

Method Statement

Joint sealing with KÖSTER Joint Tape 20/30



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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 joint sealing system KÖSTER Joint Tape 20/30.

While this document describes the tools, equipment, materials and process for preparing and installing the joint sealing system, it must be used and referred to, in combination with the technical data sheet available for the product and its components.

1.2 Manufacturer

KÖSTER BAUCHEMIE AG
Dieselstraße 1-10 Tel. 04941/9709-0
D-26607 Aurich

info@koester.eu www.koester.eu 



KÖSTER
Waterproofing Systems

1.3 Definitions

Crack bridging

Crack bridging waterproofing means that a waterproofing system remains intact even though the substrate has cracked. Often “crack-bridging” is confused with “elastic”. An elastic material may be far from waterproof when stretched. An elastic material may also be waterproof under normal circumstances, but not once water pressure is applied.

Elasticity

Elasticity is the ability of a material to return to its original form, after been exposed to external forces, e.g. stretching or compressing.

Expansion joint

Expansion joints are joints that were implemented intentionally into the structure to give the chance for the concrete to expand and contract without cracking. Expansion joints subject to negative water pressure required injection because traditional joint sealing systems cannot not withstand the demands over time.

Construction joint

A construction joint is formed when new concrete is poured against already set concrete. This joint is intentionally placed to divide and facilitate the construction process. Construction joints are typically found in large foundation slabs, wall/floor connections and columns, among others.

Positive side waterproofing

Positive side waterproofing means that the waterproofing layer is applied to the side of the construction member which is in direct contact to the water.

Thixotropic

A thixotropic material is a material that present a thinner more flowable consistency when an external force is applied to them, like agitating or mixing, and after removing the force, the material regains its original thicker consistency.

2 System Description

2.1 System features

KÖSTER Joint Tape 20/30 is a thermoplastic tape for sealing expansion and dilatation joints and irregular cracks. KÖSTER Joint Tape 20/30 is UV resistant, highly elastic and can withstand extreme movements. The joint

Tape System consists of the KÖSTER Joint Tape 20/30 and KÖSTER KB-Pox Adhesive, (a 2 component epoxy based, thixotropic high performance adhesive) which are applied as a system.

2.2 Characteristics/Advantages

- Joint tapes available in 20 cm and 30 cm width
- Elongation of over 400%
- Resistant to temperatures from -30°C to +80 °C
- Resistant to bitumen contact
- Resistant to water pressure of 8 bar
- Resistant to low pH
- Resistant to sea and waste water
- High UV resistance
- Resistance to acids and alkalis.
- Resistance to organic solvents such as esters and ketons.

2.3 Main products and components



KÖSTER Joint Tape 20

Thermoplastic tape for sealing expansion and dilatation joints (up to 12 cm) and broad, irregular cracks. KÖSTER Joint Tape 20 is UV resistant, highly elastic and can withstand extreme movements in the joint. The joint tape system consists of KÖSTER Joint Tape and KÖSTER KB-Pox Adhesive, a high-performance adhesive for fastening the tape to mineral substrates.

[See online](#)



KÖSTER Joint Tape 30

Thermoplastic tape for sealing expansion and dilatation joints (up to 20 cm) and broad, irregular cracks. KÖSTER Joint Tape 30 is UV resistant, highly elastic and can withstand extreme movements in the joint. The joint tape system consists of KÖSTER Joint Tape and KÖSTER KB-Pox Adhesive, a high-performance adhesive for fastening the tape to mineral substrates.

[See online](#)



KÖSTER KB-Pox Adhesive

KÖSTER KB-Pox Adhesive is a 2 component, epoxy based, high performance adhesive. The material is thixotropic, has a pastelike consistency, contains no solvents and has a 100 % solids content. It is specially designed for fastening KÖSTER Joint Tapes to mineral, wooden and metal substrates. KÖSTER KB-Pox Adhesive develops a high adhesive strength to concrete, mortar, metal, wood and many other building materials. It develops high early strength. Vertical and overhead application is possible. If overhead the fresh applied Tape should be protected against falling down.

