

## KÖSTER KD-System

Technical guideline / Article - No. 3.01  
Issued: November 20, 2009

-Official testing certificate of Law Engineering Inc., Atlanta, USA – Adhesive tensile strength and water permeability (negative and positive side)

### Negative side waterproofing against pressurised water

#### Features

This environmentally friendly system safely seals off even pressurised water from the negative side and in-rushes of water. It is resistant to salts which are harmful to the building structure and to aggressive substances which are present in the ground. Salts will not detach the fully cured KÖSTER KD-system coating from the substrate.

The system consists of 3 products:

#### KÖSTER KD 1 Base

Fast curing mineral sealing slurry with excellent resistance to aggressive ground water and high water pressure.

#### KÖSTER KD 2

Highly reactive powder with extremely short setting time. With application of the dry powder, in-rushes of water are sealed within a few seconds.

#### KÖSTER KD 3 Sealer

Water-thin silicifying liquid. The active ingredients penetrate deeply into the substrate and react to form an insoluble compound. The pores are plugged and permanently sealed through the mineralisation process.

#### Technical data

##### KÖSTER KD 1 Base

Density of the fresh mortar	1.6 kg / l
Compressive strength (7 days)	> 13 N / mm <sup>2</sup>
Flexural tensile strength (7 days)	> 3.5 N/mm <sup>2</sup>
Setting time (20 °C, 65 % relative humidity)	appr ox. 15 min.

##### KÖSTER KD 2

Setting time (when sealing in-rushes)	approx. 20 sec.
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##### KÖSTER KD 3 Sealer

Density (20 °C)	1.2 g / cm <sup>3</sup>
Reaction time (20 °C, 65 % relative humidity)	2 - 3 hours

##### KÖSTER KD-System

Waterproof against pressurised water	up to 7 bar (negative side)
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#### Fields of application

For the posterior waterproofing of basements from the inside, waterproofing of manholes as well as for all other waterproofing against non-pressurised and pressurised water from the positive or the negative side.

KÖSTER KD 2 can also be used for face sealing / closing of cracks prior to the use of injection resins.

#### Substrate

The substrate must be sound and solid, free of oil and paint as well as free of loose particles. Screed, plaster and the like must be removed down to the solid base building material (masonry/concrete). Masonry joints must be raked out 2 cm deep. Dry substrates must be wetted thoroughly repeatedly prior to the beginning of the application of the materials. Fill holes and open joints with KÖSTER Repair Mortar or with KÖSTER Waterstop.

On porous concrete or on softer vertically perforated brick, a sound plaster made of KÖSTER Repair Mortar has to be applied.

Unsuitable substrates are:

- lime-containing plasters,
- paint coatings,
- gypsum-containing building materials.

#### Application

The three system components of the KÖSTER KD-System are applied according to the instructions below in case of area waterproofing against pressurized water from the negative side. If active leakages (from dripping leaks to flowing water) have to be waterproofed, then first the flow of the water has to be stopped before the area waterproofing can be applied. For this purpose, KÖSTER KD 2 can be used.

#### Stopping active leakages

Depending on the intensity of the active leakage, a sufficient amount of dry powder is applied by hand directly to the active leakage – without adding any extra water. In case of small active leakages with a water emission as drops, the powder is rubbed firmly onto the surface until the leakage is stopped.



Water leakages



...stopped



...within seconds!

If a stronger water leakage up to a jet of water has to be stopped, a larger amount of powder is formed into a firm "ball". This is done by pressing a larger amount of powder together slowly with ones hands to a firm snowball sized "ball". This ball is then pressed onto the leakage by hand. Hereby, make sure to use the palm of your hand to convey pressure onto the powder and thus onto the leakage. After pressing the powder a few seconds onto the leakage, the flow of the water is permanently stopped. We recommend to wear smooth surface rubber gloves for this application.

### Surface Sealing

After stopping the active leakages, the area can be waterproofed:



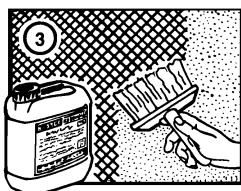
Mix as much KÖSTER KD 1 Base as can be applied within 10 minutes with water into a viscous, spreadable mass (slurry). Apply the slurry onto the substrate using a firm brush.



Then immediately rub KÖSTER KD 2 powder into the fresh, moist slurry by hand until the surface is dry.



