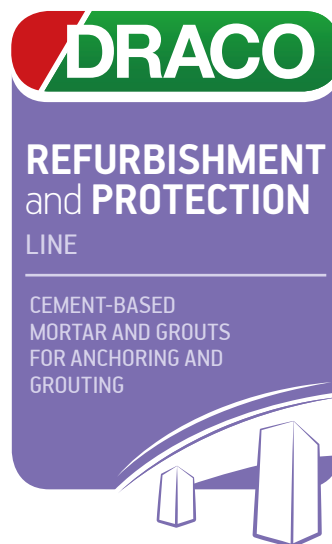


FLUECO 35

EXPANSIVE SHRINKAGE COMPENSATED GROUT FOR PRECISION ANCHORING.

Applied on layers thicker than 7 cm.



FLUECO 35 is a pre-blended cementitious mortar for anchoring of structures and machinery that may be subject to vibration and / or thermal stress. Simply mix **FLUECO 35** with water to form a fluid, non segregatable, bleed-free mix. This grout adheres exceptionally well to rebars and is long-lasting. Its extended workability time (60 minutes at 20° C) facilitates instalment and it is totally waterproof to guarantee no infiltration of water, oil or steam which may contain sulphates, sulphides and chlorides.

BENEFITS

The characteristics of **FLUECO 35**, cast in thick layers, make it ideal for reliable and durable precision anchoring.

The specific characteristics of the product are:

- ✓ **Resistance to aggressive agents:** **FLUECO 35** ensures greater durability thanks to its superior resistance to carbonation and aggressive environments. Its compact microstructure makes **FLUECO 35** waterproof and resistant to temperature changes.
- ✓ **High resistance to stress:** the specific formulation of **FLUECO 35** ensures high mechanical strength even after short curing times; this combines with the prestressing guaranteed by interstitial expansion to ensure rapid anchoring and stronger grip even when the structures are subject to vibration and dynamic stress.
- ✓ **Prolonged expansion properties and lack of shrinkage:** thanks to special additives with interstitial expansive agents and its **ZERO CRACK TECHNOLOGY**, **FLUECO 35** guarantees expansion and prestressing both in the plastic and hardened phases thus preventing the onset of shrinkage and cracking.
- ✓ **Maximum fluidity:** the fluid consistency of **FLUECO 35** together with the **RHEOCONTROL TECHNOLOGY** that permits the progressive adsorption of additives facilitate casting and ensure the total filling of voids even in tight or complex spaces and when working on large surfaces.
- ✓ **High adhesion and pull-out resistance:** **FLUECO 35** was specifically formulated to increase adhesion to steel and concrete, ensuring excellent resistance to the slipping of steel rods.



WHERE TO USE

FLUECO 35 should be used for casting precision anchoring in thick layers. Thanks to its rheological properties and special additives **FLUECO 35** is ideal for:

- ✓ Anchoring cast sections over 7 cm thick.
- ✓ Grouting precast parts in RC and metallic structures.
- ✓ Grouting of pins and subsidiary structural reinforcement.
- ✓ Anchoring of metal footing plates.
- ✓ Precision anchoring of machine tools, tracks and rails which may undergo movement and heavy vibration.
- ✓ Anchoring cast sections for underpinning walls.

For layers that are less thick use **FLUECO 75**.

REFERENCE STANDARDS

FLUECO 35 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 35 meets the minimum requirements defined by EN 1504-3 for class R4 structural mortars for "Anchoring of steel reinforcements".

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** to reach the sound, compact concrete and enhance bonding between the mortar and substrate.
- ▶ **make sure there are no loose material, dust or oil residues** in the anchor cavity, on the bolts, rods or base plate. When anchoring is to be made in cavities, blow compressed air into the cavity in order to remove any dust caused by drilling. The base plate must have holes to allow air drain during casting.
- ▶ **ensure the machinery to be anchored is correctly positioned** by checking size, alignment and levels.
- ▶ **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 sponges.

