Waterproofing

SMARTCARE PVC WATERSTOPS

Internally and Externally placed PVC Waterstops

Description

Smartcare PVC Waterstops are High grade PVC component extrusions that are plasticized and stabilized to offer long life performance in concrete structures against water leakages.

Uses

Smartcare PVC Waterstops are embedded in concrete, across the concrete joint, to obstruct the passage of water through the expansion, construction joints like:

- Basement Walls and Slabs
- Swimming pools
- Parking structures
- Water and sewage treatment facilities
- Canals, locks, dams, reservoirs
- Subway, vehicle and pedestrian tunnels
- Retaining walls etc.

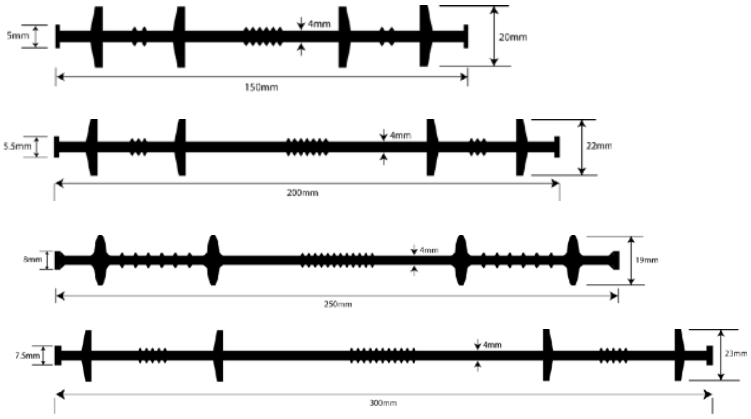
Characteristics

- High tensile strength and elongation
- Specific ribbed profile for effective water sealing performance
- Heat weldable
- Nontoxic, suitable for use in contact with potable water
- Excellent chemical resistance
- Prefabricated intersections\
- Brass eyelets on edge flanges for tying with steel reinforcements
- Non staining. Will not discolor concrete or produce electrolytic action.

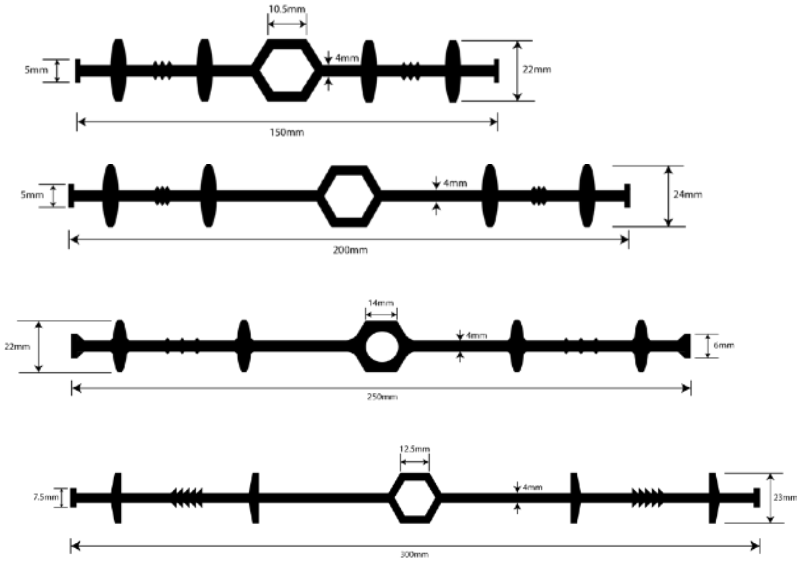
Physical Properties

PROPERTIES	VALUES	TEST STANDARDS
Colour	Blue	-
Width, [mm]	150, 200, 250	-
Length of roll [m]	12	-
Web thickness, [mm]	4,10	-
Specific gravity*	≥1.32	-
Tensile strength *[N/mm^2]	≥15	BS 2782
Elongation, [%]*	≥300	BS 2782
Shore A hardness*	800±5	ASTM D 2240
BS softness*	40-50	BS 2782
Resistance to water pressure (Hydrotatic Head)	No leakage	BS EN 12390 [PART 8]
250 mm profile	Up to 100 m	-
200 mm profile	Up to 50 m	-
Joint Movement	Up to 10 m	-
Water absorption*, [%]	< 0.2	ASTM D 570
Chemical resistance*	pH 2.5 to 11.5	ASTM D 543
Suitability with potable water*	Passes (non-toxic)	BS 6920
Standard compliance	BS 2571, CRD-C 572-74	-

