Krystol® Waterstop System

Waterproofing Horizontal & Vertical Control Joints

DESCRIPTION

The Krystol Waterstop System is used to permanently waterproof concrete construction joints. It is installed in place of other less reliable joint systems and allows for flexible scheduling and easy inspection. The Krystol Waterstop System uses Krystol crystalline technology which reacts with water and un-hydrated cement particles to grow insoluble needle-shaped crystals that fill capillaries, micro cracks and pores of concrete to reduce permeability and stop water.

The following application instructions are used to create waterproof crack control joints in blind side applications that are subject to hydrostatic pressure, such as ground slabs and perimeter walls, using Krystol Waterstop Grout and Kryton's Crack Inducing Waterstop.

Drawings and Specifications:

For section drawings, CAD details and specification language related to this product, visit www.kryton.com/technical-info/ or contact your authorized Kryton representative.

LIMITATIONS

Krystol Waterstop System is effective for rigid structures only and may not reliably seal joints that experience variable loading or repeated movement. Consult a Kryton representative for project specific recommendations. Use typical cold weather practices if applying in cold climatic conditions. Installation during heavy rain must be avoided.

SAFETY PRECAUTIONS

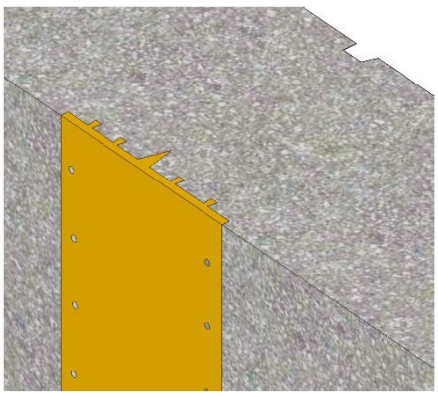
Read and follow the Safety Data Sheets (SDS) for these products (available at www.Kryton.com). For professional use only. These products become highly caustic when mixed with water or perspiration. Avoid contact with skin or eyes. Avoid breathing dust. Wear long sleeves, safety goggles and impervious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

STEP 1: CREATE A CRACK INDUCING PLANE OF WEAKNESS

Follow ACI Guideline 301 - Specifications for Structural Concrete for Buildings. For best results, place a crack control joint at a spacing of no more than twenty times the wall thickness.

Thickness	Joint Spacing
300 mm (12 in.)	6 m (20 ft.)
250 mm (10 in.)	5 m (16 ft.)
200 mm (8 in.)	4 m (13 ft.)

Note: Shotcrete walls require closer joint spacing. Consult your Kryton Representative.



1. Install a Kryton's Crack Inducing Waterstop to the exterior concrete form at the chosen crack control location.
2. Install a tapered wooden strip to the interior concrete form, directly opposite the waterstop. Note that for shotcrete applications this strip is to be inserted at the time the shotcrete is installed. 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).
   TIP: If both sides of the wall are accessible, you may choose to form keyways facing each other on both sides of the wall instead of using Kryton's Crack Inducing Waterstop.

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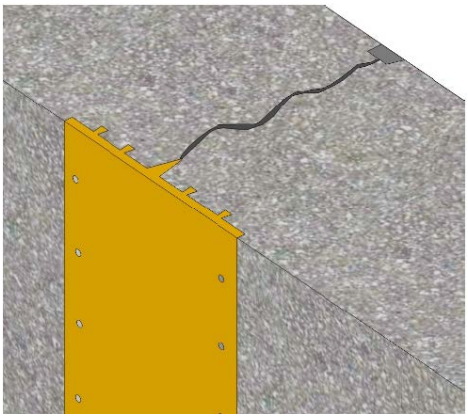
STEP 2: PLACE AND CONSOLIDATE CONCRETE

Place concrete over the joint using normal concrete practices, ensuring:

- Debris is removed from the joint prior to placing concrete.
- Form release oil does not contaminate the joint area.
- Form spreaders are removed as concrete is placed.
- Consolidation of concrete around the joint, which requires careful concrete placement and vibration, follow the procedures in ACI 309R (Guide for Consolidation of Concrete)
- Concrete forms are left on as long as possible.
- Shotcrete applications are placed by ACI certified nozzlemen following procedures in accordance with ACI 506R – Guide to Shotcrete.
- Curing is in accordance with ACI 308.1 and that proper measures are taken to prevent rapid drying.

STEP 3: INSTALL KRYSTOL WATERSTOP GROUT™



Only proceed if the keyway is NOT leaking water. If water is leaking through the keyway, stop flowing water with Krystol Plug before installing Krystol Waterstop Grout.

1. Krystol Waterstop Grout may be installed at any time, but for best results wait for concrete / shotcrete drying shrinkage to take place first.
2. Ensure that the concrete keyway is clean. Remove any form release agents, dirt or debris using mechanical abrasion and/or water blasting.
3. Bring concrete keyway to a saturated, surface-dry (SSD) condition. This means that the pores of the concrete are completely saturated with water but no free water remains at the surface. Thoroughly pre-soak the surface with water; then remove excess water with a sponge just before applying Krystol Waterstop Grout.
4. Mix Krystol Waterstop Grout as follows: Slowly add powder to water while mixing (approximately 4.5 parts powder to 1 part water by volume). Mix thoroughly once all powder is added to obtain a non-sag putty consistency. The mixture will appear dry at first, but with mixing will become smooth and workable. Mix only as much material as can be placed in 30 minutes.
   NOTE: Material left standing will quickly stiffen, but mixing will restore plasticity. Do not add water to the material once it has started to set. Over-watering will result in shrinkage cracking.
   IMPORTANT: Above mix ratio is approximate and intended only as a guide. Conditions may vary affecting the actual powder to water required. Adjust the powder and water content accordingly in order to obtain a consistency that is plastic, sag free and stiff enough to be formed into a ball and hold its shape.
5. Tightly pack the Krystol Waterstop Grout into the keyway so that it is flush with the surface.
6. Protect the Krystol Waterstop Grout application from damage by rain, rapid drying or freezing for at least 24 hours.
   IMPORTANT: Krystol products must be protected from rapid drying and kept damp to develop their full properties. Cover the Krystol Waterstop Grout with plastic sheeting or damp burlap to contain moisture. After the grout has hardened, mist the surface with water to maintain moisture levels for 48 hours.

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APPLICATION INSTRUCTION

Construction Joints & Details

4.14

SMART CONCRETE®

COVERAGE

Material	Coverage
Krystol Waterstop Grout	Approximately 7.5 m per 25 kg pail (25 ft. per 55 lb. pail)
Krystol Plug (If applicable)	Approximately 30 m per 25 kg pail (100 ft. per 55 lb. pail)
Kryton's Crack Inducing Waterstop	15.24 m (50 ft.) per roll

TOOLS & MATERIALS

- Clean water supply
- Mixing bucket, drill and mortar paddle
- Water spray and towel/sponge
- High pressure water blaster
- Measuring cups
- Keyway form

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