

 **velosit**



**FLOORING SYSTEMS**



# High quality, high strength, and durable

VELOSIT systems allow various subsequent processing steps to be completed in a much shorter time. Our products are coordinated in such a way that waiting times are largely eliminated and a continuous workflow is possible. Our goal is to be able to complete every trade in just one day.

VELOSIT offers a range of floor construction systems with floor leveling compounds, floor coatings and screed systems. All products are almost non-shrink and completely water resistant. They can therefore also be used outdoors without restrictions.

The system is completed with some primers, sealers and impregnations.

Floors - especially industrial and commercial floors - are subject to high demands in terms of quality, durability and strength.

## Types of substrates

The substrate and its condition play a major role in the renovation of floors. The result of a renovation is only as good as its substrate.

### Concrete

The most common substrate is concrete, in many cases steel reinforced which must be taken into account during the renovation. If there are already cracks, rust spots or even spalling over the reinforcement, the rebar must be exposed and protected before coating the concrete. There are also floor panels that are reinforced with steel or other fibers. Shake on floor hardeners or old coating systems are often found on the surface, which may have to be removed.

### Dry screed elements

Floor constructions are also made in the form of loosely laid or bonded panels. Dry screed elements are usually based on gypsum fiber boards that are laid on top of insulation. The situation is similar with cavity floors, where gypsum fiber boards are usually laid on a stand construction. Wood and cement fiber boards are also used

### Screed

According to EN 13813, there are five common types of screed, which are determined by the type of binding agent.





### Cement screed (CT)

The cement screed has been a successful substrate for many top coverings for decades. The mixture consists of cement, water and sand and can also be enriched with various additives. The "CT" class is used both for flowing screed and for semi-dry cement screed. Cement screed is the classic among the types of screed and is the most common in commercial and private construction. It can be used indoors and out, withstands years of exposure to moisture and can be manufactured in multiple strength classes.

### Calcium sulphate screed - anhydrite screed (CE or CA)

The calcium sulphate screed is also colloquially called anhydrite screed. Calcium sulphate screeds are mainly used in residential and commercial construction. This type of screed is not suitable in damp rooms or outdoors, as it is not moisture-stable. Anhydrite screed must have a particularly low level of residual moisture before covering, which is often associated with long drying times.

### Magnesia screed (MA)

This type of screed is also known under the former name stone wood screed. It will preferably be found in the renovation of old buildings and/or in ecological construction. The magnesia screed achieves high surface strength. It is therefore often used as a functional screed in industrial and commercial construction.

### Mastic asphalt screed (AS)

The mastic asphalt screed is a mixture of bitumen, sand, limestone fillers and graded aggregates, which is used either as a building waterproofing or as a mastic asphalt screed in building and industrial construction.

This type of flowing screed is applied at temperatures between 220 and 250 degrees Celsius and therefore does not have to be compacted, nor does mastic asphalt screed need long drying times.

### Synthetic resin screed (SR)

Synthetic resin screeds consist of synthetic resin mortar and synthetic reaction resin as a binder. As a result of a chemical reaction, the mixture solidifies on site. Most of the time these materials are applied as a bonded screed, so the synthetic resin screed is firmly adhered to the substrate. The expensive synthetic resin screed requires special mixing for the intended use and is not easy to apply. It is suitable for small areas such as bathrooms. With different and very low installation heights, synthetic resin screeds are often the only solution that works permanently.





# Substrate evaluation

Before a new floor is laid, the substrate must be tested for surface properties and evenness.

These include: assessment by visual inspection, scratch test, hammer impact test, knocking, if necessary water drop test on a dust-free substrate.

In addition to these methods of first inspection, there are other investigation options.

## Grid scratch test

The strength of the surface of a screed can be assessed by means of a grid scratch test. The grid scratch test is a standard test and provides information on whether the strength of the surface of the screed is sufficient for the intended purpose if a suitable scratch device is used and if you have the necessary expertise. This test method is often used for calcium sulphate screeds.

## Compressive strength

The compressive strength of the existing subfloor and the floor stress have a decisive influence on the durability of the floor coating. For many systems, the compressive strength should be at least 20 MPa.

## Surface strength

To measure the surface strength, non-destructive measurements can be made with a rebound hammer (Fig. 1.), ball impact hammer or an ultrasonic device.

## Moisture measurement

The CM measurement is used to determine the moisture content in all mineral building materials. A sample of the damp building material is taken and analyzed using a CM moisture meter (Fig. 2.). This method is used particularly frequently to check whether screed is ready for covering and as a method for measuring depth of moisture. In addition, capacitive measurements with ball measuring systems provide an orientation value for the relative substrate moisture. A new procedure is the KRL method, in which the equilibrium moisture content in the substrate is determined using a hygrometer.

## Adhesive strength

The adhesive tensile strength (also: pull-off strength) serves as a parameter for the surface tensile strength of mineral-bound floors or the adhesive strength between two floors or e.g. a coating on a substrate. The adhesive strength can be determined using an adhesive strength tester (Fig. 3.). An attached stamp („dolly“) is pulled off perpendicularly to the test specimen surface at a constant speed using an adhesion testing machine until it tears off (breaks). A failure between substrate and adhesive/coating is optimal. The minimum requirement for adhesive strength depends on the material used. For industrial floor coatings, for example, it is 1.5 MPa.



