

# Integrally Waterproof Concrete Structures

## AT System

### Servitite AT 200/Serviseal® AT 240

High security PVC waterstop system with co-extruded hydrophilic bulbs to provide a unique combination of active and passive protection for joints in concrete.

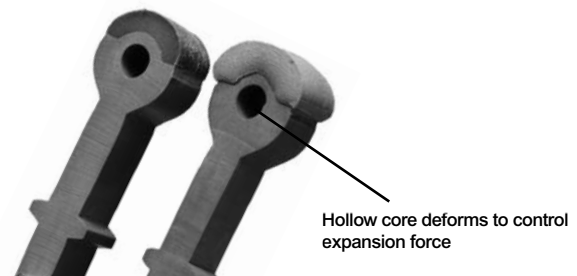
#### Description

AT System waterstops have been specially developed for water excluding and retaining structures such as basements, reservoirs, sewage treatment works, etc. The AT System is an important advance in concrete joint protection which combines Active Technology with the conventional mechanical properties of PVC waterstops.

Conventional PVC waterstops work by the normal action of the concrete shrinking away from the joint and against one face of the ribs or bulbs of the waterstop. This creates positive pressure on the rib or bulb causing a “valve action” to resist water ingress. However, this shrinkage movement also forms an inevitable void on the opposite face of the rib or bulb which can allow water under high pressure to track along the waterstop searching for a path to bypass the waterstop. Subsequent cyclical movement of the joint can compound the problem resulting in further leakage.

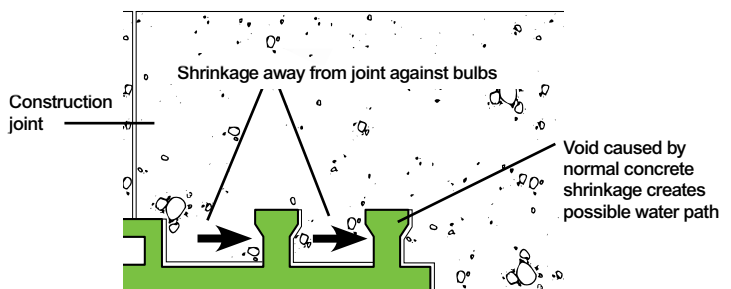
AT System waterstops mechanical properties prevent water ingress by the same valve action but also actively seal the void around the rib or bulb to stop water bypassing or migrating. The hollow core of the bulb deforms to control the expansive forces to prevent damage to the concrete.

#### Effect on Servitite AT 200 after concrete cures and comes into contact with water

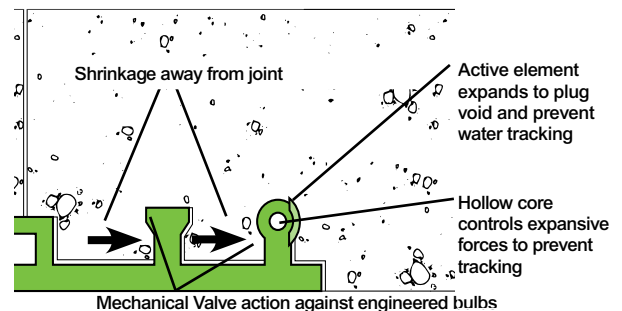


#### Advantages

- **Increased security** - combines advantages of PVC waterstop with active hydrophilic elements to provide maximum resistance to water pressure.
- **Continuously active sealing** - hydrophilic elements swell in contact with water to plug voids formed by normal concrete shrinkage.
- **Prevents water tracking** - location of active element is designed to prevent lateral migration of water along waterstop bulb.
- **Engineered profile** - for construction and expansion joints.
- **Co-extruded section** - integral active elements cannot be displaced during concreting.
- **Protective coating** - prevents premature swelling of hydrophilic element whilst exposed and for 12 to 18 days after casting to avoid spalling of fresh concrete.
- **Simple installation** - fix and heat weld as conventional waterstops.
- **Comprehensive system** - internal and externally placed sections complete with a range of factory fabricated junction pieces.



