

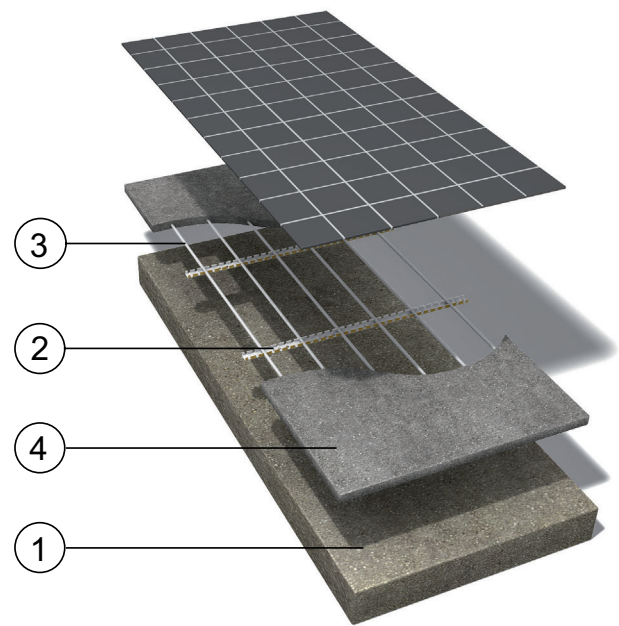
# On load-bearing floors with LK Clip Rail 8

## DESIGN

LK Floor Heating fitted with LK Clip Rail 8 for embedding with LK Kiilto UFH Levelling Compound DF. The system can be laid on insulation, existing concrete slabs or wooden joists with 22 mm floor grade chip boards.

The system with LK Floor Heating Pipe 8 mm is primarily intended for floor heating installations on smaller surfaces, such as in bathrooms, hallways, laundry rooms etc.

The LK Clip Rail 8 has a construction height of only 10 mm, including the floor heating pipe, screed and floor material. The clip rail is manufactured from recycled plastic and designed such that the floor heating pipe is surrounded by the screed for good heat transmission.



## REQUIREMENTS

We recommend the use of weather dependent (weather compensation) flow temperature control, properly balanced and set in line with the design for adjustment of the primary and loop flow to achieve optimum efficiency of under floor heating systems. We also recommend the settings are recorded for future reference.

In general the guidelines apply in accordance with local building codes and for selected bespoke design solutions.

In this type of floor heating installation the floor heating pipe is often embedded in a thin layer of levelling compound. In order to achieve a good result it is important to follow the instructions from the respective supplier sufficiently.

