Hydroswell

Ancillary Products

Hydroswell Bentostrip
Technical Data Sheet

Hydrophilic bentonite strip for the sealing of construction joints in concrete.

Fields of application

- Hydroswell Bentostrip is designed for sealing construction joints, cold joints and working joints in concrete, around pipe penetrations, in sewer joints, against slurry walls, sheet piling...

Advantages

- Hydroswell Bentostrip is a permanently active system, which swells up to approximately 400% of its original dry volume (*).
- Hydroswell Bentostrip is an ecological and user-friendly system: simple and quick to install by means of gun nailing, tie wiring or gluing. The use of Hydroswell Bentosteel will help the installation and will protect the Bentostrip against damage during pouring or compaction of the concrete.
- The composition of Hydroswell Bentostrip prevents premature swelling.
- Hydroswell Bentostrip has a proven track record in water treatment plants, water purification plants, underground parking lots, water reservoirs, swimming pools, water tanks, metro-works and other concrete structures subject to high water pressure.
- Hydroswell Bentostrip can resist hydrostatic pressures of up to 80 metres of water column = 8 bars.
- The durability and performance of the Hydroswell Bentostrip will exceed the design life of the structure (bentonite is a product of nature).
- The highly elastic and plastic properties of Hydroswell Bentostrip will easily counterbalance the initial concrete shrinkage of the structure.
- Hydroswell Bentostrip can fill small honeycombs.
- Hydroswell Bentostrip will not dissolve in water and is non-polluting.

Description

- Hydroswell Bentostrip is a green flexible hydrophilic strip of app. 25 x 20mm, made of natural sodium bentonite clay and synthetic rubber.
- It comes in lengths of 5 metres.
- Due to the shrinkage of the drying concrete, small cracks and voids will appear in the construction and cold joints, through which water can penetrate.
- In contact with water, Hydroswell Bentostrip will swell approximately 400% of its original dry volume (*). The expansive clay mass will thus seal these hairline cracks and voids in the joint.
- The first expansion is retarded to prevent the strip from reacting too soon with possible rainwater, before or during the installation.

Application

- Hydroswell Bentostrip is preferably applied onto a smooth and dust-free concrete surface. Hydroswell Bentostrip can be used under most weather conditions.
- Installation during heavy rain or in prolonged contact with water can result in a premature swelling of the strip, which should be avoided.
- No special precautions should be taken during the preparatory activities (installation of the reinforcement bars, placement of shuttering, …) in view of the subsequent installation of the Hydroswell Bentostrip.
- The Hydroswell Bentostrip is applied during the installation of the 2nd phase reinforcement bars, in between inner and outer rows of tie bars.

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 13/5053

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Procedure for the installation of Hydroswell Bentostrip.

Placing

Step 1: Hydroswell Bentostrip must be placed onto smooth and dust-free concrete surfaces. Uneven and irregular surfaces must be levelled using a Hydroswell Sealant.
Step 2: Hydroswell Bentostrip is unrolled and placed onto the concrete surface to sit centrally between the inner and outer rows of reinforcing bars.
Step 3: A minimum of 70mm concrete coverage must be ensured around all the edges.
Step 4: Roll ends must be placed to have an overlap of 100mm and pressed firmly together.

Fixing

Step 1: When required Hydroswell Bentosteel should be placed over the Hydroswell Bentostrip prior to fixing. Fix using nails with washers at approximately 250mm centres, or tie wire strung tightly across the top between two lines of steel reinforcement.
Step 2: When fixing the product around penetrations, the waterstop must be additionally secured with steel ties.
(Concrete cover of 70mm at all sides should always be respected). The roll ends should have a lateral overlapping of 100mm. The ends need to be pressed firmly together.

