VELOSIT® SC 240

Rapid Screed Cement

CE
EN13813

Application fields

VELOSIT SC 240 is a cementitious binder for on-site screed mixes. It is mixed with sand and aggregates creating a rapid hardening overlayment ready to receive flooring systems within 24 hours. VELOSIT SC 240 may also be used as a binder for special concrete mixes and mortar formulations. Typical application fields besides others are as follows:

- Interior and exterior use
- Bonded screeds
- Industrial screeds
- De-coupled screeds on insulation or membranes
- On-site concrete mixes

Properties

VELOSIT SC 240 is a shrinkage compensated special cement formulation with very quick strength development. VELOSIT SC 240 binds the mixing water very fast allowing a very short wait time before it can be covered.

VELOSIT SC 240* surpasses the requirements of EN 13813 class CT-C50-F7.

VELOSIT SC 240 can be applied by trowel or suitable pumping equipment.

- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Excellent workability
- Fiber reinforced
- Ready for covering with ceramic tiles after 5 hours, for moisture sensitive floor coverings after 24 hours.
- 60 min. working time and 12 MPa (1740 psi) compressive strength after 5 hours
- Final strength of more than 50 MPa (7250 psi) after 28 days
- Open to foot traffic after 5 hours
- Very good adhesion to properly prepared concrete
- Excellent water resistance, no strength loss under water

- High tensile strength allowing thin applications on de-coupled screed applications
- Good weathering resistance
- Good sulfate resistance
- Light gray color close to concrete color

*Mixed with 4 parts screed sand 0- 4 mm

Application

1.) Substrate preparation

Bonded screed application

VELOSIT SC 240 is designed for concrete substrates. Steel may be coated with a suitable bonding bridge.

a.) Steel must
be prepared to a purity of SA 2.5 acc. SIS 05 5900.

b.) Concrete substrates
must be prepared with sand blasting, shot blasting or high pressure water blasting (> 100 bar/1450 psi) to remove all bond breaking substances.
Substrate must be rough, open porous and load bearing. The minimum requirement for adhesive strength is 1.0 MPa (145 psi) and for the compressive strength 20 MPa (2900 psi). Lower strength values can be accepted if lower adhesive strength is acceptable. Active water leaks must be treated and fully stopped with VELOSIT PC 221. Leaking cracks need to be sealed with a PU injection material.

Priming:

a.) Steel:
Apply a corrosion protection coat on rebar with VELOSIT CP 201. Other steel areas can be primed with VELOSIT PR 303 with a full broadcast. Steel may expand and contract differently under temperature changes than a cementitious mortar. Thus steel application is only recommended if steel is embedded in larger concrete bodies or the temperature is not subject to major changes.

b.) Concrete substrates
must be primed with VELOSIT CP 201 and the screed can be applied wet in wet with VELOSIT SC 240 immediately after priming.

De-coupled screeds

a.) Insulation boards (EPS, XPS etc.) must be laid out on a solid substructure that prevents future settlement. A PE membrane is mandatory to avoid the screed mortar entering the joints and building bridges to the substrate. Use de-coupling strips on the wall termination.

b.) Existing membranes like bitumen sheets can be covered directly with a VELOSIT SC 240 based screed.

c.) Wooden substrates must be covered with a de-coupling membrane (for example PE sheet).

2.) Processing

Mixing:
VELOSIT SC 240 requires 35 – 45 % potable water, i.e. 7.0 – 9.0 l (1.8 – 2.4 gal.) water and 80 to 100 kg screed sand with a proper grading per 20 kg (44 lb.) bag. Depending on aggregate moisture fill the 20 – 35 % mixing water (4.0-7.0 l per bag) into a freefall mixer and add the calculated amount of screed sand. 80 kg (176 lbs.) screed sand are usually 11 – 12 shovels. Add a bag of VELOSIT SC 240 and mix for 2 min. Check the consistency and add water to adjust the desired consistency (total water not to exceed 9.0 l). Small volumes can be hand-mixed in a suitable bucket. Mix designs can be calculated according the below mentioned chart.
Do not over water the product!
The product is workable for 60 min. at 23 °C.

