

# LK Mini loop valve RTB

## DESIGN

LK Mini loop valve RTB is designed to control smaller floor heating systems that are embedded in concrete or levelling compound with a pipe dimension of 8 mm, 12 mm, 16 mm or 20 mm.

LK Mini loop valve RTB has integrated return temperature limiters that make it possible to limit the floor surface temperature. The room temperature is regulated via a capillary tube thermostat. It is also possible to install a wireless or wired electronic room temperature control.

## REQUIREMENTS

- Connected to 2 pipe radiator system.
- Outdoor temperature compensated supply temperature. System temp. max. + 55 °C
- Pipe laying only in concrete or levelling compound.
- Pipe laying only as double loop or in snail pattern.

The existing heating system must not contain any impurities that can harm or block LK Mini loop valve RTB.

**NOTE!** LK Mini loop valve RTB cannot be installed in a 1-pipe radiator system.

## INSTALLATION CABINETS

There are tailored installation cabinets for LK Mini loop valve RTB, see under the *Accessories* heading.

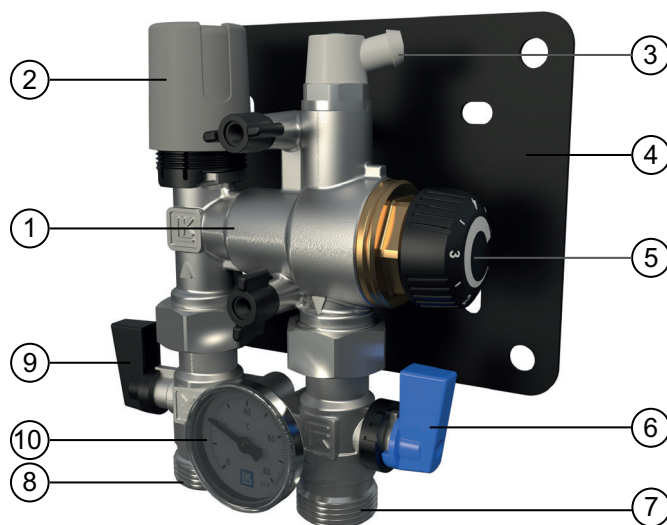
## ASSEMBLY INSTRUCTIONS

### Installing the LK Mini loop valve RTB

LK Mini loop valve RTB is usually connected to the property's regular 2-pipe radiator system.

- The floor heating circuit's supply is connected to the radiator circuit's supply.
- The floor heating circuit's return is connected to the mini loop valve's supply, the arrow indicates the flow direction.
- The mini loop valve's return is connected to the radiator circuit's return.

For further details, please see *Pipe laying*.



1. Mini loop valve
2. Hand actuator, replaced by enclosed capillary tube connected thermostat, 2 m length.
3. Bleeding valve.
4. Bracket.
5. Return temperature limiter.
6. Return valve. Ball valve with adjustment.
7. Return connection  $\frac{3}{4}$ " male EuroCone, for connection to the radiator system's return pipe.
8. Return connection  $\frac{3}{4}$ " male EuroCone, for connection to the floor heating circuit return pipe.
9. Supply valve.
10. Thermometer.

### Thermostat

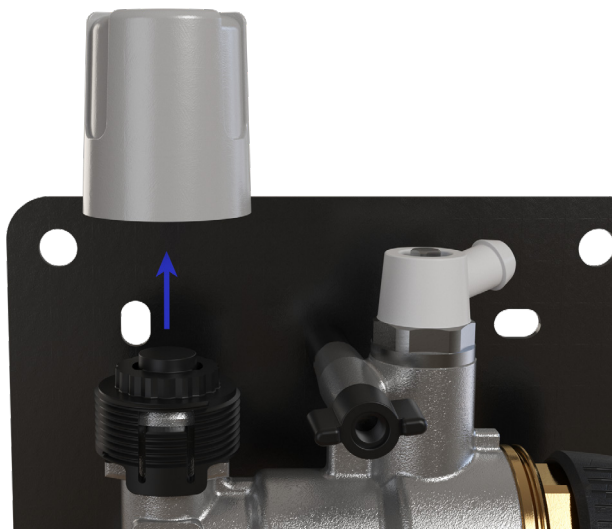
LK Mini loop valve RTB is supplied with an enclosed thermostat. The thermostat's capillary tube may be hidden in a conduit (minimum  $\varnothing$  20 mm). In order to enter the capillary tube in the conduit, the casing must be removed.

