



## KÖSTER ECB 2.0 U S

Technical Data Sheet RE 820 U S

Issued: 2019-08-06

Test Report 1200/676/17 EN 13967 MPA Braunschweig

### Homogenous Ethylene Copolymer Bitumen based waterproofing membrane (ECB) for basement and underground structures

#### Features

The KÖSTER ECB 2.0 U S is a single layer homogenous (unreinforced) waterproofing membrane with a silver signal layer, produced in Germany with the highest quality compounds. This robust waterproofing membrane is conformed to DIN EN 13967:2012 and it is a moisture barrier Type T. This ECB based membrane is highly tear resistant and provides a very high flexibility, so that even large cracks are bridged securely. It is highly resistant to attack by microorganisms and also resistant to perforation by roots. Overlaps are easily connected together only by hot air welding. The KÖSTER ECB 2.0 U S is not UV resistant.

- Color: black, upper side silver
- homogeneous seam bonding with hot air welding
- immediate waterproofing effect
- temperature resistant
- aging and rot resistant
- high cold flexibility ( $\leq -50^{\circ}\text{C}$ )
- root resistant
- compatible with bitumen
- compatible with polystyrene
- No substrate preparation needed
- suitable for all types of insulation
- resistant against normal mechanical stresses
- resistant to microorganisms
- environmentally friendly
- free of softeners and chlorine
- do not become brittle over time
- safe for health, water, soil, and plants
- recyclable

#### Technical Data

Refer to last page.

#### Fields of Application

KÖSTER ECB 2.0 U S is a homogenous waterproofing membrane for use in structural waterproofing and all construction methods.

The main fields of application special for these membranes are basement and below grade structures, but also the secure waterproofing of:

- Rafts or mat foundations
- Retaining walls (positive side)
- Underground car parks
- Contiguous piling & diaphragm walls
- Embankments
- On grade and below grade constructions
- Commercial and industrial buildings
- Prefabricated structural panels

This high performance membrane can be used on secant pile and contiguous bored pile walls, prefabricated concrete panels, lost formwork method, In situ retaining walls or diaphragm walls.

#### Application

##### General installation

Every membrane has markings printed onto it to ease positioning and orientation of the membrane during application. The top layer has a silver cover that acts as a signal layer to show eventual mechanical damages during the application.

KÖSTER ECB 2.0 U S can be welded within a wide temperature window between  $+350^{\circ}\text{C}$  to  $+650^{\circ}\text{C}$ . This will depend on the local environment parameters. Always do test welding before initiating the application. No chamfering of overlap seams to prevent capillary action is necessary. The KÖSTER ECB 2.0 U S can be securely welded at  $0^{\circ}\text{C}$  air temperature. Test welds are performed on site to determine the proper temperature and speed settings. During changing conditions this may have to be adjusted during work. The welds are tested at earliest 24 hours after completion and can be tested with a test needle or through a peel test. Membrane testing temperature must be less than  $+20^{\circ}\text{C}$ .

On vertical application with mechanically fixating the membrane overlap is 11 cm, when loose laying on the bottom the overlap is 5 cm. When applying over geotextile layer, the overlap is increased to 8 cm. When manually welding the membranes, the top layer is first spot welded. The hot air pistol is held in one hand and with the other the membrane is pressed down and affixed. After the initial spot welding, the hot air pistol is uniformly pulled through the overlap. A silicone roller is used to press the membranes evenly together. Do not press the membranes together too firmly. A slight bead of ECB material exiting the weld serves as an optical quality control. The bead should have a diameter of approximately 1 mm. During manual welding make sure that the silicone roller is held parallel to the seam edge and a uniform pressure is applied. Avoid too much material exiting the seam. When installing on horizontal larger areas, an automatic welding machine is recommended. These machines combine spot and final seam welding into one work step, and the advancement drive speed can be regulated.

To insure a flawless installation, all corners (such as at the membrane ends) are rounded off with scissors. This step applies to both the lower and upper membrane, in the overlapped areas. It is not necessary to taper the membrane edge. T connections must be homogeneously welded to avoid capillary active defects and should be tested 24 hours after completion with a test needle. Cross joints are vulnerable to failure and should be absolutely avoided. It is better to stagger the overlaps or to attach a cover strip to avoid a crossed joint. If a crossed joint is unavoidable all four T corners are to be covered with a welded round patch with a minimum diameter of 20 cm.

Pipe penetrations are waterproofed with a flange, 50 cm x 50 cm and a sleeve. A hole is cut into the flange 4 cm smaller than the pipe diameter. The flange is pulled over the pipe. The sleeve is then welded

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.



 <b>0761</b> <b>15</b>	<b>KÖSTER BAUCHEMIE AG</b> Dieselstraße 1-10, 26607 Aurich  <b>KÖSTER ECB 2.0 U S</b> <b>EN 13967 0761-CPR-0423</b> <b>Waterproofing membrane made from Ethylene Copolymer Bitumen</b>
Length according to DIN EN 1848-2	20 m <sup>1)</sup>
Width according to DIN EN 1848-2	2.10 m <sup>2)</sup>
Effective thickness according to DIN EN 1849-2	2.0 mm
<b>Designation</b> according to SPEC 20000-202 <b>Color</b> <b>Visible flaws</b> according to DIN EN 1850-2 <b>Straightness</b> according to DIN EN 1848-2 <b>Area weight</b> according to DIN EN 1849-2 <b>Watertightness</b> according to DIN EN 1928 Method A <b>Watertightness</b> according to DIN EN 1928 Method B <b>Exposure to liquid chemicals including water</b> according to DIN EN 1847 <b>Reaction to fire</b> according to EN 13501-1 <b>Shear resistance of the joining seam</b> according to DIN EN 12317-2 <b>Water vapor permeability</b> according to DIN EN 1931 <b>Tensile elongation</b> according to DIN EN 12311-2 Tensile strength longitudinal / transverse Elongation at break / cross <b>Resistance to impact</b> according to DIN EN 12691 Method A Method B <b>Resistance to static load</b> according to DIN EN 12730 Method A Method B <b>Behavior to folding at low temperatures</b> according to DIN EN 495-5 <b>Behavior to exposure to bitumen</b> according to DIN EN 1548 <b>Durability against warm storage</b> according to DIN EN 1296, DIN EN 1928 (Verf. A) <b>Tear resistance (nail shaft)</b> according to DIN EN 12310-1	<b>DIN EN 13967:2012</b> <b>Moisture barrier Type T</b>  BA-ECB-BV-2.0 black with silver foil free of visible flaws $\leq 50$ mm $2000 \text{ g/m}^2$ $\geq 60 \text{ kPa/24h}$ tight $\geq 400 \text{ kPa/72h}$ tight tight  Class E $> 500 \text{ N/50 mm}$ Failure outside the overlapped joint $\mu = 100,000$  $\geq 9 \text{ N/mm}^2$ (Method B) $\geq 700 \%$ (Method B)  $\geq 600$ mm $\geq 1750$ mm  $\geq 20$ kg $\geq 20$ kg $\leq -50 \text{ }^\circ\text{C}$  tight tight  $\geq 450 \text{ N}$

1) Special lengths on request 2) Special widths on request

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.

KÖSTER BAUCHEMIE AG • Dieselstraße 1-10 • D-26607 Aurich • Tel. 04941/9709-0 • Fax -40 • info@koester.eu • www.koester.eu