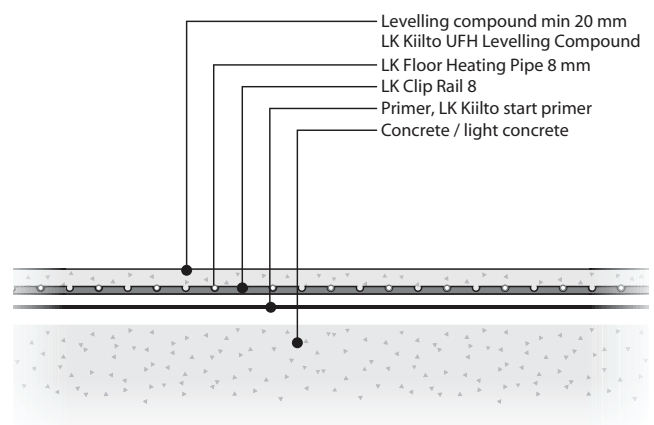
## CONSTRUCTION OUTLINE

1. Sub floor
2. LK Clip Rail 8
3. LK Floor Heating Pipe dim. 8 mm
4. LK Kiilto UFH Levelling Compound DF

## SUB FLOOR/UNDERLAY

### Concrete and light concrete sub floor

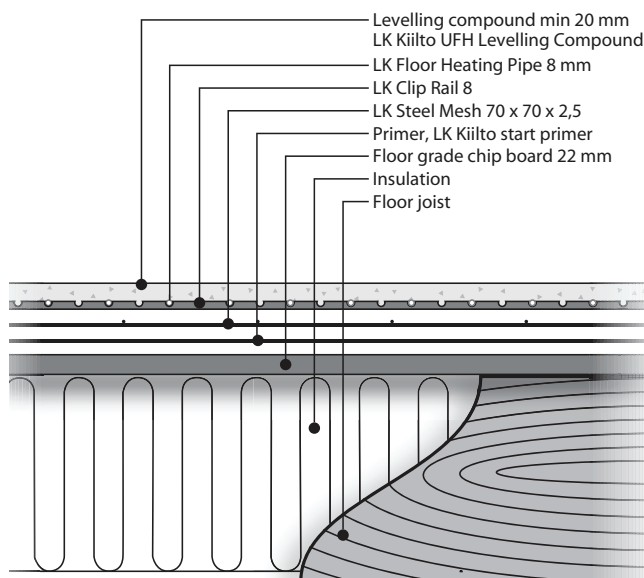
The sub floor should be free from dust, oil, grease, paint and other impurities. Prime the sub floor with LK Kiilto Start primer. Drying time 1-2 h. The light concrete underlay should be primed 2-3 times so that the light concrete is well saturated. Drying time between priming, approx. 1-2 h. Lay the clip rails and floor heating pipes, see headings below. Cover the installation with LK Kiilto UFH Levelling Compound DF. The screed should be at least 20 mm thick. The construction can be used in both wet and dry areas. In wet areas the sealing layer should be assembled in accordance with the supplier's instructions and local industry regulations for wet areas.



*LK Clip Rail 8 against the concrete or light concrete sub floor.*

### Sub floor of 22 mm floor grade chipboard on wooden joists with a maximum joist spacing of c/c 600 mm

The sub floor should be free from dust, oil, grease, paint and other impurities. Prime the sub floor with LK Kiilto Start primer. Drying time approx. 1-2 h. Lay LK Steel mesh 70x70x2,5 mm and affix it in the underlay using a staple gun. Allow the mesh mats to overlap one another by at least 70 mm. Screw LK Clip Rail 8 tightly above the reinforcement mesh using chipboard screws, with approx. 3-4 screws per clip rail. Once the clip rails and floor heating pipes have been laid, see headings below, the installation is covered with LK Kiilto UFH Levelling Compound. The screed should be at least 20 mm thick. The construction can be used in both wet and dry areas. In wet areas the sealing layer should be assembled in accordance with the supplier's instructions and local industry regulations for wet areas.

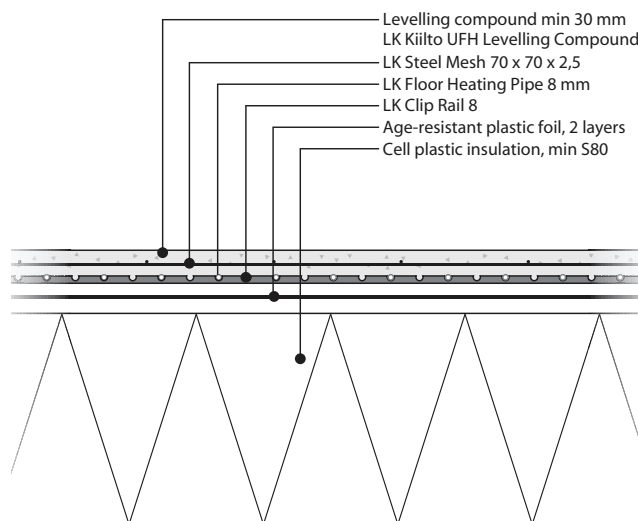


*LK Clip Rail 8 on wooden joists with 22 mm floor grade chipboard mounted on the floor joist spacing max c / c 600 mm.*

### Cell plastic insulated underlay with a minimum quality of S80 (free-bearing construction)

Lay 2 layers of age-resistant plastic foil (0,2 mm) and turn up the plastic foil along the walls (approx. 100 mm). Affix the LK Clip Rail 8 mm through the plastic foil into the insulation using LK Pipe Holders. Approx 3-4 pipe holders should be used per clip rail.

Assemble clip rails and floor heating pipes, see headings below. Lay the LK Steel mesh 70x70x2,5. Allow the mesh mats to overlap one another by at least 70 mm. Cover the installation with LK Kiilto UFH Levelling Compound. The screed should be at least 30 mm thick. The construction can be used in dry areas.



