

Repair 400 C

Super-fluid, self-compacting, controlled shrinkage, fibre-reinforced polymer-modified castable structural cement mortar, class R4 in accordance with UNI EN 1504-3, specifically designed for in-ground fixing and restoration of concrete structures

Repair 400 C is a single-component, pre-mixed, controlled shrinkage cement mortar with a castable and pliable, super-fluid, self-compacting texture, made with high resistance hydraulic binders, selected aggregates, special additives and HP fibres, for the reconstruction or cross-section increase of reinforced concrete structures, for in-ground fixing of re-bars, anchor rods and fixing castings.



MAIN AREAS OF APPLICATION

Repair 400 C was formulated to ensure the best performance levels in all work where dimensionally stable mortar is required, with superior mechanical performance and high workability. **Repair 400 C** is recommended for anchoring and precision filling and it can be used as it is in thicknesses of between 5 and 30 mm. For thicknesses of between 30 and 100 mm, the product needs to be supplemented with selected aggregates.

It is mainly intended for use in:

- Precision in-ground fixing of light or heavy duty machines, boring machines, alternators, compressors, milling machines, cranes, crushing mills, rolling mills, marble and paper processing machines, various types of presses, metallic structures, lathes, drawing machines, turbines, etc.
- The product proves to be particularly suitable for filling cavities and rigid connections between concrete elements.
- For the reconstruction or cross-section increase of structures such as beams, pillars, kerbstones, etc.
- **Repair 400 C** is also suitable for the restoration of concrete flooring, for horizontal castings, the restoration and restructuring in formwork of the most common cement substrates used in construction.

For application on other types of substrates, please contact our engineering department.

CHARACTERISTICS

- Super-fluid self-compacting. The purpose-devised additives lends the fresh product great spreadability, making it possible to reach and fill all cavities, even those furthest from the casting.
- Pliable castable texture. The formula of **Repair 400 C** makes it possible to regulate the fluidity of the mixture to achieve flat floors or also slightly sloping ones, adapting it to specific laying requirements.
- Quick setting. The use of special accelerating additives drastically reduces finishing times, making **Repair 400 C** ready to be walked over after 2 hours and driven over 3-4 hours after application.
- Mechanical strength. The high-performance hydraulic binders, selected inert materials with constant particle size curve and the pozzolanic additives lend it superior mechanical values. **Repair 400 C** falls into the highest class in terms of bending strength and compression resistance of the **1504-3** standard and fully meet the requirements of class **R4**.
- High adhesion strength. **Repair 400 C** is a polymer-modified mortar (PCC). The adhesion values obtained after exposure to extreme conditions of frost, heat and chemical aggression are proof of its reliability over time in restoration work.



- Controlled hygrometric shrinkage. The presence of fibres and the special formula of **Repair 400 C** minimise cracking even in the case of high thicknesses, in any case not above those specified in the document herein.

APPLICATION METHOD

Preparing the substrate

Mechanically remove all flaking parts or easy to peel off. Clean the area of application thoroughly so that it is free of dust residue from surface treatments such as: detergents, oily substances, mineral or organic greases, waxes, traces of gypsum and salt.

Preparing the mixture

You need 4-4.5 litres of clean water (UNI EN 1008) for every 25 kg bag (i.e. 16-18% in mass).

Pour the product into a clean tub, containing $\frac{3}{4}$ of the mixing water, mix for around 3 minutes with a mixer at low speed, gradually adding the remainder of the water until you achieve an even thixotropic mixture without any lumps. In the case of applications in a thickness of more than 30 mm, the product needs to be supplemented with a load of clean, washed round/crushed inert materials, with a particle size curve of between 4 and 10 mm (conforming to the UNI EN 12620 standard). In this case, the aggregates are added at an indicative ratio of 1:2 with the powder (in other words 25 kg of aggregates for every two 25 kg bags of **Repair 400 C**).

Avoid splitting the packs to perform partial mixtures.

The product stored in open bags and only used in part may no longer meet the technical characteristics listed in this document.

Application

The previously prepared substrate must be wet with water until saturated, so that it is in conditions of Saturated surface dry (SSD).

In the case of horizontal castings on absorbing or particularly smooth substrates, instead of wetting with water until saturated, the dry surface needs to be treated with a coat of primer **Aggrappante LG**.

Cast the product with a continuous flow onto the substrate, helping it flow with a trowel and, if necessary, adjust the slope required using compacting.

Repair 400 C can be walked over after 2 hours and driven hour after 3-4 hours and it develops its resistance fully after 28 days of curing.

Depending on the thickness of the casting, use:

- the product as it is for thicknesses of between 5 mm and 30 mm
- with an additional load of aggregates for thicknesses of between 30 mm and 100 mm.

Do not apply **Repair 400 C** on substrates if there is a film of water on the surface, if they are completely dry or in extreme conditions, such as: substrates exposed to the midday sun or frozen over.

Make sure the temperature of the room, of the substrate, and of the product during application falls between +5 °C and +35 °C.

PRODUCT INFORMATION

Appearance	grey powder
Particle size	< 3 mm
Powder consumption	≈19 kg/m ² every 10 mm in thickness
Mixing water	16-18% of powder weight
Workability time at 20 °C	≈ 20 minutes
Application thickness per coat	5-30 mm (product as it is) 30-100 mm (with additional load of aggregates)
Application temperature	between +5 °C and +35 °C
Storage	12 months in a dry, protected place in sealed packs, at temperatures of between +5 °C and +35 °C
Packaging	25 kg bag
Density	2150-2250 kg/dm ³
Mixture pH	approx. 12

PERFORMANCE

Characteristic	Test Method	Normative requirement	Performance
Compression resistance	EN 12190	≥45 MPa	>60 MPa
Chloride ion content	EN 1015-17	≤0.05%	<0.05%
Adhesion strength	EN 1542	≥2.0 MPa	>2.0 MPa
Resistance to carbonation	EN 13295	dk≤45	NPD
Elastic module	EN 13412	≥20 GPa	>20 GPa
Thermal compatibility of freeze/thaw cycles	EN 13687-1	≥2 MPa	>2 MPa
Thermal compatibility after thunder shower	EN 13687-2	≥2 MPa	>2 MPa
Thermal compatibility, dry thermal cycling	EN 13687-4	≥2 MPa	>2 MPa
Capillary water absorption	EN 13057	≤0.5 kg m ⁻² h ^{-1/2}	0.5 kg m ⁻² h ^{-1/2}

WARNINGS

- Professional-grade product.
- Do not water or more powder to the mixed product.
- Alkaline material: protect your eyes and skin during application.
- Fluidity can be regulated by varying the quantity of mixing water, strictly abiding by the instructions on the technical data sheet.
- After use, wash tools with water while the mixture is still fresh.
- The room temperature and degree of humidity affect the workability, grip and drying times.
- Monitor the product curing suitably for at least the first 24 hours after laying, protect fresh mortar against rapid drying, against direct sunlight, strong wind and heavy rain.

SAFETY

As regards the information concerning proper product disposal, storage and handling, please consult the relevant Safety Data Sheet.

NOTES

This technical data sheet replaces and cancels all previous versions.

The indications and performance levels provided in this document are based on our current technical-scientific knowledge and in any case should be considered as purely indicative since the conditions of use are in no way under our control. The purchaser must therefore check the suitability of the product for his or her specific needs, assuming all responsibility deriving from its use. Our technical-sales network guarantees a speedy response and is at your disposal for any clarifications or queries regarding the use and processing of **licata SpA** products.

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