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Swellable waterstops for in-situ concrete

Uses

Integral sealing for construction joints in concrete cast in-situ.

Convenient and problem solving in situations where a conventional waterstop would require complex shuttering.

Typical uses include secant piled and diaphragm walled basements, pile caps and casting against old concrete. The Supercast SW range can provide simple solutions to detailing pipe entries, construction joints in the vertical plane and to kicker joints.

They can be linked to Supercast PVC waterstops to give an effective combination of waterstops which maintain network continuity.

Advantages

- Easy to install by adhesive bonding, or by casting into joint faces
- Supercast SWX enables full integration of Supercast SW and Supercast PVC networks
- Supercast SW Adhesive and Supercast SWX can be applied to damp substrates
- Solves detailing problems in conjunction with Supercast PVC waterstops
- Swelling properties unaffected by long term wet/dry cycling
- Tolerant of salts in concrete and groundwater
- Sustains effective seal in wet conditions
- Highly adaptable to accommodate complex joint shapes

Description

The Supercast SW range consists of swellable waterstops; Supercast SW formed sections, Supercast SWX gun-applied paste and Supercast SW Adhesive.

Supercast SW sections are made from high performance synthetic elastomer strips. The swelling action of the Supercast SW range is the result of contact between water and hydrophilic groups which are an intimate part of the Supercast SW polymeric structure. These hydrophilic groups are not subject to extraction and loss of swelling performance by prolonged or repeated wetting.

Expansion of the waterstop creates a positive pressure against the faces of the concrete joint, thus preventing water passing through the joint.

Supercast SWX is a grey, elastomeric water-swellable gun applied paste. Supercast SWX can be used as a swellable adhesive to adhere Supercast SW waterstop to concrete. It has the capability to fill undulations and surface holes in the concrete beneath the waterstop and swell into these when required.

Supercast SWX also enables Supercast SW sections to be linked into conventional Supercast PVC waterstop networks. This allows the use of Supercast PVC for expansion joints and Supercast SW for construction joints whilst maintaining an integrated waterproofing network.

Design criteria

Supercast SW should be used to prevent the passage of water through non-movement joints in both new in-situ concrete and between new and existing concrete. Supercast SW increases in volume up to a maximum of 200% and gives resistance to hydraulic pressure.

Swelling of Supercast SW in fresh concrete is minimal therefore maximising the positive pressure seal provided by the hydrophilic to the protected joint.

Supercast SW20 has a larger section and so offers a greater surface area of contact to the concrete in areas of higher risk, such as when waterproofing Grade 3 basements.

Both Supercast SW10 and SW20 have a delayed swell action which helps prevent pre-swell during wet site conditions (see limitations).

The minimum thickness of concrete cover required to accommodate pressure developed during the swelling process is 75mm for Supercast SW10 and 80mm for SW20.

Standard compliance

Supercast SW10 and Supercast SW20 are suitable for use in contact with potable water and are Water Regulations Advisory Scheme approved products.

Drinking Water Inspectorate Regulation 31(4)(b) of the Water Supply (Water Quality) Regulations 2000.

BS 6920:2014 Effect on water quality.

Supercast SW20, Supercast SWX and Supercast SW Adhesive are BBA Approved Products, Certificate number 5450.



Fosroc® Supercast SW

Specification clauses

Supercast SW

Water swellable polymeric hydrophilic waterstops (and attachments) where shown on the drawings, shall be Fosroc Supercast SW10 (or SW20) obtained from Fosroc Limited, Drayton Manor Business Park, Coleshill Road, Tamworth, Staffs. B78 3XN. It shall be used in accordance with the manufacturer's current application instructions.

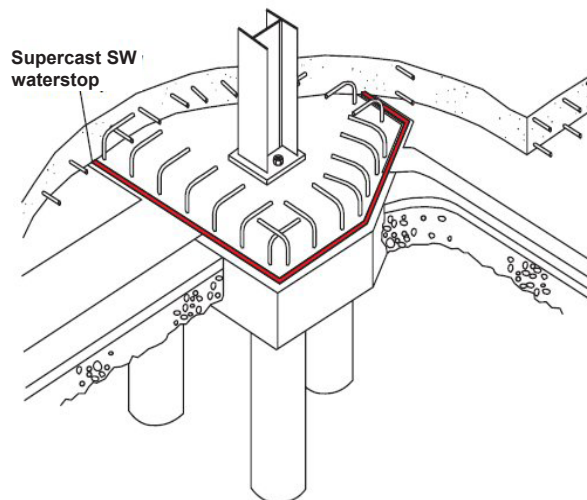
Water swellable polymeric hydrophilic waterstop where shown on the drawings, shall be made from a preformed elastomeric strip which can integrate into existing waterstop networks. It shall be free from rubber, bentonite or other inclusions. The waterstop shall have an unrestrained volumetric expansion of up to 200%. It must not deteriorate under prolonged wet/dry cycling. It must be able to withstand a hydrostatic head of up to 50 metres (refer SW grade). It shall be used in accordance with the methods given in the manufacturer's current data sheet.

