Assembly instructions

WEM underfloor heating Kera 40

Art. 30010-40, 30095

General information
Please only use original WEM connecting pipes and press fittings, otherwise the system warranty will be void. Transitions to other systems must be made using screw-press transitions. WEM underfloor heating should not be installed at temperatures below 5°C.

Storage
Store in a dry place and protect from weather conditions.

Laying plate
Kera 40

Multi-layer
composite

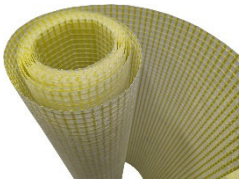
Edge insulation strip

Profile strip for
wooden floorboards

cork strips

equalisation payment

Decoupling mat
for tiles



Bound payment
HS

Optional:
Base cover plate

Scope of application

WEM Floor Heating Ceramic 40 is approved for use with suitable floor coverings and substrates in the following areas of application:

Scope of application	Category*	Description	Single load [kN]	Area load [kN]/m²
1 ✓	A2/ A3	Residential buildings; hotel rooms including associated kitchens and bathrooms	1,0	1,5/2,0
2 ✓**	B1	Office buildings, doctors' surgeries; common rooms including their corridors	2,0	2,0
	D1	Sales areas with a floor space of up to 50 m² in residential, office and similar buildings	2,0	2,0
3 ✗	B2/ C1	Corridors in hotels, retirement homes, boarding schools; kitchens; treatment rooms, including operating theatres without heavy equipment; classrooms, cafés, restaurants, dining rooms, reading rooms and reception rooms	3,0	3,0/4,0

* Categories based on DIN EN 1991-1-1/NA:2012-12

** When using impact sound insulation based on mineral wool, the system is only approved for application area 1.

The WEM Kera 40 underfloor heating system is approved for use with the following tile coverings in the following areas of application:

Floor covering:	Application class
Tiles measuring max. 90 x 90 cm	1 + 2
Natural stone slabs: ‘Solnhofen natural stone’ and ‘Jura marble’ max. 60 x 60 cm (provided they are approved by the manufacturer for underfloor heating)	1 + 2

Subsoil
The subfloor must be clean, dry and level. Uneven subfloors can be levelled with levelling compound and then covered with a wood fibre covering board (compressive strength min. 150 kPa, thickness 20 mm) as a clean layer. Otherwise, the substrate is covered with impact sound insulation (compressive strength min. 150 kPa), e.g. 7 mm STEICO Underfloor/EcoSilent.

When using impact sound insulation based on mineral wool, the system is only approved for application area 1 (residential buildings, hotel rooms).

Connecting pipes
The laying of the supply lines from the distributor to the individual heating circuits must be well planned in advance. When laying larger areas or several rooms, it is advisable to lay the connecting pipes in a substructure made of fill or insulation boards and to lead them to the point where the respective supply and return of the heating circuit is connected. Other options for laying the connecting pipes are either across the wall surfaces (in which case the pipes may need to be covered) or across the ceiling surfaces (e.g. in the case of suspended ceilings).

Attach edge insulation strips
The edge insulation strips are placed against the walls (Fig. 1) and fixed in place if necessary so that they do not slip during installation..

Fig. 1

1. Structure for a wooden floor covering

Planning

The panels and profile strips are laid as shown in Fig. 2 a. The edge areas running parallel to the pipe routing can be filled either with fill material (CEMWOOD 1000) or cut panels.

The profile strips are laid at the front with a gap of approx. 2.5-3 cm to the wall, and the panels with a gap of 25 cm. This is the subsequent filling area where the pipe bends are located.

When laying, a gap of 2-5 mm must be maintained between the panels at the front surfaces (the panels should not touch each other at the front). The profile strips in the edge area and the ends protruding above the panels are underlaid with cork strips (Fig. 2 a / 2 b / 2 c).

