



# WATERPROOFING SikaFuko® INJECTION HOSE SYSTEMS

WATERPROOFING SOLUTIONS FOR CONSTRUCTION JOINTS

BUILDING TRUST



# PROVEN INJECTION HOSE SYSTEM

For construction joints, connections, back-up systems and other special applications

**SikaFuko® IS A RANGE OF SPECIALLY** designed solid core PVC Injection Hose Systems which can be installed in concrete construction joints to waterproof them and also to seal any cracks or voids in the joint areas. The SikaFuko® systems seal joints so that they are watertight and also they provide a complete maintenance solution if any leaks occur in the future.

## INTRODUCTION

Sika provides a full range of Injection Hose System from the economical SikaFuko® Eco 1, to the SikaFuko® Swell 1 a combination of Swelling Profiles with Injection hose, up to the established and well known SikaFuko® VT series with their unique valve technique.

SikaFuko® hose systems have been successfully used for the engineered waterproofing of construction joints in watertight concrete structures for several decades. In combination with Sika® Injection products, the SikaFuko® systems can be used for multiple re-injection over time, for example in critical situations, difficult ground conditions, settlement or variable loading etc. – a significant advantage over other injection hose systems. Developing the SikaFuko® Re-Injectable Hose System was a logical step forward in improving joint water-stopping technology and utilizing this state-of-the-art solution allows 'zero leak tolerance' in important structures. The SikaFuko® range consists of three types of injection hose, with easy, fast and secure installation, simplifying the work

required on site and ensuring watertight joints. SikaFuko® injection hoses can be installed in very challenging working environments, and normally without any additional works or changes to the reinforcement or formwork design and fixing systems. SikaFuko® therefore provides a unique solution and can be used where other waterproofing systems could not even be installed.

## KEY ADVANTAGES

- 30 year proven international track record
- Re-injectable systems available
- No drilling necessary for injection works
- Easy to install and very cost effective
- Can be used in complex and difficult situations
- No additional formwork or reinforcement works
- Ideal back-up in combination with waterbars
- Provides unique solutions for critical requirements



# FUNCTION OF SikaFuko®

**AN INJECTION HOSE SYSTEM** does not completely seal the joint on its own. It is necessary to also use a suitable injection material to ensure watertightness. The sealing principle of an Injection hose system is basically the joint filling principle. The construction joint is completely filled with the injection material, across the full width of the void, thereby preventing any water ingress through the joint into the structure.

## THE JOINT FILLING PRINCIPLE



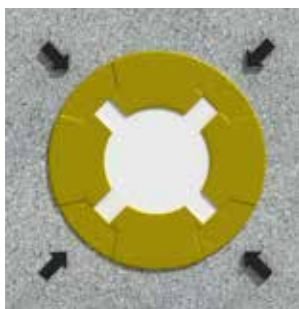
- No ingress of water into the structure
- Sealing of adjacent cracks, voids and imperfections is also possible

## INJECTION HOSE SYSTEM = INJECTION HOSE + SUITABLE INJECTION MATERIAL

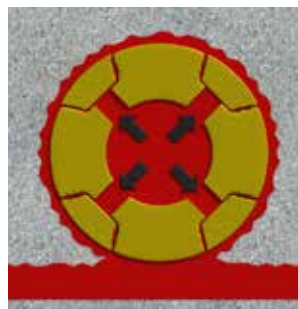


- An injection hose does not seal the joints completely by itself
- The injection hose is part of the system and a delivery tool for the injection material to seal the joints easily and securely

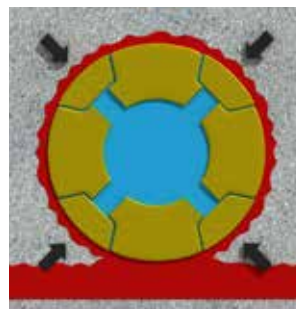
## WORKING PRINCIPLES OF SikaFuko® VT 1 AND SikaFuko® VT 2



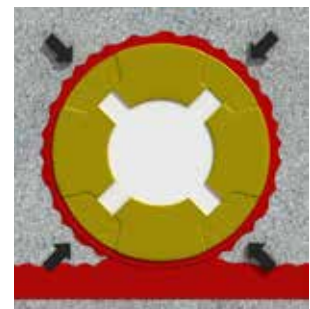
**Phase 1: Concrete Pour**  
When the concrete is placed around the SikaFuko® VT hose, the external pressure of the concrete closes the neoprene strips over the injection openings, sealing them off and the injection channel remains clear.



