

## System Product Data Sheet

Edition 09/01/2009

Identification no:

02 07 03 07 010 2 000099

SikaFuko® VT 1

# SikaFuko® VT 1

Injectable hose with integral 'valves' for sealing construction joints in watertight structures

<b>Product Description</b>	Injectable hose with unique integral 'valves' for sealing and possibly resealing construction joints in watertight structures against water and salt water ingress.
<b>Uses</b>	<p>SikaFuko® VT 1 is used to seal construction joints in watertight structures against water and salt water ingress. It is cast into the construction joints with the concrete.</p> <p>To seal the joint SikaFuko® VT 1 can be injected with suitable Sika injection materials including acrylic and polyurethane resins, or microfine cement suspensions.</p> <p>When it is necessary to reseal the joint again by re-injection, provided Sika acrylic resin or microfine cement is used for the initial injection.</p>
<b>Characteristics / Advantages</b>	<ul style="list-style-type: none"><li>■ Uses unique valve techniques for injection</li><li>■ Re-injectable with Sika acrylic resins and microfine cement suspensions.</li><li>■ One-time injectable with Sika polyurethane resins</li><li>■ Easy to install</li><li>■ Tested in water pressures up to 10 bar (100m)</li><li>■ Suitable for many different structures and construction methods</li><li>■ Long-term references on many international projects</li></ul>

<b>Tests</b>	
<b>Approval / Standards</b>	<p>MPA NRW: P-22-MPANRW-2368/2 - German Approval for use in construction joints (01.12.04)</p> <p>WISSBAU: Tested for use in construction joints (28.01.04)</p>

## Product Data

<b>Form</b>	
<b>Packaging</b>	<p>The SikaFuko® VT 1 is supplied as a <b>Combi-pack</b> in a cardboard box containing:</p> <ul style="list-style-type: none"><li>- <b>200 m Sika Fuko® VT 1</b></li><li>- 10 m green PVC-hose (inlet)</li><li>- 10 m white PVC-hose (outlet)</li><li>- Accessories (2 m connecting pipe, 4 m heat shrink sleeve , x 50 closure plugs, 1 can of glue, 1 roll of tape, x 800 fastening clips)</li><li>- Also available as <b>pre-fabricated, made to measure sections</b> in special packs with accessories to suit for special projects (details on request).</li></ul>



## Storage

**Storage Conditions / Shelf Life** 48 months from date of production if stored in undamaged, unopened and sealed original packaging, in dry conditions at temperatures between +5°C and +35°C.

## Technical Data

<b>Chemical Base</b>	Yellow inner core:	PVC
	Yellow profile strips:	Neoprene based cellular rubber
	Mesh:	Polyester

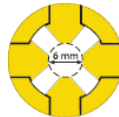
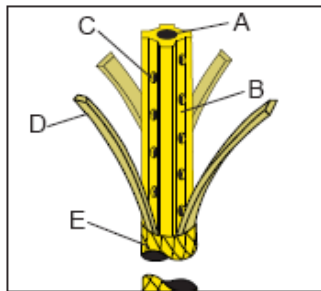
## Mechanical / Physical Properties

<b>Shore A Hardness</b>	Yellow inner core: 85 +/- 3	(DIN EN ISO 868)
	Yellow profile strips: 20 +/- 5	(DIN EN ISO 868)
<b>Elongation at Break</b>	Yellow inner core: ≥250%	(DIN EN ISO 527)
	Yellow profile strips: ≥ 300%	(DIN EN ISO 527)
	Mesh: ≥ 30% %	(DIN EN ISO 527)
<b>Tensile Strength</b>	Yellow inner core: ≥ 14 N/mm <sup>2</sup>	(DIN EN ISO 527)
	Yellow profile strips: ≥ 3 N/mm <sup>2</sup>	(DIN EN ISO 527)
	Mesh: ≥ 30 N	(DIN EN ISO 527)

## System Information

### System Structure

### SikaFuko® VT 1



- A Injection channel
- B Solid hose core made of high quality PVC compound
- C Lateral grooves with staggered injection openings
- D Compressible neoprene profile strips (as 'valves') over the longitudinal grooves
- E Fine webbed nylon mesh for secure fixing of the neoprene profiles

Internal diameter: 6 mm (1/4 ")

### Special Types

SikaFuko® VT 2 (on request)

