel FiberTherm floor has the following characteristics:
- flooring insulation system with installation of soundproof strips for floor fixing;
- excellent acoustic insulation and improvement of sound;
- excellent insulating properties;
- high absorbing capacity which contributes to a balanced environmental climate;
- recyclable, ecological, respects the environment.

AVAILABLE SIZES

tongue & groove panels

Size	Real size	Thickness	kg/m^2	Panels/Pallet	m^2/Pallet	kg/Pallet
1200x380 mm	1186x366 mm	40 mm	6,40	84	38,3	approx. 260
1200x380 mm	1186x366 mm	60 mm	9,60	57	26,0	approx. 260

AVAILABLE SIZES

jointing strips between panels

Width	Lenght	Thickness	Pieces/Pallet	kg/m^2	Pieces/m^2
50 mm	2000 mm	35 mm	45	approx. 2	1,3
50 mm	2000 mm	55 mm	31	approx. 3	1,3

TECHNICAL CHARACTERISTICS

Density (kg/m^3)	160
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,039
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	5
sd value [m]	0,2 (40) /0,3 (60)
Thermal resistance RD [(m^2 · K)/W]	1,05 (40) /1,55 (60)
Compressive strenght(kPa)	40
Compression stress for 10% distortion[N/mm^2]	40
Tensile strenght (kPa)	≥2,5
Specific resistance to airflow [(kPa · s)/m^2]	≥100
Panel identification	WF - EN 13171 - T3 - CS(10 \Y)40 - TR2,5 - AF 100
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm protect dry densities 110, 140, 180kg/m³

DESCRIPTION

The wood fiber panel FiberTherm protect dry is a waterproof rigid insulation with high density with an high compression resistance, suitable for external and internal thermal insulation systems certified by ETAG.
One of the main function of the building envelope is to reduce the heat exchange between inside and outside: in winter, when it is necessary to avoid heat loss, and in summer, when the internal overheating must be reduced. The wood fiber panel FiberTherm protect dry is available in different densities **110 Kg/m³, 140 Kg/m³, 180 Kg/m³**.
The wood fiber panel FiberTherm protect dry has the following characteristics:

- an integral part of the BetonWood srl exterior insulation system approved by the building inspectorate;
- water-repellent insulating panels, open to the diffusion of steam, for robust constructions;
- excellent insulating properties both in summer and in winter;
- quality of the product recognized for years; surface of the panels smoothed on both sides;
- already starting from 40mm panels could be usable for insufflation of insulating material;
- integrated system with a single contact office for the supply of plaster and accessories;
- allows to obtain fire-resistant constructions up to class F90-B.

AVAILABLE SIZES of FIBERTHERM PROTECT DRY 110 kg/m³

sharp edges panels

Size	Thickness	Weight/m²(kg)	Panels/Pallet	m²/Pallet	kg/Pallet
1200x400 mm	100 mm	11,00	22	10,6	approx. 116
1200x400 mm	120 mm	13,20	18	8,6	approx. 114
1200x400 mm	140 mm	15,40	16	7,7	approx. 118
1200x400 mm	160 mm	17,60	14	6,7	approx. 118
1200x400 mm	180 mm	19,80	12	5,8	approx. 114
1200x400 mm	200 mm	22,00	12	5,8	approx. 127
1200x400 mm	220 mm	24,20	10	4,8	approx. 116
1200x400 mm	240 mm	26,40	8	3,8	approx. 101

AVAILABLE SIZES of FIBERTHERM PROTECT DRY 140 kg/m³

sharp edges panels

Size	Thickness	Weight/m²(kg)	Panels/Pallet	m²/Pallet	kg/Pallet
2800x1250 mm	60 mm	8,40	19	66,5	approx. 560
2800x1250 mm	80 mm	11,20	14	49,0	approx. 550
2800x1250 mm	100 mm	14,00	11	38,5	approx. 540
2800x1250 mm	120 mm	58,8	9	31,6	approx. 530
2800x1250 mm	140 mm	68,6	8	28,0	approx. 550
2800x1250 mm	160 mm	78,4	7	24,5	approx. 550

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm protect dry densities 110, 140, 180kg/m³

AVAILABLE SIZES of FIBERTHERM PROTECT DRY 140 kg/m³

tongue & groove panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
1325x600 mm	1300x575 mm	60 mm	8,40	38	30,2	approx. 282
1325x600 mm	1300x575 mm	80 mm	11,20	28	22,3	approx. 270
1325x600 mm	1300x575 mm	100 mm	14,00	22	17,5	approx. 261
1325x600 mm	1300x575 mm	120 mm	17,70	18	14,3	approx. 318
1325x600 mm	1300x575 mm	140 mm	20,65	16	12,7	approx. 330
1325x600 mm	1300x575 mm	160 mm	23,60	14	11,1	approx. 330
1325x600 mm	1300x575 mm	180 mm	26,50	12	9,54	approx. 318
1325x600 mm	1300x575 mm	200 mm	29,50	12	9,54	approx. 355

