

## Schlüter®-BEKOTEC-DRAIN

### Flooring Structure

Curl resistant, crack free, thin layer screed system

# 9.3

Product data sheet

### Application and Function

**Schlüter®-BEKOTEC-DRAIN** is a reliable covering assembly system for crack free and functionally safe exterior screeds with ceramic or natural stone coverings.

The system is based on the specially structured studded foil panel Schlüter®-BEKOTEC-EN 23 FD with evenly spaced openings and interconnected drainage channels, which, depending on the construction, is either installed over a sloped waterproofing layer or over the area drainage membrane Schlüter®-TROBA-PLUS. The geometry of the studded panel Schlüter®-BEKOTEC-EN 23 FD results in a minimum screed thickness of 31 mm between the studs and 8 mm above them. The curing stresses that occur in the screed due to shrinkage are absorbed by the studded pattern, thus controlling deformations such as curling. Tensions resulting from deformations can therefore not affect the entire area. It is therefore unnecessary to install movement joints or control joints in the screed. As soon as the cement screed is ready to support weight, the bonded drainage and uncoupling mat Schlüter®-DITRA-DRAIN can be installed. The ceramic or natural stone tiles are then installed directly over this layer.

This also applies to large format tiles (without format restrictions) made of ceramic material or natural stone. Movement joints in the covering layer are created using Schlüter®-DILEX according to industry standards.

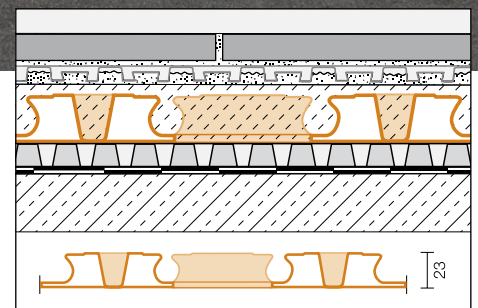
Ceramic tiles or natural stone tiles may also be installed directly in the mortar bed. For this purpose, the installation screed is installed to a height of at least 8 mm over the studs of the studded panel Schlüter®-BEKOTEC-EN 23 FD, and the ceramic or natural stone tiles are set directly into the



fresh mortar with a slurry coat. In this case, Schlüter®-DITRA-DRAIN is not needed.

### Material

Schlüter®-BEKOTEC-EN 23 FD is a high impact polystyrene panel and is suitable for use with conventional cement screeds.





## Installation

1. Schlüter®-BEKOTEC-DRAIN is installed over a sloped waterproofing layer.
2. Adhere the 8 mm edge strip Schlüter®-BEKOTEC-BRS 808 KSF in places where the covering adjoins walls and other construction elements. The edge strip features an adhesive segment on the top and bottom for secure attachment. The adhesion on the substrate and the pretensioning of the integrated foil leg push the edge strip toward the wall.
3. Install the passive capillary area drainage membrane Schlüter®-TROBA-PLUS over the sloped waterproofing layer.
4. Next, lay out the studded panels Schlüter®-BEKOTEC-EN 23 FD over the area drainage membrane Schlüter®-TROBA-PLUS. Connect the Schlüter®-BEKOTEC panels by overlapping a row of studs and make any necessary cuts at the joints.

**Note:** The studded panels Schlüter®-BEKOTEC-EN 23 FD have interconnected drainage channels, but are not considered passive capillary drainage.

### Installation with the thin-bed method

5. Install a sufficient volume of cement screed with a maximum strength class of CT-C25-F4 (ZE 20) over the studded panel Schlüter®-BEKOTEC-EN 23 FD to achieve a coverage of at least 8 mm and no more than 25 mm over the studs. Ideally, the screed thickness over the studs should be between 8 mm and 15 mm. The flexural strength of the screed may not exceed F5.

**Note:** Protect the screed from direct sunlight. In addition, take the customary steps to protect the assembly from inclement weather.
6. The bonded drainage and uncoupling mat Schlüter®-DITRA-DRAIN can be installed in accordance with the manufacturer's recommendations in product data sheet 6.2 as soon as the cement screed is ready to support weight (as a general rule after approximately 24 hours).

