MasterCrete 488

High-strength, fibre-reinforced, sulphate-resistant repair mortar, class R4, thixotropic and shrinkage-compensated, for repairing concrete components in layer thicknesses of 10 to 50 mm

Product Description

MasterCrete 488 is a single-component, high-strength, fibre-reinforced and sulphate-resistant class R4 repair mortar for the structural repair of load-bearing concrete structures in accordance with EN 1504-3.

When mixed with water, it forms a plastic, non-sagging and thixotropic mortar that can be applied manually or mechanically.

MasterCrete 488 is based on cement, selected aggregates, special additives and synthetic fibres. The formulation is designed to provide high mechanical strength, good dimensional stability, high adhesion and durability under aggressive environmental conditions.

Areas of Application

- Repair and reprofiling work for structural concrete repairs in building construction, civil engineering, structural engineering and bridge construction
- Reprofiling of cavities, spalling and defects
- Vertical, horizontal and overhead applications on components subject to moderate to heavy loads
- Restoration of the concrete cover on reinforced and prestressed concrete components
- Repair of infrastructure and hydraulic structures, e.g. bridges, tunnels, underpasses, sewers, pipelines and tanks
- Repairs in sulphate-rich or marine environments
- Repair of concrete in drinking water structures

For applications not listed here, please contact your technical sales adviser.

Properties

- Certified as a class R4 repair mortar in accordance with EN 1504-3
- High-strength, fibre-reinforced, non-sagging and thixotropic
- Can be applied manually or mechanically
- Pumpable and sprayable
- Good, smooth workability
- High early and final strength
- Shrinkage-compensated
- Very good adhesion to properly prepared concrete, screed or masonry
- Sulphate-resistant
- High resistance to carbonation
- Reduced capillary water absorption
- Highly impermeable to water
- Resistant to weathering, frost and de-icing salts
- Suitable for universal indoor and outdoor use
- Low in chromates and chloride-free
- Fire classification A1 in accordance with EN 13501-1

Substrate Preparation

The substrate must be clean, firm, load-bearing, open-pored, absorbent and sufficiently rough. Unsound layers and adhesion-impairing substances must be removed completely, particularly cement laitance, dust, oil and grease, old coatings, residues of formwork oil or release agents, water-repellent agents and similar substances.

The substrate must be prepared using suitable methods, e. g. shot blasting with solid abrasives, sandblasting, milling or ultra-high-pressure water jetting. The substrate must be prepared so that the aggregate near the surface is clearly visible. For localised areas of concrete loss, the edges must have a rough fractured surface and be formed so that the specified minimum layer thickness is reliably achieved.

MasterCrete 488

High-strength, fibre-reinforced, sulphate-resistant repair mortar, class R4, thixotropic and shrinkage-compensated, for repairing concrete components in layer thicknesses of 10 to 50 mm

The pull-off strength of the prepared concrete substrate must be at least 1.5 N/mm².

Exposed reinforcement must be completely derusted, preferably by sandblasting. As a guideline, a minimum preparation grade of Sa 2 in accordance with ISO 8501-1 or the project-specific requirements shall apply. After derusting, the reinforcement must be treated as quickly as possible with suitable, system-compatible corrosion protection. Suitable system products must be specified for each project.

For spray application, separate corrosion protection may be omitted depending on the chloride exposure, layer thickness and reinforcement cover, provided that this has been approved in the structure-specific repair plan.

Pre-wetting

The prepared substrate must be sufficiently pre-wetted and kept damp until application. At the time of application, the substrate must be matt damp. Standing water or puddles must be avoided.

Mixing

Use only undamaged containers in their original sealed condition. Pour the required quantity of clean, cool water into a suitable mixing container. Then add MasterCrete 488 and mix using a suitable compulsory mixer or slow-speed stirrer until a homogeneous, plastic and lump-free mortar is obtained.

After a short maturing time of approximately 2–3 minutes, briefly mix again. The water requirement is approximately 3.75–4.25 litres per 25 kg bag. The actual quantity of water must be adjusted within this range according to the desired consistency and application method. The maximum permissible quantity of water must not be exceeded.

Mortar that has begun to stiffen must not be diluted with water or mixed with fresh mortar.

Application

For optimum application, the substrate, material and ambient temperatures should be between +5 °C and +30 °C. The mortar can be applied manually using a trowel, spatula, finishing trowel or float, or mechanically by spraying.

Before application, a scratch coat or bonding coat of the mixed mortar must be applied to the matt-damp substrate. Alternatively, a system-compatible bonding agent may be used (e.g. MasterCrete PRI 5000). MasterCrete 488 is then applied wet-on-wet to the still-fresh bonding agent.

MasterCrete 488 can be applied in layer thicknesses of 10 to 50 mm. For mechanical application, a thin bonding coat is sprayed on first. The required layer thickness is then built up.