AVAILABLE SIZES of FIBERTHERM PROTECT DRY 180 kg/m³

tongue & groove panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
1325x600 mm	1300x575 mm	40 mm	7,20	56	44,52	approx. 329
1325x600 mm	1300x575 mm	60 mm	10,80	38	30,21	approx. 350

sharp edges panels

Size	Thickness	Weight/m²(kg)	Panels/Pallet	m²/Pallet	kg/Pallet
2800x1250 mm	40 mm	25,2	28	98,0	approx. 700
2800x1250 mm	60 mm	37,8	19	66,5	approx. 720

TECHNICAL CHARACTERISTICS

Density (kg/m³)	110/140/180
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,037 (110) /0,041 (140) /0,043 (180)
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	3
Compressive strenght (kPa)	50 (110) /100 (140) / 200 (180)
Tensile strenght (kPa)	10 (110) / 20 (140) / 30 (180)
Dimensional stability 48h, 70°C, 90% relative humidity	Lenght Δεl≤3% Width Δεb≤3% Thickness Δεd≤3%
Panels identification	WF - EN 13171 - T5 - DS(70,90)2 - CS(10\Y)50 - TR10 - WS1,0 - MU3 (110) WF-EN13171-T5-DS(70,90)2 - CS(10\Y)100 - TR20 - WS1,0 - MU3 (140) WF - EN 13171 - T5 - DS(70,90)2 - CS(10\Y)200 TR30 - WS1,0 - MU3(180)
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm protect densities 230, 265kg/m³

DESCRIPTION

The wood fiber panel FiberTherm protect is a waterproof rigid insulation with high density with an high compression resistance, suitable for external and internal thermal insulation systems certified by ETAG.
One of the main function of the building envelope is to reduce the heat exchange between inside and outside: in winter, when it is necessary to avoid heat loss, and in summer, when the internal overheating must be reduced. The wood fiber panel FiberTherm protect is available in different densities **230 Kg/m³, 265 Kg/m³**.
The wood fiber panel FiberTherm protect has the following characteristics:

- an integral part of the BetonWood srl exterior insulation system approved by the building inspectorate;
- water-repellent insulating panels, open to the diffusion of steam, for robust constructions;
- excellent insulating properties both in summer and in winter;
- quality of the product recognized for years; surface of the panels smoothed on both sides;
- already starting from 40mm panels could be usable for insufflation of insulating material;
- integrated system with a single contact office for the supply of plaster and accessories;
- allows to obtain fire-resistant constructions up to class F90-B;
- recyclable, ecological, respects the environment.

AVAILABLE SIZES of FIBERTHERM PROTECT 230 kg/m³

tongue & groove panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
1325x600 mm	1300x575 mm	80 mm	17,60	28	22,3	approx. 393
1325x600 mm	1300x575 mm	100 mm	22,00	22	17,5	approx. 385

tongue & groove panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
2625x1175 mm	2600x1150 mm	80 mm	16,80	14	44,3	approx. 744

sharp edges panels

Size	Thickness	Weight/m²(kg)	Panels/Pallet	m²/Pallet	kg/Pallet
2800x1250 mm	80 mm	16,80	14	38,5	approx. 823
2800x1250 mm	100 mm	28,20	11	49,0	approx. 920

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm protect densities 230, 265kg/m³

AVAILABLE SIZES of FIBERTHERM PROTECT 265 kg/m³

tongue & groove panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
1325x600 mm	1300x575 mm	40 mm	10,00	56	44,5	approx. 445
1325x600 mm	1300x575 mm	60 mm	15,00	38	30,2	approx. 453

tongue & groove panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
2625x1175 mm	2600x1150 mm	40 mm	10,00	28	88,6	approx. 886
2625x1175 mm	2600x1150 mm	60 mm	15,00	19	60,1	approx. 902

sharp edges panels

Size	Thickness	Weight/m²(kg)	Panels/Pallet	m²/Pallet	kg/Pallet
2800x1250 mm	40 mm	10,00	28	98,0	approx. 980
2800x1250 mm	60 mm	15,00	19	66,5	approx. 998

sharp edges panels

Size	Thickness	Weight/m²(kg)	Panels/Pallet	m²/Pallet	kg/Pallet
1350x600 mm	20 mm	5,30	112	90,7	approx. 481

