

FASSAFLOOR THERM

DATA SHEET

Pumpable cement floor screed with rapid drying for interiors and exteriors, with high mechanical strength, thermal conductivity and controlled shrinkage



Interior/exterior flooring



Silo



By machine



Sack



By hand

Advantages

- Excellent mechanical strength
- Excellent thermal conductivity
- Ideal for underfloor heating and cooling systems
- Fast covering application
- Practical and easy to apply
- For both renovations and new constructions

Composition

FASSAFLOOR THERM is a dry premixed product made from special binders, graded sands and specific additives to ensure fast drying and high mechanical strength.

Supply

- Sacks with protection against damp of approx. 25 kg
- In bulk in silo

Use

FASSAFLOOR THERM is a cementitious floor screed with semi-wet consistency, quick setting and drying, used as a load distribution layer in interior and exterior environments, for laying wooden, resilient (linoleum, PVC, carpet, LVT, rubber, etc.) and stone coverings, ceramic and resinous tiles.

Thanks to its excellent mechanical performance, FASSAFLOOR THERM is suitable for the following uses:

- Environments for residential use (hotels, homes and related services)
- Private and public offices
- Public environments (restaurants, healthcare facilities, schools, gyms, libraries, etc.)
- Environments for commercial use (shops, warehouses, bookshops, shopping centres, etc.)
- Pedestrian and traffic areas with light traffic in commercial/industrial environments.

Moreover, due to its good thermal conductivity, it is particularly suitable for application in heating/cooling systems without the use of other additives.

Comply with the requirements of the main application standards (UNI 11493-1, UNI 11371, UNI 11714-1, UNI 11515-1, UNI 10966, etc.).

Substrate preparation

The application surface must be free of all foreign matter, mechanically resistant, dimensionally stable, cured, dry and clean.

For the construction of unbonded or floating screeds, before laying the screed, any substrates that are irregular or with significant differences in level must be levelled off the same height, making a compensating layer using products such as FASSAFLOOR LIGHT 300 or CALCESTRUZZO CELLULARE; any plumbing or electrical systems must also be embedded in the compensation layer.

Bonded screed (minimum thickness 2 cm)

In addition to meeting the requirements listed above, also make sure that the substrate is clean, without any oil, waxes, paints or any other element that may compromise adhesion to the substrate. Apply a 0.5-1 cm thick strip of foam material along the perimeter walls and in the limits and then use a brush to apply a cement grout slurry to improve bonding; the slurry is made by mixing FASSACEM with AG 15 latex, diluted 1:3 with water. Apply the screed mix when the slurry is still wet.

Unbonded screed (minimum thickness 3.5 cm)

Lay a vapour barrier (thickness according to the value of S_d , equivalent air layer, required) over the entire surface of the cast, making sure to both overlap the joints by at least 10-15 cm and to fold the sheet up onto the walls to the same height as the compressible strip; seal all joints with moisture-resistant adhesive tape.

Arrange, along the perimeter walls and the elements in elevation, a strip of compressible material 0.5-1 cm thick and at least as high as the finished portion of the flooring, including the finish coverings.

For both bonded floor screeds and unbonded floor screeds, welded wire mesh can be embedded at around half thickness (see the paragraph on "Warnings").

Floating screed

For screeds on thermal insulation or soundproofing systems, such as SILENS STA 10, scrupulously apply the insulating materials, following the manufacturer's installation instructions and, as regards soundproofing, standard UNI 11516 "Installation instructions for floating flooring systems for soundproofing".

If necessary, lay a vapour barrier (thickness according to the value of S_d , equivalent air layer, required) over the entire surface of the cast, making sure to both overlap the joints by at least 10-15 cm and to fold the sheet up onto the walls to the same height as the compressible strip; seal all joints with moisture-resistant adhesive tape.

Arrange, along the perimeter walls and the elements in elevation, a strip of compressible material 0.5-1 cm thick and at least as high as the finished portion of the flooring, including the finish coverings.

The thickness of the screed must be decided based on the compressibility and thickness of the insulation, the final intended use and the type of covering used.

Furthermore, it is recommended to place welded wire mesh inside the screed (see the paragraph on "Warnings").

Floor screed with heating/cooling system

Where radiant systems are installed, make sure that all the panels are stable, bonded to the substrate and are arranged side-by-side up to perimeter compressible tape, in order to avoid thermal bridges.

As specified by standard EN 1264-4, before laying the screed, the heating circuits must be checked for tightness using a water pressure test.

Furthermore, it is recommended to place welded wire mesh inside the screed, making sure this is suitably fixed to the radiant panels. Typically, the mesh will measure 50x50 mm with a wire thickness of 2 mm, and must be interrupted at the height of the expansion joints.

Mixing

The following can be used to mix the product:

- horizontal mixer, such as FASSA MEC 30 THREE-PHASE;
- high-pressure automatic mixer;
- cement mixer;
- planetary mixer.

