DIATHONITE SCREED

Thermal, breathable and light weight screed

Breathable fibre reinforced screed, made out of cork (large. 0-3 mm), clay, diatomaceous powders and hydraulic binder. Natural ready-to-use product, ideal for the realization of light weight thermal screeds, for the insulation of floor slabs, floors and ventilated roofs. Being light weight, *Diathonite Screed* allows to thermally insulate without weighing down the floors and existing structures. *Diathonite Screed* can be used indoors and outdoors, on new buildings and for renovations.

ADVANTAGES

- Insulation against cold and heat.
- Highly breathable.
- Reaction to fire: class A1.
- Lightweight product, suitable for renovations.
- Ready to use.
- Fibre-reinforced.
- It can be used indoor and outdoor.
- Suitable to drown piping.
- Product with CE marking (EN 13813).
- After having made the surface waterproof (using a suitable waterproofing product), the tiles can be attached directly on *Diathonite Screed*.

YIELD

6.00 kg/m^2 (± 10%) per cm of thickness.
3.12 lb/ft^2 (± 10%) per inch of thickness.

COLOUR

Grey.

PACKAGING

25 kg (55.10 lb) paper bags.
Pallet: n° 50 paper bags (1250 kg - 2755.8 lb).

APPLICATION FIELDS

Ready-to-use screed for indoor and outdoor applications. Suitable for the construction of thermal screeds for residential buildings, public, hotels, conference rooms and all those environments that need to be isolated with respect to the underlying rooms. It can be used both on existing floors and on new buildings. The system *Diafon* + *Diathonite Screed* allows to insulate the floor from noise and vibration.

STORAGE

Store the product in its original and perfectly closed containers, in well ventilated areas, away from sunlight, rain and frost, at temperature above +5°C (41°F). Storage time 12 months.

PREPARATION OF SUPPORT

The substrate must be completely hardened (properly cured) and have sufficient strength. The surface must be thoroughly cleaned, well-established, without friable and inconsistent parts. In the presence of installations, provide a concrete protection.

Brick and concrete

The application can be carried out directly without the aid of a primer. In the presence of hollows or holes on the screed provide restoration with suitable mortar.

Wood and Steel

Given that these kind of supports are subject to considerable expansion and movement, it will be necessary to use galvanized metal reinforcement mesh and the primer *Aquabond* (see technical data sheet).

Panels

For a workmanlike manner, make sure that the panels are well placed together and perfectly anchored to the support. Then proceed directly with the jet of the *Diathonite Screed*. Also in this case it is necessary to use a galvanized metal mesh electro-welded. For media not present in the technical sheet contact Diasen technical office.

MIXING

Depending upon water absorption of the substrate and environmental conditions, it is recommended to determine the amount of water needed to obtain the correct adhesion. The amount of water indicated on the packaging is merely indicative. Mix the product in a concrete mixer adding 11 L (class S1) – 12.5 L (class S2) (2.91 – 3.30 U.S. gal) of water per bag of *Diathonite Screed* used (25 kg – 55.1 lb). Mix for about 4-5 minutes. It is fundamental not to exceed mixing time. Do not mix the product by hand. Never add external compound to the product.

