MS-IN-KBPox-06.24

Method Statement

Crack injection with KÖSTER KB-Pox IN

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KÖSTER
Waterproofing Systems

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Waterproofing Systems

1 General information

1.1 Scope

This method statement is intended for use by developers, contractors and applicators as a general guideline for the application of the epoxy resin KÖSTER KB-Pox IN for crack injection and through saturation.

While this document describes the tools, equipment, materials, and step by step process for preparing and installing the waterproofing system, it must be used and referred to, in combination with all other relevant technical information available for the product and its components.

1.2 Manufacturer

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KÖSTER
Waterproofing Systems

1.3 Definitions

Cracks

A construction member cracks if stresses inside of it become larger than the resistance of the construction member. By cracking, the buildup of stresses is relieved. In comparison to the compressive strength, the tensile strength of concrete is quite low. This applies especially to fresh concrete. The most frequently encountered cracks are therefore tensile cracks and bending tensile cracks. There are many reasons which cause stress in construction members. In most cases, however, it is a combination of the following reasons: stresses through load, shrinkage, ground movement, and dilatation.

Dry, moist, wet, and water-bearing cracks

Cracks in the building substance are structurally weak points. Additionally, penetrating water may cause damage and may reduce the usage and lifetime of the building.

Epoxy resin

is a low-viscosity, high-strength adhesive that is used to fill and seal cracks in concrete, masonry, and other structural materials. It is injected or applied into cracks to restore the material's strength, prevent water ingress, and protect against further damage.

Pot life

The technical definition for the "pot life" of a resin is the time the resin takes to develop a viscosity of above 800 mPa.s. If the viscosity is above 800 mPa.s, the resin can no longer be satisfactorily injected. The pot life of the material is important to the applicator because it defines the time remaining for the injection of the material after it has been mixed properly. The pot life is influenced by the surrounding temperature and by the amount of material mixed at one time.

Compressive strength

is the maximum compressive load that a material can bear before failure. For epoxy resin, it indicates how much compressive force the resin can handle per unit area before it deforms or breaks.

Flexural strength

known as the modulus of rupture, bend strength, or transverse rupture strength, is a measure of a material's ability to resist deformation under load. is the maximum stress experienced within a material at its moment of rupture in a flexure test. It represents the material's ability to withstand bending forces applied perpendicular to its longitudinal axis.

Adhesive tensile strength

the maximum tensile stress that an adhesive can sustain before failure when applied to bonded substrates. It quantifies the adhesive's ability to resist separation under tension.

2 System description

2.1 System features

KÖSTER KB Pox IN is a solvent-free, 2-component low viscous epoxy injection resin for crack injection. KÖSTER KB-Pox IN does not contain any fillers or softeners and thereby sedimentation is avoided. Due to its high rate of penetration into porous substrates and its excellent adhesion to concrete, stone, masonry, and metal, KÖSTER KB-Pox IN permanently seals and bridges cracks and restores structural integrity. KÖSTER KB-Pox IN can be used in water-saturated cracks.

KÖSTER KB-Pox IN fulfills the requirements of the Emissions testing acc. the test and evaluation scheme of AgBB (Commitee for the health assessment of building products) with requirement class A +.

2.2 Characteristics/Advantages

- Extremely low viscosity for deeper penetration and injection of very fine cracks
- Restores the structural bond
- Suitable for dry and moist cracks
- For vertical cracks the material is injected
- For horizontal cracks the material is poured through saturation
- Practical 1 kg plastic combi-package reduces waste

2.3 Main products and components

KÖSTER KB-Pox IN
Solvent free, 2 component low viscous epoxy injection resin for crack injection. Due to its high rate of penetration into porous substrates and its excellent adhesion to concrete, stone, masonry and metal, KÖSTER KB-Pox IN permanently seals and bridges cracks and restores structural integrity. The material does not contain any fillers or softeners and thereby sedimentation is avoided.

See online

KÖSTER Screed Anchor
6 mm x 70 mm
for force transmitting filling of cracks in screed substrate.

See online

KÖSTER Packer
13 mm x 130 mm CH
The KÖSTER Packer is particularly suitable for pressure injections. The arrangement of the split packer rubbers results in excellent contact pressure in the borehole. The opening pressure of the cone-head fitting on the KÖSTER Packer 13 x 130 is around 70 bar. This means that at a pressure of 100 bar at the pump, around 30 bar can be expected in the borehole.

See online

KÖSTER One-Day-Site Packer 13 mm x 120 mm CH
The KÖSTER One-Day-Site Packer allows injection work to be completed in one day. The screw packer for pressure injection has a firmly mounted cone-head fitting and two non-return valves. Immediately after injecting, that part of the port which protrudes from the wall can be unscrewed and removed. The central part of the port stays in the wall sealing the borehole so that no injection material can flow out of the borehole even under high pressure. The borehole can then be closed immediately after injection.

See online

KÖSTER KB-Fix 5
an extremely fast-setting waterproof and weatherproof mortar for swift installations. It is a frost-resistant mortar with fast early and final strength and good adhesion to mineral substrates.