Properties

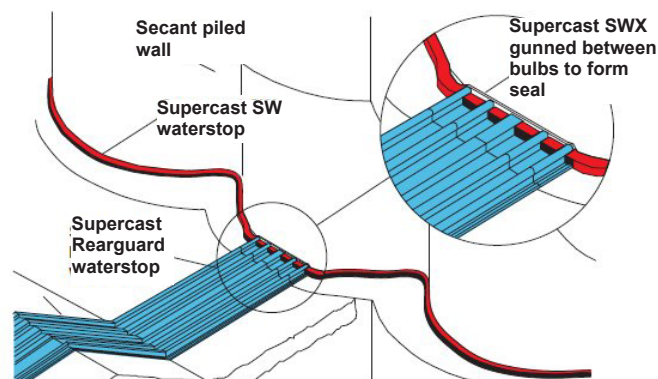
Form:	Rectangular section elastomeric strips
Size:	
Supercast SW10:	5 mm x 20 mm
Supercast SW20:	10 mm x 20 mm
Solids content:	100%
Colour:	
Supercast SW10:	Black
Supercast SW20:	Red
Unrestrained volumetric expansion ratio:	Up to 200%
Application temperature range:	-5°C to 50°C
Service temperature range:	-30°C to 70°C
Hydrostatic pressure resistance*:	SW10: 60 metres SW20: 100 metres**

*In concrete construction joint with no movement

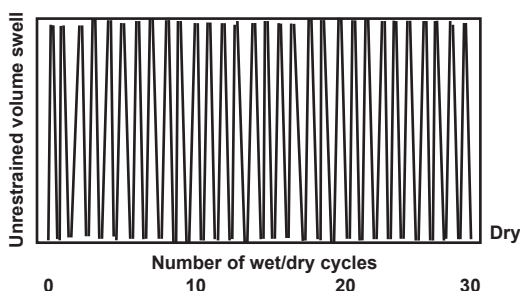
**BBA approved up to 80m



Pile cap detail using Supercast SW waterstop



Supercast SW, Supercast SWX and Supercast Rearguard waterstops at secant pile wall and floor slab junction



Graphic showing reproducibility of volume swell with wet/dry cycling

Fosroc® Supercast SW

Application instructions

The concrete substrate should be clean and free of standing water. Cut the Supercast SW waterstop to the required length and bond either directly onto the joint face or into a prepared groove cast into the joint face with a continuous bed of Supercast SWX or Supercast SW Adhesive. Supercast SW may be fixed with Supercast SW Adhesive on smooth surfaces, but Supercast SWX Adhesive should be used where concrete is rough. In both instances the bead diameter of the adhesive should be a minimum of 12mm. There should be no voids between the waterstop and the substrate and the adhesive should extrude slightly on both sides. The adhesive bed may be supplemented with occasional suitable small headed nails if required.

Where joints are needed in the waterstop application a butt joint should be formed. An overlap or sidelap joint is not recommended. Allow the adhesive to cure for at least 8 hours prior to placing concrete during which it should not be subjected to immersion. Excessive delays between waterstop installation and concrete placement should be avoided.

Prior to placing the concrete, the waterstop installation should be carefully checked for gaps and that it has not become detached from the substrate or distorted through premature swelling. Where this has occurred the waterstop should be replaced. Care should be taken to ensure that the waterstop is not displaced during the concrete pour.

Note: For applications in conjunction with Supercast Watertight Concrete construction Supercast SW20 should be placed into a 20mm wide x 5mm deep rebate and bonded with a continuous 12 - 15mm bead of Supercast SWX.

Estimating

Pack sizes

Supercast SW10:	5 mm x 20 mm x 15 metre rolls
Supercast SW20 :	10 mm x 20 mm x 5 metre rolls
Supercast SWX:	600ml sachet packed in cartons of 10
Supercast SW Adhesive:	380ml cartridge packed in cartons of 20

Coverage

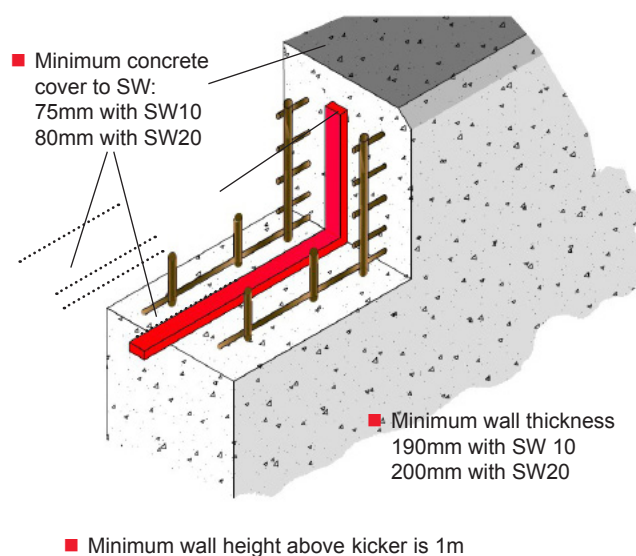
Supercast SW10 /SW20:	Usually single run of strip per joint
Supercast SWX:	12mm diameter bead - 5.2 metres run (per sachet) 15mm diameter bead - 3.3m metres run
Supercast SW Adhesive:	12 mm diameter bead - 3.4 metres run 15 mm diameter bead - 2.1m metres run (per cartridge)

The above coverages are approximate and make no allowances for wastage.

