



PRODUCT DATA SHEET

Edition 12.2017/v1
CSC Master Format™ 03 15 13
WATERSTOPS

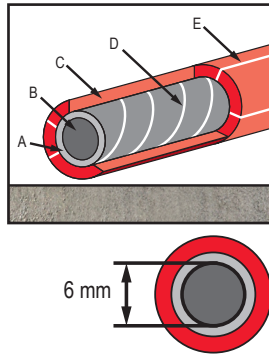
SikaFuko® ECO-1

INJECTABLE HOSE SYSTEM FOR SEALING CONSTRUCTION JOINTS IN WATERTIGHT STRUCTURES

Description	SikaFuko® ECO-1 is an injectable hose system designed and proven to seal construction joints in watertight structures against water and salt water ingress. The hose consists of a perforated inner, PVC core and perforated outer, expanded polyurethane layer to allow controlled injection of resins and cements. If and when it becomes necessary to further seal construction joints by injecting through SikaFuko® ECO-1, this can be done using Sika® injection materials based on acrylic, epoxy and polyurethane resins or microfine cement suspensions.
Where to Use	<ul style="list-style-type: none"> ▪ SikaFuko® ECO-1 is fixed and then cast into construction joints during the concrete pour to seal structures against the ingress of water and salt water. ▪ SikaFuko® ECO-1 can be left as is at time of construction and injected at a future date with suitable Sika injection materials based on acrylic and polyurethane resins or microfine cement suspensions.
Advantages	<ul style="list-style-type: none"> ▪ Injectable with Sika® acrylic resins and microfine cement suspensions. ▪ Injectable with Sika® acrylic, epoxy and polyurethane resins or microfine cement suspensions. ▪ Easy to install and highly economical. ▪ Ideal solution as back-up to and in combination with waterstops. ▪ Tested against water pressure up to 10 bar (100 m). ▪ Suitable for many different forms of structure and construction methods. ▪ Fully compatible with injected Sika® waterproofing resins and cements.
Approvals/ Certifications	<ul style="list-style-type: none"> ▪ MPA NRW: German Approvals for use in construction joints (29.11.04) / (02.07.04) / (23.04.08) ▪ WISSBAU: Tested for application with polyurethane resins in construction joints (02.04.04) / (11.02.08) ▪ WISSBAU: Tested for application with acrylic resins and microfine cement suspensions in construction joints (20.07.04)

Technical Data					
Packaging	<p>Supplied as a Combo-pack in a box containing:</p> <ul style="list-style-type: none"> - 200 m (656 ft) SikaFuko® ECO-1 - 10 m (32.8 ft) PVC inlet pipe (green) - 10 m (32.8 ft) PVC outlet pipe (transparent) - Accessories: 2 m (6.5 ft) Connection Pipe, 4 m (13 ft) Heat-shrink Sleeve, 50 Closure Plugs, 1 can of Rapid Glue, 1 roll of Tape, 800 Fastening Clips <p>Note: System components are also available as individual pieces.</p>				
Shelf Life	2 years if stored properly in unopened, sealed and undamaged original packaging. Store and transport under dry conditions and at temperatures between 5 and 35 °C (41 and 95 °F)				
Physical Properties					
Shore A (D) Hardness DIN 53505	<table> <tr> <td>White inner core:</td> <td>D: 50 +/- 3</td> </tr> <tr> <td>Red outer layer:</td> <td>A: 80 +/- 5 (not expanded)</td> </tr> </table>	White inner core:	D: 50 +/- 3	Red outer layer:	A: 80 +/- 5 (not expanded)
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Elongation at Break DIN 53504	<table> <tr> <td>White inner core:</td> <td>≥ 100%</td> </tr> <tr> <td>Red outer layer:</td> <td>> 50%</td> </tr> </table>	White inner core:	≥ 100%	Red outer layer:	> 50%
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Tensile Strength DIN 53504	<table> <tr> <td>White inner core:</td> <td>≥ 10 MPa (1450 psi)</td> </tr> <tr> <td>Red outer layer:</td> <td>≥ 10 MPa (1450 psi) (not expanded)</td> </tr> </table>	White inner core:	≥ 10 MPa (1450 psi)	Red outer layer:	≥ 10 MPa (1450 psi) (not expanded)
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<i>Product properties are typically averages, obtained under laboratory conditions. Reasonable variations can be expected on-site due to local factors, including environment, preparation, application, curing and test methods.</i>					