**Phase 2: 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 recessed openings. This controlled action ensures a uniform discharge of the injection material as required over the full length of the hose.



**Phase 3: Cleaning the Hose**  
When using a suitable Sika® Injection material, SikaFuko® VT hoses are easily flushed clean with water which is also removed by vacuum pressure. This negative pressure also reseats the neoprene strips, preventing any injected material from being drawn back into the hose.



**Phase 4: Ready for Future Injection**  
The SikaFuko® VT Hose injection system is ready for re-injection if and when it is needed.



# SikaFuko® – A FULL RANGE

## SikaFuko® VT 1 (VT 2)



This unique valve technique has now been used for more than 30 years. Many important structures around the world have been sealed with this system and it is the leading re-injectable system for use in many difficult situations:

- Track record over 30 years
- Re-injectable
- Easy and secure installation

### TECHNICAL DATA

PVC based hose with four neoprene strips in lateral grooves over staggered openings to the central core, all in a webbed mesh. This creates the unique localised valve effect.

Shape: round

Internal Ø: 6 mm (VT 2, 10 mm)

External Ø: 13.5 mm (VT 2: 24 mm)

Recommended length incl. vent ends:

VT 1 = 12 m (VT 2 = 16 m)

## SikaFuko® Swell 1 (formerly Sika Injectoflex HPM)



Two systems in one – this is a combination of an injection hose with additional hydrophilic rubber strips as well as our unique valve system. An injection is then only necessary in any areas where the hydrophilic strips can not expand sufficiently to achieve watertightness:

- Injection is not always necessary
- Provides double the security

### TECHNICAL DATA

Rubber based hose with three swellable strips and three neoprene strips in lateral grooves over staggered openings to the central core.

Shape: triangular

Internal Ø: 8 mm

External Ø: 20 mm

Recommended length incl. vent ends:

8 m

## SikaFuko® Eco 1



This is the most economic version of the SikaFuko® injection hoses with a simple but reliable design. Its flexibility allows easy and rapid installation. It is often used for additional back-up security with other joint sealing systems, such as waterbars:

- Re-injectable
- Easy and fast to install
- Ideal for back-up security

### TECHNICAL DATA

Spiral slot perforated PVC core hose covered in a foamed plastic layer with staggered perforations for the Sika Injection material to pass through.

Shape: round

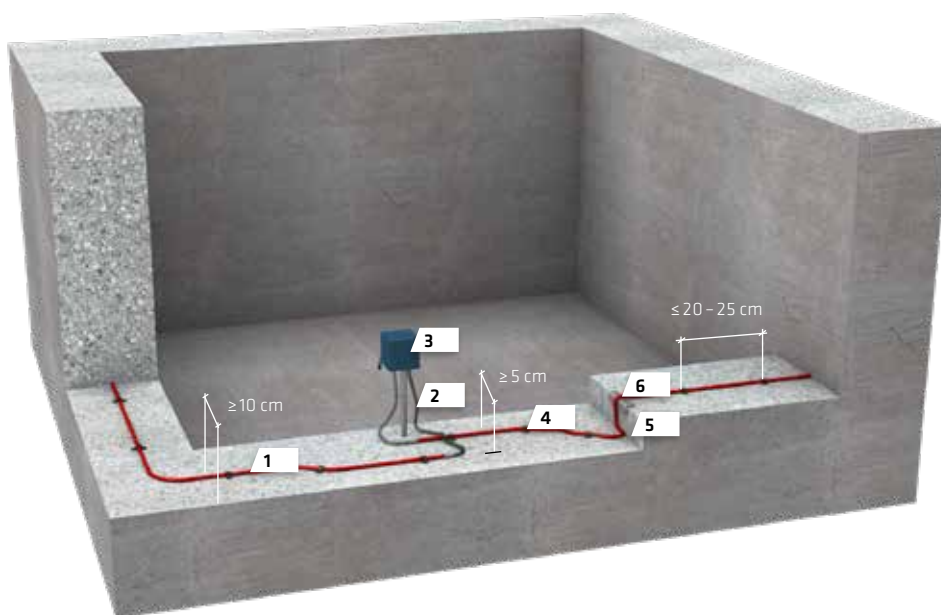
Internal Ø: 6 mm

External Ø: 12.7 mm

Recommended length incl. vent ends:

10 m

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



1

SikaFuko® Eco 1

2

SikaFuko® PVC Vent-ends

3

Junction Box

4

SikaFuko® Clips

5

Run the injection hose in chases

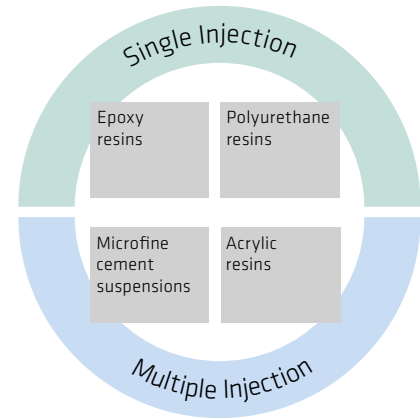
6

Round off the edges for joint contact

## SIKA INJECTION MATERIALS USED WITH SikaFuko® SYSTEM

Different Injection Technologies can be used as the injection material in combination with the SikaFuko® Hose Systems. If multiple Injection materials are used the SikaFuko® Hose can be sucked clean and emptied, so that the hose is ready for re-injection if and when required in the future.

Next to the resin technology it is also important to consider the viscosity and pot-life of the material. Higher viscosity materials need a higher internal injection hose diameter to be injectable; and a short pot-life could cause blockages in the SikaFuko® hose. Products with long pot-life are therefore usually recommended. The table below shows a selection of typically suitable combinations of injection materials and SikaFuko® Hose systems.



Injection hose system		SikaFuko® VT 1	SikaFuko® VT 2	SikaFuko® Swell 1	SikaFuko® Eco 1
Injection material	Sika® Injection-201 CE	X	X	X	X
	Sika® Injection-400 Series	X	X	X	X
	Sika® Injection-307/-310	XX	XX	XX	XX
	Sika® InjectoCem-190	XX	XX	XX	XX
	Cement paste	–	XX	–	–

X Single grouting    XX Multiple grouting (after vacuum)    – Not recommended

## SikaFuko® ACCESSORIES AND EQUIPEMENT

Practical Proven Solutions: A full range of proven accessories and equipment has been developed around the SikaFuko® systems. These alternative fixing options, ancillary materials and installation equipment all ensure that the SikaFuko® Injection Hose systems can meet all of the practical challenges for successful and secure installation on site.

The fast, easy and safe handling and installation of the SikaFuko® Injection hose systems is achieved using these accessories.

- Vent-ends and connecting pieces for easy assembly
- Different fixings and fixing possibilities for different installation conditions
- Alternative solutions for the location and installation of the vent-ends
- Efficient injection equipment including all of the hose
- Connections, injection pumps and vacuum pumps (for multiple-injection work)
- Sika® Injection materials – an extensive range of injection products based on all available technologies



# SikaFuko® SYSTEMS – INSTALLATION AND INJECTION

**SikaFuko® SYSTEMS ARE DESIGNED** to be versatile, fast and easy to use on site in many different applications and environmental conditions. The complete range of practical accessories, tools and equipment is designed to ensure practical solutions with alternative injection possibilities to provide successful joint waterproofing solutions wherever they are needed.



Easy and fast to install



Mixing of an acrylic based Sika injection resin



Practical accessories and equipment



Simple injection process on site



Back-up security for a waterbar system



SikaFuko® system in combination with SikaSwell® A Profile



# SikaFuko® – CASE STUDIES

## ROLEX SA RUE FRANCOIS-DUSSAUD LES ACACIAS, SWITZERLAND



### PROJECT DESCRIPTION

Basement for this prestige watch manufacturer.  
Construction period: 2004 – 2005.

### PROJECT REQUIREMENTS

Watertight concrete construction with double security in sealing the construction joints.

### SIKA SOLUTION

Sealing of 2'400 m of construction joints in the watertight concrete structure, using the SikaFuko® Swell 1 Injection Hose system.

## “PASAZ GRUNWALDZKI” SHOPPING CENTRE, BRESLAU, POLAND



### PROJECT DESCRIPTION

A major regional mixed development around a modern retail centre, which has greatly improved the area and made it attractive as a shopping destination.  
Construction period: 2005 – 2006.

### PROJECT REQUIREMENTS

Effective watertight sealing of construction joints in the basement areas.

### SIKA SOLUTION

Approximately 5'000 m of construction joints have been sealed with the SikaFuko® VT 1 Injection Hose system.

## RAILWAY BRIDGE, HALBERSTADT, GERMANY



### PROJECT DESCRIPTION

A major new railway bridge in the region of Halberstadt.  
Construction period: 2004.

