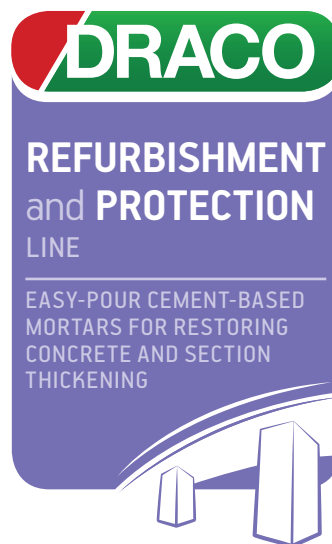
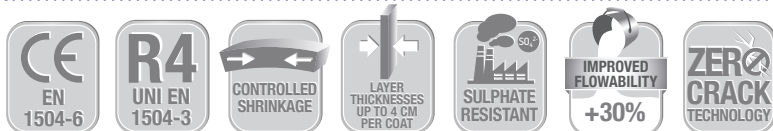


FLUECO 80 C

SHRINKAGE-COMPENSATED, FIBRE-REINFORCED,
POURABLE MORTAR WITH SUPERIOR DURABILITY

*Ideal for structural restorations in very aggressive environments.
Layer thickness up to 4 cm without electro-welded mesh.*



Flueco 80 C is a pourable, rheoplastic, cement-based mortar that is ready for use and fibre-reinforced with polymeric fibres for pouring. **Flueco 80 C** is used for maintenance, structural repairs and restoration in industrial and urban areas with high concentrations of aggressive agents.

FLUECO 80 C develops high initial and final mechanical strength, both compressive and tensile. It is waterproof and durable even in very aggressive environments. It provides strong bonding to steel and concrete.

FLUECO 80 C is resistant to chemical and environmental attacks and is suitable for all the classes of exposure required by UNI 11104.

BENEFITS

The characteristics of **FLUECO 80 C** make it suitable for maintenance, structural repairs and restoration of concrete buildings subject to high physical, chemical and environmental attacks. The specific characteristics of the product are:

- ✓ **RESISTANCE TO AGGRESSIVE AGENTS:** **FLUECO 80 C** is not subject to carbonation and has high resistance to aggressive agents present in the environment such as chlorides and sulphates. Thanks to the chemical and physical characteristics of its components **FLUECO 80 C** is totally waterproof, and resistant to thermal stress.
- ✓ **ABSENCE OF CRAZING AND CRACKS CAUSED BY PLASTIC SHRINKAGE:** **FLUECO 80 C** has no crazing or plastic shrinkage cracks even during lengthy curing, thanks to the use of special synthetic fibres that impede cracking, thus prolonging the useful life of concrete structures and reducing maintenance.
- ✓ **CONTRASTED EXPANSION DURING AIR CURING:** used together with the curing additive **PRESIDIO SRA** it permits the development of expansive properties even when cured in the open air, both in the plastic and hardened phases, thus impeding shrinkage.
- ✓ **MAXIMUM FLUIDITY:** thanks to its fluid consistency and the additives it contains, **FLUECO 80 C** flows easily even when there is complex reinforcement, thus facilitating its installation even when working on large areas.
- ✓ **HIGH ADHESION AND PULL-OUT RESISTANCE:** **FLUECO 80 C** was specifically formulated to increase adhesion to steel and concrete ensuring excellent resistance to the slipping of steel rods.



WHERE TO USE

FLUECO 80 C should be used for the structural repair, maintenance and restoration of damaged concrete and reinforced concrete structures exposed to aggressive environments. **FLUECO 80 C** is particularly suitable for:

- ✓ Repair of concrete in thicknesses up to 4 cm.
- ✓ Restoration of infrastructures, bridges and viaducts.
- ✓ Repair of structures exposed to high chemical, physical and environmental attacks.
- ✓ Formwork thickening of pillars, walls and structures in general.

REFERENCE STANDARDS

FLUECO 80 C meets the requirements defined by EN 1504-9 "Products and systems for the protection and repair of structures: definitions, requirements, quality control and evaluation of conformity" general principles for the use of products and systems."

FLUECO 80 C meets the minimum requirements defined by EN 1504-3 "Structural and non-structural repair" for structural mortars of class R4."

APPLICATION INSTRUCTIONS

SUBSTRATE CLEANING

- ▶ **remove all flaking parts** from the concrete in the area to be repaired, including grout slurry, either by mechanical chipping or pressure washing and taking care not to damage the structures.
- ▶ **remove spots, efflorescence or soaked-in stains** of grease oils, paints, lime, dust, dirt etc.;
- ▶ **remove any earlier repairs** if irreparably damaged or deteriorated;

SUBSTRATE PREPARATION

- ▶ **roughen the surface** mechanically by bush hammering, chiselling or pressure washing (this last avoids damage to the substrate and is recommended for large areas) to reach the sound, compact concrete and enhance bonding between the mortar and substrate. The surface should be roughened with unevenness to a depth of at least 5 mm while the edges around the area to be repaired must be scarified to a depth of at least 10 mm with a sharp edge finish. Roughening of the surface layer is needed both to promote bonding of the mortar, and to ensure the expansive properties develop correctly.
- ▶ **wet the surface with water under pressure to saturation.** This procedure avoids the substrate absorbing water from the mix as this could lead to cracking and reduce the bonding strength of the mortar. This operation also allows the removal of any fragments remaining from the roughening of the concrete substrate. Excess water must be removed with compressed air jets or with cloths.