TECHNICAL CHARACTERISTICS

Density (kg/m³)	230/265
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,046 (230) /0,048 (265)
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	5
Compressive strenght (kPa)	100 (230) / 180 (265)
Tensile strenght (kPa)	15 (230) / 20 (265)
Dimensional stability 48h, 70°C, 90% relative humidity	Lenght Δεl≤3% Width Δεb≤3% Thickness Δεd≤3%
Panels identification	WF EN 13171 - T5 - DS(70,90)2 - - CS(10\Y)150 - TR15(30) WS1,0 - MU5 (230) WFEN 13171 -T5 - DS(70,90)2 - - CS(10\Y)150 - TR20(30) WS1,0 - MU5 (265)
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm universal dry densities 180, 210kg/m^3

DESCRIPTION

The FiberTherm universal dry wood fiber panel is a thermo-acoustic insulation of the area under the roof cover and walls. The FiberTherm universal dry wood fiber insulating panel are particularly sable and light, the panels are producted through dry process. The panels are suitable with tongue & groove or shapr edges and with a thickness from 35 to 100 mm.

With FiberTherm universal dry is possible to obtain a thermo-acoustic insulation of roofs and walls to contributes onsiderably to improving the quality of life within home walls.Thanks to its low thermal conductivity and its high thermal resistance, FiberTherm universal dry protects your internal climate both from summer heat and winter cold. The density goes from **180 kg/m^3** to approximately **210 kg/m^3** and the high specific heat capacity, 2100 J/kgK (more than double the mineral wool), prevent heat from entering even during the hottest days.
Special rain protection for roofs with inclinations ≥16°.

AVAILABLE SIZES

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
2500x600 mm	2475x575 mm	35 mm	6,30	66	99,0	approx. 770
2500x600 mm	2475x575 mm	40 mm	8,40	56	84,0	approx. 740
1880x600 mm	1855x575 mm	52 mm	9,36	44	49,6	approx. 490
1880x600 mm	1855x575 mm	60 mm	10,80	38	42,8	approx. 500
1880x600 mm	1855x575 mm	80 mm	14,40	28	31,5	approx. 490
1880x600 mm	1855x575 mm	100 mm	18,00	22	24,8	approx. 480

TECHNICAL CHARACTERISTICS

Density (kg/m^3)	approx. 180 (52-100 mm) / approx. 210 (35-40 mm)
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,043 (52-100 mm) / 0,045 (35-40 mm)
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	3
sd value [m]	0,11 (35)/0,12 (40)/ 0,16(52) 0,18 (60)/ 0,24 (80)/ 0,30 (100)
Thermal resistance RD [(m² · K)/W]	0,75 (35)/0,85 (40)/1,20 (52)/ 1,40 (60)/ 1,85 (80)/ 2,30 (100)
Compression stress for 10% distortion (N/mm²)	0,18
Compressive strenght (kPa)	180
Tensile strenght (kPa)	≥25
Specific resistance to airflow [(kPa·s)/m²]	≥100
Short-term water absorption (kg/m²)	≤1,0
Panels identification	WF - EN 13171 - T5 - CS(10 \Y)180- TR25 -WS1,0 - MU3
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm isorel density 230kg/m^3

DESCRIPTION

The FiberTherm isorel wood fiber panel is a rigid, multi-use insulation for walls, floors and roofs, suitable for any type of thermal and acoustic insulation that requires reduced thickness and high compressive strength.
FiberTherm isorel wood fiber panel is a rigid, multi-use insulation for walls, floors and roofs, suitable for insulate your building in a completely natural way and with reduced thickness, ensuring the creation of environments with a high living comfort as well as a truly healthy indoor atmosphere.
The FiberTherm isorel insulating panel is producedwith wet process, the only one to guarantee the material complete compatibility with green building criterias, because it is free from any type of toxic substance. The density is **230 kg/m^3**.

The FiberTherm isorel wood fiber is an excellent thermo-acoustic insulation for flat roofs, walls and floors:
- adequate protection against atmospheric agents;
- high resistance to compression, impact sound;
- excellent insulating properties both in summer and in winter;
- contributes to the maintenance of a mild internal climate;
- self-heating with high absorption capacity;
- recyclable, ecological, respects the environment.

UTILIZATION

The FiberTherm isorel wood fiber insulating panel is suitable for any type of thermal and acoustic insulation that requires reduced thickness and high compressive strength.
In particular this material can be used for the realization of:
- substrates for slabs with impact sound insulation;
- external insulation of roofs and ceilings;
- insulation under tile, with adequate insulation protection;
- insulation of walls in dry systems;
- insulation in cavity with dry system;
- internal insulation of the walls.

INSTALLATION

The installation type is strictly linked to the panel utilization type depending on which it will be appropriate to adopt the most appropriate method of application. In general it is always necessary to protect this material from moisture both before laying, during the storage phase on site, and before the realization of the covering. In case of exposure of the material to the water let the material dry.

