

DIATHONITE SISMACTIVE

M10 thermal structural lime-based plaster for CRM systems.

Thermal cork-based plaster (grain size 0-3 mm), composed of clay, diatomaceous earth, and hydraulic binder. Ready-to-use natural compound, suitable for the consolidation of masonry structures, for vaults through the creation of structural toppings, and for reinforced repointing. Designed for the structural reinforcement of masonry buildings with CRM systems.

YIELD

6,00 kg/m² (± 5%) per cm of thickness.
3.12 lb/ft² (± 10%) per inch of thickness.

PACKAGING

25 kg paper bags.
Pallet: 50 bags (1250 kg).

APPEARANCE AND COLOR

Powder | Light Grey

STORAGE

Store the product in its original, tightly closed packaging, appropriately protected from direct sunlight, water, and frost, at temperatures between +5°C and +35°C. Shelf life: 12 months.

FIELDS OF APPLICATION

Diathonite Sismactive is ideal for the reinforcement and seismic improvement of masonry buildings, both for interiors and exteriors. Specifically designed for **CRM** systems¹, it acts as a technical matrix in combination with *Polites AR 330* mesh, *Elites L* and *Elites F* connectors,^{2,3} and

Sismabond resin. Its natural formulation based on cork and clay makes it perfect for the consolidation of vaults (structural toppings), reinforced joint repointing, and the restoration of historical stone or brick masonry. Thanks to its insulating properties, it corrects structural thermal bridges, ensuring extremely high breathability and compatibility with green building standards.

BENEFITS

- Thermal and structural plaster.
- M10 compressive strength according to UNI EN 998-2.
- *Low VOC emissions* product.
- Ideal for historical buildings.
- Double CE marking (EN 998-1, EN 998-2).

PREPARATION OF THE SUPPORT

The substrate must be completely hardened and have sufficient strength. The surface must be thoroughly cleaned, dry, well consolidated, free of brittle and inconsistent parts, and perfectly levelled. Any cracks, discontinuities, or degraded portions must be restored beforehand.

¹ The CRM system represents the evolution of traditional reinforced plaster: it uses glass fiber reinforced polymer (GFRP) meshes and connectors embedded in an inorganic matrix to provide diffuse, lightweight, and corrosion-resistant structural reinforcement, ideal for the seismic improvement of existing masonry

² Pre-formed fibreglass connector with rigid L-shaped central segment.

³ Fibreglass connectors with rigid pre-formed central segment and one or double-threaded ends.



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DIASEN SRL UNIPERSONALE – Società Benefit
Zona Industriale Berbentina 5 – 60041 Sassoferrato (AN) | Italy
+39 07329718 | diasen.com | P.IVA 01553210426
R.E.A. Ancona n. 150933 Reg. Imp. Ancona 01553210426
Cap. Soc. € 400.000,00 i.v.

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Before application, protect all elements that are not to be affected by the coating. For substrates not listed in the technical data sheet, please contact the Diasen technical office.

APPLICATION BY PLASTERING MACHINE

Suggested plastering machines

The indicated plastering machines represent only some of the models available on the market. Other models with equivalent characteristics and performances can be used. All recommended models use screw or rotary systems, but the speed, mixer size, and screw geometry differ. Therefore, the consistency and flow of the plaster may require minor adjustments to the water/material ratio to achieve optimal results.

- PFT G4
- PFT Ritmo XL
- Imer Koine 4
- Turbosol Giotto 4
- Putzmeister MP 25

In the case of application with the aforementioned *three-phases* plastering machines, the ideal equipment includes the installation of a new **D6-3 stator/rotor (screw pump)** and a **closed shafts mixer**. The setup must be completed with a tapered hose (**Ø 35/25 mm**) and a **14 or 16 mm** nozzle to ensure the correct projection of the product.

- PFT G5

In the case of application with the aforementioned plastering machine, the ideal equipment includes the installation of a **D6 – 2L stator/rotor (screw pump)** and a **closed shafts mixer**.

The setup must be completed with a **tapered hose** (length 150 mm, Ø 35/25 mm) and a **16 mm nozzle** to ensure the correct projection.

- Putzmeister SP 11 LMR

For this diesel plastering machine, the setup must include a **2L6 screw pump (stator/rotor)**, a **250 mm** long hose with a **35 mm diameter**, and a **spray gun** with a **16 mm** nozzle.