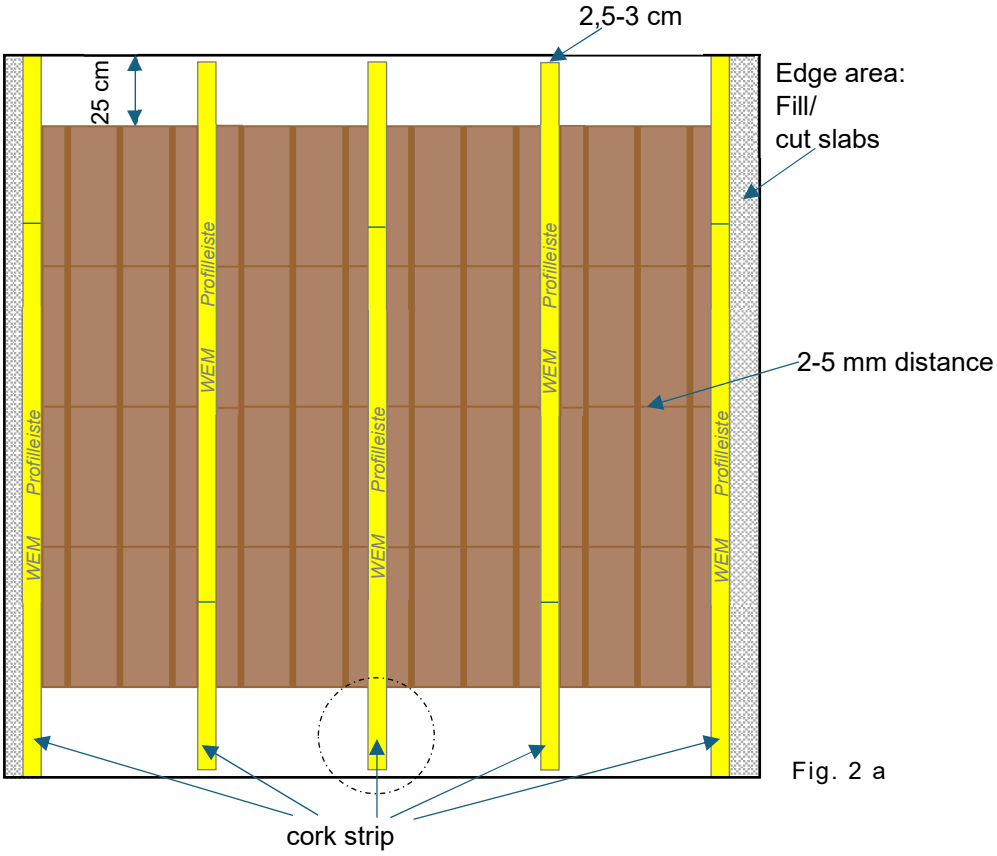


Fig. 2 a

Fig. 2 b

Fig. 2 c

Large rooms

If more than two heating circuits are required in a room and these heating circuits meet in the middle of the room, the profile strips must be laid offset so that the two partial areas are connected to each other via the fixing of the floorboards (for clarification: see Fig. 3 ‘possible position of the floorboards’). Otherwise, they could slip against each other. The offset must be at least the width of the floorboards. It is essential to lay WEM cork strips under the profile strips in this ‘pipe bend area’.

