PROFILE OF INNOVATION

Schlüter®-BEKOTEC-F

Covering assembly

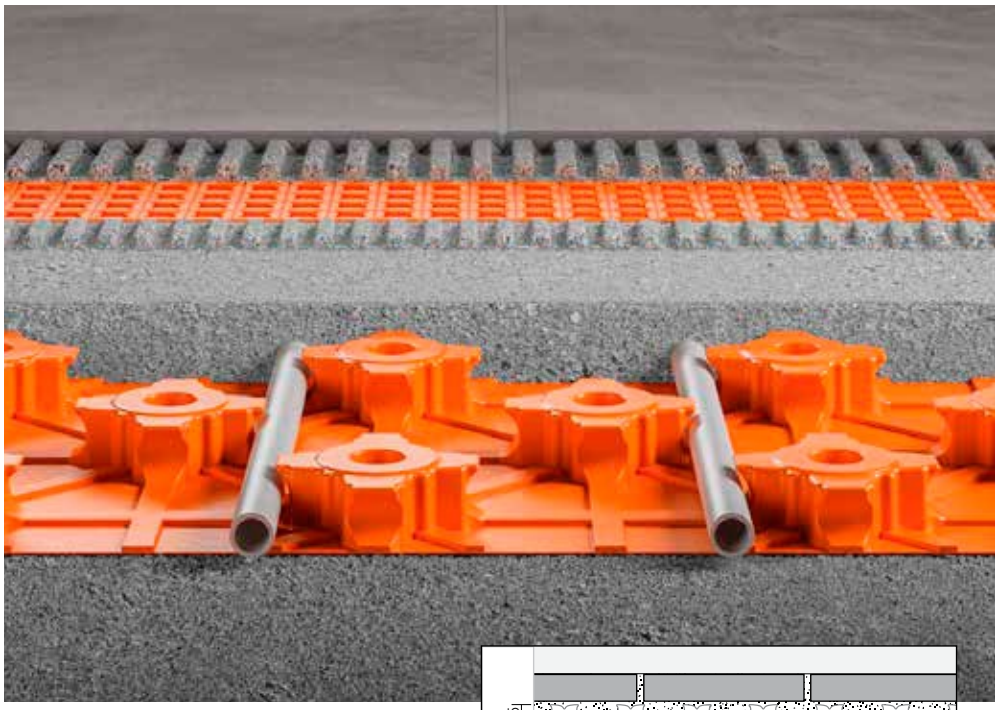
Thin layer covering assembly for renovation and new construction

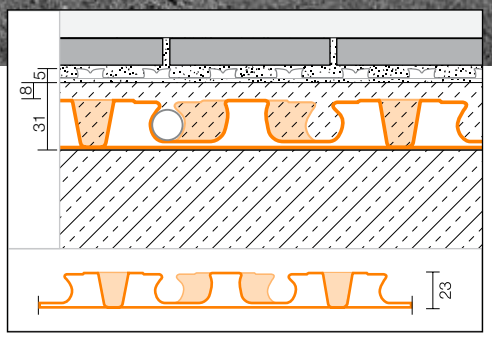
9.2

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/m² ≙ 28.5 l/m²), 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 ≤ 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. The substrates must be even and have no point-like protrusions (e.g. mortar residue). 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 (≤ 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. When installing a flowing screed, carefully place the studded panels and seal the abutting edges/end points. Make sure the screed does not flow underneath the BEKOTEC panels. 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-DFP.
6. The DITRA uncoupling mat (or alternatively, DITRA-DRAIN 4 or DITRA-HEAT) can be installed in accordance with the installation instructions of the relevant product data sheets as soon as the 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.

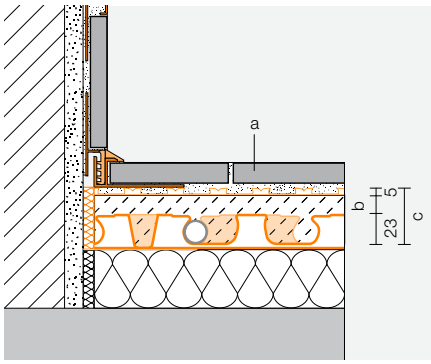
Notes

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.