Mixing

Load the contents of the bags into the hopper. Adjust the machine's flow meter first to **400-600 L/h** to moisten the hose, then to **200-300 L/h** for regular application. The mixture must appear as a **light and foamy mass**, characterized by a widespread and homogeneous micro-alveolar structure, and must be *matte* (free from shine). To avoid altering the chemical-physical balance of the compound, the addition of any foreign product is strictly prohibited. Depending on the water absorption rate of the substrate and the environmental conditions, it is recommended to dose the correct amount of water necessary to achieve proper adhesion. The specified water quantity is indicative.

APPLICATION BY HAND

Mixing

If mixed in a mixer or with a mixing drill, add **11.5-12.5 L** of clean water for each bag of *Diathonite Sismactive* (25 kg). Do not mix the compound in the cement mixer for more than **3-4 minutes**. Depending on the water absorption rate of the substrate and the environmental conditions, it is recommended to dose the correct amount of water necessary to achieve proper adhesion. The specified water quantity is indicative.

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APPLICATION IN CASE OF CRM STRUCTURAL REINFORCEMENT SYSTEMS

On one side of the masonry only – Elites F1, one threaded end

In case of particularly damaged masonry, proceed with its reconstruction.

1. It is essential to moisten the substrate, especially during the summer period and on masonry exposed to the sun. If the surface has already been primed, proceed directly with the application.
2. Drill guide holes to a depth of 2/3 of the masonry thickness, in the number specified by the project design and never less than 4/m².
 - 2.1. The slope of the holes must be maintained at 45°;
 - 2.2. The required diameter for each hole must be equal to that of the connector increased by at least 4 mm, as per the equation:

$$d_{holes} = d_{connector} + 4\text{ mm};$$
 - 2.3. The holes must be made in compact areas of the masonry, preferably using rotary tools.
3. After drilling the hole, remove dust and the material formed using compressed air.
4. Insert steel or wood markers to facilitate the subsequent identification of the hole.
5. Apply a first layer of *Diathonite Sismactive*, by hand or by machine, from the bottom upwards and with few interruptions, taking care not to cover the holes with the material and to always leave the markers visible.
6. Proceed with the installation of the *Polites AR 330* (refer to the product's technical data sheet) glass fibre mesh or, alternatively, a

galvanized welded wire mesh, taking care to partially embed it into the fresh mortar.

- 6.1. It is recommended to overlap the mesh strips by approximately 150 - 200 mm, in order to ensure mechanical continuity.
7. While the mortar is still fresh, remove the markers.
8. Expel the first 100-150 mm of resin from the nozzle until the colour is perfectly uniform.
9. Insert the nozzle to the bottom of the hole before extruding the *Sismabond* (refer to the product's technical data sheet) vinyl ester-based resin, slowly withdrawing the nozzle.
10. Fill the hole to approximately 2/3 of its depth, so as to prevent the insertion of the connector from causing too much resin to overflow due to pressure.
11. It is recommended to "pre-wet" (prime) the part of the bow that will be inserted into the hole with the resin itself to ensure that the internal fibres are saturated.
12. Immediately afterwards, insert an *Elites F1* (refer to the product's technical data sheet) preformed glass fibre connector into each hole from the cord side⁴.
 - 12.1. Ensure that the terminal part of the bow protrudes sufficiently to be spread over the glass fibre mesh.
13. Remove the tubular mesh sleeve enclosing the fibre core and carefully perform the fanning out of the connector, opening the fibres in a radial pattern (180° or 360°) over the already installed mesh.
14. Brush the fanned-out fibres with additional resin to ensure perfect cohesion with the mesh and the substrate.

⁴ The *cord* is the cylindrical part of the connector. It consists of a bundle of unidirectional glass fibers arranged in parallel, gathered within an expandable tubular mesh sleeve.

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15. Embed the glass fibres into the still-fresh mortar, using a brush to "press down" the filaments.
16. Wait for the first layer of mortar to dry (12-24 hours depending on atmospheric conditions), then apply the subsequent layer.

On one side of the masonry only: *Elites L "L-shaped" connector*

In case of particularly damaged masonry, proceed with its reconstruction.

