

PRODUCT DATA SHEET

SikaFuko® Eco-1

Re-injectable hose for sealing construction joints in watertight structures

PRODUCT- DESCRIPTION

Re-injectable hose system for sealing construction joints in watertight concrete structures

USES

SikaFuko Eco 1 is used for engineered waterproofing of construction joints and as extra security for other expansion and construction joint sealing systems in watertight concrete construction. When cast into the structure, the SikaFuko Eco -1 allows targeted injection sealing of the joint using a suitable injection material.

If water flushable injection materials such as a Sika water dispersed acrylate resin, or microfine-cement based suspension are used, multiple re-injection operations are possible over the life of the structure, by vacuuming the hoses after each injection.

PRODUCT CHARACTERISTICS

- General Certificate of Compliance to German Building Regulations (abP)
- Tested for use at water pressures up to 10 bar (100 mWS)
- Unique and very reliable slot injection system
- Injection with acrylates, epoxy resins and cement-based injection materials are all possible
- One time injectable with Sika polyurethane injection resins.
- Re-injectable with Sika acrylic resins and micro-fine cement suspensions.
- Quick and easy installation with no adverse effects on the formwork or steel reinforcement works
- Suitable for use on a wide range of substrates to seal difficult connections
- Highly economical
- Ideal back-up solution for combination with waterstops
- Easy to install

TESTING & APPROVALS

- 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 acrylate resins and micro-fine cement suspensions in construction joints (20.07.04)

PRODUCT DATA

PACKAGING

Product name	Description	Pack contents
SikaFuko Eco 1 unassembled	Injection hose system with 6 mm tube	200 m on disposable reel, no accessories
SikaFuko Eco 1 assembled	Injection hose system with 6 mm tube	Individual lengths and components to order
SikaFuko Eco 1 combi-pack	Injection hose system with 6 mm tube	200 m on disposable reel with matched accessories

STORAGE LIFE

36 months from date of production

STORAGE CONDITIONS

Store in undamaged, unopened, original sealed packaging in dry conditions away from direct sunlight at temperatures between + 5°C and + 35°C.

TECHNICAL DATA

CHEMICAL BASE

Core profile: Polyethylene
Plastic sheath: PVC, foamed

COLOUR

Red

MECHANICAL PROPERTIES

HARDNESS

Core profile:
50 +/-3 Shore D (DIN 53505)
Plastic sheath (unfoamed):
80 +/- 5 Shore A (DIN 53505)

ELONGATION AT BREAK

Core profile:
≥ 100% (DIN 53504)
Plastic sheath (unfoamed):
≥ 50% (DIN 53504)

TENSILE STRENGTH

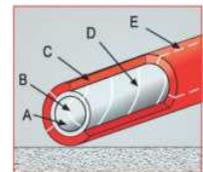
Core profile:
≥ 10 N/mm² (DIN 53505))
Plastic sheath (unfoamed):
≥ 10 N/mm² (DIN 53505)

SYSTEM DATA

STRUCTURE

SikaFuko Eco 1

- A Polyethylene core profile
- B Spiral slots in the core profile
- C Foamed PVC sheath
- D Spiral perforation for injection
- E Slot perforation in the plastic sheath



DESIGN AND PREPARATION

- SikaFuko Eco -1 has been tested and approved for use in a construction joint, in accordance with German Building Regulations. Detailed information is in the Certificate of Compliance.

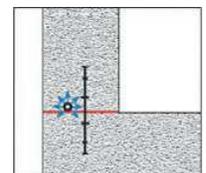
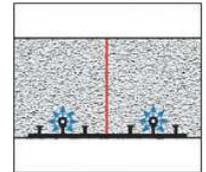
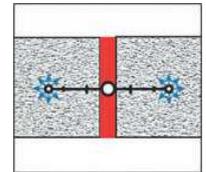
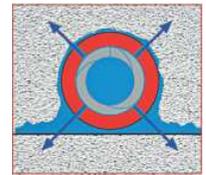
- The SikaFuko Eco-1 injection hose can be used as additional security and back-up to internal and external waterbars. It can be attached to the waterbars by means of clips on the waterbar profile.

- The German Federal Specification for road tunnels (RIZ TFUG) uses internal expansion joint waterbars with the additional security of an injection hose as their Standard design.

- The injection hose can also be used as a secondary waterproofing system. It is then normally installed on the water side.

- The clearance between the SikaFuko Eco-1 injection hose and waterbars or joint sealing sheets should be at least 5 cm.

- The injection hose location and positioning must also be defined on the basis of the structures thickness.



INSTRUCTIONS FOR USE

ASSEMBLY INSTRUCTIONS

Cutting

- The SikaFuko Eco-1 injection hose should be cut to the correct length.
- To prevent the outer fabric mesh from fraying, adhesive tape is wound around the cut area.

Cutting the accessories for the end pieces:

- The fabric reinforced PVC sleeve (green, transparent) is cut to the desired length (standard ca. 40 cm).
- The connection tube and the shrink-on sleeve are cut to a length of about 5 - 6 cm per connection.

Assembly:

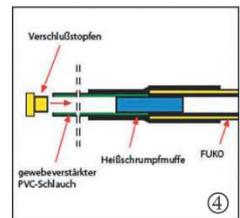
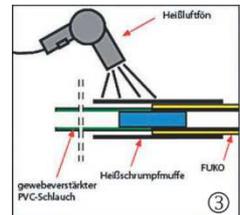
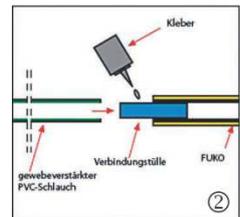
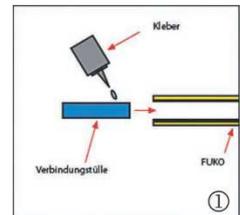
- A drop of superglue is applied on one half of the connecting tube, which is then inserted halfway into the injection hose (Fig. 1).