Fig. 1. Measurement of compressive strength by means of rebound hammer

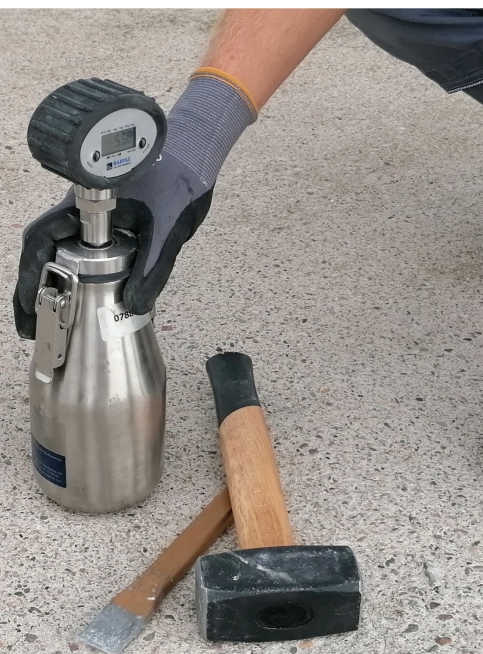


Fig. 2. Measurement



### Adhesion reducing substances

The substrate must be rough, non-slip, free from loose, soft, brittle parts, hard shells in the case of flowable concrete and fine mortar layers (cement slurry). The surface must be free of dirt, e.g. mortar and plaster residues, paint, oil, bitumen, etc. In addition, the concrete should not contain any adhesion-reducing materials, such as e.g. water-repellents. Curing agents with a release effect must be removed.

### Cracks and defects

The surfaces must be examined for all types of cracks and defects. Cracks and gaps in the floor must be statically srepaired before the top covering is laid. If there are later tensions in the substrate, this will lead to damage, especially with tiles. In this case, too, you must fill the cracks and gaps in the screed with e.g. epoxy resin (VELOSIT PR 303, Fig. 4.) before laying a new floor.



Fig. 4. Filling cracks with VELOSIT PR 303



Fig. 3. Measurement of adhesive tensile strength

moisture according to CM method



# Substrate preparation

The success of any material that depends on good substrate adhesion is already determined during substrate preparation. Adequate substrate adhesion can only be achieved if all adhesion-reducing substances have been removed and the surface has sufficient strength and profile for the respective product. The optimal surface profile depends on the type and thickness of the following layer. In general, the rougher the better the adhesive bond, but the surface roughness must of course be significantly lower with a final coating of 2 mm thickness than with a 25 mm repair mortar application.

The choice of surface preparation also depends on other factors, such as e.g.:

- Hardness and soiling level
- Requirements for the substrate adhesion of the coating
- Required surface roughness
- Water sensitivity of the substrate
- construction site environment

## Scarifying

Scarifying machines can be used to remove large amounts of material from floors. The resulting surface finish has peak-to-valley heights of 0.5 – 30 mm. The method is very aggressive and creates many micro-cracks, especially around the aggregate in the concrete. In addition, scarifying is very noisy and involves quite a lot of dust. Scarifying only works on horizontal surfaces with a max. slight incline. The method is very well suited for thick system structures, e.g. bonded screeds or floor leveling compounds. Due to the very rough surface, it is not ideal for thin-layer systems. After scarifying, the surface should be shot-blasted again to completely remove loosened surface components.

## Shot blasting

Shot blasting is the most commonly used method for preparing large floor areas economically and dust-free. Shot-blasted surfaces made of concrete or asphalt are absolutely clean, free of oil and grease, roughened and open-pored and therefore safe for the bonding of coatings, screeds, coverings, paints and markings to be applied later. Cracks or flaws in the concrete are ruthlessly exposed during shot blasting and are therefore visible before the actual further processing for optimal rehabilitation. Shot blasting is also used to finish scarified floors or polished concrete surfaces as a final substrate preparation.

## High-pressure water washing > 80 bar

## High-pressure water jetting > 200 bar

The efficient, environmentally friendly and gentle high-pressure water jet process is used in many areas for cleaning or removing residues. With this method, loose and/or brittle components and coarse dirt are removed. High-pressure water jetting at 200 - 400 bar is the most aggressive substrate preparation method and is suitable for completely removing concrete. The result is a very open-pored structure, which is why high-pressure water jetting is the best substrate preparation for concrete repairs.



Shot blasting



Large amounts of carbonized concrete often have to be removed here before a load-bearing substrate is exposed. The main disadvantage of this method is the dirty spray that condenses all over the area. Due to the high pressures, extensive protective clothing must also be worn. Choosing the right substrate preparation method is the first step in successfully processing our systems. In the next chapter you will find the suitable primers to complete a suitable substrate preparation for subsequent systems.

### Grinding

A common and inexpensive method of preparing the substrate for coatings is grinding, with which roughness depths of max. 0.5 - 1 mm can be achieved. Grinding is relatively noisy and often dusty. The technique works on almost all common construction substrates, but with porous materials, some dust is always forced into the pores. Grinding works well on angled surfaces and can be performed on both floor and wall surfaces. The method is used for floor leveling compounds, waterproofing, surface finishing and sealing. It is not sufficient for concrete repair or for the preparation of industrial floor coatings. We also do not recommend it for thick-layer applications of floor leveling compound from 6 mm and higher.

### Preparation of oil-contaminated substrates

Substrates contaminated with oil or other substances that are harmful to the environment must be thoroughly de-oiled before the floor is cleaned. After years of using industrial floors, liquids often penetrate the floor coating and are absorbed by the screed or concrete subfloor.

