



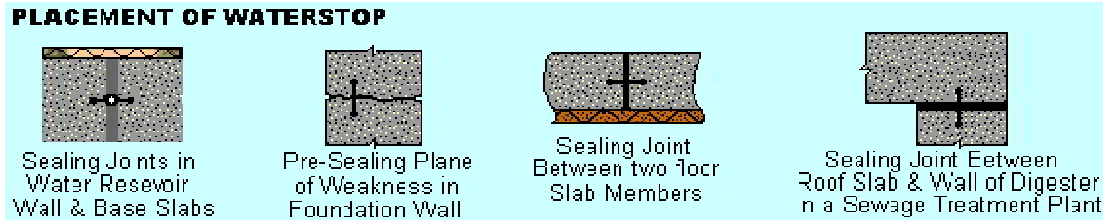
WATERSTOP

LT Rubber Manufacturing Sdn Bhd

Introduction

A Waterstop is usually a section of flexible waterproof material placed at any joint in concrete to prevent the passage of water.

Joints in concrete structures, one side of which is subject to hydrostatic load, are generally provided with Waterstops bridging the joints and embedded in the concrete on either side. In concrete joints where expansion and contraction cause the joints to close and open, the Waterstop must be designed to accommodate itself to movement.

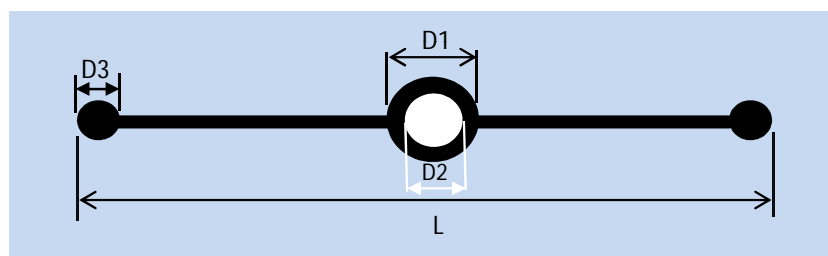


Application

Sewerage plants, water filtration plants, aqueducts, reservoirs, locks, tanks, channels, swimming pools, culverts, tunnels, under-passes, bridge decks and abutments, roofs, dams, foundations, mine shafts, retaining walls and any concrete structure requiring watertight joints.

Waterstops Profile

a) Centre Blub



i) Size

L, mm	D1, mm	D2, mm	D3, mm
305	35	20	20
230	30	17	18
150	25	15	16



Waterstops Profile (Continue)

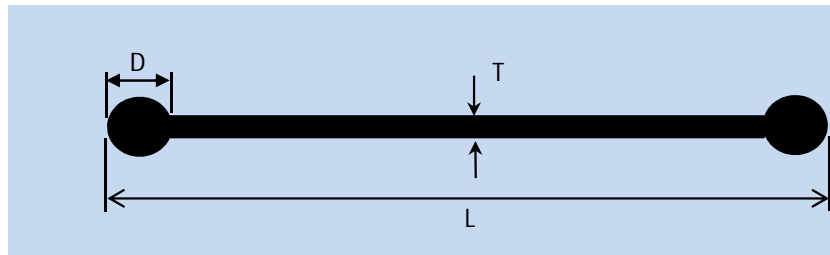
ii) Material

Neoprene (CR), Natural Rubber (NR), Thermoplastic Rubber (TPR)

iii) Application

Suitable for subsidence, contraction and expansion joints, including high movement high joints.

b) Plain Web / Dumbbell



i) Size

L, mm	D, mm	T, mm
230	25	9.5
150	19	9.5

ii) Material

Neoprene (CR), Natural Rubber (NR), Thermoplastic Rubber (TPR)

iii) Application

Suitable for construction, kicker and partial contraction joints where no shear movement is possible.



Waterstops Material

a) Rubber Waterstops(Neoprene(CR), Natural Rubber (NR))

The primary reason for specifying Rubber Waterstops rather than metal or PVC is their superior performance in withstanding shear movements and resisting hydrostatic pressure.

LTR's Rubber Waterstops will have ultimate elongation of 400% (ASTM D 412-75) and will continue returning to near original shape after repeated movement. They have very low compression set and perform well at low temperatures.

Natural Rubber (NR) is the industry standard and is used in most applications. Neoprene rubber is more expensive and is used where hostile environmental conditions are present and the Waterstop is exposed to continuous heavy concentrations of oil, gasoline, sewerage, ozone, ultra-violet rays or injurious chemicals. Special situations may require special materials and designs.

General Material Specification for Rubber Waterstops

PROPERTIES	REQUIREMENT
Unaged Hardness, IRHD Tensile Strength, Mpa Elongation at break, %	60 +/- 5 15 min. 400 min.
Ageing : 7 days in 70°C hot air Hardness change, IRHD Tensile Strength change, % Elongation at Break change, %	+10, -0 +/- 20 +/- 20
Compression Set 22 hrs at 70°C, %	30 max
Water Absorption Change in weight after immersion in distilled water for 18 hrs at 70°C, %	5 max
Ozone Resistance 5% Strain, 30°C, 24 hrs, 10 +/- 5 ppm ozone concentration, 5% R.H	No Cracking visible under x7 magnification



b) Thermoplastic Rubber (TPR) Waterstop

LTR's Thermoplastic Electrometric Rubber Waterstop (TPR) is used as a fluid-tight diagram, embedded in concrete, across and along the joint, for primary and secondary containment structures, (LTR) Chemical Resistance Waterstops are resistance to a wide range of oils, solvents, and aggressive chemicals. Alcohol, ketones, glycols, esters, and aqueous solutions of acids, salts and bases have titles effect on (LTR's TPR) Rubber Waterstop.

Unlike polyvinyl chloride (PVC) Waterstop, LTR's TPR Waterstop contains no plasticizer, stabilizer, or filler to leech out when exposed to chemicals, fuels, and aggressive industrial fluids. Also unlike (PVC) TPR Waterstop can withstand prolonged exposed to high and low temperatures (-78°F long term) without detrimental effect.

Typical applications

Potable Water, Desalination Water Treatment Plants, Refineries, Mining Facilities
Primary and Secondary Containment, Fueling Area, Chemical Plants,
Manure Pits, Waste Water Treatment Plants, Ozone Contractor structure &
Water Treatment

General Material Specification for TPR Waterstops

PROPERTIES	REQUIREMENT
Unaged Hardness, SHORE A Tensile Strength, Mpa Elongation at break, %	70 +/- 5 15 min. 350 min.
Ageing : 7 days at 70°C hot air Tensile Strength change, % Elongation at Break change, %	10 max. 10 max.
Water Absorption Change in weight after immersion in distilled water for 18 hrs at 70°C, %	10 max
Ozone Resistance 5% Strain, 30°C, 24 hrs, 10 +/- 5 pphm ozone concentration, 5% R.H	No Cracking visible under x7 magnification