

# 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](http://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

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

## TECHNICAL SPECIFICATIONS

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

## APPLICATION DATA

<b>Mixing water per 25 kg bag</b>	approx. 4.5 - 5 litres
<b>Mix consistency</b>	Thixotropic
<b>Application time at 20°C</b>	Within 30-45 minutes of onset of thickening
<b>Application temperature</b>	From +5°C up to +35°C
<b>Coverage</b>	Approx. 17 kg/m <sup>2</sup> per cm of application thickness
<b>Packaging</b>	Disposable wooden pallet laden with 60 x 25 kg bags, equivalent to 1500 kg of loose product
<b>Storage conditions (Italian Ministerial Decree 10/05/2004)</b>	In original packaging, indoors, in a cool, dry, unventilated place
<b>Durability (Italian Ministerial Decree 10/05/2004)</b>	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  $\geq 20$  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.*

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