Hose Structure



SikaFuko® ECO-1

- A: Injection channel (internal diameter: 6 mm/1/4 in)
- B: White PVC spiral hose core to take up the concrete pressure
- C: Foamed plastic outer layer as a sealing membrane and to prevent cement laitance penetration during concreting
- D: Spiral perforation in the PVC core of the injection hose
- E: Staggered slot perforations in the foamed plastic outer layer for uniform emergence of injection materials

Internal diameter: 6 mm (1/4 in)

HOW TO USE

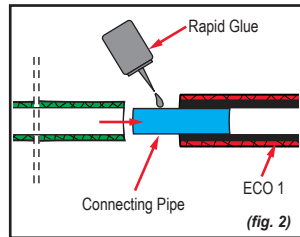
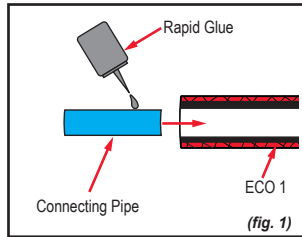
Hose Assembly

Cut to size

- SikaFuko® ECO-1 has to be cut to the desired length.

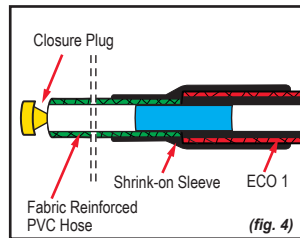
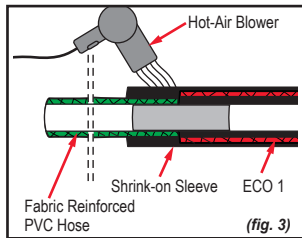
Accessories for the injection / vent ends

- The fabric reinforced PVC hoses (green and transparent) are cut to the desired length (standard size approx. 400 mm/ 16 in).
- The Connection Pipe and the shrink-on sleeve are cut to a length of approx. 500 - 600 mm (2 in) for each end.



Gluing Connection Pipe

- Rapid Glue is applied on the Connection Pipe which is then inserted approximately halfway into the SikaFuko® ECO-1. **(fig. 1)**
- Rapid Glue is then applied on the second half of the Connection Pipe. The fabric reinforced PVC hose (green or transparent) is slid over the Connection Pipe. **(fig. 2)**



- The Heat-shrink Sleeve is installed centrally over the connection between the PVC hose and SikaFuko® ECO-1 and heated with a hot air gun (Leister Triac S or similar). The sleeve shrinks and firmly holds the connection together. **(fig. 3)**
- The PVC hose ends are closed with the Closure Plugs to avoid the entry of other materials. **(fig. 4)**
- SikaFuko® ECO-1 is now ready for installation.