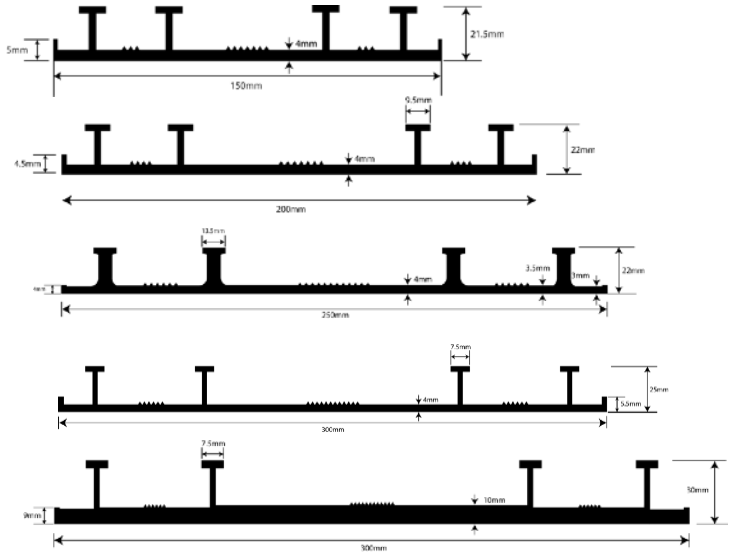
Our ICJ Range



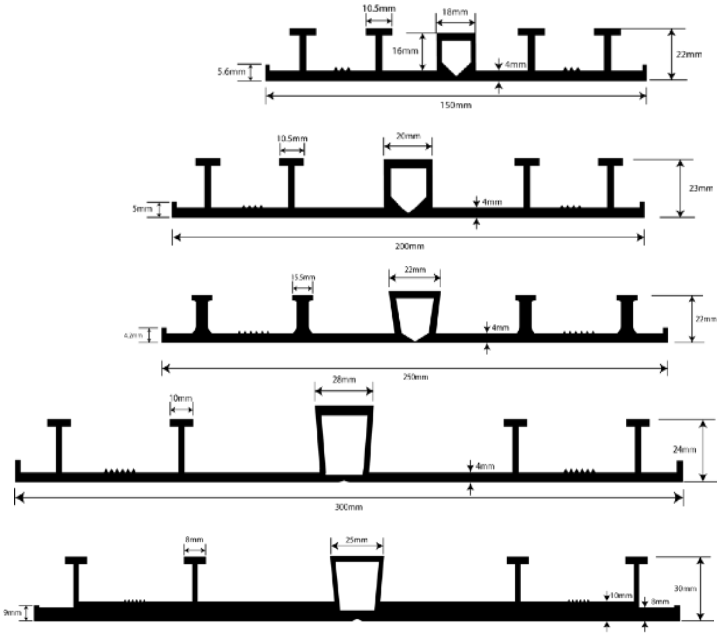
Our IEJ Range



Our ECJ Range



Our EEJ Range



Internal Construction Joint (ICJ) Waterstops: These Waterstops are placed in the center of the concrete construction joints. Since this type of waterstop is embedded into the concrete they are designed and incorporated with fins and multiple solid-core ribs along the two lengthwise edges. These fins interlock the waterstop in the concrete thus providing a superior mechanical bond with the concrete. The ribs are designed with angle with anchors with the concrete and further reinforces the mechanical bond.

Internal Expansion Joint (IEJ) Waterstops: These Waterstops are placed in the center/internal section of the concrete expansion joints. These have a central hollow bulb which is designed to allow the cyclical and differential movement in both lateral and transverse direction without excessively stretching the material.