[See online](#)

2.4 Associated products



KÖSTER Universal Cleaner

[See online](#)



KÖSTER Spatula

[See online](#)

2.4 Associated literature

- [Application manual Joint Tape](#)
- [Technical Data Sheet](#)
- [System Brochure Waterproofing of Construction Joints](#)

3 Tools and Cleaning

3.1 Tools



KÖSTER Resin Stirrer
75 mm / 100 mm



KÖSTER Spatula



Hand pressure
roller 40 mm

3.2 Equipment



Drilling machine or
cordless screwdriver
(for the resin stirrer)



Leister Hot-Air
Hand Tool with
Wide Slot Nozzel

3.3 Cleaning

Clean tools from KÖSTER KB-Pox Adhesive immediately after use with KÖSTER Universal Cleaner. KÖSTER Universal Cleaner is a solvent free cleaning agent for bituminous materials and epoxy resins. Cured material must be mechanically removed.



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 occu-

pational 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.

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.

Hearing protection

Suitable hearing protection must be provided for the job environment.

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.

For KÖSTER KB-Pox Adhesive:

If inhaled

Provide fresh air. Move victim to fresh air. Put 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 recovery position and seek medical advice.

After contact with skin

Wash with plenty of water. Change contaminated clothing.

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

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water. Call a physician in any case!

After ingestion

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 recovery position and seek medical advice.

4.3 Waste disposal

Disposal recommendations

Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation.

Guidance on classification of waste according to EWC-Stat categories

List of Wastes Code - residues/unused products
080111 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES,

SEALANTS AND PRINTING INKS; wastes from MFSU and removal of paint and varnish; waste paint and varnish

containing organic solvents or other hazardous substances; hazardous waste

Contaminated packaging

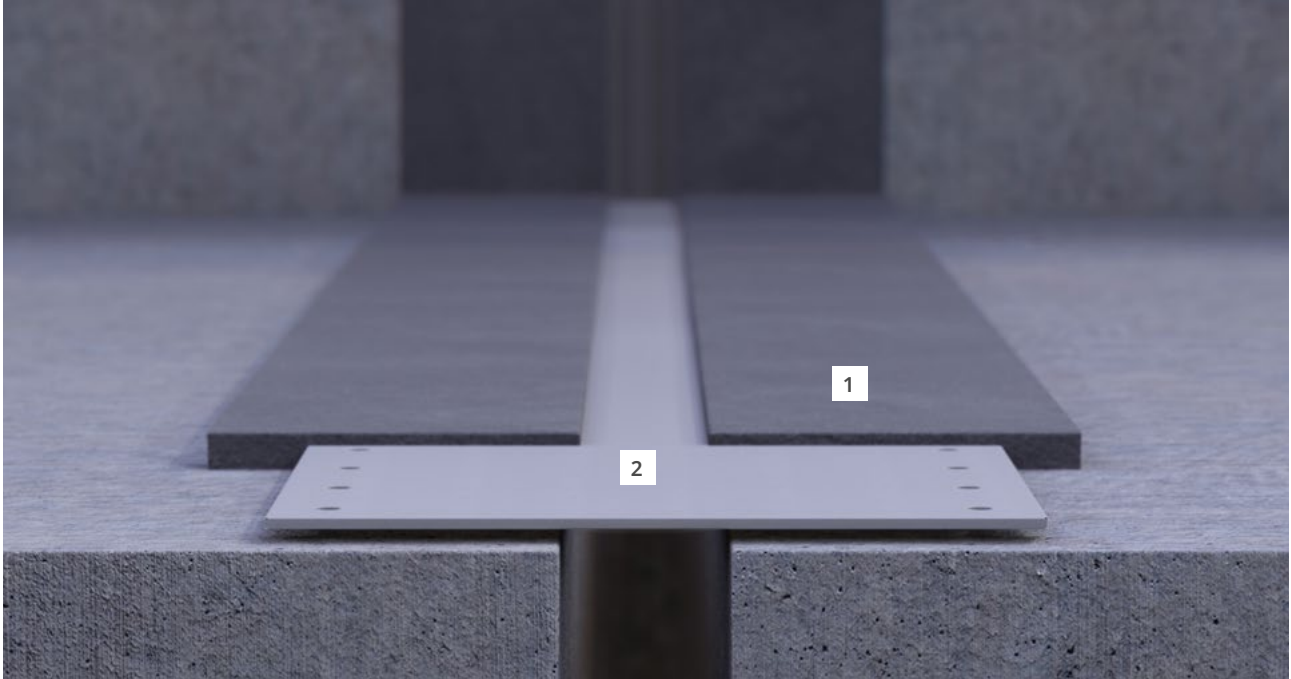
Completely emptied and non-contaminated packages can be recycled. Handle contaminated packages in the same way as the substance itself.

