

MasterEmaco T 1100 TIX

Thixotropic and fast curing mortar with very high performance for repairing and structural fixings for quick re-commissioning up to -10 ° C for thicknesses from 10 to 150 mm.

MATERIAL DESCRIPTION

MasterEmaco T 1100 TIX is a cementitious, thixotropic, fast hardening mortar even at low temperatures (down to -10 ° C), based on CSA technology (sulfo-aluminous cement). The innovative formulation creates a sort of slow-release "internal water tank" that allows for better maturation, drastically reducing the tendency to crack. MasterEmaco T 1100 TIX is structural with high performance (class R4), applicable in thicknesses between 10-150mm also overhead on vehicle areas that can be quickly put back into operation. MasterEmaco T 1100 TIX offers a protective barrier for reinforcements minimizing the risk of corrosion, ensuring greater durability of the restoration.



FIELDS OF APPLICATION

MasterEmaco T 1100 TIX allows you to carry out interventions in a very short time and with temperatures down to -10 ° C, such as:

- anchoring of manhole covers (in the case of high traffic intensity or stresses, the use of MasterEmaco T 1400 FR is recommended);
- restoration of rigid floors in reinforced concrete both horizontal and sloping (in the case of high traffic intensity or stresses, the use of MasterEmaco T 1400 FR is recommended);
- for fixing stone block flooring;
- for fixing road curbs and curbs.

The application thicknesses are between 10 and 150 mm (for localized interventions applicable in thicknesses from

10 to 100 mm, for bedding or fixing manhole covers, in particular of large dimensions or subject to intense traffic, applicable in thicknesses from 25 to 150 mm, for repair or slub casting applicable in thicknesses up to 50 mm).

For interventions with a thickness greater than that indicated above, it is necessary to add washed aggregate, free of impurities in the type and quantity to be defined according to the required thickness.

FEATURES AND BENEFITS

MasterEmaco T 1100 TIX also has the following features:

- high mechanical performance after a few hours: in fact it has very high mechanical strength after a few hours even at low temperatures;
- maintenance of workability: despite being a rapid mortar, it maintains workability for about 15-20 minutes depending on the temperature, allowing the mixing of 5-6 bags at a time in a glass mixer;
- high adhesion to concrete: this allows to create monolithicity with the support, with any reinforcements present and with steel profiles;
- resistance to long-term cracking: this fundamental requirement for the durability of the restoration can be assessed through the O Ring test. MasterEmaco T 1100 TIX does not show any cracks even after long curing;
- high resistance to wear, abrasion and impact: the product ensures the maintenance of performance even in the presence of high traffic and with consequent dynamic stresses;
- resistance to aggressive environmental agents: MasterEmaco T 1100 TIX, thanks to the very particular chemistry and nature of its components, is absolutely impermeable to water, aggressive environmental agents such as chlorides and sulphates, resists freeze / thaw cycles (thermal compatibility) and is not subject to carbonation phenomena.

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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 19.5 kg/m² with a coat that is 1 cm thick.

PACKAGING

MasterEmaco T 1110 TIX 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						
EN 1504-3 class	R4	Temperature application	From -10° to 35°C			
Typology	CC	Pot life	20 minutes			
Granulometry	Max 2.5 mm	Packaging	25 kg.bag			
Chloride content EN 1015-17	<0.05%	Consumption	19.5 kg/m ² thickness 1 cm			
Colour of mix	Grey	Minimum thickness	10 mm			
Consistency of mix	Thixotropic	Maximum thickness	150 mm			
Mixing ratio	3,1-3.6 l 25 kg bag (12.4-14.4%)					
Essential characteristic in accordance to 1504-3 with a dosage of water of 13.4% and a temperature of -20°C		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 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			
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			
Water impermeability measured as capillary absorption coefficient	UNI EN 13057	≤ 0,5 kg·m ⁻² ·h ^{-0,5}	≤ 0,1 kg·m ⁻² ·h ^{-0,5}			
Elastic modulus	UNI EN13412	a 28 d ≥ 20000 MPa	31.000 (± 2.000) MPa			
Compression strength	UNI EN 12190	a 28 d ≥ 45 MPa	-			
			5°C			
			3h	>8	>15	>20
			4h	>12	>20	>35
			8h	>20	>30	>40
			24h	>50	>55	>60
			7d	>65	>65	>70
28d	>85	>85	>85			
Abrasion resistance test by rotating disc	UNI EN 1338		CLASS 4 MARK I (maximum achievable value)			
Tensile strength in bending	UNI EN 196-1	-	1 gg > 7 MPa 7 gg > 8 MPa 28 gg > 9 MPa			
Pull-out resistance of steel bars	RILEM-CEB-FIP RC6-78	-	>25MPa			
Impermeability to water measured as resistance to water penetration under direct pressure	UNI EN 12390/8	-	Average penetration depth < 5 mm			

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APPLICATION SHEET

PREPARING THE SUBSTRATE

The support must be made of concrete. Any degraded or loose concrete must be removed according to the thickness and methods determined by the design engineer based on the preliminary investigations aimed at identifying the state of preservation of the structure. Inconsistent or contaminated concrete must be preferably removed by means of mechanical chiselling (or an equivalent method) by 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 (roughness about 5 mm deep) for the purpose of obtaining the utmost adhesion between the substrate and the repair material.

