

Waterstop &
Waterproofing System

UNISTOP®

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UNISTOP® PVC

POLYVINYL CHLORIDE WATERSTOP



Product Features

UNISTOP® PVC WATERSTOP range is manufactured by extruding high-grade polyvinyl chloride (PVC) resin, which is specially plasticized and stabilised to provide long-term performance and reliable protection against water leakage in concrete structures.

UNISTOP® PVC WATERSTOP is designed to be cast into construction and expansion joints to prevent the passage of liquids under pressure. Its specially designed profile creates a tortuous path, restricting liquids from travelling across the joint and penetrating the concrete structure.

UNISTOP® PVC WATERSTOP is available in a wide range of sizes and profiles to suit various project requirements. It is supplied in roll lengths with factory-produced intersections to minimise on-site heat jointing and can be selected according to the structure and application.

UNISTOP ICJ	Internally placed waterstop for Construction Joints
UNISTOP IEJ	Internally placed waterstop for Expansion Joints
UNISTOP ECJ	Externally placed waterstop for Construction Joints
UNISTOP EEJ	Externally placed waterstop for Expansion Joints

SUITABLE FOR DRINKING WATER CONTACT
Tested to MS 1583 and cytotoxicity test · SPAN approved

Advantages

- High-grade PVC for long-term durability and integrity
- Alternative sizes and profiles to suit all requirements
- Internal profiles come with brass eyelets on edge flanges for tying with steel reinforcements
- Prefabricated intersections to minimise on-site heat jointing
- Resistant to sea water, salt solution, potable and sewage water

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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UNITY RELIANCE

Technical Properties

Property	Test Method	Required Specification	Result
Hardness, Shore A	BS EN ISO 868	75 – 80	77
Water Absorption	BS EN ISO 62	< 0.15%	0.10%
Specific Gravity	BS EN ISO 1183-1	1.30 ± 0.05	1.335
Tensile Strength	ASTM D412	> 12.2 N/mm^2	15.6 N/mm^2
Elongation at Break	ASTM D412	> 300%	361 %

*Typical results from independent laboratory tests on the PVC compound (2025); test report available on request. Values subject to 5–10% tolerance.

Physical Properties

Material	:	Polyvinyl Chloride (PVC) *(TPR also available upon request)
Colour	:	Blue *(Other colours available upon request)
Packaging		20m / roll (150mm width) 15m / roll (200mm width) 12m / roll (250mm width) 15m / roll (320mm width)
Roll Weight	:	Dependent upon profile

Profiles And Width Selection Guideline

As a general rule, use a 250 mm wide waterstop for concrete walls or slabs 250 mm thick and above. For thicknesses below 250 mm, use the 150 mm or 200 mm profile, selecting the width closest to the wall or slab thickness.

UNISTOP® ICJ or **UNISTOP® IEJ** internally placed waterstops are typically used at wall joints in water-retaining structures, as well as roof, podium deck and wall joints in water-excluding structures.

UNISTOP® ECJ or **UNISTOP® EEJ** externally placed waterstops are generally used where positive water pressure acts directly on the waterstop, particularly in water-excluding structures such as basements and tunnels. They can also be used at base slab joints in water-retaining structures.

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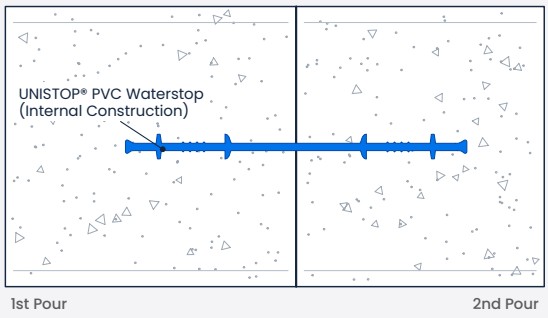
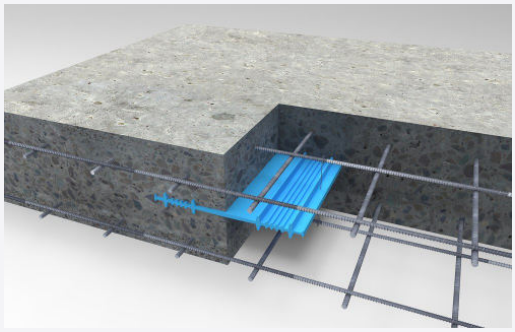
Typical Drawing & Profiles

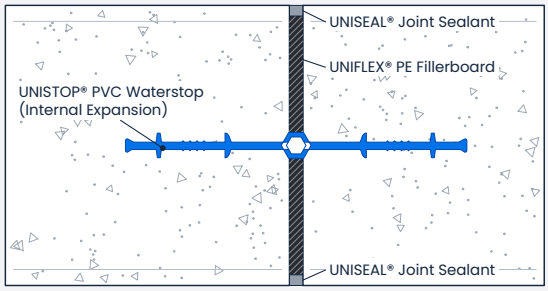
UNISTOP® ICJ (Internal Construction Joint)

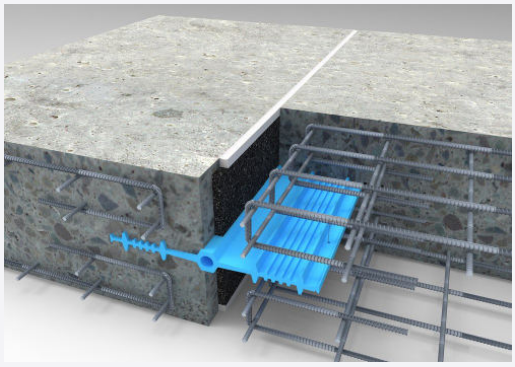




- ICJ 150 (150mm width)
- ICJ 200 (200mm width)
- ICJ 250 (250mm width)
- ICJ 320 (320mm width)

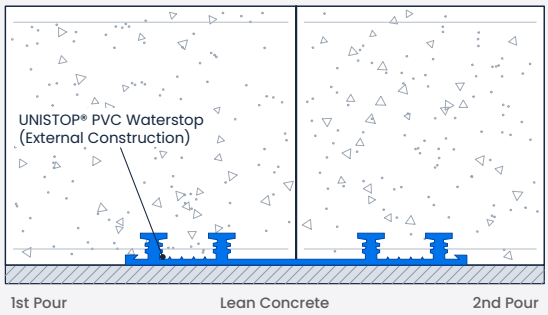
UNISTOP® IEJ (Internal Expansion Joint)