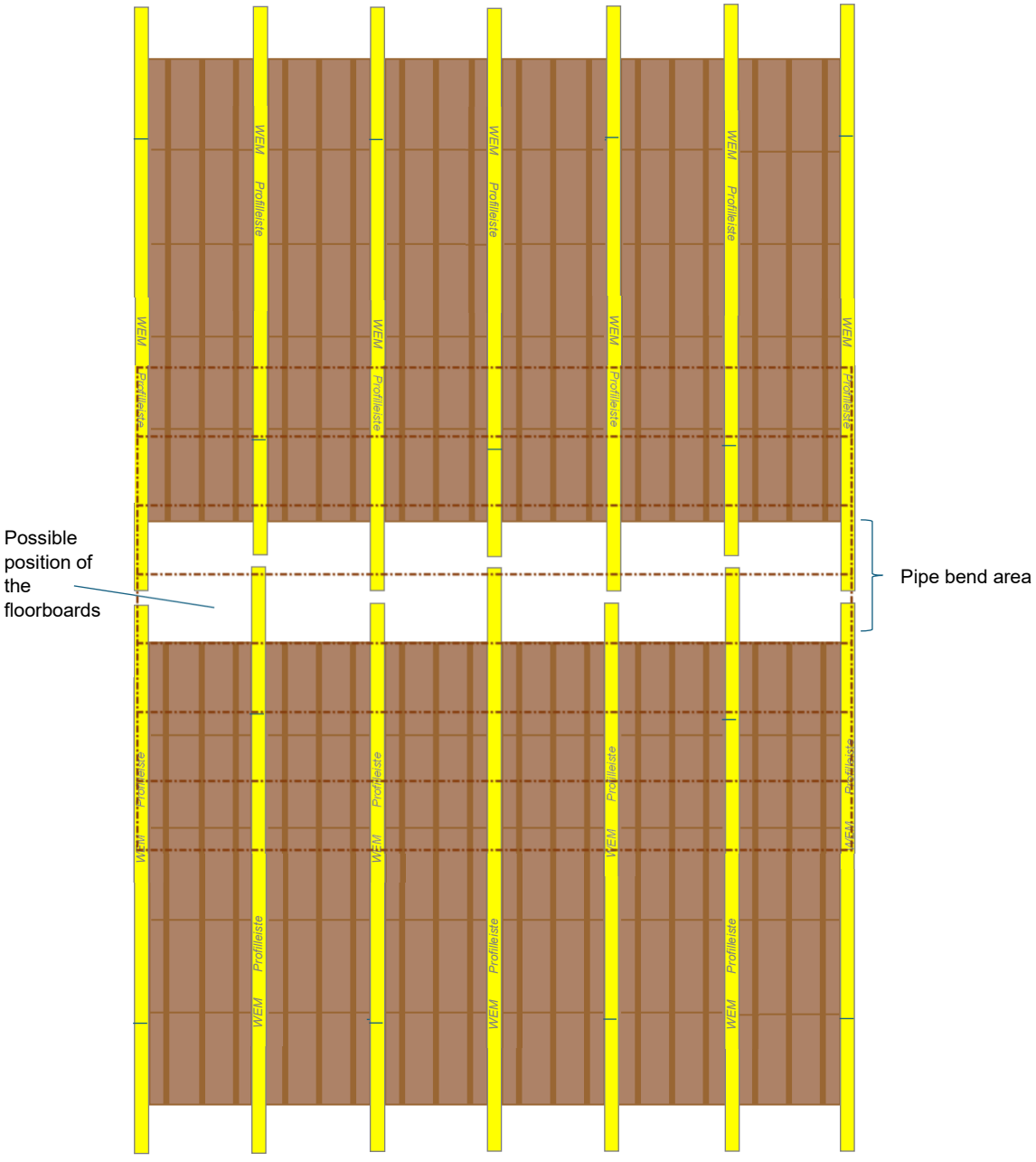


Fig. 3

Laying boards

KERA slabs are available as ‘whole’ and ‘half’ slabs. If necessary, the slabs can be cut using a stone cutting machine (Fig. 4).

Fig. 4

Laying paving slabs and profile strips

Panels and profile strips are laid alternately (tongue and groove profile) without adhesive in a floating manner on the subfloor. When laying, a gap of 2–5 mm must be maintained between the panels at the front edges (the panels should not touch each other at the front). The profile strips are used for subsequent screw fastening of the floorboards and run perpendicular to the floorboards. Thanks to the tongue and groove system, they sit flush with the surface of the panels without resting on the subfloor. This means that the wooden floor lies directly on the panels, which is important for optimum heat transfer (Fig. 5).