- ✓ for cementitious injection materials
- ✓ for longer hose sections

SikaFuko® VT 3 (on request)

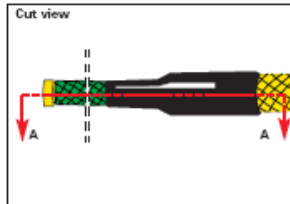
- ✓ Single strip version for top-down construction

SikaFuko® VT 4 (on request)

- ✓ electrically conductive version e.g. for mining applications

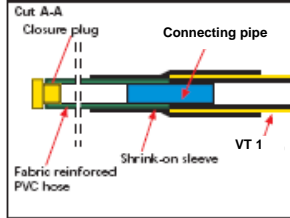
# Application Instructions

## Assembly Instructions



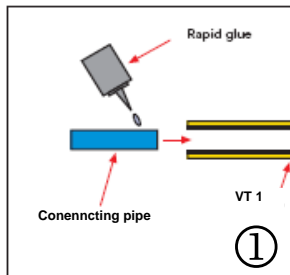
### Cut to size

- ✓ SikaFuko® VT 1 has to be cut to the desired length.
- ✓ Prior to cutting, secure the cutting area of the hose with insulating tape to avoid fraying of the nylon mesh.



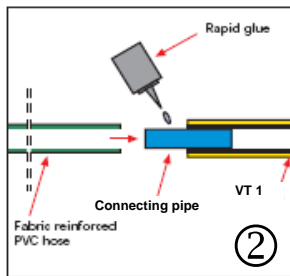
### Accessories for the injection / vent ends

- ✓ The fabric reinforced PVC hoses (green and transparent) are cut to the desired length (standard size approx. 40 cm = 16 ins).
- ✓ The connection pipe and the shrink-on sleeve are cut to a length of approx. 5 - 6 cm (2") for each end.

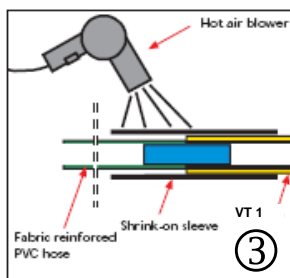


### Assembly

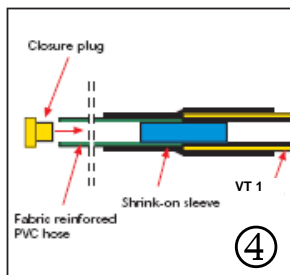
- ✓ Rapid glue is applied on the connection pipe which is inserted approx. halfway into the SikaFuko® VT 1 (fig. 1).
- ✓ Rapid glue is then applied on the second half of the connection pipe. The fabric reinforced PVC hose (green or transparent) is slid over the connection pipe (fig. 2).



- ✓ A shrink-on sleeve is installed in the middle covering of the connection between the PVC hose and the end and the SikaFuko® VT 1 and heated with a hot air gun. The sleeve shrinks and firmly holds the connection area (fig. 3).

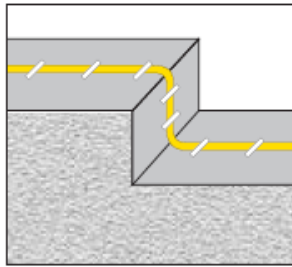


- ✓ The PVC hose ends are closed with the closure plugs to avoid the entry of other materials (fig. 4).

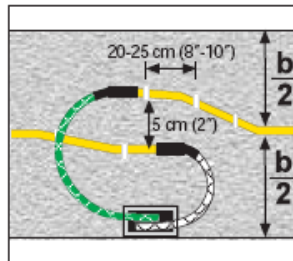


- ✓ The SikaFuko® VT 1 is now ready for installation.