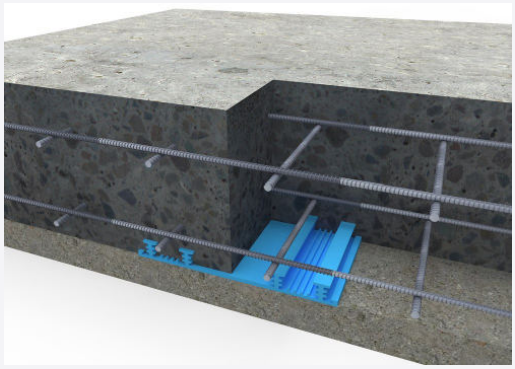




- IEJ 150 (150mm width)
- IEJ 200 (200mm width)
- IEJ 250 (250mm width)
- IEJ 320 (320mm width)

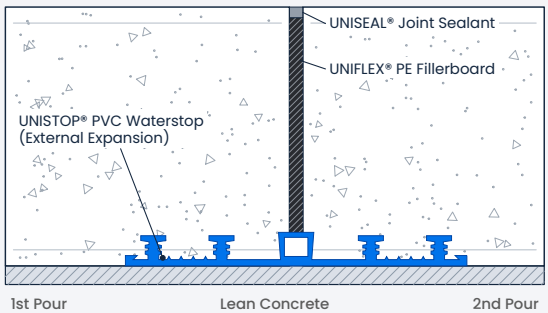
UNISTOP® ECJ (External Construction Joint)

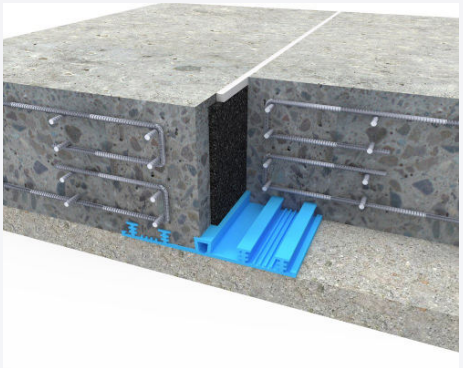




- ECJ 150 (150mm width)
- ECJ 200 (200mm width)
- ECJ 250 (250mm width)
- ECJ 320 (320mm width)

UNISTOP® EEJ (External Expansion Joint)





- EEJ 150 (150mm width)
- EEJ 200 (200mm width)
- EEJ 250 (250mm width)
- EEJ 320 (320mm width)

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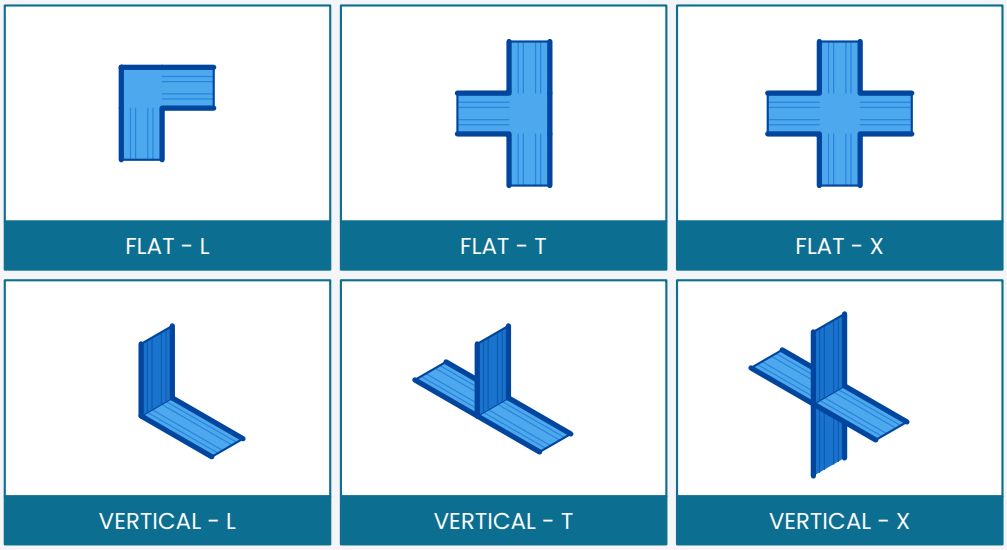
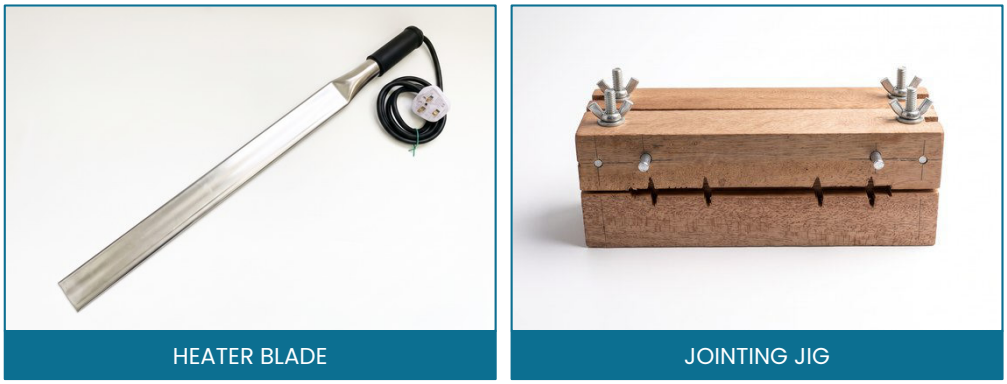
Factory Prefabricated Intersections



Jointing Accessories



Site Photos



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Installation Procedures

1 Preparation | 2 Jointing | 3 Fixing Internally | 4 Fixing Externally

Step 1
PREPARATION

Long-term durability and performance can only be achieved through proper preparation and application, ensuring a continuous waterstop network throughout the structure. Ensure the surfaces where the PVC waterstop is to be placed are clean and free from sharp projections. Unroll the waterstop along the line of the joint and cut it to the required length, allowing for intersections.

