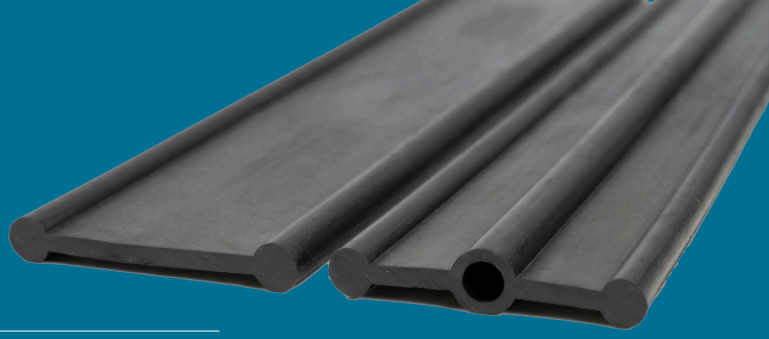
UNISTOP® NR

NATURAL RUBBER WATERSTOP



Product Features

UNISTOP® NR RUBBER WATERSTOP range is moulded from high-quality natural rubber compound, free from reclaimed or vulcanised waste. Natural rubber gives the waterstop high elasticity and elongation, so it can follow large joint movements and keep a watertight seal under water pressure.

UNISTOP® NR RUBBER WATERSTOP is designed to be cast into construction and expansion joints in concrete structures, forming an integral sealing system that prevents the passage of liquids under pressure. It is particularly suitable for water-retaining and water-excluding applications where high joint movement and water pressure are present.

UNISTOP® NR RUBBER WATERSTOP is available in a wide range of sizes and profiles to suit various project requirements. It is supplied in roll lengths, along with factory-moulded intersections that minimise on-site jointing and ensure installation is as simple and efficient as possible.

Advantages

High elongation at break: 680% (ASTM D412)
Tensile strength: 21.8 MPa (ASTM D412)
Low compression set: 16% after 24 hours at 70°C (ASTM D395)
Capable of withstanding high hydrostatic head and water pressure
Resistant to ageing, corrosion, acid, alkali and metal salts
Factory-made L, T and X intersections reduce site jointing
Six standard profiles: DB and CB in 150, 230 and 305 mm

Fields Of Application

Water Tanks & Reservoirs	Basement & Underground Car Parks
Water & Sewerage Treatment Plants	Tunnels & Subways
Dam, Culverts & Spillways	Retaining Walls
Swimming Pools	Roof Decks & Podium Areas
Bund Walls	Lift Pits & Service Pits

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Technical Properties

Property	Test Method	Result
Tensile Strength	ASTM D412	21.8 MPa
Elongation at Break	ASTM D412	680%
Immersion in Distilled Water [48 hours / 70°C]		
Change in Volume	ISO 1817 : 2015	1%
Density	ISO 2781 : 2018 [Method A]	1.12 g/cm³
Hardness (Shore A)	ASTM D2240	63
Compression Set [24 hours / 70°C]	ASTM D395 [Method B]	16%
Properties after accelerated ageing in air oven, 7 days at 70°C		
Change in Tensile Strength	ISO 188 : 2011	-3%
Change in Elongation at Break	ISO 188 : 2011	-11%
Change in Hardness (IRHD)	ISO 188 : 2011	-2

*Typical results from independent laboratory tests (2021–2022); test reports available on request.
Values subject to 5–10% tolerance.

Physical Properties

Material	:	Natural Rubber *(TPR also available upon request)
Colour	:	Black
Packaging	:	20m / roll (150mm width) 15m / roll (230mm width) 12m / roll (305mm width) *(custom length available upon request)
Roll Weight	:	Dependent upon profile

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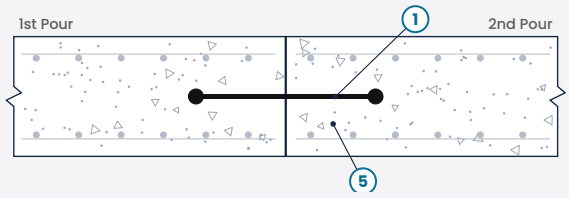
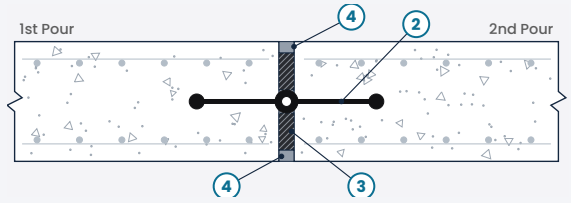
Typical Drawing & Profiles

