SikaFuko® VT 1 / SikaFuko® VT 2
Injectable Hose with Integral ‘Valves’ for Sealing Construction Joints in Watertight Structures

Description
Injectable hose with unique integral ‘valves’ for sealing and possibly resealing construction joints in watertight structures against water and salt water ingress.

Where to Use
SikaFuko® VT 1 and VT 2 are 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 or VT 2 can be injected with suitable Sika injection materials including acrylic and polyurethane resins, or microfine cement suspensions. If necessary the joint can be sealed again by re-injection, provided either the Sika acrylic resin or microfine cement has been used for the initial injection.

Advantages
- Uses unique valve techniques for injection
- Re-injectable with Sika acrylic resins and microfine cement suspensions
- One-time injectable with Sika polyurethane resins
- Easy to install
- Suitable for many different structures and construction methods
- Long-term references on many international projects

Typical Data
The SikaFuko® VT 1 and VT 2 are supplied as a Combi-pack in a cardboard box containing:
- 200 m Sika Fuko® VT 1 or VT 2
- 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)

Properties
Chemical Base:
- Yellow inner core: PVC
- Yellow profile strips: Neoprene based cellular rubber
- Mesh: Polyester

System Structure SikaFuko® VT

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 VT 1: 6 mm
Internal diameter VT 2: 10 mm

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Cut to size

- SikaFuko® VT 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 mm.
- The connection pipe and the shrink-on sleeve are cut to a length of approx. 50 – 60 mm for each end.

Assembly

- Rapid glue is applied on the connection pipe which is inserted approx. halfway into the SikaFuko® VT (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 is now ready for installation.
Installation

- In general, SikaFuko® VT is installed in maximum lengths of up to 12 m. The PVC hoses have to be included in this length.
- The SikaFuko® VT 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 50 mm (fig. 2).
- If two SikaFuko® VT 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. 200 – 250 mm. The clips are pressed into 6 mm 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 must be installed in such a way that the joint between the SikaFuko® VT hose and the PVC connection hose is completely embedded in concrete with a minimum cover of 50 mm.
- The junction boxes must be located approx. 150 mm 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. 100 mm 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 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/center).

Documentation

- The precise location and the route of the injection hoses in the structure shall be carefully recorded and detailed (in ‘as-built’ drawings).
Inj£c£on Materials
The SikaFuko® VT inj£c£on hose and the Sika inj£c£on materials are a system. Not every inj£c£on material is suitable for inj£c£on. The inj£c£on material must have the following properties:
■ Adequate viscosity (< 200 mPas at 20°C)
■ Adequate curing time (> 20-30 min.)
The SikaFuko® VT is inj£c£on£able with di®erent Sika inj£c£on materials:
Re-Injectable
■ Acrylic resins
■ Micro£ne cement suspensions
One time Injectable
■ Polyurethane resins

Principles of Waterproofing Construction Joints
with the SikaFuko® VT system
Concreting
■ Under the external fresh concrete pressure, the neoprene strips close the inj£c£on openings (‘valves’) so that no cement grout can enter the hose during the concrete placement (ig. 1).

Injection
■ The inj£c£on pressure from inside the SikaFuko® VT compresses the neoprene strips and allows the inj£c£on 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 (ig. 2).

Cleaning by vacuum
■ When using Sika acrylic resins or micro£ne cement suspensions for inj£c£on, the SikaFuko® VT can be s#ushed clean with water by applying a vacuum after the leaks are sealed and the inj£c£on work is complete. The hose is then ready for any further re-inj£c£on if and when required in the future (ig. 3 + 4).

Testing the watertightness
■ The watertightness of the joint can also be tested by applying a deªned water pressure via the SikaFuko® VT hose.

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

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 (+41°F) and +25°C (+77°F).

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