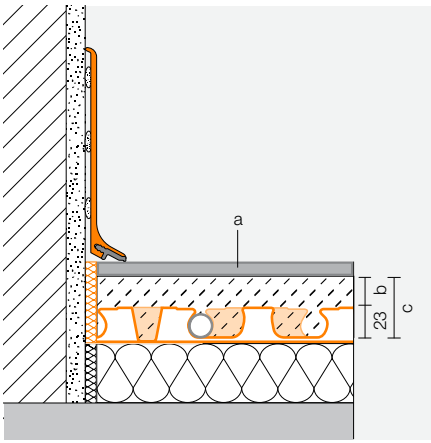
Screed coverage over Schlüter-BEKOTEC-F for various covering types

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

Ceramic coverings



Non-ceramic coverings

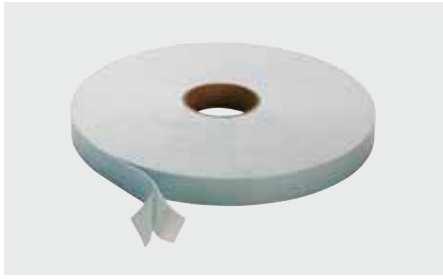


(a) Floor covering	Max. traffic load qk according to DIN EN 1991	Max. individual load Qk according to DIN EN 1991	(b) System coverage with conventional screeds	(c) Total thickness of BEKOTEC assembly
Ceramic tile/ natural stone	5.0 kN/m²	3.5 - 7.0 kN	8 – 25 mm	36 – 53 mm
Soft coverings: PVC, vinyl, linoleum, carpet, cork	2 kN/m²	2.0 - 3.0 kN	15 – 25 mm	38 – 48 mm
Adhered parquet without tongue and groove connection	5.0 kN/m²	3.5 - 7.0 kN	15 – 25 mm	38 – 48 mm
Adhered parquet with tongue and groove connection	5.0 kN/m²	3.5 - 7.0 kN	8 – 25 mm	31 – 48 mm
Floating parquet, laminate	2 kN/m²	2.0 - 3.0 kN	8 – 25 mm	31 – 48 mm

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

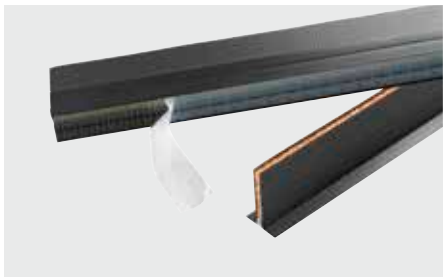
Pipe clamping strip
Schlüter-BEKOTEC-ZRKL is a pipe clamping strip for dependable pipe installation, e.g. in the connection area. The clamping strips are self-adhesive to allow for permanent attachment.
Length: 20 cm, Number of pipe spaces: 4



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

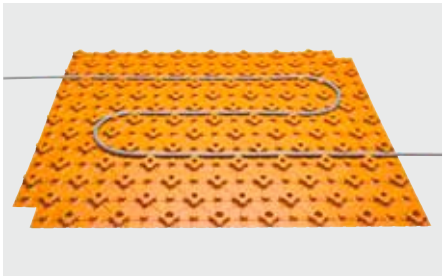
Impact sound insulation
Schlüter-BEKOTEC-BTS is a 5 mm insulation layer of closed cell polyethylene foam for installation below BEKOTEC-EN 23 F. The use of BEKOTEC-BTS results in a significant improvement of impact sound insulation. The material can be used if the required assembly height is not sufficient for a thick insulation layer of polystyrene or mineral fibre.
Roll: 50 m, width: 1.0 m, thickness: 5 mm
Impact sound improvement measure according to DIN EN ISO 10140-1: up to 23 dB



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^2
   Panel height: 23 mm
4. Packaging: 10 units/carton = 10.8 m^2
   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^2 Working area	20 units (21.6 m^2) / box

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

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