Step 2
JOINTING

UNISTOP® PVC WATERSTOP rolls and prefabricated intersections must be hot welded together with a suitable jig and electric heater blade before the waterstop is fixed in place. Use the jig that matches the profile and width of the waterstop.

Cut the waterstop edge with a knife to an even, square finish and align it in the jointing jig with at least 25 mm protruding. Place the heater blade between the PVC ends and close the jigs so both ends touch the blade. Turn on the heater blade to melt the PVC on both sides; when beads form, remove the blade and press the ends firmly together to form a neat butt splice. Hold the joint until the PVC cools into a strong fusion-welded joint.

Step 3
FIXING INTERNALLY

UNISTOP® ICJ or **UNISTOP® IEJ** internally placed waterstops are positioned with their centreline on the centre of the joint and secured with wire tied to the reinforcement through the edge-flange eyelets. Erect the formwork securely on both sides to clamp the waterstop in the middle of the concrete section.

For expansion joints, cast one side first, then fix **UNIFLEX® PE** fillerboard to the concrete face on either side of the centre bulb, for the full joint depth, before casting the next pour against it.

Step 4
FIXING EXTERNALLY

UNISTOP® ECJ or **UNISTOP® EEJ** externally placed waterstops are laid on the compacted grade or lean concrete. The stop-end formwork is fixed on top, and the waterstop is nailed through its outer reinforced web to the formwork so it cannot be displaced during the pour.

For expansion joints, cast one side first, then fix **UNIFLEX® PE** fillerboard to the concrete face above the centre bulb, for the full joint depth, before casting the next pour against it.

For all profiles, fix the waterstop securely so it cannot move during the pour, and compact the concrete fully around it with no voids or honeycombs.

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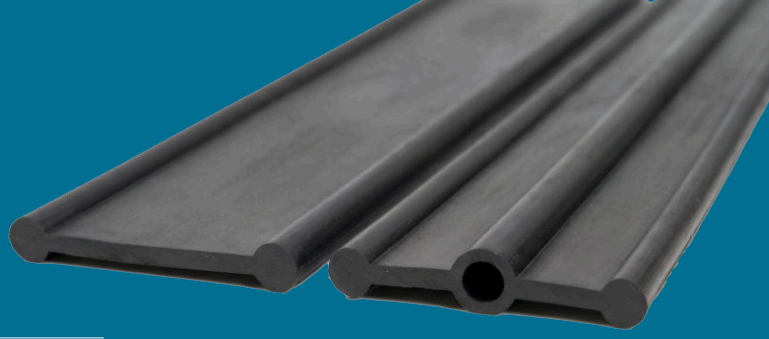
UNISTOP® TPR

THERMO RUBBER WATERSTOP



Product Features

UNISTOP® TPR Thermo Rubber Waterstop range is manufactured by extrusion using a specially formulated blend of high-quality polyvinyl chloride (PVC) and rubber compounds. It is produced without the use of reclaimed or vulcanised waste, ensuring consistent quality and performance. The material is designed to provide excellent flexibility, durability, and movement accommodation in concrete structures.

UNISTOP® TPR Thermo Rubber Waterstop is designed to be cast into construction and expansion joints as an integral sealing system to prevent the passage of liquids under pressure, particularly in water-retaining and water-excluding structures subject to high movement and water pressure. Its flexible properties allow it to accommodate joint movement while maintaining a reliable watertight seal, making it suitable for a wide range of demanding concrete applications.

Advantages

Easy install and on-site welding
Thermoplastic material that welds without vulcanising
Prefabricated intersections to minimise on-site heat jointing
Capable of withstanding high hydrostatic head and water pressure
Resistant to ageing, corrosion, weather, acid, alkali and metal salts
Superior long-term durability
Reliable watertight sealing

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	Unit Measurement	Result
Tensile Strength	ASTM D 638	MPa	> 20
Elongation at Break	ASTM D 638	%	> 400
Hardness	BS EN ISO 868	SHORE A	80 ± 5
Specific Gravity	BS EN ISO 1183-1	–	1.30 ± 0.05
Water Absorption, 23°C	BS EN ISO 62	%	< 0.5

*Values based on independent laboratory tests (2025); test report available on request.

Physical Properties

Material	:	Polyvinyl Chloride (PVC) & Rubber
Colour	:	Black
Packaging	:	20m / roll (150mm width) 15m / roll (230mm width) 15m / roll (305mm width) *packing other than the above can be manufactured on request*
Melting Temperature	:	180–200 °C

Site Photos





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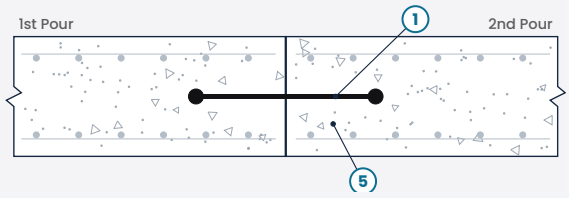
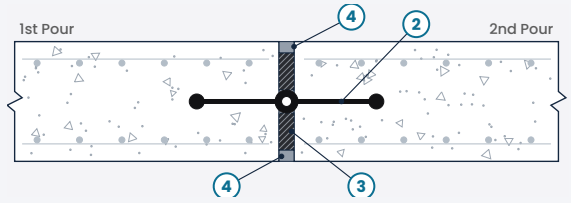
Typical Drawing & Profiles

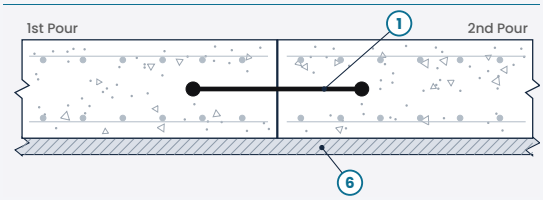
A CONSTRUCTION JOINT — Wall / susp. slab · NTS



