

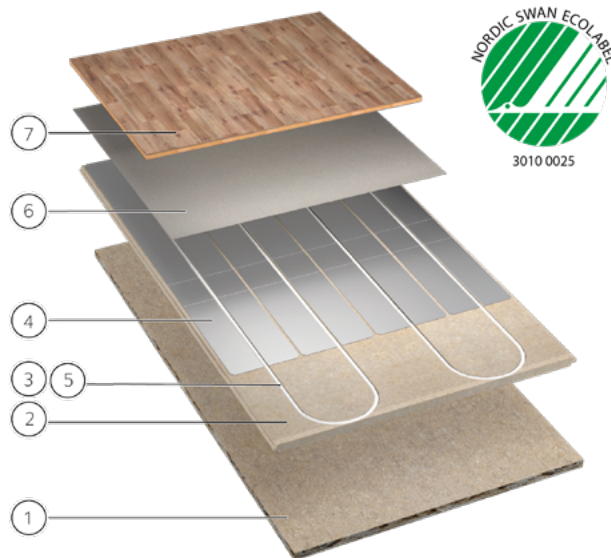
On load-bearing floors with LK HeatFloor 22

DESIGN

- LK Underfloor Heating in conjunction with LK HeatFloor 22 is intended for laying on load-bearing floors.
- For laying on standard wooden joists maximum c/c 600 mm, please refer to Assembly instructions - *On floor joists with LK HeatFloor 22*.
- LK HeatFloor 22 should not be laid on constructions composed of concrete slabs without insulation. For such cases, please refer to LK Underfloor Heating Systems with insulation plates, e.g. LK CombiBoard EPS.

REQUIREMENTS

- The requirements for a properly functioning underfloor heating system is a weather-controlled regulation system for the supply temperature and a well implemented and documented adjustment to the primary and loop flows.
- In general the instructions apply in accordance with AMA Hus (Swedish Construction Industry Standard for house-building) and for specified builders/quality managers.



LK HeatFloor 22.

CONSTRUCTION PRINCIPLE

1. Load-bearing floor construction

Evenness of the surface layer in accordance with local building codes.

2. LK HeatFloor 22, Slotted Board

Slotted floor chipboard in dimensions 1800 x 600 x 22 mm. Features three grooves with a spacing of c/c 200 mm. Also available in an alternative version with two grooves at a spacing of c/c 300 mm. The board is tongued and grooved on all sides.

3. Pipe-turns

Pipe turns can be created in two ways:
 By using the LK Turning Panel HeatFloor 22, or
 By milling turning slots in the LK HeatFloor 22 groove panel. This step is carried out using a router, the LK Router Bit HF22, and the LK Router Template HF22.

4. LK Heat Distribution Plate 16/190

L=1150 mm, W=190 mm

5. LK Universal Pipe dim. 16 mm/ LK Underfloor heating pipe

6. Vapor barrier according to floor manufacturer's instructions and cellfoam / rag paper'

7. Surface layer



SURFACE LAYER

Parquet or laminate floor

1. For underfloor heating, concrete surfaces are covered with a vapor barrier (DPM) according to the floor manufacturers instructions and then rag paper or cellfoam.
2. The floor covering is laid across the under floor heating circuits. Adhere to the floor manufacturer's instructions and the instructions from The Swedish Flooring Trade Association for wood floor on underfloor heating. Seek advice from LK if the flooring thickness exceeds 25 mm.

Vinyl, linoleum or carpets

Dry areas



NOTE!

When vinyl, linoleum or carpet coverings are to be used, **12 mm floor grade chipboard must be screwed in place** according to the manufacturer's instructions.

1. Install the subfloor (12 mm chipboard) according to the chipboard supplier's instructions.
2. Lay the carpet as per the supplier's instructions.

Wet areas



NOTE!

In wet areas, a subfloor consisting of a single layer of 12 mm chipboard must be screwed in place according to the chipboard supplier's instructions.



RISK! Risk of screwing through pipes

Avoid screwing into the pipes when fastening the subfloor, following the chipboard supplier's instructions.

1. For wet areas a 12 mm floor grade chipboard must be screwed in place according to the manufacturer's instructions.
2. Apply Kiilto Pro FixPrimer to the chipboard. Drying time 1–2 hours.
3. Cover the installation with Kiilto Floor Heat DF, Kiilto Pro Plan Vario, or Kiilto Pro Plan Craft. The total screed thickness must be at least 12 mm.
4. Lay the linoleum or vinyl flooring according to the respective supplier's instructions and the recommendations and guidelines from GVK.

Ceramic tiling or natural stone

Three different design solutions for ceramic floors are specified below. Note also whether the structure is designed for a dry or wet area.

Ceramics in wet or dry areas with levelling compound

This design is suitable for ceramic surface layers, and also for plastic, linoleum or wet room flooring.