FORMWORK

Place the formwork around the perimeter of the base plate at a distance of at least 15 cm between the side and the base on the pouring side and at least 5 cm on the other sides. The form should be at least 5 cm high around the perimeter. Leave an opening of at least 10 cm for pouring the mortar. The form material must be waterproof and adequately anchored and sealed to prevent the absorption of moisture from the mixing water or the detachment of the sides due to the pressure build up during the pouring of the mortar.

When anchoring large machines we recommend increasing the opening designed in the formwork by using moveable flaps and simplifying casting by using a fluid mix that eases flow to lubricate the concrete foundation.

MORTAR PREPARATION

The mixing of the mortar **FLUECO 35** is carried out using an on-site concrete mixer. Pour the mixing water into the cement mixer according to the recommended mixing ratio: 3.9 litres of water for every 30 kg bag of **FLUECO 35**.

Add slowly, mixing for at least 4 to 5 minutes until the paste 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 increase the fluidity of the mortar add more water without exceeding the maximum recommended dose (5.40 litres per bag, equal to 18%) and continue mixing. To prepare small quantities of product use a suitable vessel or container and mix with a drill with paddle at low speed to reduce air entrapment.



PRECAUTIONS IN HOT CLIMATES

- ▶ Store **FLUECO 35** 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;
- ▶ to achieve optimum performance from **FLUECO 35** you should ensure proper curing by using the PROBETON CURING N membrane.



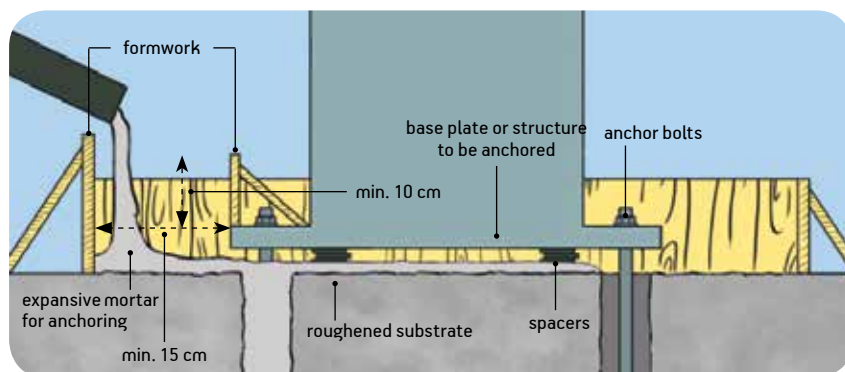
PRECAUTIONS IN COLD CLIMATES

- ▶ Store **FLUECO 35** in a heated environment where possible;
- ▶ use heated mixing water (max. 50° C);
- ▶ carry out the work in the morning ;
- ▶ do not carry out anchoring at temperatures below 5° C. ;
- ▶ protect the area and the cast from frost;
- ▶ check the temperature of the machinery to be anchored. Thermal storage in steel structures is very great. Machinery may maintain temperatures below 0° C even several days after thaw.
- ▶ **Saturation of the substrate with water:** complete the preparation of the substrate and then saturate with water for at least 6 hours before casting **FLUECO 35**. Any excess water on surfaces must be removed with compressed air jets or with sponges.

APPLICATION

Before casting the mortar make sure that the area surrounding the anchoring operation is not subject to vibrations caused by machines working nearby that could negatively affect the bonding of **FLUECO 35** to the base plate. If there are any vibrations the machines must be switched off (for at least 12 to 16 hours at 20 ° C) to allow time for the grout to set completely and start hardening.

Pour the product slowly but in a continuous flow and from a single side to facilitate the expelling of air. Do not shake or vibrate the mortar. The presence of holes in the base plate should further facilitate air drain. Make sure the mortar has completely filled the space between the foundation and the lower surface of the plate. Flexible metal rods or steel ropes can be moved under the base in the same direction as the jet of mortar to aid filling.



