



Concrete Crack **Epoxy** Resin Injection Repair Guide

The information for waterproofing cracks in poured concrete has been compiled from several professional sources as recommended guidelines. Due to the variability in poured wall conditions, the selection of the proper material for the intended application and installation is the sole responsibility of the applicator.

REPAIR KIT CONTENTS

The Mar-flex kit includes all of the materials and accessories for low-pressure injection and repair of approximately 6-10 linear feet of cracks.

- 2 jars Mar-flex Crack Seal and Port Adhesive (1 jar 8 oz. Part A, 1 jar 8 oz. Part B)
- 2 wooden sticks
- 15 surface ports and caps
- 2 cartridges Mar-flex Injection Epoxy Resin
- 2 3/8x30 mixing nozzles (for use with Injection Resin)
- 1 injection hose assembly with white plastic shut-off valve
- Safety glasses
- 2 pair nitrile gloves
- 1 plastic trowel
- 1 wire brush
- 1 drop cloth
- Complete instructions & instructional CD
- Product Data Sheets & MSDS

TOOLS REQUIRED

- Standard caulking gun
- Paper plate or scrap cardboard for mixing Surface Seal and Port Adhesive.
- Clean used plastic bottle (soap, ketchup) filled 1-2 cups of water

CRACK PREPARATION

Place drop cloth on the floor in front of work area. Clean the surface surrounding the crack using the wire brush. Remove loose or flaking concrete, efflorescence, paint or coating to approximately 1-2 inches on either side of the crack. Wipe the surface clean of dust after brushing. The surface must be dry for proper installation of injection ports and surface seal. For best results if the surface is wet, wait a few days until dry or if necessary, use a hot air gun, hair drier, or oil free compressed air to dry.

SURFACE PORT PLACEMENT

Ports are placed apart the thickness of the concrete wall (usually about 8") centered over the crack, starting at a point closest to the floor (vertical cracks). Mark port locations on the wall.

SURFACE PORT ATTACHMENT AND SEALING OF THE CRACK

1. Prepare Crack Seal & Port Adhesive using separate wooden sticks to remove equal amounts of Parts A and Part B, about 1/3 of each jar. Sticks should not be shared between containers to prevent remaining material from hardening. Place equal amounts of adhesive on a scrap piece of cardboard and mix with the trowel (repeat this

step each time you run out of mixed adhesive). Remove the cap from the surface port then apply a small amount of mixed adhesive to the bottom of the port base. Place the first port starting at the bottom of the crack and repeat every 8" until the entire crack is ported. *NOTE! Do not allow epoxy to block the bottom of the port opening or the crack under it.*

2. The next step is to work the mixed surface seal epoxy paste along the entire length of the crack using the plastic trowel. The recommended epoxy paste application is 1/8" thick and 2" wide. Make sure to mound sufficient extra epoxy around the base of the ports. Expect to use 16 ounces, the total amount provided, for an 8-foot crack. Do not work the epoxy "into" the crack, just paste over the surface.
3. Let the surface seal and port adhesive cure before beginning injection, about 2-4 hours until fingernail hard. (Not recommended to wait overnight.)

INJECTION PROCEDURE

1. Flush the crack with 1-2 cups of water poured into the top port using plastic bottle or by filling the hose assembly several times. Water should come out of every port below the top port indicating that the crack is contiguous and that ports are not blocked by epoxy. Water is also necessary to flush the crack and aid in resin activation.
2. Place the Mar-flex Injection Resin cartridge in your caulking gun. Remove the plastic nut and pull to remove the plastic seal. Place the 3/8 X 24 mixing nozzle over the end of the cartridge attaching with the plastic nut.
3. Attach the flexible hose assembly (wide end) over the mixer tip by pushing firmly.
4. For vertical cracks attach the small end of the hose assembly into the lowest port by pressing firmly. For horizontal cracks begin at either end if one is not lower than the other.
5. Begin injecting slowly through the port with low pressure (allowing the resin time to flow into and fill all small fissures) until the resin begins to flow from the port above it. Use the white plastic pinch valve on the hose assembly to turn off resin flow, plugging the first port with the cap provided, and move up to the next port. Repeat this procedure until the entire crack has been injected with resin. *Note! The secret to effective crack injection is patient low-pressure introduction of the resin. Small or hairline cracks will require 3 - 4 minutes at each port for proper filling to take place.*

The ports can be removed by striking with a hammer after epoxy injection is set in about 24 or 48 hours. The surface seal epoxy is paintable if desired. Place all disposable items on drop cloth which is a garbage bag and dispose of properly.

PRODUCT DATA SHEET

Mar-flex

6866 Chrisman Lane, Middletown, OH 45042

www.Mar-flex.com

1-800-498-1411

Mar-flex Injection Epoxy

PRODUCT PRESENTATION

MAR-FLEX INJECTION EPOXY 1:1 LV is a two-component, 100% solid, moisture insensitive epoxy resin system which has a high modulus of elasticity. MAR-FLEX INJECTION EPOXY 1:1 LV is formulated to meet ASTM C-881 specifications. It is unique in that it rapidly thickens in the crack, even those less than 1/32 of an inch, so that material cannot leak out the back for more than 10-20 minutes (unlike conventional products which can flow out hours after injection). You can now confidently replace whatever may have leaked out in those twenty minutes knowing that no more can leak out, unless all the initial injection has leaked out the back of the crack within 20 minutes (unlikely to happen). This overcomes the most common epoxy crack repair failure, namely the incomplete injection of epoxy into a crack arising when material leaks out the back of a crack after injection.

