

MX-R4 Repair

**Fibre-reinforced, thixotropic
Class R4 compensated shrinkage
concrete repair mortar.**



FIELDS OF APPLICATION

- Repairing cracked concrete elements.
- Levelling the concrete prior to applying the structural strengthening with FRCM and FRP composite materials.
- Repairing deteriorated concrete elements.
- Reconstructing, totally or partially, slab joists, beams and columns.
- Repairing deteriorated concrete cover.
- Repairing prefabricated elements.

METHOD OF USE

Preparing the substrate

- Carefully eliminate any loose or partially detached parts of the existing substrate.
- Clean the substrate thoroughly, eliminating any remaining traces of dust, rust, oil and grease.
- Coat the concrete rebars with a passivating layer, using a paintbrush to apply two coats of an anti-corrosive, cementitious mortar, e.g. **Ruregold Passivator** (consult the technical data sheet on the web site Ruregold.com) so that the exposed reinforcements are completely covered.
- Particularly smooth surfaces should be roughened to ensure the product adheres perfectly to the substrate.
- Saturate the substrate with water, taking care to eliminate the excess.

Preparing the mix

MX-R4 Repair does not require any additional material and may be prepared using:

- A planetary type mixer.

- A concrete mixer (do not exceed 60% of the nominal load limit and mix with the axis of rotation almost horizontal).
- A screw mixer (e.g. **Gras Calce Turbomalt** mixer).
- The product may also be mixed manually in a bucket using a paddle mixer, pouring in a part of the contents of the bag and adding the appropriate quantity of water.

Mix as follows:

- Pour in the contents of the bag of **MX-R4 Repair** and add approx 4.5-5 litres of clean water.
- Mix for about 2-3 minutes (3-4 minutes when using a concrete mixer) so as to obtain a smooth, homogeneous mix.

APPLICATION

Manual or machine application

- Apply the **MX-R4 Repair** mortar using a trowel or by spraying with a piston or worm pump plastering machine (e.g. Turbosol or Putzmeister), (avoid using continuous cycle plastering machines).
- The surface may be finished by smoothing with a wooden or plastic float as soon as the mortar has begun to set.
- Apply in a single coat up to a maximum thickness of 40 mm, and not less than 10 mm, without reinforcement.
- When applying thicknesses in excess of 40 mm, use an electrowelded steel mesh.
- Apply multiple coats of **MX-R4 Repair**, up to a maximum thickness of 80 mm.

IDENTIFICATION DATA

Classification EN 1504-3:2006	Product for repair work on concrete structures: Structural Repair - Class R4
Grain size of aggregates	0-3 mm
Density of fresh mortar (EN 1015-6)	Approx. 2050 kg/m ³

TECHNICAL SPECIFICATIONS

PERFORMANCE SPECIFICATIONS	REQUIREMENTS IN ACCORDANCE WITH EN 1504-3	PRODUCT PERFORMANCE SPECIFICATIONS
Compressive strength	≥ 45 MPa after 28 days	Class R4 > 20 MPa (1 day) > 35 MPa (7 days) > 50 MPa (28 days)
Flexural strength (EN 196-1)	-	> 4.5 MPa (1 day) > 6 MPa (7 days) > 7 MPa (28 days)
Chloride content	≤ 0.05 %	Check passed ≤ 0.05 %
Adhesion bond	≥ 2.0 MPa	Check passed ≥ 2.0 MPa
Resistance to carbonatization	$d_k \leq \text{control concrete [MC (0.45)]}$	Check passed
Modulus of elasticity in compression after 28 days	≥ 20 GPa	Check passed ≥ 20 GPa
Thermal compatibility - freeze/thaw	Bonding force after 50 cycles ≥ 2.0 MPa	Check passed
Capillary absorption	≤ 0.5 kg·m ⁻² ·h ^{-0.5}	Check passed
Reaction to fire (Italian Ministerial Decree 10/03/2005)	-	Euroclass A1

APPLICATION DATA

Mixing water per 25 kg bag	approx. 4.5 - 5 litres
Mix consistency	Thixotropic
Application time at 20°C	Within 30-45 minutes of onset of thickening
Application temperature	From +5°C up to +35°C
Coverage	Approx. 17 kg/m ² per cm of application thickness
Packaging	Disposable wooden pallet laden with 60 x 25 kg bags, equivalent to 1500 kg of loose product
Storage conditions (Italian Ministerial Decree 10/05/2004)	In original packaging, indoors, in a cool, dry, unventilated place
Durability (Italian Ministerial Decree 10/05/2004)	Not more than 12 months from packing date.

NOTES ON USAGE

Do not use the product for anchors, elements prepared using formwork, or in the presence of liquids with a pH lower than 5.

SPECIFICATION ITEM

Thixotropic, single-component polypropylene fibre-reinforced premix mortar, e.g. **MX-R4 Repair**, compliant with UNI EN 1504-3, type R4; compressive strength after 28 days >50 MPa, flexural strength after 28 days >7 MPa, modulus of elasticity after 28 days ≥ 20 GPa, adhesion to concrete after 28 days >2 MPa, reaction to fire Euroclass A1.

This mortar is ideal for durable structural repair work on concrete elements and structures. The substrate must be prepared and the system applied in accordance with the manufacturer's instructions.

Resistance to the action of chemical agents such as chlorides (de-icing salts, sea water, etc.), sulphates, acid rain, carbon dioxide.

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This technical data sheet does not constitute a specification.

Although the information is provided to the best of our experience and knowledge, it should be regarded as purely indicative. The User shall be responsible for determining whether the product is suitable or unsuitable for the intended use, and shall assume all liabilities arising from the use of the product. Ruregold SpA reserves the right to modify the packaging and its contents without prior notice. Check that the revision of the data sheet is the current one. Ruregold division products are intended for professional use only.



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