

MasterEmaco S 1180 PG

R4 structural pourable mortar with normal setting. High durability, high resistance to cracking with total protection of the reinforcement for restorations from 10 to 200 mm.

MATERIAL DESCRIPTION

MasterEmaco S 1180 PG is a pourable, structural, high-performance cementitious mortar. MasterEmaco S 1180 PG can be applied with rheoplastic or rheodynamic consistency depending on the amount of water in the mix depending on the type of application to be carried out (for example, sloping applications). The innovative formulation creates a sort of slow-release "internal water tank" that allows for better maturation, drastically reducing the tendency to crack and allowing application even on particularly absorbent substrates

MasterEmaco S 1180 PG offers a protective barrier for reinforcements, thus ensuring high durability of the restoration. The product allows interventions to be carried out even without the use of the passivating MasterEmaco P 5000 AP as long as a concrete cover greater than 10 mm is guaranteed.

FIELDS OF APPLICATION

MasterEmaco S 1180 PG has been designed to simplify as much as possible the preparation phases of the support concrete, the application ones and the finishing ones, while still guaranteeing very high durability to the intervention.

It is applicable by casting for interventions of thickness from 10 to 200 mm, for interventions with thickness less than 40 mm it is possible to proceed without positioning the electro-welded mesh as long as the substrate has been prepared in a suitable manner to be able to counteract the expansion.

MasterEmaco S 1180 PG is designed for the repair of concrete structures such as:

- restoration and / or reinforcement of columns, pillars, beams in civil, industrial and commercial structures,
- structural restoration of large surfaces by casting into formwork,
- Interventions in areas with congested reinforcement, where it is not possible to proceed with manual or spray application.

MasterEmaco S 1180 PG can be applied indoors and outdoors, in dry and humid environments.



easi LIFE

The easi LIFE project was born to go beyond the consolidated, proposing an innovative approach to sustainability and able to synthesize in the absolute objectivity of a number the real sustainability of a construction solution that takes into account performance, durability and environmental impact:

$$easi\ LIFE = \frac{Performance + Durability}{Environmental\ impact}$$

easi: Empathetic Added Sustainability Index

LIFE: Low Impact For Environment

FEATURES AND BENEFITS

The peculiar characteristics of MasterEmaco S 1180 PG structural mortar are:

- resistance to cracking in the plastic phase (short term): to combat micro-cracking in the plastic phase, MasterEmaco S 1180 PG contains PAN fibers (in polyacrylonitrile);
- resistance to long-term cracking: this fundamental requirement for the durability of the restoration can be assessed through the O Ring test. MasterEmaco S 1180PG does not show any cracks even after long curing;
- resistance to aggressive environmental agents: it is impermeable to water, sulphates and chlorides and is not subject to degradation phenomena due to the cyclic action of freezing and thawing, thus ensuring greater protection of the armatures from corrosion;
- high durability: MasterEmaco S 1180 PG, thanks to its particular formulation, guarantees effective protection for the reinforcements, avoiding corrosion phenomena due to carbonation and / or in the presence of chlorides.
- rheoplastic (fluid) or rheodynamic (superfluid) consistency depending on the amount of water in the mix for applications in various conditions (from applications on sloping structures, up to applications with complete compaction without the need for vibration)
- No segregation or bleeding while ensuring a very high

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fluidity and no need to vibrate the material.

In compliance with the European Regulation (EU No 305/2011 and EU No. 574/2014) the product is provided with the CE marking according to UNI EN 1504-3 and the relative DoP (Declaration of Performance).

CE 1305
EN 1504-3
Cement based mortar (CC) for structural repair of concrete structures
R4 class

CONSUMPTION

The coverage is about 19.0 kg/m² with a coat that is 1 cm thick.

PACKAGING

MasterEmaco S 1180 PG is available in 25 kg bags.

STORAGE

Store the product in a dry and sheltered place at a temperature anywhere between 5 and +35°C.



