

# MasterFlow 928

**Pourable rheodynamic, expansive mortar with very high performance and excellent durability for precision structural anchoring and restoration of reinforced concrete from 10-100 mm.**

## MATERIAL DESCRIPTION

MasterFlow 928 is a cementitious mortar, applicable by casting for thicknesses from 1 to 10 cm between the plate and the foundation.

MasterFlow 928 complies with the requirements and acceptance limits of expansive mortars for anchors indicated by:

- UNI 8993 and UNI 8994 about the consistency classes for superfluid, fluid and plastic types;
- UNI 8994 and UNI 8996, UNI 8147 for expansion both in the plastic and hardened phase;
- UNI 8998, about the absence of bleeding.

In particular, MasterFlow 928 is a high-performance structural mortar (class R4) as it meets the requirements of the EN 1504-3 standard.

MasterFlow 928 is resistant to aggressive environmental agents, offering a protective barrier for the reinforcements, minimizing the risk of corrosion and ensuring greater durability of the restoration.

For anchors with thicknesses greater than 10 cm use MasterFlow 980.

## FIELDS OF APPLICATION

MasterFlow 928 is indicated for precision anchorages such as those for gas or steam turbines, alternators, compressors, paper mill machines, face and horizontal lathes, milling machines, planers, presses, hot rolling mills, drawing machines, boring machines, balancing machines, cranes, diesel engines, pumps, wind vanes, hoisting systems, crushing mills, marble cutting machines, pillars in steel or prestressed concrete.

## FEATURES AND BENEFITS

The peculiar characteristics of MasterFlow 928 structural mortar are:

- very high fluidity and sliding capacity: fundamental property for anchors subplate because it guarantees the filling of all spaces, even the farthest ones, with great ease of application;
- compliance with the requirements of the Italian legislation on expansive mortars for anchors: this requirement is the basic prerequisite for the material to be used successfully for precision anchors;

- high mechanical performance both short and long curing: these properties are synonymous with a long service life of the machinery anchor;
- high adhesion to concrete and steel;
- impermeability to water;
- high resistance to attack by lubricating oils;
- high resistance to fatigue phenomena, thermal cycles, high temperatures.
- resists aggressive environmental agents: the product is impermeable to water, chlorides and sulphates, resists freeze / thaw cycles even in the presence of de-icing salts and is not subject to carbonation phenomena forming a protective barrier against armor.

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 1504-6 and their relative DoP (Declaration of Performance).

CE	
1305	
EN 1504-3	
CC mortar for Structural and non-structural repair.	
EN 1504-3 methods 3.1/3.2/4.4/7.1/7.2.	
R4 Class	

CE	
1305	
EN 1504-6	
Anchoring of reinforcing steel bars	

## CONSUMPTION

Consumption 1950 kg to make 1m<sup>3</sup> of mortar.

## PACKAGING

MasterFlow 928 available in 25 kg bag.

## STORAGE

Store in a dry, cool place at a temperature anywhere between +5°C and +35°.

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Technical Information			
Class according to EN 1504-3	R4		
Typology	CC		
Chloride ion content according to EN 1015-17	<0.05%		
Mixing ratio	3,6- 4 l for 25 kg bag (14.4-16.0%)		
Consistency	Pourable		
Temperature of application	From 5°C to 35°C		
Pot life	80 minutes		
Package	25 kg bag		
Consumption	1950 kg/m <sup>3</sup>		
Minimum thickness	10 mm		
Maximum thickness	100 mm		
Essential characteristic in accordance to EN 1504-3 and 1504-6 with a dosage of water of 15.2%		Classes	Performances
Adhesion to the concrete	UNI EN 12615	-	≥ 6,0 MPa
Adhesion to the concrete	UNI EN 1542 reference type MC 0,40 according UNI EN 1766	≥ 2,0 MPa	≥ 2,0 MPa
Expansive characteristics in the plastic phase	UNI EN 8966	-	≥ 0.3%
Expansive characteristics in restrained condition	UNI EN 8147	-	≥ 0.03% a 24 h
Bleeding	UNI EN 8998		Absent
Compressive strength	UNI EN 12190	a 28 dd ≥20.000 MPa	1 d > 35 MPa 7 dd > 65 MPa 28 dd > 75 MPa
Flexural strength	UNI EN 196-1		1 d > 6 MPa 7 dd > 8 MPa 28 dd > 9 MPa
Elastic modulus	UNI EN13412	a 28 dd ≥ 45 MPa	28000±2000 MPa
Impermeability to water measured as resistance to water penetration under direct pressure	UNI EN 12390/8		average depth of penetration < 5 mm
Resistance to the extraction of bars steel - displacement relative to a load of 75 kN (mm)	RILEM-CEB-FIP RC6-78		> 30 MPa
Flow after m Resistance to lubricating oils, oil bath for 60 days at 40 ° C			No deterioration
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
Determination of the indirect tensile strength of the specimens	UNI EN 12390/6		> 6 MPa
Interface surface quality evaluation test	ASTM C1339-02		> 85%
Resistance to the extraction of bars steel - displacement relative to a load of 75 kN (mm):	UNI EN 1881		<0.6
Pourability	EN13395-2		>55

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## APPLICATION SHEET

### PREPARATION OF THE FOUNDATION AND THE MACHINE

Before positioning the machine, remove any damaged concrete and laitance from the surface of the foundation and then roughen the surface. Eliminate oil, grease, debris and dust from the foundation, the anchorage holes, the bolts and the bearing plate. Check that vents have been made in the plate through which the air can escape. Position, align and level the machine. After having placed the machine, soak the foundation concrete with water for at least 8 hours before grouting. Remove any excess water from the anchorage holes with air jets, sponges or a trap.

