



PRODUCT DATA SHEET

Edition 04.2013/v1
CSC Master Format™ 03 15 13
WATERSTOPS

Sika® Southern Metal PVC Waterstops

PVC WATERSTOPS TO SEAL CONSTRUCTION AND EXPANSION JOINTS IN CONCRETE STRUCTURES

Description	Sika® Southern Metal PVC Waterstops are the industry’s most comprehensive collection of waterstop products and solutions used to seal construction and expansion joints in concrete structures. Sika® Southern Metal PVC Waterstops are available in a number of different sizes, types, design and dimensions according to their use.
Where to Use	<ul style="list-style-type: none"> ▪ Used to seal construction and expansion joints in water retaining structures such as reservoirs, water towers, dams, spillways, canals, swimming pools, sewage tanks. ▪ Use to keep water out of concrete structures such as basements, underground car parks, tunnels, subways retaining walls etc.
Advantages	<ul style="list-style-type: none"> ▪ Multi-ribbed sections provide optimum sealing characteristics. ▪ High quality PVC for long durability. ▪ Manufactured by Sika from only prime resins and all virgin raw materials. ▪ Suitable for high water pressure. ▪ Great inherent elasticity. ▪ Heat weldable, avoiding flames and fixings. ▪ Factory-produced cross sections available. ▪ Suitable for above or below grade applications. ▪ Broad selection to accommodate design demands. ▪ Available in Artic Grade. ▪ Resistant to many waterborne chemicals. <ul style="list-style-type: none"> - permanent: water, seawater, sewage, road salt solutions. - temporary: diluted inorganic alkalis, mineral acids and mineral oils.
Standards & Results	<p>Independent laboratory tests are available for the following applicable standards:</p> <ul style="list-style-type: none"> ▪ Corps of Engineers CRD-C572-74 ▪ Bureau of Reclamation C902

Technical Data	
Packaging	Refer to Sika® Southern Metal Waterstops brochure
Colour	Off-white
Shelf Life	Store in unopened, undamaged and sealed original packaging, Store in dry conditions at temperatures not exceeding 30 °C (86 °F). Protect from UV light.
Properties at 23 °C (73 °F) and 50 % R.H. (unless otherwise specified)	
Specific Gravity ASTM D792	1.4 kg/L
Tensile Strength ASTM D638	> 13.8 MPa (2000 psi)
Ultimate Elongation ASTM D638	> 350 %
Stiffness in Flexure ASTM D747	> 4.85 MPa (700 psi)
Hardness Shore A ASTM D2240	80±3
Water Absorption ASTM D570	0.15 % Max.
Low Temperature ASTM D746	Pass
<i>brittleness @ -37°C (-35°F)</i>	
Tensile Strength After Accelerated extraction CRD C572	> 9.54 MPa (1600 psi)
Alkali Resistance CRD-C-572	
▪ weight change	.20 % +/-5 Pts.
▪ hardness change	
Tear Resistance ASTM D624	52.5kN/m (395 lb/in)

Product properties are typically averages, obtained under laboratory conditions. Reasonable variations can be expected on-site due to local factors, including environment, preparation, application, curing and test methods.

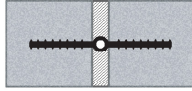
HOW TO USE

Application

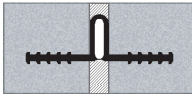
General Selection Criteria

The selection of a suitable waterstop is governed by the type of joint to be sealed, the grade of concrete and its thickness, the positioning of reinforcement, anticipated movement (expansion/shear) and the water pressure to which it is to be exposed.

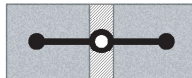
Selecting Waterstop Profile - Movement joints are typically designed to accommodate significant movement due to drying shrinkage, temperature changes, settlement, creep, or live load deflections. The waterstop profile selected must have the ability to accommodate anticipated joint movement, typically achieved through the use of a centre-bulb, tear web, or other suitable waterstop geometry designed to tolerate joint movement. Movement joints typically include contraction joints, expansion joints, and isolation joints. The following profiles are suitable for movement joints:



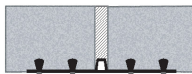
Ribbed with Centre-bulb profiles are the most versatile type of waterstops available. The centre-bulb accommodates lateral, transverse, and shear movement. Larger centre-bulbs will accommodate greater movement.