*LK Clip Rail 8 on the cell plastic insulated underlay with a minimum quality of S80 (free-bearing construction)*

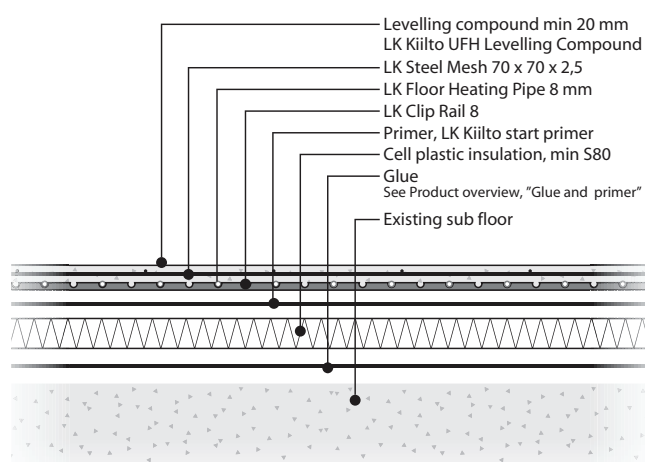
### Existing floor with cell plastic insulation minimum S80 quality (fixed construction)

Before the cell plastic boards are laid, the desired degree of evenness under the floor should be inspected. Maximum curvature  $\pm 3$  mm over a distance of 2 metres and  $\pm 1,2$  mm over a distance of 0,25 metres. Make sure that the sub-floor is absorbent and clean and free from paint, oil grease and other impurities. Glue the cell plastic insulation with LK Kiilto Floorfix DF mixed with water. If the underlay is not absorbent e.g towards a ceramic-set concrete surface then LK Kiilto Floorfix DF should be mixed with LK Kiilto Fixbinder and water. Apply the glue with a putty knife, then work the mix in well before "combing" it up. Use a size 8 comb on the boards. Lay the board on top of the mix and press it down hard.

After the cell plastic insulation has been glued, the upper surface of the insulation is primed with LK Kiilto Start primer. Drying time 1-2 h. Assemble the clip rails and floor heating pipes, see headings below.

Secure the clip rails by inserting short LK Pipe Holder into the insulation, using approx. 3-4 pipe holders per clip rail. Lay out LK Steel mesh 70x70x2,5 mm. Allow the mesh mats to overlap one another by at least 70 mm.

Cover the installation with at least 20 mm of LK Kiilto UFH Levelling Compound DF. The construction can be used in both wet and dry areas. In wet areas the sealing layer should be assembled in accordance with the supplier's instructions and local industry regulations for wet areas.



LK Clip Rail 8 on the existing floor with cell plastic insulation minimum S80 quality (fixed construction)

## SURFACE LAYER

### Parquet or laminate flooring

The surface is covered with a vapour barrier (age-resistant plastic foil), followed by rag paper or cell foam. The upper floor is assembled according to the floor supplier's instructions. Always consult LK for floor thicknesses over 25 mm.

### Plastic or linoleum carpets

These are laid according to the supplier's instructions.

### Ceramic or natural stone

These are laid according to the supplier's instructions. In wet areas the sealing layer should be assembled in accordance with the supplier and local valid requirements.

## LK MANIFOLD

The LK Manifold is assembled at the designated location according to the UFH drawing. Please read the enclosed assembly instructions first.

## LAYING CLIP RAILS

Begin assembly by laying LK Clip Rail across the design loop direction. In the turning zones the rails are laid approx 150 mm from the wall, leaving sufficient space for the pipes to turn. The remaining space between the turning zones is filled with additional rows of rails with a reciprocal spacing of max 500 mm.

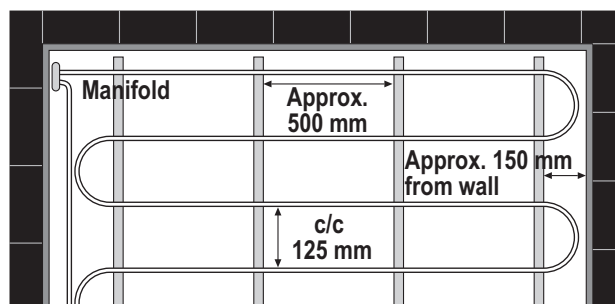
Fasten the clip rails to the underlay with its double-stick tape. It may be necessary to complete the attachment to the concrete underlay with e.g. concrete nails, screws for attachment to chipboards, and short LK Pipe Holders for cell plastic insulation.

