

# LK OptiFlow EVO II

## DESIGN

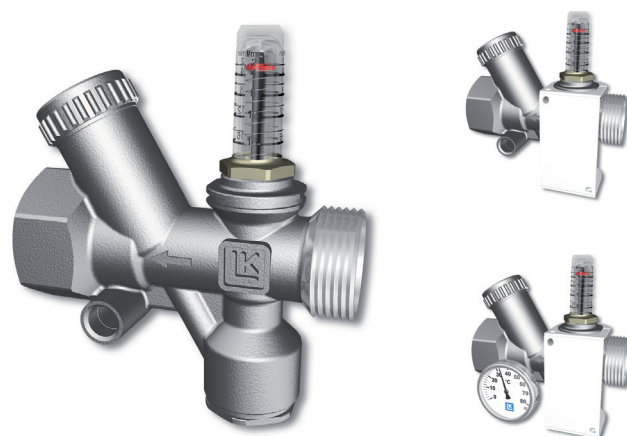
LK OptiFlow EVO II is a group valve for adjusting flow in, for example, under floor heating systems, traditional heating systems and cooling systems. The valve is available in two different flow ranges, 2-16 l/min and 4-36 l/min. The adjustment valve has 1" male thread on the inlet and 1" female thread on the outlet. The male thread is supplemented with an LK Joint Nipple with loose nut for simple assembly to, for example, LK Manifold for under floor heating.

Adjustment is performed easily using an Allen key, while the flow is read off on a clear scale. No measuring equipment is needed. The valve has a so-called MemoStop to lock the valve setting. This means that the valve can also be used as an isolation valve without changing the adjustment position when operating the valve. The valve housing is made of nickel-plated brass and equipped with an impact- and temperature resistant flow indicator. The flow meter continuously measures the flow during operation. The flow meter can be read in all positions.

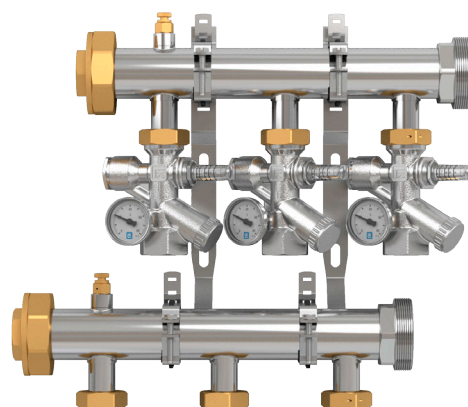
A marking plat for marking and documenting the setting is enclosed. The valve can be supplemented with an LK Thermometer (optional). The thermometer is located in the valve's integral sensor tube.

## ASSEMBLY

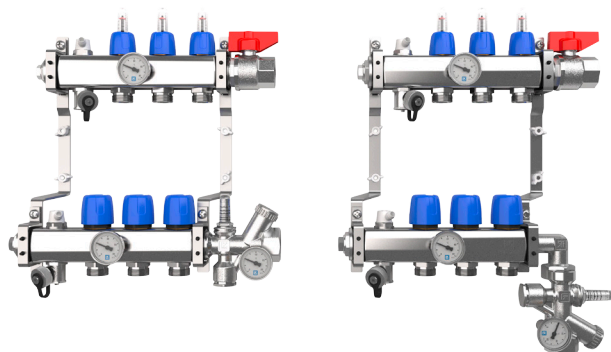
LK OptiFlow can be mounted in an optional position. The direction of flow is indicated with an arrow on the brass housing. When mounting on an LK Manifold, the adjustment valve can be fitted directly against the manifold and thereby replaces the isolation valve.



LK OptiFlow EVO II can also be assembled to LK Group Manifold Qmax 2". LK Group Manifold Qmax is used, for example, when supplying several manifolds for under floor heating. All flow adjustment is then assembled in one place. LK Group Manifold Qmax is also used, for example, for snow melting installations where an individual measurement and adjustment is required for each circuit. Installation examples with LK Manifold Qmax 2" is shown below. The valve is preferably mounted on the manifold's supply pipe and is connected directly to the manifold's loose nut.