Installation

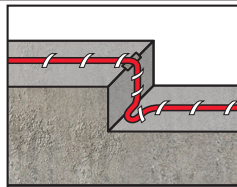


fig. 1

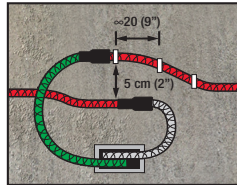


fig. 2

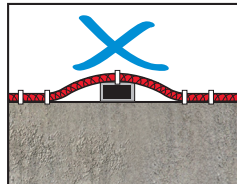


fig. 3

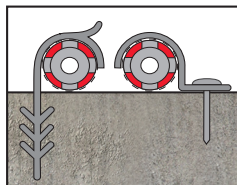


fig. 4

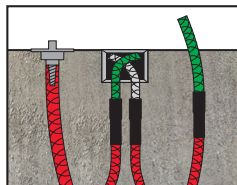


fig. 5

Hose Lengths

- In general, SikaFuko® ECO-1 is installed in lengths of up to 12 m (39 ft). The PVC hoses have to be included in this length. If longer lengths are required for construction reasons, please consult Sika Canada Technical Services.
- SikaFuko® ECO-1 is installed on the hardened concrete surface in the centre of the construction joint, with at least 100 mm (4 in) concrete cover. Reduce 90° angles to 45° and detail 90° upturns (**fig. 1**)
- The minimum distance between two parallel hose sections must be 50 mm (2 in). (**fig. 2**)
- If two SikaFuko® ECO-1 injection hoses cross for construction reasons e.g. at junctions, the upper of the hoses must be installed with the reinforced green PVC pipe in the overlapping area. (**fig. 2**)

Fixing Technique

- The hose shall be fixed with Fastening Clips at intervals of approx. 200 - 250 mm (8 -10 in). Those clips are then pressed into 6 mm (1/4 in) pre-drilled and cleaned holes. (**fig. 2 + 4**)
- The injection hose shall not be fastened to the reinforcement bars. The injection hose must lay flat on the concrete surface throughout and be routed in such a way that it is not buckled or constricted. (**fig. 3**)

Junction Boxes

- For injection operations, the injection pump is connected to the PVC connection hose vent ends which are housed in the junction boxes. (**fig. 5, left**)
- The injectable hose must be installed in such a way that the joint between the SikaFuko® ECO-1 hose and the PVC connection hose is completely embedded in concrete with a minimum cover of 50 mm (2 in).
- The junction boxes must be located approx. 150 mm (6 in) above horizontal construction joints, or next to the vertical construction joints
- When installing junction boxes, the PVC hose inlet and outlet are continued approx. 100 mm (4 in) into the junction box so that the ends are accessible for injection.
- The junction boxes or injection packers must be located where they are still easily accessible for injection later.

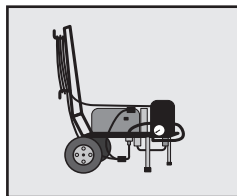
Injection Ports or 'Packers'

- SikaFuko® ECO-1 assemblage can be injected through individual injection ports or packers (**fig. 5, right**) or via the PVC connection hose ends which are continued to junction boxes or elsewhere outside of the concrete. (**fig. 5, left/ centre**)

Documented Records

- The precise location and the route of the injection hoses in the structure shall be carefully recorded and detailed (in 'as-built' drawings).

Injection



Injection materials

The SikaFuko® ECO-1 assemblage and Sika® injection materials constitute a fully compatible and proven system. Not all injection materials available are suitable for this type of injection. Injection materials must possess the following properties:

- Adequate viscosity (< 200 cps at 20 °C)
- Adequate curing time (> 20 - 30 min)

SikaFuko® ECO-1 is injectable with different Sika® injection materials:

- Acrylic resins
- Epoxy resins
- Polyurethane resins
- Microfine cement suspensions

Limitations

- SikaFuko® ECO-1 is best installed by skilled and experienced contractors. Consult Sika Canada Technical Services for advice and recommendations.
- Do not use SikaFuko® ECO-1 - System for sealing expansion / movement joints.
- SikaFuko® ECO-1 inlet and outlet locations must be accurately recorded and the pipes must be protected from being filled and obstructed during the pouring of concrete. Failure to do so may prevent injection from being possible later.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent SAFETY DATA SHEET containing physical, ecological, toxicological and other safety-related data.

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

The Information, and in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions, within their shelflife. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any recommendations, or from any other advice offered. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request or may be downloaded from our website at: www.sika.ca

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