



# WATERPROOFING SikaFuko® INJECTION HOSE SYSTEMS

UNIQUE WATERPROOFING SOLUTIONS FOR CONSTRUCTION JOINTS

BUILDING TRUST



# PROVEN INJECTION HOSE SYSTEMS



## INTRODUCTION

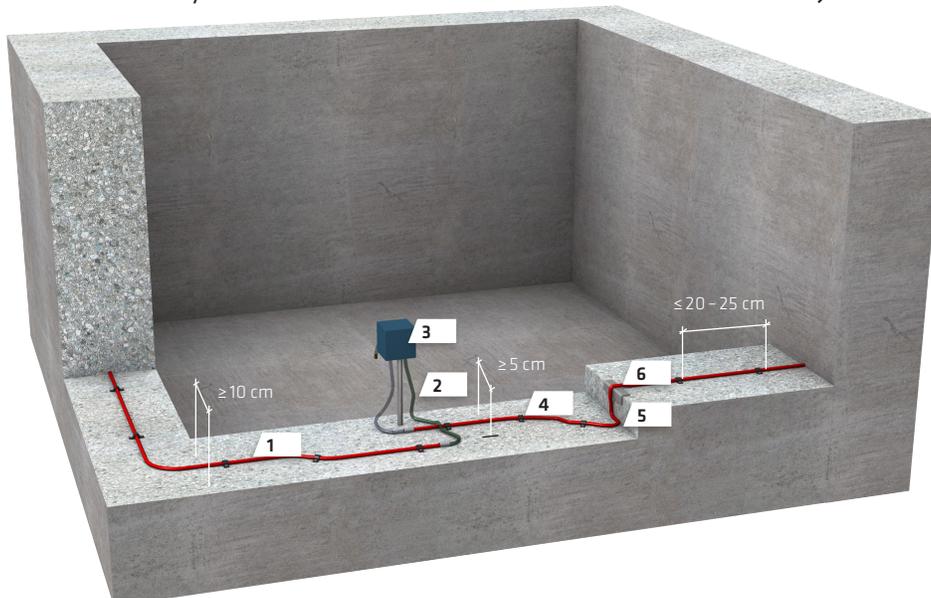
SikaFuko® is a range of specially designed, hollow-core, PVC injection hose systems. They are installed into concrete construction joints, the connections between structures and as additional security to waterstops to seal and waterproof cracks or voids. SikaFuko® systems seal joints and other details so they are watertight providing a complete maintenance solution should any future leaks occur. When used in conjunction with Sika® acrylate-based injection resins or micro-fine cement suspensions, the VT hoses can be re-injected many times – giving them a significant advantage over other injection hose systems.

Development of SikaFuko® VT re-injectable hose systems was a logical step forward in improving waterstopping technology. Using this state-of-the-art solution allows for 'zero leak tolerance' in important structures. It provides a unique solution and can be used where other waterproofing systems cannot be installed. The SikaFuko® range includes different types and dimensions of injection hose, with easy, safe and fast installation. They simplify the work on site and ensure watertight joints. SikaFuko® injection hoses can be installed in very difficult working environments, often with no additional work, changes in the structural design or reinforcement to existing formwork.

## KEY ADVANTAGES

- 20 years of international references
- Exclusive 'valve' design of VT version allows re-injection
- Suitable for a wide range of injection materials
- Cost effective and high performance waterproofing
- Can be used in complex and demanding situations
- Split-forming not needed and no additional formwork or reinforcement required
- Simply and safely injected with water to test watertightness
- Ideal support system in combination with waterstops
- Provide secure solutions for critical applications

## SikaFuko® System – ALWAYS IN CONTACT WITH THE JOINT



- 1 SikaFuko® VT
- 2 SikaFuko® PVC Vent-ends
- 3 Junction Box
- 4 SikaFuko® Clips
- 5 Run the injection hose in chases
- 6 Round off the edges for joint contact

# PROVEN WATERPROOFING APPLICATIONS



## BASEMENTS

SikaFuko® provides easy and cost effective joint sealing for basement or below-grade waterproofing. It seals everything from the most common, to the most difficult and complex details in either new build or retrofit applications.



## INFRASTRUCTURE

On infrastructure projects, such as tunnels, bridges, culverts and other structures, SikaFuko® systems represent an easy-to-install, cost effective method for waterproofing joints. They can also be employed as secondary security in combination with waterstops.



