Krystol® Waterstop System

Installing and Waterproofing Crack Control Joints

DESCRIPTION:

Follow these instructions to install and waterproof crack control joints in concrete walls. The joint creates a plane of weakness, forcing cracks to form in selected locations instead of random locations. These instructions are compatible with two sided forms or one-sided (blind) form walls.

IMPORTANT: Cracking can be minimized though effective jointing, adequate reinforcement and good concrete practices. Design structures to relevant buildings codes, and have the project engineer review the control joint layout. See ACI 224R – Control of Cracking in Concrete Structures, for detailed guidance on how to minimize and control cracking.

Drawings, CAD Details and Specification Language: visit www.kryton.com/technical-info/ or contact your authorized Kryton representative.

LIMITATIONS

Not for use at expansion joints. The Krystol Waterstop System is effective for rigid structures only and may not reliably seal joints that experience variable loading or repeated movement. Not compatible with stay-in-place metal mesh formwork. Air and surface temperatures at the time of application must be at least 4°C (40°F).

SAFETY PERCAUTIONS

Read and follow the Safety Data Sheets (SDS) for these products (at www.Kryton.com). For professional use only. Krystol Waterstop Grout becomes highly caustic when mixed with water or perspiration. Avoid contact with skin or eyes. Avoid breathing dust. Wear long sleeves, safety goggles and impervious gloves.

STEP 1: DETERMINE JOINT SPACING

1. For best results, place a crack control joint at a spacing of no more than 4 meters (13 feet) for cast-in-place, or 3 meters (10 feet) for shotcrete.

NOTE: Place a joint within 3 m (10 feet) of corners on either side. Place an additional joint anywhere the concrete changes thickness or direction (beam intersections, box outs etc.).

STEP 2: INSTALL THE JOINTS

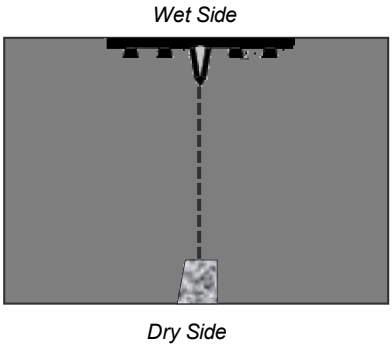
One Sided (Blind) Form Installation:

1. Install Kryton's PVC Crack Inducing Waterstop to the exterior concrete form (or shoring).
2. Install a tapered wooden strip to the interior concrete form, directly opposite the PVC waterstop. A suitable keyway can be formed from a dressed 2x2 by trimming one edge off at an angle to leave a narrow edge about 1.25 in. (40mm tapering to 30mm). For Shotcrete, insert the strip during shotcrete installation, or carve the keyway into the shotcrete before it hardens.

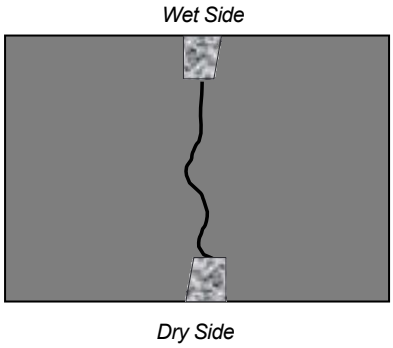
Two-Sided Form:

1. Install two keyways facing each other on both sides of the formwork.

One Sided (Blind) Form:



Two-Sided Form:



IMPORTANT: The control joint components must be directly across from each other. If they are offset, cracks may form outside of the keyways.

IMPORTANT: Some engineers allow every second horizontal reinforcing bar to be cut at the joint location. Do not cut any reinforcement unless approved by the project's structural engineer. If cutting reinforcement, secure both ends so they are not loose.

STEP 3: PLACE AND CONSOLIDATE CONCRETE

Place concrete over the joint as normal. To achieve a waterproof joint:

1. Remove debris and water from the joint before placing concrete.
2. Do not let form release oil contaminate the joint.
3. Remove form spreaders (if present) as the concrete is placed.
4. Place and vibrate concrete following ACI 309R - Guide for Consolidation of Concrete.
5. Place shotcrete using an ACI certified nozzle crew following ACI 506R – Guide to Shotcrete.
6. Cure following ACI 308.1 (Specification for Curing Concrete) taking measures to prevent rapid drying.

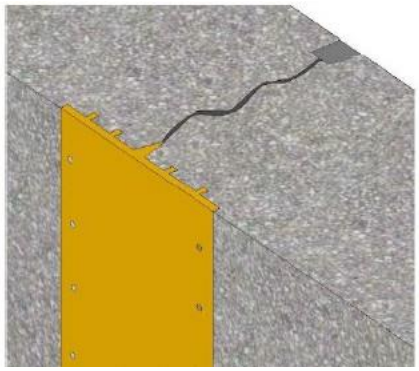
STEP 4: PREPARE THE KEYWAY

1. Remove keyway forms from the hardened concrete. Ensure no wood remains in the keyway. Inspect for rock pockets, or any part of the keyway that is filled with concrete but should not be. Chip these areas out using a sharp, flat chisel. Ensure edges are square and not feathered. Clean the keyway by high-pressure water blasting, or use a wire brush and rinse until very clean. Use a de-greaser if needed to remove form release agents.

STEP 7: INSTALL KRYSTOL WATERSTOP GROUT

NOTE: Install Krystol Waterstop Grout at any time, but for best results, wait 28 days or longer to allow concrete drying shrinkage to take place first.

IMPORTANT: Only proceed if the keyway is NOT leaking water. If it is leaking, stop the leak by installing 12 mm (0.5 inches) of Krystol Plug before finishing with Krystol Waterstop Grout.



1. Bring the concrete to a saturated surface-dry (SSD) condition. This means the concrete is saturated with water, but no free water remains at the surface. Thoroughly soak the surface with water; then remove excess water with a sponge just before applying Krystol Waterstop Grout.
2. Mix Krystol Waterstop Grout as follows: Slowly add powder to water while mixing (approximately 4.5 parts powder to 1 part clean water by volume) and mix thoroughly. The mixture may appear dry at first, but will become workable when fully mixed. The grout should be sag free and stiff enough to hold its shape, but still easy to handle and trowel. Mix only as much as you can place in 30 minutes. Tightly pack Krystol Waterstop Grout into the keyway so it is flush with the surface.

NOTE: After mixing, the material may stiffen in the pail. Do not add more water. Remixing will make the grout easy to work with again.

IMPORTANT: Protect the joint from rain, sun and wind until the grout hardens (approx. 1 hour at 20°C). Once hardened, protect from freezing for 24 hours, and keep damp and wet cure for at least 72 hours (7 days for potable water tanks).

COVERAGE

Material	Coverage
Krystol Waterstop Grout	One 25 kg (55 lb. pail) will yield approximately 13 liters (0.46 cubic feet) of grout. Approximate lineal coverage: Keyway Size: — Coverage per pail 25x25 mm (1x1 inches) — 21 m (68 feet) 25x40 mm (1x1.5 inches) — 14 m (46 feet) 40x40x30 mm (1.5x1.5x1.25 inches) — 10 m (33 feet) **Consult a Kryton Representative to determine the best keyway size for your project.**

TOOLS & MATERIALS

- Clean water supply
- Mixing bucket, drill and mortar paddle
- Water spray and towel/sponge
- Margin trowel
- High pressure water blaster
- Measuring cups
- Chipping hammer
- Keyway form
- Nail fastener (crack inducing waterstop)