### FORMWORK

The forms must be sufficiently watertight to avoid absorbing or wicking water out of the mortar and must be anchored and bucked to withstand the pressure of the mortar when it is placed and levelled. Construct the forms to leave a space of at least 15 cm around the edge of the bearing plate and on the placement side leave a space from the bedplate to accommodate at least 15 cm elevated head box. On all the other sides leave 5 cm gap between the form and the bedplate and 5-10 cm head box. In the case of very large bearing plates, as well as spacing the form further from the bedplate (up to 1.5 m) to accommodate the head box, to aid pouring of the actual mortar it may be useful:

- shift the head box further from the bedplate;
- make more fluid mixes (approx. 5-10% more water) to lubricate the concrete foundation, followed by mixes with normal fluidity.

Caulk the forms to prevent leaks of mortar and loss of head.

### TEMPERATURE

MasterFlow 928 may be used when the ambient temperature is between +5°C and +40°C inclusive. Whenever the temperature at the time of application is between +5 and +10 °C, the mechanical strength will develop more slowly. It is advisable to use warm mixing water (+30 ÷ +50°C), to saturate the substrate with warm water and to apply the mortar in the central hours of the day.

Do not apply at temperatures below +5°C. Whenever the temperature at the time of application is between +30 and +35°C, it is advisable to use cool mixing water (+5 ÷ +10C), to saturate the substrate with cold water and to apply the mortar during the coolest hours of the day.

### MIXING

Using a concrete mixer mix the whole content of the sacks for 3-4 minutes with 3.6 litres of water for each sack. For small quantities a drill with whisk attachment at low speed may be used for mixing.

If necessary add more water to obtain the required consistency without exceeding the maximum quantity set to 4,0 liters per bag.

### APPLICATION

By observing the surface of water in a container placed on the bearing plate of the machine to be anchored, check that the vibrations generated by any operating machines in the vicinity are not being transmitted to the foundation of the machine being anchored.

If they are, these machines must be stopped until the mortar has set and hardening has started (at least 10-12 hours at 20°C).

Place the mortar continuously and quickly; avoid moving the mortar excessively or vibrating it beneath the bearing plate. The grouting must be done from one side only to avoid air entrapment. Under no circumstances carry out placement from two opposite sides. Make sure that the mortar has completely filled the void between the bearing plate and the foundation, if necessary sliding flexible rods backwards and forwards under the machine bedplate.

### CURING

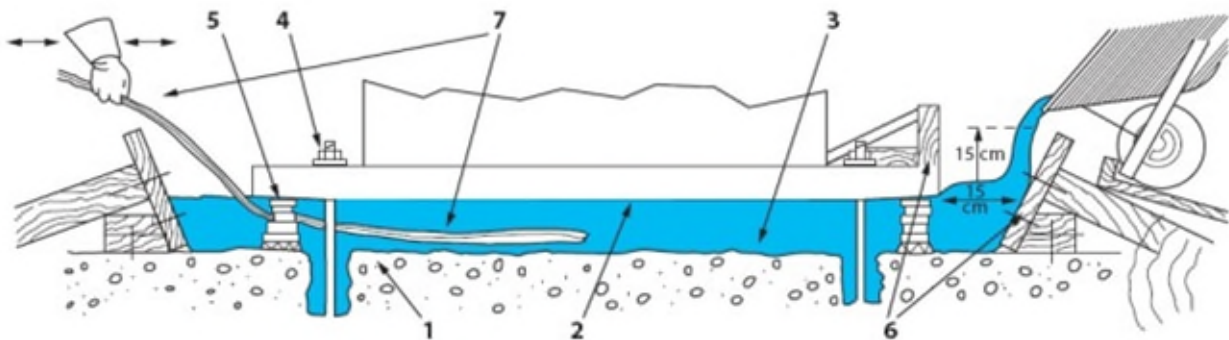
All the parts exposed to air must be immediately protected against evaporation and cured for at least 24 hours by wetting or covering with wet rags or by spraying with the curing compound MasterKure.

Lack of curing could lead to the formation of hairline cracks or crazing in the part of the mortar exposed to the air, especially in warm dry climates, without, however, affecting the anchorage. If necessary cut back and form the exposed parts of the mortar after it has finished setting and begun hardening (10-12 hours at 20°C).

If the machine manufacturer recommends removal of the bearings, this must be done only after 48 hours.

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- 1: support, foundation
- 2 plate, machine
- 3 Filling with MasterFlow 928
- 4 Log bolts
- 5 any spacers
- 6 Formwork
- 7 Any metal rods or chains to be used to facilitate sliding in case of particularly difficult castings

### SAFETY INFORMATIONS

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](http://www.master-builders-solutions.com/it-it) or contact [infomac@mbcc-group.com](mailto: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**

Via Vicinale delle Corti, 21 – 31100 Treviso – Italia

T +39 0422 429200 F +39 0422 421802

[www.master-builders-solutions.com/it-it](http://www.master-builders-solutions.com/it-it)

e-mail: [infomac@mbcc-group.com](mailto:infomac@mbcc-group.com)

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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.