

KÖSTER

ECB F Membranes

Technical guideline / Article Number **RE 8 F**
Draft: January 14, 2015

Ethylene Copolymer Bitumen based waterproofing membrane with centrally embedded glass fiber mesh and fleece coating on the underside

Features

KÖSTER ECB F Membranes are made of a mixture of Ethylene Copolymer and a special bitumen.

A glass fiber mesh is embedded in the middle of the membrane to provide an especially high dimensional stability and resistance against shrinkage.

KÖSTER ECB Membranes are watertight, chemically resistant, and resistant to stress cracking.

KÖSTER ECB roof and waterproofing membranes are resistant to all materials commonly used in construction such as lime, cement, and gypsum, and against soiling common to roof surfaces such as from soot and rotting leaves. They can be applied directly to bituminous roofs.

They offer high reliability and are characterized by a fast and economical installation. KÖSTER ECB Membranes are UV-stable, resistant to aging, and microorganisms.

KÖSTER ECB Membranes are:

- environmentally friendly
- free of softeners and chlorine
- UV-stable
- safe for health, water, soil, and plants
- resistant to microorganisms
- resistant to normal mechanical stresses
- compatible with bitumen
- compatible with polystyrene
- root resistant
- temperature and weather resistant
- recyclable
- aging and rot resistant
- homogeneously weldable

Technical data

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Field of application

For waterproofing ventilated and non-ventilated flat roofs, terraces, balconies, roof gardens, wet rooms, parking garages, pitched roof valleys, landfill and waste water waterproofing, reservoirs, horticulture, (for example fish ponds), etc.

The membranes can also be used in waterproofing according to the DIN 18195.

Application by loose laying with ballast, mechanical fastening, or strip adhesion with KÖSTER PUR Membrane Adhesive (fleece coated membranes only).

Application

Mechanical fastening

The most common method of installing ECB membranes is through mechanical fastening. The membrane is mechanically fastened to the roof structure, which can consist of either wooden sheathing, trapezoidal metal sheets, or a concrete slab. The membrane is generally fastened through the thermal insulation, which requires special fasteners. These fasteners have a large contact area which durably connect the membrane to the substrate. Overlapping the membranes over the fasteners prevent the penetration of water into the installation.

Loose laying with ballast

A quick and secure way to install KÖSTER ECB Membranes is through loose laying with ballast. Ballast can consist of either gravel, paving slabs, or even green roofs. Ballast helps protect the roofing membrane against wind loads and can accommodate a wide range of architectural styles.

Strip adhesion of KÖSTER ECB Membrane F

Strip adhesion to the substrate offers a time-saving installation. The KÖSTER ECB F Membrane features a special fleece coating which increases the bonding of the KÖSTER PUR Membrane

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adhesive. This results in a high adhesive strength and creates a perfect bond to the substrate.

Technical Guidelines cited:

KÖSTER PUR Membrane Adhesive Art. Nr. RT 101

Welding seams

The connection of the sheets is performed by hot air welding using automatic welding machines and manual welding tools. The membranes are plasticized in the overlapping area by the hot air flow and homogeneously connected by compressing with a roller. During this procedure a small weld seam is formed and material should flow slightly from the overlap. This should be kept as small as possible, but must be visible. The welding seam is an indicator of a secured and waterproof connection.

| Values marked with a (#) Pound sign were determined by the Materials Testing Institute (MPA) at Braunschweig | |
|---|---|
| | Material product description: Thermoplastic Polyolefin (ECB) Technical Details according to the DIN EN 13956 and DIN V 20000-201 |
| Product description | KÖSTER ECB F 2.0 |
| Description according to DIN 20000-201 | DE/E1-ECB-BV-E-GV-2.0 |
| Loose laying under ballast and under wear surfaces | x |
| Mechanically fastened, without ballast | x |
| Adhered with KÖSTER PUR Membrane Adhesive without ballast | x |
| Lamination | Centrally embedded glass fiber mesh |
| Color | Standard: Black ³⁾ |
| # Visible defects | Free of visible defects |
| # Length according to DIN EN 1848-2 | 20 m ¹⁾ |
| Width according to DIN EN 1848-2 | 2100 / 1500 / 1050 / 750 / 525 / 350 / 250 mm |
| # Straightness according to DIN EN 1848-2 | ≤ 50 mm |
| # Flatness according to DIN EN 1848-2 # | ≤ 10 mm |
| # Area related weight according to DIN EN 1849-2 | 2010 g/m ² -5% / +10% |
| Nominal thickness ²⁾ | 3.0 mm |
| # Effective thickness according to DIN EN 1849-2 | + 10% / - 5% |
| # Water tightness according to DIN EN 1928 (method B) | watertight |
| Reaction to liquid chemicals including water according to DIN EN 1847 | passed |
| # External fire exposure according to DIN V ENV 1187, DIN 4102-7 | BROOF (t1) ⁵⁾ |
| # Reaction to fire according to DIN EN ISO 11925-2, DIN EN 13501-1 | Class E |
| # Resistance to shock loads (Hail) according to DIN EN 13583 | <i>Rigid Substrate</i> ≥ 30 m/s <i>Flexible Substrate</i> ≥ 45 m/s |
| # Peel strength of the overlap seam according to DIN EN 12316-2 | Type of failure: 100% C No failure of the seam |
| # Weld seam shear resistance according to DIN EN 12317-2 | ≥ 500 N / 50mm |
| # Water vapor diffusion resistance according to DIN EN 1931 | $g = 1.2 \cdot 10^{-9} \text{ kg} / (\text{m}^2 / \text{s})$ $S_d = 354 \text{ m}$ $\mu = 182610$ |
| # Elongation at break acc. to DIN EN 12311-2 | ≥ 6 N / mm ² |

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|--|-----------------------------|
| # Elongation according to DIN EN 12311-2 (Method B) | ≥ 600% |
| # Resistance to shock loads according to DIN EN 12691 | ≥ 900 mm ≥1250 mm |
| <i>Substrate AI Plate (method A)</i> <i>Substrate EPS (Method B)</i> | |
| # Resistance to static loading DIN EN 12730 Method A/B | > 20 kg (tight) |
| # Tear continuation resistance according to DIN EN 12310-2 ⁶⁾ | ≥ 250 N |
| # Root penetration resistance ⁴⁾ | given |
| # Dimensional stability according to DIN EN 1107-2 | ≤ 0.2 % |
| # Folding at low temperatures according to DIN EN 495-5 | ≤ - 40 °C Free of cracks |
| # Behavior under UV irradiation, elevated temperatures, and water according to DIN EN 1297 (1000 h) | Level 0 |
| # Ozone resistance according to DIN EN 1844 | passed |
| # Behavior upon exposure to bitumen according to DIN EN 1548 | passed |

1) Special lengths available on request 2) Including lamination 3) Does not apply to ECB Membranes 4) Applies only to green roofs 5) Requirements are met for roofs tested by KÖSTER in Germany. Further information can be requested from KÖSTER 6) Only when mechanically fixated

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