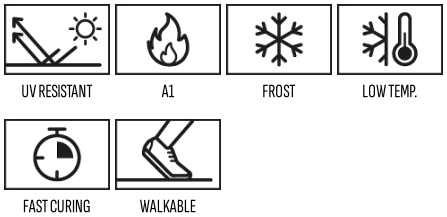
SC 1

Ready-to-use, shrinkage-compensated screed with outstanding compressive strength

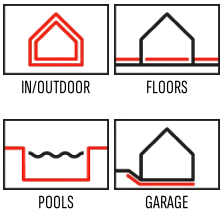
CE
CEMENT SCREED
EN 13813
DESIGNATION
CT-C35-F7-A1fl

CE marking:
→ EN 13813 • Cement screed designation: CT-C35-F7-A1fl

TECHNICAL FEATURES



FIELD OF APPLICATION



APPLICATIONS

Description

SC 1 is a premixed powder that, with the addition of water in exact proportions, gives rise to a specific dough for the realization of substrates (screeds) with fast drying and extremely reduced shrinkage.
SC 1 is suitable for both indoor and outdoor use and is specific for laying resilient flooring (PVC, rubber, etc.) and resins.
The ideal thickness of screeds made with SC 1 is 5 – 6 cm, but the product is very versatile and also lends itself to the realization of very reduced thicknesses.

CE Marking

► EN 13813
SC 1 complies with the principles envisaged in the EN 13813 standard (“Screed material and floor screeds - Screed materials: Properties and requirements”) with the following designation:
→ *CT – C35 – F7 – A1-fl*
• Cement screed (CT)
• Compressive strength: 35 MPa (C35)
• Flexural strength: 7 MPa (F7)
• Reaction to fire (Euroclass EN 13501-1): A1-fl

Colour

SC 1 is available in the following versions:
• GREY

Field of application

SC 1 is a premix that gives rise to a screed with excellent characteristics:
• medium-fast drying;
• high compressive strength (from 30 to 40 MPa depending on compaction);
• suitable both for laying in adhesion to the slab (collaborating screed) and as a floating screed (cast over the sliding sheet);
• high thermal conductivity value, λ = 1,9 W/(m·K).

SC 1 is ideal for:

SC 1

• screeds for balconies, terraces and flat roofs;
• screeds for radiant floors (underfloor heating systems);
• low thickness (minimum 2 cm) composite screeds (in adhesion to the slab);
• floating screeds (on sliding sheet) with a thin thickness (minimum 3.5 cm);
• composite or floating screeds for the installation of solid wood floors.
• composite screeds (if well compacted) for garages to be tiled or coated with resins;

Advantages

• A screed made with SC 1 achieves excellent compressive strength in a relatively short time;
• SC 1 is ready to use;
• SC 1 can be applied in adhesion on thin (minimum thickness 2 cm) and floating (minimum thickness 3.5 cm) thicknesses;
• SC 1 is not aggressive towards plastic pipes (PE, PP, PVC, multilayer pipes etc ...) neither during the laying phase nor once hardened.

Moreover, thanks to its special particle size curve, SC 1 (if well compacted during the laying phase) exhibits:
• exceptional compactness and absence of cavities or air bubbles;
• negligible shrinkage and expansion;
• high thermal conductivity value, λ = 1,9 W/(m·K).

These characteristics make SC 1 particularly suitable for SCREEDS on FLOOR HEATING or COOLING SYSTEMS (radiant systems).

Specific preparation of the laying substrate

► *To make a floating screed*

• Spread a waterproof sheet (minimum thickness of 200 microns) on the laying surface. If several pieces are to be used, overlap the edges by about 20 cm.
As an alternative to the cloth you can also use a geotextile (minimum weight 100 g/m²).
• Avoid contact with vertical walls, pillars and all vertical elements (if any) by placing a strip of foam material between 3 and 5 mm thick along the entire perimeter of the floor.
• Pour the screed with a thickness of not less than 3.5 cm.
NOTE: Add steel reinforcing mesh (screed mesh) according to:
→ the required mechanical performance (lift);
→ the jointless surfaces to be realized defined during the design.

