

# JAHN M90 SMOOTH

- Horizontal Concrete Repair – HGS
- Vertical Concrete Repair – VGS
- Precast Repair

These single-component, cementitious, mineral based repair mortars are designed for the restoration of smooth precast. Since Jahn M90 Smooth is engineered for compatibility, there are two separate formulations – for horizontal and vertical applications. In this way, **M90 Smooth achieves a superior chemical bond to concrete substrates. M90 Smooth contains no latex or acrylic bonding agents or additives**, nor does it require the application of a bonding agent to achieve adhesion, so it remains vapor permeable. The mortar provides a healthy pH factor and strong resistance to carbonation, creating an environment that does not allow corrosion to begin. The material can be applied in a single layer build-up for faster application and reduced installation costs. M90 Smooth is not damaged by salt crystallization, even when heavy concentrations are present. M90 Smooth provides a durable repair able to withstand severe environmental conditions and repeated freeze-thaw cycles.

## Features and Benefits

- **Single-Component:** Mixes with water only, improving quality control and consistency of application.
- **Compatible Formulation:** Compatibility of physical properties ensures that the mortar and natural substrate react to the environment in the same way.
- **Contains No Latex or Acrylic Bonding Agents:** It protects the substrate by allowing salts, water vapor, and liquid water to reach the surface, preventing failure due to salt expansion or freeze/thaw cycles.
- **Tenacious Adhesion:** Strong bonding capabilities without relying on synthetic bonding agents.
- **Single Layer Build-Up:** Faster application and reduced installation costs.
- **Factory Controlled:** No field chemistry resulting in product variation.
- **Custom Colored Upon Request:** Closely matches existing masonry. Choose from Standard or Custom Colors.
- **Highly Resistant to Carbonation:** Superior long-term, reinforcing steel protection

## Application Procedures

### Surface Preparation

Surfaces to receive Jahn Mortar must be sound and free of all dust, dirt, grease, laitance and/or any other coating or foreign substance which may prevent proper adhesion. Remove all loose and deteriorated concrete from the repair area (minimum depth ½ ") using manual or pneumatic cutting techniques or mechanical abrasion

such as sandblasting, water blasting, shot blasting or chipping. The sides of the repair area should be square cut; incorrect installation will cause repairs to fail prematurely. Wash the prepared surface with clean water and a bristle brush to remove dust from the pores.



Section: Correct (*Square Cut*) Surface Preparation



Section: Incorrect (*Feathered Edge*) Surface Preparation

## Treatment of Reinforcing Steel

Cut out and replace all reinforcements whose structural integrity is in question, as directed by the Project Engineer. Structurally sound corroded reinforcing steel must be mechanically abraded to a white metal finish. Mechanical means, such as sandblasting, grinding or wire brushing are acceptable. Treat anchors with a protective coating to prevent rusting. Apply repair mortar only after coating is completely dry.

## Exposed Ferrous Metals

In the event that ferrous metal reinforcement (re-bar, threaded rod, etc.) is exposed within the repair area or repairs are adjacent to ferrous metal jambs, lintels, anchoring systems etc., a rust inhibitor must be applied to all properly prepared ferrous metal surfaces before repairs are made.

## Mixing

The mixing ratio is approximately 5 to 5 1/2 parts powder to 1 part water by volume, **depending on temperature and humidity**. Continue mixing until the mortar is thoroughly mixed and is the approximate consistency of damp sand.

M90 Smooth may also be mixed using a slow speed drill (400 - 600 rpm) equipped with a Jiffler-type mixing paddle. Bulk mixing may be achieved in a mortar-type mixer. For best results, add the powder to the water slowly. The working time will vary, depending upon wind, temperature, and humidity.