Application to steel surface (such as sheet piles) should be done by means of gluing with Hydroswell Adhesive.
(may also be used on concrete if normal fixing methods are not possible)
Step 1: Apply an 8mm bead of Hydroswell Adhesive with a caulking gun onto the surface where Hydroswell Bentostrip is to be applied.
Step 2: Unroll the Hydroswell Bentostrip strip and press firmly onto the adhesive. Wait until the adhesive has set before pouring concrete.
(Concrete cover of 70mm at all sides should always be respected). The roll ends should have a lateral overlapping of 100mm. The ends need to be pressed firmly together.

Concrete Placement

Step 1: Prior to enclosing the Hydroswell Bentostrip the placed product must be inspected for damage and premature swelling. Damaged and/or swollen product must be replaced at this stage
Step 2: Concrete is then poured to secure the product, compacting well around the waterstop but taking particular care not to dislodge or damage the strip during either concrete placement or compaction.

Technical Data / Properties

Swelling capacity in contact with water	Swells approx. 400% of its original dry volume (*)	Test report KUL University
Density	Approx. 1,44 kg/dm3	ASTM D71-84
Weight	Approx. 0,72 kg/m	Test DNC
Cone penetration	35,5	ASTM D217
Expansion pressure under complete enclosure	0,70 N/mm2	Test report KUL University
Resistance against hydrostatic pressure	Up to 80m water column = 8 bars	Test report DNC
Elongation at rupture	7500%	Test method KUL University
Maximum bend allowed	No cracks at 180° above 0°C	Test method KUL University
Installation temperatures	-15°C to 60°C	Test DNC
Operating temperatures	-45°C to 120°C	Test DNC
Odour	Odourless	

- The swelling properties are created by the particle structure of the clay.
- Hydroswell Bentostrip can only function properly in a confined space in order to develop sufficient expansion pressure and assure waterproofing.
- The expansion of Hydroswell Bentostrip will create a certain pressure, which needs to be counteracted by at least 70mm of concrete coverage at both sides (installation in the middle of the joint is preferred).
- The durability and performance of the Hydroswell Bentostrip system are superior to the life expectancy of the construction, since it is composed out of inert rubber and clay, a natural product aged millions of years.
- For special applications, such as contact with strongly polluted water or chemicals, it is recommended to consult SMR Projects representative.

Appearance

It is a green, rectangular plastic strip of approx. 25 by 20mm, in rolls of 5m length.

Consumption

The necessary quantities depend on the length of the various (construction) joints which need to be sealed. It has to be taken into consideration that a lateral overlapping of 50 to 100mm between 2 lengths of Hydroswell Bentostrip is necessary.

Packaging

Cardboard boxes containing 30 metres of strip: 6 rolls of 5m length.
Weight per box: app. 21,6 kg net / app. 23 kg gross.
A full pallet contains 30 boxes of 30m = 900m.

Storage

Hydroswell Bentostrip should be stored under cover, clear of the ground. Protect the materials from all sources of moisture and frost. Shelf life is unlimited.
Storage temperature must be between 5°C and 30°C.

Certificates / Approvals

Socotec - France.
BBA – Certificate number 13/5053

Accessories

To be ordered separately.
a) Hydroswell Bentosteel:
- Steel wire mesh profile for Hydroswell Bentostrip.
- Mesh grid: 10,6 by 10,6mm. Section: 25,5mm x 9mm.
- Length: 1 metre.
- Packaging: 30 x 1m.

b) Hydroswell Sealant:
- Mastic for levelling out the surface.
- White in colour.
- Packaging: 310ml cartridges.

NB - A 310ml cartridge will produce approximately 3 linear metres of a 10mm bead.

c) Hydroswell Adhesive:
- Adhesive for fixing Hydroswell Bentostrip to flat steel surfaces such as sheet piles.
- Packaging: 310ml cartridges.

NB - A 310ml cartridge will produce approximately 5 linear metres of a 8mm bead.

Health & Safety

For full information consult the relevant Material Safety Data Sheet.

(*) Tested under laboratory conditions.

The provided information is the result of study and experience. All details are given in good faith, but are in no case to be considered as a warranty, nor make us assume any responsibility, even in case of detraction of third party's rights.

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