See online

2.4 Associated products

KÖSTER Impact Packer 12 mm x 70 mm

See online

KÖSTER Gel Packer (Base)

See online

KÖSTER Lamella Impact Packer

See online

KÖSTER Lamella Impact Packer Adapter

See online

KÖSTER One-Day-Site Packer 13 mm x 90 mm PH

See online

KÖSTER One-Day-Site Packer 13 mm x 120 mm PH

See online

KÖSTER One-Day-Site Packer 13 mm x 90 mm CH

See online

KÖSTER One-Day-Site Packer 13 x 120 mm CH

See online

KÖSTER Superpacker 10 mm x 85 mm CH

See online

KÖSTER Superpacker 13 mm x 130 mm CH

See online

KÖSTER Superpacker 10 mm x 115 mm CH

See online

KÖSTER Universal Cleaner

See online

2.5 Associated literature

- Technical Data Sheet
- KÖSTER Product Flyer: Injection Resins
- Environmental Product Declaration (EPD): KÖSTER KB-Pox IN
- KÖSTER Injection matrix: Resins
- References

3 Tools and Equipment

3.1 Tools

Measuring tool

Trowel

Wire brush

Tools for packers

KÖSTER 13 mm drill bit for SDS Plus Chuck (Masonry)

Drill bit 14 mm SDS Plus (Concrete)

KÖSTER Resin Stirrer 75 mm / 100 mm

KÖSTER Drill Hole Cleaner

Mixing vessels

Measuring cup

3.2 Equipment

Driller

KÖSTER 1C Injection Pump

3.3 Cleaning

Clean tools immediately after use with KÖSTER Universal Cleaner.

4 Environmental, health and safety

4.1 Personal Protection Equipment (PPE)

The following is a short overview of Personal Protective Equipment and serves only as a guideline. Contractors and Employers are responsible for meeting the occupational safety guidelines in their countries, states, and localities.

Eye protection
Employers must be sure that their employees wear appropriate eye and face protection and that the selected form of protection is appropriate to the work being performed and properly fits each worker exposed to the hazard. Tightly sealed safety glasses must be worn.

Head protection
Employers must ensure that their employees wear head protection if any of the following apply: Objects might fall from above and strike them on the head; they might bump their heads against fixed objects, such as exposed pipes or beams; or there is a possibility of accidental head contact with electrical hazards.

Foot and Leg Protection
Employees who face possible foot or leg injuries from falling or rolling objects or from crushing or penetrating materials should wear protective footwear.

Hand Protection
When selecting gloves to protect against exposure hazards, always check with the manufacturer or review the manufacturer's product literature to determine the gloves' effectiveness against specific workplace chemicals and conditions. Gloves commonly used are: Coated fabric gloves and Chemical - and Liquid - Resistant Gloves.

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. Suitable material: NBR (Nitrile rubber). Penetration time (maximum wearing period): 480 min. Breakthrough times and swelling properties of the material must be taken into consideration.

Hearing protection
Suitable hearing protection must be provided for the job environment.

Skin protection
When handling with chemical substances, protective clothing with CE-labels including the four control digits must be worn.

Respiratory protection
Work in well-ventilated zones or use proper respiratory protection.

Environmental exposure controls
Avoid release to the environment. In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

4.2 Material safety & First Aid

Every KÖSTER product is labeled with specific information and symbols as to the related dangers. Please consult the respective Material Safety Data Sheet for specifics.

You can access the Material Safety Data Sheets by scanning the QR codes on the packagings.

If inhaled:
Provide fresh air. Move the victim to fresh air. Put the victim at rest and keep warm. In case of irregular breathing or respiratory arrest provide artificial respiration. No mouth-to-mouth or mouth-to-nose resuscitation. Use Ambu bag or ventilator. If unconscious but breathing normally, place in the recovery position and seek medical advice.

In case of contact with eyes:
Rinse immediately carefully and thoroughly with eye bath or water. Call a physician in any case!

After ingestion:
Rinse mouth immediately and drink plenty of water. Remove casualty to fresh air and keep warm and at rest. Rinse mouth thoroughly with water. Let water be drunk in little sips (dilution effect). Caution if victim vomits: Risk of aspiration! If unconscious but breathing normally, place in the recovery position and seek medical advice.

After contact with skin:
Wash with plenty of water. Change contaminated clothing.

4.3 Waste disposal

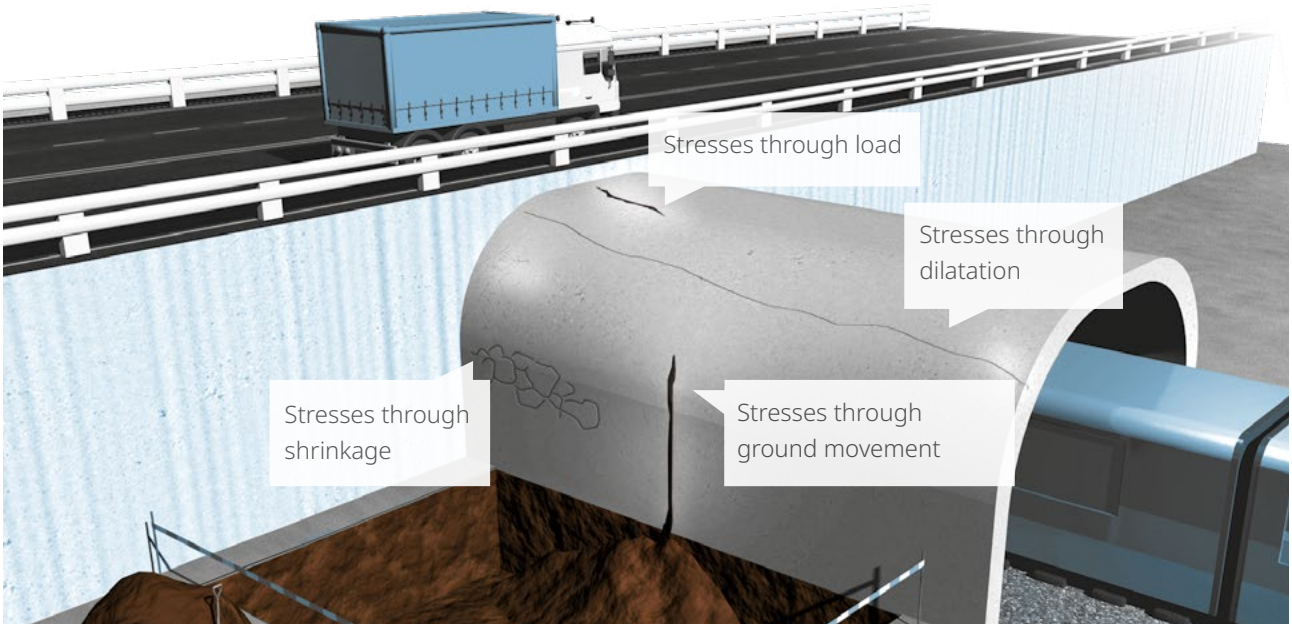
Waste treatment methods
Advice on disposal
Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation.