USES

- A) Structural repair of cracked concrete by pressure injection, grouting.
- B) Monolithic restoration of delaminated concrete.
- C) Grouting material when mixed with aggregate.

SURFACE PREPARATION

All surfaces must be clean and free of dirt, dust, oil, grease or any contaminant that could adversely affect the bond of the surface seal. Surfaces must be structurally sound. Surfaces may be dry or damp. However, due to the many variables in bonding damp surfaces, be certain to make a test application under the same conditions as the full scale work.

APPLICATION

Injection Pressure: The material can be injected into cracks down to .002 inches with pressures ranging from 20 to 300 psi. Inject through plastic ports. Depending upon the depth of the slab, place them every 6" to 2' along the length of the crack. Wherever possible, seal all surfaces of the crack. When dealing with hydrostatic pressure, hydraulic cement should be used to control the water flow and seal the crack.

Begin injection of the mixed material with the lowest port or at one end of the crack. Continue pumping until resin flows from the next port. Then seal the first port and move onto the next one using the same procedure along the length of the crack.

Gravity: "Vee" out the cracks. Blow and clean out thoroughly with oil-free compressor air. Fill the cracks with RESIN. More than one application may be required.

TECHNICAL DATA

<u>PROPERTIES (UNCURED)</u>	<u>PART A</u>	<u>PART B</u>	<u>MIXED</u>
Viscosity, cps	200-400	300-600	Not Avail.
Shelf Life	1 year	1 year	
Pot Life: (50 gm)	—	—	10 min.
Tack Free Time (Thin Film)	—	—	1-3 hours
Final Cure (75% ultimate strength)	—	—	1-2 days

PHYSICAL PROPERTIES AFTER CURE OF 14 DAYS @ 75°F. AT 50% R.H.

Tensile Strength, psi	ASTM D-638	8500
Tensile Elongation	ASTM D-638 modified	2-4%
Compressive Strength, psi	ASTM D-695	12,000
Compressive Modulus, psi	ASTM D-695 (28 days)	500,000
Shear Strength, psi	ASTM D-732	5,100
Deflection temp: @ 264 psi	ASTM D-648	126°F
Bond Strength, psi	ASTM C-882	2,800

WARRANTY

Recommendations concerning the performance or use of this product are based upon independent test reports believed to be reliable. If the product is proven to be defective, at the option of the Manufacturer, it will be either replaced or the purchase price refunded. The Manufacturer will not be liable in excess of the purchase price. The user will be responsible for deciding if the product is suitable for his application and will assume all risk associated with the use of the product. This warranty is in lieu of any other warranty expressed or implied, including but not limited to an implied warranty of merchantability or an implied warranty of fitness for a particular use.

PRODUCT DATA SHEET

Mar-flex

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1-800-498-1411

Mar-flex Crack Seal and Port Adhesive

GENERAL DESCRIPTION

Mar-flex Crack Seal and Port Adhesive 1:1 is a high modulus epoxy gel designed for surface sealing of cracks prior to injection and for attaching surface ports. It can also be used for bonding miscellaneous materials to concrete.

AREAS OF APPLICATION

As with any epoxy adhesive, surface preparation is critical. Concrete surfaces should be cleaned by wire brushing or other mechanical means. All loose or unsound material must be removed. Surfaces should be dry and dust free to insure a superior bond. Application onto wet surfaces is not recommended.

CLEAN UP

Use M.E.K. Xylene, or any other solvent. Clean equipment immediately after use.

SAFETY PRECAUTIONS

This product can cause skin irritation. Always wear protective clothing. Wash contaminated area with soap and water never solvent. In case of eye contact, flush with water for 15 minutes; immediately see a physician.

TECHNICAL DATA

<u>PROPERTIES</u>	<u>PART A</u>	<u>PART B</u>	<u>MIXED</u>
Solids by Volume	100%	100%	_____
Color	White	Black	Grey
Shelf Life	2 year	2 year	_____
Weight by Gallon	9.9 - 10.1 lbs	9.9-10.1 lbs	9.9 - 10.1 lbs
Mix Ratio (Vol.)	_____	_____	1:1
Pot Life: (3 oz)	_____	_____	10-20 minutes
Gel Time (5 mil)	_____	_____	1- 2 hours
Final Cure	_____	_____	1 - 3 days
Viscosity	_____	_____	Non sag gel
Hardness (Shore)	_____	_____	80-D
Ultimate Pull Out Strength	_____	_____	18,000 lbs (Concrete Failure)

PHYSICAL PROPERTIES

Tensile Strength,	ASTM D - 638	6,000 psi
Tensile Elongation	ASTM D - 638	3-4%
Compressive Strength	ASTM D - 695	13,500 psi
Bond Strength	ASTM C - 321	2,400 psi
Flexural Strength	ASTM D -790	8,000 psi
Deflection temp	ASTM D - 648	190°F

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