1. It is essential to moisten the substrate, especially during the summer period and on masonry exposed to the sun. If the surface has already been primed, proceed directly with the application.
2. Drill guide holes to a depth of 2/3 of the masonry thickness, in the number specified by the project design and never less than 4/m².
 - 2.1. The slope of the holes must be maintained perpendicular to the wall;
 - 2.2. The required diameter for each hole must be equal to that of the connector increased by at least 6 mm, as per the equation:

$$d_{holes} = d_{connector} + 6 \text{ mm};$$
 - 2.3. The holes must be drilled in compact areas of the masonry, preferably using rotary tools.
3. After drilling the hole, remove dust and any resulting material with compressed air.
4. Insert steel or wooden markers for the subsequent identification of the hole.
5. Apply a first layer of *Diathonite Sismactive*, by hand or by machine, from the bottom upwards and with few interruptions, taking care not to cover the holes with the material and to always leave the markers visible.
6. Proceed with the installation of the *Polites AR 330* glass fibre mesh or,

alternatively, a galvanized welded wire mesh, taking care to partially embed it into the fresh mortar.

- 6.1. It is recommended to overlap the mesh strips by approximately 150 - 200 mm, in order to ensure mechanical continuity.
7. While the mortar is still fresh, remove the markers.
8. Expel the first 100-150 mm of resin from the nozzle until the colour is perfectly uniform.
9. Insert the nozzle to the bottom of the hole before extruding the *Sismabond* vinyl ester-based resin, slowly withdrawing the nozzle.
10. Fill the hole to approximately 2/3 of its depth, to prevent the insertion of the connector from forcing out excessive resin due to pressure.
11. Insert the *Elites L* (refer to the product's technical data sheet) preformed glass fibre connector from the shank side, directing the short side downwards.
12. Rotate the short side of the *Elites L* connector by 45°, ensuring it falls along the diagonal of the mesh grid.
13. Wait for the first layer of mortar to dry (12-24 hours depending on atmospheric conditions), then apply the subsequent layer.

On both sides of the masonry: *Elites F2, double-threaded ends*

In case of particularly damaged masonry, proceed with its reconstruction.

1. It is essential to moisten the substrate, especially during the summer period and on masonry exposed to the sun. If the surface has already been primed, proceed directly with the application.
2. Drill through-guide holes from one side of the masonry to the other, in the number specified by the project design and never less than 4/m².
 - 2.1. The slope of the holes must be maintained perpendicular to the wall;

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- 2.2. The required diameter for each hole must be equal to that of the connector increased by at least 4 mm, as per the equation

$$d_{holes} = d_{connector} + 4 \text{ mm};$$
- 2.3. The holes must be drilled in compact areas of the masonry, preferably using rotary tools.
3. After drilling the hole, remove dust and any resulting material with compressed air.
4. Insert steel or wooden markers for the subsequent identification of the hole on both sides of the masonry.
5. Apply a first layer of *Diathonite Sismactive*, by hand or by machine, from the bottom upwards and with few interruptions, taking care not to cover the holes with the material and to always leave the markers visible.
6. Proceed with the installation of a galvanized welded wire mesh or, alternatively, the *Polites AR 330* glass fiber mesh, taking care to partially embed it into the fresh mortar.
 - 6.1. It is recommended to overlap the mesh strips by approximately 150 - 200 mm, in order to ensure mechanical continuity.
7. While the mortar is still fresh, remove the markers.
8. Expel the first 10-15 cm of resin from the nozzle until the colour is perfectly uniform.
9. Insert the nozzle as far as possible into the hole before extruding the *Sismabond* vinyl ester-based resin, slowly withdrawing the nozzle. Repeat the operation from the other side of the masonry, until the hole is completely saturated.
10. Slowly insert the *Elites F2* (refer to the product's technical data sheet) preformed glass fiber connector into the resin-filled hole, rotating it according to the winding direction of the sleeve. This facilitates the

penetration of *Sismabond* into the fibres of the bow.

11. Pass the *Elites F2* connector through the wall from one side to the other.
12. Remove the tubular mesh sleeve enclosing the fiber core and carefully fan out the connector, spreading the fibres in a radial pattern (180° or 360°) over the previously installed mesh.
13. Brush the fanned-out fibres with additional resin to ensure perfect cohesion with the mesh grid and the substrate.
14. Embed the glass fibres into the fresh mortar using a brush to "press down" the filaments.
15. Wait for the first layer of mortar to dry (12-24 hours depending on atmospheric conditions), then apply the subsequent layer.