## WATER TANKS

In water tanks, water retaining or water treatment structures, SikaFuko® systems provide a high level of confidence. The various options offered through the use of different Sika injection products ensures that virtually all applications are catered to under difficult conditions, even including variable loading when high performance is achieved.



## INDUSTRIAL BUILDINGS

Operating with a range of chemically resistant Sika injection resins, SikaFuko® systems provide high quality waterproofing within many different types of industrial production and processing facilities.



## REFURBISHMENT

SikaFuko® systems can easily be installed on uneven surfaces. Therefore they can be used to seal joints in seriously damaged concrete structures. As a result SikaFuko® systems are ideal and widely used in renovation projects worldwide.



## CONSTRUCTION JOINTS

SikaFuko® systems provide highly cost effective joint sealing for virtually every type of concrete construction joint, including those that are complex and difficult to access. SikaFuko® hoses can often be the easiest and most secure method of joint sealing.



## ADDITIONAL SECURITY TO WATERSTOPS

SikaFuko® systems are also important as support for traditional methods of sealing, particularly in combination with waterstops. SikaFuko® injection hoses ensure that leaks, from poorly compacted concrete or improperly installed waterstops, can easily be sealed using Sika injection products.



## CONNECTIONS TO EXISTING STRUCTURES

Where expansion of a facility is to take place and the connection between the old and new concrete is critical, SikaFuko® systems provide the ideal solution for the joint. The systems can be installed on rough and uneven surfaces easily sealing any inadequate concrete or other defects in these areas.



## SPECIAL APPLICATIONS

The SikaFuko® systems can also be used for many other sealing applications requiring just the injection of the joints or even the entire area around the joints. They are extremely versatile and can be installed not only on concrete but onto many different substrates including stone, metals, plastics, etc.

# COMPLETE INJECTION SYSTEM

## SikaFuko® VT-1 and VT-2



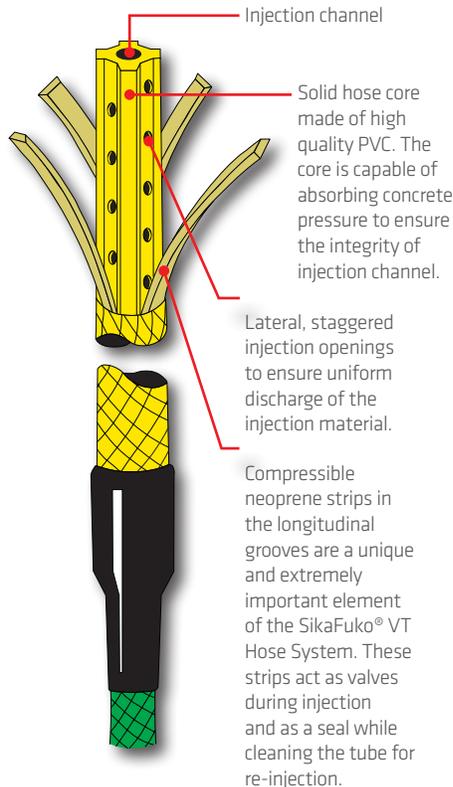
This unique valve technology has now been in use for more than 20 years. Many important structures around the world have been sealed with this system and it is the leading re-injectable hose for use in many difficult situations. Its benefits include:

- Global track record of success
- Stand-alone sealing or re-injectable
- Easy and fast to install

### Hose Specification

Strong yet flexible, PVC-based hose with compressible neoprene strips housed in grooves and covering staggered perforations to the hollow core, all encased in a webbed mesh. This creates an innovative, unique and very much effective joint waterproofing system.

Shape: Round  
 Internal Ø: VT-1: 6 mm (1/4 in)  
 VT-2: 10 mm (3/8 in)  
 External Ø: VT-1: 13.5 mm (9/16 in)  
 VT-2: 24 mm (15/16 in)



## SikaFuko® Eco-1



This is the most economical version of the SikaFuko® injection hoses with a simple but reliable design. Its flexibility allows easy and rapid installation. It is often used as secondary support for other joint sealing systems such as waterstops. Its benefits include:

- Suitable for planned, single injection
- Easy and rapid installation
- Ideal for back-up security

### Hose Specification

Spiral-cut injection channelled, PVC-based, hollow-core hose, wrapped within foam jacket with staggered perforations for the Sika® injection material to pass through and out into the joint.

