

Jahn M90

• Horizontal Concrete Repair–HG • Vertical Concrete Repair–VG

These single-component, cementitious, mineral based repair mortars are designed for the restoration of concrete. Jahn M90 is engineered for compatibility and for two distinct formulations: (1) Horizontal application, and (2) Vertical/Overhead application. M90 achieves a superior chemical bond to concrete substrates. M90 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 is not damaged by salt crystallization, even when heavy concentrations are present. M90 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.
- Can be used to form and pour.

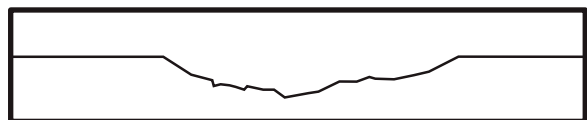
Application Procedures

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 1/2") 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.



Correct (Square Cut) Surface Preparation



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 4 to 5 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 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, 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

Build the material out beyond the surface of the original stone. After a period of time, the surface will be DTT (Dry To Touch/Tool). The best way to determine that the surface is DTT is to screed a small portion and turn the screeding tool over; if the screeded material easily falls off of the tool, the surface is DTT and ready. If the material sticks to the screeding tool, it is not ready.

The waiting period for scraping should be determined on the job, due to the effects of heat, humidity, and wind on the final color. This is characteristic of all mortars, and should be determined through samples applied on site. In hot weather the darker colors may require scraping within a short time, while in cold weather the wait time may be several hours.

When the surface is DTT, scrape away excess mortar until the desired profile is reached.

When repairing horizontal surfaces using M90 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 VG, build up material beyond the surface of the substrate.

M90 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.

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If anchors will be used, CSP recommends threaded stainless steel anchors set with Jahn M80 Anchor Setting Mortar.

Surface aggregate is acceptable. Follow specification instructions when mixing with aggregate.

Curing

Traditional Cure

Periodically mist mortar repairs using clean water for at least a 72-hour period. The timing for initial water misting will vary with ambient conditions. Hot, dry conditions may require misting within 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, temporarily cover repairs with plastic. The application of plastic, however, does not remove the need for normal curing techniques.

Self-Cure

No curing is necessary when masonry surface temperature is 85°F or lower. When working on surface temperatures above 85°F, follow the Traditional Cure procedures outlined above.

Salt/Efflorescence

Find detailed information at jahn.news/efflorescence



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 2 years in original, unopened packaging.

Technical Data

Jahn M90

LIQUID/PLASTIC PHASE	
Ratio water/dry material	2.3 to 2.6 fl. oz /lb.
Volume mixed mortar M90 in inches/3 per lb. of dry material	10.2 fl. oz./lb.
Specific Gravity	1.6
HARDENED PHASE	
Compressive strength	2500 to 3000 psi (+/-170)
Tensile bending strength	510 to 560 psi (+/-45)
Tensile strength	28 Days - 510 psi (+/-39)
Static Modules of Elasticity	28 Days - 2440 ksi (+/-69.5 ksi)
Dynamic Modules of Elasticity	28 Days - 2690 ksi (+/-54)
Adhesion	187 psi - (+/-71)
Open porosity (%)	26.6 (+/-34)
Porosity with Mercury (%)	31.5 (+/-1.13)
Specific gravity (approx.)	1.6 to 1.7
Shrinkage/swelling between RH 100% and 60%	0.4

Warning

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

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