



FIVE STAR PRODUCTS, INC.

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DESIGN-A-SPEC™ GUIDELINES FIVE STAR® R-60 RAPID SURFACE REPAIR

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PART A - GENERAL CONDITIONS – CRACK HEALER/SEALER REPAIR SYSTEM

1.01 SCOPE

The work covered by this document consists of furnishing all equipment, materials, labor and performing all operations required for the application of penetrating crack healer/sealer as directed by the engineer or DOT.

1.02 QUALITY ASSURANCE

- A. The manufacturer shall have been in the business of manufacturing similar products for over ten years, maintain a strict quality assurance program, offer technical services and provide a representative at the jobsite for product training, prior to product installation, upon written request.
- B. The contractor shall submit to the engineer or owner, at least three job references where the contractor has successfully completed similar applications.

1.03 DELIVERY, STORAGE AND HANDLING

- A. All materials shall be delivered to the jobsite in their original, unopened packages, clearly labeled with the manufacturer's identification, printed instructions and batch code.
- B. Store and condition the specified product in accordance with the appropriate product data sheet.
- C. For handling instructions, refer to the Material Safety Data Sheet.

1.04 PROJECT/SITE CONDITIONS

Refer to PART C - PREPARATION, ENVIRONMENTAL CONDITIONS, or contact the manufacturer directly for any physical or environmental limitations required by the product.

PART B - MATERIAL SPECIFICATION – CRACK HEALER/SEALER REPAIR SYSTEM**2.01 MATERIALS**

- A. The penetrating crack healer/sealer material shall be a two-component, fast-setting polyurethane hybrid that is traffic ready 10 minutes after placement. The manufacturer shall offer technical services and provide a representative at the jobsite for product training prior to product installation upon five days advance notice.
- B. The penetrating crack healer/sealer material shall provide the following typical properties at 73°F (23°C):

TYPICAL PROPERTIES AT 70°F (21°C)

| | |
|------------------------------------|---------------------------------|
| Mix Ratio | (1) Part A : (1) Part B |
| Viscosity @ 73°F | Part A: 12 cps / Part B: 16 cps |
| Specific Gravity | Part A: 1.11 / Part B: 1.03 |
| Cured | |
| Color | Black |
| Specific Gravity, ASTM D-792 | 1.06 |
| Hardness, Durometer D, ASTM D-2240 | 65 |
| Tensile Strength, ASTM D-412 | 4,500 psi |
| Compressive Strength, ASTM C-39 | 3,000 psi |
| Elongation at Break, ASTM D-412 | <10% |
| Bond Strength, ASTM C-882 | 1,500 psi |

The data shown above reflect typical results based on laboratory testing under controlled conditions. Reasonable variations from the data shown above may result in the field. Test methods are modified where applicable.

- C. An acceptable product which meets these criteria is:

Five Star® R-60 Rapid Surface Repair

As manufactured by Five Star Products, Inc., Fairfield, CT 06825 (203) 336-7900.

- D. Subject to meeting the performance criteria stated above, other products may be formally submitted to the engineer for approval up to three days prior to the bid date. All requests for approval shall contain certified test data verifying conformance with this specification. Three references of successfully completed projects of similar nature and scope of the work detailed in this specification shall be provided, as well as a minimum ten year history of use in the industry. The testing laboratory shall certify to any modifications made to the tests performed and provide details of modifications.

PART C – PREPARATION - CRACK HEALER/SEALER REPAIR SYSTEM

3.01 CONCRETE SURFACES

- A. Surfaces shall be clean, sound, rough and completely dry. Mechanically prepare all concrete surfaces to an ICRI Concrete Surface Profile (CSP) of 3 – 5. All existing coatings, dust, film, dirt, oils and debris must be completely removed. Concrete should be prepared via abrasive sand or shot blasting or similar means. For further details on Concrete Surface Profiles, refer to ICRI Technical Guidelines No. 03732 *Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays*.
- B. Concrete surfaces must be completely dry prior to use.
- C. All cracks and joints shall be blown free of all dust, debris and contaminants. Vacuum out cracks where necessary and apply heat or propane torch to ensure complete dryness of all surfaces.
- D. For overlay applications, cut keyway channels ½ inch wide by ½ inch deep every 6 to 9 inches with dry cut diamond blade saw.