To guarantee a durable anchor point it is necessary to prepare the substrate properly, inspect the anchor cavities and check the conditions of the machinery before making the formwork

CURING

To ensure proper curing of the product even in dry climates, or where surfaces are exposed to excessively windy or sunny conditions, and to avoid the formation of crazing or cracks, we recommend you protect exposed surfaces from loss of moisture for at least 24 hours. Maintain the surfaces wet with damp sheeting or by using the curing membrane, PROBETON CURING N.

FINISHING

It is possible to remove any excess product with a hammer and chisel after removing the formwork, making sure that the cast has already hardened. If you need to remove the supports wait at least 2 to 3 days from casting, and grease them to ease their removal. When **FLUECO 35** is used it is not necessary to remove the supports (unless this is expressly indicated by the machine manufacturer) as the mortar creates a stable and uniform support from the two elements of the base and base plate. Once the machine is operating, it is advisable to check that the anchor bolts are secure by using a calibrated wrench to tighten them equally.


PACKAGING AND STORAGE

FLUECO 35 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 AND COLOUR	Grey powder
MAXIMUM AGGREGATE SIZE	5 mm
 CHLORIDE ION CONTENT ($\leq 0.05\%$ AS DEFINED BY EN 1015-17)	0.05%
PACKAGING	25 kg bag

APPLICATION DATA

MIX COLOR	Grey
MIXING WATER	3.25 ÷ 3.75 litres per bag
 CONSISTENCY OF MIX - UNI EN 13395	Fluid or super fluid
FLOW AFTER MIXING AS DEFINED BY EN 13395-2	>40 cm
BULK DENSITY OF MIX - UNI EN 1015-6	2280 kg/m ³
DENSITY - UNI EN 12190	2300 kg/m ³
pH OF MIX	> 12
TEMPERATURE OF USE	+5°C to +35°C
POT LIFE OF MIX	approx. 60 minutes (20° C - 50% RH)
THICKNESS OF APPLICATION	> 7 cm
CONSUMPTION	2100 kg/m ³ approx.

FINAL PERFORMANCE 15% 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	> 80 of manufacturer's declared value	27 MPa a 1 day 42 MPa a 3 days 56 MPa a 7 days 70 MPa a 28 days
FLEXURAL STRENGTH	EN 196/1	None	6 MPa a 1 day 7 MPa a 3 days 8 MPa a 7 days 10 MPa a 28 days
 COMPRESSIVE MODULUS OF ELASTICITY	EN 13412	None	30 GPa
 BOND STRENGTH ON CONCRETE (substrate of type MC 0.40 w / c ratio = 0.40) according to EN 1766	EN 1542	None	> 2 MPa
RESTRAINED EXPANSION - AFTER 7 DAYS - AFTER 28 DAYS	UNI 8144 UNI 8148	None	> 0.3% > 0.3%
UNRESTRAINED EXPANSION IN PLASTIC PHASE	UNI 8996	None	0.3%
IMPERMEABILITY TO WATER penetration depth (mm)	EN 12390/8	None	< 5
PULL OUT RESISTANCE OF STEEL RODS movement under a load of 75 kN (mm)	EN 1881	< 0,6	U = 0.03 mm A = 0.03 mm
 REACTION TO FIRE	Euroclass	manufacturer's declared value	A1
RESISTANCE TO LUBRICATING OIL Oil bath for 60 days at 40°C			No deterioration

TECHNICAL SPECIFICATIONS



FLUECO 35, produced by **Draco Italiana SpA**, is a pourable, ready-to-use expansive, rheoplastic grout to be used for the precision anchoring of machinery, structures or metal elements to suitably prepared concrete substrates. The product shall be characterised by high adhesion to the substrate, maximum fluidity and resistance to stress and shall be in accordance with EN 1504-3 for R4-class structural mortar and the minimum requirements defined in EN 1504-6. All instructions and precautions followed must comply with the recommendations given by the manufacturer: **Draco Italiana SpA**. Technical assistance available on request.

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.