Without waiting, brush on KÖSTER KD 3 Sealer liquid with a clean brush.



Immediately afterwards and again after approx. 30 minutes, repeat step 1 (application of KÖSTER KD 1 Base).



The max. total thickness must be less than 4 mm.

### Application of the next layer on walls:

A layer of plaster key made of KÖSTER Restoration Plaster Key (50 % area coverage) can be applied at the earliest after 24 hours. After another 24 hours, KÖSTER Restoration Plasters can be applied.

### Application of the next layer on floors:

Prior to installing screeds, apply a cementitious bonding bridge by mixing KÖSTER SB Bonding Emulsion with water 1 : 2 and with a cement/sand mixture (1 : 2) into a slurry which is then applied onto the floor using a firm brush.

### Sealing of joints, cracks and pipe penetrations

#### Elastic sealing: (with KÖSTER Joint Sealant FS)

1. Prior to the application of the area waterproofing, cut grooves into the masonry/concrete along the course of cracks and connections etc. Width and depth should be approx. 3 cm or more in cases where strong movements or high water pressure are expected.
2. In the course of applying the area waterproofing, the KÖSTER KD-System is applied also into the grooves which were cut to open cracks and connections..
3. After a minimum of 24 hours after the application of the KÖSTER KD-System, the side-flanks of the joints (only these) are primed with KÖSTER FS Primer. Bonding to three flanks has to be absolutely avoided. Therefore cover the back-flank with tape.
4. Fill the joints after approx. 3 hours curing time with KÖSTER Joint Sealant FS-V completely.

#### Plastic sealing: (with KÖSTER KB-Flex 200 Sealing Paste)

1. Proceed in the same way as with elastic joint sealing, though with a joint depth of min. 10 cm.
2. Proceed in the same way as with elastic joint sealing.
3. After a minimum of 24 hours after the application of the KÖSTER KD-System, the prepared areas are filled with KÖSTER KB – Flex 200 up to approx. 10 mm below the surface of the wall.
4. Then level off the sealed crack flush with KÖSTER KB - Fix 5.

### Consumption

KÖSTER KD 1 Base	approx. 1.5 – 2.5 kg / m <sup>2</sup>
KÖSTER KD 2	approx. 1.0 – 2.0 kg / m <sup>2</sup>
KÖSTER KD 3 Sealer	approx. 0.5 kg / m <sup>2</sup>

### Cleaning of the tools

Clean tools immediately after use with water.

### Packaging

KÖSTER KD 1 Base:	15 kg and 6 kg bucket, 1 kg can
KÖSTER KD 2:	15 kg and 6 kg bucket, 1 kg can
KÖSTER KD 3 Sealer:	12 kg and 6 kg jerry can, 0.5 kg bottle
System-package:	KÖSTER KD 1 Base 1.0 kg
	KÖSTER KD 2 1.0 kg
	KÖSTER KD 3 Sealer 0.5 kg

## Storage

Store the material dry and frost-free . In originally sealed packages, it can be stored approx. 12 month.

## Safety

Wear protective gloves and goggles when processing the material.

## Technical guidelines cited

KÖSTER SB Bonding Emulsion	Art.-No.	2.11
KÖSTER Waterstop	Art.-No.	3.14
KÖSTER KB-Fix 5	Art.-No.	5.015
KÖSTER Repair Mortar	Art.-No.	5.030
KÖSTER Restoration Plaster Key	Art.-No.	5.051
KÖSTER Restoration Plaster	Art.-No.	5.06
KÖSTER Joint Sealant FS-V	Art.-No.	8.031
KÖSTER FS-Primer	Art.-No.	8.039
KÖSTER KB-Flex 200	Art.-No.	8.05

The information contained in this technical data sheet is based on the results of our research and on our practical experience in the field. All given test data are average values which have been obtained under defined conditions. The proper and thereby effective and successful application of our products is not subject to our control. The installer is responsible for the correct application under consideration of the specific conditions of the construction site and for the final results of the construction process. This may require adjustments to the recommendations given here for standard cases. Specifications made by our employees or representatives which exceed the specifications contained in this technical guideline require written confirmation. The valid standards for testing and installation, technical guidelines, and acknowledged rules of technology have to be adhered to at all times. The warranty can and is therefore only applied to the quality of our products within the scope of our terms and conditions, not however, for their effective and successful application. This guideline has been technically revised; all previous versions are invalid.