Position the thermostat's sensor bulb so that it is not affected by other heat sources, for example sunlight and ventilation. The suitable installation height for the bulb is 1.5 m above floor height.

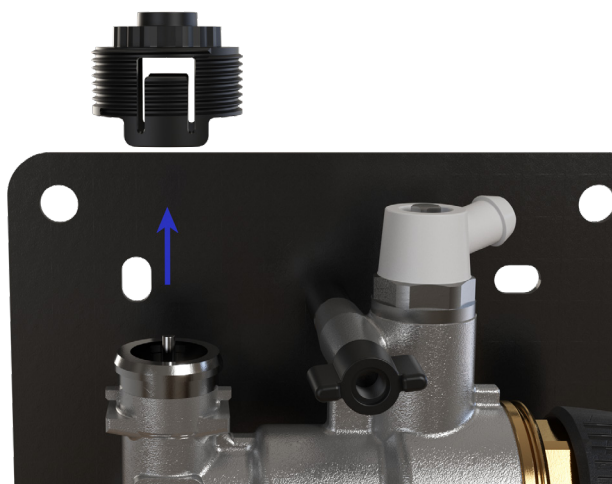
## ASSEMBLY OF LK ACTUATOR

Wireless or wired electronic room control for the LK Mini loop valve RTB are available as accessories.

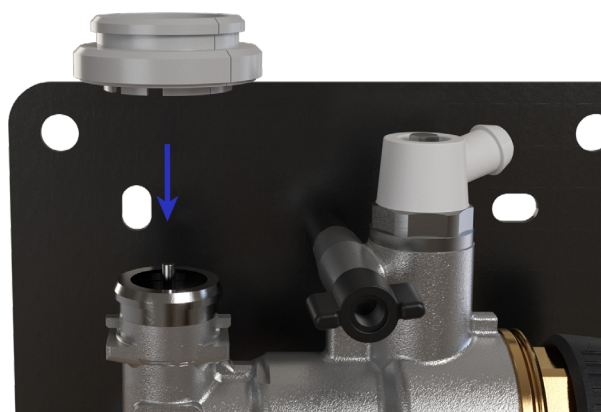
The enclosed thermostat is then replaced with an electric LK Actuator and is installed according to the picture sequence.



*Step 1: Remove the gray handwheel.*



*Step 2: Remove the black adapter.*



*Step 3: Install the gray adapter that is supplied with actuator*



*Step 4: Mount the actuator on the gray adapter. A click is heard when the adapter is installed correctly.*