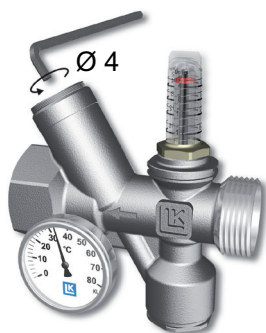
*Installation example with LK Manifold Qmax 2" as group manifold or as snow melting manifold.*



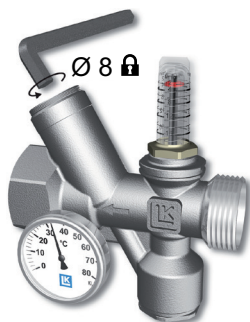
*Installation example with LK Manifold RF in straight or angled assembly.*

## ADJUSTING THE FLOW

The required flow is set with a 4 mm Allen key at the same time as the flow is read off in the flow meter. The adjustment is then locked with the valve's so-called MemoStop function. Locking is made using an 8 mm Allen key. The valve can subsequently be used as an isolation valve without the adjustment value changing when the valve is opened. A 4 mm Allen key is used to close/open the valve. If anti-freeze is mixed in, the flow displayed must be corrected. See the table below for different correction factors depending on liquid and mixing proportions.



Adjustment.



Locking of adjustment value with MemoStop.

### Adjustment methodology

Start the adjustment by opening all return valves on the under floor heating manifolds. The valves must be fully open. If, for example, the OptiFlow valve is located on a radiator system, all the radiators' thermostat valves must be fully opened. Then adjust the under floor heating manifold's/ the radiators' adjustment valves according to their calculated values. Then start the adjustment of the LK OptiFlow valve that is closest to the circulation pump. Continue the adjustment with the next OptiFlow valve (in relation to the circulation pump).

Finish the adjustment by checking the flow on all LK OptiFlow adjustment valves. Some readjustment will probably be needed, it might also be necessary to increase/decrease the speed of the circulation pump.

Conversion Table

l/min	l/s	l/h
2	0,0333	120
3	0,0500	180
4	0,0667	240
5	0,0833	300
6	0,1000	360
7	0,1167	420
8	0,1333	480
9	0,1500	540
10	0,1667	600
11	0,1833	660
12	0,2000	720
13	0,2167	780
14	0,2333	840
15	0,2500	900
16	0,2667	960
17	0,2833	1020
18	0,3000	1080
19	0,3167	1140
20	0,3333	1200
21	0,3500	1260
22	0,3667	1320
23	0,3833	1380
24	0,4000	1440
25	0,4167	1500
26	0,4333	1560
27	0,4500	1620
28	0,4667	1680
29	0,4833	1740
30	0,5000	1800
31	0,5167	1860
32	0,5333	1920
33	0,5500	1980
34	0,5667	2040
35	0,5833	2100
36	0,6000	2160

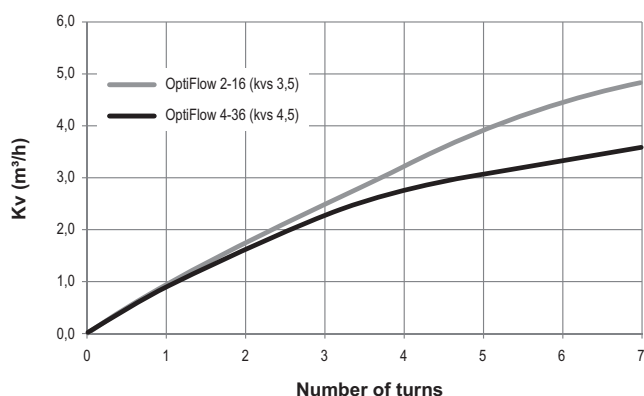
### Correction factor

With an admixture of anti-freeze the following correction factors should be used for correct reading of the flow meter. The correction factor is multiplied by the value read on the flow meter.

Liquid	Mixing proportion %	Correction factor*
Water/ethylene glycol	70/30	0,87
Water/ethylene glycol	50/50	0,80
Water/propylene glycol	70/30	0,87
Water/propylene glycol	50/50	0,8
Water/ethanol	70/30	1,0

\* The correction factors can be used within the temperature range +15-/ +50°C.

### PRESSURE DROP DIAGRAM



### MARKING PLATE

Complete the enclosed label and then stick it to the marking plate. Affix the marking plate on the valve as in the illustration below.

