

## Schlüter®-BEKOTEC-F

### Covering assembly

Thin layer covering assembly for renovation and new construction

# 9.2

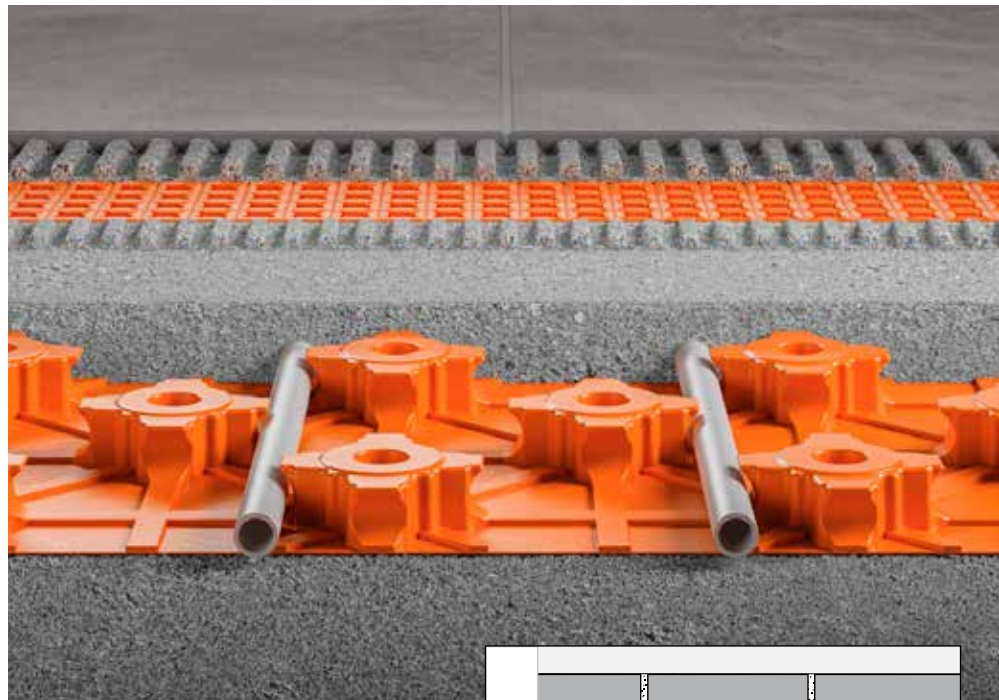
Product data sheet

### Application and function

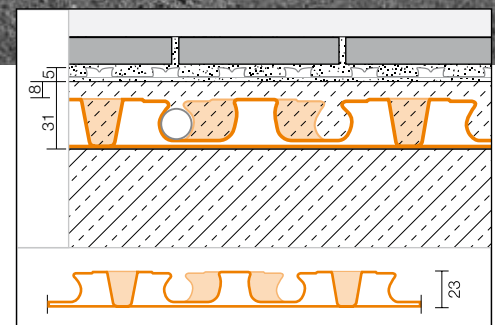
The reliable **Schlüter-BEKOTEC** covering assembly technology is a system for crack-free and functionally safe floating and heated screeds with coverings made of ceramic tiles, natural stone, and other covering materials.

The system is based on the studded screed foil panel Schlüter-BEKOTEC-EN 23 F, which is directly installed on top of a load bearing substrate and/or over conventional heat insulation and sound insulation panels. The geometry of the BEKOTEC-EN 23 F studded panel dictates a minimum screed layer thickness of 31 mm between and 8 mm above the studs. The stud spacing allows for clamping the heating pipes of the system, which have a 14 mm diameter, in a 75 mm grid to produce a heated screed. Since only a relatively small amount of screed has to be heated or cooled (with a coverage of 8 mm, approx. 57 kg/m<sup>2</sup>  $\hat{=}$  28.5 l/m<sup>2</sup>), the floor heating system is easily adjustable and ideally suited for operation at low supply temperatures.

Any contraction occurring while the screed cures is absorbed by the studded pattern. As a result, stresses from contraction buckling cannot affect the entire area, and it is not necessary to install movement joints in the screed. Once the cement screed is ready to support weight, the uncoupling mat Schlüter-DITRA (alternatively, Schlüter-DITRA-DRAIN 4 or Schlüter-DITRA-HEAT) can be installed (gypsum based screed  $\leq$  2 CM-%). The ceramic tiles or natural stone are then installed directly over this layer, using the thin bed method. Movement joints



in the covering layer have to be created with Schlüter-DILEX in the customary spacing. Covering materials that are not susceptible to cracking, such as parquet or carpeting, are directly installed over the screed as soon as it reaches the appropriate residual moisture level.



