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CORRO CONCRETE K 45

Product description

Fescon Corro concrete K 45 is a high-strength, strength-classified special concrete that is resistant to both salt and frost exposure. It is suitable for applications requiring dense concrete surfaces that withstand abrasion and aggressive substances. Typical areas of use include casting, repairing, and strengthening concrete structures, such as: foundations, footings, balcony slabs, quay structures, parking garages, agricultural buildings, and demanding industrial floor castings. Complies with concrete standard SFS EN 206-1, strength class C 35/45. Maximum aggregate size: 4 mm or 10 mm.

- Strength class C3 5/45
- Complies with SFS EN 206-1 requirements
- Layer thickness for 4 mm aggregate: 20–80 mm, in layers up to max. 100 mm
- Layer thickness for 10 mm aggregate: 40–200 mm

Applications

- Casting, repairing, and strengthening concrete structures
- Balcony slabs
- Demanding industrial floor castings
- Quay and dock structures
- Agricultural construction

The product is listed in the portal for building products that can be used in Nordic Swan Ecolabelled buildings.

Instructions

Base

- The temperature of the substructure must be between +5°C and +25°C
- The substrate may be a concrete base, insulation board, or the product may be cast directly onto the ground
- If cast onto a concrete base, the substrate must be clean, solid, dust-free, and absorbent
- Loose layers, cement laitance, and other impurities must be removed mechanically to ensure proper adhesion between the product and the substrate. Best adhesion is achieved on a roughened surface
- For outdoor applications, cleaning the substrate with a pressure washer is recommended, which also provides the necessary moisture
- Reinforcement bars must be cleaned of any loose rust
- Install additional reinforcement as required
- If the substrate is weak concrete (tensile strength < 0.5 MPa) or insulation, casting must be done as a floating, reinforced structure. The floating floor slab must be separated from the subfloor with Fescon Separation fabric and from vertical structures with Fescon Bordering strip.

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Priming

- The concrete substrate must be moistened with water to a matt-damp condition. No free water must be present. Moistening of the substrate is recommended to begin one day prior to application to allow the water to absorb sufficiently deep into the structure.
- On renovation sites where the substrate is very dry and highly absorbent, multiple rounds of moistening are recommended.
- The concrete surface must be sufficiently moist to prevent the product's water content from being absorbed too quickly into the substrate.
- Separate liquid bonding primers must not be used.

Mixing and Application

- Avoid strong wind, direct sunlight, and rain during application.
- During casting and curing, the air and substrate temperature must be between +5°C and +25°C.
- One 25 kg bag of dry mix is combined with 2.5–3.0 litres of clean water (for 10 mm aggregate: 2.3–2.8 l / 25 kg). We recommend starting with the minimum amount of water and adding more as needed. Do not exceed the recommended water quantity, as it weakens the product's strength, increases the risk of segregation, and prolongs drying time.
- The product is mixed into a uniform mass using a paddle mixer, concrete mixer, pan mixer, or pipe mixer. Mixing time with a mortar whisk or pan mixer: approx. 2 minutes, with a concrete mixer: approx. 5 minutes.
- After mixing, allow the material to rest for approx. 5 minutes, then perform a brief remix.
- Working time is approx. 1 hour from mixing.
- The product is applied into the formwork, compacted, and leveled to the correct height. The surface is finished to the required level using, for example, a polyurethane float and/or steel trowel, once the material has slightly stiffened.
- For large areas, the recommended layer thickness is with 4 mm aggregate: 20–80 mm, with 10 mm aggregate: 40–200 mm. Thicker layers must be applied in multiple passes, allowing the lower layer to dry for at least 24 hours before placing the next.
- Tools must be cleaned with water immediately after use.

Curing

- Adequate moist curing must be ensured during the hardening process to allow the hydration reaction to proceed correctly and to achieve the desired strength.
- Proper curing also prevents plastic shrinkage cracking and surface delamination from the substrate. The surface of the installed product must be kept moist for 2–5 days. Depending on site conditions, curing can be performed using fine water misting, plastic sheeting, or Fescon curing compound.
- Especially in spring, curing must be started immediately and carried out thoroughly, as relative humidity is often below 40% RH. Low humidity, combined with sunlight and wind, dries the surface very quickly.

Coating

- The product can be left uncoated or without surface finishing.
- The product's strength and technical properties are sufficient for use as a substrate for most surface coatings. However, it must be ensured that the product meets the technical requirements of the coating manufacturer regarding the substrate.

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Additional Information

- The product can be used in floating, reinforced floor constructions (e.g. #150/5 mm). In such applications, the layer thickness should be 50–80 mm. For castings thicker than 80 mm, Fescon Corro concrete K 45 with a maximum aggregate size of 10 mm must be used.
- The recommended area for a single casting is less than 15 m^2. When casting larger areas, the risk of cracking increases. In such cases, a sufficient number of shrinkage joints must be designed into the floor structure in accordance with the BY45/BLY 7 Concrete Floors 2014 guideline. For surface floor slabs, the maximum casting area at one time is approx. 50–100 m^2.
- When casting surface slabs directly onto a substrate, the substrate concrete must have a tensile strength > 1.5 MPa. In the design of the surface slab, bonding to the substrate is a key factor in preventing detachment caused by shrinkage.
- Hardened product can only be removed mechanically.

Waste handling

Storage and handling of waste
See the separate storage and disposal instructions https://www.fescon.fi/en/material-bank

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Technical information

Material usage	Approx. 2.0 kg/m^2/mm
Water requirement	Aggregate size 4 mm: 2.5–3.0 l / 25 kg Aggregate size 10 mm: 2.3–2.8 l / 25 kg (Flow spread 140–200 mm, EN 1015-3)
Finished compound	Approx. 12 - 13 l / 25 kg
Type	Powder
Binder	Cement
Colour	Grey
Maximum grain size	4 mm or 10 mm
Package size	Aggregate size 4 mm: 25 kg and 1000 kg Aggregate size 10 mm: 1000 kg
Storage	Storage time in a dry location approx. 1 year
Density	Approx. 2100 kg/m^3
Layer thickness	Aggregate size 4 mm: 20–80 mm (50–80 mm when used as a floating and reinforced structure) Aggregate size 10 mm: 40–200 mm (minimum 50 mm when used as a floating and reinforced structure)
Fibre	Not fiber-reinforced
Additives	Additives that improve weather resistance and workability
Usage temperature	+5°C...+25°C
Workability time	Approx. 1 h
Compressive strength	C 35/45 (R4, EN 1504-3)
Adhesion strength	> 1.5 MPa (R3, EN 1504-3)
Strength development	1 day approx.10 MPa, 7 days approx. 40 MPa, 28 days approx. 50 MPa (+20°C)
Reaction to fire	A1
Exposure class	XF 4, XC 4, XS 2, XD 3 (50 years) XF 3, XC 4, XS 2, XD 3 (100 years)
Chloride content	≤ 0,05 %
Frost resistance	Frost-resistant, suitable for indoor and outdoor use
Waterproofness	Water-resistant
GWP A1-A3	0,26
GWP unit	kg CO2e/kg

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Method for calculating the GWB value	Generic

Limitation of liability, product use notes and restrictions: Please familiarize yourself with Fescon Oy's general terms of delivery and the design and work instructions related to the product.