*Assembly completed.*



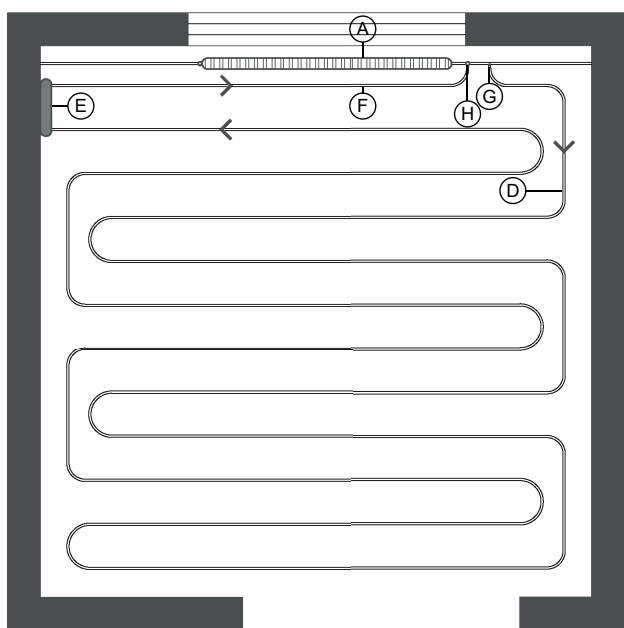
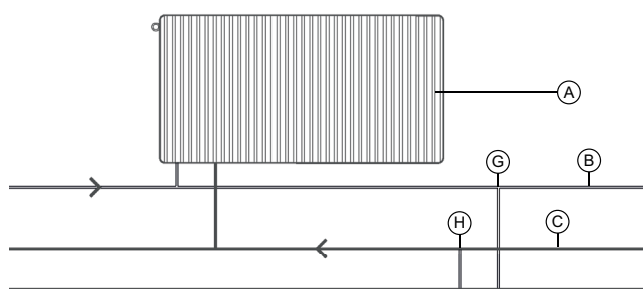
### Laying the pipes

As there can be a great difference in temperature between the floor heating circuit's beginning and end, the floor heating pipes must be installed in either a double loop or snail pattern at the prescribed c/c distance. Only floor heating systems that are embedded in concrete or levelling compound are suitable.

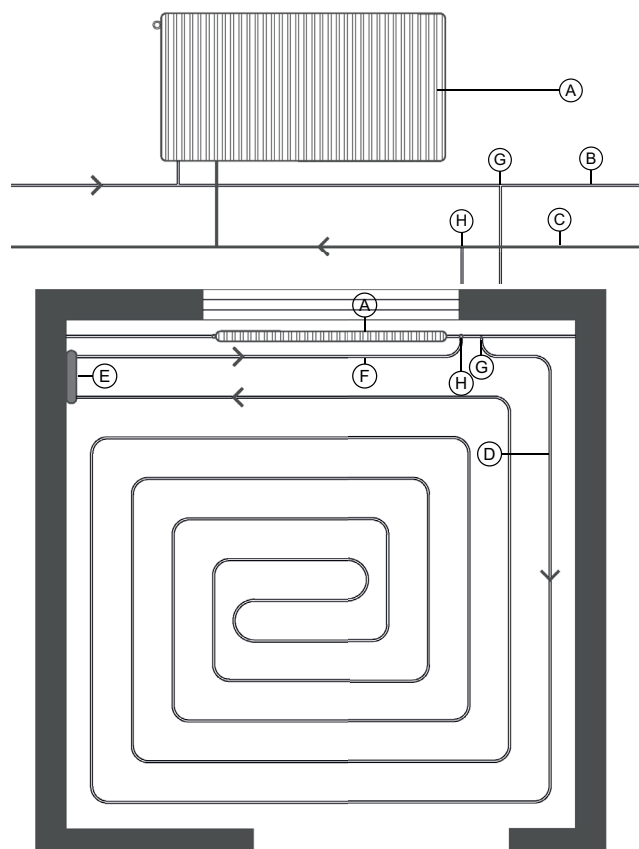
The mini loop valve is designed for use with pipe dimensions 8 mm, 12 mm, 16 mm and 20 mm.

Before the floor heating circuit is embedded, tightness testing with water or gas should be conducted in accordance with national regulations.

**NOTE!** Pipe connection to LK Mini loop valve RTB may only be carried out with LK Connection coupling (see under **Accessories** heading).