### Material

Schlüter-BEKOTEC-EN 23 F is made of high impact structured polystyrene and is suited for use with conventionally applied cement or gypsum screeds as well as flowing screed.



## Installation

1. Install Schlüter-BEKOTEC-EN 23 F on a sufficiently weight bearing and level substrate. Correct uneven sections in the floor with screeds or suitable bound fill in advance. If required, install suitable insulation materials over the substrate in accordance with the applicable sound insulation and/or heat insulation requirements where necessary.  
If cables or pipes are installed on the weight bearing substrate, the sound insulation must cover the full levelling layer as specified in DIN 18560-2. The max. compressive strength CP3 ( $\leq 3$  mm) must be taken into consideration to select a suitable insulation material. If the construction height is insufficient for using polystyrene or mineral fibre insulation, Schlüter-BEKOTEC-BTS in a thickness of just 5 mm can significantly improve the sound insulation.
2. Cover the edges of the covering at rising walls or structural components with the 8 mm edging strip Schlüter-BEKOTEC-BRS 808 KSF.  
The adhesive leg integrated into the edging strip features a self-adhesive strip on both sides for attachment. The edging strip is pressed toward the wall by the adhesion on the substrate or the top insulation layer and the pre tensioning of the integrated foil leg. When the studded BEKOTEC panel is placed on top of the adhesive leg, the panel bonds with the substrate and flowing screed can no longer flow underneath the panel.
3. The BEKOTEC-EN 23 F studded panels must be precisely cut to size in the edge areas. The BEKOTEC panels are connected by overlapping a row of studs. In door threshold areas and near distributor boxes, the smooth levelling panel Schlüter-BEKOTEC-ENFG may be used to simplify the pipe installation. It is installed below the studded panels and adhered with double sided adhesive strips. The self-adhesive pipe clamping strip Schlüter-BEKOTEC-ZRKL enables precise pipe layout in these areas. It may be necessary to adhere the panels to the substrate, for example if the reset force of the pipes is relatively high (in small rooms with tight pipe radiuses). The double sided adhesive tape Schlüter-BEKOTEC-BTZDK66 can be used for this purpose.

4. Clamp the system pipes with a diameter of 14 mm between the cutback studs to create a Schlüter-BEKOTEC-THERM floor heating system. The spacing of the pipes must be determined on the basis of the required heating output, as shown in the Schlüter-BEKOTEC heating diagrams.
5. As part of the screed installation, install fresh cement screed of screed quality CT-C25-F4, max. F5, or gypsum based screed CA-C25-F4, max. F5, over the studded panels with a minimum screed coverage of 8 mm (recommended aggregate size 0-4 mm). The layer thickness can be partially increased to max. 25 mm for levelling. Suitable flowing screeds CAF/CTF with the corresponding specifications may be used as well. Observe the system approval for this application.  
Note: Please contact our Technical Department in advance to discuss different screed properties for specific projects. To prevent impact sound transmission between two rooms, separate the screed in the relevant places with the expansion joint profile Schlüter-DILEX-DFF.
6. The Schlüter-DITRA uncoupling mat (or alternatively, Schlüter-DITRA-DRAIN 4 or Schlüter-DITRA-HEAT) can be installed in accordance with the installation instructions of product data sheets 6.1 (alternatively: 6.2 or 6.4) as soon as the cement screed is ready to bear weight. The uncoupling mat can be installed over gypsum based screeds as soon as they have reached a residual moisture level of 2 CM % or less.
7. Coverings of ceramic tile or natural stone can then be directly installed on top of the uncoupling mat, using the thin bed method. Divide the covering above the uncoupling mat into fields, using movement joints in accordance with the applicable regulations. We recommend the movement joint profiles Schlüter-DILEX-BWB, -BWS, -KS or -AKWS for creating movement joints (see product data sheets 4.6 - 4.8 and 4.18).
8. Install the corner movement profile Schlüter-DILEX-EK or -RF as a flexible perimeter movement joint in the area of the floor-wall transition (see product data sheet 4.14). Cut off the protruding part of the edging strip Schlüter-BEKOTEC-BRS in advance.

9. If the Schlüter-BEKOTEC-THERM ceramic thermal comfort floor is to function as a floor heating system, the full covering assembly is ready for heating only 7 days after completion. Start from a water temperature of 25 degrees C and increase the supply temperature by no more than 5 degrees C a day until the desired usage temperature has been reached.
10. Covering materials that are not susceptible to cracking (e.g. parquet, carpet or vinyl coverings) can be installed without the uncoupling mat, directly on top of the BEKOTEC screed. The screed thickness must be adjusted to the relevant material thicknesses.