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm isorel density 230kg/m³

AVAILABLE SIZES

sharp edges panels

Size	Thickness	Weight/m²(kg)	Panels/Pallet	m²/Pallet	kg/Pallet
1200x1000 mm	8 mm	2,00	138	165,0	approx.350
2500x1200 mm	10 mm	2,20	114	342,0	approx.790
2500x1200 mm	12 mm	2,64	95	285,0	approx.790
2500x1200 mm	15 mm	3,30	76	228,0	approx.790
2500x1200 mm	19 mm	4,18	60	180,0	approx.790

TECHNICAL CHARACTERISTICS

Density (kg/m³)	230
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,050
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	5
sd value [m]	0,04 (8)/ 0,05(10)/ 0,06(12)/ 0,08(15)/ 0,1(19)
Thermal resistance RD [(m² · K)/W]	0,16(8)/ 0,20(10)/ 0,24 (12)/ 0,30(15)/0,38(19)
Compression stress for 10% distortion (N/mm²)	≥ 0,15
Compressive strenght (kPa)	≥ 100
Tensile strenght (kPa)	≥10
Hydraulic resistance relative to the length [(kPa·s)/m²]	≥100
Panels identification	EN 622-4 SB - E1
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels BitumFiber density 230kg/m^3

DESCRIPTION

The BitumFiber wood fiber insulating panels is a un pannello di is a separation under concrete screeds, and is obtained by the felting and drying of wood fibers impregnated with 10% of dried bitumen during manufacture (different percentage of reinforced bitumen on request). Excellent soundproofing in foot traffic improves the phonic comfort in the rooms and promotes the diffusion of water vapor, so as to minimize the formation of mold.

The BitumFiber panels are hygrometric regolators; they protect the buildings with wooden or metal structure from rain and wind. They reduce vibrations. They have a density of approximately **230 kg/m^3**.
BitumFiber is excellent in the construction of dry and wet screeds, flooring systems and walkable floors:
• the insulating panels are produced in compliance with current European standards with continuous oversight by the exterior and in accordance with the compression, extrusion and recovery requirements of the American Standard ASTMD1751;
• the natural wood fibers used as raw material are not irritating, especially for the skin;
• the wood comes from forests controlled by reforestation cycles FSC (Forest Stewardship Council);
• unlike some other insulating materials, there is no need for special safety measures;
• panels are easy to work with common wood machines.

AVAILABLE SIZES

sharp edges panels

Size	Thickness	Weight/m²(kg)	Panels/Pallet	m²/Pallet	kg/Pallet
2500x1200 mm	10 mm	2,20	114	342,0	approx. 790
2500x1200 mm	12 mm	2,64	95	285,0	approx. 790
2500x1200 mm	15 mm	3,30	76	228,0	approx. 790
2500x1200 mm	19 mm	4,18	60	180,0	approx. 790

TECHNICAL CHARACTERISTICS

Density (kg/m^3)	approx. 230
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,055
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	5
Thermal resistance RD [(m² · K)/W]	0,2 / 0,24 / 0,3 / 0,38
Compressive strenght (kPa)	100
Tensile strenght (kPa)	≥10
Panel indentification	EN 622-4 SB.H-E1
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm special density 240kg/m^3

DESCRIPTION

The FiberTherm special wood fiber insulating panel can be placed from the outside directly on the beams to improve the insulation of the roof and to avoid dissipating thermal energy.
The space under the roof structure is not compromised. The special tongue&groove edges of FiberTherm special panels guarantee wind resistance, the suitability and drainage of water, without further joints for roofs with inclinations of at least 16 °.
Protect FiberTherm special from the weather during the installation day.

The advantages of FiberTherm special wood fiber panels:
• very good thermal conductivity: FiberTherm special provides an excellent insulation value. The thermal conductivity λ is 0,046 [W/(m · K)] in order to have an excellent thermal insulation applied even on particularly thin roofs.
• safe protection against atmospheric agents: special tongue&groove profile ofFiberTherm special wood fiber panels have a specially developed geometry for easy installation and long life. The roof is well protected from rain and wind.
• ecologic quality: FSC certified wood fiber material.