- Note:** The screed may also be mixed from pervious mortar that meets the corresponding requirements. Depending on the mortar quality, the coverage over the studs may have to be higher than the minimum requirement of 8 mm
7. Ceramic tile or natural stone can be directly installed on top of Schlüter®-DITRA-DRAIN using the thin-bed method. The ceramic covering must be divided into fields with movement joints above the uncoupling mat in accordance with the applicable regulations. We recommend the movement joint profiles Schlüter®-DILEX-BWB or Schlüter®-DILEX-KS for creating movement joints (see Product data sheets 4.6 or 4.8).
  8. Our corner movement profile Schlüter®-DILEX-EK, -RF, -EKE or -EF (see product data sheets) can be used as a flexible edge joint in floor to wall transition areas. The protruding sections of the Schlüter®-BEKOTEC-BRS edging strip should first be trimmed.

### Installation in a mortar bed

- 5a. Place dabs of mortar for installing individual tiles or prepare a level mortar bed with the necessary thickness. Suitable pervious mortar may also be used. Depending on the mortar quality, the coverage over the studs may have to be higher than the minimum requirement of 8 mm
- 6a. Place a contact layer on the under side of the covering material.
- 7a. Align the covering material and firmly set it into the fresh mortar bed. The ceramic covering must be divided into fields with movement joints in accordance with the applicable regulations. We recommend the movement joint profiles Schlüter®-DILEX-BWB, -KS or -MP (see Product data sheets 4.6, 4.8 or 4.3) or an elastic joint for creating movement joints. Separate the mortar bed above the studs in the area of the movement joint.
- 8a. Our corner movement profile Schlüter®-DILEX-EK, -RF, -EKE, or -EF (see product data sheets 4.14 and 4.13) or a flexible joint can be used as a flexible edge joint in floor to wall transition areas. Cut off any protruding parts of the edge strip Schlüter®-BEKOTEC-BRS prior to installation.



## Notes

Schlüter®-BEKOTEC-EN 23 FD and Schlüter®-BEKOTEC-BRS will not rot and require no special maintenance or care. Before and during the application of the screed, the studded screed panel may need to be protected from mechanical damage with suitable measures, such as laying out timber boards.

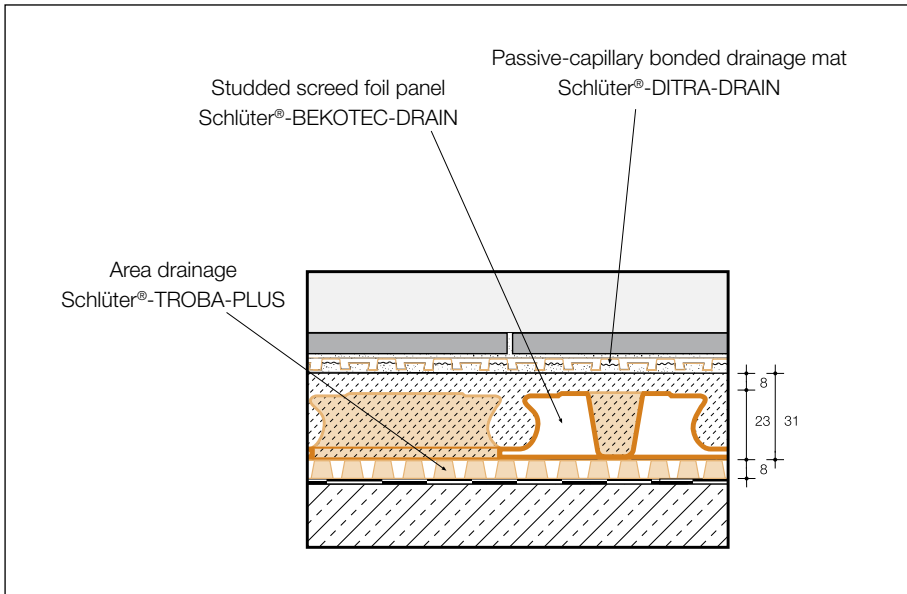
## Technical Data

1. Stud diameter: approximately 65 mm.
2. Size of openings: approximately 50 mm.
3. Connections:  
The studded panels are connected by overlapping a row of studs and interlocking the panels together.
4. Working area: 1.2 m x 0.9 m = 1.08 m<sup>2</sup>.  
Panel thickness: 23 mm.
5. Packaging: 10 pieces per box = 10.8 m<sup>2</sup>.  
Box size is approximately 1355 mm x 1020 mm x 195 mm.