5 Fields of application

5.1 General examples

- Waterproofing horizontal and vertical dilatation joints
- Waterproofing wide and irregular cracks
- Connection joints of slabs and walls
- Sealing UV exposed joints between structures
- Sealing joints in water basins, tunnels, waste water tanks, etc.

5.2 Example for Waterproofing horizontal and vertical dilatation joints



1. Epoxy adhesive
2. Joint sealing

KÖSTER KB-Pox Adhesive
KÖSTER Joint Tape 20
KÖSTER Joint Tape 30

Installation process:

Movement joints must be waterproofed durably, elastically, form stable, and UV resistant. A joint waterproofing must allow for movement in the construction without causing damage to the construction itself.

Movement joints up to a width of 35 mm can be waterproofed with KÖSTER Joint Sealant FS. For wider joints, such as expansion and dilation joints, KÖSTER Joint Tapes are used.

The KÖSTER Joint Tape is a thermoplastic tape for waterproofing expansion joints. It comes in widths of 20 cm (for up to 12 cm wide joints) and 30 cm (for up to 20 cm wide joints).

The KÖSTER Joint Tape System consists of the KÖSTER Joint Tapes and KÖSTER KB-Pox Adhesive, a 2 component, epoxy based high performance adhesive.

Firstly, the KÖSTER KB-Pox Adhesive is applied onto the stable and prepared substrate.

As a rule, the substrate must be cleaned or removed down to a solid and stable base material, then leveled and primed if necessary. The substrate must be clean, solid, dry, and free from adhesion inhibiting materials, such as waxes, oils, and old coatings. Defect areas and joints must be smoothed for eg. with KÖSTER WP Mortar; the mortar has to be dried out completely before applying the KÖSTER KB-Pox Adhesive. Then, the KÖSTER Joint Tape is bonded over both flanks of the joint with the first layer of adhesive, making sure that the tape has a good contact to the adhesive. Afterwards, the KÖSTER Joint Tape is embedded into a second coat of KÖSTER KB-Pox Adhesive.

6 Substrate Preparation

6.1 General site conditions

6.1.1 Application temperature

The jointing system should be applied at temperatures between +5 °C and +35 °C.

Do not apply the material in direct sunlight with temperatures over +35 °C.

Do not apply the material when the temperature is below +5 °C.

6.1.2 Substrate temperature - Dew point

At the dew point, water condenses on the surface of the concrete when the surface temperature is +3 °C above

the dew point. The jointing system cannot be applied on a wet concrete substrate.

6.1.3 Moisture content in substrate

The maximum moisture content should not exceed 5 %. Concrete substrates must have minimum 28 days of curing.

6.1.4 Rain & frost

The freshly applied system must not be exposed to mist, rain, intense heat, snow and frost until the final curing is achieved.

