MasterCrete PM 955

A two-component, normal-setting, thixotropic, polymer-modified class R4 cementitious mortar, formulated for the repair of concrete in a single layer ranging from 10 to 50 mm.

Material description

MasterCrete PM 955 is a high-performance, two-component, thixotropic, polymer-modified structural cementitious mortar (class R4 in accordance with EN 1504-3). Component A of **MasterCrete PM 955** consists of high-performance hydraulic binders, selected aggregates, special additives and synthetic polyacrylonitrile (PAN) reinforcing fibres, whilst component B (**MasterCrete 900**) consists of water-dispersed polymers to enhance its adhesion and protective properties. **MasterCrete PM 955** is suitable for structural repairs to concrete surfaces, with thicknesses ranging from 10 to 50 mm, in a single coat, even overhead. Furthermore, the special formulation ensures high dimensional stability, minimising the risk of cracking due to hydraulic shrinkage and guaranteeing excellent adhesion to both the old concrete (≥ 2 MPa) and the reinforcing bars.
MasterCrete PM 955 provides high protection against carbonation-induced corrosion for reinforcement, even without a passivating agent, provided that a concrete cover thickness of at least 10 mm is ensured.

Main uses

The thixotropic two-component structural cementitious mortar **MasterCrete PM 955** allows for the structural repair of concrete surfaces, both horizontally and vertically, ensuring maximum effectiveness and durability. It can be applied manually with a cement trowel or sprayed using a suitable machine, in thicknesses ranging from 10 to 50 mm in a single layer.
Some examples of application are:

- repair of concrete infrastructural structures: viaducts, bridges, tunnels, underpasses, etc.;
- restoration and reconstruction of concrete and reinforced concrete elements and structures, both structural and non-structural;
- jacketing of reinforced concrete structures;
- restoration and repair of concrete elements and structures of any type and size, in residential, industrial or commercial buildings, where the concrete is deteriorated, defective or has come away;
- Reconstruction of the concrete cover in reinforced concrete and prestressed concrete structures.

Features

- **Plastic shrinkage crack resistance**: **MasterCrete PM 955** is reinforced with polyacrylonitrile (PAN) synthetic fibres, which reduce the risk of surface micro-cracking during the plastic phase of the product.
- **Resistance to hydraulic shrinkage cracking**: thanks to its special formulation.
- **Excellent adhesion** on properly prepared substrates, both horizontally and vertically, even overhead.
- **Excellent resistance to penetration by aggressive environmental agents**, such as chlorides and sulphates carried in contact water.
- **High resistance to degradation** caused by the cyclic action of freezing and thawing, thereby ensuring greater protection of the reinforcement against corrosion.

In compliance with the European Regulations (EU No. 305/2011 and EU No. 574/2014), the product has the CE marking in accordance with UNI EN 1504-3 (class R4) and the relevant DoP (Declaration of Performance).

CE
1305

EN 1504-3
PCC mortar for the structural repair of concrete
CLASSE R4

Consumption

Approximately 21.0 kg/m² per centimetre of thickness (consumption of mixture A+B).

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Packaging and storage

MasterCrete PM 955 consists of:
Component A (**MasterCrete PM 955**): 25 kg bags
Component B (**MasterCrete 900**): 25 kg cans

Keep the product in its original packaging in a dry, protected location at a temperature between +5°C and +35°C. Do not expose to direct sunlight.
Under the above conditions, the product has a shelf life of 12 months.

Preparation and method of application

Preparing the substrates

- Remove all sections of deteriorated and/or contaminated concrete from the surface, as well as any concrete that is not fully bonded and is starting to come away, so as to achieve a solid and macroscopically rough substrate with surface irregularities of at least 5 mm. The aggregates must be visibly exposed. The edges of the repair area, for localised repairs, must be at right angles, allowing for a minimum mortar application thickness of 5 mm.
- Remove any rust from the reinforcing bars by brushing (manually or mechanically) or sandblasting.
- Treat the reinforcing bars with an anti-corrosion coating from the **MasterCrete range**.
- Saturate the substrate with water until it is thoroughly saturated but free of surface water (s.s.a.); ensuring that surfaces are clean and saturated is essential to guarantee high levels of adhesion between the substrate and the applied material and to prevent the product from cracking.
- For large-scale repairs involving mortar layers thicker than 30 mm, a reinforcement mesh must also be installed.

Preparation of mortar

Gradually add component A to the previously poured component B and mix **MasterCrete PM 955** for approximately 3–4 minutes in a concrete mixer or in a bucket using a whisk fitted to a low-speed drill, until a homogeneous mixture is obtained (follow the mixing ratios specified in the technical data sheet).
In the event of specific construction or site requirements that necessitate a reduction in setting and/or curing time (for example, in cold weather), one of our liquid setting accelerators may be added to the mixture with **MasterCrete PM 955**. In that case, please contact the Master Builders Solutions technical support team.