Shape: Round  
 Internal Ø: 6 mm (1/4 in)  
 External Ø: 12.7 mm (1/2 in)

## SIKA® INJECTION SYSTEM SELECTION GUIDE

Injection Materials	SikaFuko® VT-1	SikaFuko® VT-2	SikaFuko® Eco-1
Sikadur® Epoxies	Single injection	Single injection	Single injection
SikaFix® Polyurethanes	Single injection	Single injection	Single injection
Sika® Injection Acrylates	Multiple injection	Multiple injection	Single injection
Sika® Injectocem Micro-cements	Multiple injection	Multiple injection	Single injection



Junction boxes for easy connectivity to hoses

# EQUIPMENT AND INJECTION

## PRACTICAL ON-SITE SOLUTIONS

In order to provide a complete package of solutions, a full range of tried and tested accessories has been developed around SikaFuko®. To meet the challenges of jobsites, key components such as options for hose types and sizes, alternative means for fixing and differing forms of injection materials and equipment, are all available.

The fast, easy installation and safe handling of the SikaFuko® injection hose systems is based on having these accessories available. They include:

- Vent-ends and connecting pieces for easy assembly.
- Different fixings and fixing methods for differing installation conditions.
- Alternative solutions for the location and installation of the vent-ends.
- Efficient equipment, including injection pumps, vacuum pumps (for multiple-injection work) and connections for such.
- Sika® injection materials – an extensive range of products ranging from acrylate resins and microfine cements for re-injection and polyurethane or epoxy resins for single injection works.

## UNIQUE MULTIPLE INJECTION / RE-INJECTION TECHNOLOGY

With water dispersed and flushable injection materials, such as acrylate resins or microfine cement suspensions, the VT injection hoses can be cleaned after the injection and then injected again immediately or at a later date.

This ability to install, inject, monitor and then re-inject, if necessary, provides a very high level of security. Owners and operators of structures can be confident that they have the means to easily address any future injection needs.

The process by which the VT hoses are contained within the concrete, initial injection is carried out, the hose is then cleaned and are then suitable for re-injection at a later date, is explained in the following 4 phases.

### ■ Phase 1: Concrete Pour

When the concrete is placed around the SikaFuko® VT hose, the external pressure of the concrete closes the neoprene strips over the injection openings, sealing them while the injection channel remains clear.



### ■ Phase 2: Initial Injection

When the internal injection pressure is applied in the hose, it compresses the neoprene strips and allows the injection material to flow out from the staggered perforations and through the longitudinal grooves. This controlled action ensures a uniform discharge of the injection material as required along the full length of the hose.



### ■ Phase 3: Hose Cleaning

When using a suitable Sika® injection material, SikaFuko® VT hoses are easily flushed clean with water, using vacuum pressure. This negative pressure also reseats the neoprene strips, preventing any injected material from being drawn back into the hose.

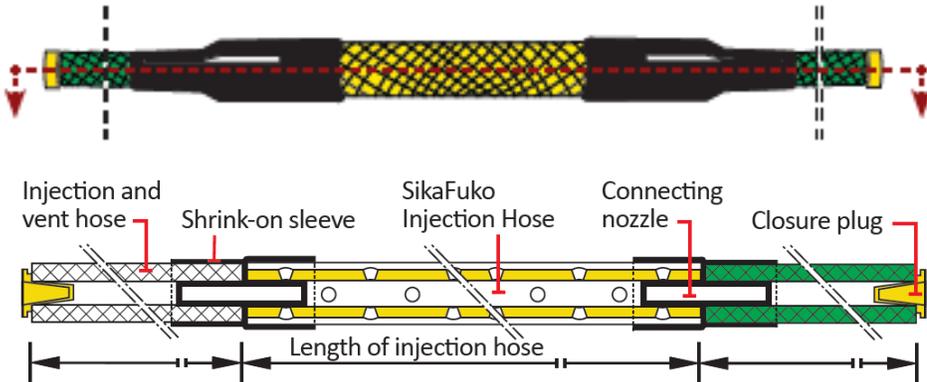


### ■ Phase 4: Future Injection

The SikaFuko® VT hose injection system is ready for re-injection, if and when it is needed.



# INSTALLATION AND INJECTION



See [SikaFuko® VT Hose Assembly and Fabrication Guide](#) for complete instructions.