6.2 Requirements

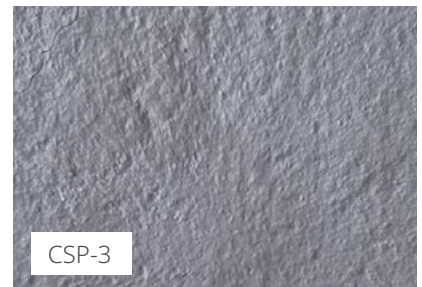
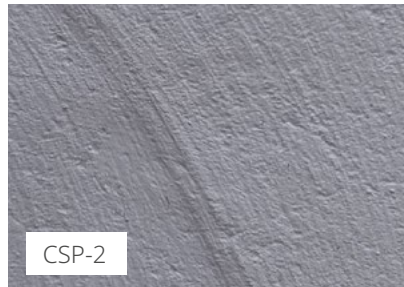
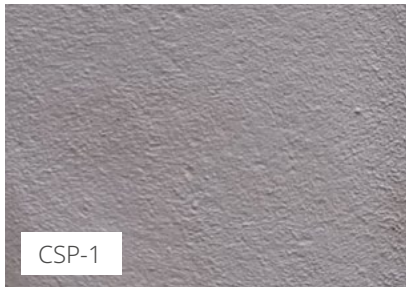
- Surfaces must be clean, dry, sound and solid.
- On damp surfaces the pull off strength should be tested.
- Dust, oil, grease, old coatings, laitance, efflorescence, rust, curing compounds, wax, formwork release agents, and similar contaminants must be removed prior to application.
- Concrete surfaces: if necessary, the substrate must be sanded, ground, or shot blasted to guarantee an optimal adhesion of KÖSTER KB-Pox Adhesive.
- Metal surfaces: Must be cleaned to SA 2 ½ standard
- Concrete substrates must have a minimum 28 days of curing.
- Defects and open joints have to be smoothed with eg. KÖSTER Repair Mortar WP

6.3 Preparation

6.3.1 Concrete surfaces

Concrete surfaces must be prepared to have an open pore surface free of laitance. The surface roughness must present a structure corresponding to a Concrete Surface Profile CSP-3, CSP-4 or CSP-5 according to the

guidelines by the International Concrete Repair Institute (ICRI). The surface must then be intensively cleaned prior to the installation.



6.3.2 Metal substrates

Metal substrates must be clean, free of oil, grease and any other contaminant that inhibits the adhesion. Rusty metal surfaces must be cleaned to SA 2 ½ standard.

Sa 2 ½ means "near white metal" – no corrosion or rust is left.