Note: In addition to the applicable installation guidelines, the permissible residual moisture level of the screed must be observed for the selected covering material. For detailed installation instructions in conjunction with non-ceramic surface coverings, please refer to our technical manual for Schlüter-BEKOTEC-THERM or contact our Technical Department.

## Notes

Schlüter-BEKOTEC-EN 23 F, -ENFG, -BRS and -BTS do not rot and require no special maintenance or care. Before and during the installation of the screed, the studded panel may need to be protected from mechanical damage with suitable measures, such as laying out wooden boards.



**Screed coverage over Schlüter-BEKOTEC-F for various covering types**

**Schlüter®-BEKOTEC-THERM-EN 23 F**  
Screed coverage and maximum traffic loads for various surface coverings

<b>Ceramic coverings</b>	<b>(a)</b> Floor covering	Max. traffic load $q_k$ according to DIN EN 1991	Max. individual load $Q_k$ according to DIN EN 1991	<b>(b)</b> System coverage with conventional screeds	<b>(c)</b> Total thickness of BEKOTEC assembly
	Ceramic tile/ natural stone	5.0 kN/m <sup>2</sup>	3.5 - 7.0 kN	8 – 25 mm	36 – 53 mm
	Soft coverings: PVC, vinyl, linoleum, carpet, cork  Adhered parquet without tongue and groove connection  Adhered parquet with tongue and groove connection  Floating parquet, laminat	2 kN/m <sup>2</sup>	2.0 - 3.0 kN	15 – 25 mm	38 – 48 mm



## Advantages of the Schlüter®-BEKOTEC system

- **Warranty:**  
Schlüter-Systems offers a five-year warranty for the usability and crack free functionality of the covering assembly, provided the installation instructions were followed and the covering is used as intended.
- **Crack free covering:**  
The BEKOTEC system is designed to reduce shearing tensions of the screed in the modular studded membrane pattern. No structural reinforcement is required.
- **Non buckling assembly:**  
The covering assembly built with the BEKOTEC system is free of inherent stresses when in use, which means that buckling in the area can virtually be ruled out. This applies in particular to stresses resulting from temperature fluctuations, e.g. in heated screeds.
- **No screed joints:**  
No expansion joints are needed in the screed since the BEKOTEC system evenly distributes any shearing tension in the screed across the entire area.
- **Movement joints in the joint pattern of the tile or paver covering:**  
The BEKOTEC system allows for adapting the design of movement joints to the selected joint pattern of the covering for tile or paver coverings since expansion joints from the screed do not have to be continued into the top covering. Only the general rules on the sizes of covering fields need to be followed.
- **Short construction time:**  
The uncoupling mat ensures that the screed created with the BEKOTEC system is ready for covering with ceramic tiles, natural stone or agglomerate stone as soon as the screed is ready to bear weight. Floor heating systems are ready for heating just 7 days after completion.
- **Low assembly height:**  
Compared to a heated screed according to DIN 18 560-2, the BEKOTEC system saves an assembly height of up to 37 mm.
- **Low material requirement:**  
With a screed coverage of 8 mm, only approx. 57 kg/m<sup>2</sup> ± 28.5 l/m<sup>2</sup> screed volume is needed. This advantage is also reflected in the static calculations.
- **Fast responding floor heating system:**  
A covering assembly using the BEKOTEC system in conjunction with a floor heating system is able to respond to temperature changes faster than a conventional heated screed since the volume to be heated or cooled is significantly smaller. That allows for operating the floor heating system in the low temperature range to save energy.



## Supplementary system products

### Levelling panel

The levelling panel Schlüter-BEKOTEC-ENFG is installed in the area of door thresholds and heating circuit distributors to simplify connections and to minimise cutting waste. It consists of smooth polystyrene foil material and is adhered below the studded panels, using the supplied double sided adhesive tape.

Dimensions: 1275 x 975 mm

Thickness: 1.2 mm



### Pipe clamping strip

Schlüter-BEKOTEC-ZRKL is a pipe clamping strip for dependable pipe installation, e.g. in the connection area. The clamping strips are self-adhesive to allow for permanent attachment. Length: 20 cm, Number of pipe spaces: 4



### Double sided adhesive tape

Schlüter-BEKOTEC-BTZDK 66 is a double sided adhesive tape for adhering the studded panel to the levelling panel or to the substrate if necessary.

