

VELOSIT® SC 239

Screed Binder



Application fields

VELOSIT SC 239 is a mineral binder for the production of screed mixtures on site. It is mixed with sand and aggregates, resulting in a screed mixture ready for laying after 24 h. VELOSIT SC 239 can also be used as a binder for special mortars and concretes. Typical application fields besides others are as follows:

- Interior and exterior use
- Bonded screeds
- Industrial screeds
- Floating screeds on insulation or separating layer
- Site mixed concrete

Properties

VELOSIT SC 239 is a shrinkage-compensated special cement formulation with rapid strength development.

VELOSIT SC 239 exceeds the requirements of EN 13813 in class CT-C50-F9**.

VELOSIT SC 239 is applied by trowel or suitable pumping technique.

- Minimal shrinkage/swelling under dry or wet storage, minimizing cracking.
- Excellent processing
- Ready for tiling after approx. 24 h*.
- 90 min. processing time and 20 MPa after 24 h**
- Final strength of more than 50 MPa after 28 days**
- Can be walked on after approx. 12 h*
- Very high adhesion to concrete in combination with VELOSIT CP 201
- Excellent water resistance, no loss of strength when used in water
- High flexural strength allows thin layer thicknesses in decoupled*** screed constructions
- Good weather resistance
- Light gray color similar to concrete

* 23 °C, 50 % rel. humidity

** with Weser gravel 0 - 8, mixing ratio 1:4

*** observe relevant standards

Application

1.) Substrate preparation

Composite screeds

VELOSIT SC 239 is designed for concrete substrates. Steel can be coated with a suitable bonding bridge.

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

b.) Concrete must be free from all loose substances by sandblasting, shot peening or high-pressure water jetting (>100 bar). The surface must be open-pored and load-bearing. The minimum adhesive tensile strength requirement is 1.0 MPa and the compressive strength must be at least 20 MPa. Lower strengths can be accepted if the substrate adhesion requirements are lower. Active water penetrations must be completely sealed with VELOSIT PC 221 beforehand. A PU injection system must be used for water-bearing cracks.

Priming:

a.) Steel: Prime reinforcing steel with VELOSIT CP 201. Other steel surfaces can be primed with VELOSIT PR 303 with complete sanding primed (see technical data sheet). Steel expands differently than cement screed when exposed to temperature fluctuations. Therefore, installation on steel is only recommended if the steel surface is bonded into the concrete or if no large temperature fluctuations are to be expected.

b.) Concrete surfaces can be primed with VELOSIT CP 201 and the screed laid fresh in fresh with VELOSIT SC 239.

Screeds on separating layer

a.) Insulation boards (EPS, XPS etc.) must be laid on a load-bearing substrate that excludes subsequent settlement. The surface is protected against the formation of mortar bridges with a continuous foil as well as edge insulation strips.

b.) Existing foils such as bitumen membranes can be directly covered with a screed of VELOSIT SC 239.

c.) Wood substrates must be protected with a decoupling membrane e.g. made of PE.

2.) Processing

Mixing: VELOSIT SC 239 requires 25 - 30 % potable water, i.e. 5.0 - 6.0 l (1.3 gal. – 1.6 gal.) per 20 kg (44 lbs) bag, and 80 kg (176 gal.) to 100 kg (220 gal.) of screed sand with a favorable grading curve (A/B) per 20 kg bag. Depending on the sand moisture (can often be around 3 - 4 %), add 15 - 25 % (3 - 5 l) water in the free-fall mixer and add the calculated quantity of screed sand. 80 kg of screed sand is usually about 11 - 12 shovels. Add a 20 kg bag of VELOSIT SC 239 and mix for at least 3 min. Smaller quantities can also be mixed in a mortar bucket. The consistency can be adjusted by adding water. Never add more than a total of 6.0 l water per bag. Do not overwater the product!

The product can be processed for approx. 90 min. at 23 °C.

a.) Processing with the trowel: Apply VELOSIT SC 239 to the prepared substrate and spread to the desired layer thickness using a screed gauge or a squeegee to the desired layer thickness. Smooth and compact with a screed blade. Work in sections that can be completed in 45 minutes.

b.) Machine Processing:

Use suitable machines such as:

- Brinkmann GmbH: Estrichboy

- Putzmeister GmbH: Mixokret M 740

Pour the required quantity of water into the drum and add 240 kg of screed sand (approx. 35 shovels). Add 3 bags of VELOSIT SC 239 and mix for 1 - 2 min. Pump onto the prepared surface and spread with a screed gauge or squeegee to the desired layer thickness. Smooth and compact with a screed blade. Work in sections that can be completed in 45 min. Check the consistency regularly.

Long interruptions in pumping may cause clogging of the hose. The product may harden considerably faster if the hose is exposed to direct sunlight. Always empty and flush the machine and hoses when there are longer work interruptions. VELOSIT SC 239 is difficult to remove from the machine after hardening.

Never overcoat joints or untreated cracks, otherwise cracks are very likely to occur. Seal cracks beforehand with VELOSIT PR 303 or VELOSIT GH 311 (see Technical Data Sheet VELOSIT PR 303 or VELOSIT GH 311).

3.) Curing

VELOSIT SC 239 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 239 plus 80 kg screed sand result in approx. 50 liter (1.77 ft³) cured screed.

Consumption VELOSIT SC 239 per m²:

- 1 cm (0.39") thickness: 4 kg (8.8 lbs.)
- 4 cm (1.57")thickness: 16 kg (35.2 lbs.)
- 5 cm (2") thickness: 20 kg (44 lbs.)

Cleaning

VELOSIT SC 239 can be removed with water when fresh. Once cured, acid-based cleaners such as dilute hydrochloric acid or mechanical removal will be necessary.

Quality features

Color:	gray
Water demand:	25 – 30 %
Density:	1.1 kg/l
Substrate temperature:	5 – 35 °C (41 – 95 °F)
Compressive / flexural strength (1:4)**:	
24 hours:	approx. 25 / 6 MPa (3626 / 870 psi)
7 days:	approx. 35 / 7 MPa (5076 / 1015 psi)
28 days:	approx. 50 / 9 MPa (7252/ 1305 psi)

Adhesive strength*:

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

Length change after 56 days:

- dry storage: - 0.2 mm/m
- water storage: 0.0 mm/m

Fire rating EN13501-1: Class A1_{fl}

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

Mixing ratio screed sand 0 – 8 mm (Weser gravel):

- 1:4 CT-C50-F9
- 1:5 CT-C40-F8
- 1:6 CT-C35-F7
- 1:7 CT-C25-F6

(Orientative strengths determined under laboratory conditions with earth-moist consistency. May vary under site conditions).

Packaging

VELOSIT SC 239 is available in 20 kg (44 lbs.) watertight plastic bags.

Storage

VELOSIT SC 239 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 239 is only available for professional applicators.

Never add water to VELOSIT SC 239 when it has started to set. Stiffened material must be disposed.

Sand, water and VELOSIT 239 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.

A CM measurement is required to determine the readiness for covering.

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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