If there are reinforced bars incoherent or contaminated concrete around the reinforced bars must be removed. All rust on uncovered reinforced bars must be cleaned by means of mechanical brushing or sanding.

When required to add reinforcements for structural reasons, first install them by ensuring a reinforcement covering of at least 2 cm and in any case this must be determined by the design engineer according to the exposure class of the product.

CLEANING REINFORCED BARS

Incoherent or contaminated concrete that surrounds the reinforcing rods will need to be removed. Any exposed reinforcing rods must be cleaned of rust by mechanical brushing or sandblasting / hydro-sandblasting; if the removal of degraded or contaminated concrete has been carried out with hydrodemolition, this generally also guarantees a suitable cleaning of the reinforcing bars

PLACING ADDITIONAL STRUCTURAL REINFORCEMENTS

When it is necessary, for structural reasons, it is possible to add reinforcements, these must be installed ensuring an adequate concrete cover in compliance with the regulations in force

CLEANING AND SATURATION OF CONCRETE

Cleaning and saturation of the substrate concrete should preferably be carried out with pressurised water ($80 \div 100$ atm and using hot water in winter). This operation is crucial in order to prevent the concrete substrate to steal water from the mix. Inaccurate saturation would lead 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 loose parts there may still be 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.

In case of low temperatures, before applying the product, make sure there is no superficial ice and eliminate it if there is any.

APPLICATION TEMPERATURE

MasterEmaco T 110 TIX can be applied when the ambient temperature is between -10°C and $+35^{\circ}\text{C}$. When the temperature is $5 - 10^{\circ}\text{C}$ the development of mechanical resistance is slower, it is however recommended to keep the bags of MasterEmaco in a heated environment, use heated mixing water ($30 - 50^{\circ}\text{C}$), saturate the substrate with hot water, apply the mortar in the middle of the morning.

It is recommended not to apply at temperatures below $+5^{\circ}\text{C}$, as indeed should be the case for any cement conglomerate when no special precautions are taken.

When the temperature is $30 - 40^{\circ}\text{C}$ it is recommended to keep the bags of MasterEmaco in a cool place, to use low temperature mixing water, to apply the mortar in the cooler hours.

WARNINGS

MasterEmaco T 1100 TIX is not compatible with any binder and therefore also with the cement products of the MasterEmaco range; if they are mixed, this might modify their mechanical performance and therefore it is not permitted.

PREPARING THE MIXTURE

The mixing stage must be carried out with a suitable power drill, one bag at a time. Mixing by hand is not

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recommended. Mix until you have a plastic, smooth and lump-free mix. It is always necessary to mix the entire content of each bag. Each 25 kg bag of MasterEmaco S 1100 TIX must be mixed with 3.1 ÷ 3.6 litres of water. Mix each bag with the minimum amount of water indicated. At the end of mixing stage, add more water if needed to achieve the desired consistency (never exceed the maximum amount of water previously indicated) and mix until smooth.

The application thicknesses range from 10 to 150 mm. For a work on horizontal or sloping surfaces with a thickness exceeding 150 mm, it is necessary to add washed aggregate, free of impurities, whose type and amount shall be determined according to the required thickness. When adding aggregate, double check the performance on site with test mixes.

APPLICATION

MasterEmaco S 1100 TIX must be applied to microscopically roughened surfaces with no loose parts, as well as being clean and saturated with water.

At the time of application the substrate must be saturated with a dry surface and any free water there may be must be removed.

For applications such as bedding mortar for edges or fixing manhole covers, apply the mortar under the kerb or the manhole cover to be fixed, then install the kerb or manhole cover and bring it to the desired height.

For restoration work on horizontal or sloping surfaces or install stone blocks, instead apply MasterEmaco T 1100 TIX by using a trowel and with the right consistency.

Carefully wash the equipment as soon as the mix is finished.

FLOATING

In the case of surfaces exposed to air, we recommend a floating that must be applied using a sponge float after sufficient time has elapsed following the application, depending on the weather. The time interval between the application and the float finish depends on the first hardening phase of the mortar, which is determined by placing your hand on the surface and your fingers do not sink but leave a light mark on the mortar. Proper floating will be essential to effectively counter the formation of micro-cracks resulting from plastic shrinkage.

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.

Master Builders Solutions Italia Spa

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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.