Roll: 66 m, height: 30 mm, thickness: 1 mm



### Edging strip

Schlüter-BEKOTEC-BRS 808 KSF is an edging strip of closed cell polyethylene foam with an integrated foil leg that features an adhesive strip on both sides for attachment. The edging strip is pressed toward the wall by the adhesion on the substrate and the pre-tensioning of the integrated foil leg. When the studded BEKOTEC panel is placed on top of the adhesive leg, the panel bonds with the substrate and flowing screed can no longer flow underneath the panel.

Roll: 25 m, height: 8 cm, thickness: 8 mm



### Impact sound insulation

Schlüter-BEKOTEC-BTS is a 5 mm insulation layer of closed cell polyethylene foam for installation below BEKOTEC-EN 23 F. The use of BEKOTEC-BTS results in a significant improvement of impact sound insulation. The material can be used if the required assembly height is not sufficient for a thick insulation layer of polystyrene or mineral fibre.

Roll: 50 m, width: 1.0 m, thickness: 5 mm

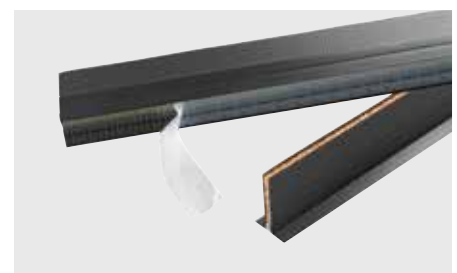


### Flexible movement joint

Schlüter-DILEX-DFP is an expansion joint profile for installation in door threshold areas to prevent sound bridges. Due to the bilateral coating and the self-adhesive strip, straight line installation is very easy.

Length: 1.00 m, height: 60 / 80 / 100 mm, thickness: 10 mm

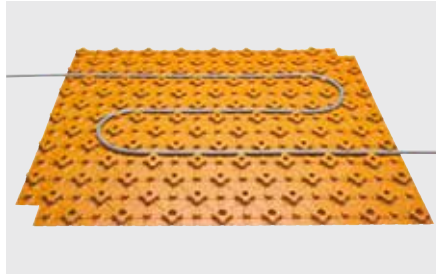
Length: 2.50 m, height: 100 mm, thickness: 10 mm





### Technical data

1. Stud size:  
 approx. 20 mm for small studs  
 approx. 65 mm for large studs  
 Installation spacing: 75 mm  
 Diameter of system heating pipes:  
 Ø 14 mm  
 The studs have a cutback design to securely keep heating pipes in place without the need for clamps.
2. Connections:  
 The studded panels are connected by overlapping a row of studs and clicking the panels together.
3. Working area: 1.2 x 0.9 m = 1.08 m<sup>2</sup>  
 Panel height: 23 mm
4. Packaging: 10 units/carton = 10.8 m<sup>2</sup>  
 Carton dimensions are approx. 1355 x 1020 x 195 cm.



### Product overview:

#### Schlüter®-BEKOTEC-EN 23 F

Studded screed panel	Dimension	Packaging
EN 23F	1.2 x 0.9 m = 1.08 m <sup>2</sup> Working area	10 units (10.8 m <sup>2</sup> )/carton

#### Schlüter®-BEKOTEC-BRS

Edging strip	Dimension	Roll
BRS 808 KSF	8 mm x 80 mm	25 m

#### Schlüter®-BEKOTEC-ENFG

Levelling panel	Dimension
ENFG	1275 x 975 mm

#### Schlüter®-BEKOTEC-BTZRKL

Pipe clamping strip	Dimension
BTZRKL	200 mm x 40 mm

#### Schlüter®-BEKOTEC-BTZDK66

Double sided adhesive tape	Dimension	Roll
BTZDK66	30 mm x 1 mm	66 m

#### Schlüter®-BEKOTEC-BTS

Impact sound insulation	Dimension	Roll	Packaging
BTS 510	5 mm x 1 m	50 m	1 roll

#### Schlüter®-DILEX-DFP

DFP = expansion joint profile Supplied length 1.00 m

H = mm	Packaging
60	20 units
80	20 units
100	20 units

#### Schlüter®-DILEX-DFP

DFP = expansion joint profile Supplied length 2.50 m

H = mm	Packaging
100	40 units





**Text template for tenders:**

\_\_\_\_m<sup>2</sup>  
 ■ \_\_\_\_Impact sound and heat insulation  
 ■ \_\_\_\_Heat insulation  
 for installation below Schlüter-BEKOTEC-EN 23 F, to be supplied and professionally installed on a sufficiently level substrate.  
 ■ Mineral fibre, type: \_\_\_\_\_  
 ■ Polystyrene, type: \_\_\_\_\_  
 ■ Extruded rigid foam, type: \_\_\_\_\_  
 Cellular glass, type \_\_\_\_\_  
 Fully installed insulation panels may need to be covered with a PE separating layer if using flowing screed.  
 The manufacturer's specifications must be observed.  
 Material: \_\_\_\_\_ /m<sup>2</sup>  
 Labour: \_\_\_\_\_ /m<sup>2</sup>  
 Total: \_\_\_\_\_ /m<sup>2</sup>