AVAILABLE SIZES

tongue & groove panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
1880x600 mm	1855x575 mm	60 mm	14,01	36	40,6	approx. 620
1880x600 mm	1855x575 mm	80 mm	18,44	28	31,6	approx. 620
1880x600 mm	1855x575 mm	100 mm	22,81	22	24,8	approx. 620
1880x600 mm	1855x575 mm	120 mm	27,21	18	20,3	approx. 620

TECHNICAL CHARACTERISTICS

Density (kg/m^3)	approx. 240
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,046
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	5
sd value [m]	0,3 (60) /0,4 (80) /0,5(100)/ 0,6 (120)
Thermal resistance RD [(m² · K)/W]	1,30 (60)/ 1,70 (80)/ 2,15(100) / 2,60 (120)
Compression stress for 10% distortion (N/mm²)	0,10
Compressive strenght (kPa)	100
Tensile strenght (kPa)	≥10
Hydraulic resistance relative to the length [(kPa·s)/m²]	≥100
Panels identification	WF-EN 13171-T5-DS(70,-)2-CS(10\Y)100-TR10-WS1,0 - AF100
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm base density 250kg/m³

DESCRIPTION

The FiberTherm base wood fiber panel is a rigid thermal insulation completely ecologic ideal for ideal for the realization of dry and wet screeds, and floors that can be walked on thanks to its high compressive strength (**150 kPa**), its density equal to **250 kg / m³**, and its sound insulation properties.

The FiberTherm base wood fiber is excellent in the construction of dry and wet screeds, flooring systems and walkable floors:

- optimal combination for dry and wet screed construction, highly resistant to compression;
- ecological insulation of roofs and under-roofs;
- suitable for insulating and bituminous panels;
- excellent insulating properties both in summer and in winter;
- recyclable, ecological, respects the environment.

AVAILABLE SIZES

sharp edges panels

Size	Thickness	Weight/m²(kg)	Panels/Pallet	m²/Pallet	kg/Pallet
1350x600 mm	20 mm	5,00	112	90,7	approx. 460
1350x600 mm	40 mm	10,00	56	45,4	approx. 460
1350x600 mm	60 mm	15,00	38	30,8	approx. 470
1350x600 mm	80 mm	20,00	28	22,7	approx. 460
1350x600 mm	100 mm	25,00	22	17,8	approx. 460

TECHNICAL CHARACTERISTICS

Density (kg/m³)	approx. 250
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,048
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	5
sd value [m]	0,1(20) /0,2(40) /0,3(60) /0,4(80) /0,5(100)
Thermal resistance RD [(m² · K)/W]	0,40(20) /0,80(40) /1,25(60) /1,65(80) /2,05(100)
Compression stress for 10% distortion (N/mm²)	≥0,15
Compressive strenght (kPa)	≥150
Tensile strenght (kPa)	≥10
Specific resistance to airflow [(kPa·s)/m²]	≥100
Panels identification	WF - EN 13171 - T5 -DS(70\-)2-CS(10\Y)150-TR20- MU5
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm underfloor density 250kg/m^3

DESCRIPTION

The FiberTherm underfloor wood fiber panels is a thermo-acoustic impact sound insulation with which a high improvement of acoustics is achieved for pre-finished parquet and laminate floors up to 19 dB.
Their density is equal to **250 kg/m^3**.

The FiberTherm underfloor wood fiber is excellent inserted in the thermal-acoustic insulation systems of parquet and / or laminate floors:

- good impact sound insulation and high improvement of environmental acoustics;
- excellent insulatin characteristics;
- high pressure stenght until 20 t/m² - important for interlocking systems;
- long life thanks to the stable structure of the fibers;
- particularly open to dissemination;
- resistant to chemical solvents;
- easy and quick processing;
- leveling of irregularities up to 3 mm;
- suitable for underfloor heating systems;
- recyclable, ecological, respects the environment.

AVAILABLE SIZES

sharp edges panels

Size	Thickness	Weight/m²(kg)	Panels/Pallet	m²/Pallet	kg/Pallet
790x590 mm	3 mm	0,77	20	32	approx. 265
790x590 mm	4 mm	1,02	15	32	approx. 265
790x590 mm	5 mm	1,28	15	26	approx. 265
790x590 mm	7 mm	1,75	20	14	approx. 265

TECHNICAL CHARACTERISTICS

Density (kg/m^3)	approx. 250
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,07 (secondo DIN ISO 10456, Tab. 3)
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	5
sd value [m]	0,02 (3,0) / 0,02 (4,0) / 0,03 (5,0) / 0,04 (7,0)
Thermal resistance RD [(m² · K)/W]	0,06 (4,0) / 0,07 (5,0) / 0,10 (7,0)
Reduction of the sound impact IS_{LAM}	19 dB
Panels identification	EN 622-4 SB - E1
Waste code (EAK)	030105/170201

DESCRIPTION AND CHARACTERISTICS

Fiber wood panels FiberTherm universal density 270kg/m³

DESCRIPTION

The FiberTherm universal wood fiber panel is a thermo-acoustic insulating substrate for roofs and walls. The wood fiber insulating panels FiberTherm universal are particularly stable and light, and they are produced through dry process Available with tongue&groove and sharp edge profile.
Thanks to low thermal conductivity and the high thermal resistance, FiberTherm universal dry protects your building or apartments both from summer heat and winter cold. The density, approximately **270 kg/m³** and the high specific heat capacity, 2100 J/kgK, prevent heat from entering even during the hottest days.
La fibra di legno FiberTherm universal è un ottimo isolamento termo-acustico per tetti, sottotetti e pareti:
• high resistance to pressure, impact sound in the support area;
• rainproof thanks to the special fold for pitch slopes ≥ 16 °, completely hydrophobic.