Contaminated packaging
Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

5 Crack details

5.1 How do cracks form?

A construction member cracks if stresses inside of it become larger than the resistance of the construction member. By cracking, the buildup of stresses is relieved. In comparison to the compressive strength, the tensile strength of concrete is quite low. This applies especially to fresh concrete. The most frequently encountered cracks are therefore tensile cracks and bending tensile cracks. There are many reasons which cause stresses in construction members. In most cases however, it is a combination of the following reasons:



5.1.1 Stresses through load

If a load is applied to a construction member, stresses develop inside which e.g. transmit the load into the foundation of the construction member. Loads which affect a building or construction member are e.g. vehicles crossing a bridge or even wind which impacts on a building. Also the self-weight of the construction member is a load which the construction member has to carry. If the load exceeds the load capacity of the construction member, cracks occur.

5.1.2 Stresses through shrinkage

Concrete shrinks during the curing process. Moreover, heat develops during the hydraulic reaction of the concrete. Both factors can, especially on long construction members, lead to strong interior stresses and hence to cracks. Usually, reinforcement and expansion joints help to avoid such cracks. If expansion joints do not exist or if they are not fully functional, stresses occur in the construction member. This can lead to cracks.

5.1.3 Stresses through ground movement

Stresses through ground movement occur through earthquakes, through setting of the building, through increases or decreases in the water table, through new construction sites in the vicinity, etc. Because of these movements, changes may occur during the load transfer from the building through the foundations into the supporting ground. These changes lead to stresses in the supporting and non-supporting construction members of the building which can lead to cracks.

5.1.4 Stresses through dilatation

Thermal impact, e.g. exposure to sunlight can warm up construction members. If building materials are warmed, they expand. If they are then cooled down, they shrink again. The movements which occur during warming up and cooling down cause stresses in the construction member and lead to cracks.

5.2 How to analyze crack movements?

A moving crack, is a crack where one of the flanks or both change their location.
In order to detect if the crack is moving (live crack) or not moving again (dead crack), we have to perform a simple Insite test.
A gypsum mark serves as a crack monitor. A bone-shaped layer of gypsum with a thickness of 10 mm is applied to the cracked surface. Gypsum marks must be numbered and dated. Moreover, the position and state of the installed gypsum marks is to be documented with drawings or photographs at regular intervals over a certain period of time.
The gypsum marks are frequently checked. If the mark is unbroken, the crack did not move. If the crack has moved, the gypsum mark will have cracked right over the crack in the substrate. Professional crack monitors measure and record the course of movements in the crack over time.

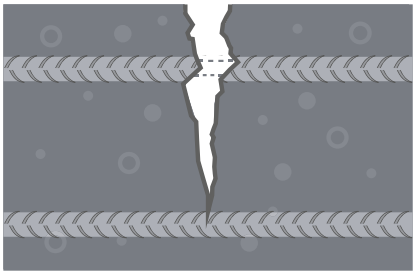
5.3 Reasons for injection

Cracked construction elements
Construction Elements like columns, slabs, beams ….etc. must be injected when cracked for the following reasons:

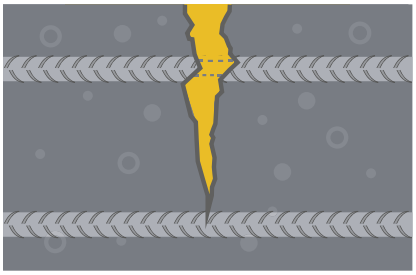
- Restoring the mechanical strengths of the construction element (compressive, tensile, flexure…etc) and therefore retaining the efficiency and performance of those elements.
- Preventing water/fluids leakage through the concrete.
- Preventing corrosion of the reinforcement steel bars inside the concrete element due to water and CO2 penetration through cracks.
- Retaining the element features and shape, to restore the initial Architectural design.

Preventive waterproofing

If cracks only represent minor defects, they are often repaired preventively in order to avoid further damage.

