

WESTEC

INSTALLATION GUIDE

INTRODUCTION:

Sika's Westec Brand Waterstop has been the industry standard for chemically resistant waterstops for decades. These high performance products are manufactured at Sika's St. Louis facility. WESTEC TPER and PE waterstops meet or exceed the standards of the most stringent specifications and industrial applications.

Waterstops are for use in concrete joints subjected to hydrostatic pressure. Embedded in concrete, TPER and PE waterstops span the joint to form a continuous, fluid tight diaphragm that prevents the passage of fluid and chemicals. The waterstop must be designed and installed properly to accommodate joint expansion, contraction and other lateral and transverse movements. In addition to these considerations, the waterstop must also be compatible with the concrete system and the liquids or chemicals to be contained or controlled.

FORMING AND POSITIONING REQUIREMENTS

TPER and PE waterstops are installed prior to the initial concrete pour to ensure proper positioning. Split formwork is generally required for slab-to-slab, slab-to-wall, and wall-to-wall joints where ribbed style waterstops are used. Base seal (externally placed), style waterstops are installed in a different manner and are addressed in a separate installation guide. Split forms allow half of the waterstop to be positioned inside the first pour with the other half projecting into the second pour. The centerline of

the waterstop should be aligned with the center of

the joint (Image 1). Size and style of the waterstop determine permissible variation from the centerline. Contact a Sika Engineer for specific guidelines.

The split form should firmly hold the waterstop in position to prevent misalignment of the waterstop during concrete placement. A tight fit is also necessary to prevent excessive leakage of concrete paste, which could lead to honeycombing of the concrete.

The exposed flange of the waterstop must also be properly secured prior to concrete placement.

This is accomplished with grommets, which are be factory applied to the waterstop at the outermost rib on 12" centers. Tie wire is looped through the grommet and tied off to adjacent reinforcement (Image 2). This adequately secures the waterstop to prevent any displacement or "folding over" of the waterstop during the concrete pour. Never place nails or screws through the body of the waterstop. It is important to note the thicker waterstops are less likely to fold over. Thicker waterstops also reduce the potential for the grommets to tear out of the waterstop due to the stresses caused during concrete placement.



Note alignment of waterstop centerline with joint

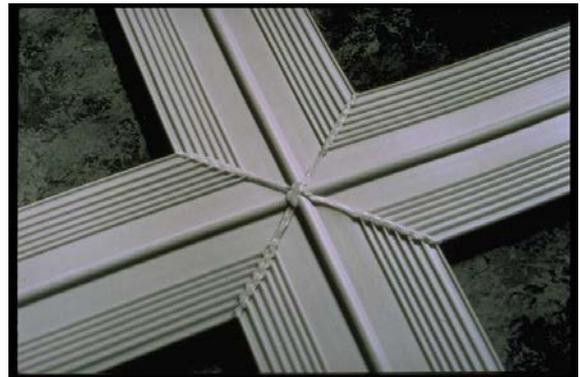


Stabilize waterstop using tie wire through pre-punched

SPLICING REQUIREMENTS

Continuity of the waterstop is critical for optimum performance. Poorly constructed fabrications and splices are prime locations for leaks. Lapping of the waterstop should never be permitted. Continuity of the waterstop profile, including ribs, dumbbells and center bulbs is also critical and should be maintained through changes of direction and transitions. Continuity is maintained at these locations by use of mitered welds. Mitered fabrications offer the additional benefit of longer weld lines resulting in stronger welds (figure 3 on reverse page).

Experience has shown that mitered fittings (such as “L”s, “T”s, and “X”s) are difficult to accomplish on site (See Image 3). Fittings require special tooling and custom equipment that can be expensive and difficult to work with in the field. Therefore, factory fabricated fittings are strongly recommended, leaving only straight butt splices for the field. In this way, the owner, engineer, and contractor can be assured of a high quality waterstop system. Splicing irons, fabrications, and accessories are available through SIKA’s network of distributors.



TPER and PE waterstop is easily butt spliced with a Teflon coated, thermostatically controlled splicing iron. The ends of the waterstop must be cut square to form matching edges. Uniformly melt the ends at roughly 410F° using the thermostatically controlled splicing iron. It is important to use an indirect source of heat for this procedure. Direct exposure to a flame will change the chemical composition of the material and result in a weak weld. When an 1/8” diameter melt bead develops on each waterstop end, remove the splicing iron and firmly press the two ends together in proper alignment. Hold until the material has fused and cooled. Allow the splice to cool naturally; do not quench. Melt temperature of the splicing iron must be maintained to avoid burning or charring the material. Heating irons have resistance type heating elements and experience diminished performance if a reduced voltage is supplied. Avoid operating with long runs of small gauge extension cords.

UNACCEPTABLE SPlicing DEFECTS INCLUDE:

- Tensile strength less than 60 percent of the parent section.
- Misalignment of centerbulb, ribs, and end bulbs greater than 1/16 inch.
- Bond failure at joint deeper than 1/16 inch or 15 percent of material thickness.
- Misalignment which reduces waterstop cross section more than 15 percent.
- Visible porosity in the weld.
- Bubbles or inadequate bonding.
- Visible signs of splice separation when a cooled splice is bent by hand at a sharp angle.
- Charred or burnt material



IMPORTANT PRECAUTIONS

Thoroughly consolidate the concrete around the waterstop to prevent voids or honeycombing next to the waterstop. Pay particular attention to the underside of horizontally placed waterstops. Intimate contact of the concrete and waterstop is necessary for full performance of a waterstop. Voids next to the waterstop can significantly reduce its performance. Furthermore, it is necessary to maintain adequate clearance between reinforcing steel and the waterstop, with typical clearance needing to be twice the maximum aggregate size. Inadequate clearance can promote the formation of voids due to aggregate bridging.

It is important to maintain continuity of the entire waterstop system. Splices must be properly completed at all changes of directions, transitions, intersections, and butt joints. Any breach in continuity can be a point of leakage.

Be sure that the waterstop is clean prior to the concrete pour. It is difficult to achieve a quality seal if the waterstop is greasy, dirty, or covered with concrete laitance. Protect installed waterstops from physical damage if the pour of concrete will be delayed more than 30 days.

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