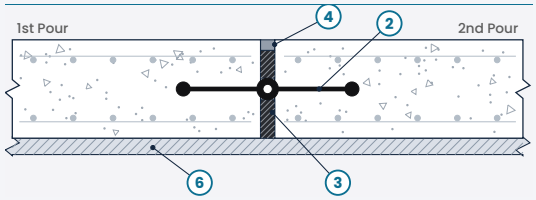
B EXPANSION JOINT — Wall / susp. slab · NTS



C CONSTRUCTION JOINT — Slab on ground · NTS



D EXPANSION JOINT — Slab on ground · NTS

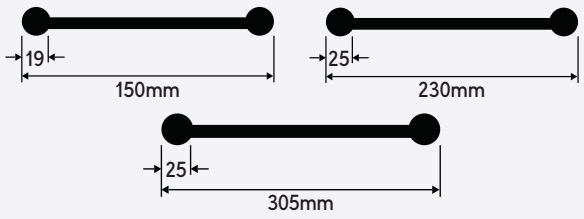


LEGEND & NOTES

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

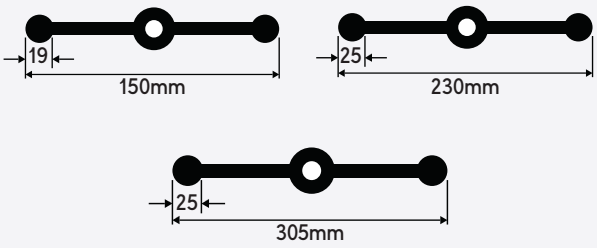
All details not to scale.
DB at construction joints; CB at expansion joints, bulb in the gap.
Member thickness, joint width, sealant depth and reinforcement as per the project engineer.

1 UNISTOP® TPR DB (DUMBBELL) — Dimensions in mm



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

2 UNISTOP® TPR CB (CENTRE BULB) — Dimensions in mm



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

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

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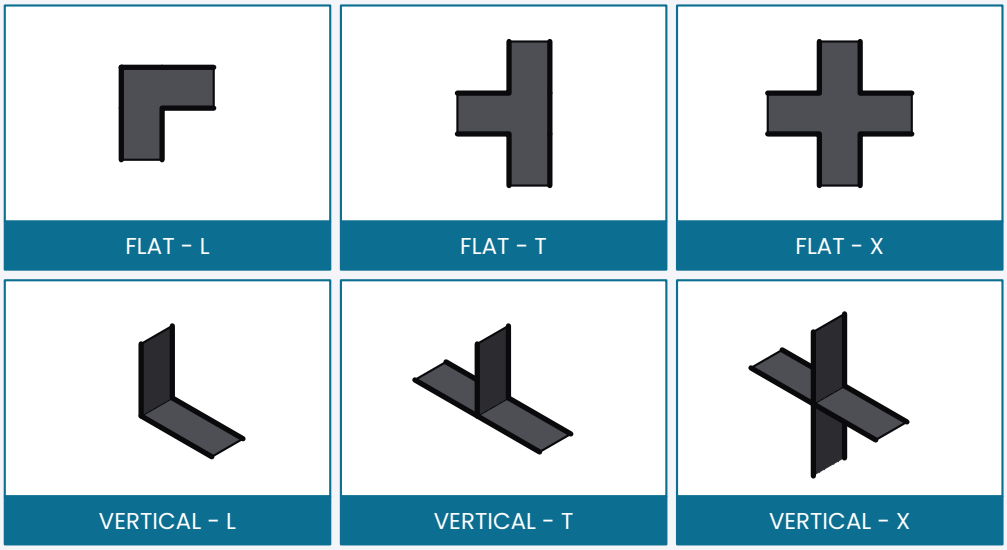
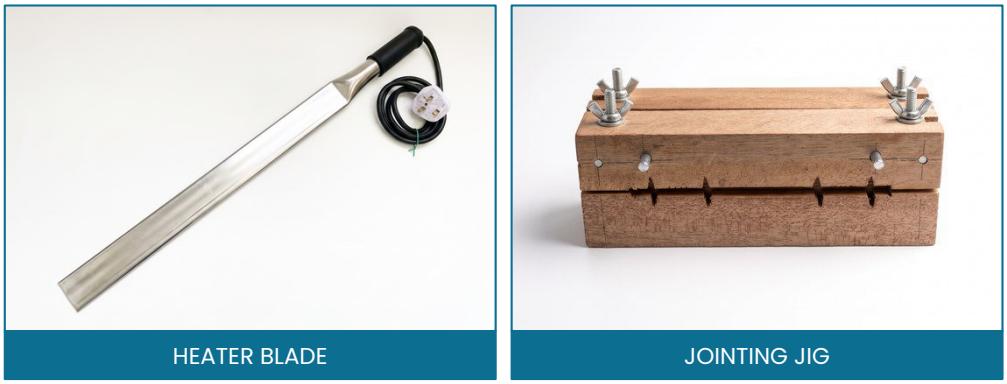
Factory Prefabricated Intersections



Jointing Accessories



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Installation Procedures

1 Preparation | 2 Jointing | 3 Fixing | 4 Expansion Joints

Step 1
PREPARATION

Long-term durability and performance can only be achieved through proper preparation and installation, to ensure a continuous waterstop network throughout the structure.

Ensure that the surfaces where the waterstop is to be placed are clean and free from sharp projections.

Unroll the waterstop along the line of the joint and cut it to the required length, allowing for intersections as necessary. Use **UNISTOP® TPR DB** at construction joints and **UNISTOP® TPR CB** at expansion joints.

Step 2
JOINTING

UNISTOP® TPR is made from a PVC and rubber blend, so it can be heat-welded on site. Use factory-fabricated L, T and X intersection pieces at all junctions and changes of direction, and limit site welding to straight butt joints.

Cut both ends to be joined straight and square, and make sure they are clean and dry.

Heat both ends at the same time on an electric heater blade at approximately 180 °C until the material melts. Do not burn or char the ends. Remove the heater blade and immediately press the molten ends firmly together, keeping the profiles aligned. Hold them in place until the joint has cooled.

Once cooled, inspect the joint. It must be continuous across the full width of the profile, free of gaps, irregular cut edges and dirt.

Step 3
FIXING

Position the waterstop centrally across the joint, with its centreline (the centre bulb on **UNISTOP® TPR CB**) aligned with the centreline of the joint, and fix it securely so that it cannot move during concrete placement.