As soon as the mortar has begun to stiffen, the surface can be finished with a sponge, wooden or plastic float without adding any more water. The surface must be finished at the correct time. Finishing too early or too late may result in cracks, delamination or surface defects.

Curing

After application, MasterCrete 488 must be protected against drying out too quickly, direct sunlight, strong wind, rain and frost. Curing may be carried out, for example, by covering with PE sheeting or damp jute mats, keeping the surface regularly moistened or using suitable curing agents, provided that these do not adversely affect subsequent coatings.

Curing must be ensured for at least the first 24 hours. Under adverse weather conditions, a longer curing period may be required.

MasterCrete 488

High-strength, fibre-reinforced, sulphate-resistant repair mortar, class R4, thixotropic and shrinkage-compensated, for repairing concrete components in layer thicknesses of 10 to 50 mm

Cleaning of Tools

Tools and mixing equipment must be cleaned with water immediately after use. Hardened material can only be removed mechanically.

Consumption

Consumption is approximately 18.5 kg of dry mortar per m^2 and cm layer thickness. Depending on the quantity of water added, a 25 kg bag thus yields approximately 12–13 litres of fresh mortar. Actual consumption depends on roughness, substrate profile, compaction, application and site conditions.

Packaging

MasterCrete 488 is available in 25 kg bags.

Storage Conditions

Store in a dry, cool place, protected from moisture, in the unopened original packaging. Avoid prolonged storage at temperatures above +30 °C. When stored correctly, MasterCrete 488 has a shelf life of 12 months.

Handling and Transport

The usual precautions for handling chemical products must be observed when using this product.

Specific safety information on handling and transporting this product can be found in the material safety data sheet.

The product and its packaging must be disposed of in accordance with applicable legislation and are the responsibility of the product's final owner.

MasterCrete 488

High-strength, fibre-reinforced, sulphate-resistant repair mortar, class R4, thixotropic and shrinkage-compensated, for repairing concrete components in layer thicknesses of 10 to 50 mm

Technical Data			
Property	Standard	Value	Unit
Chemical base	-	Cement	-
Colour	-	grey	-
Maximum grain size	-	approx. 2	mm
Chloride ion content	EN 1015-17	≤ 0.05	%
Applicable layer thickness	-	10–50	mm
Fresh mortar density	-	approx. 2.2	g/cm³
Mixing water per 25 kg bag	-	approx. 3.75–4.25	l
Working time	-	approx. 50	min
Application temperature	-	from +5 to +30	°C
Consumption	-	approx. 18.5	kg/m²/cm
Compressive strength: After 1 day: After 7 days: After 28 days:	UNE-EN 12190 EN 196-1	 ≥ 20 ≥ 50 ≥ 60	N/mm²
Flexural tensile strength: After 1 day: After 7 days: After 28 days:	EN 196-1	 ≥ 4 ≥ 7 ≥ 8	N/mm²
Static modulus of elasticity after 28 days:	UNE-EN 13412	approx. 28,000 ± 2,000	N/mm²
Pull-off strength on concrete:	UNE-EN 1542	> 2.0	N/mm²
Pull-off strength on concrete after freeze-thaw cycling with de-icing salt attack	UNE-EN 13687 EN1542	> 2.0	N/mm²
Resistance to carbonation	EN 13295	passed	-
Capillary water absorption	EN 13057	≤ 0.25	$kg \cdot m^{-2} \cdot h^{-0,5}$
Sulphate resistance	Wittekind method	≤ 0.2	mm/m
Reaction to fire	EN 13501-1	A1	-
Abrasion resistance (Böhme):	UNE 13892-3:2006	8.4 (A9)	cm³/50cm²

Curing times are measured at 20 °C and 65% relative humidity. Higher temperatures and/or lower relative humidity may shorten these times and vice versa. The technical data presented here are the result of statistical analysis and do not represent guaranteed minimum values.

MasterCrete 488

High-strength, fibre-reinforced, sulphate-resistant repair mortar, class R4, thixotropic and shrinkage-compensated, for repairing concrete components in layer thicknesses of 10 to 50 mm

Legal Notice

This technical data sheet, like our other technical notes and information, serves only to describe the nature of this product, its processing and application possibilities. However, it does not guarantee certain properties of the product or its suitability for a purpose, nor does the description contain complete instructions for use. As we reserve the right to make changes to our technical data sheets, it is the customers' responsibility to ensure that the latest technical data sheet is available. Current technical data sheets can be requested at all our locations or downloaded from our website at www.master-builders-solutions.com/de-at, in the category "Products". In addition, our current general terms and conditions apply.

The processor shall remain obliged to carry out its own investigations and tests in order to take responsibility for the processing and application of our products in its specific business sector. With the publication of this data sheet, any previous editions shall become invalid.

The information in this data sheet has been compiled to the best of our knowledge and reflects the current state of our knowledge and experience.