# Assembly instructions for LK PushFit AX

## General

All LK PushFit parts that come into contact with water are manufactured from dezincification resistant brass.

Type approval for LK PushFit applies only for assembly of LK PE-X and LK PAL Universal pipe for tap water systems.

LK PushFit is intended to be used for tap water, heating and cooling systems. The fitting must 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 PushFit fittings are approved for the same pressure and temperature ranges as the LK Universal pipes, i.e. 1.0 MPa at +95 °C.

## Location of joints

Joints for tap water are to be placed in a 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, at least 20 mm internal diameter. Leakage indication shall lead to a room with a 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 all joints. In rooms with sealing layers on walls, the LK Manifold Cabinet must be supplemented with a LK Wet zone hatch Preseal which is connected to the wall's sealing layer. The service opening should not be located in space for bath or shower. For more information, see separate product range and installation instructions for LK Wet Zone Hatch Preseal.

LK PE-X pipe-in-pipe system, with included components according to Installation Solutions NT VVS 129, has been tested and approved according to NT VVS 129 and Sintef Test Method for protective pipes. Read more at: https://www.lksystems.se/en/support/documentation/documentation-lk-universal/assembly-instructions/

### Marking and material

- All PushFit fittings are designed for LK PE-X and PAL Universal pipes.
- The body of the PushFit fittings are made from nickel-plated dezincification resistant brass up to dimension 25.
- The fitting is supplied with fitted insert for dim 16, 20 and 25.

The pipe dimension for which the fitting is designed is stamped on the housing of the fitting, e.g. LK PushFit AX25. There is also a code for the year of manufacture and a batch number for traceability.

BRANSCHREGLER SÄKER VATTENINSTALLATION

**Accepterad**
monteringsanvisning
**2016:1**

TEKNISK GODKJENNING
TG 20312
SINTEF Certification

VATTENTÄTT
NORDTEST
LK Universal

**TABLE OF CONTENTS**

## Product range

LK PushFit AX is a complete fitting system for LK PE-X and LK PAL Universal pipes in tapwater and heating systems. The system includes T-pieces, elbows, straight fittings, reducers, transition fittings etc. Read more: www.lksystems.se/en (Products/LK Universal/products/pushfit)

LK Pushfit PV is a fitting system for LK Under Floor Heating Pipe in heating systems. These fittings have red rings.

## Assembly instructionsPushFit

Joining of LK PE-X and LK PAL Universal pipes with LK PushFit must be carried out according to the following steps.

### Step 1

The pipe must be cut perpendicularly. Smaller dimension LK PE-X Universal Pipes and LK PAL Universal Pipes are easiest cut with pipe cutters. Sawing tools must not be used for cutting.

### Step 2

Check that the insert is fitted in the fitting..

### Step 3

In the case of both LK PE-X and PAL Universal Pipes, the pipes must be deburred internally, so that the O-rings in the fitting are not damaged or pushed out of position, which will directly result in the fitting leaking. Clean all dust from the pipes after deburring.

**NOTE!**
The deburring of the pipe ends in **Step 3** are very important steps to prevent the O-rings from moving out of position and thus causing the fitting to leak.

### Step 4

Mark the depth of the insert on the pipe. The insert depth should be 20 mm on the 16 mm pipe and 23 mm on the 20 and 25 mm pipe.

### Steg 5

The pipe is inserted into the fitting until it is in place and the marking for the insertion depth is barely visible. Then pull the pipe in to ensure the connection is properly fastened.

**Step 6**

During mounting of LK PE-X pipe in an LK Manifold UNI Push the working procedure is the same. Tip: mount the pipes in the manifold before the manifold is placed in the manifold cabinet or on another place in accordance with the Industry regulations Säker Vatteninstallation (safe water installation).

**Step 7**

Mount the LK PushFit Plug 16 mm when all of the outlet on the manifold are not used. Mark the insertion depth on the plug, push it in the manifold.

**Step 8**

For disassembly, the LK Disassembly tool must be used. If the same pipe is to be remounted, the end of the pipe is checked so that the gripper ring of the connector has not damaged the pipe. In this case, the pipe shall be crosscut no less than the marked insertion depth. Check the O-rings on the insert to ensure they are whole before reassembling the fitting. If not, the fitting must be replaced. The fitting can be reused a maximum of 10 times.

## Tightness testing

### Tap water 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 tap water 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 tap water 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 tap water systems and 8.6 bar for heating systems. The test pressure shall be maintained for 30 minutes.

**Phase 2**

After 30 minutes, the test pressure is reduced rapidly to 7.5 bar for tap water 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 can be pressure and tightness tested according to metal pipe systems. The test pressure must be pressurized to a control pressure of 14.3 bar for tapwater systems and 8.6 bar for heating systems for at least 120 minutes. The pipeline system must be inspected in its entirety. The pressure must not drop during the control time.

### 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 a 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 www.sakervatten.se.

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

### Existing tap water and heating system

**Guidelines**

Existing tap water systems should undergo pressure and tightness testing with the existing water pressure of the tap water 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 components in the LK Universal System are classified as hazardous waste.

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