Laying and trowelling

In the case of manual application apply with a cement trowel to a thickness of 10 to 50 mm in a single layer, after first applying a scratch coat.
The product can also be applied by spraying using a suitable non-continuous-cycle plastering machine, such as a screw-type or auger-type machine, ensuring that the maximum thickness per single coat does not exceed 50 mm.
Depending on the condition of the substrate, the ambient conditions, the mix used and the characteristics of any machinery employed, overhead applications typically require a thickness of around 20 mm.
The product can also be applied in layers exceeding 50 mm, provided this is done in several stages and care is taken to leave the fresh layer 'rough' or, better still, to roughen it before applying the next layer. If the next layer is applied the following day, the hardened previous layer must be dusted and saturated to the surface.
For large-scale projects, please note that where the mortar layer exceeds 30 mm in thickness, a reinforcement mesh must also be installed.
The finished surface should then be trowelled using a sponge trowel as soon as the mortar begins to set. The waiting time before trowelling depends on the weather conditions.

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Ageing and maturation

It is always recommended to cure surfaces exposed to the air for the first 24 hours using a wet method or by spraying a curing and anti-evaporation agent from the **MasterKure** range. This solution is particularly recommended in environments characterised by low relative humidity and high ventilation.

Application temperatures

Application environment temperature needs to be between +5°C and +35°C.

Warnings

- Do not apply directly on plaster, crumbly, mixed or painted surfaces.
- Do not apply **MasterCrete PM 955** on smooth substrates; a mechanical roughening is necessary.
- Do not add additional water or fresh mortar to the mixture that has already begun to set.
- Do not add water beyond the dosage recommended in the technical data sheet.
- Do not apply **MasterCrete PM 955** for application thicknesses of less than 10 mm.

Technical data

Product identification data		
Component ID	Component A (MasterCrete PM 955)	Component B (MasterCrete 900)
Texture	Powder	Liquid
Colour	Grey	White
Maximum size of the aggregate	2.5 mm	-
Mixing ratio (by weight):	Medium: Comp. A: Comp. B = 11: 2 Dosage range of Comp. B: 18% - 19%	
Consumption	21.0 kg/m^2 per cm of thickness	
Mixture consistency	Plastic - Thixotropic	
Workability time (+20°C)	60 minutes	
Application environment temperature	5°C to 35°C	
Class (EN 1504-3)	R4	
Type	PCC cementitious mortar	
Chloride ion content (EN 1015-17) – minimum requirement ≤0.05%	< 0.05%	
Applicable layer thickness (minimum/maximum)	10 mm / 50 mm	

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Performance

(The performance data shown below was obtained in accordance with UNI EN 1504-3 with a component B content of 18.5%)

Feature	Test method	Regulatory requirement	Product performance
Compression strength	UNI EN 12190	≥ 45 MPa at 28 days	1 days > 20 MPa 7 days > 40 MPa 28 days > 50 MPa
Flexural strength	UNI EN 196-1	none	1 days > 6 MPa 7 days > 8 MPa 28 days > 10 MPa
Elastic modulus	UNI EN13412	≥20,000 MPa at 28 days	> 20,000 MPa
Adhesion to concrete	UNI EN 1542 (MC 0.40 substrate – UNI EN 1766)	≥ 2.0 MPa	> 2.0 MPa
Resistance to freeze-thaw cycles with de-icing salts	UNI EN 1542 after the UNI EN 13687/1 cycles on an MC 0.40-type substrate	≥ 2.0 MPa	≥ 2.0 MPa
Resistance to accelerated carbonation	UNI EN 13295	Carbonation depth ≤ compared to that of the reference concrete type MC 0.45 (with a/c ratio = 0.45) according to UNI EN 1766	Specification superseded
Capillary absorption coefficient	UNI EN 13057	≤ 0.5 $kg \cdot m^{-2} \cdot h^{-0,5}$	< 0.5 $kg \cdot m^{-2} \cdot h^{-0,5}$
Reaction to fire (Euroclass)	EN 13501-1	-	A2, s1 d0

Safety instructions

For guidance on the correct and safe use, transport, storage and disposal of the product, please see the latest Safety Data Sheet (SDS).

Other services

For additional technical information, brochures, references, technical reports and technical assistance please visit www.master-builders-solutions.com/it-it or alternatively contact infomac@masterbuilders.com.

Scan QR code to visit the product page and download the latest version of this technical sheet and any additional documentation.

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Disclaimer

Since 16/12/1992, Master Builders Solutions Italia Spa has been operating under a Certified Quality System compliant with the UNI EN ISO 9001 Standard. Furthermore, the Environmental Management System is certified according to the UNI EN ISO 14001 Standard and the Safety Management System is certified according to the UNI ISO 45001 Standard.
For further information, please consult the local Technician of Master Builders Solutions. The technical advice on how to use our products, either written or verbally given, are based on the current state of our scientific and practical expertise, and does not imply the assumption of any guarantee and/or responsibility for the final results of works executed using our products.
Therefore, the customer is not exempted from the exclusive task and responsibility of verifying the suitability of our products for the intended use and purposes.
This version supersedes all the previous ones.
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