AVAILABLE SIZES

tongue & groove panels

Size	Real size	Thickness	kg/m²	Panels/Pallet	m²/Pallet	kg/Pallet
2500x600 mm	2480x585 mm	22 mm	5,83	104	156,0	approx. 1020
2500x600 mm	2480x580 mm	24 mm	6,36	98	140,1	approx. 1020
2500x600 mm	2.475x575 mm	35 mm	9,28	66	93,9	approx. 1010
2500x600 mm	2.475x575 mm	52 mm	13,78	44	62,6	approx. 1000
2500x600 mm	2.475x575 mm	60 mm	16,20	38	54,1	approx. 1000
2800x1250mm	2775x1225mm	35 mm	9,28	33	112,2	approx. 1130

AVAILABLE SIZES

sharp edges panels

Size	Thickness	Weight/m²(kg)	Panels/Pallet	m²/Pallet	kg/Pallet
2800x1250 mm	35 mm	9,28	33	115,5	approx. 1130

TECHNICAL CHARACTERISTICS

Density (kg/m³)	approx. 270
Reaction to fire according to the standard EN 13501-1	E
Declared thermal conductivity λ_D W/(m*K)	0,048
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	5
sd value [m]	0,11 (22)/ 0,12 (24)/ 0,18 (35)/ 0,26 (52)/0,30 (60)
Thermal resistance RD [(m² · K)/W]	0,45 (22)/ 0,50 (24) / 0,70 (35)/ 1,05 (52)/1,25 (60)
Compressive strenght (kPa)	200
Tensile strenght (kPa)	≥30
Specific resistance to airflow [(kPa·s)/m²]	≥100
Short-term water absorption (kg/m²)	≤1,0
Panels identification	WF - EN 13171 - T4 -DS (70,-) 2 - CS (10 \Y)100 - TR30 - WS1,0 - AF100; EN 622-4 - SB.H - E1

DESCRIPTION AND CHARACTERISTICS

Fiber wood loose material FiberTherm zell

DESCRIPTION

FiberTherm zell is a loose wood fiber material for cavities filling. To produce the insulating layer, the fibrous material is injected at high pressure into the closed compartments and adapts exactly to the limiting elements. Therefore FiberTherm zell is suitable both as an insulating material for industrial prefabrication (for example of complete wall elements) as well as for renovations.
With FiberTherm zell is not necessary that the compartments to be insulated present the standard dimensions of the insulating materials in commerce. Even the structural elements present into the interspaces are completely enveloped by the insulating material without manual intervention.
FiberTherm zell can be used also as free loose material for free installation wothout compartments. For existing or newly constructed buildings, wooden buildings or with wooden load-bearing structures or other types of light construction.
With FiberTherm zell no waste is generated and the dust generated is compostable.
The FiberTherm zell loose wood fiber material has the following characteristics:
• seamless insulation layer;
• excellent thermal and acoustic insulation;
• anti-settling safety thanks to the wood fibers that fit together;
• excellent insulating and transpiring properties, in summer as in winter;
• recyclable, ecological, respects the environment.

AVAILABLE SIZES

Product delivery	Bags/Pallet	Weight/Pallet(kg)	Pallet size
PE bags 15 kg	21	315	approx. 0,80 x 1,20 x 2,60 m (lenght x width x height)
PE bags 20 kg	18	360	approx. 0,80 x 1,20 x 2,30 m (lenght x width x height)

TECHNICAL CHARACTERISTICS

European technical approval (ETA)	12/0011
Recommended apparent density (kg/m³):	
• open installation (on roof)	approx. 32 - 38
• internal installation in walls, floors, screeds	approx. 35 - 45
Thermal conductivity coefficient λ_D W/(m*K)	0,038
Specific heat c [J/(kg*K)]	2.100
Resistance to vapor diffusion μ	1÷2
Waste code (EAK)	030105/170201

DECLARATION OF ENVIRONMENTAL PERFORMANCE

Wood fiber products FiberTherm

This is a Declaration of Environmental Performance which reflects an average product of different ranges of our products. The following products are included in average calculation:

- FiberTherm flex
- FiberTherm
- FiberTherm internal
- FiberTherm SD
- FiberTherm underfloor
- FiberTherm floor
- FiberTherm isorel
- FiberTherm protect
- FiberTherm universal
- FiberTherm special

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PRODUCT

This Declaration describes a weighted average production volume of wood fiber insulating materials FiberTherm flex, FiberTherm, FiberTherm internal, FiberTherm SD, FiberTherm floor, FiberTherm isorel, FiberTherm floor, FiberTherm protect M / H,FiberTherm universal e FiberTherm special, which are produced in both wet and dry processes.
The wood fiber insulating materials specified in the Declaration are used in a uniform way according to DIN EN 13171 as insulating panels and insulating mats for buildings.