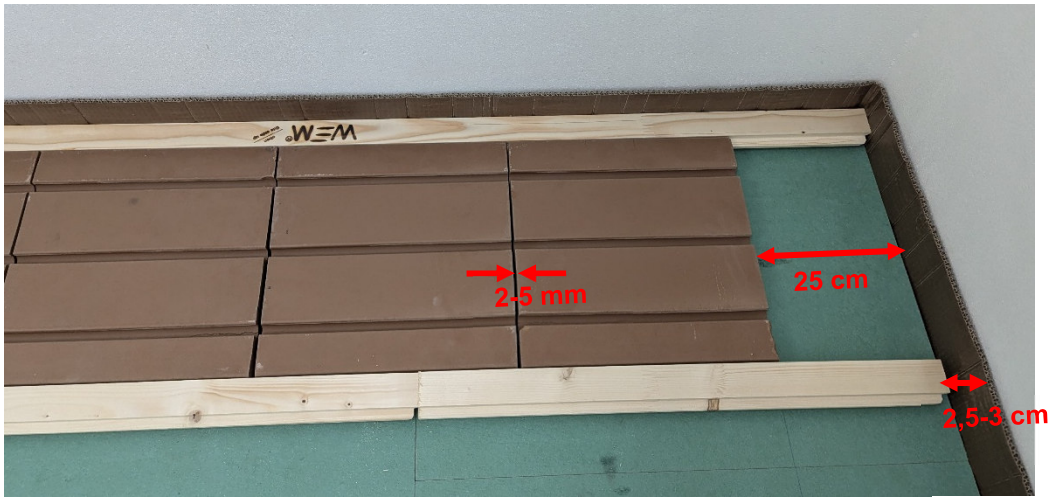


Fig. 5

Profile strip

The profile strips are bevelled at the ends so that the pipes can be fed through between the wall and the profile (Fig. 6). The part of the profile strip located in the bulk area is lined with a 5 mm cork insulation strip. The insulation strip can be stapled or glued in place.

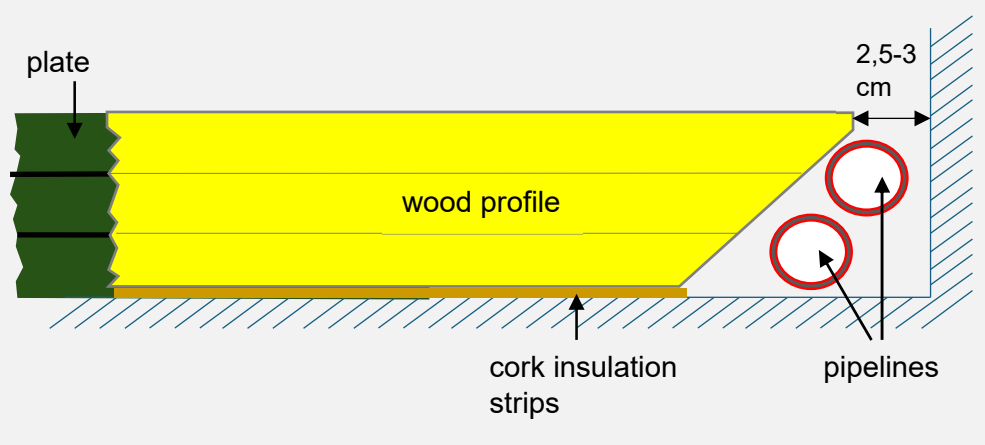


Fig. 6

The profile strips are laid in a staggered pattern (Fig. 7). The longitudinal joints of the strips must be arranged so that there is a minimum length or offset of at least the width of the floorboard from the previous row of strips.