APPLICATION

Application by hand

1. It is **FUNDAMENTAL** to wet the substrate, particularly during summer time and over screeds exposed to the sun.
2. Prepare the area creating reference bands to obtain the required thicknesses. Reference bands must be created with woods, aluminum or by *Diathonite Screed* itself.
3. In case of the reference bands with *Diathonite Screed*, it should be waited the completed dry of the product. In case of reference bands with wood, remove the bands soon after the application of the last screed coat.
4. It is advisable to position the reference bands to a maximum distance of 2.5 meters (8.20 ft) from each other.
5. Check the levelling of the reference bands.
6. Lay down *Diathonite Screed* filling the area between the bands.
7. When the screed drowns piping, it will be necessary to use a galvanized metal reinforcement mesh. The minimum thickness of the screed above the piping must be at least 3 cm (1.18 in), and the mesh must be positioned immediately above the piping. Planning a suitable piping covering.
8. *Diathonite Screed* must have a maximum thickness of 5 - 6 cm (1.97 – 2.36 in) in a single layer. For larger thickness apply *Diathonite Screed* in more than one layer.
9. Every following coat must be laid down when the previous coat is compact by touching it as well as lighter by looking at it (after 12/48 hours). Wet the Screed before every coat application.
10. Level the screed with a H straightedge, laying on the bands, making a regular and continuous movement. In the getting smoother phase, do not compress Diathonite Screed as per preserve product porosity. As you proceed it is advisable to use a plastic or other material trowel to smooth and compact the surface.
11. For the application on wood, steel supports or panels, it is necessary to use a galvanized metal reinforcement mesh for any thickness of *Diathonite Screed*.

Application with plastering machine

Diathonite Screed can be laid down with plastering machine for light pre-mixed. Machine setting may be changed according to the machine used. It is possible to use plastering machine (as Turbosol Giotto) in three phases, settled only for the pumping without air and, if necessary, with remote control. Other settings are: use of lung, D8 1,5, wide blade mixer, pipe with a diameter of 35 mm (1,38 inch).

1. It is **fundamental** to wet the substrate especially during summer season and over screeds exposed to the sun.
2. Prepare the area creating reference bands to obtain the required thicknesses. Reference bands must be created with woods, aluminium or by *Diathonite Screed* itself.
3. In case of the reference bands with *Diathonite Screed*, it should be waited the completed dry of the product. In case of reference bands with wood, remove the bands soon after the application of the last

screed coat.

4. In case the reference points or bands are made out of *Diathonite Screed*, wait for the complete drying of the product. When wooden bands or aluminum profiles are used, remove the bands immediately after the application of the last layer of screed.
5. It is recommended to place these bands at a maximum distance of 2.5 meters.
6. Check the levelling of the bands with a levelling device.
7. Load the contents of the bags inside the hopper and adjust the flow meter of the machine: firstly, set it to **400-600 L/h** to moisten the tube, and then adjust the flow to **300-400 L/h** to proceed with the application.
8. Lay down *Diathonite Screed* filling the area between the bands.
9. When the screed drowns piping, it will be necessary to use a galvanized metal reinforcement mesh. The minimum thickness of the screed above the piping must be at least 3 cm (1.18 in), and the mesh must be positioned immediately above the piping. Plan a suitable piping covering.
10. The thickness and the possible reinforcement of *Diathonite Screed* shall be determined according to the expected loads.
11. The maximum thickness achievable with a single coat is 5/6 cm. For higher thicknesses apply *Diathonite screed* in multiple layers.
12. The following layer must be applied when the underlying layer is consistent to the touch and visually lighter (after about 12/24 hours). Wet the plaster before applying each layer.
13. Level the screed with a H straightedge, laying on the bands, making a regular and continuous movement. In the getting smoother phase, do not compress *Diathonite Screed* as per preserve product porosity. As you proceed it is advisable to use a plastic or other material trowel to smooth and compact the surface.
14. For the application on wood, steel supports or panels, it is necessary to use a galvanized metal reinforcement mesh for any thickness of *Diathonite Screed*.

Application of DIATHONITE SCREED in combination with the insulating mat DIAFON

1. Lay *Diafon* mats on the support with the synthetic film facing upwards.
2. Remove the adhesive and seal the mats overlapping them of 10 cm (3.94 in) to realize a continuous soundproofing layer.
3. In the overlapping of the sheets take account of the way of casting of the screed, to prevent the sheets from opening. The surface must be completely covered.
4. *Diafon* can be laid directly above the structural slab or above the screed that covers the piping, before the application of *Diathonite Screed*.
5. *Diafon* must be turned up over the wall to avoid the formation of acoustic bridges between the floor and the structure of the building. The height of the fold must be higher than the finished floor, fold angle must be of 90°. No rounds should be made to avoid the formation of gaps between *Diafon* and slab.
6. The maximum thickness achievable with a single jet is 5/6 cm. For higher thicknesses throw Diathonite screed in multiple layers..
7. Lay the floor with ceramic or marble elements or parquet flooring.
8. Trim *Diafon* right above the paved surface.
9. Lay the baseboard, taking care not to weld it (by means of grouting), to the pavement and keep it raised from the surface by about 2 mm (0.079 in). If necessary, the joint between floor and baseboard can always be closed with elastic material in order to avoid acoustic bridges.

