

## 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, air-entraining admixture, 6 mm (¼ inch) stone and other carefully selected components.

### FEATURES & BENEFITS

- Air-entrainment provides superior resistance to freeze-thaw cycling and salt-scaling in the presence of de-icing salts.
- Designed with natural normal-density non-reactive fine and coarse aggregates to eliminate potential alkali-aggregate reactivity (AAR).
- 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 9001:2008 Certified Processes.

### USES

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

### 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).

#### 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".

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.

#### 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 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>		
<b>ASTM C 39</b>	2359 kg/m <sup>3</sup> (147 lb./ft <sup>3</sup> )	
<b>COMPRESSIVE STRENGTH*</b>		
<b>ASTM C 39</b>		
<b>1 Day</b>	15 MPa (2175 psi)	
<b>3 Day</b>	30 MPa (4350 psi)	
<b>7 Day</b>	35 MPa (5075 psi)	
<b>28 Day</b>	45 MPa (6525 psi)	
<b>FLEXURAL STRENGTH</b>		
<b>ASTM C 78</b>		
<b>7 Day</b>	5.7 MPa (825 psi)	
<b>28 Day</b>	6.6 MPa (955 psi)	
<b>AIR CONTENT</b>		
<b>ASTM C 457</b>	4.0 to 9.0%	
<b>MODULUS OF ELASTICITY</b>		
<b>ASTM C 469</b>		
<b>28 Day</b>	28.2 GPa	
<b>POISSON'S RATIO</b>		
<b>ASTM C 469</b>		
<b>28 Day</b>	0.24	

## FA-S6 CONCRETE

### BOND STRENGTH

<b>CSA A23.2-6B (MODIFIED)</b>	
28 Day	1.72 MPa (250 psi)*

### BOND STRENGTH BY SLANT SHEAR

<b>ASTM C 882</b>	
1 Day	8.3 MPa (1200 psi)
7 Day	15.9 MPa (2300 psi)

### UNIAXIAL DRYING SHRINKAGE

<b>ASTM C 157</b>	
3 Day	140 µm/m
28 Day	460 µm/m
60 Day	570 µm/m

### BOILED ABSORPTION

<b>ASTM C 642</b>	7.0%
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### MAXIMUM VOLUME OF PERMEABLE VOIDS

<b>ASTM C 642</b>	15.0%
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### FREEZE-THAW RESISTANCE

<b>ASTM C 666</b>	100%
	(Excellent durability factor)

### SALT-SCALING RESISTANCE

<b>ASTM C 672</b>	
50 cycles	0.25 kg/m <sup>2</sup> (0.05 lb./ft <sup>2</sup> )

### RAPID CHLORIDE PERMEABILITY

<b>ASTM C 1202</b>	1500 Coulombs
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\* Bond strength achieved from independent jobsite testing.  
Failure occurred in parent concrete.

### 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.

Warranty: 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. [REV.0002\_10/06/2014]

### YIELD

30 kg (66 lb.) bag contains approximately 0.014 m<sup>3</sup> (0.5 ft<sup>3</sup>).

### PACKAGING

FA-S6 Concrete is normally packaged in 30 kg (66 lb.) triple lined bags and polywrapped 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.

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