\_\_\_\_m<sup>2</sup> Schlüter-BEKOTEC-BTS 510 as an impact sound insulation membrane consisting of 5 mm closed-cell polyethylene foam for installation below Schlüter-BEKOTEC-EN, to be supplied and installed on a sufficiently level substrate.  
 The manufacturer's specifications must be observed.  
 Material: \_\_\_\_\_ /m<sup>2</sup>  
 Labour: \_\_\_\_\_ /m<sup>2</sup>  
 Total: \_\_\_\_\_ /m<sup>2</sup>

\_\_\_\_m<sup>2</sup> Schlüter-BEKOTEC-EN 23 F as a studded screed panel made of structured polystyrene with undercut, 23 mm studs, alternating between 109 large studs with a diameter of 65 mm and 110 small studs with a diameter of 20 mm, which enable the installation of heating pipes with patterns spaced 75 mm, 150 mm, 225 mm ... apart. The stud pattern on the edge has an interlocking design 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 cuts in the edge area, if necessary with the use the levelling panel Schlüter-BEKOTEC-ENFG.  
 The manufacturer's specifications must be observed.  
 Material: \_\_\_\_\_ /m<sup>2</sup>  
 Labour: \_\_\_\_\_ /m<sup>2</sup>  
 Total: \_\_\_\_\_ /m<sup>2</sup>

\_\_\_\_ linear metres of Schlüter-BEKOTEC-BRS 808KSF as an edging strip made of closed-cell polyethylene foam, 8 mm thick and 80 mm high, with a self-adhesive support leg on both sides, to be adhered to rising walls or fixed structural components. The adhesive leg of the edging strip must be installed below the studded screed panel and bond with the underside of the studded panel.  
 The manufacturer's specifications must be observed.  
 Material: \_\_\_\_\_/m  
 Labour: \_\_\_\_\_/m  
 Total: \_\_\_\_\_/m

\_\_\_\_linear metres of Schlüter-DILEX-DFP as an expansion joint profile made of closed-cell polyethylene foam, lateral rigid PVC coating, 10 mm thick and with a self-adhesive leg, to be installed in the door threshold area.  
 The manufacturer's specifications must be observed.  
 Height: ■ 60 mm ■ 80 mm ■ 100 mm  
 Material: \_\_\_\_\_/m  
 Labour: \_\_\_\_\_/m  
 Total: \_\_\_\_\_/m

\_\_\_\_ linear metres of Schlüter-BEKOTEC-THERM-HR as a heating pipe 14 x 2 mm, quality-controlled, of high-quality PE-RT plastic, with high temperature resistance, very flexible for optimised installation in the BEKOTEC studded screed panels, to be supplied and professionally installed.  
 The manufacturer's specifications must be observed.  
 Type: \_\_\_\_\_ Art.-No.: \_\_\_\_\_  
 Material: \_\_\_\_\_ /m  
 Labour: \_\_\_\_\_/m  
 Total: \_\_\_\_\_/m

\_\_\_\_m<sup>2</sup>  
 ■ Cement screed of strength class CT-C25-F4 (ZE 20)  
 ■ conventional installation  
 ■ flowing screed  
 ■ Gypsum based screed of strength class CA-C25-F4 (AE 20)  
 ■ conventional installation  
 ■ flowing screed  
 ■ equivalent screeds  
 with a minimum coverage of 8 mm over the studs of the polystyrene panel Schlüter-BEKOTEC-EN without joints, to be compacted and levelled. Sound bridges at wall transitions or structural components as well as in door threshold areas must be avoided.  
 The manufacturer's specifications must be observed.  
 Material: \_\_\_\_\_ /m<sup>2</sup>  
 Labour: \_\_\_\_\_ /m<sup>2</sup>  
 Total: \_\_\_\_\_ /m<sup>2</sup>

i

Text template for tenders can be found at [www.schluter.co.uk](http://www.schluter.co.uk)