On both sides of the masonry: double *Elites L-shaped* connector

In case of particularly damaged masonry, proceed with its reconstruction.

1. It is essential to moisten the substrate, especially during the summer period and on masonry exposed to the sun. If the surface has already been primed, proceed directly with the application.
2. Drill through-guide holes from one side of the masonry to the other, in the number specified by the project design and never less than 4/m².
 - 2.1. The slope of the holes must be maintained perpendicular to the wall;
 - 2.2. The planned diameter for each hole must be equal to that of the connector increased by at least 6 mm, as per the equation

$$d_{holes} = d_{connector} + 6 \text{ mm};$$
 - 2.3. The holes must be drilled in compact areas of the masonry, preferably using rotary tools.

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3. After drilling the hole, remove dust and any resulting material with compressed air.
4. Insert steel or wooden markers for the subsequent identification of the hole on both sides of the masonry.
5. Apply a first layer of *Diathonite Sismactive*, by hand or by machine, from the bottom upwards and with few interruptions, taking care not to cover the holes with the material and to always leave the markers visible.
6. Proceed with the installation of a galvanized welded wire mesh or, alternatively, the *Polites AR 330* glass fiber mesh, taking care to partially embed it into the fresh mortar.
 - 6.1. It is recommended to overlap the mesh strips by approximately 150 - 200 mm, in order to ensure mechanical continuity.
7. While the mortar is still fresh, remove the markers.
8. Expel the first 100-150 mm of resin from the nozzle until the colour is perfectly uniform.
9. Insert the nozzle as far as possible into the hole before extruding the *Sismabond* vinyl ester-based resin, slowly withdrawing the nozzle. Repeat the operation from the other side of the masonry, until the hole is completely saturated.
10. Insert the preformed *Elites L* glass fiber connector from the cord side, directing the short side downwards.
11. Rotate the short side of the *Elites L* connector by 45°, ensuring that it aligns with the diagonal of the mesh grid.
12. Repeat the operation on both sides of the masonry.
13. Wait for the first layer of mortar to dry (12-24 hours depending on atmospheric conditions), then apply the subsequent layer.

DRYING TIMES

At a temperature of 23°C and a relative humidity of 50%, the product dries in 10-15 days.

- Drying times are influenced by the relative humidity of the environment and the temperature, and can vary significantly.
- If applied in high thicknesses, the drying times increase significantly.
- Protect *Diathonite Sismactive* during the curing phase from frost, wind, direct sunlight, and bad weather.
- It is necessary to moisten the plaster even 2/3 times a day for the first 2/3 days following the application phase.
- In general, at temperatures above 28°C, moisten the plaster every 2 hours to prevent cracking.
- If applied indoors, ventilate the environment as much as possible during the application and drying phases.

SMOOTHING AND FINISHING

For smoothing the plaster, both indoor and outdoor, it is possible to use one of the following finishes: *Argatherm*, *Argacem*, *Ultrafine* and *Argacem Coloured*. For application methods, drying times, and recommended thicknesses, please refer to the respective technical data sheets.

Outdoor Applications

Use finishes such as *Decork Façade*, *Decork Mediterraneo*, *Decork Alfareflex*, *Acrilid Protect Coating*, or *Plasterpaint* (refer to the products' technical data sheets). Always prioritize breathable products.

Indoor Applications

Use finishes such as *Decork Mediterraneo*, *Decork Design*, *C.W.C. Stop Condense*, or *Limepaint* (refer to the

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products' technical data sheets). Always prioritize breathable products. In any case, it is advisable to refer to Diasen finishing systems.

FINISHING LAYERS

As with all plasters in the Diathonite range, *Diathonite Sismactive* must be reinforced with *Polites 140* glass fiber mesh when the installation of coverings such as tiles, stone, stoneware, or similar materials is planned, following the application methods described in the previous paragraphs. Subsequently, the surface must be finished with *Argatherm* skimming mortar, according to its technical data sheet. To increase the system's resistance, *Argatherm* should be installed using *Polites 80* reinforcement mesh (see technical data sheet), with a sandwich system (*Argatherm* + *Polites 80* + *Argatherm*). In wet areas, before laying the tiles, apply *Watstop* on *Argatherm*⁵ following the technical data sheet instructions. It is recommended to respect a maximum interval of 24 hours between successive coats and to complete the final layer application within 48 hours. The maximum permitted weight for tiles is 45 kg/m².