### Mechanical removal

Ideally, the contaminated concrete or screed can be removed so that the surface is clean again. However, this is only economical if the contamination is only a few millimeters deep. Alternatively, the contamination can be removed from the subsurface using a variety of cleaning agents.

Scarifying

### Cleaning of oil and grease contaminations

Oils and fats can be removed using special cleaning preparations for intensive cleaning and oil removal. There are products based on enzymes and surfactants that allow the contamination to be removed with water. First, the old covering is removed using a suitable method and part of the contaminated substrate is removed. The surface is then de-oiled in several cleaning processes, using hot water high-pressure technology, for example. Depending on the depth of the contamination, it may not be possible to remove the oil from the entire cross-section of the substrate. In this case, the oil can return to the surface by capillary suction when it dries and jeopardize the cleaning success. In this case, the substrate must be primed while it is still wet with VELOSIT PR 303 in accordance with the technical data sheet.

High pressure water jetting

Grinding



# Priming

A suitable primer is required to ensure that the newly laid floor has a permanent hold. The primer creates the basis for a flawless and durable floor. Before the primer is used, the floor must be free of grease and dust. Only then a primer application to the floor with a broom, roller or brush is possible. Special attention must be paid to oil-contaminated substrates. Substrates contaminated with oil or other environmentally hazardous substances must be thoroughly de-oiled prior to floor remediation. After years of using industrial floors, the liquids often penetrate the floor coating and are absorbed by the screed or concrete subfloor.

## Oil contaminated substrates

If the substrate is very dirty, the contaminated areas must be removed. If this is not economically possible, the only option is to clean the substrate as described on the previous page. After successful cleaning, the surface is rinsed several times, e.g. using a high-pressure cleaner, in order to remove residues of dirt and the cleaning agent. Standing water is then removed or vacuumed off and the matt-damp substrate is immediately primed with VELOSIT PR 303. Drying must be avoided, as water evaporates from the capillary pores, oil can be transported back to the surface.

Surface defects such as blowholes or spalls must be treated before priming (Fig. 2.). This can be done with a mortar consisting of one part VELOSIT PR 303 and 2 – 3 parts suitable quartz sand 0.7 mm – 1.25 mm. VELOSIT PR 303 can be used with almost any moisture saturation of the substrate, even if the moisture load later increases. Thoroughly pre-dampen absorbent surfaces but avoid puddle formation.

For the subsequent priming of the surface, mix VELOSIT PR 303 according to the technical data sheet. Pour VELOSIT PR 303 onto the floor and spread with a squeegee. Roll out several times at a 90° angle with a lambskin roller to work the material into the pores (Fig. 3.). Work in sections to ensure the required layer thickness. If necessary for the subsequent coating, carry out a full-coverage sanding with suitable quartz sand 0.7 - 1.25 mm into the fresh coating (Fig. 4.). After hardening, vacuum off excess sand (Fig. 5.).



## Application of VELOSIT® PR 303

**Fig. 1.** Cleaning with a high-pressure cleaner.

**Fig. 2.** Fill blowholes, spalls and cracks with VELOSIT PR 303.

**Fig. 3.** Roll out VELOSIT PR 303 with a work the material into the pores.





## VELOSIT® PR 303

VELOSIT PR 303 is a "high performance" epoxy primer and vapor barrier particularly suitable for damp substrates. Even wet substrates can be safely primed with it, which means that a stable substrate can be achieved for almost any floor system.

### APPLICATION FIELDS

- Interior and exterior use
- Standard primer for resin flooring systems
- Moisture barrier for sensitive flooring materials and adhesives
- Primer for Polyurea coatings and joint materials
- Primer for asphalt with solvent addition
- Production of scratch coat and cove mortar

### PROPERTIES

- VOC and solvent free
- Low viscosity
- Very low vapor transmission rate, surpasses requirements of ASTM E96-12 for vapor retarders
- Pigmented for better visibility on the substrate
- Very good adhesion to metal and typical construction substrates like concrete, masonry and asphalt (with xylene addition)
- Surpasses requirements of EN 1504-2
  - Good resistance against many chemicals, for example alkalis and diluted acids
  - Light grey

Estimating: Priming of concrete: \*0.6 kg/m<sup>2</sup>

Priming of concrete with broadcast: \*0.6 kg/m<sup>2</sup>

suitable quartz sand 0.7 mm – 1.25 mm: \*0.8 kg/m<sup>2</sup>

\* Depending on the roughness and absorptivity of the substrate, consumption may be significantly higher.

Pot life, 23°C:

approx. 35 Min.

Ready for foot traffic:

after ca. 8 hours



Units á 25 kg  
(55 lb.)  
(21,7 kg A-Comp +  
3,3 kg B-Comp.)

Priming with VELOSIT PR 303

lambskin roller to

**Fig. 4.** Full-coverage sanding with suitable quartz sand 0.7 – 1.25 mm into the fresh coating.

**Fig. 5.** After curing, vacuum off excess quartz sand.





# Priming

## VELOSIT® PA 911

For interior applications where permanent exposure to water does not have to be taken into account, the flexible **dispersion primer VELOSIT PA 911** is an economical alternative. A particularly rough surface profile is important for strong clawing of the mineral leveling compounds. We recommend shot blasting for this primer as substrate pre-treatment, if necessary in combination with scarifying.