## Benefits of the Schlüter®-BEKOTEC-DRAIN System

- **Warranty:**  
Schlüter-Systems offers a five year warranty for the life of the cover assembly, provided all installation instructions were observed and the covering is used as intended.
- **Crack free covering:**  
The Schlüter®-BEKOTEC-DRAIN system is designed to reduce shearing tensions in the screed within the grid of the studded panel. No construction reinforcement is required.
- **Drainage:**  
Water seeping into the covering assembly drains through the openings of the studded panel to the sloped waterproofing layer or drainage layer, flowing through the assembly's hollow chambers without creating any pressure.
- **Non buckling construction:**  
The cover assembly of the Schlüter®-BEKOTEC-DRAIN system is free of inherent stresses. Consequently, no buckling can occur in the area. This is especially applicable in the presence of temperature fluctuations that are typical for coverings in exterior areas.
- **Joint free screed:**  
The regular patterns of the Schlüter®-BEKOTEC-DRAIN system evenly reduce tensions in the screed, which allows for constructing the screed without movement joints.
- **Movement joints in the joint pattern of the tile or stone covering:**  
With the Schlüter®-BEKOTEC system, the design of movement joints can match the joint pattern of the tile or stone covering, since it is not necessary to continue construction joints from the screed into the surface covering. The applicable regulations for the placement and construction of movement joints in and around the tile field must be observed.
- **Short construction time:**  
As soon as the screed produced with the Schlüter®-BEKOTEC-DRAIN system is able to support weight, coverings of ceramic tile, natural stone or artificial stone can be directly installed on top of Schlüter®-DITRA-DRAIN.
- **Low construction height:**  
In comparison to conventional heated screeds according to DIN 18 560-2, the Schlüter®-BEKOTEC system saves up to 20 mm in construction height.
- **Material and weight savings:**  
Assuming a base area of 100 m<sup>2</sup>, reducing the screed thickness by 20 mm saves 2,0 m<sup>3</sup> of screed, which is the equivalent of approx. 4 metric tons. This advantage is reflected in the static calculation.
- **Documented suitability for the defined purpose:**  
The trouble free functionality and suitability of the Schlüter®-BEKOTEC system has been documented in the test report of an accredited testing institute. In particular, the tests focused on the maximum traffic loads.



## Product Overview

### Schlüter®-BEKOTEC-EN 23 FD

Studded screed panel	Dimensions	Packaging
EN 23 FD	1.2 m x 0.9 m = 1.08 m <sup>2</sup> working area	10 units (10.8 m <sup>2</sup> ) / box

### Schlüter®-BEKOTEC-BRS

Edge strip	Dimensions	Roll
BRS 808 KSF	8 mm x 80 mm	25 m

#### Text template for tenders:

\_\_\_\_\_m<sup>2</sup> Schlüter®-BEKOTEC-EN 23 FD, as a studded screed panel made of polystyrene foil with cutback 23 mm studs, consisting of an alternating pattern of 109 larger studs of Ø 65 mm and 110 openings of Ø 50 mm. The outer row of studs can be used to connect panels with a working area of 1.2 m x 0.9 m = 1.08 m<sup>2</sup>, to be professionally installed, including custom cuts in the edge area. The installation instructions of the manufacturer must be observed.

Material: \_\_\_\_\_/m<sup>2</sup>  
 Labour: \_\_\_\_\_/m<sup>2</sup>  
 Total price: \_\_\_\_\_/m<sup>2</sup>

#### Text template for tenders

\_\_\_\_\_linear metres of Schlüter®-BEKOTEC-BRS 808 KSF as an edge insulation strip of closed cell polyethylene foam, 8 mm thick and 80 mm high, with self adhesive support strip at the top and bottom, to be installed at floor to wall transitions or fixed construction elements. The adhesive part of the edge strip must be installed below the studded screed panel and joined to the underside of the studded panel. The installation instructions of the manufacturer must be observed.

Material: \_\_\_\_\_/m  
 Labour: \_\_\_\_\_/m  
 Total price: \_\_\_\_\_/m