Assembly instructions for LK Universal Compression Fittings

General

All LK Compression Fittings that come into contact with water are manufactured from dezincification resistant brass.

> **NOTE!**
> Fittings must be protected from direct contact with concrete when being embedded in radiator systems. This is due to the ammonia residues that may be present in the concrete. Therefore, use LK Fitting Protection or similar.

Type approval for LK Connection Fittings only applies for jointing of LK PE-X and LK PAL pipes.

LK Compression Fittings are intended for use in tapwater, heating and cooling systems. The fitting shall not be lubricated. The installation must be carried out in accordance with the Industry regulations Säker Vatteninstallation (safe water installation).

Pressure and temperature range:

LK Compression Fittings are approved for the same pressure and temperature ranges as the Universal pipes, i.e. 1.0 MPa at +70 °C.

Location of joints

Joints for tapwater are to be placed in an LK Manifold Cabinet UNI with leakage indication towards an area with waterproof flooring.

Joints are to be placed in a room with waterproof flooring so that they are interchangeable and any leaking water can easily be detected.

In cases where the LK Manifold Cabinet UNI cannot be used, areas for pipe fittings in support works, installation shafts and fitting cabinets must have a waterproof base (height min 50 mm) and must be equipped with leakage indication with sufficient capacity. Leakage indication must end in a room with a floor drain or waterproof flooring. The leakage indication outlet should not be located closer than 60 mm from the sealing layer of the floor or adjacent wall. Installation shafts with room for fittings or fitting cabinets should have a service opening large enough for repairs or replacement of joints. In rooms with a wall waterproofing membrane, the LK Manifold Cabinet must be fitted with an access door for wet areas that is connected to the wall waterproofing system. The access opening (wet-area access door) must not be located within the bath or shower area. For further information, refer to the separate product range and installation instructions.

The LK PE-X Pipe-in-Pipe system, with component parts as stated in installation solutions NT VVS 129, is tested and approved in accordance with NT VVS 129 and the Sintef Test method for conduits. Read more at: www.lksystems.se

TEKNISK GODKJENNING TG 20312 SINTEF Certification

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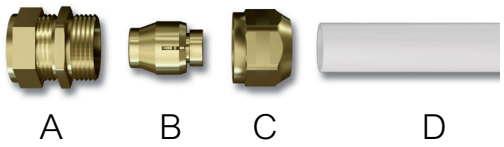
Assembly with compression fittings

Pipe sections from the Conex fitting range designed for copper piping can easily be converted into compression fittings for LK Universal pipes using the LK Fitting Kit, consisting of a support sleeve and a slotted compression ring for Universal Pipes.

Function, fitting kit AX16

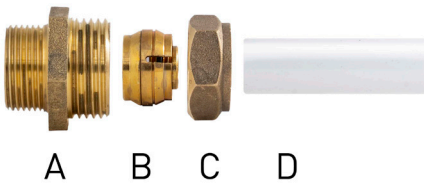
When tightening, the slotted ring is compressed and pushes the pipe against the insert to create a sealed, secure joint. At the same time, the insert is pushed into the seat of the fitting body, which is fitted with a tapered sealing face.



A.	Fitting housing, e.g. T-pipe, angle, etc.
B.	Insert with integrated olive
C.	Nut (included in LK Fitting Kit AX16)
D.	LK Universal Pipe

Function, fitting kits AX20, AX25 and A32

When tightening, the slotted ring is compressed and pushes the pipe against the insert to create a sealed, secure joint. At the same time, the insert is pushed into the seat of the fitting body, which is fitted with a tapered sealing face.



A.	Fitting housing, e.g. T-pipe, angle, etc.
B.	Insert with integrated compression ring
C.	Nut, use the existing Conex nut
D.	LK Universal Pipe

Assembly instruction, fitting kit

Step 1
Cut the pipe at right angles with a pipe cutter or pipe cutter for LK PAL pipes.

The pipe must be deburred.

Step 2
- Thread the nut onto the pipe.
  Push the insert all the way into the pipe.

Step 3
- Pass the insert into the fitting housing and tighten the nut manually.

Step 4
- AX16: Tighten 1½ turns with a wrench until the resistance noticeably increases (25 Nm).
- AX20, 25 and 32:Tighten 1 turn with a wrench until the resistance noticeably increases (25 Nm).

NOTE!
The pipe must be cut at right angles and also chamfered internally so that the insert's O-rings are not damaged or displaced.