SW Details with 2 cages of reinforcement

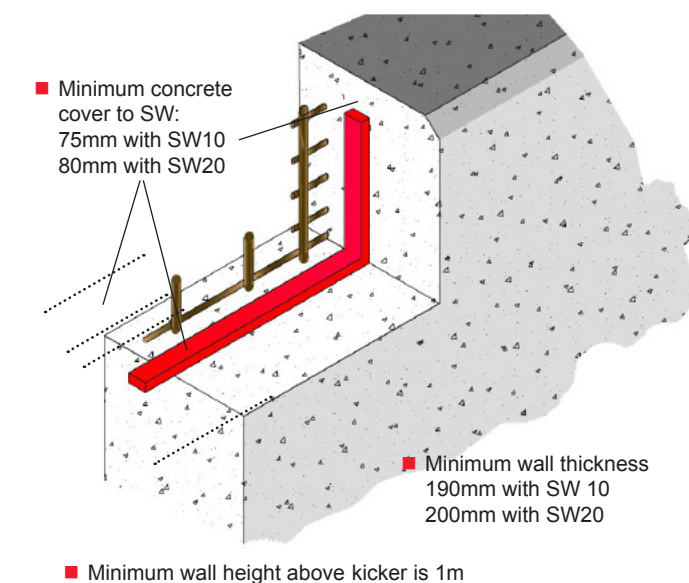
SW Details with 2 cages of reinforcement placed centrally

Note: assuming 20mm diameter rebar.



SW Details with 1 cage of reinforcement placed centrally

Note: assuming 20mm diameter rebar.



Fosroc® Supercast SW

Limitations

Supercast SW20, Supercast SWX and Supercast SW Adhesive are BBA approved Products. Supercast SW10 is not BBA approved.

Supercast SW should not be used for expansion joints or those subject to movements in excess of 2mm.

Supercast SW swell rate is dependent on the quality (solids content) of water and the temperature of water. The lower the temperature and the greater the solids content, the lower the swell rate.

Supercast SW should not be used in locations which allow free unrestrained swelling or for free standing walls, such as bund or dwarf walls, where the swell pressure is sufficient to lift the wall from its foundations. Contact Fosroc for product/method recommendations in this case.

Supercast SW must not be immersed in water prior to concrete placement, however, Supercast SW20 can tolerate up to 2 day's exposure to damp conditions on site. See diagram on previous page.

Storage

Supercast SW

Shelf life: 12 months
Store in original unopened cartons or bags in cool, dry conditions, away from sunlight.

Supercast SWX

Shelf life: 9 months
Store in original unopened sachets or cartons in cool, dry conditions, away from sunlight

Supercast SW Adhesive

Shelf life: 12 months
Store in original unopened cartridges or cartons in cool, dry conditions, away from sunlight

Additional information

Ancillary materials

Supercast SWX

Form: Elastomeric water swellable paste

Colour: Grey

Tack-free time: Approximately 1 hour (20°C / 50% RH)

Cure rate: 3mm in 24 hours

Volume swell ratio: 200%

Concrete pour: 2 to 8 hours

Supercast SW Adhesive

Form: Grey paste

Application temperature: 5°C to 30°C

Maximum open time: 30 minutes

Concrete pour: 2 to 8 hours

Adhesion: Can be used on damp concrete provided it is rag dry.

The above data represents typical values and should not be considered as a purchase specification.

Precautions

Health and safety

Supercast SW

There are no known health hazards associated with Supercast SW10 and SW20 in normal use.

Supercast SWX

Supercast SWX may cause sensitisation by skin contact. Avoid contact with skin and eyes. Wear suitable gloves and eye/face protection. Use only in well ventilated areas.

Supercast SW Adhesive

No significant hazard. For additional information see relevant product safety data sheet.

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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 Services, copies of which may be obtained on request. Whilst Fosroc endeavours to ensure that any advice, recommendation, specification of 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 of information given by it. All Fosroc datasheets are updated on a regular basis. It is the user's responsibility to obtain the latest version.

Fosroc Limited

Drayton Manor Business Park,
Coleshill Road, Tamworth,
Staffordshire B78 3XN. UK

www.fosroc.com

telephone:
+44 0 (1827) 262222

fax:
+44 0 (1827) 262444

email:
enquiryuk@fosroc.com



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