

# Supercast PVC Waterstops Range\*

## Centrally and externally placed PVC waterstops

### Uses

The Supercast range of PVC waterstops is designed to provide an integral sealing system for movement and construction joints in concrete cast in-situ. These joints typically occur in the following types of structure:

#### Water retaining

- Reservoirs, water towers and sewage tanks
- Dams, culverts, canals and spillways
- Swimming pools
- Bunded areas surrounding liquid retaining tanks

#### Water excluding

- Basements and underground car parks
- Tunnels and subways
- Abutments and retaining walls
- Roof decks and podium areas

### Advantages

- Range of profiles to suit every need
- Fully continuous 4 bulbed network
- Reinforced eyeletted edge flanges for positive fixing
- Simple on-site jointing
- Full range of moulded and fabricated intersection pieces
- WRC approval for use in contact with potable water

The range consists of centrally placed profiles; Supercast Hydrofoil, Supercast Watafoil, and externally placed profiles; Supercast Rearguard S, Supercast Rearguard R, Supercast Rearguard Kicker and Supercast Angleguard.



### Standards compliance

Supercast PVC waterstops are suitable for use in contact with potable water. "Water Byelaws Scheme – approved product" : listing number 9309507.

### Description

Supercast waterstops are extruded from a high grade PVC compound which has been formulated to give excellent flexibility and longevity characteristics. They are available as straight lengths and factory produced intersections or as a factory prefabricated segment of a network to minimise site jointing.

### Principles of waterstop function

Supercast waterstops work because of two specific aspects of their design.

#### a) Valve principle

Simple waterstop profiles based on dumbbells are cast into the edges of adjacent concrete panels which act as baffles. In the event of joints opening as driving shrinkage or other movement



These  
ealing

# Supercast PVC Waterstops Range\*

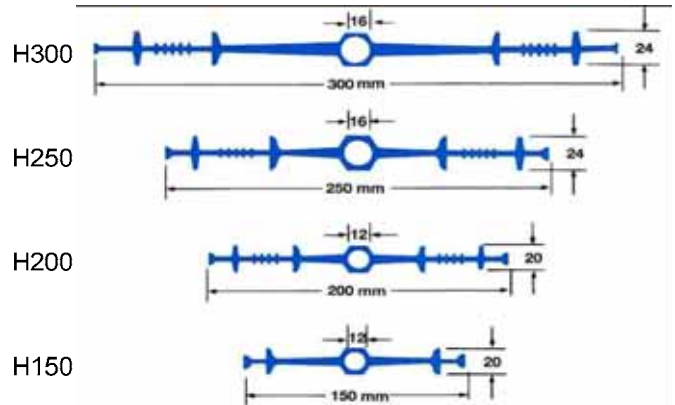
## b) Tortuous path principle

Profiles with a more complex cross section have a much greater surface area. They present a much greater resistance and more difficult path for water to seep around the section.

The Supercast range incorporates both of these principles. The products offer a fully continuous 4 bulbed design maintaining both the valve and tortuous path principles. These principles are maintained in the transition from Rearguard profiles in floors to centrally placed profiles in walls.

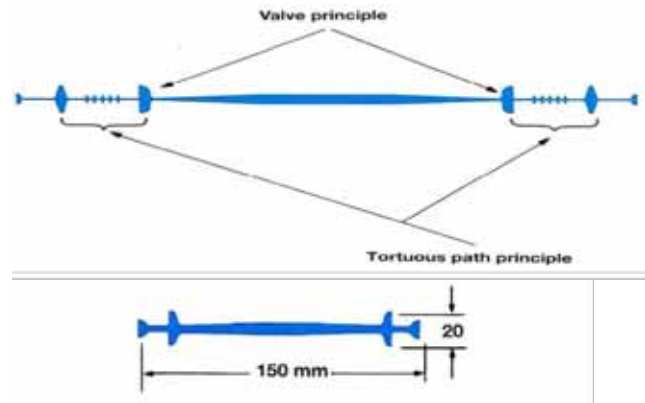
The 300 mm profile is specially designed for use in roof slabs where a greater degree of movement may occur particularly during construction.

## Hydrofoil sections



## Supercast Watafoil sections

Plain web sections are used in construction and contraction joints.