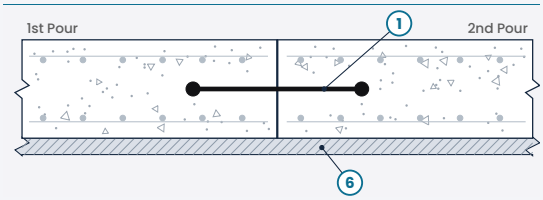
A CONSTRUCTION JOINT — Wall / susp. slab · NTS



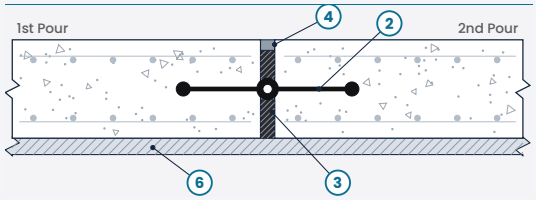
B EXPANSION JOINT — Wall / susp. slab · NTS



C CONSTRUCTION JOINT — Slab on ground · NTS



D EXPANSION JOINT — Slab on ground · NTS



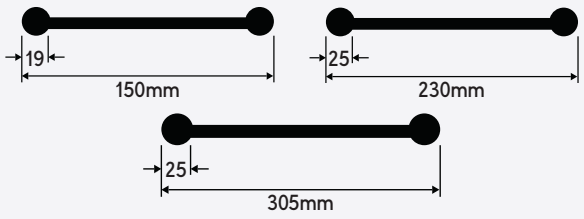
LEGEND & NOTES

1	UNISTOP® NR DB (Dumbbell) waterstop	4	UNISEAL® Joint Sealant
2	UNISTOP® NR CB (Centre Bulb) waterstop	5	Reinforced concrete (by others)
3	UNIFLEX® PE Fillerboard	6	Lean concrete blinding (by others)

All details not to scale.
DB at construction joints; CB at expansion joints, bulb in the gap.
Member thickness, joint width, sealant depth and reinforcement as per the project engineer.

1 UNISTOP® NR DB (DUMBBELL)

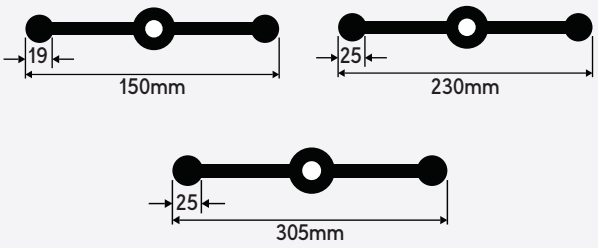
Dimensions in mm



- UNISTOP® NR 150DB (150mm)
- UNISTOP® NR 230DB (230mm)
- UNISTOP® NR 305DB (305mm)

2 UNISTOP® NR CB (CENTRE BULB)

Dimensions in mm



- UNISTOP® NR 150CB (150mm)
- UNISTOP® NR 230CB (230mm)
- UNISTOP® NR 305CB (305mm)

Illustrations only – not for construction. Refer to drawing UR-ST-05 and the project engineer.

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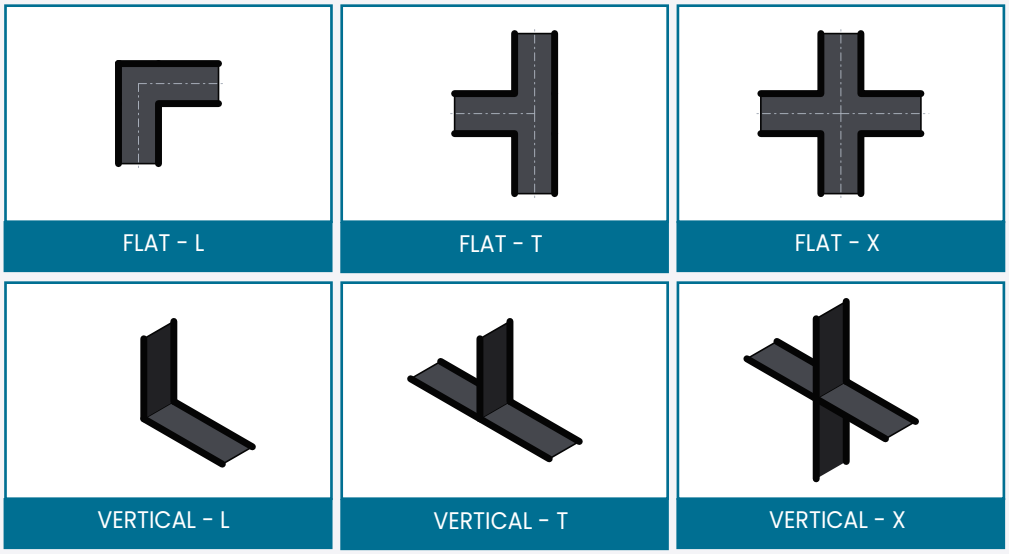
Factory Prefabricated Intersections