Erect split formwork securely on both sides of the waterstop, clamping it at its centre. The outer edges of the waterstop may be tied to the reinforcement with tie wire. Do not drive nails or make holes through the waterstop.

Compact the concrete fully around the waterstop so that no voids or honeycombing remain.

Step 4
EXPANSION JOINTS

At expansion joints, the centre bulb of **UNISTOP® TPR CB** must not be cast into the concrete; it must remain exposed within the joint gap.

Cast the concrete on one side first. Then fix **UNIFLEX® PE** fillerboard securely to the concrete face on either side of the waterstop centre bulb, for the full depth of the joint, and cast the next section of concrete directly against the **UNIFLEX® PE**.

Seal the joint surface with **UNISEAL®** joint sealant as shown in the typical drawings.

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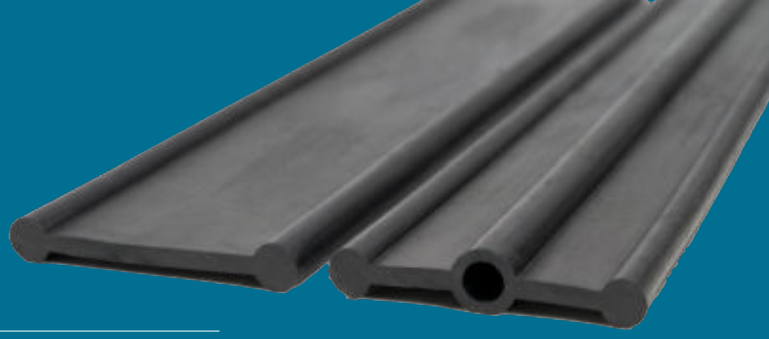
UNISTOP® NR

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
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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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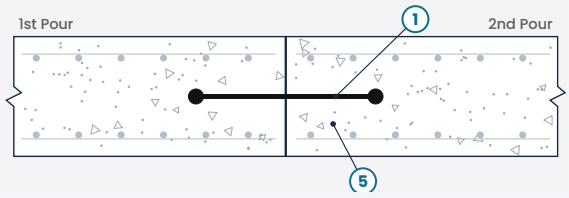
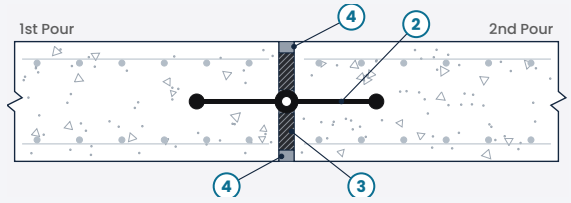
Typical Drawing & Profiles

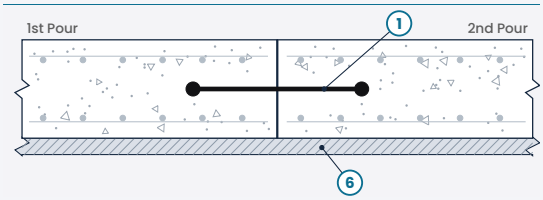
A CONSTRUCTION JOINT — Wall / susp. slab · NTS



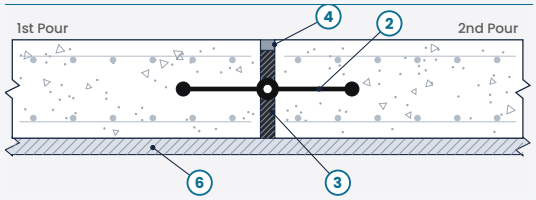
B EXPANSION JOINT — Wall / susp. slab · NTS



C CONSTRUCTION JOINT — Slab on ground · NTS



D EXPANSION JOINT — Slab on ground · NTS



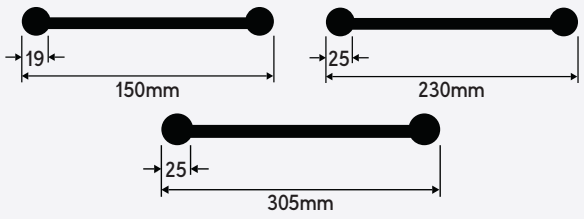
LEGEND & NOTES

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)

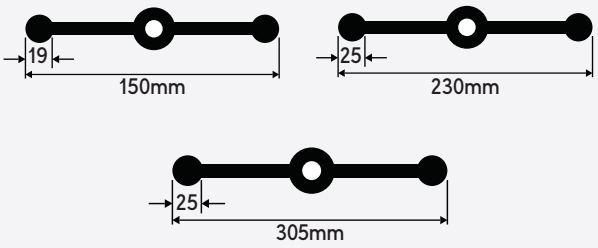
Dimensions in mm



- 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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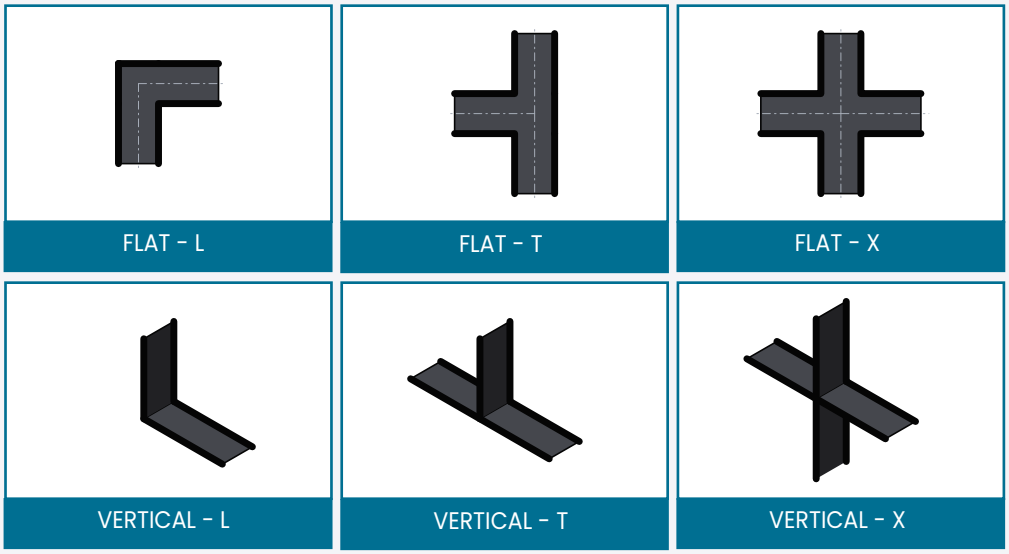
Factory Prefabricated Intersections



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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UNISTOP® COLD JOINT KIT

COLD VULCANISING KIT FOR RUBBER WATERSTOPS



Product Features

UNISTOP® COLD JOINT KIT is a complete cold vulcanising kit for jointing **UNISTOP® NR** rubber waterstops on site. It bonds waterstop sections together at ambient temperature, without a hot vulcanising mould, heat source or power supply.

