

### FA-S6 CONCRETE

High performance pre-packaged concrete repair material for partial depth repairs.

FA-S6 Concrete is a pre-blended, synthetic fiber reinforced, pre-packaged high performance cementitious concrete repair material containing Portland cement, fly ash, 6 mm (¼ inch) stone and other carefully selected components.

#### FEATURES & BENEFITS

- Properties similar to conventional concrete, thus offering excellent compatibility to parent concrete.
- Excellent pumpability.
- Improved workability and finishability.
- Reduced bleeding.
- Improved resistance to sulphate attack.
- Low permeability.
- Low shrinkage.
- All King products are manufactured using ISO 9001:2000 Certified Processes.

#### USES

- Partial depth rehabilitation of concrete beams, columns, and/or soffits in bridges, parking garages, balconies or other concrete structures.

#### PROCEDURES

##### Surface Preparation:

All surfaces to be in contact with FA-S6 Concrete must be free from dust, oil, grease or any other foreign substances that may interfere with the bond of the material. Remove all delaminated or unsound concrete providing a roughened surface and a minimum of 25 mm (1 inch) clearance behind any corroded reinforcing steel. The perimeter of the repair area should be sawcut a minimum of 20 mm (¾ inch). Clean the area to be repaired with potable water, leaving the concrete saturated but free of standing water (SSD).

For maximum bond strength, screen coarse aggregate from FA-S6 Concrete and mix with water to form a slurry. Apply slurry to the concrete surface and/or adjacent edge of concrete with a stiff bristle brush just prior to placement.

##### Mixing:

Place 75 % of required water into mixer and slowly introduce entire bag of FA-S6 Concrete. Add balance of required water slowly while mixer is running, not exceeding maximum recommended volume of water. **Maximum recommended volume of water is 3.0 litres (0.8 US gallon) per 30 kg (66 lb.) bag.** Continue mixing for a minimum of 3 minutes and stop only when material has obtained a consistent homogeneous mix.

##### Placing:

Mix and substrate temperatures should be maintained between 5 and 30°C (40 and 86°F).

In cold weather, hot water may be used to increase mix temperature and avoid lengthy set times. Do not place FA-S6 Concrete when ambient temperature is below 5°C (40°F). Refer to ACI 306, "Cold Weather Concreting".

In warm weather, ice water may be used as mix water to cool mix temperature and avoid short working times. When ambient temperature is above 30°C (86°F), refer to ACI 305, "Hot Weather Concreting".

##### Placing (for slab repairs):

Place material uniformly and consolidate by forcing it down to the surface of the parent concrete and around the underside of the rebar using a trowel, a wood float or by rodding the material. Ensure material has completely encapsulated any exposed rebar. For slab finishing, the use of a wood float is recommended.

##### Placing (for overhead or vertical pumping applications):

Follow pump manufacturer's recommendations for pumping. Formwork should contain drainage outlets for pre-wetting substrate. For soffit repairs, vent holes should be included for air venting. Entry points for FA-S6 Concrete should not be spaced more than 600 mm (24 inches) apart. An acceptable form release agent should be used for easy removal of forms. Pump mix into forms ensuring that no voids are left in any locations. Forms should not be removed until mix has attained 75 % of its 28 day strength. Refer to ACI 347 "Guide to Formwork for Concrete".

##### Curing:

Curing is essential to optimize physical properties of the concrete and minimize plastic shrinkage. FA-S6 Concrete should be cured immediately after material has reached initial set in accordance with ACI 308 "Guide to Curing Concrete". Continuously moist cure for a minimum period of 7 days. Alternatively, moist cure for a minimum period of 24 hours and apply King Duro-Cure curing compound or a curing compound that complies with ASTM C 309. Curing is particularly critical in rapid moisture loss conditions such as high temperatures, high winds and low humidity.

#### TECHNICAL DATA

The following data is representative of typical values achievable under laboratory conditions. Results in the field may vary.

<b>MASS DENSITY</b>		
ASTM C 39		2359 kg/m <sup>3</sup> (147 lb./ft <sup>3</sup> )
<b>COMPRESSIVE STRENGTH</b>		
ASTM C 39		
1 Day		25 MPa (3625 psi)
3 Day		30 MPa (4350 psi)
28 Day		45 MPa (6525 psi)
<b>FLEXURAL STRENGTH</b>		
ASTM C 78		
7 Day		8.2 MPa (1190 psi)
28 Day		12.4 MPa (1800 psi)
<b>BOND STRENGTH BY SLANT SHEAR</b>		
ASTM C 882		
7 Day		12.5 MPa (1810 psi)
28 Day		26.2 MPa (3800 psi)

### FA-S6 CONCRETE

#### BOND STRENGTH

**CSA A23.2-6B (MODIFIED)** 1.72 MPa (250 psi)\*

#### UNIAXIAL DRYING SHRINKAGE

##### ASTM C 157

**3 Day** 240  $\mu\text{m/m}$

**28 Day** 670  $\mu\text{m/m}$

**60 Day** 850  $\mu\text{m/m}$

#### SALT SCALING RESISTANCE

##### ASTM C 672

**50 cycles** 0.2  $\text{kg/m}^2$  (0.04  $\text{lb./ft}^2$ )

#### RAPID CHLORIDE PERMEABILITY

##### ASTM C 1202

1364 Coulombs

\* Bond strength achieved from independent jobsite testing.  
Failure occurred in parent concrete.

This product is designed to meet the performance specifications outlined in this product data sheet. If the product is used in conditions for which it was not intended, or applied in a manner contrary to the written recommendations contained in the product data sheet, the product may not reach such performance specifications. The foregoing is in lieu of any other warranties, representations or conditions, expressed or implied, including, but not limited to, implied warranties or conditions of merchantable quality or fitness for particular purposes, and those arising by statute or otherwise in law or from a course of dealing or usage of trade.

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#### OPTIMUM PERFORMANCE

- Place FA-S6 Concrete at a minimum thickness of 25 mm (1 inch).
- For full depth repairs or for balcony edges longer than 1 m (3 ft), refer to FA-S10 Concrete.

#### YIELD

30 kg (66 lb.) bag contains approximately 0.014  $\text{m}^3$  (0.5  $\text{ft}^3$ ).

#### PACKAGING

FA-S6 Concrete is normally packaged in 30 kg (66 lb.) triple lined bags and poly wrapped on wooden pallets. All KING products can be custom packaged to suit specific job requirements.

#### STORAGE AND SHELF LIFE

Material should be stored in a dry covered area protected from the elements. Unopened bags have a shelf life of 12 months.

#### SAFETY PROCEDURES

FA-S6 Concrete contains Portland cement. Normal safety-wear such as rubber gloves, dust mask and safety glasses used to handle conventional cement based products should be worn. Material Safety Data Sheets are available upon request.

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