Pos/Name:

Desired flow: \_\_\_\_\_

No. of opening turns: \_\_\_\_\_

Water 100%

Water/glycol \_\_\_\_\_ / \_\_\_\_\_ %

Water/ethanol \_\_\_\_\_ / \_\_\_\_\_ %

Correction factor: \_\_\_\_\_

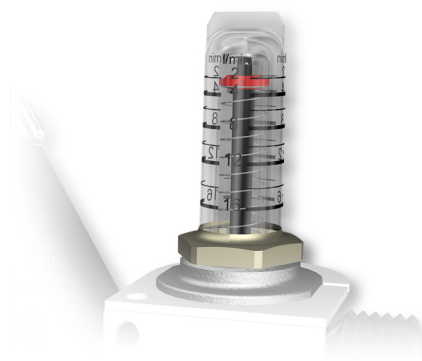
Date: \_\_\_\_\_

Signature: \_\_\_\_\_



### FLOW INDICATOR

The valve is equipped with an impact- and temperature resistant flow indicator. The flow indicator has a clear calibration (or grading?) from 2-16 l/min or 4-36 l/min depending on model. If the flow glass gets dirty, it is simple to remove it for cleaning. Cleaning can be necessary as, for example, heating water often becomes contaminated and blackened after being in use for a period. However, the flow meter is designed so that the water does not flow through the flow meter's glass, which reduces the risk of deposits. Note that the valve's function/adjustment is not affected by any deposits in the glass.



### THERMOMETER (OPTIONAL)

The valve can be supplemented with an LK Thermometer. The valve is prepared with an embedded sensor tube for locating the thermometer. The thermometer is calibrated from 0-80°C, LK Article no. 339 22.



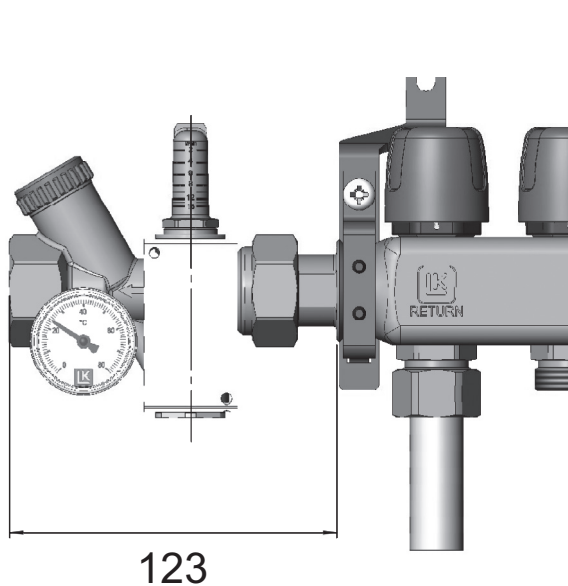
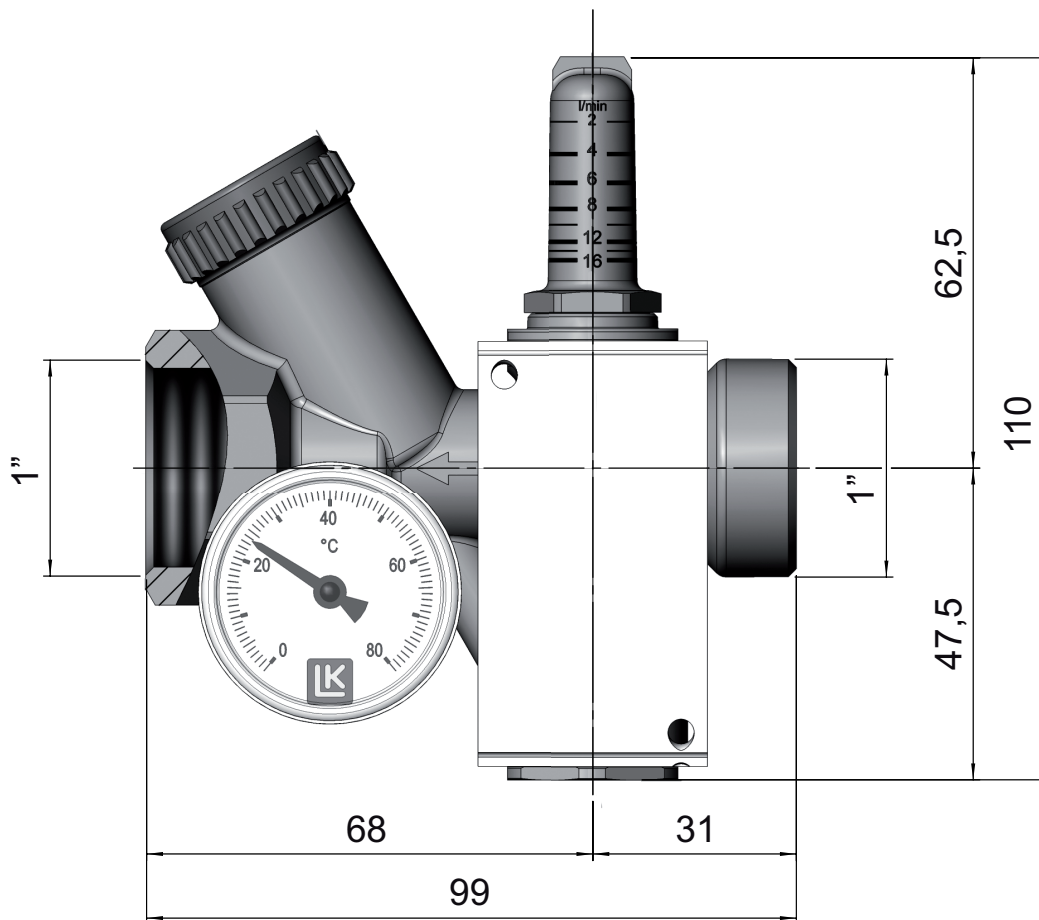
## PRODUCT RANGE AND ACCESSORIES