The loose product is supplied in a gravity silo with a sloping extraction auger (150 litres) and a flow-rate of around 150 litres/minute (about 9 cubic metres/hour with continuous operation). This greatly reduces the physical effort of the operator responsible for loading the automatic mixer and increases daily floor screed production.

Adjust the amount of water so as to obtain a mixture with "semi-wet" consistency. The correct dosage of water involves adding a sufficient liquid content to the mixture to ensure compaction; higher doses of water lengthen the product drying times, while lower doses can cause the phenomena of surface "burning" on the product. Users need to verify the correct dosage of water based on the type of mixing adopted and the building's temperature and humidity conditions.

FIBER MST 20 alkali-resistant fibres can be added to the screed; the recommended dosage is 1 to 3 kg/m³, depending on the desired level of reinforcement of the floor screed and in accordance with design specifications.

Create the level bands, cast the material, then carefully complete the compacting, levelling, screeding and trowelling operations, to avoid "burning" and a consequent decline in mechanical strength. If high thicknesses are required, lay the screed in several layers, carefully compacting each layer individually. Always embed metal mesh around pipes or membranes, ensuring these are covered by a suitable thickness. The compacted screed is then finished using a plastic float or spinning disk machine. The surface must be compacted until becoming a closed-pore surface without any rising water.

If needing to suspend the work, resume casting by embedding into the screed, cut perpendicularly, reinforcing mesh or pieces of iron bar and connecting the casts with a grout slurry obtained by mixing FASSACEM with AG 15 latex, diluted 1:3 with water, or with FASSA EPOXY 300, in both cases applying while the underlying material is still wet.

For installation of ceramic or stone coverings, it is recommended to use our AZ 59 FLEX, AT 99 MAXYFLEX, SPECIAL ONE or AD 8 adhesive mixed with FASSACOL LATEX S2, or, if quick-setting products are required, RAPID MAXI S1.

For laying wooden coverings, it is recommended to use our ADYWOOD 2K two-component epoxy-polyurethane adhesive, or ADYWOOD MS, single-component silane adhesive for laying wooden floors.

For laying resilient coverings, it is recommended to use our ADYTEX RS one-component acrylic adhesive, or ADYTEX 2K high-performance epoxy-polyurethane adhesive.

The adhesive will be chosen according to the expected format and type of covering.

In any case, begin applying the covering only after verifying the suitability of the substrate according to the application regulations in force.

First radiant system start-up cycle

After curing for a period of at least 5 days, the system must be started in accordance with the requirements of standard EN 1264-4, or the following instructions:

- the first heating cycle starts with a water outlet temperature of 20-25°C, which must remain constant for 3 days;
- subsequently, the water inlet temperature must be increased by 5°C per day, until reaching the maximum expected operating temperature;
- this temperature must be maintained for 5 days for thicknesses up to 55 mm; for every additional 5 mm in thickness, the time must be increased by one day;
- then the water inlet temperature must be reduced by 10°C a day, until reaching the initial temperature;
- during the period in which the system is started for the first time, check ventilation in the rooms so as to avoid the formation of drafts.

It is always good practice to start the system before bonding any type of flooring, in order to make any cracks appear on the screed due to accumulation of stress resulting from thermal expansion; the covering must then be laid when the screed has cooled.

Joints/maximum surface without divisions

- Division joints must be made on the screed (at least 1/3 of the thickness); in principle, the joints must subdivide the surface into square or rectangular sections, and must therefore be made in correspondence with openings in the walls, protrusions or areas with irregular shapes (i.e. "L" or "U" etc.).
- The joints are made by cutting the screed during application, without interrupting the reinforcing mesh embedded in the screed, if used; the mesh must be interrupted at the expansion joints on the heated floor screed or at the structural joints.
- The maximum uninterrupted surface area should be approximately 25-30 m².
- In outdoor environments, the maximum surface area must comply with the relevant application standards.
- Structural joints must be marked on the screed.

For joints in areas with irregular shapes, it is recommended to follow the designer's instructions or contact Fassa Technical Service at area.tecnica@fassabortolo.it.

