

MasterFlux 928

A high-flow, expansive R4-grade mortar, offering excellent performance for the repair of concrete elements and high-performance structural anchors, with application thicknesses ranging from 1 to 10 cm.

Material description

MasterFlux 928 is a high-performance structural cementitious mortar (class R4 in accordance with EN 1504-3) with a superfluid consistency, exhibiting rheodynamic behaviour and expansive properties under conditions of constrained expansion and air curing. It is composed of high-strength cements, selected aggregates and special additives.

MasterFlux 928 meets the requirements for the anchoring of steel reinforcement in accordance with EN 1504-6.

The special formulation of **MasterFlux 928** ensures that there is no bleeding or segregation of the fresh concrete mix, making it suitable for use in pours of 10 to 10 cm in thickness beneath the slab. For works requiring a thickness greater than 10 cm, add CE-marked, washed aggregate free from impurities; the type and proportion of which should be determined based on the required thickness following preliminary tests, or use the product **MasterFlux 980**.

The high mechanical performance and expansive properties of **MasterFlux 928** ensure greater durability in anchoring and repair applications, effectively counteracting cracking due to hydraulic shrinkage and providing enhanced protection for reinforced concrete against aggressive environmental agents, thereby reducing the risk of corrosion of the reinforcements.

Main uses

MasterFlux 928 is suitable for anchors subject to heavy loads, such as:

- metal supporting structures, energy-generating or material-processing machinery (e.g. lathes, milling machines), rails, anchor bolts, etc.;
- prefabricated steel and reinforced concrete components, photovoltaic panels, wind turbine blades, crash barriers, noise barriers.

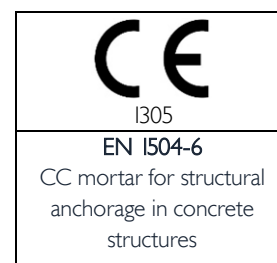
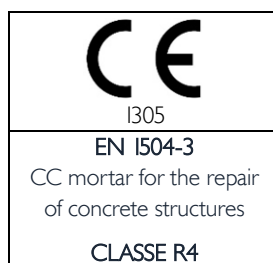
MasterFlux 928 is suitable for repairing and/or consolidating concrete surfaces, carrying out structural strengthening by means of build-ups with additional reinforcement, and filling rigid joints between concrete elements.

Features

The structural mortar **MasterFlux 928** is a high-tech product. The main performance characteristics are:

- **Rheodynamic behaviour:** when mixed with water, it forms a highly fluid mixture with excellent grouting properties, free from segregation and bleeding. These characteristics are essential for installing under-plate anchors, ensuring that all cavities are filled evenly, even those that are difficult to access.
- **Long-lasting anchoring:** its expansive behaviour compensates for and counteracts changes in volume caused by shrinkage during drying, ensuring dimensional stability and long-lasting, precise anchoring.
- **High performance:** resistance to dynamic and cyclic stresses (fatigue). Excellent adhesion to reinforcing bars and concrete.
- **Durability:** its high mechanical performance and expansive properties ensure excellent resistance to harsh environmental conditions. Furthermore, it effectively prevents the ingress of water, carbon dioxide, chlorides and sulphates, ensuring long-lasting protection of metal reinforcement against corrosion. It is resistant to the aggressive components of lubricating oils.

In compliance with the European Regulations (EU No. 305/2011 and EU No. 574/2014), the product is CE marked in accordance with UNI EN 1504-3 and UNI EN 1504-6 and the relevant DoPs (Declarations of Performance).



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Consumption

Approximately 2.0 kg/dm³.

Packaging and storage

MasterFlux 928 is available in 25 kg bags.

Keep the product in its original packaging in a dry, protected location at a temperature between +5°C and +35°C.

Under the above conditions, the product has a shelf life of 12 months.

Preparation and method of application

Preparation of the substrate and machine

- 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 a minimum application thickness of 1 cm for the concrete mortar.
- Remove all dust, oil, grease and debris from both the surface and the parts that will come into contact with the mortar (anchor sockets, bolts, support plates), and check that the air vents have been provided.
- When installing machinery, check that it is properly aligned and levelled before pouring the concrete.
- Wet the existing concrete surfaces that will come into contact with the product until they are thoroughly saturated (it is advisable to wet them a few hours before pouring).
- Before pouring, remove any free water still present on the surface (ensure the surface is dry but saturated). If necessary, this process can be sped up by using compressed air or sponges.

Preparing the formwork

For applications involving the use of formwork, the latter must be made of sufficiently strong material and treated to be non-

absorbent; e.g. in the case of wooden formwork, this can be achieved through saturation or by using release agents from the **MasterFinish RL line**. They must also be effectively secured and reinforced.

The gap between the formwork panel and the machine base, and the clearance between the formwork edge and the machine base, must be sufficient to ensure that the mortar can be applied easily and to allow it to flow freely.

Seal the formwork to prevent the mortar from leaking and the top plate from falling out.