## Supercast Hydrofoil sections

Centre bulb sections are used in expansion, contraction and construction joints. The centre bulb allows for movements in a structure to be accommodated whilst its hexagonal design provides a flat surface. This allows shuttering and joint fillers to fit snugly.

All centrally placed Supercast waterstops incorporate an eyeletted, reinforced edge flange. This enables them to be easily positioned by wiring to surrounding reinforcement.

Dimensions are approximate and subject to manufacturing tolerances

# Supercast PVC Waterstops Range\*

## Supercast Rearguard R

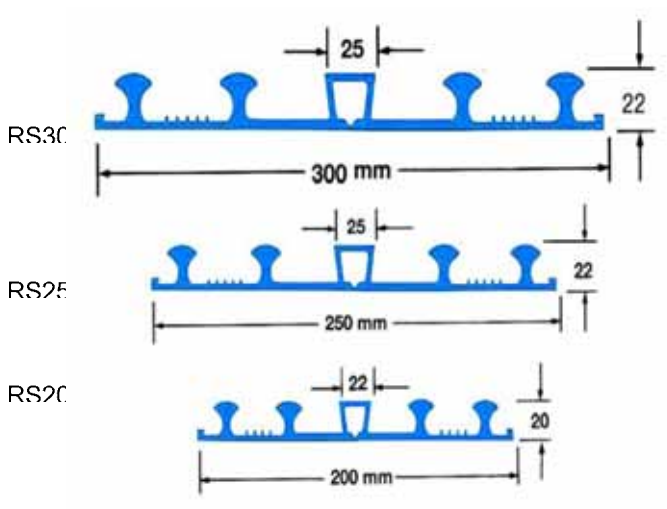
Plain web sections which are placed externally for use in contraction and construction joints. They incorporate a central fin to assist setting out shutter location.

RR250

RR200

## Supercast Rearguard S

Sections incorporate a flat top centre box which allows movement to be accommodated in expansion joints. The box also provides a seating to support joint fillers.



Dimensions are approximate and subject to manufacturing tolerances

All Rearguard sections incorporate a nailing flange with a reinforced edge to provide a secure fixing that will resist tearing.

## Supercast Angleguard

An externally placed waterstop for use where the joint line coincides with a change in level of the slab soffit. The profile is designed to co-ordinate with the 250 mm Rearguard S profile.

## Technical support

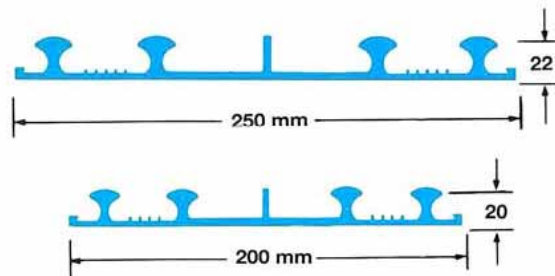
Fosroc offers comprehensive technical support, including help at the design stage, application advice and on the site problem solving. Specifiers and contractors are encouraged to contact our trained staff for answers to their questions.

For further information please contact Fosroc.

## Design criteria

The choice of the width and thickness of waterstop is largely governed by concrete thickness, the position of the reinforcement, aggregate size and complexity of the pour.

In general the 250 mm width of waterstop is suited to wall thicknesses of 250 mm and over. For concrete less than 250 mm the 200 mm width is preferred.