Warnings

- Product for professional use.
- Always consult the safety data sheet before use.
- The fresh product must be protected against frost and quick drying. Normally a temperature of +5°C is suggested as a minimum value for application and proper hardening of the product. Below this value, setting would be delayed excessively and below 0°C the fresh or partially hardened product could be broken up by frost.
- Avoid applying FASSAFLOOR THERM at temperatures above +30°C.
- Avoid air draughts and strong sunlight in the first 48 hours after application (in summer it is recommended to use dark fabrics to block sunlight on all openings). From the third day onwards, ventilate the area to assist hardening and ensure optimum drying of the screed.
- Lay wooden, resilient and laminated floors only after having ascertained by carbide hygrometer that the moisture content is ≤ 2% (in compliance with UNI 11371 and UNI 11515-1).
- For application of wooden, resilient and laminated floor coverings on screeds enclosing underfloor heating coils, residual moisture must be ≤ 1.7% (in compliance with UNI 11371 and UNI 11515-1).
- Lay stone coverings only after having ascertained by carbide hygrometer that the moisture content is ≤ 3% or ≤ 2% for moisture-sensitive materials (in compliance with UNI-11714-1).
- Residual moisture is measured using a carbide hygrometer only in screeds in which the presumed moisture content is less than 3%, placing a 50 gram sample and a vial of calcium carbide in the bottle. The reading must be made on the 50 g scale, or using the appropriate conversion scales supplied with the instrument, 20 minutes after starting the test. Electrical instruments may provide inaccurate values.
- For correct installation of ceramic flooring on any cement screed, the residual moisture content must be ≤ 3% (in compliance with standard UNI 11493-1).
- For the production of unbonded screeds on vapour barriers, intended for the subsequent application of thin coverings in general and/or resilient coverings, the minimum thickness must be at least 4 cm (in compliance with UNI 11515-1), placing metal reinforcing mesh half-way into the floor screed.
- Remember that for the installation of moisture-sensitive coverings (wood, resilient, etc.), the vapour barrier must have an S_d (equivalent air layer thickness) that complies with the requirements of the corresponding application standards.
- Depending on the intended use, useful thickness, compressibility of insulating materials, surface geometries and type of covering, evaluate whether to use welded wire mesh inside the screed. Typically, the mesh will measure 50x50 mm with a wire thickness of 2 mm, and must be interrupted at the height of the expansion joints.
- Application on underfloor heating systems does not require the use of fluidifiers, as these are already contained in the product's formulation.
- For laying on underfloor heating systems, a minimum thickness of 3 cm is recommended above the pipes.
- In addition to what is specified in the "substrate preparation" paragraph, it should be stressed that bonded screeds can only be made on sound, compact, crack-free substrates and with a residual moisture content below that required for applying the envisaged covering.
- For exterior screeds, the thickness of the perimeter joint must be specified by the designer and in any case must not be less than 10 mm.

FASSAFLOOR THERM must only be used in its original state, without the addition of other materials, except for AG 15 latex and FIBER MST 20 fibres.



Storage

Keep dry for a period not exceeding 12 months. Once the product has expired, it must be disposed of in accordance with current legislation.

Quality

FASSAFLOOR THERM is subjected to accurate and constant checks in our laboratories. The raw materials used are rigorously selected and controlled.

Technical Data

Specific gravity of the powder	approx. 1,700 kg/m ³
pH	alkaline
Granulometry	< 3 mm
Minimum application thickness	2 cm anchored
	3.5 cm unbonded
Mixing water	6.5-7.5%
Yield (variable, based on the degree of compaction)	approx. 19 kg/m ² with 10 mm thickness
Density of the hardened product (variable according to the degree of compaction)	2,150-2,300 kg/m ³
Working time	approx. 60 minutes
Minimum typical drying time at 20°C and 65% RH for a 4 cm thick screed	24 hours for ceramic floors in general; 5 days for residual moisture less than 2%; at lower temperatures and/or higher R.H. drying time may increase
Thermal conductivity coefficient (EN 12664) *	$\lambda = 1.9 \text{ W/(m}\cdot\text{K)}$
Specific heat (ISO 10456)	1 KJ/(kg·K) (tabulated value)
Water vapour diffusion resistance factor (EN ISO 10456)	70 wet conditions. 120 dry conditions (tabulated value)
Resistance to stresses parallel to the application surface (UNI 10827)	$\geq 1.6 \text{ N/mm}^2$
Flexural strength after 28 days (EN 13892-2) *	$\geq 8 \text{ N/mm}^2$
Compressive strength after 28 days (EN 13892-2) *	$\geq 35 \text{ N/mm}^2$
Walkability	approx. 12 hours
Reaction to fire	A1fl
Compliant with Standard EN 13813	CT-C35-F7
(*) The specimens for thermal conductivity and mechanical resistance tests are prepared under laboratory conditions, using a specific procedure in accordance with the reference standard (EN 13892-1), in order to obtain the maximum possible compaction.	

Environmental sustainability certifications and protocols

GEV Classification	GEV EMICODE EC 1 ^{Plus} - very low emission
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The above information refers to laboratory testing; it is possible that in practical applications on site these may differ considerably according to the conditions in which the material is applied. In any case the user must check that the product is suitable for the intended application, taking all responsibility for its use. Fassa reserves the right to make technical modifications without notice.

Technical specifications regarding the use of Fassa Bortolo products for structural or fire prevention applications will only be officially valid if provided by Fassa Bortolo's "Technical Service" and "Research, Development and Quality System". If necessary, contact Technical Service in your country of reference (IT: area.tecnica@fassabortolo.com, ES: asistencia.tecnica@fassabortolo.com, PT: asistencia.tecnica@fassabortolo.com, FR: bureau.technique@fassabortolo.fr, UK: technical.assistance@fassabortolo.com).

Please note that for the aforementioned products, the assessment is required by the appointed professional, in accordance with regulations in force.