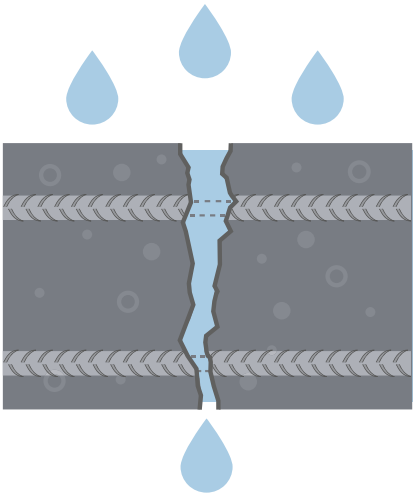


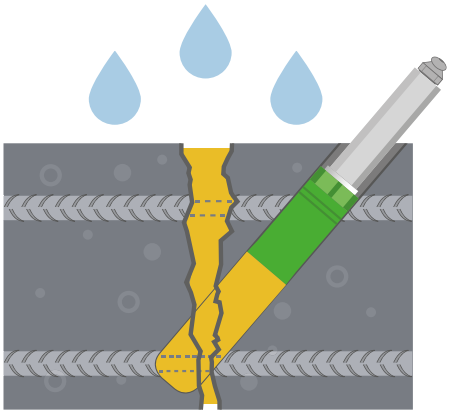
This particularly includes corrosion prevention, the consequential damage of which (e.g. spalling of the concrete cover) later inevitably leads to higher renovation costs.



Waterproofing

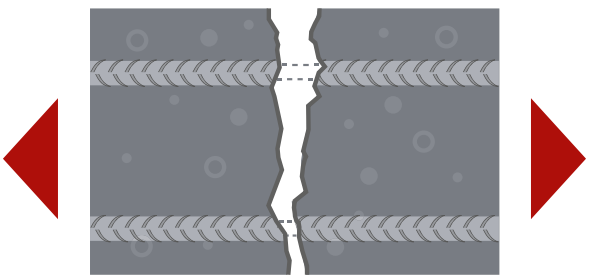
If the cracks represent a major deficiency, for example because water penetrates through cracks in basements, such cracks can limit the usability of the building. Penetrating water often causes consequential damage, for example corrosion of the reinforcement and restricted usability. In these cases, active water flow must first be stopped. The cracks are then permanently waterproofed over their entire cross-section. Cracks that still show movement must be filled with an elastic material that is able to absorb the movement of the building component such as KÖSTER 2 IN 1 or KÖSTER IN 5.

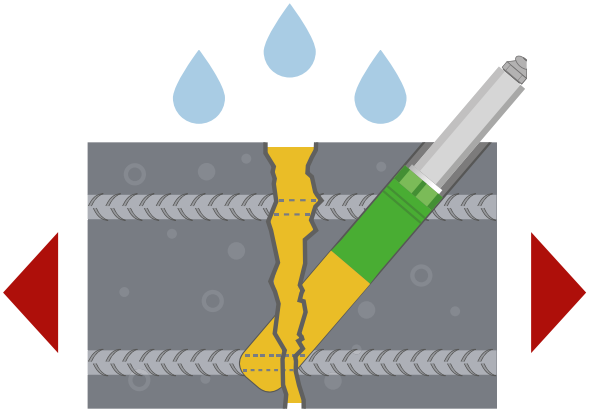




Elastic bonding or structural repair

Cracks that still show movement must be filled with an elastic material that is able to absorb the movement of the building component. Cracks which, on the other hand, are not subject to changes in the width can be connected structurally. Such cracks are injected with a rigid resin (KÖSTER KB-Pox IN) in order to restore the structural strength of the component. The here used Injection materials – regardless of their chemical concept - always have adhesive tensile values that exceed the tensile strength of healthy concrete (well over 1.5 N/mm^2). In this way, the integrity of the component is completely restored at this point.