6.4 Levelling & repairing the surface

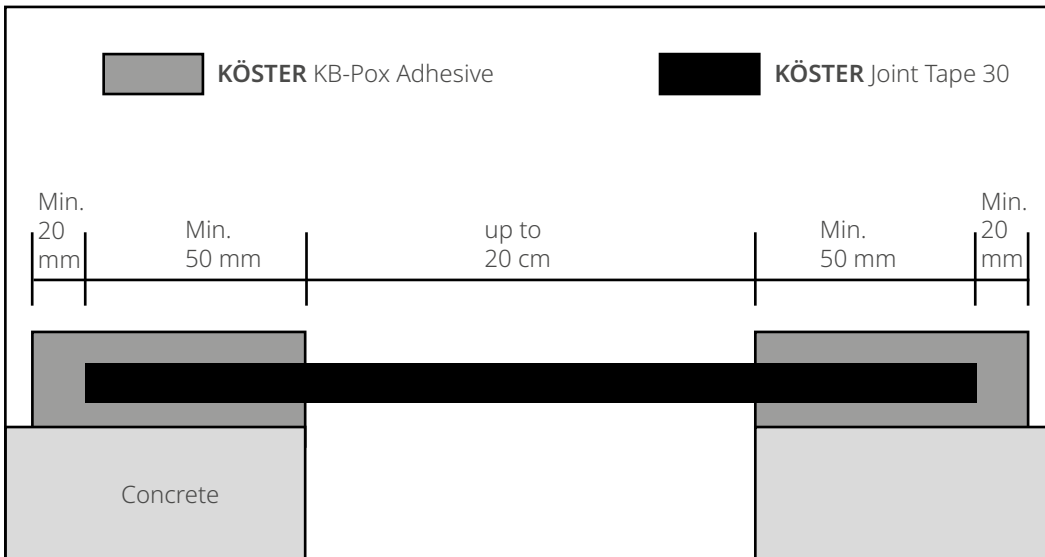
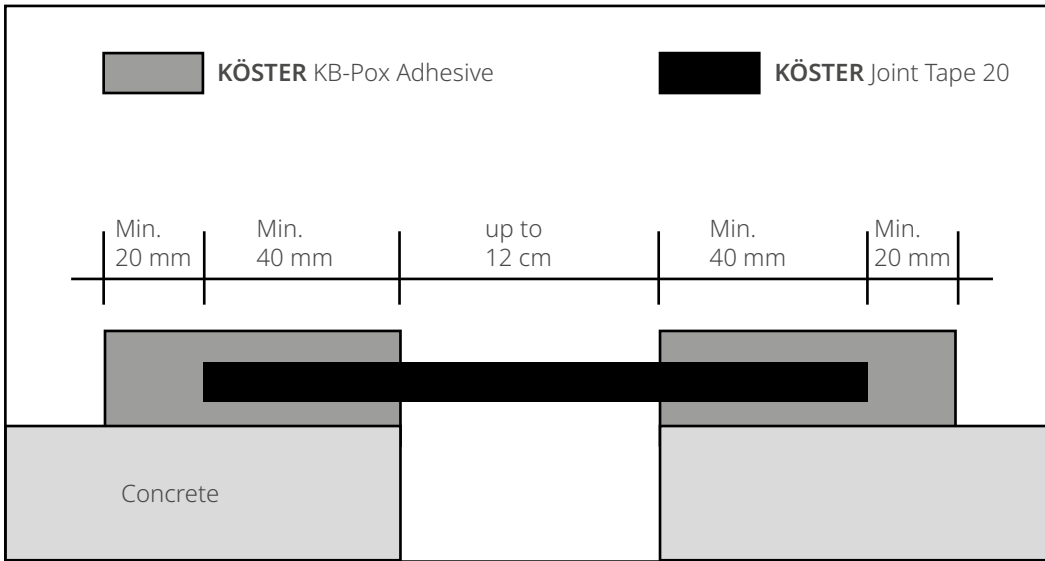
Concrete surfaces must sound, clean and dry. It must be also free from holes and cavities.

The concrete surface at both sides of the joint must be leveled and free from loose or weak parts.

Surface repairs shall be made of KÖSTER Repair Mortar Plus approx. 24 hours prior applying the KÖSTER KB-Pox Adhesive.

7 Application Techniques

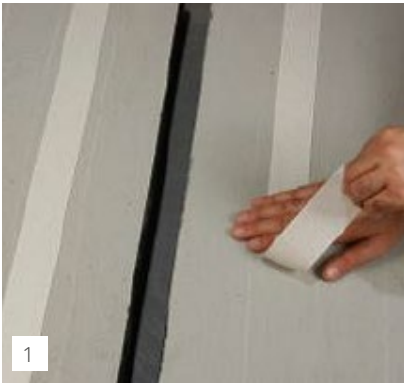
7.1 General guideline



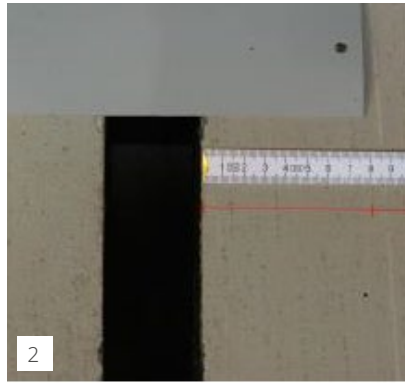
For joint widths up to 12 cm, the KÖSTER Joint Tape 20 is embedded into the adhesive at least 40 mm. For joint widths up to 20 cm The KÖSTER Joint Tape 30 is embed-

ded at least 50 mm. The KÖSTER KB-Pox Adhesive is applied so that it covers the substrate next to the tape at least 20 mm.