Principle drawing for connection to radiator system Floor heating pipes laid in double loop



Principle drawing for connection to radiator system Floor heating pipes laid in snail pattern

- A. Radiator
- B. Radiator system, supply
- C. Radiator system, return
- D. Floor heating circuit
- E. LK Mini loop valve RTB
- F. Return pipe, floor heating circuit (from RTB)
- G. Connection point, supply floor heating circuit
- H. Connection point, return floor heating circuit (from RTB)

### AIR BLEEDING AND CHECK

Check that all connections are tight. To prevent that air from the underfloor heating loop entering the existing heating system in connection with commissioning, the steps below should be followed. The numbers refer to the picture on page 1.

- Close the mini loop valve's return valve (6).
- Commence filling the heating system.



- Open the bleed valve on the mini loop valve (3). Bleed the system and then close the bleed valve.
- Close the mini loop valve's supply valve (9).
- Open the mini loop valve's return valve (6).
- Open the bleed valve on the mini loop valve (3). Bleed the system and then close the bleed valve.
- Open the mini loop valve's supply valve (9).
- Set the return temperature limiter (5) to setting 3, approx. 35°C.

Recommended max. underfloor heating surface installation	10 m <sup>2</sup>
Return valve adjustment range	23 - 44 °C
Thermostat adjustment range	6 - 28 °C
Capillary tube length	2 m
Diameter capillary tube bulb	Ø 16 mm
Width	150 mm
Height	205 mm
Depth	67 mm
Weight	1,7 kg
Max. glycol mixture	50%

## TROUBLESHOOTING

The floor heating circuit is not heating up.

- Check that the valves (9) and (6) are open.
- Check that the mini loop valve's thermostat (2) is set correctly, see *Technical data* and *Thermostat settings*.

If the above settings are correct and the problem persists, the mini loop valve's return temperature limiter (5) may be increased step by step.

If the above adjustments have been completed and heat to the floor heating circuit remains absent, this may suggest low pressure from the primary side. Check if the pressure of the primary side's circulation pump may be increased.

Return temperature settings	Return temperature
1	23 °C
2	27 °C
3	35 °C
4	42 °C
5	44 °C

Thermostat settings	Temperature
*	6.0 °C (frost protection)
1	12 °C
2	16 °C
3	20 °C
4	24 °C
5	28 °C

Ball valve with adjustment	Kvs
1 (short dash)	0,1
2	0,45
3	1,00
4 (long dash)	1,45



Adjustment valve med scale

## TECHNICAL DATA

### LK Mini loop valve RTB

Article number	243 53 44
Maximum working temperature	55 °C
Max. working pressure	10 bar
Kvs value	1,48