Each kit contains rubber jointing strips, rubber cleaner, rubber glue and the hand tools needed to prepare, bond and finish the joint, all packed in one box. One set completes 5 joints.

UNISTOP® COLD JOINT KIT is suited to site joints, repairs and connections to factory-moulded intersections, particularly in confined or remote areas where hot vulcanising equipment is impractical. Where the project specification calls for hot vulcanised joints, the specification shall prevail.

Advantages

No hot vulcanising mould, heat source or power supply required
Complete kit: jointing materials and tools in one box
Quick on-site jointing and repair of rubber waterstops
Suitable for confined, remote or hard-to-reach work areas
Pre-packed for 5 joints per set to minimise wastage
For use with UNISTOP® NR rubber waterstop profiles
Compact, easy to store and transport

Fields Of Application

Site Butt Joints of Rubber Waterstops	Basement & Underground Car Parks
Repair of Damaged Waterstop Sections	Tunnels & Subways
Joints to Factory-Moulded Intersections	Retaining Walls
Water Tanks & Reservoirs	Lift Pits & Service Pits
Water & Sewerage Treatment Plants	Remote Sites Without Power Supply

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UNISTOP® COLD JOINT KIT

Kit Contents

Item	Description	Quantity (per set)
Rubber Jointing Strip	Foil-backed rubber strip to cover the joint	5 joints
Rubber Cleaner	Solvent-based cleaner for rubber surfaces	1 tin
Rubber Glue	Solvent-based rubber adhesive	2 bottles
Wire Brush	For roughening the waterstop surface	1 pc
Paint Brush	For applying rubber cleaner	1 pc
Cutter Knife	For cutting waterstop ends and strips	1 pc
Cotton Gloves	Hand protection during jointing	1 pair
Cleaning Cloth	For wiping prepared surfaces	1 pc

One set completes 5 joints on UNISTOP® NR rubber waterstop. Order additional sets according to the number of site joints required.



Kit contents as supplied.

Physical Properties

Product	:	Cold vulcanising jointing kit
Suitable For	:	UNISTOP® NR rubber waterstops
Coverage	:	5 joints / set
Packaging	:	1 set / box
Glue Drying Time	:	Approx. 5 minutes before bonding
Shelf Life	:	Refer to the date marked on the containers

Health & Safety

UNISTOP® COLD JOINT KIT contains solvent-based rubber cleaner and rubber glue, which are flammable. Use only in a well-ventilated area away from naked flames, sparks and heat, and do not smoke during use.

Wear the cotton gloves provided and avoid contact with skin and eyes; if contact occurs, rinse with clean water. Keep containers tightly closed and store in a cool, dry place away from direct sunlight. Refer to the MSDS of the rubber cleaner and rubber glue.

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UNISTOP® COLD JOINT KIT

Installation Procedures

1 Preparation | 2 Cleaning | 3 Bonding | 4 Inspection



Cut ends square



Wire-brush 75 mm



Clean & apply glue



Apply jointing strip

Installation Procedures

Step 1
PREPARATION

Lay out the kit contents on a clean, dry surface next to the joint and wear the cotton gloves provided.

Cut both ends of the rubber waterstop to be joined square and as straight as possible using the cutter knife. Clean water may be used as a lubricant. Check that the two ends butt together with the profiles aligned.

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

Step 2
CLEANING

Wipe the prepared areas with the cleaning cloth to remove dust and loose particles.

Apply rubber cleaner to the waterstop ends and prepared surfaces using the paintbrush.

Allow the cleaner to dry completely. Joint surfaces must be clean and fully dry before rubber glue is applied.

Step 3
BONDING

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.

Step 4
INSPECTION

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, then fix the waterstop in position as described in the **UNISTOP® NR** installation procedures.

Close all containers tightly after use.

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UNISTOP® HOT JOINT KIT

HOT VULCANISING KIT FOR RUBBER WATERSTOPS



Product Features

UNISTOP® HOT JOINT KIT is a hot vulcanising press for jointing **UNISTOP® NR** rubber waterstops on site. The prepared waterstop ends are wrapped with unvulcanised rubber compound, placed in a heated mould and clamped, so that the compound cures and fuses with the waterstop into a continuous vulcanised rubber joint.

The kit consists of a steel press frame with a hydraulic jack, a heated vulcanising mould shaped to the waterstop profile, and a lockable temperature control box with a digital temperature controller and circuit breaker. It is supplied with rubber compound, rubber solution, rubber cleaner and a wire brush.

The equipment is reusable, so **UNISTOP® HOT JOINT KIT** is the economical choice for large projects with many site joints, where the overall cost per joint is lower than with the **UNISTOP® COLD JOINT KIT**.