### APPLICATION FIELDS

- For inside and outside under coverings
- Acrylate-Priming underneath adhesives and mortars
- Primer under adhesives and mortars
- Sealing of absorptive substrates

### PROPERTIES

- Fast drying
- Improved adhesion on absorptive substrates in interior applications
- Drying time of 1 – 2 hours at 23 °C (73 °F) and 60 % relative humidity
- Solvent-free, low odor
- Concentrate dilutable up to 1 to 3 with water
- Surpasses the requirements of EN 1504-2
- White

Consumption: Depends on surface roughness and absorptivity.

Typical application rates are at 0.03 – 0.1 l/m<sup>2</sup> (0.7 – 2.5 gal per 1,000 ft<sup>2</sup>)



Plastic jugs  
5 kg (11 lb.)  
10 kg (22 lb.)

Primer Selector								
	Primer	Concrete	Cementitious screed	Concrete	Cementitious screed	Anhydrite screed	Mastic asphalt screed	Timber with substructure
Residual moisture		< 4.0%	< 2.0%	>= 4.0%	>= 2.0%	< 0.5%		
Underlayments, standard VELOSIT SL 501, 506, 525	VELOSIT PA 911	++	++			+		+
	VELOSIT CP 201			+	+			
	VELOSIT PR 303	+	+	++	++	+	++	+
Underlayments, high strength VELOSIT SL 502 - 507	VELOSIT PA 911	+	+			+		
	VELOSIT CP 201							
	VELOSIT PR 303	++	++	++	++	+	++	
Semi-dry screeds VELOSIT SC 239 - 242	VELOSIT PA 911	+	+			+		+
	VELOSIT CP 201	++	++	++	++			
	VELOSIT PR 303	+	+	++	++	+	++	+
Flowable screeds VELOSIT SC 244, 245	VELOSIT PA 911	+	+			+		+
	VELOSIT CP 201	++	+	+	+			
	VELOSIT PR 303	++	++	++	++	+	++	+

Suitable: +

\*with addition of VELOSIT GF 825

Recommended: ++



## VELOSIT® CP 201

The **cementitious primer VELOSIT CP 201** serves as corrosion protection and bonding bridge for concrete and masonry.

### APPLICATION FIELDS

- Interior use
- Priming of concrete and masonry for VELOSIT RM mortars
- Corrosion protection of concrete embedded steel like rebar
- Prime coat to fill blow holes, honeycombs and surface roughness
- Can be used for vibrated floor systems as a bonding bridge between tiles and mortar bed



Bag á 20 kg (44 lb.)

### PROPERTIES

- Minimal shrinkage/expansion under dry resp. wet curing conditions
- No cracking if the normal layer thickness is exceeded
- Good resistance against aggressive media with a pH range of 3-12 and against soft water with low ion content
- Good sulfate resistance
- Surpasses the requirements of EN 1504-3 class R4
- Light grey

Consumption: approx. 1.6 kg/mm/m<sup>2</sup>  
Compressive /  
flexural strength: 24 hours: 20/5 MPa (2900/725 psi)

Placing VELOSIT PA 911 in the spraying machine



Application VELOSIT PA 911





# Cement based





# floor systems





# VELOSIT - screeds

## Flowable screeds

Screed (mortar) which, due to its very soft consistency, can be installed self-levelling and without significant spreading and compacting by adding a superplasticizer.

## VELOSIT® SC 244 Rapid Flowable Screed

The cementitious ready-mix VELOSIT SC 244 is excellently suited as a flowing screed with very rapid strength development. The mixing water is bound in a short time, allowing floor coverings to be installed after a very short time.

### APPLICATION FIELDS

- Interior and exterior use
- Bonded screeds
- De-coupled screeds on insulation or membranes
- Job site concrete mix
- Application thickness from 10 mm to 120 mm

### PROPERTIES

- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Fiber reinforced
- Ready for covering with ceramic tiles after 4 hours, for moisture sensitive floor coverings after 48 hours
- High tensile strength allowing thin applications on de-coupled screed application
- Surpasses the requirements of EN 13813 class C50-F7
- Light gray and white

Consumption/m <sup>2</sup> :	approx. 1.95 kg/mm/m <sup>2</sup>
Working time:	approx. 40 Min.
Ready for foot traffic:	after 4 hours
Compressive / flexural strength:	24 Stunden: 26/4 MPa (3770/580 psi)



## VELOSIT® SC 245 Flowable Screed Cement

### APPLICATION FIELDS

- Interior and exterior use
- Bonded screeds
- De-coupled screeds on insulation or membranes
- Especially optimized for processing from 2 chamber silos or mobile screed processing units
- Application thickness from 20 mm to 100 mm

### PROPERTIES

- Excellent flowable workability
- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Excellent water resistance, no strength loss under water
- High tensile strength allowing thin applications on de-coupled screed applications
- Surpasses the requirements of EN 13813. Depending on the mix design screed formulations with a class CT-C50-F7 are achievable.
- Light gray

Consumption/m <sup>2</sup> with 32 % binder, 68 % sand 0 - 8:	approx. 1.95 kg/mm/m <sup>2</sup>
according to standard formulation: 1000 kg VELOSIT SC 245 with 2125 kg sand and 290 l mixing water result in	
approx. 1.6 m <sup>3</sup> cured screed	
Ready for foot traffic:	after 5 hours
Compressive /flexural strength:	24 hours: 25/4 MPa (3626/580 psi) at 32 %



Bag á 25 kg (55 lb.),  
BigBag á 1.000 kg  
(2205 lb.)