SUGGESTIONS

- Do not apply when ambient or substrate temperatures are below +5°C (41°F) or above +30°C (86°F).
- During the summer season, apply the product during the coolest hours of the day, sheltered from direct sunlight.
- Do not apply if there is an imminent risk of rain or frost, in conditions of thick fog, or when relative humidity exceeds 70%.
- For deep holes, the standard mixing nozzle of the *Sismabond* cartridge may not be sufficient to reach the

bottom of the hole. In this case, it is necessary to purchase flexible extensions of an adequate length.

- Remove the fiber containment sleeve of the connector only on the protruding part. The portion of the sleeve inside the hole must not be removed, as it serves to keep the fibres together while the resin flows through them and bonds them to the masonry.
- During the fiber embedding phase in the mortar, ensure that there is no glass filaments exposed to the air, both for chemical protection and mechanical strength.
- For applications using a plastering machine, and in case of interruptions during the layer creation, it is recommended to soak the nozzle in water to prevent the formation of a material plug in the spray gun.
- If the total thickness of the application exceeds 120 mm, it is necessary to provide for the insertion of at least two reinforcement meshes. The positioning of the meshes and the choice of the technical configuration must be confirmed by the Site Management, also based on the assessment of structural movements and stresses of the support.

CLEANING

The equipment used can be washed with water before the product hardens.

SAFETY

During handling, use personal protective equipment and comply with the information provided in the product's safety data sheet.

⁵ Argatherm helps control absorption and ensures more efficient coverage of WATstop.

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ISO 9001®
QUALITY



ISO 14001®
ENVIRONMENT



ISO 45001®
SAFETY

TECHNICAL SPECIFICATION

* The reported data, although obtained using standardized testing methodologies, are indicative and may be subject to change depending on specific site conditions.

PHYSICAL / TECHNICAL DATA*		
TECHNICAL DATA	VALUE	UNIT
Yield	6,00 kg/m ² (± 5%) <i>per cm of thickness</i>	kg/m ²
	3.12 lb/ft ² (± 10%) <i>per inch of thickness</i>	lb/ft ²
Aspect	powder	-
Colour	light grey	-
Density	600 (±10%)	kg/m ³
	37.46 ± 0.62 %	lb/ft ³
Grain size	0 - 3	mm
	0 - 0.12	in
Water to add to the mixture	0,45 - 0,50 <i>(11 - 12,5 L for each 25 kg bag)</i>	L/kg
	0.054 - 0.060 gal (US) <i>per paper bag (55.12)</i>	gal (US) / lb
Minimum thickness for application	15	mm
	0.6	in
Application temperature	+5 / +30	°C
	+41 / +95	°F
Packaging	25 kg (55.11 lb) paper bag	kg
Storage	12	months

PERFORMANCES*				
FINAL PERFORMANCES	VALUE	UNIT	STANDARDS	RESULTS
Compressive strength	14,7	N/mm ²	EN 998-1	category CS IV
	1464.88	lbf/in ² (psi)	EN 998-2	M10
Flexural strength	4,10	N/mm ²	UNI EN 1015-11	-
	333.59	lbf/in ² (psi)		
Thermal conductivity (λ)	0,065	W/mK	UNI EN 12664	-
Specific heat (c)	1000	J/kgK	UNI EN 1745 UNI EN 10456	-
	0,239	kcal/kg °C	-	-
Hardened material weight	800 (±10%)	kg/m ³	-	-
	49.94 ± 0.62 %	lb/ft ³		
Elastic modulus	6,20	GPa	UNI EN 1015-11	-

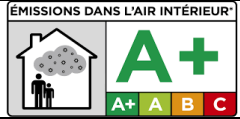
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DIATHONITE SISMACTIVE

M10 thermal structural lime-based mortar for CRM systems.

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

DIASEN

DIASEN SRL UNIPERSONALE – Società Benefit
 Zona Industriale Berbentina 5 – 60041 Sassoferrato (AN) | Italy
 +39 07329718 | diasen.com | P.IVA 01553210426
 R.E.A. Ancona n. 150933 Reg. Imp. Ancona 01553210426
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