a.) Trowel application: Pour VELOSIT SC 240 screed onto the prepared substrate and level with a rake to

the desired thickness. Finish with a screed trowel and compact the surface. Make sure to work in sections that can be finished within 45 min.

b.) Pump application:
Suitable mortar pumps are for example:
- Brinkmann GmbH: Estrichboy
- Putzmeister GmbH: Mixokret M 740

Add the required amount of water into the drum and shovel 240 kg (35 shovels) of screed sand into the drum. Add 3 bags of VELOSIT SC 240 and mix for 1 – 2 min. Pump onto the prepared substrate and level with a rake. Finish with a screed trowel and compact the surface. Make sure to work in sections that can be finished within 45 min. Control the slump with a slump cone regularly. Long pump interruptions may result in clogging of the pump hose. The product may cure a lot faster if the hose is exposed to direct sunlight. Always empty and flush the machine after pumping or before long pump interruptions. VELOSIT SC 240 is a fast curing material and may be hard to remove if left in the machine.

Never overcoat joints or untreated cracks as this will most likely result in surface cracks!

3.) Curing

VELOSIT SC 240 based screed do not require curing. Protect the applied product for 24 hours against direct sun light, wind and temperature changes exceeding 5 °C (9 °F).

Estimating

Volume yield:
1:4 mixing ratio: 20 kg (44 lbs.) VELOSIT SC 240 plus 80 kg screed sand result in approx. 50 liter (1.77 ft^3) cured screed.

Consumption per m^2:
1 cm thickness: 4 kg (8.8 lbs.)
4 cm thickness: 16 kg (35.2 lbs.)
5 cm (2“) thickness: 20 kg (44 lbs.)

Cleaning

VELOSIT SC 240 screeds can be removed in the fresh state with water. Once it has cured acidic cleaners like muriatic acid and mechanical cleaning are required.

Quality features

Color:	gray
Water demand:	35 – 45 %
Density:	1.6 kg/l
Substrate temperature:	5 – 35 °C (50 – 95 °F)
Initial set:	135 min.
Final set:	160 min.

Compressive / flexural strength (1:4):

5 hours:	12 / 2 MPa (1740/290 psi)
24 hours:	30 / 4 MPa (4350/580 psi)
7 days:	44/ 6 MPa (6380/870 psi)
28 days:	51 / 7 MPa (7395/1015 psi)

Adhesive strength*:
- primed with CP 201: 2.0MPa (290 psi)

Length change after 56 days:

- dry storage:	- 0.2 mm/m (-0.04 %)
- water storage:	+ 0.0 mm/m (+0.01 %)
Fire rating EN13501-1:	Class $A1_{fl}$

*acc. EN 1542. Adhesion depends very much on proper surface preparation!

Packaging

VELOSIT SC 240 is available in 20 kg (44 lbs.)watertight plastic bags.

Storage

VELOSIT SC 240 can be stored in unopened original packs for 12 months at 5 – 35 °C (40 – 95 °F) in a dry storage place protected against sunlight.

Safety

Please observe the actual valid material safety data sheet and follow the described safety measures for handling of the product.

Recommendations

VELOSIT SC 240 is only available for professional applicators.

Never add water to VELOSIT SC 240 when it has started to set. Stiffened material must be disposed.

Sand, water and VELOSIT 245 shall be at 10 – 30 °C (50 – 86 °F) during installation. Never use raw materials colder than 5 °C (41 °F).

Raw material temperatures of 30 °C (86 °F) and higher cause a significant reduction in working time. Using ice water can compensate high sand temperatures to a certain degree.

All described product features are determined under controlled laboratory conditions according to the relevant international standards. Values determined under job site conditions may deviate from the stated values.

Please always use the latest version of this data sheet available from our website www.velosit.de.

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