1. Screw the LK Heat Distribution Plate in place in a zigzag pattern, c/c 150 mm, after finishing pipe installation. Use suitable flat headed screws, installation screw type (length 14–20 mm).
2. Make sure that the floor and heat distribution plates are clean, vacuum carefully. If there is oil or grease on the plates, the oil/grease must be washed off.
3. Then apply Kiilto Pro FixPrimer to the entire surface, allow 1–2 hours to dry.
4. Lay LK Steel mesh 70 x 70 x 2.5. Allow the mesh mats to overlap one another by at least 70 mm.
5. Cover the installation with Kiilto Floor Heat DF, Kiilto Pro Plan Vario, or Kiilto Pro Plan Craft. The total screed thickness must be at least 12 mm.
6. A sealing layer for wet room and ceramics is then applied, follow the instructions for the relevant supplier and the building regulations of the Council on Building Ceramics.

Ceramics in dry areas – panel solution

This design is suitable for ceramic surface layers, and also for plastic or linoleum flooring.

1. After finishing pipe installation, LK Heat Distribution Plate must be screwed in place in a zigzag pattern, c/c 150 mm. Use suitable flat headed screws (length 14–20 mm).
2. Make sure that the floor and heat distribution plates are clean, vacuum carefully. If there is oil or grease on the plates, the oil/grease must be washed off.
3. Apply Kiilto Pro FixPrimer to the entire surface, let dry for 1–2 hours.



4. Then glue a 12.5 mm Fermacell form stable fiber gypsum board or equivalent to the floor with Kiilto Floorfix DF mixed with Kiilto Fixbinder and water.
5. Apply the glue with a putty-knife.
6. Comb out the glue with a notched trowel (notched 8 mm).
7. Mount the floor grade form stable board within 10-15 minutes after the glue is applied.
8. Mark out the position of the pipes at the same time, to avoid any damage in the next step, when the form stable boards are screwed in place.



INSTRUCTION!

The boards are screwed with drywall screws 3.9x30 mm along the short and long edges of the boards as well as between the pipe rows.

9. Start screwing the edges of the board 50 mm in from the corners of the boards and then no more than 300 mm apart.
10. Then screw between the pipe rows, keeping the screws max. 500 mm apart.
11. When the glue has dried after approx. 32-48 h, tiling can begin.

Alternative solution with levelling compound for ceramics in dry areas

This design is suitable for ceramic surface layers, and also for plastic and linoleum flooring.



TIP!

As an alternative solution for dry areas, a topping with Kiilto Floor Heat DF, Kiilto Pro Plan Vario, or Kiilto Pro Plan Craft can be used.

1. Lay 2 layers of DPM PE sheet (0.2 mm) and turn up the DPM along the walls (approx. 100 mm).
2. Lay LK Steel mesh 70 x 70 x 2.5 mm and allow the mesh mats to overlap one another by at least 70 mm.
3. Cover the installation with Kiilto Floor Heat DF Kiilto Pro Plan Vario or Kiilto Pro Plan Craft. The putty should be at least 30 mm thick.
4. When the putty has dried after approx. 3-5 days, the tiling can begin.

LK MANIFOLD

The LK Manifold is assembled at a designated place according to drawing. Please read the assembly instructions enclosed with the manifold first.

LAYING OF BOARDS AND HEAT DISTRIBUTION PLATES



NOTE!

Before laying out the boards, inspect the sub-floor to ensure it is level, according to AMA Hus requirements, table 43.DC/-1, class A, i.e. maximum curvature ± 3 mm over a distance of 2 meters and ± 1.2 mm over a distance of 0.25 meters.



NOTE!

A layer of grey felt paper can optionally be placed between the subfloor and the slotted board to counteract minor unevenness, but not when using ceramic flooring.

1. Pipe-turning

Pipe turning can be created in two ways: using a ready-made solution such as LK Turning Plate HF22 or by milling custom pipe slots with tools. See point 3 under "Construction Principle" on page 1.

LK Turning Plate HF22

1. Start by laying out the turning plates.
2. The first turning plate is adjusted (if necessary, shortened) so that the pipe turns align with the intended pipe layout.

Custom-Milled Turning Grooves

1. Lay the grooved board along the entire length of the room. See point two, "2. Slotted Boards," on page 4 below.
2. Use a router, LK Router Bit HF22, and LK Router Template HF22 to mill turning slots where needed based on the planned pipe layout.



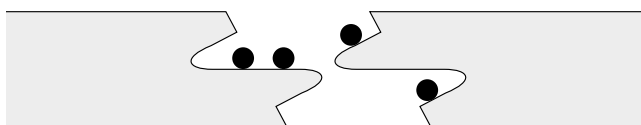
2. Slotted boards



NOTE!

For ceramic flooring in dry and wet areas, as well as vinyl flooring in wet areas, the slotted board must be glued and screwed to the subfloor according to the respective supplier's instructions.