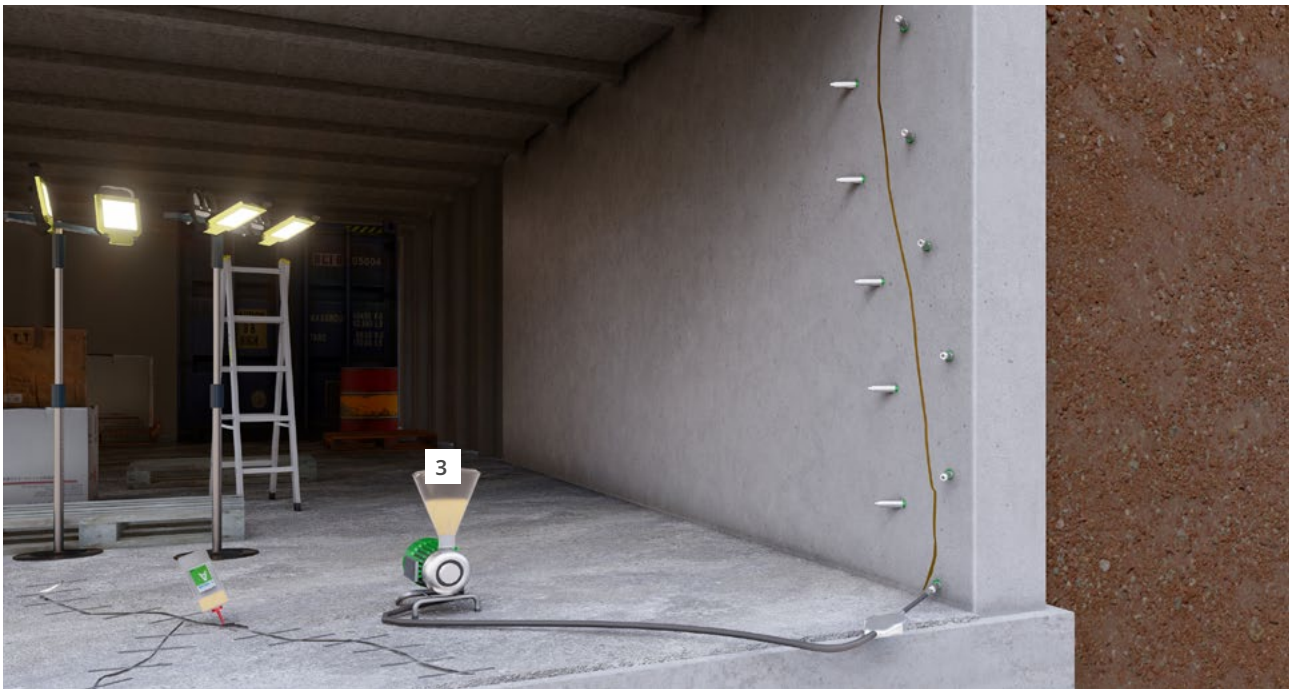
6 Fields of application

6.1 General fields of application

KÖSTER KB-Pox IN is used without pre-injection for filling and closing dry, damp, and wet cracks, cavities, and defects in concrete. KÖSTER KB-Pox IN is used in cases where crack flanks or unequal structural members have to be structurally bonded together such as in concrete elements or engineering structures like tunnels or bridges, underground garages, etc.

- Structurally bonding of the structure with epoxy solid body resin
- Bonding horizontal and vertical cracks in columns, beams, walls, and floors
- Sealing horizontal cracks on floors or screeds before installation of the coatings system

6.2 Example: crack injection



1. Installing the packers	KÖSTER Packer 13 mm x 130 mm CH
	KÖSTER One-Day-Site Packer 13 mm x 120 mm CH
2. Injection resin	KÖSTER KB-Pox IN
3. Pump	KÖSTER 1C Injection Pump

Installation process:

Open the crack in a V-shape 1 to 2 cm deep and remove loose particles and dust with a wire brush.

Mark the positions where the boreholes are going to be drilled. Boreholes are placed along the course of the crack on alternating sides at intervals of approx. 10 cm to 15 cm. The holes are drilled toward the crack at an angle of approx. 45°.

Clean the boreholes using pressurized air with KÖSTER Drill Hole Cleaner or clean water.

Close the crack along its course with KÖSTER KB Fix 5. Closing the crack prevents injection material from prematurely flowing out of the crack during the injection.

Install KÖSTER Superpackers in the boreholes and tighten the packer using a wrench.

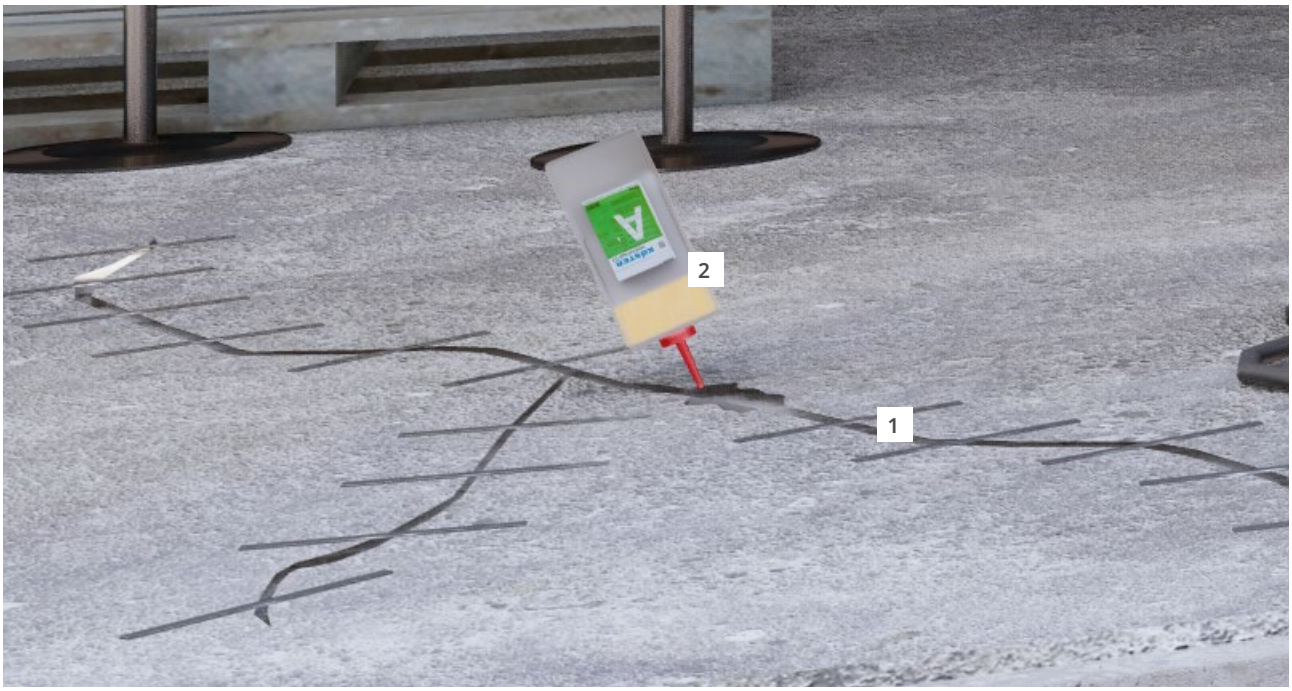
Fill the required amount of the A component into a clean bucket. Then, add the B component. Thoroughly mix the A and B components in a mixing ratio (by weight) of 3.14:1 (A:B) using a slowly rotating mixer until a homogeneous color (free of streaks) is reached. Re-pot the material and mix it again to avoid mixing failures.