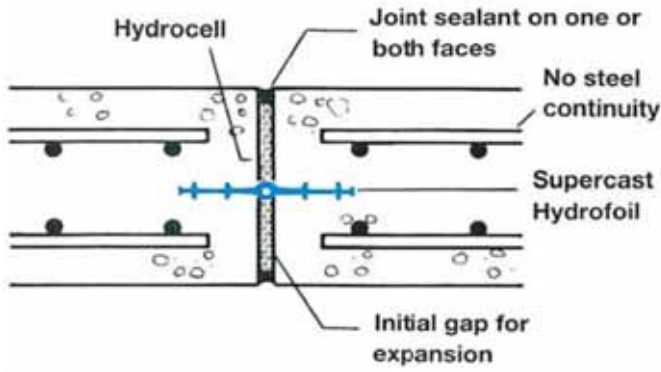


# Supercast PVC Waterstops Range\*

## Examples of movement/construction joints

### Water retaining structures

Expansion joint - wall

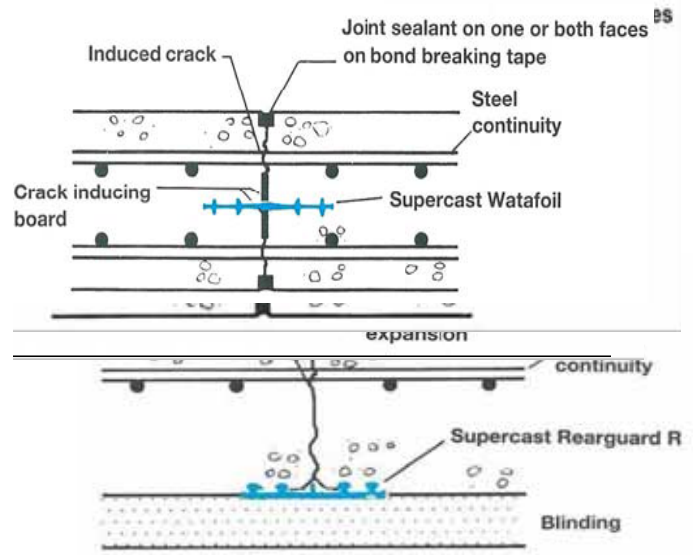


Expansion joint - wall

Formed contraction joint - wall

Formed contraction joint - wall

Induced partial contraction joint - wall

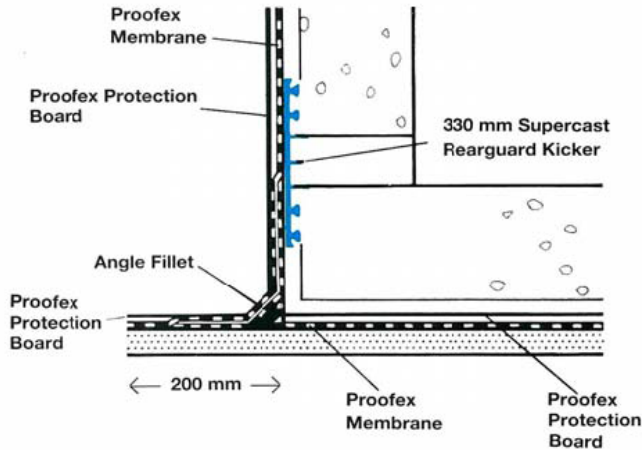


Note: Details based on BS 8007:1987 - Design of concrete structures for retaining aqueous liquids

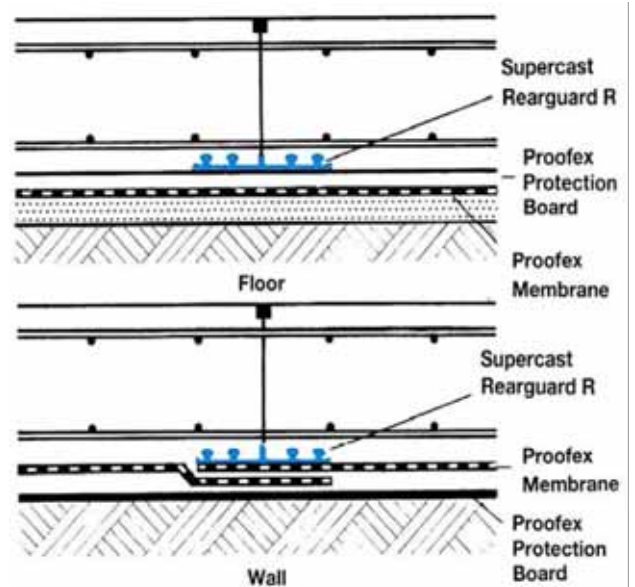
# Supercast PVC Waterstops Range\*

## Water excluding structures

Junctions of walls and ground slabs



Note: Details based on BS 8102:1990 - Protection of structures from water from the ground



## Centrally placed waterstop

These waterstops are positioned within the thickness of the concrete components and as a result are supported by concrete on both sides. They are therefore able to withstand water pressure from either side. This makes them suitable for use in water retaining structures. They will prevent loss of water from within the tank and will prevent ingress of ground water when the tank is drained down.

## Externally placed waterstop

These waterstops are designed for use in basement, foundation and floor slab construction in vertical and horizontal joints in both water retaining and water excluding structures.