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Technical Information			
1504-3 class		R4	
Typology		CC	
Granulometry		Max 1.5 mm	
Chloride content EN 1015-17		<0.05%	
Colour of mix		Grey	
Mixing ratio		3.1-3.5 l for bag (12,4-14%) for rheoplastic consistency 3.5-4.0 l for bag (14-16%) for rheodynamic consistency	
Consistency of mix		Pourable	
Temperature of application		From 5°C to 35°C	
Packaging		25 kg bag.	
Consumption		19 kg/m ² for 1 cm	
Workability time (at 20°C)		80 minutes	
Minimum thickness		10mm	
Maximum thickness in single laye		200 mm	
Essential characteristic in accordance to 1504-3 with a dosage of water of 14.0%		Limits and classes	Performances
Adhesion to concrete	UNI EN 1542 on MC 0.40 substrate (with w/c ratio = 0.40) according to UNI EN 1766	≥ 2,0 MPa	≥ 2,0 MPa
Resistance to freezing-thawing cycles with deicing salts measured as adhesion	UNI EN 1542 after cycles UNI EN 13687/1 on MC 0.40 substrate	≥ 1,5 MPa	≥ 2,0 MPa
Resistance to thunder shower cycles measured as adhesion	UNI EN 1542 after cycles UNI EN 13687/1 on MC 0.40 substrate	≥ 1,5 MPa	≥ 2,0 MPa
Resistance to thermal cycles without deicing salts measured as adhesio	UNI EN 1542 after cycles UNI EN 13687/1 on MC 0.40 substrate	≥ 1,5 MPa	≥ 2,0 MPa
Resistance to accelerated carbonation	UNI EN 13295	Carbonation depth ≤that of reference concrete MC 0.45 (with w/c ratio = 0.45) according to UNI EN 1766	Specification obsolete
Water impermeability measured as capillary absorption coefficient	UNI EN 13057	≤ 0,5 kg·m ⁻² ·h ^{-0,5}	≤ 0,5 kg·m ⁻² ·h ^{-0,5}
Elastic modulus	UNI EN13412	a 28 gg ≥20.000 MPa	≥20000 MPa
Crack test (O Ring test)	-	-	No crack after 180 days
Compression strength	UNI EN 12190	a 28 gg ≥ 45 MPa	1 gg > 15MPa 7 gg > 45 MPa 28 gg > 55 MPa
Tensile strength in bending	UNI EN 196-1	-	1 gg > 4 MPa 7 gg > 6 MPa 28 gg > 8 MPa

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APPLICATION SHEET

PREPARING THE SUBSTRATE

All the necessary precautions must be taken to avoid damaging the structures. The thickness to be removed must be determined by the design engineer on the basis of preliminary surveys aimed at identifying the preservation conditions of the structure.

Inconsistent or contaminated concrete must be removed by means of mechanical chiselling using light demolition equipment powered by compressed air, adopting all the necessary precautions in order to avoid damaging the structures.

The surface of the support concrete must appear macroscopically rough (+/- 5 mm) for the purpose of obtaining the utmost adhesion between the substrate and the repair material. The edges of the intervention area must be at right angles or feature a dovetail arrangement, avoiding V-shaped finishes. Define the area of intervention with a clean cut at least 5 mm deep. Any loose or contaminated concrete must be removed with a suitable technique.

CLEANING REINFORCED BARS

In the presence of corroded reinforcing bars, after having completely freed and cleaned them by metal brushing or sandblasting to eliminate the rust, the Designer / Works Manager, at his discretion, can decide whether to apply the MasterEmaco P 5000 AP protective iron before proceeding with the reconstruction of the section with MasterEmaco S 1180 PG mortar. In fact, this treatment is not strictly necessary using the MasterEmaco S 1180 PG mortar since, thanks to the innovative formulation, it guarantees complete protection of the rods (Steel Protection: dk = 0) as long as the minimum covering thickness of the rod is at least 10 mm.