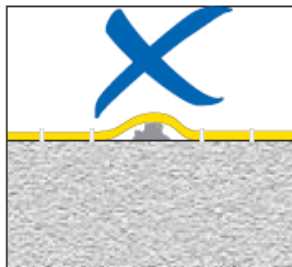
## Installation Instructions



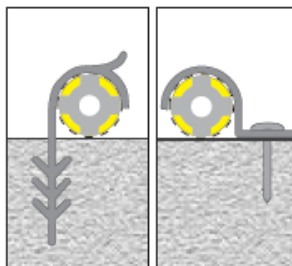
①



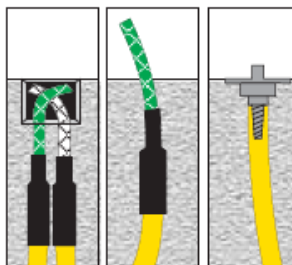
②



③



④



⑤

## Installation

- ✓ In general, SikaFuko® VT 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 contact us.
- ✓ The SikaFuko® VT 1 is installed on the hardened concrete surface in the middle of the construction joint (fig. 1).
- ✓ The minimum distance between two parallel hose sections must be 5 cm (2") (fig. 2).
- ✓ If two SikaFuko® VT 1 injection hoses cross for construction reasons e.g. at junctions, the upper of the hoses must be installed with the PVC connection hose in the overlapping area (fig. 2).

## Fixing

- ✓ The hose shall be fixed to prevent it from sliding or floating with special clips at intervals of approx. 20 - 25 cm (8"-10"). The clips are pressed into 6 mm (1/4") drilled holes (fig. 2 + 4).
- ✓ The injection hose shall not be fastened to the reinforcement bars. The injection hose must lie 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 VT 1 must be installed in such a way that the joint between the SikaFuko® VT 1 hose and the PVC connection hose is completely embedded in concrete with a minimum cover of 5 cm (2").
- ✓ The junction boxes must be located approx. 15 cm (6") above horizontal construction joints, or next to the vertical construction joints
- ✓ When installing junction boxes, the PVC hose injection and vent ends are continued approx. 10 cm (4") 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.

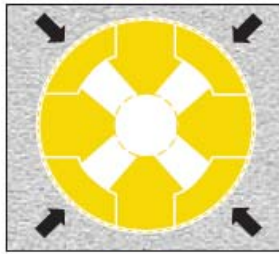
## Injectin ports or 'packers'

- ✓ The SikaFuko® VT 1 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).

## Documentation

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

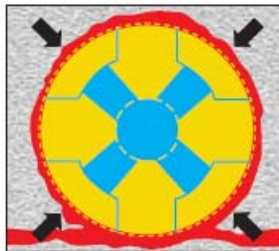
## Injection



①



②



③



④

## Injection materials

The SikaFuko® VT 1 injectionhose and the Sika injection materials are a system. Not every injection material is suitable for injection. The injection material must have the following properties:

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

The SikaFuko® VT 1 is injectable with different Sika injection materials:

## Re-injectable

- ✓ Acrylic resins
- ✓ Microfine cement suspensions

## One time injectable

- ✓ Polyurethane resins

## Principles of Waterproofing Construction Joints with the SikaFuko® VT 1 system

### Concreting

- ✓ Under the external fresh concrete pressure, the neoprene strips close the injection openings ('valves') so that no cement grout can enter the hose during the concrete placement (fig. 1).

### Injection

- ✓ The injection pressure from inside the VT 1 compresses the neoprene strips and allows the injection material to flow out from the longitudinal openings ('valves'). This enables a uniform discharge of the material over the whole length of the hose and has a high level of sealing capability (fig. 2).

### Cleaning by vacuum

- ✓ When using Sika acrylic resins or microfine cement suspensions for injection, the VT 1 can be flushed clean with water by applying a vacuum after the leaks are sealed and the injection work is complete. The hose is then ready for any further re-injection if and when required in the future (fig. 3 + 4).

### Testing the watertightness

- ✓ The watertightness of the joint can also be tested by applying a defined water pressure via the SikaFuko® VT 1 hose.

## Notes on Application / Limitations

Do not use *SikaFuko® VT 1* -System for sealing expansion / movement joints.

## 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.

## Local Restrictions

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

## Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

## Legal Notes

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 in accordance with Sika's recommendations. 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 written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. 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.

**It may be necessary to adapt the above disclaimer to specific local laws and regulations. Any changes to this disclaimer may only be implemented with permission of Sika® Corporate Legal in Baar.**



Sika Near East s.a.l  
Sin el-Fil – Beirut  
Sector 5, Rue 70  
P.O.Box: 55163  
Lebanon  
Tel. +961 1 510 270  
Fax +961 1 510 271  
[sikareg@cyberia.net.lb](mailto:sikareg@cyberia.net.lb)  
[www.sikaneareast.com](http://www.sikaneareast.com)