BigBag á 1.000 kg  
(2205 lb.), in a silo train



### Semi-dry screeds

Semi-dry screed is characterized by a consistency similar to moist sand. It can be compacted but initially has porous structure.

## VELOSIT® SC 240 Rapid Screed Cement

### APPLICATION FIELDS

- Interior and exterior use
- Bonded screeds
- Industrial screeds
- De-coupled screeds on insulation or membranes
- On-site concrete mixes
- Application thickness from 20 mm to 100 mm

### PROPERTIES

- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Fiber reinforced
- High tensile strength allowing thin applications on de-coupled screed applications
- Excellent water resistance, no strength loss under water
- Surpasses the requirements of EN 13813 class CT-C50-F7 (Mixed with 4 parts screed sand 0 – 4 mm)
- Light gray

Consumption/m<sup>2</sup>: 20 % binder, 80 % sand, 1cm screed thickness: 19.5 kg/m<sup>2</sup>  
1 : 4 Mixture:: 20 kg (44 lb.) VELOSIT SC 240 plus 80 kg screed sand  
result in approx. 50 litres (1.77 ft<sup>3</sup>) cured screed.

Working time: approx. 60 Min.

Ready for foot traffic: after approx. 5 hours

Compressive /flexural strength:  
24 hours: 30/4 MPa (4350/580 psi)



Bag á 20 kg (44 lb.)

Application VELOSIT SC 245



## VELOSIT® SC 241 Light Weight Screed

### APPLICATION FIELDS

- Interior and exterior use
- Bonded screeds
- De-coupled screeds on insulation or membranes
- Restoration of structures with limited static loads
- Application thickness from 10 mm to 100 mm

### PROPERTIES

- High tensile strength allowing thin applications on de-coupled screed applications
- Minimal shrinkage/expansion under dry resp wet curing conditions minimizing the risk of micro-cracking
- Good sulfate resistance
- Fiber reinforced
- Surpasses the requirements of EN 13813 class C35-F6
- Light gray

Consumption/m<sup>2</sup>: approx. 1.30 kg/mm/m<sup>2</sup>

Working time: approx. 45 Min.

Ready for foot traffic: after 6 hours

Compressive /  
flexural strength: 24 hours: 25/4 MPa (3625/580 psi)



Bag á 20 kg (44 lb.)



# VELOSIT - screeds

## VELOSIT® SC 242 Rapid Ready to Use Screed

### APPLICATION FIELDS

- Interior and exterior use
- Bonded screeds
- De-coupled screeds on insulation or membranes
- Restoration of structures with limited static loads
- Application thickness from 10 mm to 100 mm

### PROPERTIES

- Minimal shrinkage/expansion under dry resp wet curing conditions minimizing the risk of micro-cracking
- Fiber reinforced
- Ready for covering with ceramic tiles after 6 hours, for moisture sensitive floor coverings after 24 hours
- High tensile strength allowing thin applications on de-coupled screed applications
- Surpasses the requirements of EN 13813 class C50-F7
- Light gray and white

Consumption/m <sup>2</sup> :	approx 2.00 kg/mm/m <sup>2</sup>
Working time:	approx. 45 Min.
Ready for foot traffic:	after 4 hours
Compressive / flexural strength:	24 hours: 27/4 MPa (3915/580 psi)



Bag á 25 kg (55 lb.),  
BigBag á 1.000 kg  
(2205 lb.)



Selection aid floor systems

		Commercial as a substrate for sealers				Residential and commercial under tiles and commercial stones				Commercial, under carpet vinyl and laminate				Residential and commercial as a floor finish				Coating of warehouses and industrial floors				Residential and commercial under tiles and commercial stones				Coating of warehouses and industrial floors				Bonded screeds				Decoupled screeds, suitable with radiant floor heating				Light weight screeds (decoupled)				Industrial screed as a finished floor																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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\* with suitable aggregate grading



Recommended



## VELOSIT® SC 252

Binder for Pumpable Self Leveling Mortars,  
3 mm (1/8") – 50 mm (2")

### APPLICATION FIELDS

- Interior and exterior use
- Leveling of concrete slabs and floors as a finished surface
- Repair of surface defects on concrete floors
- Application thickness from 3 mm to 50 mm
- Suitable for underfloor heating

### PROPERTIES

- Excellent water resistance, no strength loss under water
- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Excellent flow with long slump life
- Very smooth surface with fast venting
- Surpasses the requirements of EN 13813. Depending on the aggregate grading and water addition the resulting screeds meet class CT-C25-F5 to CT-C50-F7
- Light gray

Consumption: 1.000 kg VELOSIT SC 252 result with 1225 kg sand approx 1.25 m³ cured screed  
Working time: 30 – 40 Min.

