KignRep ® 60FL

Shrinkage compensated free flowing micro concrete.

DESCRIPTION

KingRep 60FL is a single component polymer modified repair system. KingRep 60FL is composed of a blend of dry powders and selected aggregates which when mixed with water produce a shrinkage compensated, self-compacting and free flowing micro-concrete suitable for large volume concrete repairs.

APPLICATIONS

Repair of all types of structural concrete elements such as walls, columns, beams and floors.

ADVANTAGES

- High initial and ultimate strength development.
- Very high flow, suitable for repair of steel congested areas.
- Shrinkage controlled polymer modified cementitious repair eliminates cracking.
- Easy to apply, single component, requires only addition of water.
- Extremely low permeability, providing excellent protection to steel reinforcements and host concrete.
- Self-compacting and self-priming, with high bond strength.
- Suitable for internal and external applications.
- No independent primer is required.

METHOD OF USE

Substrate Preparation

All damaged and weak concrete shall be cut back to reach sound concrete or to a minimum depth of application.

Corroded steel reinforcement should be grit blasted to remove all rust traces. Steel loss up to 25% of original section shall be compensated, where loss of section exceeds 25%, steel reinforcement shall be replaced.

Remove all concrete form around exposed steel reinforcements by 20 mm thickness. The perimeters of the repair area should be saw cut to a minimum depth of 10 mm. The prepared area should be cleaned thoroughly by brush and/or compressed air. A water tight formwork should be used to avoid material loss. Areas to be repaired with KingRep 60FL should be soaked with clean water for several hours before applying the KingRep system. All excess water should be removed.

TECHNICAL PROPERTIES @ 25^{0}C:

Colour:	Grey and white

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Compressive strength: BS EN 12390-3	KingRep 60FL		
	STD	90	100
@ 1 day	>27MPa	>35MPa	>40MPa
@ 3 days	>42MPa	>55MPa	>60MPa
@ 7 days	>52MPa	>65MPa	>70MPa
@ 28 days	>62MPa	>75MPa	>80MPa
Flexural strength: ASTM C348	KingRep 60FL		
	STD	90	100
@ 28 days	≥ 9MPa	≥11MPa	≥13MPa
Length change: ASTM C157	KingRep 60FL		
	STD	90	100
@ 56 days	upto 0.008%	upto 0.01%	Less than -0.02%
Working time:	20 – 25 min @ 20°C 12 – 17 min @ 35°C		
Setting time: EN 196-3 :			
Initial Final	6 – 7 hr @ 25°C 9 – 10 hr @ 25°C		
Water penetration: DIN1048	≤ 10 mm		
Mixing ratio:	**KingRep 60FL STD** 3.35 litre of water for 25 kg set of KingRep 60FL STD **KingRep 60FL90** 3 litre of water for 25 kg set of Cem- patch FL90 **KingRep 60FL100** 2.50 litre of water for 25 kg set of KingRep 60FL100		
Minimum application temperature:	5°C		

Note: KingRep 60FL is available in 3 ranges. Compressive strength results are evaluated by using 150 mm cubes.
Compressive strength and Flexural strength @ 1 day are under restrain.
Compressive strength and Flexural strength@ 7 & 28 days are under wet cure.

PRIMING

All grit blasted steel reinforcements should be primed within 2 - 4 hours with one or two coats of zinc rich epoxy coating Repcoat ZR.

Provided that the substrate has been thoroughly soaked with clean water, and is damp on application of product a primer is not normally required.

For concrete highly contaminated with soluble salts, it is recommended to use Quickmast 108, an epoxy bonding agent, which prevents migration of salts such as chloride ions and sulphate to the repair patch, as well as providing bond for KingRep 60FL to host concrete.

Mixing

To ensure proper mixing, a mechanically powered mixer or drill fitted with suitable paddle should be used. For KingRep 60FL standard (3.35), KingRep 60FL90 (3.0) litre of clean water should be added to clean container, and (2.5) litre for KingRep 60FL100.

The powder part is then added slowly to the water while mixing continuously, then the aggregate part shall be added while mixing continuously with low speed mixer/ drill (400 – 600 rpm). Mixing should be continued for 3 minutes until a uniform consistency is obtained.

PLACING AND FINISHING

KingRep 60FL should be poured in a single continuous operation, within 25 minutes of mixing. The mixed materials should be poured slowly to prevent air entrapment.

CURING

As KingRep 60FL is a cementitious based material, it should be cured in a similar method to concrete. Curing can be conducted by using a good concrete curing compound such as Setseal A.

CLEANING

All tools shall be cleaned immediately after application using fresh water. Hardened materials must be cleaned mechanically.

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PACKAGING

KingRep 60FL is available in 25 kg set of aggregate bag and powder bag as follows:

- KingRep 60FL STD: 6.75 kg aggregate + 18.25 powder.
- KingRep 60FL90: 6.75 kg aggregate + 18.25 powder.
- KingRep 60FL100: 10 kg aggregate + 15 powder.

THICKNESSES AND SIZE LIMITATIONS

KingRep 60FL can be applied in a single application for large repair voids at thicknesses greater than 50 mm and up to 200 mm for KingRep 60FL STD and FL90, while for FL100 it can reach up to 400 mm.

For large areas, KINGKRETE Technical Office should be consulted.

YIELD

KingRep 60FL STD: Approximately 12.5 litre per 25 kg set. (80 sets/m^3).
KingRep 60FL90: Approximately 12.0 litre per 25 kg set. (83 sets/m^3).
KingRep 60FL100: Approximately 11.5 litre per 25 kg set. (87 sets/m^3).

STORAGE

Shelf life is 1 year when stored under cover, out of direct sunlight and protected from extremes of temperature.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult KingKrete's Technical Services Department.

HEALTH AND SAFETY

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs. Treat splashes to eyes and skin immediately. If accidentally ingested, seek medical attention. Reseal containers after use. Use in well ventilated areas and avoid inhalation.

NOTE

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local KingKrete representative.

KingKrete Inc. reserves the right to have the true cause of any difficulty determined by accepted test methods.

QUALITY AND CARE

All products originating from KingKrete's manufacturing facilities are manufactured under a management system independently certified to conform to the requirements of the quality standard ISO 9001.

* Properties listed are based on laboratory-controlled tests.

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