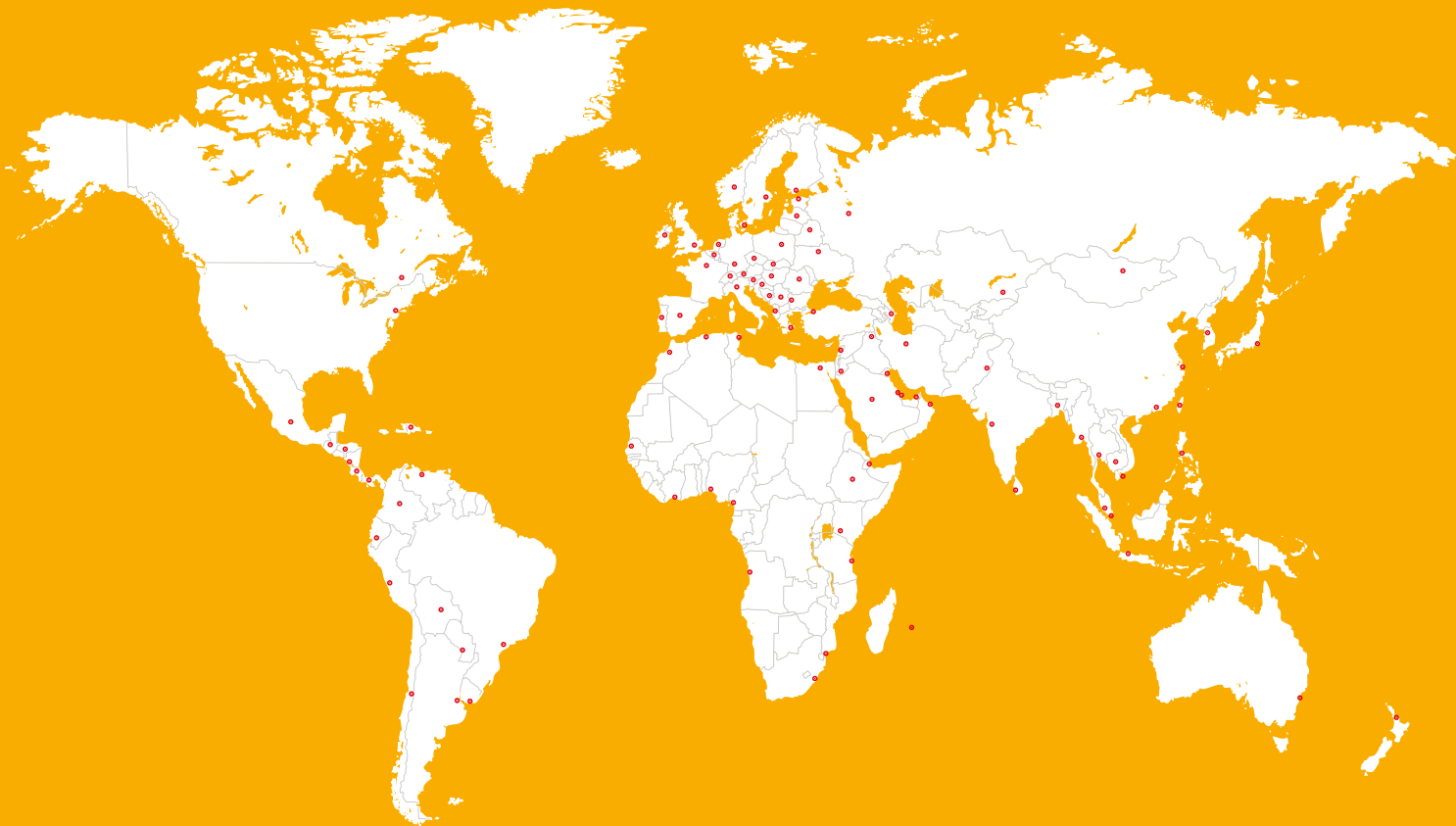
### PROJECT REQUIREMENTS

A special application to meet the engineers requirements for sealing between the steel structure and its concrete substructure.

### SIKA SOLUTION

Sealing of the transition from the steel to the concrete structure with the SikaFuko® Eco 1 Injection Hose system with special fixings to attach the hoses to the steelwork.

# GLOBAL BUT LOCAL PARTNERSHIP



## FOR MORE WATERPROOFING INFORMATION:



### WE ARE SIKA

Sika is a specialty chemicals company with a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing and protecting in the building sector and the motor vehicle industry. Sika's product lines feature concrete admixtures, mortars, sealants and adhesives, structural strengthening systems, flooring as well as roofing and waterproofing systems.

Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.



**SIKA SERVICES AG**  
Tueffenwies 16  
CH-8048 Zurich  
Switzerland

**Contact**  
Phone +41 58 436 40 40  
Fax +41 58 436 41 50  
[www.sika.com](http://www.sika.com)

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