3.02 ENVIRONMENTAL CONDITIONS

- A. Condition and maintain all materials to between 60°F and 85°F (15°C and 29°C). Condition all surfaces that contact coatings to between 20°F and 90°F (-3°C and 32°C) at time of application. Shade from direct sunlight as necessary.

3.03 EQUIPMENT AND MATERIALS

- A. Equipment recommended for application of Five Star® R-60 Rapid Surface Repair liquids must be capable of siphoning low viscosity liquids from containers through spur gear driven pumps. Both “A” and “B” liquids must be pumped in equal volumes at 1:1 ratio. Delivery hoses must be capable of handling liquid pressure up to 1,300 PSI to provide rapid flow through two 50 foot long ¼ inch delivery hoses. Liquids must remain separate through a static mixing nozzle connected at the end of the dispensing gun.

3.04 MIXING WITH THE FAST-CAT™ DISPENSING MIXER

- A. The process utilizes a low-pressure plural component pump to siphon “A” and “B” liquids from their containers. “A” and “B” liquids remain separate through pump, 50 foot hoses and out of the gun where they combine in a plastic mixing nozzle attached to the end of the gun. The mixed liquid is dispensed into the repair area, solidifying in one (1) to two (2) minutes, depending on width and depth of crack, and is ready for traffic in ten minutes, @70°F (21°C).
- B.
 1. Unscrew large wing nuts on pressure tank (ST-A) and remove tank lid.
 2. Fill tank liner approximately ¾ full with clean water.
 3. Add **small** amount of liquid dish soap (i.e. Joy, Palmolive, whatever your preference).
 4. Place lid on tank and hand tighten wing nuts equally to create air tight seal.
 5. Connect hoses (fittings will only allow one way to connect hoses from air compressor to tank and tank to air line and the water line leading to 3-way valve on top of gun. If not, call your FAST-CAT™ supplier for phone consultation.)

6. Connect hoses, at gun side, to elbows on either side of 3-way valve.
7. Connect FAST-CAT™ to power source (115V, AC outlet or portable generator).
8. Make sure MVE-01 is **closed** (MV7 knob pulled back to closed position).
9. Turn 3-way valve on top of gun right and left to determine which line is air only vs. soapy water (air and water will only come out one hole of gun).
10. Once familiar with operation of air and soapy water purge operation, return 3-way valve to center to stop flow of air and water.
11. With air/water valve off (pointing straight in center) begin your normal operation of equipment (priming pump and lines).
12. Now when purging material from plastic mixing nozzle, pull NV7 knob back to close valve, then turn 3-way valve to allow small amount of soapy water into nozzle, then turn 3-way valve the other direction to purge with air only. Repeat twice to “scrub” nozzle clean.
13. Allow air only to flow through nozzle for 30 to 60 seconds to dry mixing nozzle.
14. When ready to make another repair, close 3-way valve stopping air flow, push MV7 knob forward to open valve-gun and pour a small amount of liquid polymer through nozzle into waste bucket, then make repairs as usual.
15. Follow SHUT DOWN procedures when done using this machine.

PART D – APPLICATION - CRACK HEALER/SEALER REPAIR SYSTEM

4.01 PLACEMENT PROCEDURES: CRACK HEALER/SEALER

- A. Pour mixture onto surface and spread with a squeegee.
- B. Broadcast specified topping aggregate as per DOT or manufacturer’s requirements.

4.02 PLACEMENT

- A. Prime prepared concrete substrate with mixed Five Star® R-60 Rapid Surface Repair (use paint “chip” brush to coat substrate with Five Star® R-60 Rapid Surface Repair).
- B. While worker is priming repair areas with primer batch, second worker mixes Five Star® R-60 Rapid Surface Repair Components A and B for use as the mortar/grout batch together, stirring for 30 seconds (scraping sidewalls of mixing container).
- C. Add sand to Five Star® R-60 Rapid Surface Repair and blend to saturation. NOTE: Adding more sand to Five Star® R-60 Rapid Surface Repair will create a drier mix. Adding less will make the mix “wetter” and more pourable. Make sure Five Star® R-60 Rapid Surface Repair as primer is still wet on the repair area when applying the Five Star® R-60 Rapid Surface Repair “grout.”
- D. Top with traction aggregate.

PART E - FINISHING – CRACK HEALER/SEALER REPAIR SYSTEM

5.01 CLEAN UP

- A. Clean all tools and equipment immediately after use with MEK or similar solvent.