

Assembly and installation instructions LK Heating Circuit Manifold VKF

DESIGN

The LK Heating Circuit Manifold VKF is manufactured in brass. The material exceeds requirements of O.T.58. The heating circuit manifold is available in sets of 2 to 12 ports and is supplied preassembled complete with brackets and end caps.

The upper manifold body (feed) has integrated adjustment valves for individual flow adjustment of each individual loop. The lower manifold body (return) has a hand actuator to shut-off individual loops.

The two end caps are supplied with a manual air vent and fill/drain valves, plus rating plates and 1 adjustment key.

REQUIREMENTS

We recommend weather compensation control of the supply line temperature and balancing of the primary and secondary flows, for the under floor heating system to function properly. Further, we recommend recording settings for future reference. (NOTE FOR UK: it may also be advisable to fit a high limit sensor and shut off valve to the primary flow.)

DOCUMENTATION AND SELF TESTING

Settings and values must be recorded in the self-test document, which is enclosed with instructions for operation and maintenance. There is also a template for self-testing in the installation documents supplied by LK.

GENERAL INSTRUCTIONS

Begin by reading through both this set of assembly instructions and the assembly instructions for the under floor heating system.

LK BALL VALVE

The supply and return lines on a heating circuit manifold must be equipped with a stop valve. For more information about the return line, see instructions under adjustment valve.



ADJUSTMENT VALVE

For under floor heating systems containing two or more heating circuit manifolds or connected to mixed systems, all return lines must be equipped with an adjustment valve, e.g. LK OptiFlow. This is to enable adjustment of the total flow to the manifolds. Even in systems with 1 heating circuit manifold, setting will be made easier if the adjustment valve is assembled to the manifold. The adjustment valve can be assembled at the manifold or, alternatively, at the heat source, if there are separate return lines from different manifolds.

LK FEED COUPLING SETS

There are three sizes of coupling sets for LK Under Floor Heating Pipes / LK Universal Pipes in dimensions 12, 16 and 20 mm for connecting pipes to heating circuit manifolds.

LK HEATING CIRCUIT MANIFOLD

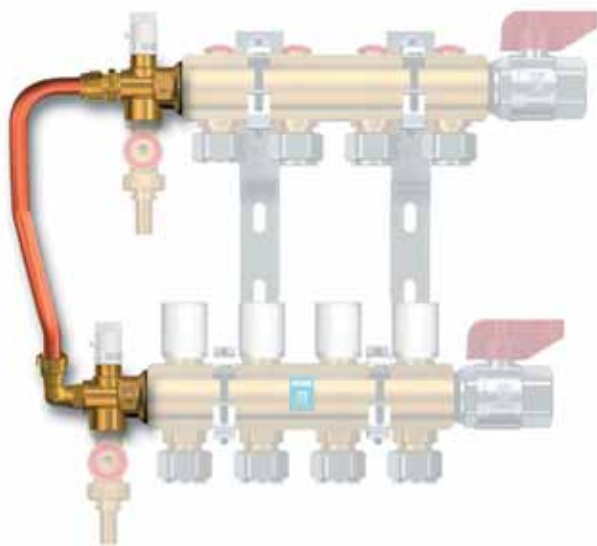
The LK Heating Circuit Manifold is assembled as shown in the illustration. If the heating circuit manifold is to be assembled in the LK Manifold Cabinet, see below.

LK MANIFOLD CABINET

The LK Manifold Cabinet is available in two models and three sizes, for recessed and “on wall” installation. The LK Heating Circuit Manifold is assembled in the box on rails that are adjusted laterally and for height. The cabinets are constructed so that they may be assembled later. Within the cabinet there are fixings for room temperature control equipment. The lid is supplied as standard, with a “screwdriver lock” (key locks are available as accessories). Additionally, LK Hatch is now an alternative to the standard built-in cabinet. Its frame is designed to be fixed between wall studs. LK Hatch comes in 3 sizes (540 mm, 800 mm and 1150 mm).

LK BY-PASS

The LK Heating Circuit Manifold can be fitted with an LK By-Pass for a continuous leakage flow (Kvs 0.05) from the supply line to the return line. This design is used when all loops are equipped with actuators (see separate assembly instructions).



Some (limited) circulation flow may be necessary to ensure the circulation pump functions correctly. By leaving a circuit unregulated (e.g. bathroom or hall) this “leakage flow” can be created without the need to fit an LK By-pass. Also, when the LK Connection (wiring) Box is fitted, connection to the pump relay effectively controls the pump when all valves are closed. Thus, the by-pass is not required.

LAYING THE PIPES

Plan the pipe layout so that access to the supply and return lines is not obstructed.

The pipe is laid out in line with the layout plans drawn up for the system. Using LK Pipe Decoiler will aid pipe laying. Mark the loops with the number and name as indicated in the plan.

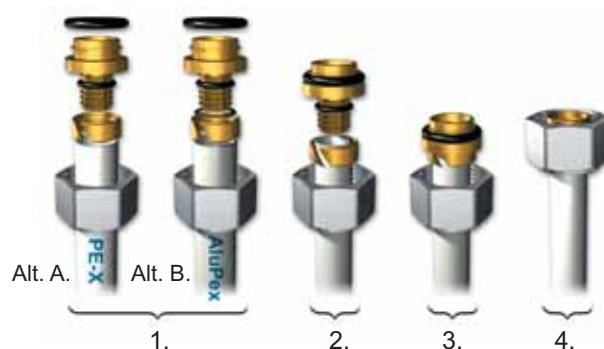
Begin laying the pipes by connecting the supply line to the upper bank of the heating circuit manifold. Give attention to the direction of flow in the loop so that the supply (out going flow) line is nearest to the outside wall(s).