► *To make a composite screed*

• Remove from the surface any substance or compound that may prevent the screed from adhering to the substrate.
• Prepare a grout consisting of 1 part of pure GROVE PRIMER ECO (see Data Sheet) + 3 parts of SC 1.
• Apply the grout to the substrate using a scrubbing brush.
• When the grout is still fresh (fresh on fresh), sprinkle the treated surface with a layer of SC1 mixture prepared as described in the following paragraph.
This operation aims to preserve the grout still fluid from trampling.
• Within a few minutes, proceed with the laying of the screed SC 1, taking care of the compaction and flatness with an adequate screed.

Product preparation

► *Mixing*

→ With continuous mixer
• Pour the bags of SC 1 into the machine and start.
• Adjust the water flow until the consistency of "wet earth" is obtained.
• Proceed with the laying of the screed.

→ With pressure pump

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SC 1

• Adjust the machine to achieve optimal mixing and thrust.
• Pour in enough SC 1 for one charge, add water until you get the right consistency and leave to knead for no more than 2 minutes.
• Unload and proceed with the laying of the screed.

→ In vertical concrete mixer with fixed body and rotary tool
• Pour the water needed for the mixture into the concrete mixer, equal to 1.75 – 1.90 L per 25 kg bag of SC 1 (for 8 bags of SC 1 you will need 14 – 15.2 L of water).
• Add 8 bags of product and stir for a maximum of 60 – 90 seconds.
• Check that the dough has a "damp earth" consistency.
• Unload and proceed with the laying of the material, compaction and staging.

→ In concrete mixer with rotating body
• Pour the water needed for the mixture into the concrete mixer, equal to 1.75 – 1.90 litres per 25 kg bag (for 8 bags of SC 1 you will need 14 – 15.2 L of water).
• Add the first 7 bags of product immediately and mix for a maximum of 60 – 90 seconds.
• Add the remaining bag (or part of it) and let it mix no later than 2 minutes, until you get a dough that has the consistency of "wet earth".
NOTE: this type of concrete mixer tends to form spherical agglomerates: break them up in the concrete mixer and keep on mixing before pouring the screed (it may be useful to add some large stones for better mixing).

► *For laying SC 1 at low temperature and/or for speeding up curing*

→ To speed up curing: use FAST FLUID 300 (see Data Sheet) in the mixing preparation.
• The maximum dosage of FAST FLUID 300 is approximately 40 mL per bag of SC 1, i.e. 1 L per 25 bags of SC 1.
- The use of FAST FLUID 300 involves the reduction of mixing water, which must be reduced and adjusted until the perfect "wet earth" consistency is achieved. Normally, with the dosage of 40 mL of FAST FLUID 300 per 25 kg bag, a water reduction of 20 percent is achieved (mixing water is reduced from 1.75 to 1.9 L to 1.4 to 1.5 L/bag). → For low-temperature applications (down to -8°C): use FAST FLUID 300 and FAST FLUID AG (see Technical Data Sheet) when preparing the mix.
• The maximum dosage of FAST FLUID 300 + FAST FLUID AG is approx. 40 + 40 mL per bag of SC 1, i.e. 1 + 1 L per 25 bags of SC 1.
• The use of FAST FLUID 300 combined with FAST FLUID AG results in the acceleration of cement setting and the reduction of mixing water, which will have to be reduced and adjusted until the perfect "wet earth" consistency is achieved.

Product application

► *Casting and finishing*

• Pour the fresh mixture onto the surface and spread it with a rake or shovel.
• Step on the material to compact it and remove excess air.
• Adjust the fresh product using a 3 – 4 cm wide screed bar, possibly equipped with handles for a comfortable grip.
• Compact the last surface layer with the screed by "crawling" on the slightly sloping screed surface.
• As soon as it begins to harden, smooth the screed with a disc machine, spraying (if necessary) a little water on the surface to obtain a total closure of the porosity.

► *Operational Notes*

• For floating screeds, installing an electro-welded reinforcement mesh in the lower third of the screed certainly improves its performance and helps to prevent cracking due to shrinkage when joint-free large-size (above 40 m²) portions must be made.
• The permissible geometric shapes for backgrounds in order to minimize the risk of cracking are:
→ squares;
→ rectangles;
→ triangles.