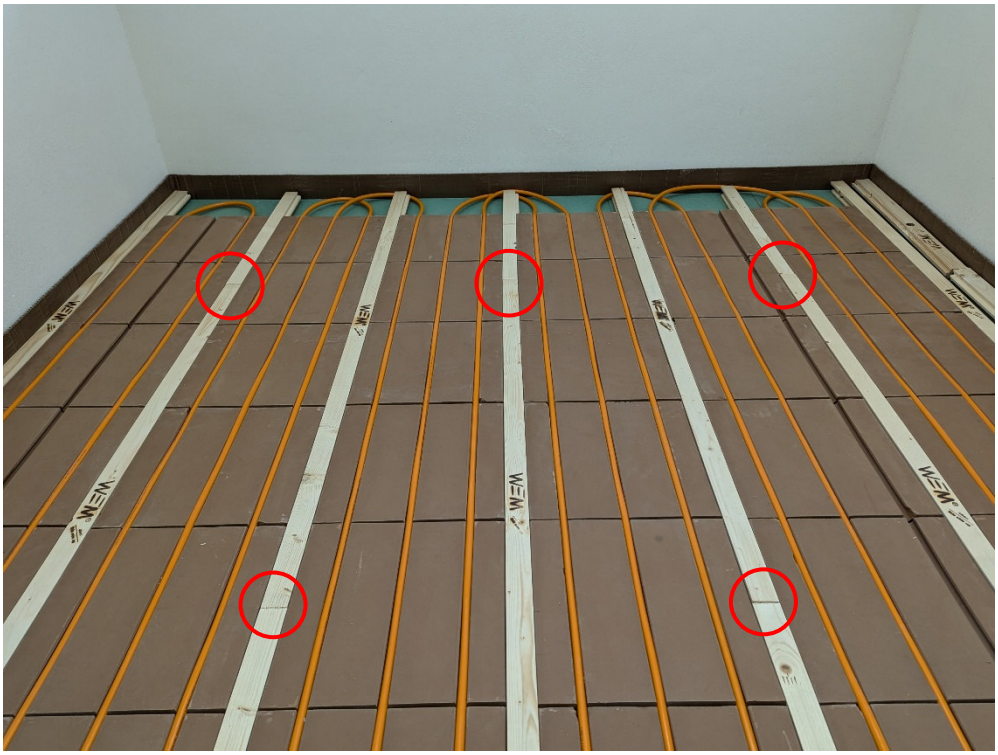


Fig. 7

Laying pipes
The grooves (pipe holders) must be cleaned before laying the pipe!
The multi-layer composite pipe is laid using a roll-off reel (Fig. 8).

Fig. 8

On the ‘outward journey’, every second groove is occupied (Fig. 9).

Fig. 9

On the ‘return path’, the pipe is crossed at each bend (Fig. 10). The bends are bent downwards slightly so that they do not protrude beyond the plane of the plate.

Fig. 10

Compensate for peripheral areas

The areas around pipe bends and any other edge areas without panels are filled with pressure-resistant CEMWOOD CW1000 levelling fill to the same level as the panels (Fig. 11).

Fig. 11

Laying floor covering
The desired floor covering is now laid:

The wooden floorboards are screwed to the profiles with the tongue concealed (Fig. 12). The fastening screws of the first and last floorboards must be at least 50 mm away from the wall so that the pipe cannot be damaged when screwing them in.

Fig. 12

2. Structure for tile flooring

Laying slabs

The Kera panels are laid alternately (tongue and groove profile) on a wood fibre board/impact sound insulation in a composite structure; the offset must be ½ panel. At the front end, there must be a minimum distance of 25 cm from the wall for the pipe bends.