## Application

Moisten the substrate using clean water. Jahn Mortar should be applied to a glistening wet surface on vertical applications and to a dampened surface on horizontal applications (with no pooling water). **If the surface is allowed to dry out before applying M90 Smooth, this step must be repeated. This is important.**

The next step of the application is what CSP has termed the "Peanut Butter" coat. The Jahn mortar should be mixed with water to the consistency of wet putty. Apply the "Peanut Butter" coat to the glistening wet substrate approximately 1/8 inch thick. **Important – To achieve proper bond, the "Peanut Butter" coat must not dry out prior to application of Jahn Mortar (5:1) mix!**

When repairing horizontal surfaces using **M90 Smooth HG**, apply material flush to the surface and finish to a tight steel troweled finish, float, or broom to achieve a textured effect. When repairing vertical surfaces using **M90 Smooth VG**, build up material beyond the surface of the substrate. The waiting period before finishing will vary, depending upon wind, temperature, and humidity. After achieving initial set, scrape away excess mortar until the desired profile is reached.

M90 Smooth may be placed in deep applications using successive lifts. If a cement skin forms between applications (the surface will appear glossy), scrape away enough of the surface to remove the skin (about 1/16" of material). This will open the pores before an additional layer of material is applied. The surface should be moistened again before continuing the application.

### Curing

Periodically mist M90 Smooth repairs using clean water for at least a 72-hour period. The timing for initial misting will vary with ambient conditions. Hot, dry conditions may require misting in 30 to 60 minutes. Cooler, damp conditions may require waiting several hours before beginning the curing process. Mist several times a day. Should access to the repairs be impossible over a period of time, plastic may be used to cover them temporarily. The application of plastic, however, does not remove the need for normal curing techniques.

### Clean Up

Remove uncured mortar from the perimeter of the repair before it dries using clean water and a rubber sponge. **Repeat several times with clean water to prevent a halo effect** (staining of adjacent masonry). Cured mortar may only be removed chemically or mechanically.

### Safety Requirements

It is recommended that safety goggles, gloves, and a dust mask equipped with P-2 filters (or equivalent) be worn for protection while mixing.

### Limitations

- Do not apply Jahn Mortar to a frozen or exceedingly hot substrate. The applied mortar must be protected from extreme heat, freezing excessive wind, direct sunlight, and rain. Ambient temperature range should be 40° F to 90° F with low to average humidity.
- Do not add bonding agents to Jahn Mortar or use them as surface preparation materials.
- Minimum thickness of mortar application is 1/2"

### Packaging and Coverage

A 5-gallon plastic pail contains approx. 44 lb. of material. This will cover 0.5 cu. ft. (12 sq. ft. at 1/2" thickness).

### Storage And Shelf Life

Store material in a dry area away from direct sunlight. Ambient storage conditions should be in the range of 40° F to 90° F with low to average humidity. Average shelf life is six months in original, unopened packaging.

### Technical Data

#### Jahn M90 Smooth

<b>LIQUID/PLASTIC PHASE</b>	
Ratio water/dry material	2.3 to 3.0 fl. oz /lb.
Volume mixed mortar M70 in inches/3 per lb. Of dry material	12.0 fl. oz./lb. (approx)
<b>HARDENED PHASE</b>	
Compressive strength, wet	2300 to 3600 psi
Compressive strength, dry	2900 to 3400 psi
Tensile bending strength, wet	550 to 730 psi
Tensile bending strength, dry	490 to 520 psi
Tensile strength	145 to 290 psi
Linear coefficient of thermal expansion	5.6E-06 to 6.3E-06 in inches °F
Hydraulic coefficient of expansion%	0.076 to 0.089
Modulus of elasticity	1730 to 1860 ksi
Open porosity (%)	32.8 to 37.6
Water absorption (%)	16 (approx.)
Specific gravity	1.4

### Warning

Not for internal consumption. Keep out of reach of children and animals. Consult Material Safety Data Sheet (MSDS) for specific information.

**Notice:** The information contained herein is based on our own research and the research of others, and it is provided solely as a service to help users. It is believed to be accurate to the best of our knowledge. However, no guarantee of its accuracy can be made, and it is not intended to serve as the basis for determining this product's suitability in any particular situation. For this reason, purchasers are responsible to make their own tests and assume all risks associated with using this product.

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