DRYING TIME

At a temperature of 23°C (73.4°F) and relative humidity level of 50%, the product dries in about 28 days if applied with a thickness of 5 cm (1.96 in).

- Drying time is influenced by humidity level and temperature and may significantly change.
- Consider about 7 - 10 days more for each inch of thickness depending on the environmental conditions.
- Protect *Diathonite Screed* while curing from ice, direct sunlight and wind to avoid future

cracks.
- With high temperature, direct sunlight or strong wind it is necessary to wet the plaster even 2/3 times a day for the next 2/3 days after the application.
- Once the application has been completed, to avoid damages before the application of the floor, *Diathonite Screed* must not be subjected to pedestrian traffic or to heavy loads.
- Take care *Diathonite Screed* has completed its drying shrinkage before the laying of the floor, to avoid cracking.
- Ceramic, terracotta or stoneware tiles can be applied directly on *Diathonite Screed.*
- The screed can be coated even with glued parquet after at least 28 days of curing. If *Diathonite Screed* is too rough to lay parquet flooring, smooth the surface with a sanding disks machine and apply *WATstop* (see technical data sheet).
- *WATstop* is recommended when it is necessary to consolidate the surface of *Diathonite Screed* before floor laying.
- *Diathonite Screed* is not suitable to place under floor heating system. In this case, *Diathonite Screed* can be placed below the piping to avoid any thermal dispersion.
- *Diathonite Screed* can be coated with liquid waterproofing or coatings *Diasen* without the use of primers.

SUGGESTIONS

- Environmental and support temperature must be between +5°C and +30°C (+41°F and +95°F).
- During summer season, apply the product during the cooler hours of the day, away from sun.
- Do not apply with imminent threat of rain or frost, in conditions of strong fog or with relative humidity higher than 70%.
- The application time is about 30 - 40 minutes, but it may vary depending on temperature and ventilation.
- Outside it is very important to create suitable dilation joints at regular intervals. Joints must be properly realized to avoid cracks and lesions on the final coat.
- Always keep any existing structural and / or expansion and / or insulation joints on the support.
- Design suitable joints where there are material changes in the support, fixed elements such as pillars, partitions, doors or thresholds, or changes of casting direction.
- For waterproofing the joints use a sealant such as *Diaseal Strong* (see technical data sheet).
- In special cases (wide distance between pillars, high loads, etc.), use always galvanized metal reinforcement mesh to reinforce *Diathonite Screed*.

CLEANING

Wash tools with water before product hardening.

SAFETY

While handling, respect the instructions described in product safety data sheet and always use protective gloves and anti-dust mask.

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* The above data, even if carried out according to standard test methods, are indicative and may be subject to changes to the specific site conditions.

Technical data*

Features		Units
Yield	6.00 ± 10% per cm of thickness	kg/m^2
	3.12 ± 10% per inch of thickness	lb/ft^2
Minimum thickness	4.0	cm
	1.96	in
Aspect	powder	-
Colour	grey	-
Grain size	0 – 3	mm
	0 – 0.12	in
Density	600 (±10%)	kg/m^3
	37.46 (±10%)	lb/ft^3
w/c ratio	11 – 12.5 L per bag of 25 kg	L/kg
	2.91 – 3.30 U.S. gal per bag of 55.1 lb	gal of U.S./lb
Application temperature	+5 / +30	°C
	+41 / +86	°F
Drying time (T=23°C - 73.4°F; R.H. 50%) Thickness 5 cm – 1.97 in	28	days
Storage	12	months
Packaging	paper bag 25 kg	kg
	paper bag 55.10 lb	lb