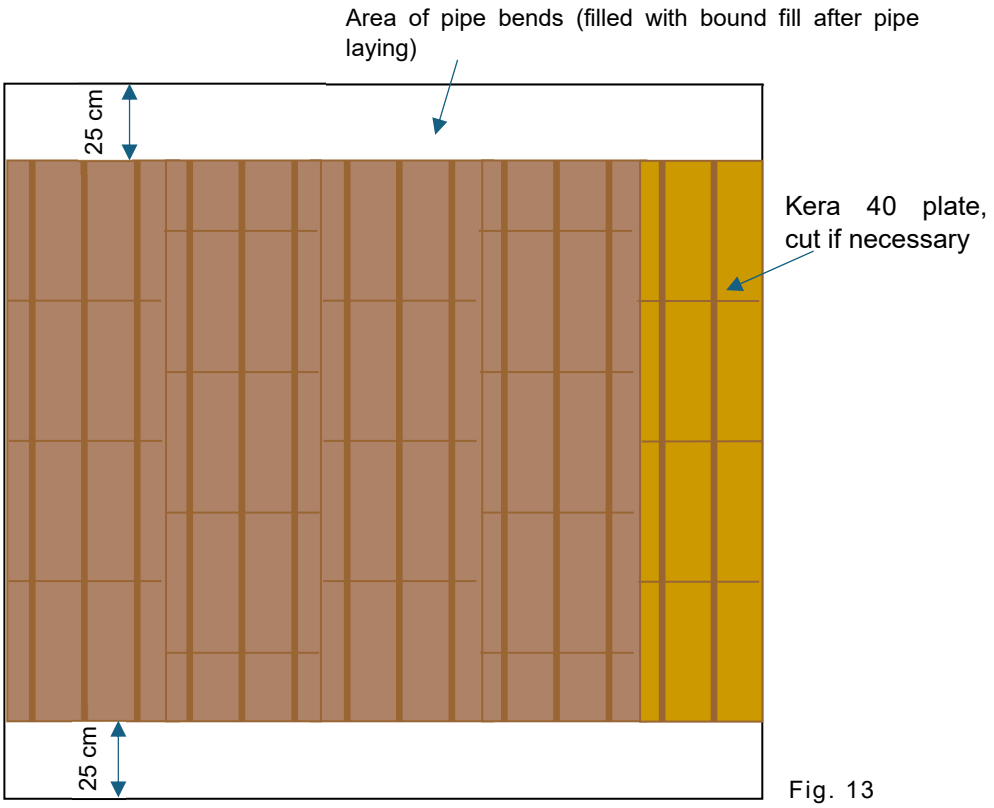


Fig. 13

Gluing panels

The panels are bonded together in the tongue and groove with a standard tile adhesive (flexible adhesive C2, S1) (Fig. 14).

The front side of the panel is not bonded to prevent adhesive from getting into the grooves (pipe holders). Any excess adhesive on the top of the panel must be removed. The tile adhesive must be completely dry before the pipes can be laid.

Fig. 14

Laying pipes
The grooves (pipe holders) must be cleaned before laying the pipe!
The multi-layer composite pipe is laid using a roll-off reel.
The following laying patterns are possible:

Diagram 1 (Fig. 15):
On the ‘outward journey’, every second groove is occupied. On the ‘return journey’, the pipe is crossed at each bend. The bends are bent downwards slightly so that they do not protrude beyond the plane of the plate.