Compressive / flexural strength: 24 hours: 30/5 MPa (4350/725 psi)



BigBag á 1.000 kg (2205 lb.),  
in a silo train

VELOSIT SC 253

## VELOSIT® SC 253

Binder for High Strength Self Leveling Mortars,  
3 mm (1/8") – 50 mm (2")

### APPLICATION FIELDS

- Interior and exterior use
- Leveling of concrete slabs and floors as a finished surface
- Repair of surface defects on concrete floors
- Application thickness from 3 mm to 50 mm

### PROPERTIES

- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Excellent flow with long slump life
- Good resistance against CO<sub>2</sub> and Chloride penetration due to a very tight pore structure
- Good sulfate resistance
- Surpasses the requirements of EN 13813. Depending on the aggregate grading and water addition the resulting screeds meet class CT-C50-F6 to CT-C70-F10.
- Light gray

Consumption: 1.000 kg VELOSIT SC 253 result with 1500 kg sand approx 1.4 m³ cured screed  
Compressive / flexural strength: 24 hours: 41/7 MPa (5945/1015 psi)



BigBag á 1.000 kg (2205 lb.),  
in a silo train





# Floor leveling

## VELOSIT® SL 501

Economic Self Leveling Underlayment,  
3 mm (1/8") – 38 mm (1 1/2")

### APPLICATION FIELDS

- Interior and exterior use
- Leveling of concrete slabs and floors
- Suitable for underfloor heating
- Repair of surface defects on concrete floors
- Application thickness from 3 mm to 38 mm

### PROPERTIES

- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Excellent flow with long working time (30 – 40 minutes)
- Fast air release
- Surpasses the requirements of EN 13813 and meets class CT-C30-F7
- Surpasses the requirements of EN 1504-3 class R2
- Very low emissions- EMICODE EC 1 PLUS
- Light gray

Consumption: approx. 1.75 kg/mm/m<sup>2</sup>  
Ready for foot traffic: after 3 hours  
Compressive /  
flexural strength: 24 hours: 23/4 MPa (3335/580 psi)



Bag á 25 kg (55 lb.)

## VELOSIT® SL 506

Self Leveling Underlayment for Carpet, Vinyl and Laminate Floors,  
1 mm (40 mils) – 12 mm (1/2")

### APPLICATION FIELDS

- Interior and exterior use
- Leveling of floors receiving thin flooring materials
- Suitable for underfloor heating
- Repair of surface defects on concrete floors
- As a binder for terrazzo floors
- Application thickness from 1 mm to 12 mm

### PROPERTIES

- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Extremely smooth surface profile due to very fine aggregates
- Excellent flow with long working time (30 - 40 minutes)
- Especially suitable for thin layers
- Easy to sand or polish after curing
- Surpasses the requirements of EN 13813 class CT-C30-F5
- Very low emissions- EMICODE EC 1 PLUS
- Light gray

Consumption: approx. 1.75 kg/mm/m<sup>2</sup>  
Ready for foot traffic: after 2 – 3 hours  
Compressive /  
flexural strength: 24 hours: 17/4 MPa (2465/580 psi)



Bag á 20 kg (44 lb.)



## VELOSIT® SL 525

### Cementitious Leveling Mortar

1 mm (40 mils) – 12 mm (½")

#### APPLICATION FIELDS

- Interior and exterior use
- Leveling of floors receiving flooring materials
  - for leveling and leveling cement, mastic asphalt, calcium sulfate screed, concrete floors and other suitable substrates to receive textile and elastic floor coverings, tiles and slabs
- Application thickness from 1 mm to 12 mm

#### PROPERTIES

- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Extremely smooth surface profile due to very fine aggregates
- Excellent flow with long working time (30 - 40 minutes)
  - Fast air release
  - Very low emission
  - Surpasses the requirements of EN 13813 class CT-C25-F5
  - Very low emissions- EMICODE EC 1 PLUS
  - Mid gray color

Consumption:

approx. 1.5 kg m<sup>2</sup> per 1 mm

Dry film thickness on smooth substrates. On rough substrates, consumption may be significantly higher

Ready for foot traffic:

after approx. 3 hours

Compressive /

flexural strength:

24 hours: 14/3 MPa (2031/435 psi)



Sack á 20 kg

VELOSIT SL 501 - Stadion Borg El-Arab City - Egypt



#### Selection aid floor systems

	Residential, under carpet vinyl and laminate			Commercial, under carpet vinyl and laminate		Commercial as a substrate for sealers	Residential and commercial under tiles and commercial stones	Commercial, under carpet vinyl and laminate	Residential and commercial under tiles and commercial stones
VELOSIT-	0 - 3 mm thickness			3 - 6 mm thickness		6 - 15 mm thickn.			
SL 501				✓	○	✓			
SL 506	✓	✓	✓	✓	○				
SL 525	✓	✓	✓	✓	○				



Recommended



With restriction suitable





# Industrial floor leveling compounds

## VELOSIT® SL 502

Universal Self Leveling Underlayment, 3 mm (1/8") – 38 mm (1½")

### APPLICATION FIELDS

- Interior and exterior use
- Leveling of concrete and screed surfaces
- Suitable for underfloor heating
- Repair of surface defects on horizontal concrete surfaces
- Application thickness from 3 mm to 38 mm

### PROPERTIES

- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Excellent flow with long working time (30 - 40 minutes)
- Fast air release
- Very fast strength development - 20 MPa (2900) after 4 hours
- Surpasses the requirements of EN 13813 and meets class CT-C50-F7
- Surpasses the requirements of EN 1504-3 class R3
- Very low emissions- EMICODE EC 1 PLUS
- Light gray

Estimating: approx. 1.75 kg/mm/m²  
Ready for foot traffic: after approx. 3 hours  
Compressive / flexural strength: 24 hours: 30/5 MPa (4350/725 psi)



Bag á 25 kg (55 lb.)