7.2 Applying the KÖSTER KB-Pox Adhesive



1
Mask both sides of the joint with tape.



2
Embed KÖSTER Joint Tape 20 minimum 4 cm and KÖSTER Joint Tape 30 minimum 5 cm into the adhesive on each side. The adhesive is applied 2 cm further onto the substrate.



3
Mix the A and B component of the KÖSTER KB-Pox Adhesive to reach a homogenous grey color. Apply then the KÖSTER KB-Pox Adhesive on both sides approximately 1-2 mm thick.

7.3 Applying the KÖSTER Joint Tape 20/30



1
Press the tape into the fresh adhesive layer using the hand press roller or a suitable trowel



2
Immediately apply a second layer of adhesive on top of the tape and overlapping the masking tape on the sides. The center of the tape must stay free of adhesive.



3
Remove the masking tape on both sides before the adhesive cures in order to achieve a clean finish.



4
Leave the system for 24 hours to cure.

7.4 Welding between the KÖSTER Joint Tape 20/30 rolls

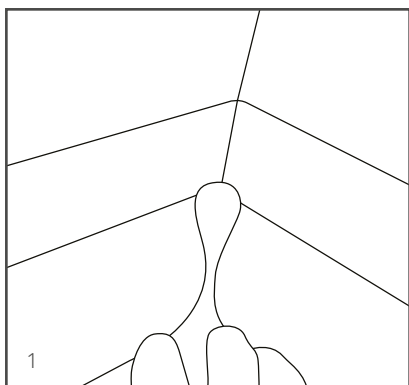
KÖSTER Joint Tape 20/30 can be welded with a hot air welding machine set to between +270 °C and +325 °C. Welding of the tape should be carried out prior to the application.

Before welding the tape, roughen the seam area with a wire brush or sandpaper.

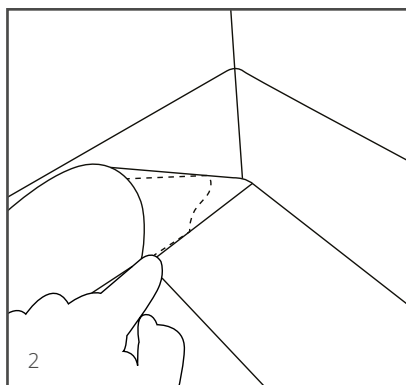
To weld the tape, place it on a level substrate and heat the overlapping ends with a hot air gun. Press the ends of the tape together firmly using the KÖSTER Rubber Hand Roller. In this way lengths greater than 20 m (the length of 1 roll) can easily be made on site.

The seam must cool completely before installation.

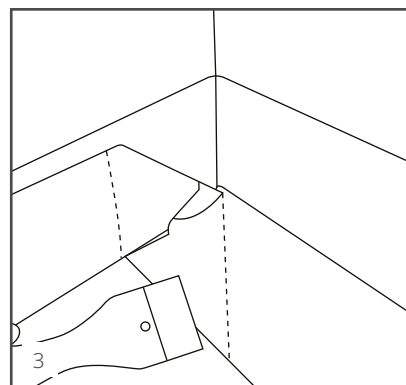
7.4.1 Interior corner



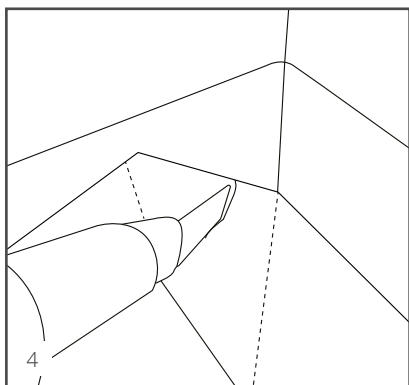
Position the tape so that it is aligned in the center of the corner, with half of its width on the horizontal surface and the other half on the vertical side. Then, form the extended middle fold into a crease at a 45-degree angle.