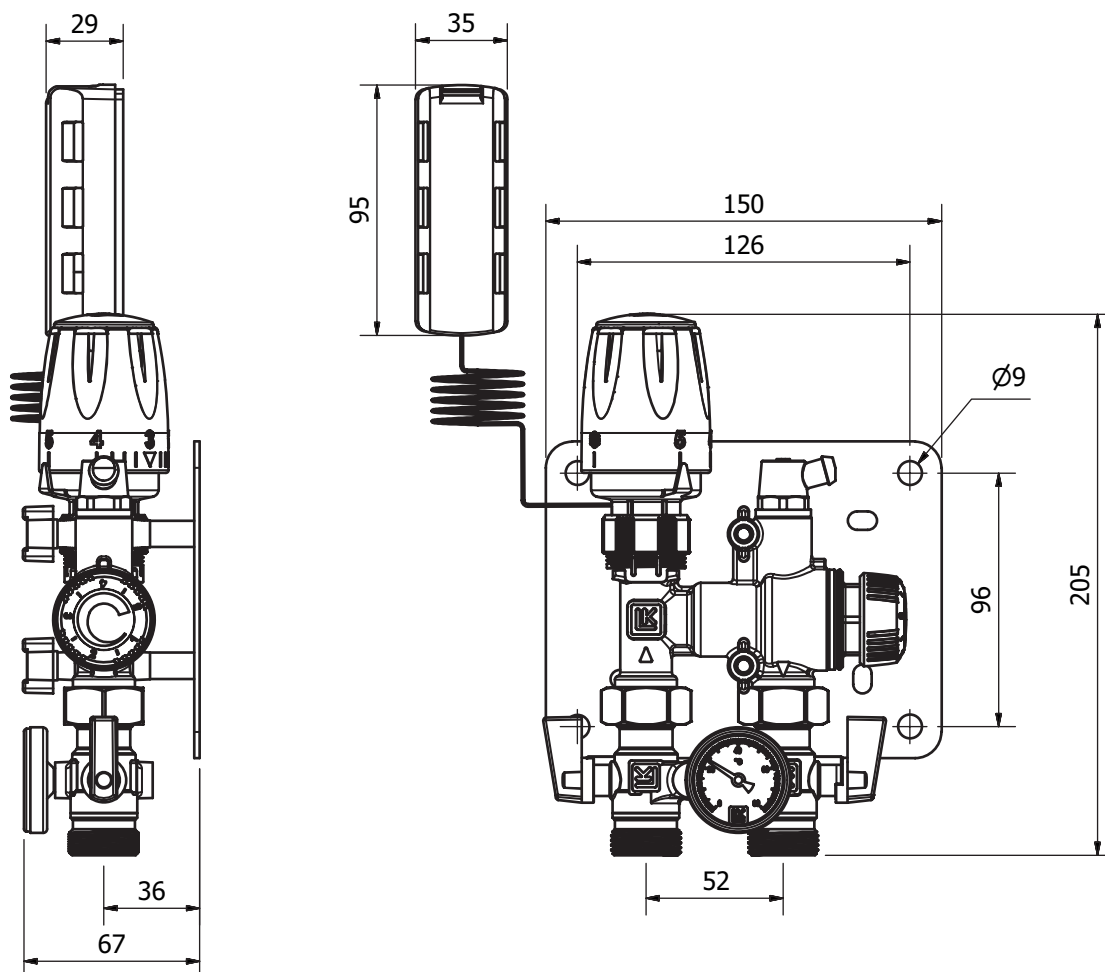
### Pressure drop in the underfloor heating pipe

The data in the table below gives an indication of what pressure drop you can expect over the underfloor heating pipe. The table is based on a floor heating installation about 10 m<sup>2</sup>, a power requirement of 50 W / m<sup>2</sup> and a Δt of 10 degrees.

Pipe dim.	No of circuits	Pressure drop in pipe
8 mm	2	7,5 kPa
12 mm	1	11,0 kPa
16 mm	1	1,5 kPa
20 mm	1	0,7 kPa



## DIMENSION DRAWING



## ACCESSORIES

Article no	Name	Dimension
241 93 78	LK Adapter	1/2" male x 3/4" EuroCone
241 94 13	LK PushFit 8, Single	8 mm x 1/2" female.
241 94 66	LK Connection Coupling RF 12 x 3/4"	12 x 3/4" EuroCone
241 72 98	LK Connection Coupling RF AX16 x 3/4"	AX16 x 3/4" EuroCone
241 94 68	LK Connection Coupling RF 20 x 3/4"	20 x 3/4" EuroCone

Article no	Name	Intended for
298 88 56	LK Installation cabinet RTB	LK Mini loop valve RTB
298 88 57	LK Installation cabinet RTB-XL	LK Mini loop valve RTB controlled by electronic control
188 23 48	LK Frame/hatch INB Fitting Cabinet UNI 350x350	Built-in LK Installation cabinet RTB
188 13 08	LK Frame/hatch UNI INB	Built-in LK Installation cabinet RTB-XL
205 48 38	LK Frame/hatch UTV Fitting Cabinet UNI 350x350	Wall mounted LK Installation cabinet RTB
188 13 10	LK Frame/hatch GV UTV	Wall mounted LK Installation cabinet RTB-XL
188 13 01	LK Base UNI	Wall mounted LK Installation cabinet RTB & RTB-XL