LK PAL Universal Pipes must be chamfered using the LK PressPex Calibration Tool, which is used to restore the pipe to remove any ovality and diameter reduction caused by cutting with the pipe cutter, as well as chamfering the pipe ends.

Joints on tapwater pipes must be positioned so that they can be replaced and that any leaks from the joints can be detected immediately. This is applicable regardless of whether the joints are type-approved for non-replaceable laying. Entirely in accordance with BBR and Industry regulations Säker Vatteninstallation.

Tightness testing

Tapwater and heating pipes

When carrying out pressure and tightness tests on pipes carrying water, the water pipe must be filled slowly up to the control pressure. The pipes must be completely filled with water and air bled. To facilitate air bleeding, the pipe should be filled from its lowest point. The tapwater system must be tested with water of drinking water quality. The temperature difference between the current room temperature and the water temperature must not exceed 10 °C.

When a tapwater system has undergone pressure tightness tests with water, this must be commissioned within seven days at the latest or completely emptied of water to reduce the risk of bacterial growth.

Guidelines

During tightness testing all joints should be inspected for hidden leaks. This inspection is important because such leaks cannot always be identified by the manometer on the pressure equipment.

Pressure and tightness testing of plastic pipe systems and pipe systems involving a mix of plastic and metal pipes

Phase 1

Pressurize the pipe system to a test pressure of 1.43 x the calculation pressure for at least 30 minutes. The test pressure must be 14.3 bar for tapwater systems and 8.6 bar for heating systems. The test pressure should be maintained for 30 minutes.

Phase 2

After 30 minutes, the test pressure is reduced rapidly to 7.5 bar for tapwater systems and 4.5 bar for heating systems. This pressure must be maintained for at least 90 minutes. The pressure should normally increase somewhat during the test period. The entire pipe system must be inspected.

Pressure and Tightness Testing of Metal Pipe Systems

PAL pipe systems without PEX pipes and press fittings may be pressure and leak tested in accordance with the requirements for metal pipe systems. The piping system shall be pressurised to a test pressure of 14.3 bar for domestic water systems and 8.6 bar for heating systems for a minimum of 120 minutes. The entire piping system shall be visually inspected. The pressure shall not drop during the test period.

Pressure and tightness testing with air.

Pressure and tightness testing with air or another gas must be performed by a Swedac-accredited company as per the requirements in AFS 2006.

Tightness testing with air, low pressure

- A method devised by VVS Företagen (the Swedish Association of Plumbing and HVAC Contractors) and Säker Vatten AB

If there is any risk of freezing or bacterial growth before a pipe system is to be commissioned, carrying out tightness testing using water is impractical. Industry regulations Säker Vatteninstallation displays on its website www.sakervatten.se how a simplified tightness test with air can be performed.

NOTE!
Under no circumstances may this method be performed with a test pressure higher than 1.1 bar, and it does NOT replace the mandatory tightness test.

LK Universal system, with type-approved products, is ideal for this procedure. LK's Type approvals can be used as certificates showing that they have been tested in respect of strength. LK Underfloor heating pipes (6 or 10 bar) can be used for this method together with LK Underfloor heating manifolds as they are manufactured for a pressure of 6 bar. Manufacturer certificates can be obtained from LK Systems AB.

Carefully follow the document "Förenklad täthetskontroll med luft för vissa rörsystem" (Simplified tightness testing with air for certain piping systems). Use testing protocols, that are available to download from https://sakervatten.se.

NOTE!
The system must be depressurized immediately when tightness testing is complete.

Existing tapwater and heating system

Guidelines

Existing tapwater systems should undergo pressure and tightness testing with the existing water pressure of the tapwater system. Existing heating systems should undergo pressure and tightness testing with the existing operating pressure of the heating system.

- Appoint a qualified person to lead the work and set up testing protocol.
- Ensure that the installation and all fasteners, fixings, supports, etc. are capable of withstanding the loads during the test.
- Freezing risks must be eliminated.
- All joints must be visible and dry.
- Make sure that the measuring equipment is working correctly.

Excess material / recycling

LK does not accept the return of packaging materials or surplus materials, except for materials in unbroken and undamaged packaging.

No elements of LK Universal systems are classified as hazardous waste.

Residual materials from LK PE-X Universal pipes and LK PAL Universal pipes are regarded as combustible waste.