## VELOSIT® SL 503

High Strength Self Leveling Overlayment, 3 mm (1/8") – 38 mm (1½")

### APPLICATION FIELDS

- Interior and exterior use
- Leveling of concrete and screed surfaces and as finished surface
- Suitable for underfloor heating
- Repair of surface defects on horizontal concrete surfaces
- Application thickness from 3 mm to 38 mm

### PROPERTIES

- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Very early high strength
- Excellent flow with long working time (30 - 40 minutes)
- Good resistance against CO<sub>2</sub> and Chloride penetration due to a very tight pore structure
- Surpasses the requirements of EN 13813 and meets class CT-C60-F7
- Surpasses the requirements of EN 1504-3 class R4
- Very low emissions- EMICODE EC 1 PLUS
- Light gray

Consumption: approx. 1.75 kg/mm/m²  
Ready for foot traffic: after approx. 3 hours  
Compressive / flexural strength: 24 hours: 43/7 MPa (6235/1015 psi)



Bag á 20 kg (44 lb.)



## VELOSIT® SL 507

Abrasion Resistant Self Leveling Overlayment, 6 mm (1/4") – 38 mm (1 1/2")

### APPLICATION FIELDS

- Interior and exterior use
- Leveling of concrete slabs and floors as a finished surface
- Suitable for underfloor heating
- Repair of surface defects on concrete floors
- Application thickness from 6 mm (1/4") to 38 mm (1 1/2")

### PROPERTIES

- Excellent abrasion resistance
- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Excellent flow with long working time (30 - 40 minutes)
- Fast air release
- Surpasses the requirements of EN 13813 class CT-C60-F10-A3
- Sehr emissionsarm - EMICODE EC 1 PLUS
- Light gray

Consumption: approx. 1.75 kg/mm/m²

Ready for foot traffic: after approx. 3 hours, for forklift traffic after 6 hours

Compressive /  
flexural strength: 24 hours: 37/5 MPa (5365/725 psi)



Bag á 20 kg (44 lb.)

Finished surface VELOSIT SL 502 ground and polished



Application VELOSIT SL 507

Finished surface VELOSIT SL 503

### Selection aid floor systems

Screed and floor systems									
	Commercial as a substrate for sealers	Residential and commercial under tiles and commercial stones	Commercial, under carpet vinyl and laminat-	Residential and commercial as a floor finish	Coating of warehouses and industrial floors	Residential and commercial under tiles and commercial stones	Coating of warehouses and industrial floors	Bonded screeds	Industrial screed as a finished floor
VELOSIT-		3 - 6 mm thickness				6 - 15 mm thicken.		15 - 100 mm thickness	
SL 502		✓	✓			✓			
SL 503	✓	✓	✓	✓	✓	✓	✓	○	○
SL 507	✓		○	✓	✓	✓	✓	✓	✓



Recommended



With restriction suitable





# Design floors

Mineral floors with a ground or polished surface are becoming increasingly popular. The surfaces are very hard-wearing, insensitive and also very easy to care for. We offer various solutions for the design of such floors. All ground or polished floors must have a sturdy substructure. Concrete substrates that have already stopped shrinking are ideal. However, cement screeds are also suitable if they are dry and stable. Decorative floors should always be installed in an even layer thickness on crack-free substrates. A primer with epoxy resin (e.g. VELOSIT PR 303) with full broadcast is ideal to ensure a controlled moisture balance while the decorative layer is curing. Drafts and direct sunlight must be avoided during hardening.

## Cloudy appearance

Our mineral leveling compounds VELOSIT SL 502, - SL 503, - SL 505 and - SL 507 can be laid in combination with added pigments in such a way that color shades appear on the surface. The shading can be produced in a targeted manner by merging differently colored individual mixtures. Shading can also be provoked by grinding or polishing the surface of the hardened layer with a fine diamond pad (200 or finer). The very light colored grain of the sand becomes partially visible and the surface appears lighter in places.

## "Salt and pepper"

A special surface design can be achieved by mixing small quantities (< 25%) of a coarser grain into a colored leveling compound. By grinding the hardened surface, the mixed grains are partially exposed. The grinding process has to go a little deeper into the surface, since at least half the grain diameter has to be removed. Correspondingly, coarser diamond tools (60 and coarser) must be used in order to enable the necessary material removal. The surface is then brought to the desired degree of gloss in several increasingly fine sanding steps. This look is particularly easy to achieve with VELOSIT SC 244, which contains sand with a maximum grain size of up to 4 mm in various colors.

VELOSIT SL 503 - ground and polished

VELOSIT SL 502 - ground and polished





## Terrazzo

By adding an excess of coarse color grains, terrazzo surfaces can also be created with our leveling compounds and with VELOSIT SC 244. However, the flowability is lost due to the coarse grain size and the materials have to be troweled down. After hardening, several millimeters are first removed, starting with very coarse diamond tools (18 or coarser), until a closed surface is exposed. Then it is finely ground again in several steps.

## Sealing

Sealing is recommended for all surfaces to improve ease of cleaning. There are numerous products based on wax, epoxy, polyurethane or polyurea. If the surface appearance is to be changed as little as possible, we recommend our mineral floor hardener VELOSIT FH 921. This can be applied after the first fine grinding step and then a second time before the final polishing process. This makes the surface very dense and water-repellent with an almost unchanged appearance. VELOSIT FH 921 is also suitable for sealing ground or polished concrete surfaces.