Tear Web profiles accommodate large movements. When joint movement occurs, the tear web ruptures and allows the U-bulb to deform without putting the material in tension.



Dumbbell with Centre-bulb profiles accommodate lateral, transverse, and shear movement. Larger centre-bulbs will accommodate greater movement. Consider using Ribbed with Centre-Bulb for better sealing characteristics.



Base Seal with Tear Web profiles accommodate lateral, transverse, and shear movement. Larger centre-bulbs will accommodate greater movement. Base Seal waterstops have some limitations with transitions and intersections.

Non-moving joints typically have 100% bonded steel reinforcement continuous through the joint, and subject the waterstop to negligible or no movement. Flat waterstop profiles without a centre-bulb or tear web are suitable for non-moving joints. Other waterstop materials may be considered for non-moving joints as well, such as strip-applied or injectable-hose waterstops. Examples of waterstop profiles suitable for non-moving joints are as follows:

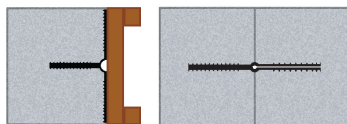


Flat Ribbed profiles are preferred for non-moving joints and provide the best sealing characteristics.

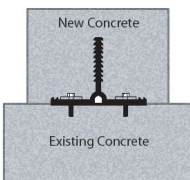


Dumbbell profiles are an alternate profile for non-moving joints. Consider ribbed shapes for better sealing characteristics.

Base Seal profiles are ideal for slab-on-grade joints or backfilled walls and are easy to form. Base Seal waterstops have some limitations with transitions and intersections.



Labyrinth profiles are primarily used in vertical joints. Labyrinth shapes create a keyed joint and do not require split bulkheads. Labyrinth can be difficult to use in horizontal joints and there are some limitations with transitions and intersections.



Split Flange profiles can simplify forming. The split flange is opened and attached to the bulkhead for placement of the first concrete element. After stripping the bulkhead, the flange is closed and anchored for placement of the adjoining element. Split waterstops are suitable for straight runs only. Transitions and intersections are not practical with these profiles.

Waterstops for Retrofit Applications seal joints where new construction meets an existing structure and can be suitable for moving joints. Systems include stainless steel batten bars and fasteners for anchoring to the existing structure with the aid of Sikadur® 31 Hi-Mod Gel^{CA}

PVC waterstops are installed prior to placing concrete to ensure proper positioning and concrete consolidation around the waterstop. The center-line of the waterstop should be aligned with the center of the joint. Size and style of the waterstop determine permissible variation from the center-line.

Split formwork is generally required for slab-to-slab, slab-to-wall, and wall-to-wall joints where ribbed or dumbbell style waterstops are used. The split form should firmly hold the waterstop in position to prevent misalignment during concrete placement. A tight fit between the waterstop and the form is also necessary to prevent leakage of concrete paste, which could lead to honeycombing of the concrete.

PVC waterstops must be properly secured prior to placing concrete. This is accomplished with factory-applied grommets or pre-punched holes, or field-applied 'hog' rings placed at 300 mm (12 in) centers between the two outermost ribs of the waterstop. Factory-applied grommets and pre-punched holes are not available for dumbbell style waterstop profiles. Alternatively, field-applied 'hog' rings can be punched into the dumbbells. Tie wire is looped through the hog ring, grommet or punched hole and tied off to adjacent reinforcement. This adequately secures the waterstop to prevent any displacement or "folding over" of the waterstop during the placing of concrete.

Please see Sika® Southern Metal Installation Guides for waterstops or contact Sika Canada for application information.

Limitations

- In cases of negative water pressure, external PVC waterstops cannot be used.
- Concrete voids adjacent to a waterstop can significantly compromise its water stopping ability.
- Always maintain adequate clearance between reinforcing steel and waterstops. Typical clearance should be twice the maximum aggregate size. Inadequate clearance can promote the formation of voids due to aggregate bridging.
- Waterstops should never be cut or modified to allow reinforcement to pass through the waterstop.
- Never place nails or screws through the body of the waterstop.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent SAFETY DATA SHEET containing physical, ecological, toxicological and other safety-related data.

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

The Information, and in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions, within their shelflife. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any recommendations, or from any other advice offered. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request or may be downloaded from our website at: www.sika.ca

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