- A drop of superglue is then applied on the second half of the connection tube. The fabric reinforced PVC end hose (green, transparent) is then slid over the connection tube (Fig. 2).

- The shrink-on sleeve is then installed over the connection between the PVC end hose and the injection hose. This is carefully heated with a hot air gun and the sleeve shrinks to firmly hold the assembled hose together (Fig. 3).

- The injection ends are sealed with closure plugs to prevent the entry of other construction materials (Fig. 4).

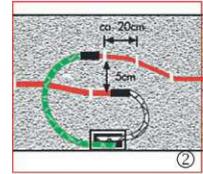
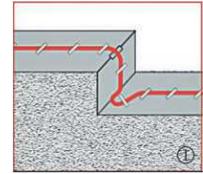
- The SikaFuko Eco-1 hose is now ready for installation.



INSTALLATION INSTRUCTIONS

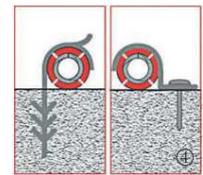
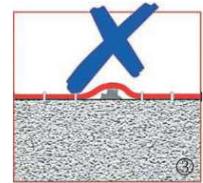
Installation

- The SikaFuko Eco-1 is normally installed in lengths of up to 10 m. The prepared end hoses have to be included in this length. Longer lengths may be possible dependent on the location and the intended injection material.
- The injection hose is usually installed on the hardened concrete surface in the middle of the construction joint. A minimum concrete cover of 10 cm over the injection hose must be maintained in reinforced concrete structures (Fig. 1).
- The minimum distance between two parallel SikaFuko Eco-1 hose sections, e.g. at junctions, must be 5 cm. (Fig. 2).
- If two SikaFuko Eco-1 injection hoses cross for construction reasons, e.g. at junctions, the upper hose must be installed using a section of PVC end hose (Fig. 2).



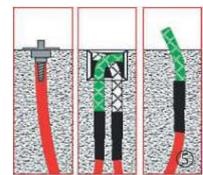
Fixing

- The SikaFuko Eco-1 injection hose is fixed to prevent it from sliding or floating in the fresh concrete, using special clips or clamps at intervals of 20 cm. These clips are pressed into 6 mm Ø drill holes (Figs. 2 & 4).
- The injection hose should not be fastened to the reinforcement bars. It must lie flat throughout, and be routed in such a way that it is not buckled or constricted (Fig. 3).



Junction boxes

- For injection operations, the injection pumps are normally connected to the hose ends which are housed in the protective junction / end boxes (Fig. 5, centre).
- The protective end hose section between the injection point and the injection hose must be firmly embedded in concrete with a minimum cover of 5 cm.
- The protective junction / end boxes must be located approx. 15 cm above horizontal construction joints, or adjacent to the vertical construction joints. Any complex details / constraints must be allowed for.
- When installing the junction end boxes, the injection and vent ends of the hoses are both taken approx. 10 cm into the box, so that the ends are easily accessible.
- The junction boxes and any fixed injection ports / packers must be located where they are still going to be readily accessible for injection later.



Injection ports or packers

Alternatively the injection hose can be injected through fitted individual ports or packers (Fig. 5, right), or via the connection hose ends if they have been continued sufficiently outside of the concrete (Fig. 5, left).

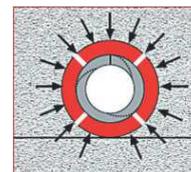
Documentation

The precise location of the junction boxes, injection packers and the route of the injection hose should be carefully recorded in 'as built' drawings.

INJECTION PROCEDURE**Injection materials**

The injection hose and the injection material together are a system, which must therefore be tested for compatibility. Not every injection material is suitable for injection in. The injection material must have the following properties:

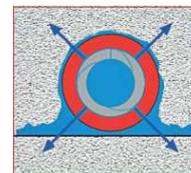
- Adequate viscosity (< 200 MPa at 20°C)
- Adequate curing time (> 20-30 min.)



The SikaFuko Eco-1 hose is injectable with several different compatible Sikainjection materials including:

Re-injectable:

- Sika Acrylate resins
- Sika Micro-fine cement suspensions

**One-time injectable**

- Sika Polyurethane resins
- Sika Epoxy resins

IMPORTANT NOTES ON INSTALLATION

Injection hose systems are not suitable for waterproofing movement joints on their own. However, they can only be used for security of sealing, or as back-up in combination with a suitable expansion joint waterbar. The specific applications that have been tested are listed in the General Certificate of Compliance to German Building Regulations(abP).

IMPORTANT INFORMATION**VALUE BASE**

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

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 Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

LEGAL NOTES

This information and, in particular, the suggestions relating to the application and end-use of our products, are based on our knowledge and experience in normal use, providing the products have been properly stored and applied. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of results achieved or liability arising out of any legal relationship whatsoever, can be inferred either from this information or from any advice offered by spoken word, unless we have been deliberately at fault or guilty of gross negligence. The user shall be required to prove that he has duly and in full extent submitted to Sika in writing all information necessary for Sika to make a fair and proper assessment. The user must test the products` suitability for the intended application and purpose. Sika reserves the right to change the product specifications. The proprietary rights of third parties must be observed. Orders are accepted subject to our current terms and conditions of sale and delivery. The most recent edition of the Product Data Sheet shall apply, copies of which should be requested from us.

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