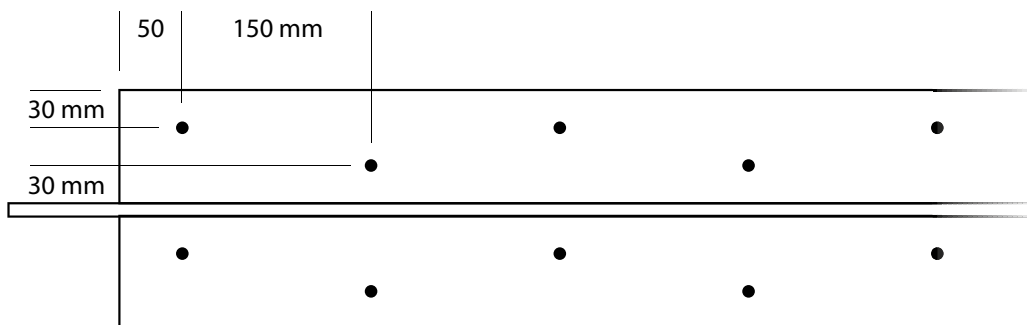
1. Slotted boards are laid out with a 10 mm expansion gap against walls and other fixed objects.
2. Mount the boards so that the short sides are mutually displaced.
3. Ensure that the pipe slots in the boards are aligned with one another.
4. The boards are glued thoroughly in the joints using Casco Trälim 3303 (wood glue). The amount of glue should be generous so that excess glue is pressed from the joint when the boards are joined together. Remove the excess glue before it dries. The amount of glue consumed is approximately 1.3 l per 10 m² floor surface.



3. LK Heat Distribution Plate 16/190

1. LK Heat Distribution Plate 16/190 is laid with a spacing of 10–100 mm and pressed into the slots of the panel. The plates can easily be adjusted in length using the plate's designated folding line.
2. The slots in the plate must be thoroughly cleaned (vacuum them) before laying the plates.
3. Carefully check that the slots are aligned with each other before laying the plates. If the slots are not aligned, the heat distribution plates must not cross a panel joint. This may otherwise cause the plate to buckle and create noise in the construction.

For surface layers of ceramic, the LK Heat Distribution Plate must be screwed in a zigzag pattern as shown in the image below.



NOTE! Screw the plates after laying the pipes.
Use flat headed screw, length 14 - 20mm.



LAYING THE PIPES

Arrange the piping before assembling the slotted boards to avoid hindering the accessibility of the supply and return pipes.

The pipe lay-out must be done according to the drawing. Use the LK Pipe Decoiler as an aid. Note the direction of flow in the loop so that the supply pipe runs along outer walls. Number and name the loops as per the drawing.

Check before you lay the pipe that the slots are clean. Press or tread down the pipe into the slot of the plate. After the installation, the pipe must be fully in the slots and under no circumstances must the pipe come into contact with the overlying surface layer. Cut the pipe using pipe cutters designed for PE-X only.

PRODUCT SUMMARY, GLUE & PRIMER

The following products have been tested to be used for the gluing and priming of our plates.

LK no.	Product name	Usage	Notes	Consumption	Drying time
Not stocked	Kiilto Pro FixPrimer, 5 lit.	Mainly for priming of solid surfaces, e.g. aluminum but also absorbing surfaces like the UFH board	Only to be used with other Kiilto products	1 lit/5 m ²	1-2 h
33525	Kiilto Floorfix DF, 20 kg	Gluing of the form stable board against underfloor heating plate	Mix 5 liters Fixbinder and 2 liters water with 20 kg Floorfix DF	3.5 kg/m ²	32-48 h
Not stocked	TM Kombiflyt Kiilto Pro Plan Vario or Kiilto Pro Plan Craft	Contact Kiilto for more information. Apply according to the manufacturer's instructions.			
33522	Kiilto Fixbinder, 5 lit	Gluing of the form stable board against underfloor heating plate	Mix 5 liters Fixbinder and 2 liters water with 20 kg Floorfix DF	5 l/20 kg Floorfix DF (+2 l water)	n/a
33524	Kiilto Floor Heat DF 20 kg	Floor construction and creating drainage slope	In 2 layers of 0.2 mm age-resistant plastic foil	1.7 kg/m ² /mm	3-5 days
Not stocked	Kiilto Pro Plan Craft	Contact Kiilto for more information. Apply according to the manufacturer's instructions.			
8912	Steel mesh 70 x 70 x 2.5 1800 x 600 mm	Reinforcement	Reinforcement of floor construction using LK Kiilto Floor Heat DF	1.3 pcs/m ²	n/a



QUALITY CLASSES

P6 (Standard quality)

Slotted and turning boards labelled with quality class P6 are designed for use in dry indoor environments. They must not be used outdoors or in any manner that exposes them to wetness or very humid air. Quality class P6 is certified with the Nordic Swan Ecolabel.

P7 (Moisture-resistant quality)

Moisture resistant slotted and turning boards labelled with quality class P7 are designed for use in climate class 1. The boards may be exposed at climate class 2 for a brief period during the installation stage. However, the boards must not be exposed to water in the form of precipitation or in any other way without being protected.

If the floor is used as platform floor, it must be protected from wetness using a tarpaulin or similar.