Prepare the pump for injection as recommended in the operating manual. Fill the mixed resin into the material hopper. The ready mixed material must be used up within the pot life.

Connect the injection whip to the fitting of the packer and open the valve on the injection whip by turning the lever 90°. Inject the KÖSTER KB-Pox IN injection resin via the KÖSTER Superpackers into the crack proceeding from bottom to top. KÖSTER KB-Pox IN is injected using conventional single-component injection pumps such as the KÖSTER 1C Injection Pump.

After full cure of the injection resin, remove the injection packers and seal the boreholes with the KÖSTER KB-Fix 5. Clean the pump with the help of KÖSTER Universal Cleaner as recommended in the operating manual of the pump.

6.3 Example: Crack filling



1. Placing the screed anchors — KÖSTER Screed Anchors 6 mm x 70 mm
2. Epoxy resin (saturation) — KÖSTER KB-Pox IN

Installation process:

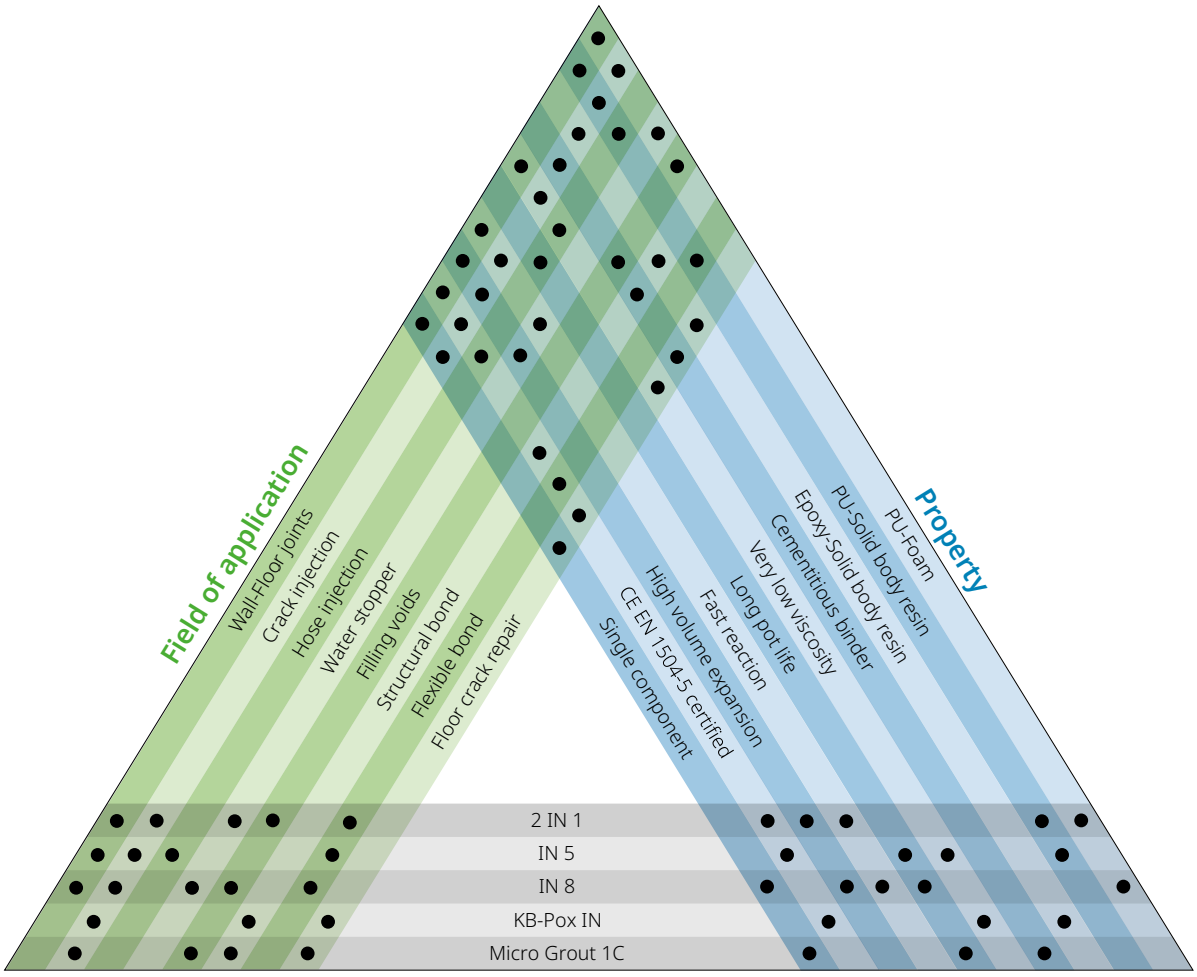
Thorough cleaning of the crack and cross cuts is essential. A vacuum cleaner is used to remove loose particles, oils, grease and other contaminants, ensuring a clean surface for optimal results.

The combined 1 kg container is specifically designed for filling cracks. To use it, component B should be added to the plastic bottle containing component A. After securely closing the bottle, the contents must be vigorously shaken for at least 30 seconds until a uniform consistency is reached. Transferring the mixture to another container is not required. Once mixed, attach the pouring spout to the bottle and pour the material directly into the crack.

KÖSTER Quarzsand (0.036 – 0.355 mm) is broadcasted over the surface to enhance the mechanical adhesion of the subsequent flooring system.