Advantages

Fully vulcanised joint, fused with the waterstop rubber
Lower overall cost per joint on projects with many joints
Reusable press, mould and temperature control box
Digital temperature control for consistent joints
Hydraulic jack gives firm, even clamping pressure
Mould shaped to the UNISTOP® NR waterstop profile
Use with factory-moulded L, T and X intersections

Fields Of Application

Site Butt Joints of Rubber Waterstops	Basement & Underground Car Parks
Large Projects with Many Joints	Tunnels & Subways
Joints to Factory-Moulded Intersections	Retaining Walls
Water Tanks & Reservoirs	Dams & Spillways
Water & Sewerage Treatment Plants	Culverts & Drainage Structures

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UNISTOP® HOT JOINT KIT

Kit Contents

Item	Description	Quantity
Vulcanising Press	Steel frame with hydraulic jack and heated mould	1 unit
Temperature Control Box	Digital temperature controller, circuit breaker	1 unit
Rubber Compound	Unvulcanised rubber for the joint	5 kg
Rubber Solution	Bonding solution for prepared surfaces	1 litre
Rubber Cleaner	Solvent-based cleaner for rubber surfaces	1 tin
Wire Brush	For roughening the waterstop surface	1 pc

The vulcanising mould is made to suit the UNISTOP® NR waterstop profile and width. State the profile and width when ordering. Additional rubber compound and rubber solution are available separately.

Physical Properties

Suitable For	:	UNISTOP® NR rubber waterstops (DB and CB profiles)
Jointing Method	:	Hot vulcanising in a heated, clamped mould
Mould Temperature	:	130 °C – 150 °C
Preheating Time	:	Approx. 30 minutes
Vulcanising Time	:	Approx. 25 – 30 minutes per joint
Cooling Time	:	Approx. 20 minutes before inspection
Power Supply	:	220 – 240 V single-phase, 50 Hz
Power Rating	:	Up to 3.0 kW (top and bottom heating plates); 13 A socket
Clamping	:	Hydraulic bottle jack

Hot or Cold Joint Kit?

UNISTOP® HOT JOINT KIT – large projects with many site joints. The press is reusable, so the overall cost per joint is lower. Needs mains power on site.

UNISTOP® COLD JOINT KIT – projects with only a few joints, repairs, and confined or remote areas without power. No heating equipment required.

Health & Safety

The mould and press reach 130 °C – 150 °C. Do not touch the heated surfaces, and wear heat-resistant gloves when handling the mould and the hot joint. Allow the equipment to cool before moving or storing it.

Connect the control box to a properly earthed power supply, keep cables and the control box dry, and switch off and unplug before cleaning. The rubber cleaner and rubber solution are solvent based and flammable: use them in a well-ventilated area away from naked flames. Refer to their MSDS.

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UNISTOP® HOT JOINT KIT

Installation Procedures

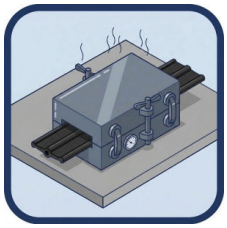
1 Preparation | 2 Cleaning | 3 Compound | 4 Vulcanising


Cut ends square


Wire-brush 75 mm


Clean & apply solution


Apply rubber compound


Vulcanise in mould

Installation Procedures

Step 1
PREPARATION

Switch on the temperature control box and preheat the vulcanising mould for approximately 30 minutes, until it reaches 130 °C – 150 °C.

Cut both ends of the rubber waterstop to be joined square and 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.

Step 2
CLEANING

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

Once the rubber cleaner has dried, apply **rubber solution** to the waterstop ends and prepared surfaces. Allow it to dry for approximately 5 minutes.

Step 3
COMPOUND

Cut the **rubber compound** into two pieces, each 50 mm wide and equal in length to the width of the 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.

Cut a 75 mm wide piece of rubber compound long enough to wrap around the waterstop. Centre it over the joint and wrap it fully around the waterstop, keeping the profiles aligned.

Step 4
VULCANISING

Place the joint on the bottom half of the heated mould, close the upper half and pump the hydraulic jack until the mould is clamped firmly. Re-tighten the jack after the first few minutes as the compound softens.

Vulcanise for approximately 25 – 30 minutes. Release the jack, remove the waterstop and allow the joint to cool for approximately 20 minutes.

Inspect the joint for full bonding, with no voids, cracks, misalignment or unfused compound, before installation. Remake any defective joint.

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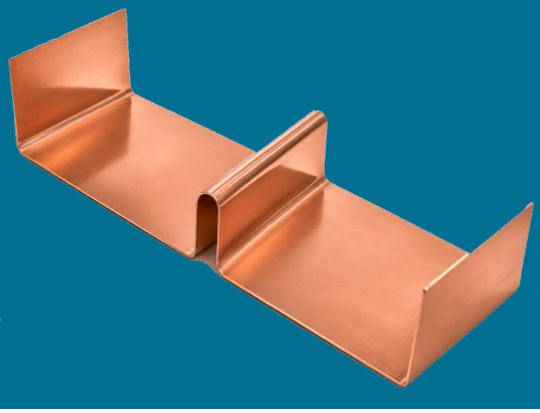
UNISTOP® COPPER

COPPER WATERSTOP



Product Features

UNISTOP® COPPER WATERSTOP range is manufactured from phosphorus non-arsenical copper alloy, 1 mm or 1.2 mm thick (other thicknesses on request), complying with international standards such as AS 1566 and BS EN 1172. It provides long-term performance and effective protection against water leakage in concrete structures.

UNISTOP® COPPER WATERSTOP is designed to be cast into construction and expansion joints to prevent the passage of liquids under pressure. Its specially designed profile creates a tortuous path, making it more difficult for liquids to travel across the joint and penetrate the concrete structure.

UNISTOP® COPPER WATERSTOP is available in a wide range of sizes and profiles to suit various project requirements. It is supplied in straight lengths, together with factory-produced intersections, to minimise on-site heat jointing. The appropriate size and profile can be selected according to the type of structure, joint configuration, and intended application.

Advantages

Withstands very high hydrostatic heads of water pressure
High grade performance
Long durability
Resistant to sea water, salt solution, potable, sewage water and chemicals
Excellent corrosion resistance
High mechanical strength
Reliable watertight sealing

Fields Of Application

Dams & Spillways	Water & Sewerage Treatment Plants
Culverts & Drainage Structures	Tunnels & Subways
Bridges & Viaducts	Basements & Underground Structures
Reservoirs & Water Retaining Structures	Power Plants & Industrial Structures
Marine & Coastal Structures	Joints Exposed to High Temperature

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UNISTOP® COPPER WATERSTOP

Technical Properties

Property	Test Method	Result
Copper (Cu)	JIS H 3100 : 2012	99.9%
Hardness HV	JIS H 3100 : 2012	83
Tensile Strength	JIS H 3100 : 2012	270 N/mm^2
Elongation A50mm	JIS H 3100 : 2012	34%

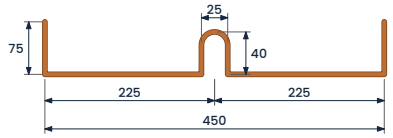
(All values given are subject to 5-10% tolerance.)