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SC 1

• In the case of L- or T-shaped surfaces, it is necessary to insert a screed steel mesh (3 mm wire, 10x10 cm mesh) transversely to the direction of the joining of the two corners of the L or T structure (Fig. 1):

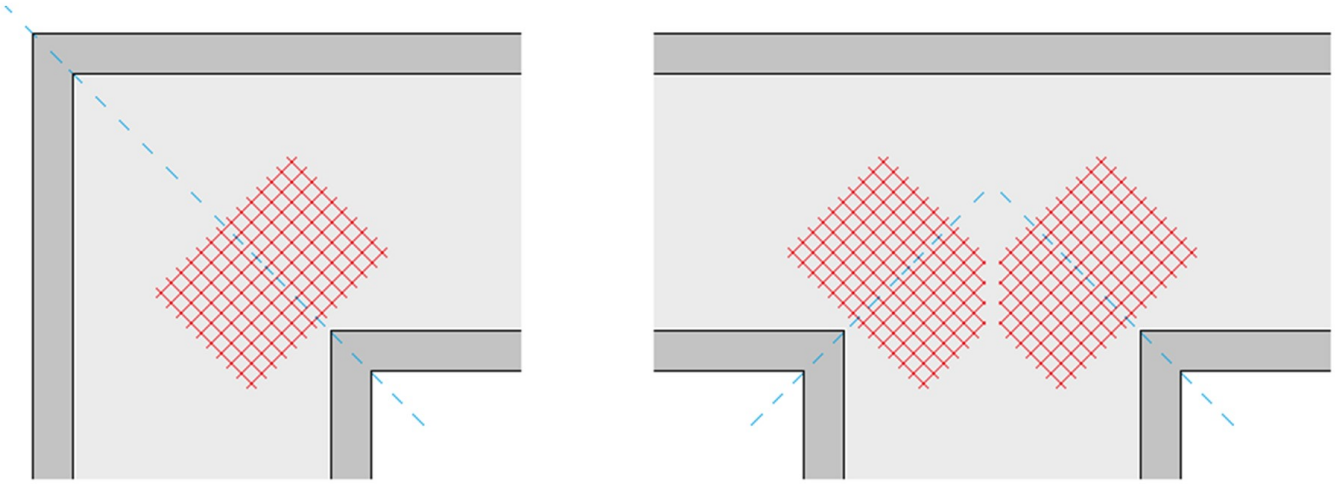

Fig. 1: Insertion of reinforcement mesh into L or T structures

• In case of interruption in the laying of the screed, it is necessary to insert a piece of electro-welded mesh from screeds (3 mm wire, 10x10 cm mesh) to avoid the formation of a joint along the line of the next rework (Fig. 2):

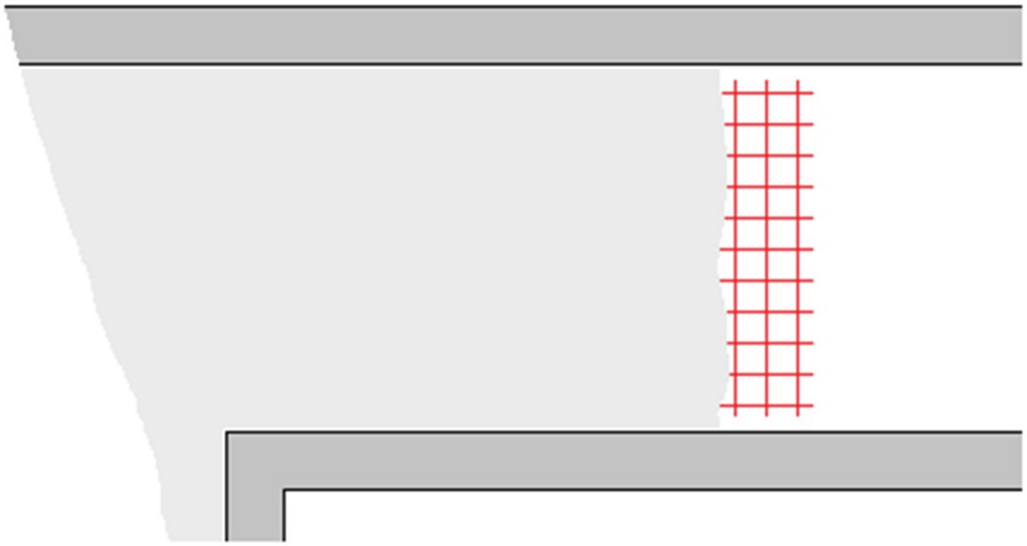

Fig. 2: Insertion of reinforcing mesh in case of re-casting

• Above pipes or ducts, it is necessary to reinforce the screed with a hexagonal fine wire mesh (minimum thickness of screed above pipe not less than 2 cm) to prevent cracking with crack formation (Fig. 3):