External Construction Joints (ECJ) Waterstops: These Waterstops are used at joints of slab on grade or walls that gets backfilled on vertical walls. The profile of this is flat with multiple ribs and fins along its flanges for better mechanical bond or interlock in the concrete.

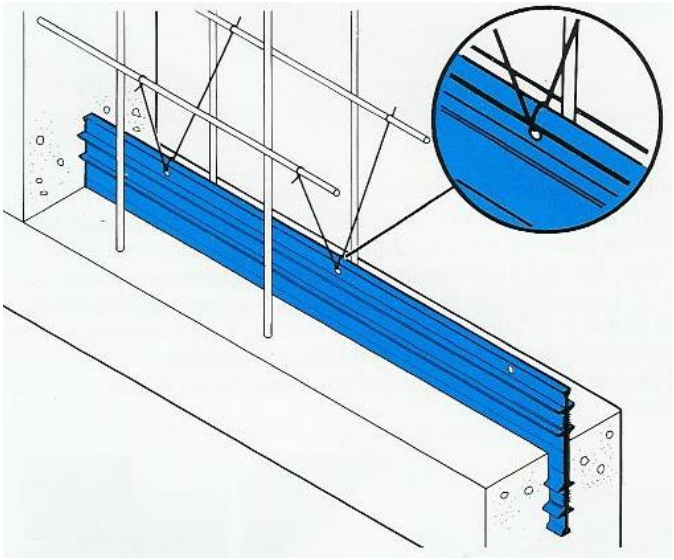
External Expansion Joints (EEJ) Waterstops: These

Waterstops are used in concrete expansion or isolation joints. These are designed with center bulb with a tear web. This type of waterstop is used where large movements are expected. Tear web keeps concrete out of the bulb during concrete placement. Upon joint movement, the thin tear web ruptures allowing substantial mechanical deformation of center bulb without stressing the material.

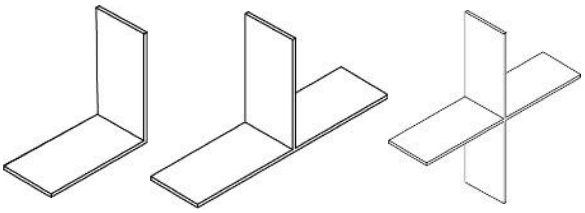
Fabricated joints

Ancillaries/ Tools	ICJ, IEJ, ECJ, EEJ (for Both Vertical & Horizontal	Pre-fabricated Junctions Vertical- L, T and X Horizontal- L, T and X
		Jointing jigs
		Welding knife 240v

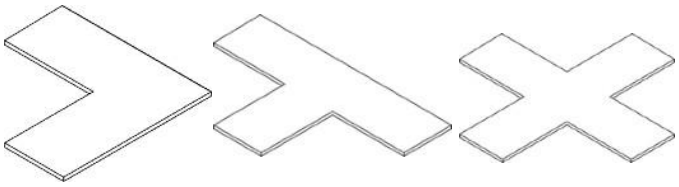
Example of Waterstop



Vertical L, T, and X:



Horizontal L, T, and X:



Application Instructions:

Fixing Internally:

These Waterstops are positioned internally and centrally within the concrete where the centerline of the Waterstops is aligned with the center of the joint. For a proper placement of the Waterstops, split formwork is recommended when installing slab-to-slab, slab-to-wall and wall-to-wall joints. The waterstop is then tied with wires through the eyelets provided at the end flanges, to the reinforcement. This will ensure that the waterstop is firmly held in position and is not misaligned or folded during concrete pour. One half of the waterstop has to be positioned within the first pour and the other half projects into the second pour. A tight fit between the waterstop and form is also necessary to prevent excessive leakage of concrete paste, which could lead to honeycombing of concrete.

Fixing Externally:

Externally placed Waterstops are installed prior to pouring of concrete. The external expansion joint profile is usually loosely laid on top of the compacted grade or mud-slab. The waterstop can neither be nailed or glued into position to avoid displacements during the concrete pour. The external construction joint (ECJ) profile is

then glued or nailed on the vertical shutter. The water-stop is so positioned that only the rubber side is embedded into the concrete.