When used in walls, externally placed waterstops will only resist water pressure from the face to which they are fixed. When used below floor slabs, where the waterstop is supported by the blinding concrete or when placed in vertical situations against permanent concrete shuttering, externally placed waterstops will resist water pressure from either face.

## Typical Properties

### Profiles

<b>Form:</b>	Extruded thermoplastic sections
<b>Colour:</b>	Blue
<b>Hydrostatic head:</b>	Up to 50 m
<b>Joint movement:</b>	Up to 10 mm

### Compound

<b>Typical figures:</b>	To BS 2782 at 25°C
<b>Tensile strength:</b>	Minimum 14 MN/m <sup>2</sup>
<b>Elongation at break:</b>	Minimum 300%
<b>Hardness:</b>	Shore 'A' 70-90

## Specification clauses

### 1. Supplier specification

Where indicated on the drawings, PVC waterstops shall be Supercast Waterstops obtained from Fosroc (address as shown). All wall/floor waterstop connections shall be made using Supercast injection moulded transition pieces to ensure continuity of the four bulb profiles.

### 2. Performance specification

Where indicated on the drawings, PVC waterstops shall be made from extruded plasticised PVC compound. The compound used shall meet the US Corps of Engineers specification CRD-C 572-74. It shall have a tensile strength in excess of 14 MN/m<sup>2</sup> and an elongation at break in excess of 300%.



# Supercast PVC Waterstops Range\*

---

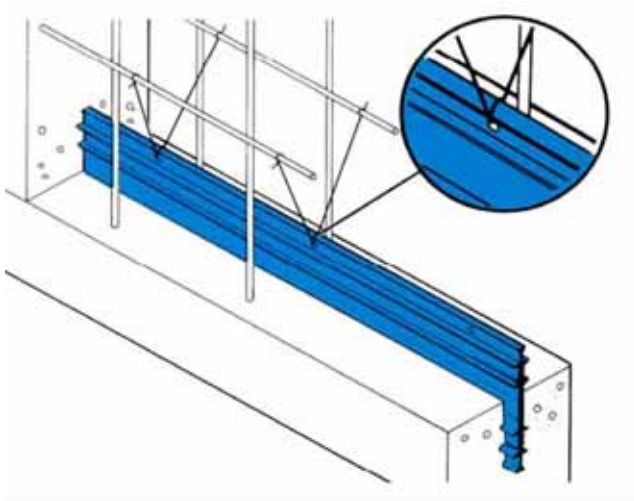
## Installation instructions

### Supercast Hydrofoil and Watafoil

Waterstops must be installed so that they are securely held in their correct position while the concrete is being placed. Concrete must be fully compacted around the waterstops to ensure that no voids or porous areas remain. Where reinforcement is present, an adequate clearance must be left to permit proper compaction.

The brass eyelets used for securing the waterstop are located outside the edge bulbs so as not to create water paths around the profile.

### Example of a kicker joint



### Supercast Rearguard

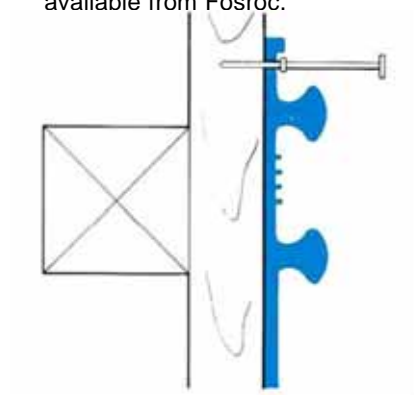
When used on ground slabs where the waterstop is supported on blinding, Rearguard profiles usually require no fixing. Lay the waterstop centrally over the line of the joint to be formed.

Fixing to vertical shuttering is done by nailing through the outer nailing flanges leaving the head of the nail proud so that it is held in the cured concrete. This prevents the waterstop being displaced when the shuttering is struck.

## Fixing to vertical shutter

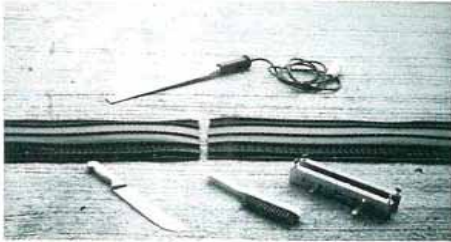
### Site jointing instructions

Jointing of Supercast waterstops is carried out using Fosroc Heat Welding Equipment. The ends to be joined are cut square and held in alignment in a special jig. The ends are then pressed either side of a special heated blade, until an even, molten bead of PVC appears around the section. The heated blade is then removed and the molten ends pressed fully together. The PVC cools to form a strong fusion welded joint. Full instructions are available from Fosroc.



