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Technical Manual





READ THIS MANUAL CAREFULLY BEFORE USING MAGICRACK

Safety Goggles & Rubber Gloves must be worn during the operation.

Join the global community of satisfied contractors and homeowners who have harnessed the power of MAGICRACK for safe and effective demolitions. Adhering to instructions and wearing safety goggles is paramount for secure usage. While non-toxic, MAGICRACK demands caution as it's caustic and could result in severe eye injuries if mishandled during mixing or pouring.

The chemical reaction between MAGICRACK and water produces heat. If this reaction occurs too rapidly, the temperature may surpass the boiling point of water before complete chemical combination with MAGICRACK. This scenario can lead to a steam-driven explosion, forcefully ejecting MAGICRACK from the hole with sudden force.

To prevent blowouts, adhere strictly to the instructions regarding mixing, water temperatures, and the recommended hole sizes outlined in the chart. Always prioritize safety by wearing protective goggles and refrain from using drill holes larger than 60mm in diameter (32mm is recommended). Ensure to blow dust out of holes after drilling and keep MAGICRACK cool before use. Additionally, halt filling holes when MAGICRACK reaches approximately 30mm from the top.



HOLE DEPTH

Maximum Hole Depth: 8 meters.

Minimum Hole Depth: Ensure the depth is at least 4 times the hole diameter to prevent blowouts. For example, for a 25mm hole diameter, the depth should be a minimum of 100mm. Shallower holes are prone to blowouts.

Specific Guidelines:

- Reinforced Concrete: Drill 85% to 90% of its depth.
- Ledge: Drill to the desired depth for removal.
- Boulders: Drill 2/3 to 3/4 of the rock's thickness

HOLE PATTERN

Ensure Adequate Space: Drill holes to allow a free face for the MAGICRACK to exert pressure towards. For instance, drilling at a 45° angle on a flat ledge surface directs pressure upwards, while drilling straight down may limit pressure release.

Cone Shaped Pattern: To demolish a slab without pushing out surrounding walls, employ a cone-shaped pattern at the center. Start by filling these holes first, allowing the cone to pop upwards and create a free face.

Consider Variables: The hole pattern depends on factors like the material's tensile strength, presence of rebar, and desired fragment size. Experimentation often helps determine the most effective pattern.



Balancing Speed and Cost: For faster results, opt for more closely spaced holes. However, this may require more MAGICRACK, balancing the trade-off between speed and cost.

Adjust for Material Type: Boulders are easier to break than reinforced concrete or ledge, allowing for wider spaced drill holes, especially if breaking speed isn't a constraint.

Prevent Crack Spreading: When removing part of a slab, prevent crack propagation by drilling holes every 15cm in a line between the demolish and keep sections. Leave these holes empty to avoid unintended cracks.

Cost-Effective Strategies: Empty holes can be utilized to direct cracks, offering a cost-effective alternative to filled holes. For instance, to break a boulder into thirds, utilize empty holes strategically,









THESE INSTRUCTIONS ARE IMPERATIVE FOR ENSURING THE SAFE AND EFFECTIVE UTILIZATION UTILIZATION OF MAGICRACK.

Rock or Concrete Temp.	Water Temp.	Hole Size
-10° C to 4° C	30° C Maximum	32mm
5° C to 10° C	20° C Maximum	32mm
15° C to 25° C	COLD WATER	32MM
25° C ABOVE	COLD WATER	32MM

- MAGICRACK should be mixed with clean and cold water before use, maintaining a ratio of 1:3 of the overall weight. Start by adding the required volume of water (1.5 to 1.65 liters for every bag of 5kgs of MAGICRACK powder) into a container. Gradually add the MAGICRACK powder into the water while stirring continuously to achieve a smooth, lump-free slurry. If mixing by hand, ensure to wear rubber gloves for safety.
- When the temperature of the rock or concrete is above 20°C, it is recommended to add an additional 150g of water per 5kgs of MAGICRACK.
- Remember to always wear safety goggles when handling MAGICRACK



IMPORTANT NOTES ON TEMPERATURE

- Hole temperature can often be reduced by scheduling operations for late night or early morning hours
- When the temperature of the rock or concrete exceeds 25°C, it's important to avoid mixing MAGICRACK with warm water.
- When the temperature of the rock or concrete exceeds 25°C, refrain from mixing more than one bag of MAGICRACK (5kgs) at a time.
- Measure the rock or concrete temperature accurately DO NOT GUESS IT! Tie a string to a thermometer and drop it into the drill hole deeply.

MIXING MAGICRACK

- Thoroughly review this manual before utilizing MAGICRACK.
- Ensure safety goggles are worn and the area is cleared of unnecessary personnel.
- Use appropriate equipment to accurately measure the temperature of drill holes.
- Prepare clean water of the correct temperature, as indicated by the temperature chart, and add it to a plastic mixing bucket.
- Gradually pour one bag (5kgs) of MAGICRACK into the bucket of water while continuously mixing.
- Initiate mixing promptly using an electric drill with a mixing attachment or by hand with rubber gloves.
- Despite initial appearances, MAGICRACK may seem dry-refrain from adding more water.
- Once mixing begins, complete the process and fill the holes within 5 minutes. Avoid interruptions, as prolonged mixing increases the risk of blowouts.