PLACING ADDITIONAL STRUCTURAL REINFORCEMENTS

When it is necessary, for structural reasons, to add new reinforcements, you must guarantee at least a 2 cm cover. For work featuring a thickness of 3-5 cm, it is necessary to place an electro-welded mesh (5x5 cm) and with a 5 mm diameter. Since this mesh will have to have a cover of at least 2 cm and be detached from the substrate by at

least 1 cm (through the use of suitable spacers), the working thickness in the presence of electro-welded net cannot be less than 4 cm. To ensure a correct anchorage of the contrast mesh, use reinforcement steel sections inserted in holes with a diameter at least twice that of the bar and sealed with MasterFlow 960. The density and the diameter of said nailing will be established on a case-by-case basis by the Site Manager.

FORMWORK

MasterEmaco S 1180 PG can also be poured. The formwork must be made of material with an adequate strength and enough resistance to water to avoid subtracting water from the mixture, firmly anchored, contrasted and sealed to withstand the pressure exerted by the mortar and prevent losses of material. The wooden formwork must be saturated before the casting stage.

CLEANING AND SATURATION OF CONCRETE

Cleaning and saturation of the substrate concrete must be carried out with pressurised water (80 ÷ 100 atm and using hot water in winter). This operation is crucial in order to prevent the concrete substrate to steal water from the mixture. Inaccurate saturation leads to the loss of adherence and to the cracking of the added material. The use of pressurised water also guarantees effective cleaning of the surfaces in order to remove dust and small inconsistent parts that may be present after the milling of the concrete. The cleaning and saturation of the surfaces are crucial operations for obtaining high adherence values between the substrate and the added material.

APPLICATION TEMPERATURE

MasterEmaco N 1180 PG can be applied when the ambient temperature is between +5°C and +35°C. When the temperature is between 5 ÷ 10°C mechanical resistances develop more slowly. We therefore recommend storing the bags in a heated environment and applying the mortar in the mid-hours of the morning.

PREPARING THE MIXTURE

We recommend only mixing intact bags. Do not use damaged bags or bags that are already open.

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Mix MasterEmaco S 1180 PG with a suitable paddle mixer attached to an electric high-power, low-speed drill, or in a concrete mixer for 3 minutes until a lump-free mix with a fluid or superfluid consistency is obtained. Use only clean water from the mains supply.

Amount of water required:

- 3.1 - 3.5 litres per 25 kg bag to get a rheoplastic consistency (fluid).
- 3.5 - 4.0 litres per 25 kg bag to get a rheodynamic consistency (superfluid).

Never exceed the maximum amount of water.

For applications more than 200 mm thick, add an adequate amount of clean, dry inert material and with minimum granulometry of at least 5 mm and the maximum one depending on the thickness of the casting to be created and the form of the reinforcement in place, up to the maximum percentage of 30-35% in relation to the total weight of the dry mix.

APPLICATION

MasterEmaco S 1180 PG must be applied on perfectly clean surfaces with no loose parts. Application on damp surfaces, but with no water film, is allowed. We do not recommend applying it on water-saturated surfaces, which is what happens, for instance in the case of surfaces where water stagnated for hours. The saturation of the support is recommended only in case of high temperatures, low relative humidity and a very absorbent substrate.

Ensure a continuous application also within the formwork. Always ensure perfect compression of the material, also with slight vibration if necessary.

HARDENING

It is always advisable to carry out a correct wet maturation of the surfaces exposed to the air. In the case of particularly adverse conditions characterized by low relative humidity and high ventilation, both in hot and cold climates, in the absence of humid ripening, we recommend using the products of the MasterKure line.

PROTECTION

To lengthen the useful life of the structure, enhancing durability even in areas which require no maintenance, it is always recommended to apply a protective system of the MasterProtect line on the entire structure. This acts as a barrier to the entrance of aggressive environmental agents, also improving the aesthetic appearance of the structure.

SAFETY INSTRUCTION

For information on the correct and safe use, transport, storage and disposal of the product, consult the most recent Safety Data Sheet.

OTHER SERVICES

For price analysis, specifications, supplementary brochures, references, reports and technical assistance, visit the website www.master-builders-solutions.com/it-it or contact infomac@mbcc-group.com.

Scan the QR code to visit the product page and download the latest version of this datasheet.



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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.

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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.