REBAR PROTECTION

- ▶ **sandblast the rebars** and remove all loose particles such as rust flakes or fragments of material that could lead to corrosion or impair bonding. Scarification of the substrate with hydro-blasting also effectively cleans the bars, making sandblasting unnecessary.
- ▶ **protect the reinforcement bars** by re-alkalising them with the corrosion-inhibiting agent DRACOSTEEL.

ADDITIONAL REINFORCEMENT FOR STRUCTURAL REQUIREMENTS

- ▶ If the designer requires extra reinforcement for technical or structural reasons, or for lifts thicker than 4 cm, it is possible to apply an electro-welded mesh with the use of spacers (at least 1 cm from the substrate) and rebar covers of at least 1.5 - 2 cm.

FORMWORK

FLUECO 80 C can be installed by pouring, including pouring into formwork. However, the maximum thickness must not be exceeded. The formwork must be waterproof and adequately anchored and sealed to prevent absorption of the mixing water, leakage of material or blowout of the sides due to the pressure created by the jet of mortar. When wooden formwork is used, this must be saturated with water to prevent the wood absorbing water from the mix.

MORTAR PREPARATION

The mixing of the mortar **FLUECO 80 C** is carried out using an on-site concrete mixer. Pour the mixing water into the cement mixer according to the recommended mixing ratio indicated in the Table. Add slowly, mixing for at least 4 to 5 minutes until the mix is smooth and free of lumps. Make sure that all the product has been properly mixed in and that there are no residues of powder on the sides or bottom of the concrete mixer. To prepare small quantities of product use a suitable vessel or container and respect the recommended mixing proportions. We recommend the use of a mechanical agitator at low speed to reduce air entrainment.

PRESIDIO SRA, added to the mix at a dosage of 1 % on the weight of the mortar (0.25 kg per bag) acts as internal curing, and enhances the expansive properties in the open air. PRESIDIO SRA affects the curing of the mortar, so the dosage should be adjusted on the basis of the ambient temperature. In warm climates PRESIDIO SRA permits good workability; when ambient temperatures range between 5 and 10 °C we recommend reducing the dosage to avoid excessive slowing down of the setting time.



PRECAUTIONS IN HOT CLIMATES

- ▶ store **FLUECO 80 C** away from direct sunlight;
- ▶ use low temperature mixing water
- ▶ carry out the work in the early hours of the morning, and stop work when the sun is strongest. It is better to resume working in the late afternoon, as long as the structure has been wet continuously for at least 6 hours before work starts;
- ▶ to achieve optimum performance from **FLUECO 80 C** you should ensure proper curing by applying PROBETON CURING N by spray or by brush.



PRECAUTIONS IN COLD CLIMATES

- ▶ Store **FLUECO 80 C** in a heated environment where possible;
- ▶ use heated mixing water;
- ▶ do not use the product at temperatures below 0 °C;
- ▶ start work in the later hours of the morning;
- ▶ make sure that the substrate is not frozen.

SUBSTRATE SATURATION WITH WATER

Carry out all the procedures to prepare the substrate then saturate the concrete or masonry with hot water continuously for at least 6 hours before laying **FLUECO 80 C**. Any excess water on the surface must be removed with compressed air or cloths.

APPLICATION

FLUECO 80 C can be applied by pouring in formwork. The product must be applied on clean, roughened surfaces that have been saturated with water as described in the previous paragraph. **FLUECO 80 C** is applied in thickness up to 4 cm per layer: for greater thicknesses we recommend overlaying, with a waiting time of at least 5 hours between layers. In cold climates the waiting time may be greater. When the desired thickness has been reached level the surface using a straight edge to eliminate surface bubbles. Avoid prolonged floating during finishing to avoid pull-off cracks. Pumping mortar into formwork requires specific precautions to ensure it is installed correctly: the pouring must be done slowly and only on one side to facilitate the expelling of air. Thanks to the rheological features of **FLUECO 80 C** and its high fluidity it penetrates easily into tight spaces and where the reinforcement is complex. It is not necessary to vibrate while pouring the mortar.

CURING

When PRESIDIO SRA is added to the mix at a dosage of 1 % on the weight of the mortar it acts as internal curing and regulates moisture loss by reducing shrinkage and cracking and enhancing curing. The addition of PRESIDIO SRA to **FLUECO 80 C** enables correct expansion in air thus reducing shrinkage by 20 - 50 % compared to the use of the product without the additive. To ensure proper curing of the product even in dry climates, or where surfaces are exposed to excessively windy or sunny conditions, we in any case recommend the use of the curing membrane PROBETON CURING N.

