


HYCHEM

Infrastructure

VELOSIT® RM203

REPAIR MORTAR FOR 1 - 100MM, RAPID SETTING - VERTICAL OVERHEAD

Product Description

VELOSIT RM 203 is a rapid setting cementitious repair mortar for various types of construction substrates. It creates a good surface for coatings and overlays. VELOSIT RM 203 is a shrinkage compensated cementitious repair mortar with extremely fast strength development. VELOSIT RM 203 is the result of many years in the field testing and research. VELOSIT RM 203 creates an extremely well bonded, rigid, abrasion resistant layer on the substrate.

Typical Applications

- Repair of surface defects on concrete, masonry, many natural stones and steel
- Application on horizontal and vertical incl. overhead areas
- Filling of blow holes, honeycombs and surface roughness
- Application thickness from feather-edge to 100 mm
- Re-modeling of architectural features requiring a moldable mortar that can be shaved into shape

Features

- Product approved by TMR-QLD- MRTS72 + MRTS73
- Minimal shrinkage/expansion under dry resp. wet curing conditions minimizing the risk of micro-cracking
- Excellent workability especially overhead
- Fiber reinforced
- 10 min. working time & 14 MPa compressive strength after 2 hours
- Final strength of more than 50 MPa after 28 days
- Open to foot traffic after 1 – 1 1/2 hours
- Very good adhesion to properly prepared concrete & masonry
- Water curing only under hot & dry conditions required for 3 – 4 hours
- Good resistance against CO₂ and Chloride penetration due to a very tight pore structure
- Good resistance against aggressive media with a pH range of 3 – 12 and against soft water with low ion content
- Good weathering resistance
- Good sulfate resistance

Technical Data

Colour	Gray	Substrate temperature	5 - 35°C
Mixing ratio by weight	100 : 17	Chloride ions	< 0.05 %
Mixing ratio by volume	100 : 27	Carbonation resistance	passed
Density	1.6 kg/L	Capillary water absorption	0.1 kg/m ² x h ^{0.5}
Initial set	15 minutes	Adhesive strength*	primed with RM 203: 1.6 MPa primed with CP 201: 1.6 MPa
Final set	40 minutes	Restrained shrinkage*	1.6 MPa
Compressive / flexural strength	2 hours: 14 / 2 MPa 24 hours: 36 / 6 MPa 7 days: 48 / 8 MPa 28 days: 54 / 9 MPa	Length change after 56 days	dry storage: - 0.4 mm/m (- 0.04 %) water storage: + 0.1 mm/m (+ 0.01 %)



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APPLICATION GUIDELINES

Surface Preparation

VELOSIT RM 203 is designed for mineralic substrates like concrete, masonry or absorptive natural stones. Steel may be coated with a suitable bonding bridge. Steel must be prepared to a purity of SA 2.5 acc. SIS 05 5900. Apply a corrosion protection coat on rebar with VELOSIT CP 201. Other steel areas can be primed with Hychem E100SS or E500P 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.

Mineralic substrates (concrete, masonry, cement compatible natural stones) must be prepared with sand blasting, shot blasting or ideally high pressure water blasting (> 100 bar) to remove all bond breaking substances. On reinforced concrete remove all carbonated concrete. Test with Phenolphthalein or other suitable indicator until concrete with sufficient alkalinity for rebar protection is reached. If rebar is exposed remove concrete at least 6 mm behind rebar to fully embed the steel into VELOSIT RM 203. Substrate must be rough, open porous and load bearing. The minimum requirement for adhesive strength is 1.5 MPa and for the compressive strength 25 MPa. Lower strength values can be accepted if lower adhesive strength is acceptable. Active water leaks must be treated and fully stopped with VELOSIT PC 222. Leaking cracks need to be sealed with Hychem Spetec. Before the application of VELOSIT RM 203, dampen the substrate with clean water to a saturated surface dry (SSD) condition.

Concrete repair

acc. EN 1504-9 principle 3.1 or 3.2 requires a prime coat with VELOSIT CP 201 on concrete and rebar surface to ensure best adhesion strength results. The prime coat must have set before the application of VELOSIT RM 203.

Mixing

Mix VELOSIT RM 203 with 15 – 18 % potable water, i.e. 3.0 – 3.6L water per 20 kg bag. Fill the 15 % mixing water (3.0 l per bag) into a suitable bucket and mix the powder with a slow speed drill (300 – 600 rpm) into the water until a lump-free mix is achieved. Add more water (max. 3%) under stirring until the desired consistency is achieved. Only mix as much material as can be used in 10 min. Clean mixing paddle immediately after mixing. The product is workable for 10 min. at 23°C.

Priming

Apply a prime coat of VELOSIT RM 203 with a wet sponge to the pre-dampened substrate. Work approximately 0.5 – 1 kg per m² into the surface pores. If working acc. to EN 1504-9 the prime coat must be applied with VELOSIT CP 201!

Trowel application

Trowel VELOSIT RM 203 fresh in fresh into the prime coat of VELOSIT RM 203. The product can be applied up to 100 mm on vertical areas. Larger overhead areas may limit the thickness to max. 50 mm. Make sure to work in sections that can be finished within 10 min. Rebars and other penetrations must be fully embedded into the mortar.

Re-modeling of architectural features

Once VELOSIT RM 203 has started to set it can be sculpted as needed. Shave off material in thin layers to achieve desired form. If needed finish surface with a slightly wet sponge to remove surface imperfections and air voids.

Curing

VELOSIT RM 203 does not require long term curing as it reacts relatively fast with water. Only under hot weather or very dry conditions water curing for 3 – 4 hours is required.



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Estimating

Repair of surface defects

20 kg VELOSIT RM203 result in approx. 12.5 litre cured mortar.

Surface Overlay:

10 kg* VELOSIT RM 203 per m² for 6 mm dry mortar thickness on smooth substrates. Depending on surface roughness application rates can be significantly higher. Only use on areas that can be covered in 10 min. For larger areas use VELOSIT RM 202 or concrete repair mortar VELOSIT RM 205.

* 10 kg VELOSIT RM 203 powder + 1.7 kg water, i.e. 11.7 kg mixed material per 6 mm and m².

Packaging

20 kg watertight plastic bags.

Clean up

Velosit RM203 can be removed in the fresh state with water. Once it has cured acidic cleaners like muriatic acid and mechanical cleaning are required.

Storage

In unopened original packs for 12 months at 5 – 35 °C 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.

Warranties and Disclaimers

Hychem warrants that this product shall conform to the technical specifications published in the product literature. The quality and fitness of the product is dependent upon the proper use and application of the product by the applicator. Hychem has no role in the application of the finished polymer other than to manufacture and supply its components. It is vital that the person applying this product understands the product and is fully trained and certified in the use of spray equipment and application of sol-gel materials. There are no warranties that extend beyond the description on the face of this instrument, except when provided in writing, directly by Hychem and executed under seal by a company officer.

Field Support

Field support where provided, does not constitute supervisory responsibility. Suggestions made by HYCHEM either verbally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they and not HYCHEM are responsible for carrying out procedures appropriate to a specific application.

Customer Responsibility

The technical information and application advice given in this publication is based on the best information available at the time of print. As the information herein is of a general nature, no assumption can be made as to the product suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by Commonwealth or State Legislation. The owner, his representative or the contractor is responsible for checking the suitability of products for their intended use.