Jointing Accessories



HOT VULCANISING KIT

Vulcanising Mould	1 unit
Rubber Compound	5 kg
Rubber Solution	1 litre
Rubber Cleaner	1 tin
Wire Brush	1 pc



UNISTOP® COLD JOINT KIT

Rubber Jointing Strip	5 joints
Rubber Cleaner	1 tin
Rubber Glue	2 bottles
Wire Brush	1 pc
Paint Brush	1 pc
Cutter Knife	1 pc
Cotton Gloves	1 pair
Cleaning Cloth	1 pc

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Installation Procedures

1 Fixing | 2 Preparation | 3 Jointing (Hot Vulcanising Method) | 4 Jointing (Cold Vulcanising Method)

Step 1

FIXING

UNISTOP® NR DB or **UNISTOP® NR CB** internally placed waterstops are positioned within the concrete with the centreline of the waterstop aligned with the centre of the joint, and securely fixed in their correct position so they cannot move during concrete placement.

The formwork should be securely erected on both sides of the waterstop to clamp it in the middle during concrete placement. The concrete must be fully and properly compacted around the waterstop to ensure that no voids or porous areas remain. No holes shall be made through the waterstop.

To create expansion joints, cast one side of the concrete first, then securely fix **UNIFLEX® PE** (polyethylene fillerboard) to the concrete faces either side of the rubber waterstop centre bulb for the full depth of the joint, before casting the next piece of concrete directly against the **UNIFLEX® PE.**

Step 2

PREPARATION

Cut both ends of the rubber waterstop section to be joined as straight as possible using a sharp knife. Clean water may be used as a lubricant.

Wire-brush the ends and surfaces of the rubber waterstop within 75 mm of the joint until a suede-like finish is achieved.

Wipe the prepared areas with a clean cloth, then clean the rubber waterstop ends and surfaces using rubber cleaner applied with a paintbrush.

For the hot vulcanising method, once the rubber cleaner has dried, apply rubber solution to the rubber waterstop ends and prepared surfaces. Allow it to dry for approximately 5 minutes.

Step 3

JOINTING (HOT VULCANISING METHOD)

Preheat the hot vulcanising mould for approximately 30 minutes until the temperature reaches 130°C–150°C.

Prepare and cut the rubber compound into two pieces, each 50 mm wide and equal in length to the width of the rubber waterstop. Place one piece at each end of the joint and press firmly into position. Cut small pieces of rubber compound to approximately the size of the outer dumbbell section and press them firmly into position on the waterstop profile.

Prepare and cut a 75 mm wide section of rubber compound long enough to wrap around the rubber waterstop. Centre it over the joint and wrap it fully around the waterstop.

Place the rubber waterstop joint onto the bottom section of the hot vulcanising mould and securely clamp the upper section over it. Vulcanise for approximately 25–30 minutes.

After 25–30 minutes, unclamp and remove the rubber waterstop from the mould. Allow the joint to cool for approximately 20 minutes, then inspect its appearance and workmanship before installation.

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Step 4

JOINTING (COLD VULCANISING METHOD)

Use the **UNISTOP® COLD JOINT KIT**. Prepare the joint as in Step 2, then allow the rubber cleaner to dry completely. Joint surfaces must be clean and fully dry before rubber glue is applied.

Apply rubber glue to both waterstop ends and to the prepared surfaces on both faces of the joint. Allow it to dry for approximately 5 minutes until touch-dry.

Press the two waterstop ends firmly together, keeping the profiles aligned.

Remove the foil backing from the rubber jointing strip. Centre the strip over the joint across the width of the waterstop and press firmly from the centre towards the edges to avoid trapping air. Repeat on the other face of the waterstop.

Inspect the joint to ensure the jointing strip is fully bonded, with no lifted edges, air pockets or gaps. Remake any defective joint. Allow the bonded joint to set undisturbed before handling. Refer to the **UNISTOP® COLD JOINT KIT** TDS for kit contents and health & safety.

Site Photos





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