Final performances*		Units	Regulations	Result
Thermal conductivity (λ)	0.060	W/mK	EN 12667	-
Specific heat (c)	1000	J/kgK	EN 1745	-
	0.239	kcal/kg °C	EN 10456 -	-
Attenuation of normalized impact sound pressure level ΔL_w of a system composed by *Diafon* + *Diathonite Screed* (5.0 cm - 1.96 in).	$\Delta L_w = 22$	dB	EN ISO 717-2	-
Footstep insulation index of the system composed by *Diathonite Screed* (5.0 cm - 1.96 in) + *Diafon* + hollow – core concrete floor.	$L'_{nw} = 58$	dB	EN ISO 140-7 DPCM 05.12.1997	-

Resistance to compression	> 10.0	N/mm²	EN 13813	C7
	1450.4	lbf/in^2	-	-
Tensile resistance	> 2.0	N/mm²	EN 13813	F2
	> 290.0	lbf/in^2	-	-
Resistance to water vapour diffusion (μ)	class A1	-	UNI EN 13501-1	-
Fire reaction (class)	800 (±10%)	kg/m^3	-	-
Bulk density of dry mortar	800 (±10%)	kg/m^3	-	-
	50 (±10%)	lb/ft^3		

** credits valid only for LEED standard for Schools, LEED for Core & Shell, v. 2009

LEED® Credits

Standard LEED for New Construction & Major Renovation, LEED for Schools, LEED for Core & Shell, v. 2009

Thematic	Credit	Points
Energy & Atmosphere	EAp2 - Minimum energy performance	mandatory
	EAc1 – Optimize Energy Performance	from 1 to 19
Materials & Resources	MRc2- Construction Waste Management	from 1 to 2
	MRc4 – Recycled Content	from 1 to 2
	MRc5 – Regional Materials	from 1 to 2
	MRc6 - Rapidly Renewable Materials	1
Indoor Environmental Quality	IEQp3 - Minimal Acoustical Performance*	mandatory
	IEQc3.2 - Construction Indoor Air Quality Management Plan — Before Occupancy	1
	IEQc4.1 - Low Emitting Materials - Adhesives and Sealant	1
	IEQc9 - Enhanced Acoustical Performance*	1
	IEQc11 - Mold Prevention*	1

Indoor Air Quality (AIQ) Certification

Evaluation of the results

Regulation or protocol	Version of regulation or protocol	Conclusion
French VOC Regulation	Decree of March 2011 (DEVL1101903D) and Arrêté of April 2011 (DEVL1104875A) modified in February 2012 DEVL1133129A)	ÉMISSIONS DANS L'AIR INTÉRIEUR A+ (A+ A B C)
French CMR components	Regulation of April and May 2009 (DEVP0908633A and DEVP0910046A)	Pass
Italian CAM Edilizia	Decree 11 October 2017 (GU n.259 del 6-11-2017)	Pass
AgBB/ABG	Anforderungen an bauliche Anlagen bezüglich des Gesundheitsschutzes, ABG May 2019, AgBB August 2018	Pass
Belgian Regulation	Royal decree of May 2014 (C-2014/24239)	Pass
Indoor Air Comfort®	Indoor Air Comfort 7.0 of May 2020	Pass
Blue Angel (DE-UZ 113)	DE-UZ 113 for "Low-Emission Floor Covering Adhesives and other Installation Materials" (Version January 2019)	Pass
BREEAM International	BREEAM International New Construction v2.0 (2016)	Exemplary Level
BREEAM® NOR	BREEAM-NOR New Construction v1.2 (2019)	Pass
LEED®	"Low-Emitting Material" according to the requirements of LEED v4.1	Pass
CDPH: Classroom scenario	CDPH/EHLB/Standard Method V1.2. (January 2017)	Pass

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