Article no.	Description	Description Dim.
241 96 11	LK OptiFlow EVO II 2-16 l/min	1" male thread with flat sealing surface / 1" female thread
241 96 10	LK OptiFlow EVO II 4-36 l/min	1" male thread with flat sealing surface / 1" female thread
241 96 18	LK Joint nipple Straight, nickel plated brass	1" female loose nut x 1" male
241 96 17	LK Joint nipple Angle, nickel plated brass	1" female loose nut x 1" male
241 81 58	LK Joint nipple Straight, yellow brass	1" female loose nut x 3/4" female
241 81 59	LK Joint nipple Straight, yellow brass	1" female loose nut x 1" female
241 81 60	LK Joint nipple Straight, yellow brass	1" female loose nut x 3/4" male
241 81 64	LK Half Coupler, yellow brass	1" x Cu22
241 81 65	LK Half Coupler, yellow brass	1" x Cu28
241 81 66	LK Half Coupler, yellow brass	1" x PE-X 25x2,3
339 22	LK Thermometer	Class II, 0-80°C

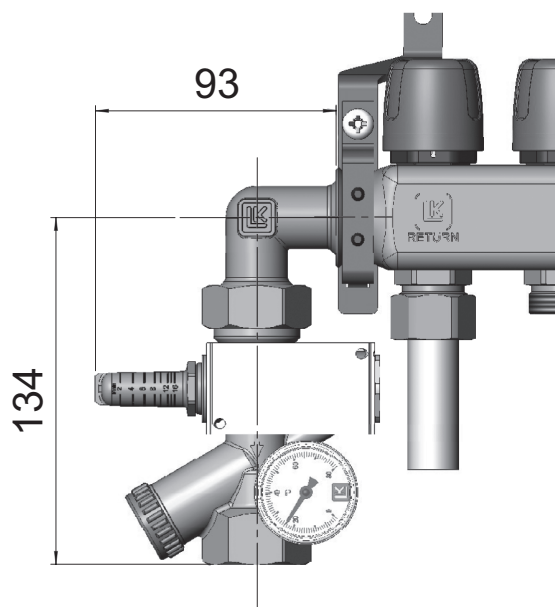
## TECHNICAL DATA

Kvs value model 2-16 l/min	Kvs 3,5
Kvs value model 4-36 l/min	Kvs 4,5
Liquid	Water or liquid consisting of water/glycol 50/50 % or water/ethanol 70/30 %. (NB! Be aware of the fire hazard with ethanol.)
Max. operating pressure	10 bar
Max. operating temperature	Water or liquid water/glycol 50/50 %, 80°C continuously, 90°C short period (max. 10 min/day). Liquid water/ethanol 70/30 %, 70°C continuously, 85°C short period (max 10 min/day).
Min. operating temperature	-20 °C with admixture of req. amount of anti-freeze. NB! The valve must be insulated to avoid ice formation.
Max. differential pressure	100 kPa
Accuracy of measurement	+/-12%

## DIMENSIONS



Installation with LK Joint Nipple Straight 1" with loose nut to LK OptiFlow EVO II.



Installation with LK Joint Nipple Angle 1" with loose nut to LK OptiFlow EVO II.