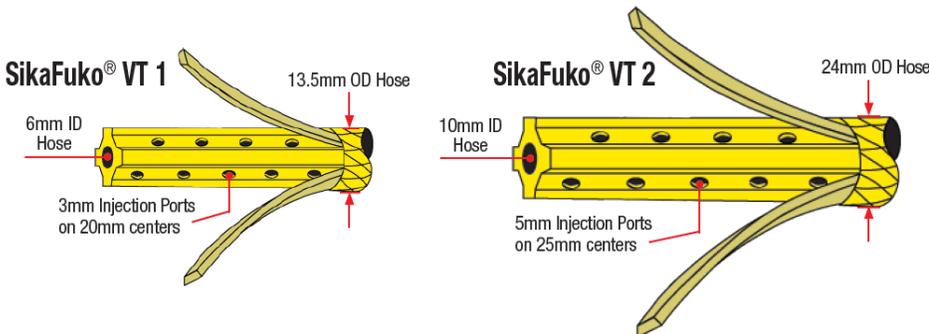
## SikaFuko® VT Installation

**SikaFuko® VT 1** can be installed in lengths up to 33 feet. **SikaFuko® VT 2** can be installed in lengths up to 66 feet. These lengths include fiber reinforced PVC ends. If longer lengths are required, please contact a Sika technical engineer.

**SikaFuko® VT** requires a minimum 2" concrete cover and a minimum 2" clearance between two parallel hose sections (Figure 1).

Intersecting hoses are required in most applications. The injection portion of the hose must maintain intimate contact with the concrete; vent sections can be overlapped (Figure 1).

1. Secure the **SikaFuko® VT** Hose to a flat, smooth concrete surface using special plastic clips or pipe clips every 8"-10" on center (see figures 1 and 2). **SikaFuko® VT** should not be installed in a buckled or constricted manner, nor should it be attached to reinforcing bars.
2. If injection of the **SikaFuko® VT** Hose is required, the injection pump is connected to the PVC vent ends. Fiber reinforced PVC vent ends should be exposed at the exterior in convenient, accessible locations for future injections. Junction boxes, nail packers, or simply continuing fiber reinforced vent ends to the outside of the concrete can be utilized (see figure 3).
3. When using junction boxes, continue fiber reinforced vent ends roughly 4" into the junction box. Tie vent ends together inside the junction box using cable ties or tie wire to secure during concrete placement.



## Fabricating SikaFuko® VT Hose

1. Cut the **SikaFuko® VT** Injection Hose to the desired length.
2. Attach fiber reinforced PVC vent ends to the **SikaFuko® VT** Hose using connecting nozzles, rapid glue, and shrink-on sleeves.
3. Closure plugs are installed on the fiber reinforced PVC vent ends to prevent impurities from entering the hose.

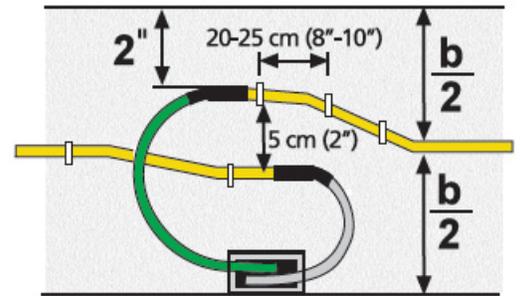


Figure 1

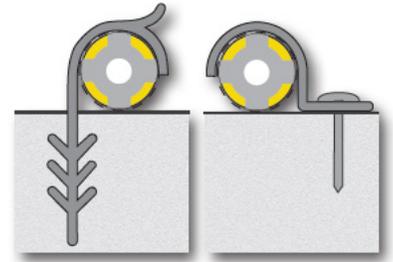


Figure 2

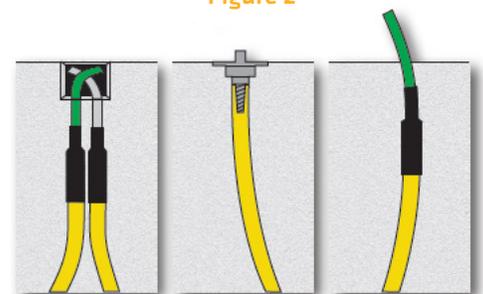


Figure 3

**SikaFuko® SYSTEMS** are designed to be fast and easy to use on site and versatile in accommodating many different applications and environmental conditions. The complete range of hoses, injection materials, accessories, tools and equipment ensures that successful, joint waterproofing solutions are available for wherever they are required.



**Fast and easy installation**



**Complete package of accessories**



**Mixing of an acrylate injection resin**



**Simple injection process on site**



**Secondary security to waterstops**



**Joint waterproofed and sealed**

# GLOBAL BUT LOCAL PARTNERSHIP



The sale of all Sika products are subject to the following Limited Warranty:

## **LIMITED MATERIAL WARRANTY**

Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor.

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