# Supercast PVC Waterstops Range\*

## Fosroc PVC heat welding equipment



## Intersection pieces

Standard intersection pieces are available for each Supercast waterstop profile. The standard on-flat intersection leg length is 230 mm from centre line. On-edge intersections have a standard 75 mm leg length.

Fosroc can provide various intersections as required.

## Estimating

Supercast	Section width in mm	Wt/roll in kg	Minimum radii on flat m	Minimum radii on edge m	Roll length m
Hydrofoil	300	34	20	0.15	12
	250	25	15	0.15	12
	200	23	14	0.15	15
	150	20	12	0.075	15
Watafoil	250	28	15	0.15	12
	200	22	14	0.15	15
	150	21	12	0.075	20
Rearguard R	250	28	10	n/a	12
	200	22	9	n/a	12
Rearguard S	300	38	n/a	n/a	12
	250	29	10	n/a	12
	200	25	9	n/a	12

**Note:** In accordance with Commercial or Health & Safety requirements packaging detail may alter. Please contact your local Fosroc office for detail.

## Equipment

### Jointing jigs

constructive solutions

- 150 mm Supercast Rearguard R & S
- 200 mm Supercast Rearguard R & S
- 250 mm Supercast Rearguard R & S
- 300 mm Supercast Rearguard R & S
- 150 mm Supercast Hydrofoil & Watafoil
- 200 mm Supercast Hydrofoil & Watafoil
- 300 mm Supercast Hydrofoil

# Supercast PVC Waterstops Range\*

---

## Heater blades

110v and 220v, 350w blades are available.

**Warning: Ensure that heater blades are earthed by the green/yellow wire.**

## Precautions

### Health and safety

Hot weld site jointing of PVC waterstops results in the liberation of hydrogen chloride mist and vapour. The OEL (operational exposure limit) of 5 ppm can be exceeded in still air confined spaces, therefore forced ventilation must be provided or a suitable respirator used.

## Additional information

### Application at low temperatures

Care in the handling and installation of Supercast PVC waterstops is necessary at low ambient temperatures. Such temperatures will also require special precautions to be taken with the placing and curing of concrete.

As well as waterstops and ancillary products, Fosroc also manufactures a wide range of complementary products which includes waterproofing membranes, joint sealants, grouting, anchoring and specialised flooring materials. In addition, a wide range of products specifically designed for the repair and refurbishment of damaged reinforced concrete is available. This includes hand-placed and spray grade repair mortars, fluid micro-concretes, chemical-resistant epoxy mortars and a comprehensive package of protective coatings.

\* Denotes the trademark of Fosroc International Limited

† See separate data sheet



## Important note

Fosroc products are guaranteed against defective materials and manufacture and are sold subject to its standard Conditions for the Supply of Goods and Service, copies of which may be obtained on request. Whilst Fosroc endeavours to ensure that any advice, recommendation, specification or information it may give is accurate and correct, it cannot, because it has no direct or continuous control over where or how its products are applied, accept any liability either directly or indirectly arising from the use of its products, whether or not in accordance with any advice, specification, recommendation or information given by it.

Fosroc  
Guang Zhou Ltd.  
No.7 Hong Yuan Road Eastern  
Section, Guangzhou Economic  
& Technology Dev. District,  
Guangzhou China  
Tel: +86 20 82269245  
Fax:+86 20 82268010  
Email:[china@fosroc.com](mailto:china@fosroc.com)  
[www.fosroc.com](http://www.fosroc.com)

## SALES OFFICES IN GREATER CHINA REGION

Beijing:	Tel: +86 10 64957965	Fax: 800 830 1962
Shanghai:	Tel: +86 21 54042947	Fax: 800 830 1962
Chongqing:	Tel: +86 23 68793385	Fax: 800 830 1962
Suzhou:	Tel: +86 512 68601623	Fax: 800 830 1962

Fosroc Hongkong Limited  
2001-5A, Pacific Plaza 410 Des Voeux Road West, Hong Kong  
Tel: +852 2882 8662 Fax: +852 2895 2931 email: [hongkong@fosroc.com](mailto:hongkong@fosroc.com)