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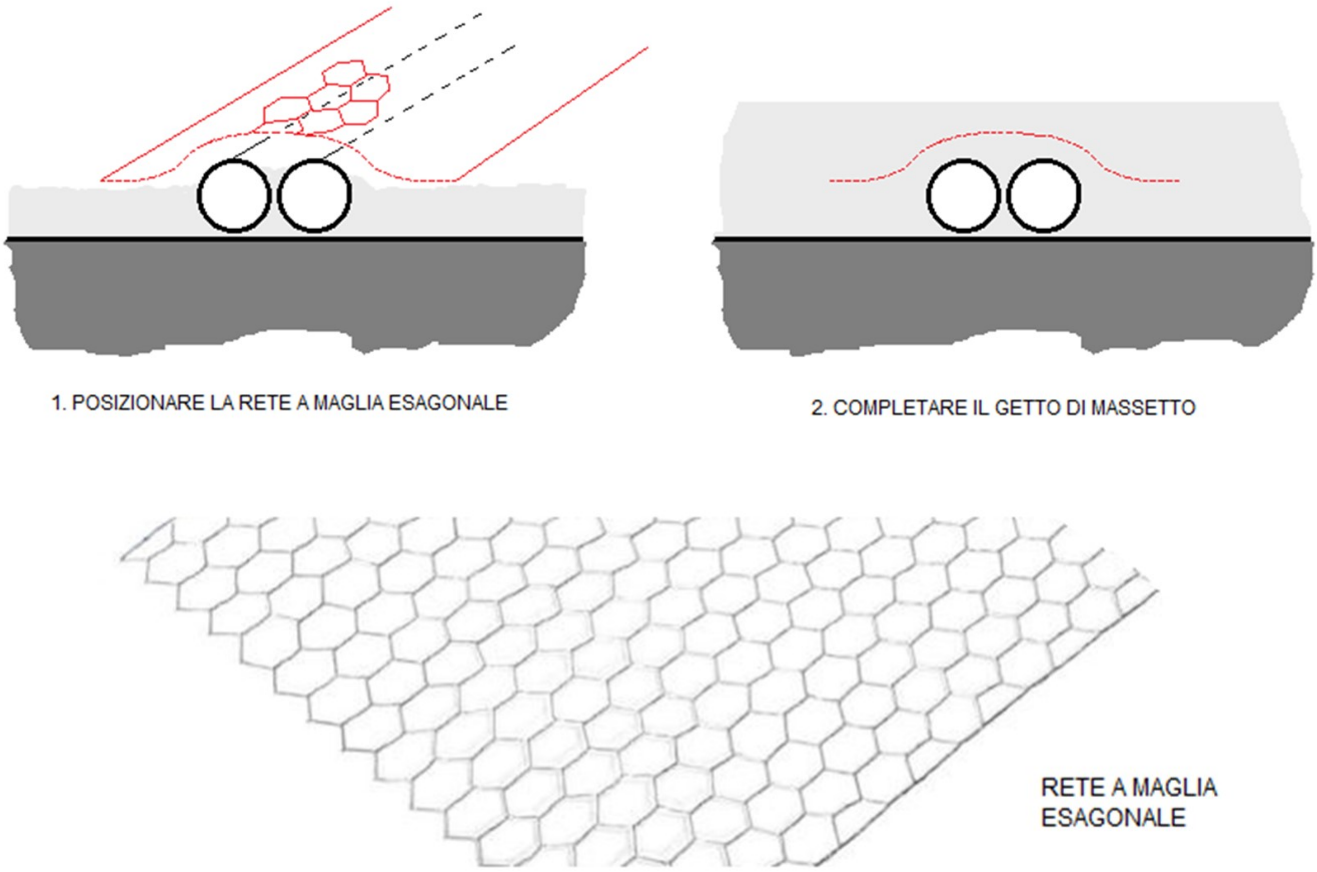

Fig. 3: Insertion of reinforcement mesh over pipes or ducts

• In the case of re-casting, it is necessary to insert a piece of electrowelded mesh between the two ends of the casting, so as to avoid the formation of a joint.