Physical Properties

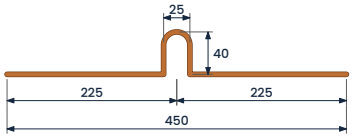
Material	:	Phosphorus Non-Arsenical Copper Alloy
Colour	:	Copper
Thickness	:	1 mm / 1.2 mm
Packaging	:	2m / length 4m / length *(other thicknesses and custom lengths available upon request)

Typical Drawing & Profiles

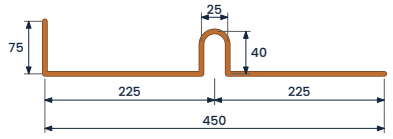
A TYPE A — Dimensions in mm



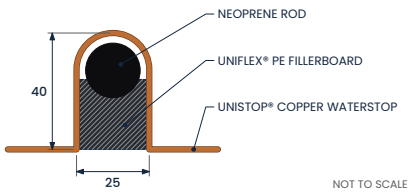
B TYPE B — Dimensions in mm



C TYPE C — Dimensions in mm



F CENTRE FOLD DETAIL — Not to scale



*(All values given are subject to 5-10% tolerance.) / *(Custom made profile available upon request)

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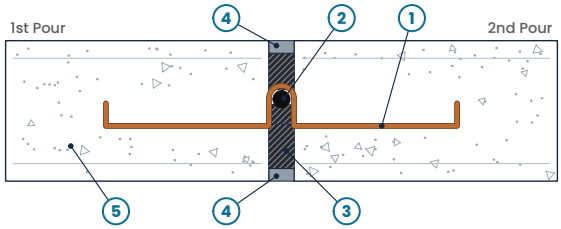
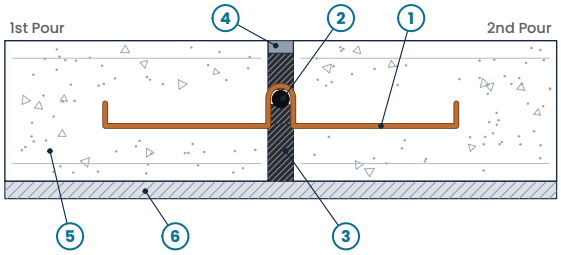
UNISTOP® COPPER WATERSTOP

Typical Joint Details

A EXPANSION JOINT — Wall / susp. slab · NTS



B EXPANSION JOINT — Slab on ground · NTS



LEGEND & NOTES

1. UNISTOP® COPPER WATERSTOP (TYPE A)
2. Neoprene rod in fold crown
3. UNIFLEX® PE Fillerboard
4. UNISEAL® Joint Sealant
5. Reinforced concrete (by others)
6. Lean concrete blinding (by others)

All details not to scale.
Fold centred on the joint line, half the width in each pour.
Joint width, member thickness and reinforcement as per the project engineer.

Health & Safety

Installation of **UNISTOP® COPPER WATERSTOP** involves brazing, which is a hot-work process. Keep all flammable materials clear of the work area, keep a fire extinguisher nearby, and follow the site's hot-work procedures. Brazing alloy and flux produce fumes that are harmful if inhaled, so work in a well-ventilated area, use local exhaust ventilation in enclosed spaces, and wear a suitable respirator where ventilation is inadequate.

Installers should wear safety goggles with a suitable filter shade, heat-resistant gloves and long-sleeved overalls, and use cut-resistant gloves when handling or cutting the copper strip, as its edges are sharp. Allow brazed joints to cool before handling.

Store and use gas cylinders upright and secured, and check hoses and fittings for leaks before use. Avoid skin and eye contact with flux; if contact occurs, wash with clean water and seek medical attention if irritation persists. Refer to the Material Safety Data Sheets (MSDS) of the brazing alloy and flux for detailed health and safety information.

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UNISTOP® COPPER WATERSTOP

Installation Procedures

1 Positioning & Fixing | 2 Preparation | 3 Brazing | 4 Inspection & Concreting

Step 1
POSITIONING & FIXING

Position the **UNISTOP® COPPER WATERSTOP** with the centre fold on the joint line, so that half of the waterstop width is cast into each pour.

Fix the flanges securely to the reinforcement or formwork at regular intervals so that the waterstop cannot move or tilt during concrete placement.

Use factory-made intersections at all changes of direction. Site joints are made on straight runs only.

At expansion joints, place **UNIFLEX® PE** fillerboard to the full depth of the joint, including inside the fold.

Step 2
PREPARATION

Prepare all materials and equipment required for brazing: a methylacetylene-propadiene gas torch, Silver Brazing Alloy 250 (SBA 250) or an equivalent approved by the Consultant, clamps, a wire brush and acetone.

Clean both waterstop ends over the joint area with a wire brush and acetone to remove dirt, grease and oxidation.

Overlap the waterstop ends by 100 mm, following the profile of the fold, and clamp them securely together. Keep the gap between the surfaces to be brazed within 0.05 mm to 0.10 mm.

Step 3
BRAZING

Preheat the joint area where required by the copper thickness, typically to 50–200°C.

Tack-braze the lap at regular intervals to hold it in position without distorting the waterstop.

Braze the full length of the lap from one end to the other at a steady speed, feeding the brazing alloy smoothly into the joint. Control the heat input to avoid warping or burn-through.

Step 4
INSPECTION & CONCRETING

Allow the joint to cool, then clean the brazed area with a wire brush to remove flux residue and oxidation.

Inspect the joint to ensure it is fully brazed, securely bonded and properly sealed, with no cracks, porosity or unbrazed areas. Repair any defect before concreting.

Place and compact the concrete fully around both flanges and end upturns, with no voids or honeycombing, taking care not to displace the waterstop.

At expansion joints, seal the exposed joint faces with **UNISEAL®** joint sealant.

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