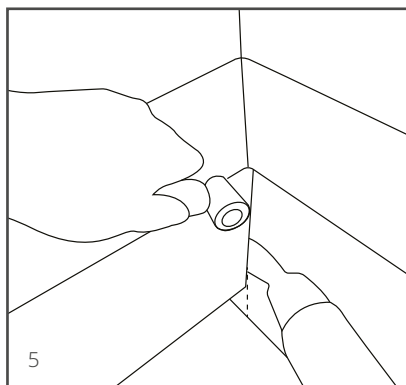
Trim the crease to create a pocket that is 50 mm in size.



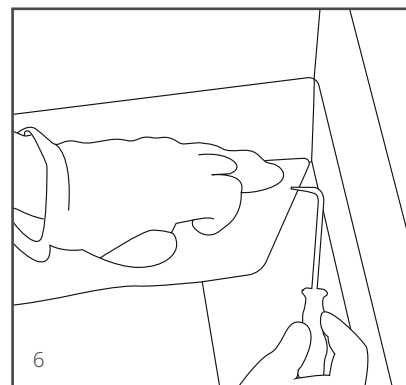
Before welding the tape, roughen the seam area with a wire brush or sandpaper.



Heat the inside of the pocket with hot air welding machine. Set the temperature between +270 °C and +325 °C.

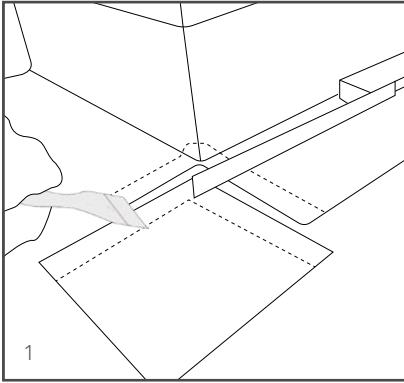


Seal the overlap shut by welding it, and apply firm pressure on the pocket manually. The welding process should begin from the inside of the corner and proceed outward. Then, use a roller and a hot air welding gun to weld the overlap securely.

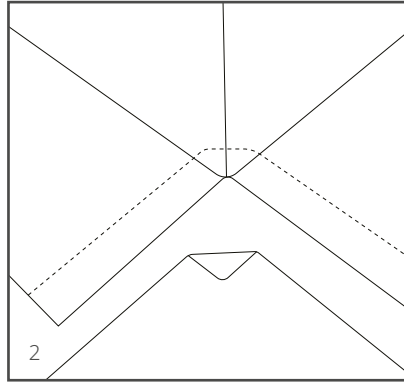


Allow the welding area to cool down, and use the KÖSTER Weld Seam Tester to examine and ensure that the seam is securely sealed.

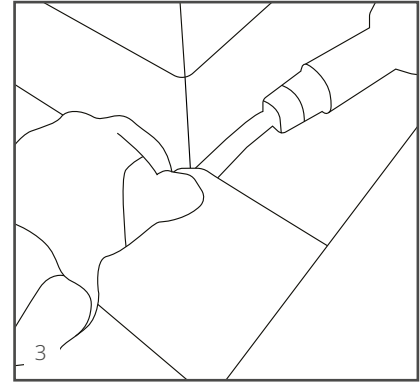
7.4.2 External corner



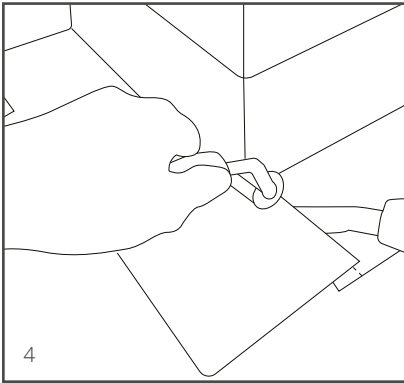
1
Cut the horizontal side and fold the tape around the corner. Trim the horizontal side of the tape and then wrap it around the corner, folding it neatly.