► *Drying times (for laying coatings)*

In ideal temperature conditions (+23°C and 50%RH) it is possible to proceed with laying the coverings after:
• 24 hours after casting SC 1: waterproofing with BETONGUAINA, BETONGUAINA.S, ceramic tiles with quick-setting adhesives and water-based epoxy resins (e.g. SW SMALTO);
• 2 – 3 days from the casting of SC 1: laying for gluing natural and synthetic stones;
• 4 – 5 days from SC 1: laying of rubber, carpet and wood floors.

► *Seasoning of SC 1 used on underfloor heating and/or cooling systems (radiant floors)*

• After the end of the screed with SC 1, wait 14 days (as usual) or more to allow the binder to develop more than 90% of its mechanical performance.
• On the 15th day, switch on the heating system and adjust it according to the following cycle:
1 - keep the system water at +25°C for 3 days;
2 – raise the water temperature by 5°C per day until reaching the maximum design temperature (normally +35°C);
3 – keep the floor at this temperature for 4 days;
4 – lower the temperature by 5°C a day until reaching the ambient temperature again.
• At the end of the maturation cycle, once the floor has cooled completely, the wall tiles can be laid.

Consumption

SC 1

type of application	minimum consumption	maximum consumption	u.m.	notes
To obtain 1 cm thick hardened screed	18	20	kg/m²	(1)

(1) Consumption referred to the product in powder form.

Tool cleaning

• Fresh product: cleaning with water (also hydrowashing).
• Hardened product: mechanical removal.

Useful tips for laying

• Store bags of SC 1 in the shade before use.
• The closed and sealed at the origin pallet can be stored outside (it does not fear the rain) until the expiry date; If, on the other hand, the pallet has already been opened, take care to store the bags sheltered from rain and humidity.
• Strictly respect the mixing times and the amount of mixing water specified in "preparation of the mixture".
• If the cement setting occurs while spreading the mixture, do not add water to recover the product.
• Read the Safety Data Sheet carefully before use.

Technical Data

► PRODUCT IDENTIFICATION DATA		value
Consistency	-	powder
Color	-	Grey
Solid residue	-	100%
Particle size distribution, EN 933-1	Mm	≤ 2,5

► APPLICATION DATA AND FINAL PERFORMANCE		value
Bulk density of fresh mixture, EN 1015-6	kg/L	2,10 ± 0,05
Mixing water (in %)	-	7% – 7,6%
Mixing water (per 25 kg bag)	L/bag	1,75 – 1,90
Fresh mixture pot-life	Min	between 90 and 120
Application temperature	°C	from +5 to +35
Minimum applicable thickness, adhesion on thin thickness (collaborating screed)	Mm	20
Minimum applicable thickness, floating screed	Mm	35
Minimum maturation time for laying BETONGUAINA, BETONGUAINA. S, water-based epoxy resins (SW series)	Hours	24
Minimum maturation time for laying terracotta and natural stones	Hours	72
Minimum maturation time for laying wood, vinyl flooring, rubber or carpet	days	4 – 6
Thermal conductivity λ, EN 12664 *	W/(m·K)	1,9 ± 0,2

► TECHNICAL DATA IN ACCORDANCE WITH EN 13813		value
Compressive strength (28 days), EN 13892-2	Mpa	37 ± 0,6
Flexural strength (28 days), EN 13892-2	Mpa	7,8 ± 0,1
Reaction to fire (Euro-class), EN 13501-1	-	A1-fl

NOTES

* The determination was performed with a physical model compatible with that contained in the reference standard EN 12664.

Product storage

• 12 months in the original closed packaging, in a dry, covered environment, protected from sunlight and at a temperature between +5°C and +35°C.
• Keep in a dry place.

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Packaging

VARIANT	PACKAGE	ADR	PACKAGE / PALLET	COMPONENTS	*NOTES*
-	bag - 25 kg	NO	48 bags		-

ADR legend:

NO = NON-DANGEROUS goods

P* = DANGEROUS goods packed in limited quantities (packed as per ADR Chapter 3.4)

Sì = DANGEROUS Goods

LEGAL NOTES

Any advice concerning the methods of use of our products reflects the current state of knowledge and does not imply any guarantee and/or responsibility as to the outcome of the application. Consequently, the customer must verify the product's suitability for the intended use and purposes by testing the product in advance. The Internet website www.nordresine.com contains the latest revision of this technical sheet: in case of any doubts, verify the date of revision (where missing, use the date of issue) by consulting the "PRODUCTS" section.

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