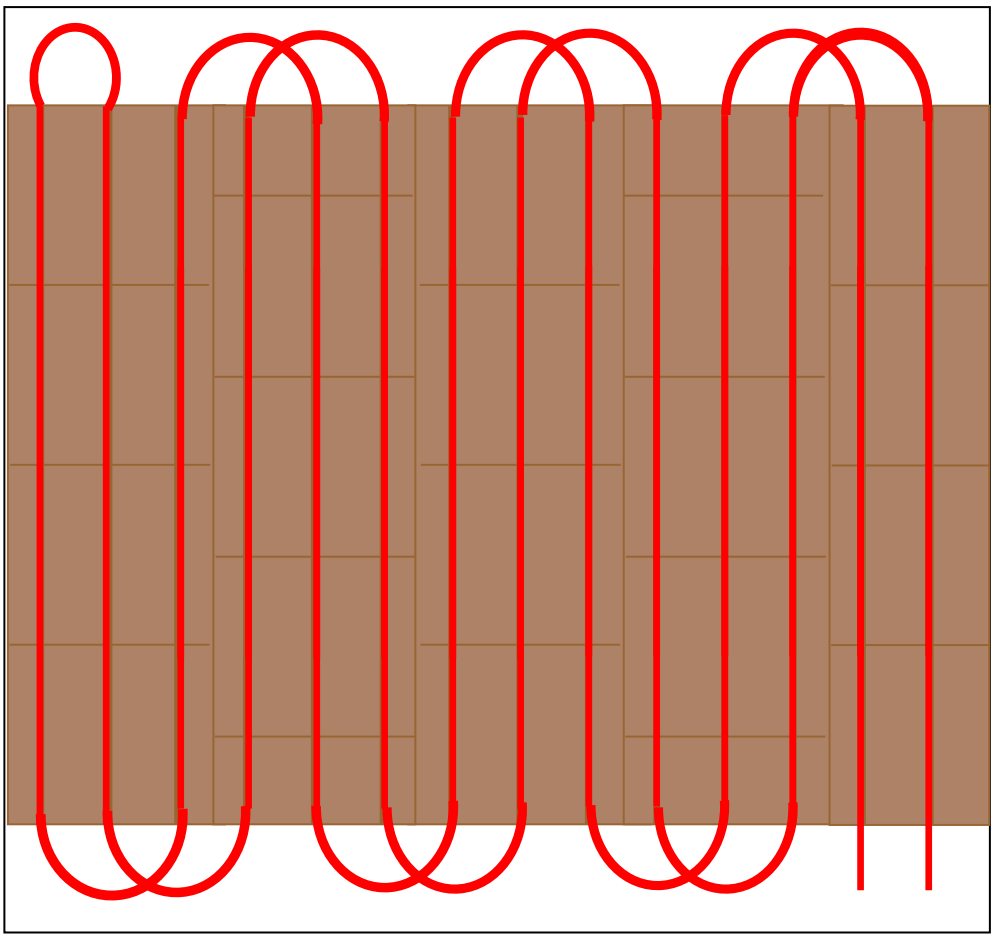


Fig. 15

Laying pipes
Diagram 2 (Fig. 16):
On the ‘outward journey’, two grooves (pipe holders) are always left free and two are occupied, and so on. The same procedure is followed on the ‘return journey’.

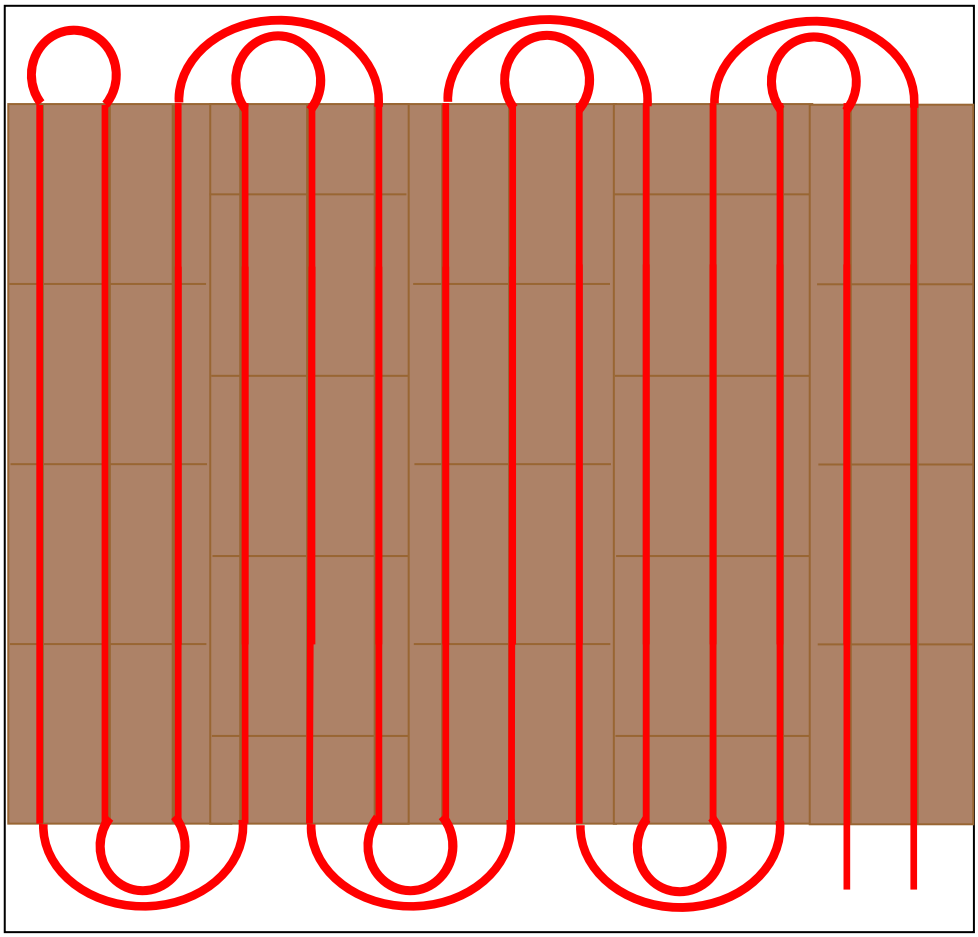


Fig. 16

Fill the edge area
The areas of the pipe bends and any edge areas without slabs are filled with the bound fill (HS + HSB).