VELOSIT SC 244 white ground and polished "Terrazzo"



VELOSIT SL 503 -ground and polished - "cloudy look"

VELOSIT SC 245 - ground and polished





# Application techniques

The quality and productivity of our systems is also strongly related to the quality of the tools and machines used. Unsuitable tools can result in poor surfaces, low bond strengths and almost always higher labor costs.

Basically, clean tools and drinking water should be used to mix the products. The choice of the mixing container together with the type of mixing element can also have a significant influence on the formation of lumps or the entry of air.

All of our products are suitable for machine application. Choosing the right machine technology depends on the product and the size of the project.

It must be noted that in the case of manual and pump processing without a post-mixer, the maturing time must be taken into account.

## Manually / by hand

For manual processing, the product is mixed in a mortar bucket or similar as described in the technical data sheet. The material is poured onto the primed surface and drawn down to the desired layer thickness using a spatula or pin squeegee.

## Pump

When processing with mixing pumps, the powder is filled into the product container and the water flow is adjusted. The correct water dosage is set by comparing the consistency with a flow ring versus material mixed by hand. Consistency must be checked every 5-10 minutes.

Suitable machines are e.g. e.g.:

PFT G4/G5 (PFT GmbH)

MP25 (Putzmeister GmbH)

Duomix 2000 (M-Tec)

## Screed pump

Semi-dry screed mixtures can be mixed and pumped with pressure pumps such as Estrichboy 450 (Brinkmann), BMS alpha or Mixokret M 760 (Putzmeister).

Pump truck Brema S3.17

Manual application of VELOSIT SL 502







### Pump-Truck

Mobile screed logistics systems such as Bremat S 3.17, TransMix 3200 (Brinkmann GmbH) or Mobileman D3 (GB Machines GmbH) are particularly efficient for flowable screeds and floor leveling compounds. These mix screed sand and binder on the construction site in small batches and are highly flexible.

### M-tec Duomix 2000





# Surface treatments

## VELOSIT® FH 921 Siliconate Enhanced Floor Hardener

### APPLICATION FIELDS

- Interior and exterior use
- Strengthening of concrete floors in factories, distribution centers and warehouses
- Improving of surface sheen in polished concrete applications
- Fast track finishing of commercial floors as an alternative to coatings and sealers
- On new and existing concrete and on cementitious substrates such as VELOSIT SL 503

### PROPERTIES

- VOC- and solvent-free
- Surpasses requirements of EN 1504-2 for impregnations (I)
- Low viscosity
- Improved water and oil repellency on treated concrete floors
- Reduces abrasion and tire wear
- Transparent

Consumption: Concrete floor hardening: 0.2 kg/m<sup>2</sup>



Jugs á 25 kg (55 lb.)

## VELOSIT® DS 271 Corundum Based Monolithic Floor Hardener

### APPLICATION FIELDS

For surfacing fresh concrete floors such as:

- Outdoor & indoor car parks
- Steel mills
- Warehouses, workshops & loading bays
- Aviation hangers
- Power plants, laboratories and slaughter houses

### PROPERTIES

- Significantly improved impact and abrasion resistance owing to the Corundum filler
- Unsurpassed strength development
- Denser surface and reduced permeability and hence improving resistance to both water and oil absorption
- Increased compressive strength
- Improved aesthetic finish
- Surpasses requirements of EN 13813. Depending on the amount of water and sand quality Class CT-C50-F6 to CT-C70-F10 screeds can be achieved
- Gray, red, green

Consumption:

Traffic	Recommended consumption/m <sup>2</sup>	range per 25 kg (55 lb.) bag
Medium	3.0 kg	8.3 m <sup>2</sup>
Heavy	5.0 kg	5.0 m <sup>2</sup>
Ultra heavy	7.0 – 9.0 kg	2.8 – 3.6 m <sup>2</sup>



Bag á 25 kg (55 lb.)





Concrete floors can also be significantly improved in their abrasion resistance. During the installation phase, we can dry-shake VELOSIT DS 271 onto the surface just before power troweling. This procedure results in an enormous improvement of the quality of the concrete. The scattered VELOSIT DS 271 reacts with the bleed water of the concrete and forms a monolithic hard-grain-filled layer on the floor slab. This makes the floor very hard and particularly resistant to abrasion.

Even with existing concrete floors, there is always a way to improve the finish. To do this, it is necessary to open the pores of the concrete, which are usually heavily clogged with dirt in old concrete floors. It is usually sufficient to grind a few hundred micrometers from the surface to make the concrete receptive to our mineral impregnation VELOSIT FH 921. This penetrates deep into the capillary pores of the concrete structure and reacts there with calcium to form calcium silicates, which clog the pores and make them hydrophobic at the same time. A single application is often sufficient to achieve a significant increase in abrasion resistance. A floor treated with VELOSIT FH 921 is not only stronger, but also less sensitive to aggressive media and, above all, much easier to clean.

VELOSIT FH 921 can also be used to improve our mineral leveling compounds and screeds.







**VELOSIT** is an innovative start-up organization. We combine decades of experience in R&D, production and consulting for high performance construction materials which are fully conversant with modern construction techniques.

Our mission is to make construction faster, easier and less tedious. **VELOSIT** products allow you to finish your project significantly faster without compromising on quality.

**VELOSIT** supplies the construction industry with state-of-the-art alternative solutions. Production “made in Germany” stands for uniform quality to the highest standards.

**If you have questions – just give us a call!**

We can individually tailor a suitable solution for you. Our service and technical support will gladly help.