#### Conventional Waterstop



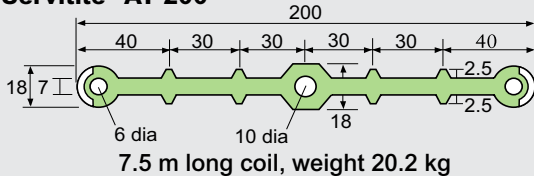
#### AT System with Active Element

*Details shown are typical illustrations only and not working drawings. For assistance with working drawings and additional technical advice please contact Grace Technical Services*

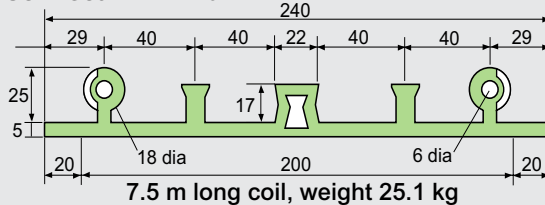


## Supply

### Construction/Expansion/Movement Joints Servitite® AT 200



### Serviseal® AT 240



### Factory made junctions and fabrications

Available in shapes and configurations to suit site requirements. Coils and fabrications supplied in polyethylene wrapping to protect against the elements.

### Storage

Under cover protected from water and temperatures exceeding +40°C.

### Ancillary Products

Small (20 mm) Secura Clips - To tie Servitite® AT 200 reinforcement

### Equipment by Grace

#### Jointing Jigs

Jig AT System (AT 200/AT 240)

#### Welding Knife

Electric Knife Large (110v)

**Equipment by Others:** Fine tooth saw, wire brush, Stanley knife, 110v or 220v power source.

## Performance

Property	Values
Tensile Strength	≥ 14 N/mm <sup>2</sup>
Elongation at break	250%
BS Softness	42
Specific Gravity	1.42
Compound tested in accordance with BS 2782 and are typical values.	

All declared values shown in this data sheet are based on test results determined under laboratory conditions and with the product sample taken directly from stock in its original packing without any alteration or modification of its component parts.

## Applications

Servitite AT 200 is an internally placed waterstop; which is cast centrally in the concrete to resist internal and external water pressure. Serviseal AT 240 can be cast on the external face for water excluding structures, such as basements and sub structures or ground bearing slabs only of water retaining structures.

The two profiles can be combined, using factory produced transition junctions where Serviseal AT 240 is used on the base slab and Servitite AT 200 is used within walls.

Servitite AT 200 and Serviseal AT 240 can be supplied in rolls with standard or special junction pieces, or alternatively formed in fabrications to minimise site jointing. Butt jointing is achieved by heat fused welds similar to that for traditional PVC waterstops.

## Installation

A fully continuous waterstop network must be formed using factory made junctions with site joints limited to simple butt welds of similar section.

### Serviseal AT 240

#### Slab Joints

The Serviseal AT 240 waterstop should be loose laid directly on the blinding concrete or securely fixed into vertical shutters using nails bent over to prevent displacement during stripping of shutter.

### Servitite AT 200

#### Elevated Slab Joints

The Servitite AT 200 waterstop should be supported in specially prepared split stop-end formwork which holds the waterstop in the horizontal plane to prevent displacement and folding. Care must be taken to ensure that the waterstop is retained in the horizontal plane and that adequate compaction of concrete takes place below the web of the waterstop in order to avoid "honeycombing". Lifting the waterstop during compaction to release entrapped air will assist in forming good dense concrete free from voids.

After stripping the formwork, the second half can be cast into the adjoining slab with similar precautions taken with regard to "honeycombing".

## Wall Joints

The Servitite AT 200 waterstop must be supported in split-end formwork as described for slab joints, with great care taken to ensure that the waterstop does not fold over under the weight of poured concrete. The waterstop should be securely wired to the reinforcing steel using Large Secura Clips fastened over the end bulbs.

Swelling commences 12 to 18 days after being embedded in concrete.

## Limitations

Store covered with a waterproof sheet. Maximum exposure period before concrete encapsulation, 7 days.

## Health And Safety

For Servitite AT 200 & Serviseal AT 240 read the Material Safety Data Sheet (MSDS) before use. Irritating fumes (Hydrogen Chloride) will be liberated when the product is heat welded. Ensure adequate ventilation. There is no legal requirement for a MSDS for Secura clips. For health and safety questions on these products please contact Grace Construction Products Limited.

## NBS Specification Clause

Refer to Clause E40 310.

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