The HS fill is mixed either in a mortar bucket or in a free-fall mixer. Add a bag of fill (50 l) to a bag of HSB binder (3.2 kg) and mix until homogeneous. Then add 2.4 litres of water and mix well until a uniform, matt-moist consistency is achieved. Continue mixing for another 1.5 – 2 minutes. Apply the ready-to-use material and level it to the level of the slabs.

Heat up

The system must be heated up before the next steps!

The pipes are connected to the heating system via the heating circuit distributor. After filling and pressure testing, warm water is fed into the underfloor heating system. The temperature should correspond to the maximum design temperature (e.g. 35°C, max. 45°C). The floor is heated until the return temperature is approx. 5 K below the flow temperature.

Decoupling mat

Once the bound fill has set and dried and the system has been heated, you can begin laying the decoupling mat.

Cut the strips to size using a craft knife or scissors. Lay the strips without overlapping and maintain a gap of 5–10 mm to the edges. The mat joints of adjacent strips must be offset by at least 30 cm; cross joints are not permitted.

Mix standard tile adhesive (flexible adhesive C2, S1) according to the manufacturer's instructions and apply to the substrate in sections using the smooth side of a notched trowel. Then immediately smooth with a 4 x 4 mm or 6 x 6 mm notched trowel. Place the cut-to-size strip with the fleece facing downwards on the adhesive bed and press firmly.

Once the adhesive has completely hardened, you can begin laying the covering.

Seal if necessary

If additional waterproofing is required, this is carried out before laying the top layer on the decoupling mat.

Tiling
After drying, the tiles are applied to the decoupling mat using flexible adhesive (C2, S1). The edge length of the tiles must not exceed 90 cm x 90 cm.

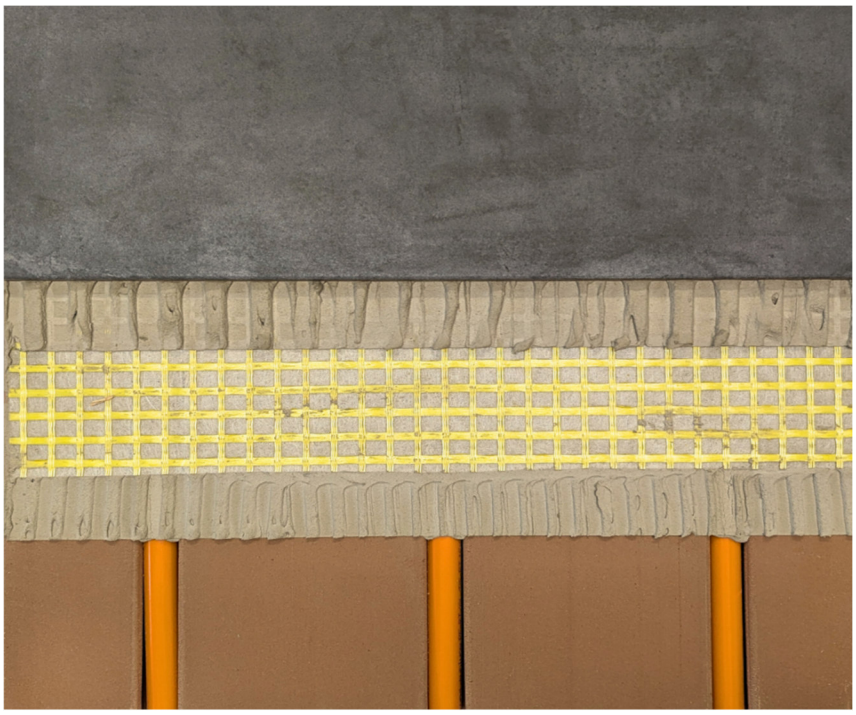


Fig. 17

Other floor coverings
The Kera 40 system, which is equipped with a decoupling mat, can also be covered with other flat flooring, e.g. parquet, laminate or designer flooring.