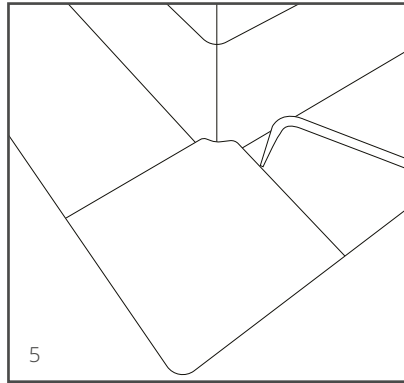
2
Designate and mark the welding area. Roughen the welding area on the corners to prepare it. Heat and shape the piece to precisely fit over the corner area.



3
Heat weld the piece vertically around the corner and press it on the previously applied tape.



4
Weld the piece on one side of the corner with the aid of the KÖSTER Silicone Hand Pressure Roller 40 mm.
Repeat for the other side.



5
Allow the welding area to cool down, and use the KÖSTER Weld Seam Tester to examine and ensure that the seam is securely sealed.

8 Chemical resistance table

The KÖSTER Jointing Tape System is resistance to the following chemicals*:

Name of Chemical	Temperature	Rating
Acetic Acid (10 %)	RT	+
Sulfuric Acid (5%)	RT	+
Hydrochloric Acid (10 %)	RT	o
Diesel Fuel	RT	o
Fuel Oil	RT	o
Gasoline	RT	o
Ethyl Alcohol	RT	o
Water	95C	+
Hydraulic Oil	RT	o
IPA	RT	o
Detergent	RT	+
Lime Water	RT	+
Sea Water	RT	+
Sewage Water	RT	+
Liquid Manure	RT	+
Mineral Oil	RT	o
Sodium Hydroxide (10 %)	RT	+
Toluene	RT	-
Xylene	RT	-

All tests are made according to EN 1847.

Rating: + rating is given for good resistance (> 120 h)
o rating is given for medium resistance (< 72 h)
- rating is given for poor resistance (< 12 h)

* Smallest changes of temperature, pressure, chemical composition, or mixtures of chemicals could change the results. Therefore each chemical should be tested in its own environment. In this test color changes and surface texture changes were not taken into account.

9 General notes

9.1 Consumption rate

For KÖSTER Joint Tape 20
Approx. 1 kg of KÖSTER KB-Pox Adhesive per lineal m
Joint Tape 20.

For KÖSTER Joint Tape 30
Approx. 1.5 kg of KÖSTER KB-Pox Adhesive per lineal m
Joint Tape 30.

9.2 Material packaging



KÖSTER Joint Tape 20,
Rolls: 1mm x 200mm,
20 Meter.



KÖSTER Joint Tape 30,
Rolls: 1mm x 300mm,
20 Meter.



KÖSTER KB-Pox Adhesive
5 kg combipackage

9.3 Material storage

Store the material in a cool and dry place.
In originally sealed packages, it can be stored for a minimum of 12 months.

9.4 Limitations

- Do not apply below +5 °C or if temperatures below +5 °C are expected within the next 24 hours.
- Do not apply the system on wet or frozen surfaces.
- Do not apply the system on sanding or weak surfaces. If in doubt, test the pull off strength first.
- Cold temperatures prolong and warm temperatures shorten the pot life and curing time of the epoxy adhesive.
- High levels of humidity may prevent proper curing of the epoxy adhesive.
- For application of the system as part of a negative side waterproofing, please contact our Technical Service.
- In areas which are stressed by traffic, the system should be mechanically protected from damage with protective metal plates.

10 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 