## LAYING PIPES

The floor heating pipe feed is laid approximately 40 mm from the wall, and should continue to be laid at c/c 120 mm. The maximum pipe length per floor heating circuit is approx. 43 m, which corresponds to a surface area of 5 m<sup>2</sup>. If necessary, several circuits can be linked parallel to one another. To assist in securing pipes in the turning zones you can use LK Nail Clips on chipboard, or short pipe holders for use on insulation. When mounting close to a floor drain the pipe should not be closer than 100 mm, in order to enable repairing parts of the floor drain.

Pipe decoiler is helpful when laying pipes.

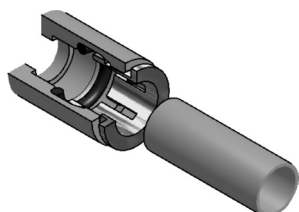
Pipe cutters intended for plastic pipes should be used to cut the pipes.



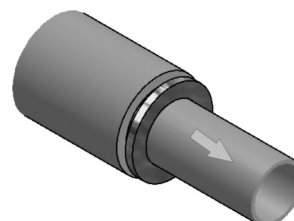
## PIPE CONNECTION WITH CONNECTION SYSTEM LK PUSHFIT 8



LK PushFit 8 mm connectors with associated inserts.

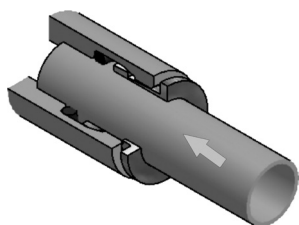


1. Cut the pipe in a straight line with LK Pipe Cutter. Push the inserts into the pipe and push the pipe into the connector until it stops, after approx. 2 cm.

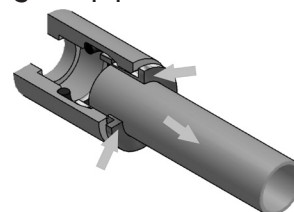


3. Check the connection by pulling the pipe. Checks should always be carried out before the system is filled.

### Disassembling the pipe/connection



2. Ensure that the pipe is inserted in the stop position. The connection is now secure. The stainless steel teeth will now grip the pipe tightly and prevent it from sliding out. The O-ring tightens the joint.



Ensure that the system is depressurized. The pipe is released from the connection by pushing the black ring up towards the connection, whereupon the pipe can be pulled out.

## PRODUCT OVERVIEW, GLUE, PRIMER AND WET SCREED

The products below have been tested on the LK Floor Heating System 8 mm

LK Art . no.	Product name	Usage	Notes	Consumption	Drying time
33525	Kiilto Floorfix DF, 20 kg	Gluing cell plastic boards	<b>For absorbent underlays:</b> Mix 5,8-6,2 l water with 20 kg Floorfix DF. <b>For non-absorbent underlays:</b> Mix 5 l Fixbinder with 2 l water and 20 kg Floorfix DF	3,5 kg/m <sup>2</sup>	32-48 h
33521	Kiilto Start Primer, 3 litre	Priming underfloor and cell plastic	Combine only with Kiilto products	1l/10 m <sup>2</sup> . On light concrete 2,5 l/10m <sup>2</sup>	1-2 h
33522	Kiilto Fixbinder, 5 litre	Gluing cell plastic boards	Mix 5 l Fixbinder with 2 l water and 20 kg Floorfix DF	5 l/20 kg Floorfix DF (+ 2 l water)	Not applicable
33524	Kiilto UFH Leveling Compound 20 kg	Embedding of floor heating pipe and for creating drainage slopes	Only used with Kiilto startprimer	1,7 kg/m <sup>2</sup> /mm	3-5 days
8912	Steel mesh 70x70x2,5 1200x800 mm	Reinforcement	For underlay of chipboard and cell plastic	1,3 st/m <sup>2</sup>	Not applicable