Jointing:

A fully continuous water stop network must be formed throughout at bends and additional joints. Factory welded junctions are to be used when jointing with the placed Waterstops. Field butt splices shall be welded using an appropriate welding knife of voltage ranging between 220-240V. the edge o the waterstop shall be cut with a knife to get an even and sharp finish and aligned in a specially designed fixing jig. The edges shall then be positioned in the jig in such fashion that at least 25mm of water stop protrudes from the jig. Place the welding knife in between two ends, and when the PVC starts melting (>140°C), beads will start to form around the section. Remove the welding knife and press both ends firmly against each other to form a neat butt splice. Press the joints against each other for some time till the PVC cools and forms a strong fusion welded joint.

Precautions:

Concrete in and around the waterstop has to properly compacted in order to ensure a full contact of the waterstop and seal.

Surface of the waterstop shall be cleaned off all dirt and cement laitance which can affect the watertight seal within the concrete.

Clearance between the waterstop and reinforcement should be at least twice that of the maximum size of the aggregate. This will prevent void formation and honey combing.

The waterstop should not be punctured to allow a reinforcement to pass through.

Installed Waterstops should be protected from UV. prolonged exposure will make the waterstop brittle due to oil loss PVC

Storage and Shelf Life:

PVC Waterstops have a shelf life of 5 year from the date of manufacture. To maximize shelf life the product is to be stored in original, unopened undamaged seal packing in a dry environment, away from direct sunlight and rain. Storage environment should have minimum temperature between 10°C and maximum of 40°C. Exposure to extreme temperatures or high humidity, damaged packing and contamination may reduce the shelf life.

Tools/ Equipment:

Welding equipment

220V Electric Heater blades

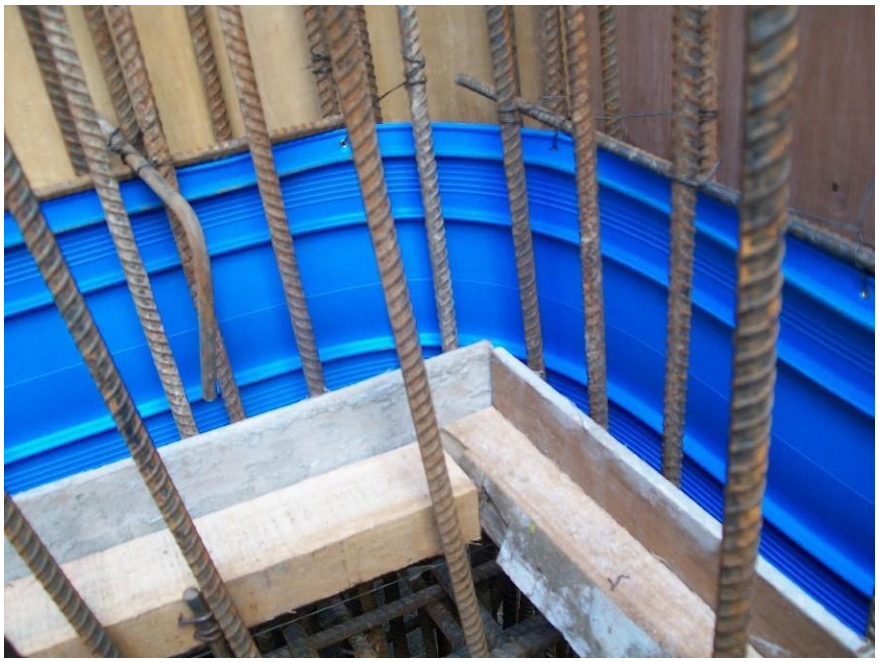
Jointing jigs

Gloves

Health and Safety:

Smartcare PVC Waterstops are non-flammable and non-hazardous material. Care should be taken when cutting and welding the joints together at site. Hydrogen chloride vapors are released during the welding process and therefore the installation should be done in a ventilated working area.

Site photo: credits-google



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