Preparation of the concrete mortar

Mix **MasterFlux 928** for 5 minutes in a concrete mixer, together with a quantity of water equal to three-quarters of the total specified in the technical data sheet, until a smooth, lump-free mixture is obtained; mixing time can be affected by environmental conditions. Scrape off any undispersed powder from the sides of the concrete mixer. Add the remaining amount of water (1/4 of the total specified in the technical data sheet) to achieve the required consistency (do not exceed the maximum amount of water specified in the technical data sheet). You can add our **Master X-Seed** series of liquid setting and curing accelerators to the mix in order to reduce setting times and accelerate the development of mechanical strength in **MasterFlux 928**.

MasterFlux 928 can also be mechanically pumped using suitable equipment.

Installation

Pour the grout from one side only and in a continuous stream to allow air to escape. Avoid subjecting the **MasterFlux 928** to excessive mechanical vibrations. Make sure that the mortar has completely filled the gap between the base plate and the foundation; if necessary, you can use flexible iron rods or chains, sliding them back and forth under the machine's base.

Ageing and maturation

Immediately protect freshly cast sections exposed to the air for at least 24 hours by direct wetting, using water-soaked non-woven fabric, or by spraying on a curing and anti-evaporation

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agent from the **MasterKure** range. Rapid evaporation of water from the surface exposed to the air could cause, particularly in hot weather and low relative humidity, the formation of surface cracks due to plastic shrinkage, which, however, do not compromise the quality of anchoring.

Any supports must not be removed until at least 48 hours have elapsed.

Application temperatures

The ambient temperature during application must be between +5°C and +35°C. At temperatures between 5°C and 10°C, the development of mechanical strength may be delayed.

In general, it is possible to reduce the setting time and accelerate the development of mechanical strength in **MasterFlux 928** by adding our liquid setting and curing accelerators from the **Master X-Seed** series to the mix.

In summer conditions, it is possible to extend the working time by incorporating our **MasterSet** range of admixtures into the mix.

For precise details of the dosages of the above-mentioned additives to be used, please contact the Master Builders Solutions technical support team.

If the ambient temperature is high (between +30 and +35°C), do not leave the material exposed to direct sunlight for long periods; use cool water to mix the mortar and apply it during the cooler parts of the day.

Warnings

MasterFlux 928 is a product intended for professional use.

For further information, please contact your local Master Builders Solutions Italia Spa technical representative.

Technical data

Product identification data	
Packaging	25 kg bags
Powder colour	Grey
Maximum size of the aggregate	2.5 mm
Mixing ratio	3.38 - 3.88 litres of water per bag (13.5-15.5%)
Consumption	2.0 kg/dm ³
Fresh density (14.5% water content)	2.29 kg/dm ³
Mixture consistency	Castable
Workability time (+20°C)	80 minutes
Application environment temperature	+5°C to +35°C
Class (EN 1504-3)	R4
Type	CC cementitious mortar
Chloride ion content (EN 1015-17) – minimum requirement ≤0.05%	< 0.05%
Applicable thickness (minimum/maximum)	1 cm / 10 cm

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Performance – UNI EN 1504-3

(The performance data shown below was obtained with a water content of 14.5%)

Feature	Test method	Regulatory requirement	Product performance
Compression strength	UNI EN 12190 UNI EN 196-1	≥ 45 MPa at 28 days	1 day > 38 MPa 7 days > 68 MPa 28 days > 80 MPa
Flexural strength	UNI EN 196-1	none	1 day > 6.5 MPa 7 days > 9 MPa 28 days > 10 MPa
Elastic modulus	UNI EN 13412	$\geq 20,000$ MPa at 28 days	$28,000 \pm 2,100$ MPa
Adhesion to concrete	UNI EN 1542 (MC support 0.40 – 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
Capillary absorption coefficient	UNI EN 13057	$\leq 0.5 \text{ kg} \cdot \text{m}^{-2} \cdot \text{h}^{-0.5}$	$< 0.20 \text{ kg} \cdot \text{m}^{-2} \cdot \text{h}^{-0.5}$
Resistance to accelerated carbonation	UNI EN 13295	$\leq$ Reference type MC 0,45 (UNI EN 1766)	Requirement met

Performance – UNI EN 1504-6

(The performance data shown below was obtained with a water content of 14.5%)

Feature	Test method	Regulatory requirement	Product performance
Pull-out strength of steel bars	UNI EN 1881	≤ 0.6 mm	< 0.6 mm

Additional performance

(The performance data shown below was obtained with a water content of 14.5%)

Feature	Test method	Regulatory requirement	Product performance
24-hour controlled expansion – Water curing	UNI 8147 – Method A	none	$\geq 0.03\%$
24-hour controlled expansion – Air curing	UNI 8147 – modified method B	none	$\geq 0.03\%$
Exudate water (bleeding)	UNI EN 8998	none	Absent
Resistance to positive hydraulic pressure	UNI EN 12390-8	Test pressure: 5 bar	5 bar - Average penetration < 20 mm 5 bar - Maximum penetration < 50 mm

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Arching/warping test	-	Arching to demonstrate expansive behaviour	Arching
Resistance to pull-out of steel bars	RILEM CEM FIP RC6-78	-	> 20 MPa
Effective load area	ASTM C1339	none	> 85%
Flow after mixing	EN 13395-2	none	≥ 55

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).

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



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.

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.

Master Builders Solutions Italia Spa

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