The FiberTherm products aren't only wood fiber insulating panels, pressure restistant and preduced through we t process, but also insulating wood fiber mats produced with dry process. The FiberTherm wood fiber insulating panels are extremely versatile and they can be uses in walls, roofs and flooring systems. They can be used as acoustic insulation against impacts and noise under parquet or laminates, as insulating elements that can be plastered directly for thermal insulation systems, and as flexible insulation for cavities.

The following information refers to the FiberTherm product range. Information on other products specified in the scope of this EPD can be viewed on www.fiberwood.com.

Name	Value	Unit
Gross density according to the norm DIN EN 1602	50 - 265	kg/m³
Moisture of the material at delivery according to DIN EN 13171	6	%
Rectangular traction force according to DIN 13171	0.025	N/mm²
Thermal conductivity declared according to DIN 13171	0.038	W/(mK)
Resistance factor to diffusion of water vapor according to DIN 13171	5	-
Specific thermal capacity	2100	J/(kgK)
Fire reaction class according to DIN EN 13501-1	E	
Compression tension at 10% of deformation according to DIN 13171	50	kPa

Table 1 Building technical data

Directive (EU) No 305/2011 applies to the placing of the product on the market in the EU / EFTA (with the exception of Switzerland).
The FiberTherm wood fiber require a Declaration of Performance according to the harmonized product standards EN 13171: 2012 . Buildings thermal insulation materials - wood fiber (WF) produced in factory - and EN 13986:2015, panels based on wood fiber for building use - Characteristics, conformity assessment and trademarks (FiberTherm isorel, FiberTherm underfloor) and CE marks.
The national provisions on the subject apply for the use of the products, the general building inspection approval (ABZ) n Z-23.15-1.452 of the German Institute for Building Technology (DIBt), Berlin apply in Germany to insulating materials in wood fiber according to EN 13171.

BASIC MATERIALS/ACCESSORIES

In addition to wood fibers, wood fiber insulation materials also contain a minimum amount of binders and other additives. The proportions on average from the various products for the Environmental Declaration are:

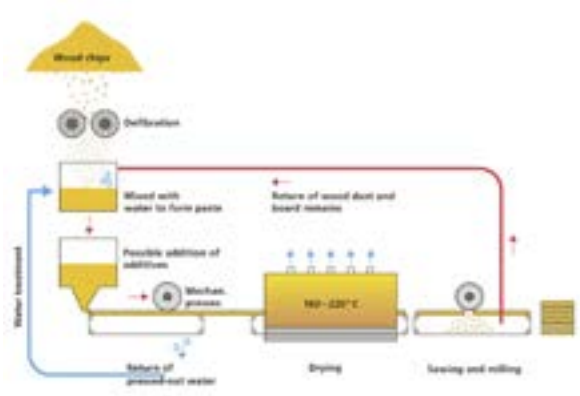
- wood, coniferous wood first: 82,8%
- water: 6,0%
- adhesives 1,2%
- bicomponent fibers 1,3%
- recycled paper 6,3%
- flame retardants 2,4%
- various 0,1%

Polyurethane, phenolic resin, sodium silicate and paraffin are used as adhesives and for hydrophobic treatment. The bicomponent fibers are made of polyethylene and polypropylene.

A luminum sulphate is used as a flame retardant. The apparent density of the average wood fiber insulation material declared is 157.49 kg.

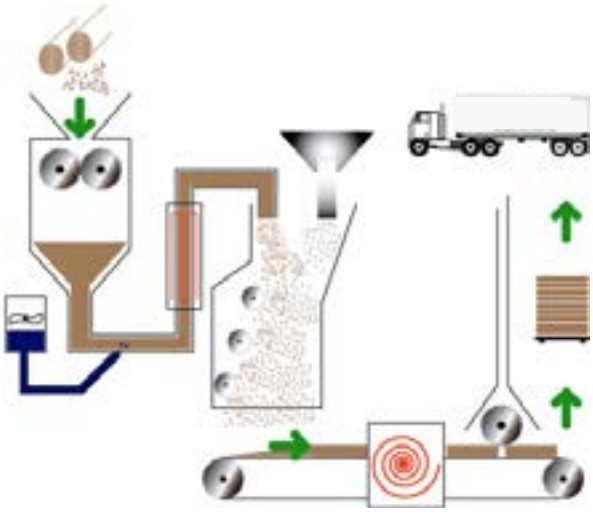
PRODUCTION

Explanation of the production sequence by **wet process**:



- processing of rough wood to obtain shavings
- chip heating under steam pressure
- chipping of chips through a de-flaking process
- mixing the fibers with water to form a fiber paste (if necessary with the addition of the necessary additives)
- panel formation by pressing
- longitudinal cutting of the edge
- drying of the panels (160 ° C - 200 ° C)
- gluing, cutting and creating the profile
- stacking, packaging

Explanation of the production sequence by **dry process**:



• processing of rough wood to form shavings
• chip heating under steam pressure
• chipping of chips through a de-flaking process
• drying of the fibers in the dryer
• addition of bicomponent fibers
• subject the mixture to the production line
• heating and tracing of the mixture to form an insulating mat
• panel cutting
• stacking, packaging

All the residual products accumulated during production are redirected into the production process or are directed to an internal energy recovery process.

Quality assurance systems:
• CE marking according to. DIN EN 13171, MPA North Rhine-Westphalia, Germany
• FSC - SGSCH-COC-050.039
• DIN EN ISO 9001: 2008 - 1210019741

ENVIRONMENT/HEALT IN PROCESS

Healt protection
Due to production conditions, no other health protection measures are required in addition to the statutory and other regulations.
Environment protection
Air: the air generated by waste during the production process is clean in compliance with the legal specifications.
Water / soil: No direct water or soil pollution is caused by the production process. The waste water generated by the production is treated internally and redirected to production.

PROCESSING/INSTALLATION

Depending on the type of panel, FiberTherm wood fiber insulation materials can be treated with standard woodworking tools (hand saw, isolation knife, circular saw, band saw, etc.).
If the treatment is carried out without aspiration of the dust, we recommend the use of breathing protection measures.
Neither the treatment nor the installation of FiberTherm wood fiber insulation materials leads to environmental pollution.
As far as environmental protection is concerned, no further measures are necessary.

PACKAGING

For the packaging of FiberTherm wood fiber insulation materials, polyethylene films, adhesives and wood are used. All packaging materials are recyclable if not mixed, and / or can be recovered as energy.

UTILIZATION CONDITIONS

The ingredients listed in 2.6 apply for the average product under consideration. The proportions of the ingredients vary depending on the range.
About 65 kg of carbon is bound to the product during use. This corresponds to 239 kg of CO2 for full oxidation.

ENVIRONMENT/HEALT WHILE USING

Environment: When FiberTherm wood fiber insulation materials are used correctly, there is no potential danger to water, air, or soil based on the current state of knowledge.

Health: When FiberTherm wood fiber insulation materials are installed correctly, they are not health hazards. It is possible that small quantities of product substances can escape. Furthermore, no emissions relevant to health were detected.
To ensure the exact fulfillment of the statutory emission limit values, radioactivity, VOC etc., the Fi-berTherm wood fiber insulation materials have been tested.

Passiamo l'80% della nostra vita in locali chiusi. Ma sappiamo anche cosa questo comporta? Betonwood si è prefissa l'obiettivo di sviluppare prodotti edili in grado di coniugare le esigenze di persone e natura. Ecco perché i nostri prodotti vengono realizzati con materie prime rigenerabili senza l'aggiunta di additivi petrolchimici. In questo modo contribuiscono a ridurre il consumo energetico e concorrono a un clima abitativo durevolmente sano, molto apprezzato non solo da chi soffre di allergie.

I prodotti Betonwood con sigillo naturepluS ® portano il riconosciuto marchio di qualità dei prodotti edili ecologici, non dannosi per la salute e funzionali. naturepluS ® certifica che i prodotti contengono una percentuale di materie prime rinnovabili superiore alla media, che per la propria produzione richiedono un ridotto consumo di energia e che nella fase di realizzazione e utilizzo sono caratterizzati da basse emissioni. Inoltre, il sigillo FSC® (Forest Stewardship Council) garantisce un uso sostenibile ed ecologico della materia prima legno.

Il sistema di coibentazione e costruzione naturale per opere di ristrutturazione e di realizzazione di tetti, solai, pareti e pavimenti.

- Materie prime rinnovabili senza additivi nocivi
- Eccellente protezione dal freddo in inverno
- Eccellente protezione dal calore in estate
- Risparmio energia e incrementa il valore dell'edificio
- Antiriciclaggio e aperto alla diffusione
- Buona protezione antincendio
- Notevole miglioramento dell'isolamento acustico
- Ecocompatibile e riciclabile
- Lavorazione semplice e pratica
- Il materiale coibente per la salute abitativa
- Severi controlli della qualità
- Sistema di coibentazione e costruzione

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