

Product Data Sheet

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SikaFuko® VT 1**SikaFuko® VT 1****Injectable Hose With Integral 'Valves' for Sealing Construction Joints in Watertight Structures****Product Description**

SikaFuko® VT 1 is an injectable hose with unique integral 'valves' for sealing and possibly resealing construction joints in watertight structures against water and salt water ingress.

Suitable for use in hot and tropical climates.

Uses

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.

To seal the joint **SikaFuko® VT 1** can be injected with suitable Sika® injection materials including acrylic and polyurethane resins, or micro-fine cement suspensions.

When it is necessary to reseal the joint again by re-injection, provided Sika® acrylic resin or micro-fine cement is used for the initial injection.

Characteristics / Advantages

- Uses unique valve techniques for injection
- Re-injectable with Sika® acrylic resins and micro-fine cement suspensions.
- One-time injectable with Sika® polyurethane resins
- Easy to install
- Tested in water pressures up to 10 bar (100m)
- Suitable for many different structures and construction methods
- Long-term references on many international projects

Tests**Standards / Approvals**

MPA NRW: P-22-MPANRW-2368/2 - German Approval for use in construction joints (01.12.04)

WISSBAU: Tested for use in construction joints (28.01.04)

Product Data**Form**

PVC hose with Neoprene cellular profile strips encased in polyester mesh

Appearance / Colour

Rolled, prefabricated, yellow coloured hose

Packaging

The **SikaFuko® VT 1** is supplied as a Combi-pack in a cardboard box containing:

- 200 m **SikaFuko® VT 1**
- 10 m green PVC-hose (inlet)
- 10 m white PVC-hose (outlet)
- 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)
- Also available as pre-fabricated, made to measure sections in special packs with accessories to suit for special projects (details on request).



Storage

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

Technical Data

Chemical Base	Yellow inner core: PVC
	Yellow profile strips: Neoprene based cellur rubber
	Mesh: Polyester

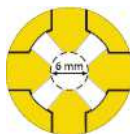
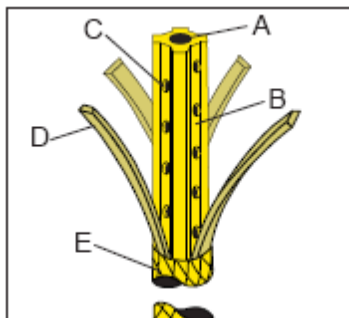
Mechanical / Physical Properties

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

System Information

System Structure

SikaFuko® VT 1

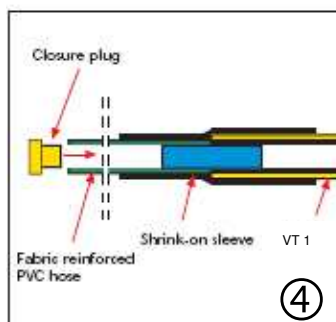
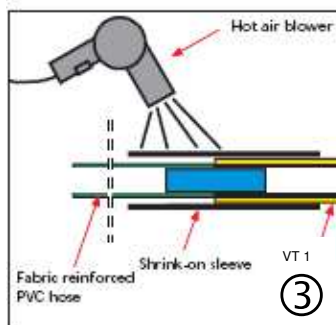
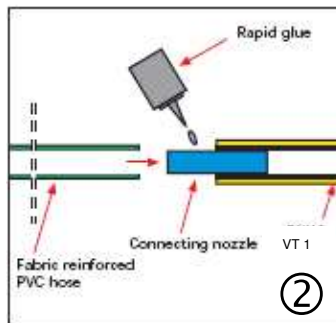
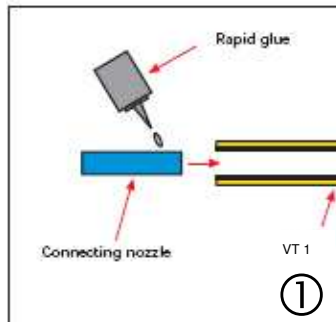
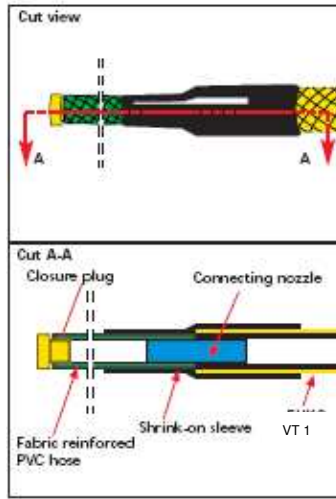


- A Injection channel
- B Solid hose core made of high quality PVC compound
- C Lateral grooves with staggered injection openings
- D Compressible neoprene profile strips (as 'valves') over the longitudinal grooves
- E Fine webbed nylon mesh for secure fixing of the neoprene profiles

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

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).