- Swiftly fill the holes, avoiding plugging (horizontal holes may require capping) or placing heavy objects on them.
- Consider covering the holes with a tarp if individuals will remain in the vicinity for added safety.

FILLING HOLES

- Begin by cleaning the holes using an air hose to remove excess dust from drilling.
- Ensure that the SINO-CRACK slurry is poured into the holes within 5 minutes after mixing. Avoid filling the holes to the top; instead, fill them only to about 30mm from the top.
- Mix the slurry well and pour it into the holes while agitating the hole to ensure no air gaps are present. For example, use a piece of rod or stick to poke the holes.
- For horizontal holes, a grouting pump would be the most reliable option. Alternatively, insert a slightly smaller plastic pipe into the hole and fill the expansive mortar into the pipe slowly, withdrawing the pipe from the hole simultaneously. Quickly block the hole with a cap after filling.

USAGE NOTES

- Avoid filling glass or metal containers with MAGICRACK, or any container that widens towards the bottom.
- Never use a pump with MAGICRACK.
- Mixing by hand extends the mixing time and increases the likelihood of blowouts.
- When the rock or concrete exceeds 20°C, add an additional 150g of water per 5kgs of MAGICRACK.



- MAGICRACK may not be cost-effective for slabs less than 10cm thick; consider using a pavement breaker or hydraulic hammer unless noise is a concern.
- For ledge demolition, a combination of MAGICRACK (to produce cracks) and a hydraulic hammer may be the most cost-effective technique. In such cases, drill holes can be spaced out further.
- The preferred method for demolishing underwater rocks or concrete is to construct a cofferdam and pump out the area. While MAGICRACK can harden underwater within 15 to 20 minutes, satisfactory results are not always guaranteed.
- MAGICRACK must be used in drilled holes; pouring it into existing cracks in rock will not be effective.
- Ensure that everyone in the vicinity wears safety goggles at all times. Hard hats and steel-toed boots are advisable on construction or demolition sites.
- Note that the actual drill hole temperature may be significantly higher than the surrounding air temperature, especially when exposed to sunlight or nearby heat sources.
- Cold temperatures, hard rock, or holes spaced too far apart can prolong breaking times. If the desired breakage doesn't occur overnight, wait before reattempting, as MAGICRACK continues to increase pressure for up to 3 days.
- If MAGICRACK drops below freezing, the reaction will slow, but it will resume once it thaws.
- If mixed MAGICRACK begins to steam in the bucket, add more water, stir, and discard the mixture. Overmixing can lead to undesired results.
- Smoking or steaming filled holes may indicate a blowout risk. Clear the area immediately, although the vapors are harmless.
- Ensure that all personnel working with MAGICRACK understand the possibility of blowouts, have thoroughly reviewed this technical manual, and wear safety goggles.
- The strength of ledges, boulders, and concrete may vary. MAGICRACK can effectively break rock as long as there is a free surface for the rock to break towards.



WHAT CAN CAUSE A BLOWOUT?

- Using a hole diameter exceeding 60mm, which is the maximum recommended size (refer to the temperature chart).
- Employing water at a temperature beyond the specified range (refer to the temperature chart).
- Insufficient water ratio, especially when the rock or concrete temperature exceeds 25°C.
- Presence of excessive dry dust in the holes, which can absorb water from the mixed MAGICRACK.
- Allowing too much time to elapse between the start of mixing and filling the holes.
- Estimating drill hole temperature instead of measuring it accurately.
- Estimating water temperature instead of measuring it accurately.
- Drilling holes that are too shallow; the depth should be at least 4 times the diameter or more.
- Adopting a "know-it-all" attitude, leading some individuals to disregard this manual instead of thoroughly reading it cover to cover, which can increase the risk of accidents.

Remember to always wear safety goggles when working with MAGICRACK.

Avoid using drill hole diameters larger than 60mm,

as blowouts usually occur within 3 hours after filling the holes.



CONSULT THIS CHECKLIST BEFORE YOU MIX WITH MAGICRACK

- Are you wearing safety goggles during the operation?
- Is everyone nearby wearing goggles?
- What is the rock/concrete temperature?
- What is the drill hole diameter?
- What is the water temperature?
- Do you know how to measure 1 liter of water accurately?
- Have you measured extra water if the rock/concrete is above 25°C?
- Is the electric mixer or rubber gloves ready to go and operational?
- Has the MAGICRACK been kept cool?
- Have you thoroughly read this instruction booklet?





Providing that the diameter of the predrilled hole is 38mm, with a distance of 40cm between hole centers. This results in 9 holes in the vertical direction and 5 holes in the horizontal direction, totaling 14 holes for the cracking agent.

Each hole has a capacity of 1.9cm x 1.9cm x 3.14 x 200 cm, which equals 2,267 cm³. The standard consumption of MAGICRACK is 1.6 g/cm^3 .

Total consumption for one hole is calculated as 2267 x 1.6 = 3,627 g = 3.63 kg = 8 pounds. Thus, the total consumption for 14 holes is 3.63 kg x 14 = 50.82 kg, approximately 112 pounds.

The standard consumption for marble and soft granite is 50 kg - 8 M^3 - 6.25 kg/ M^3 .

Actual consumption may vary depending on the actual design of the holes, the hardness of the stone, and job-site conditions.