7 Injection matrix

To be able to choose from the wide range of KÖSTER Injection resins, this chart will lead to the right choice:



8 Substrate preparation

8.1 Project site conditions

8.1.1 Application temperature

The A and the B components are recommended to be mixed at +15 °C in the given mixing ratio of 3.14:1 (A:B) by weight or 2.8:1 (A:B) by volume using a slowly rotating electrical mixer preferably equipped with a KÖSTER Resin Stirrer. The material must be mixed until it is streak-free and homogeneous in appearance and consistency. Re-pot the material and mix again to avoid any mixing failures. The ready mixed material must be used within the given pot life. The application temperature is between +5 °C and +30 °C. Ideally, the material should be tempered to +15 °C before mixing and injection. Temperatures above +25 °C will increase the reaction rate and reduce the pot life.

8.1.2 Relative humidity

The humidity may promote the reaction of the material and foam creating a foam skin on top.

8.1.3 Rain and frost

KÖSTER KB-Pox IN material should be protected from all external sources to avoid premature reaction of the resin.

8.2 Substrate requirements

Cleaning the surface helps the specialist to identify the exact location and the width of the crack that has to be injected. Things that obscure the crack should be removed since the crack must be seen in order to lay out the drilling patterns for the intake holes. The cracks must be free from loose particles, dust, oil, grease, or any other contamination. Packers used must be secured to seal any drilled opening.

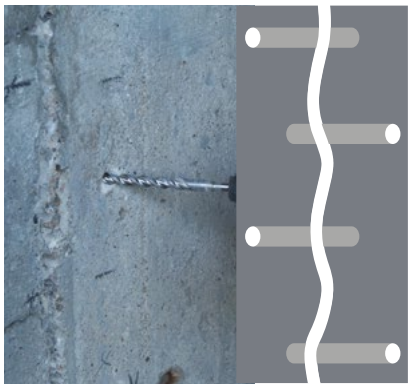
9 Application techniques

9.1 Vertical application

9.1.1 Crack preparation and packer installation

Open the crack in a V-shape 1 to 2 cm deep and remove loose particles and dust with a brush.

Mark the positions where the boreholes are going to be drilled. Boreholes are placed along the course of the crack on alternating sides at intervals. Usually, the spacing of the packers are determined by the thickness of the wall or structure divided by 2.



The holes are drilled toward the crack at an angle of approx. 45°. Clean the boreholes using pressurised air or water.

Clean the crack using a wire brush.

Pre-wet the crack.

Close the crack along its course with KÖSTER KB Fix 5. Closing the crack prevents injection material from prematurely flowing out of the crack during the injection. Setting time is approx. five minutes, depending on the surrounding temperature and humidity.

Install KÖSTER Packers from bottom to top in the boreholes leaving about every third borehole open.

Use a wrench to tighten the packer.

9.1.2 Mixing of the KÖSTER KB-Pox IN

- Fill the required amount of the A component into a clean bucket. Then, add the necessary amount of the B component.
- Thoroughly mix the A and B component in a mixing ratio of 1:1 (A:B) using a slowly rotating mixer with KÖSTER Resin Stirrer until a homogeneous color (free of streaks) is reached.
- Use a clean mixing vessel for each batch or respectively clean the mixing vessel every time before mixing a new batch.

In case of partial mixing

When partial portion to be used, keep in mind the mixing ratio by weight is 1:1 (A:B) and by volume is 1.2:1 (A:B). After partial removal, the containers must be closed immediately (do not mix up the caps) and turned "upside down" once to seal the closures from the inside.

9.1.3 Filling and preparing the pump

Prepare the pump for injection as recommended in the operating manual. Fill the mixed resin into the material hopper. The ready mixed material must be used up within the pot life.

KÖSTER 1C Injection Pump

Electrical 1C injection pump for injecting of cracks and voids. It is suitable for the injection of KÖSTER 2 IN 1. Operating pressure can be adjusted from 0-200 bar. The maximum delivery rate is approx. 2.2 l/min.

Characteristics	Value
Electrical connection	230 V/2.25 A/50 Hz
Operating pressure	0-200 bar
Delivery rate	max. 2.2 l/min
Capacity	6 l
Measurements h (with hopper)/w/l	44 (78)/30/50 cm

Included in the packaging

- 6 l material hopper
- 5 m high pressure material hose d=6 mm (inside)
- High pressure ball valve/mouth piece, M 10x1
- Manometer max. 200 bar
- Operating manual

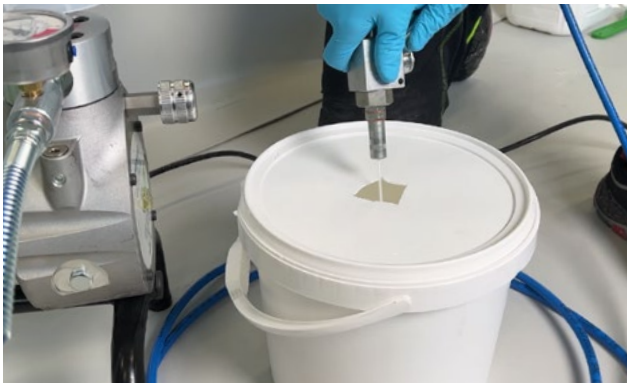
9.1.4 Injection of KÖSTER KB-Pox IN

- Connect the injection whip to the fitting of the packer.
- Open the valve on the injection whip by turning the lever 90°.
- Now the injection material is being pumped into the crack.
- Inject the material into the packers from bottom to top
- After full cure of the injection resin, remove the injection packers and close the boreholes with a mortar e.g., KÖSTER KB-Fix 5.