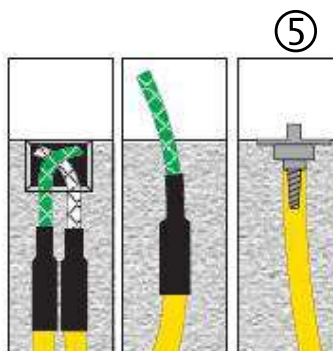
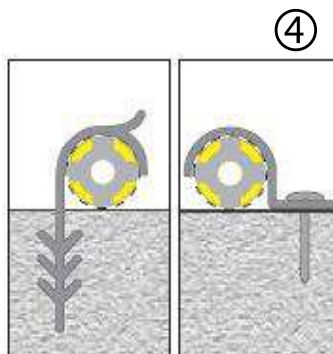
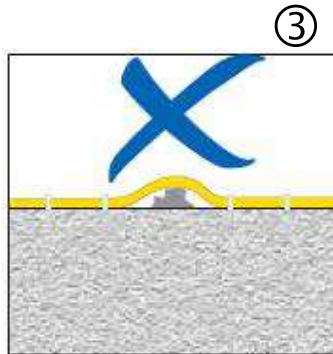
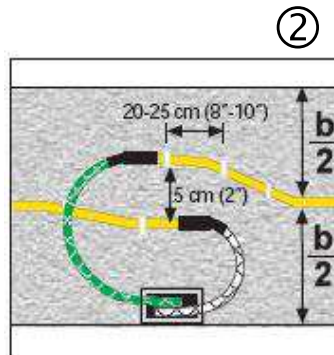
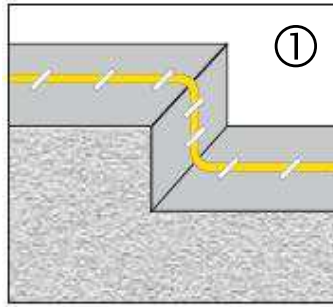
- ✓ Rapid glue is then applied on the second half of the connection pipe. The fabric reinforced PVC hose (green or transparent) is slid over the connection pipe (fig. 2).

- ✓ 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



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 (figs. 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 **SikaFuko® 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 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.

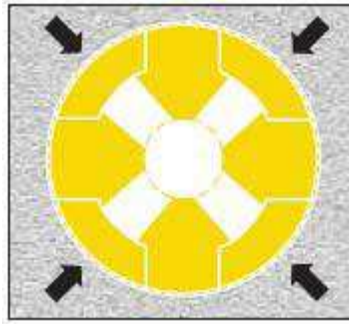
Injection ports or 'packers'

- ✓ 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 either contained in 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

Injection materials

The **SikaFuko® VT 1** injection hose 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.)

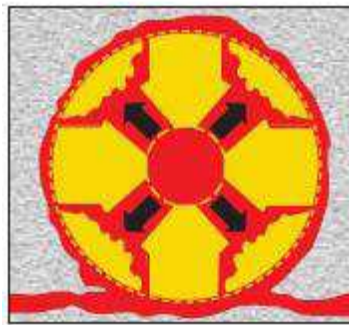
The **SikaFuko® VT 1** is injectable with different Sika® injection materials:

Re-injectable

- ✓ Acrylic resins
- ✓ Micro-fine cement suspensions

One time injectable

- ✓ Polyurethane resins

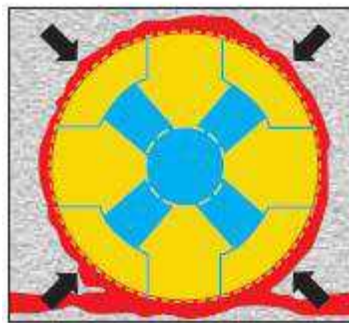


②

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).



③

Injection

- ✓ The injection pressure from inside the **SikaFuko® 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 micro-fine cement suspensions for injection, the **SikaFuko® 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).



④

Testing the water-tightness

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

Notes on Application / Limitations

Do not use **SikaFuko® VT 1** 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 product uses.
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.

All products are manufactured under a management system certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and OHSAS 18001.



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