PACKAGING AND STORAGE

FLUECO 80 C is packaged in 25 kg bags

If kept in its original packaging and properly stored under cover in a dry place, the product maintains its characteristics for a year.



PRODUCT CHARACTERISTICS

APPEARANCE	Grey powder
MAXIMUM AGGREGATE SIZE (COMP. A)	2.5 mm
BULK DENSITY	approx. 1.2 kg/l
✓CE CHLORIDE ION CONTENT - UNI EN 1015-17	0.015%
PACKAGING	25 kg bags

APPLICATION DATA








MIX COLOR	Grey
MIXING WATER	3.75 - 4.25 litres per bag
✓CE DENSITY OF MIX - UNI EN 12190	2210 kg/m ³
✓CE CONSISTENCY - UNI EN 13395-2	47 cm
TEMPERATURE OF USE	+5°C to +35°C
POT LIFE OF MIX	approx. 60 minutes (+20° C - 50% RH)
COMPLETE HARDENING	approx. 28 days at 20°C
WAITING TIME BETWEEN COATS	at least approx. 30 minutes (+23° C - 50% RH)
THICKNESS OF APPLICATION	4 cm
CONSUMPTION	19.5 kg/m ² per cm of thickness

TECHNICAL SPECIFICATIONS



FLUECO 80 C produced by **Draco Italiana SpA**, is a cement-based, fibre-reinforced pourable mortar that is shrinkage-compensated and sulphate resistant for structural repair and restoration of concrete structures. It shall be cast in layers up to 3cm thick. The product must be characterised by high adhesion to the substrate, water-tightness and development of high initial and final mechanical strength and comply with the requirements defined in EN 1504-3 for Class R4 structural mortars. All instructions and precautions followed must comply with the recommendations given by the manufacturer: **Draco Italiana SpA**.

FINAL PERFORMANCE 16 % MIXING WATER (+20° C - 50% RH)

CHARACTERISTICS	TEST METHOD	REQUIREMENTS IN ACCORDANCE WITH PERFORMANCE EN-1504-3 FOR CLASS R4 MORTARS	PRODUCT PERFORMANCE
 COMPRESSIVE STRENGTH	EN 12190	≥45 MPa (after 28 days)	27 MPa at 1 day 55 MPa at 3 days 59 MPa at 7 days 70 MPa at 28 days
FLEXURAL STRENGTH	EN 196/1	None	7 MPa at 1 day 9 MPa at 3 days 10 MPa at 7 days
 COMPRESSIVE MODULUS OF ELASTICITY	EN 13412	≥20 GPa (after 28 days)	30 GPa
 BOND STRENGTH ON CONCRETE substrate of type MC 0.40 w/c ratio = 0.40 according to EN 1766	EN 1542	≥2 MPa (after 28 days)	2.8 MPa
CONTRASTED EXPANSION IN AIR AT 1 DAY	UNI 8147	None	0.03%
CRACK RESISTANCE	"O Ring Test"	None	no cracking at 180 days (*)
ARCHING TEST		None	Meets specifications (*)
 CAPILLARY ABSORPTION	EN 13057	≤0.5 kg/m ² · h ^{0.5}	< 0.20 kg/m ² · h ^{0.5}
 RESISTANCE TO ACCELERATED CARBONATATION	EN 13295	Depth of carbonatation ≤ reference concrete type (MC 0.45 water/cement ratio = 0.45) according to UNI 1766	Meets specifications (*)
IMPERMEABILITY TO WATER penetration depth	EN 12390/8	None	< 5 mm
 THERMAL COMPATIBILITY bond strength according to EN 1542 on concrete type MC 0.40 UNI EN 1766: - freeze-thaw cycles with de-icing salts	EN 13687/1	≥2 MPa (after 50 cycles)	2.6 MPa 2.3 min.
 SKID RESISTANCE	UNI EN 13036-4	Class I: >40 units wet tested Class II: >40 units dry tested Class III: >55 units wet tested	Class II and III
REACTION TO FIRE	EN 13501 - 1	Euroclass A1	A1

* Specification satisfied with the addition of PRESIDIO SRA to **FLUECO 80 C**

Legal notice - SLCMP version dated 01.03.2017

In the technical specifications herein, Draco Italiana s.p.a. used the indicators therein specified, with the relevant standards.

Please check if this Sheet and the figures therein contained apply to the product batch you are interested in or if they have been overridden by any later release. If in doubt, check whether this Sheet matches the one applicable at the time of finalising the sales agreement, at www.draco-edilizia.it, and/or contact our Engineering Department.

No advice provided by our staff, either verbally or in writing at your request, about the potential applications of the Products shall be binding under the sales agreement or shall be considered an integral part of the agreement. Such advice is based on our experience and on the best available practical and/or scientific knowledge; as such, it shall not be binding or conditional on the buyer or user. Please try our products first to find out whether they are fit for your intended use or application; in any case, you shall be solely responsible for your choice.