There must be pipe bend supports on all pipes on the up-turn to the manifold.

Pipes should be cut using pipe shears intended for PE-X.

PIPE CONNECTION

Check the pipe length to match the height/location of the manifold. **Take care to match the correct ends of the pipe to the flow and return manifolds.** Cut the pipe square using purpose designed LK pipe cutters. Assemble the coupling sets to the pipe. Grease the olive (clamping ring) before tightening. NB the O-rings should not be greased. When connecting AluPex pipes, special Connection Couplings, supplied with washers **must be used**. Mount the washer on the brass inserts. The washers separate the aluminium from the brass, preventing corrosion. After a pressure testing and hot water testing operation with heat, the couplings must be retightened.



Alt. A. LK Connection Coupling PE-X.

Alt. B. LK Connection Coupling AluPex with additional washer.

MANUAL AIR VENT

The manual air vent can, if desired, be replaced with an automatic air vent. The automatic air vent makes air bleeding easier during start up of the system. The air vent should be closed off one month after start up.



CHARGING AND VENTING

When charging and venting the heating system, all under floor heating loops must be closed (see below). The fill/drain actuators can also be used when charging if required. When this work is complete, continue with the under floor heating loops as follows.

- Close the cut-off valves to the supply and return lines.
- The adjustment valves on the upper manifold body must be closed, i.e. screwed to the bottom.
- The hand actuators on the lower manifold body must also be closed.
- Connect water pressure to the charge valve on the lower manifold body.
- Connect a (drain) hosepipe to the corresponding valve on the upper manifold body. The hosepipe is discharged to a floor drain or drainage receptacle.
- Open the valves on the fill/drain valves. Carefully release the water pressure.
- First open the adjustment valve furthest away from the charging. Check the lock ring is tightly screwed so that the valve can fully open.
- Then carefully open the corresponding hand actuator on the lower manifold body and flush the loop until all the air is gone. This will also check that the loops are correctly connected to the heating circuit manifold.
- Next, close the hand actuator and then the adjustment valve.
- Repeat the procedure loop by loop until all have been vented.
- Close off the fill/drain valves. Close off the water pressure and disconnect the hosepipes. After finishing the work, remove the tube clamps and screw on the safety stop.

SEALING TEST / LEAK TIGHTNESS

Sealing testing is best done prior setting the manifold valves and before assembly of any actuators, i.e. with all valves fully open.

If there is a risk of freezing, add anti-freeze to the pressure-testing medium. Before starting up the heating system, the system must be flushed free of any anti-freeze.

Pipe loops

The pipe loops must be bled and tested for leaks while they are still visible for inspection. Unless otherwise stated, sealing tests should be carried out using water at a pressure of 0.6 MPa. (6 bar). Maintain the pressure for around 30 minutes and check during this time all couplings. Then reduce water pressure to around 0.3 Mpa. (3 bar) and maintain this pressure for approximately 2 hours.

Report

A report from the sealing test must be prepared and attached to documents for operation and maintenance.

Screed and Concrete floors (Embedding)

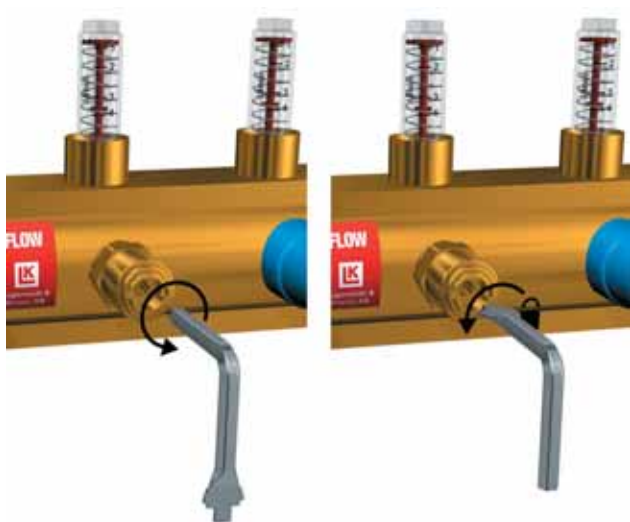
The pipe system must be pressurised when embedding the pipes in screed and concrete. The pipe loops must remain under pressure during the initial curing stages of the screed or concrete. This is to ensure that no damage occurs during the work. Pay attention to the danger of freezing when embedding PE-X pipes in concrete.

Other floor types

When laying flooring on timber joist floors, floating floors or similar, piping must remain under pressure to ensure that no damage occurs.

VALVE SETTINGS FOR INDIVIDUAL UNDER FLOOR HEATING LOOPS (ADJUSTING)

Valve Setting of the under floor heating loops is achieved by using the setting key supplied. The valve setting value for each circuit is shown in a printout from the LK Calculation Program and is indicated by the number of opening revolutions from the closed position. Open the valve to the required setting. Then use the opposite end on the setting key and screw the lock ring down until it reaches the stop position.



LK ACTUATOR 24 V AC

Electric actuators can replace the hand actuators on the lower manifold body. Turn the hand actuator to the fully open position and "snap" it loose with the help of a screwdriver and then replace with the new actuator. Do not assemble any actuators before pressure testing and venting, as this is easier if the hand actuators remain on the heating circuit manifold.