9.1.5 KÖSTER 1C Injection Pump cleaning

Start with cleaning the pump with the help of KÖSTER Universal Cleaner as recommended in the operating manual of the pump. Approximately 2 liters of KÖSTER Universal Cleaner is necessary to flush the pump and free the hoses from oil.

After the injection is done, fill the hopper with KÖSTER Universal Cleaner and pump the residual material out of the pump into a bucket. The circulation line must also be cleaned to avoid material clogging of the pump.



9.2 Horizontal application

KÖSTER KB-Pox IN can be applied through the pouring (saturation) method. The combined 1 kg container is especially available for effective crack filling.
The determination of the crack width is facilitated by using the KÖSTER Crack Gauge.

At 10 cm intervals, cross-cuts along the course of the crack are made with a grinding machine equipped with a diamond disc. The crack and cross-cuts are cleaned with a vacuum cleaner or a wire brush and must be free of loose particles, oils, grease, and other contaminants.

The KÖSTER Screed Anchors 6 mm x 70 mm are placed into the prepared cross-cuts.

Component B must be filled into the plastic bottle of component A. The bottle is closed again and both materials are mixed intensively by shaking for at least 30 seconds until a homogeneous consistency is achieved. Repotting is not necessary in this case. After mixing, the pouring spout is screwed onto the bottle and the material can then be poured directly into the course of the crack. Fill the crack and the prepared cross-cuts with KÖSTER KB-Pox IN until saturation. Repeat this step until a uniform surface is achieved.

After a lapse of 45 minutes, KÖSTER Quartz sand (0.036 – 0.355 mm) is broadcasted over the surface to improve the mechanical adhesion of the following flooring system.

The removal of the excess quartz sand is carried out after 12 hours by vacuuming.

Final curing and hardening of the material are achieved after 24 hours. After 7 days, KÖSTER KB-Pox IN achieves a compressive strength of approx. 80 N/mm² and a flexural strength of approx. 35 N/mm².

10 Consumption rates

Approx. 1.1 kg/l void (solid resin)

How much material has to be injected into the crack?

It can only be indirectly determined if enough resin has been injected into the crack. The following three paragraphs describe the most frequently used ways to determine if enough material has been injected into the wall:

1. Prior to the injection, every third borehole is left open. When KÖSTER KB-Pox IN is injected via an injection packer, it can travel through the crack to the open borehole next to that injection packer. Enough material has been injected into that particular injection packer, when KÖSTER KB-Pox IN comes out of the next open borehole. Then the injection is stopped and an injection packer is installed in the open borehole. After that, the injection can be continued via the next injection packer. The newly set packer must then also be injected.

2. Another sign that the crack cannot be filled further via a certain injection packer is that a counter-pressure develops in the crack. The increase in pressure is shown on the pressure gauge of the injection pump and less or no more material is being pumped into the crack via that particular injection port. Then the injection is interrupted and one can move on to the next injection packer.

3. Yet another and frequently occurring sign is that resin comes out of the wall somewhere.

Attention:

Even the most experienced applicator cannot look into the wall. It must always be taken into consideration that even with the most diligent application it is possible that due to inconsistencies inside the wall or other reasons it can become necessary to reinject at a later date. This also includes setting new packers.

11 General notes

11.1 Material storage

Store the material at temperatures between +10 °C and +30 °C. In originally sealed packages, the material can be stored for 12 months.

11.2 Packaging

1 kg combipackage

6 kg combipackage

11.3 Important considerations

- At +20 °C, 100 g mixture (EN ISO 9514), the pot life of KÖSTER KB-Pox IN is approx. 45 minutes.
- Mixed material must be used immediately and entirely after mixing. Material residues must be stored outdoors as they develop a high reaction heat and smoke may form. This also applies to large-volume applications.
- When applying the KÖSTER 1C Injection Pump, only small containers (1 kg) tempered to +15 °C should be used to prevent accelerated reactions.
- Liquid polymers react to temperature fluctuations by changing their viscosity and/or curing behavior. Low temperatures will slow the reaction; high temperatures will accelerate the reaction rate. Mixing large volumes will also increase the reaction rate. Coatings must be protected from moisture in all forms will also increase
- Wear protective gloves and goggles. When carrying out injection work, make sure to protect the surroundings from injection resin that may be discharged from the wall, packers, drill holes, etc. Do not stand directly behind the packers during injection. For professional use only.

11.4 Limitations

- Due to water displacements, reinjections may be necessary to address localized areas.

12 Certifications

- **Test report MPA Braunschweig (1200/625/17) Pan dated May 9th, 2017 Testing of performance and identity features on the epoxy resin KÖSTER KB-Pox IN according to DIN EN 1504-5**
- **WZ "KB-POX" protected, German Patent Office, 395 06 702**
- **Bremer Environmental Institute GmbH, Emissions testing acc. the test and evaluation scheme of AgBB (Committee for the health assessment of building products), AZ: L 2750 FM, 23.10.2020, Level A+**

13 Legal disclaimer

This method statement reflects general cases with standard parameters. It is not suitable as a step-by-step guide for all and each waterproofing projects as the conditions on site at the moment of the application cannot be foreseen. It is solely the applicator's responsibility to decide on the actual procedure considering the specific situation on the construction site. In any case, KÖSTER's Terms of business are valid and can be viewed under www.koester.eu