



# LK Armatur



## Controls and Valves for Heating Systems

### COMPANY PROFILE

*LK Armatur is one of Scandinavia's leading manufacturers of valves, components and prefabricated products for the heating market. We produce more than one million valves a year, ranging from simple standard valves to sophisticated, customized special products.*

*LK Armatur products are sold in more than 40 countries all over the world where energy saving and environmental awareness have become a matter of course.*

### Our capabilities

- Technical competence
- Continuous product development
- High-tech quality products
- Just in time delivery
- Competitive prices

# LK 520 Multifill®

Combination valve with insulation, for filling, mixing and filtering with refrigerant fluid.

## TECHNICAL DATA

Working temperature	-20°C to + 80°C
Max. working pressure	1.0 MPa (10 bar)
Glycol and ethanol mixture	Max 50%
Material, valves	Brass EN 12165 CW617N
Material, filter element	Stainless steel EN 10088 1.4310
Mesh opening	1.0 mm
Material, insulation	Expanded polystyrene (EPS)
Connections	2 connections with male thread G $\frac{3}{4}$ for refilling with refrigerant fluid and 2 pipe connections with male thread as per part list



## Insulation

Dim.	L (mm)	W (mm)	H (mm)
25	213	170	83
32	231	200	90

## FITTING/INSTALLATION

The arrow on the valve body indicates the direction of flow. The male thread has to be sealed in the usual manner.

To avoid condensation and possible icing, the filling unit should be insulated with the enclosed insulation.

## OPERATION AND MAINTENANCE

Filling with refrigerant

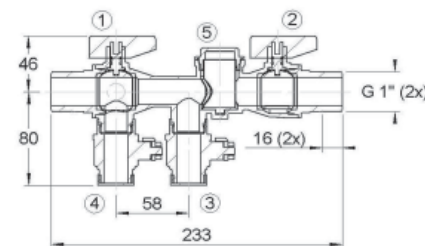
Close valve 1. Connect the refrigerant fill to valve 3 according to the flow arrow. Connect the refrigerant return to valve 4. After filling, close the filling valves 3 and 4, open valve 1.

Cleaning the filter

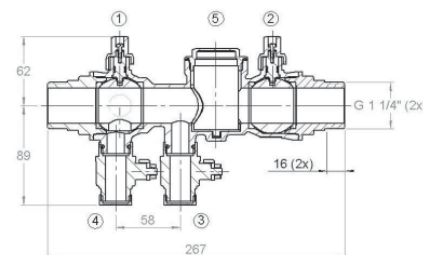
Close valves 1 and 2, unscrew the filter cover 5, clean the filter. When refitting, the tap below the filter holder should be fitted into the hole provided in the filter housing. Fill with a few centiliters of refrigerant to prevent air entering the system.

Apart from cleaning the filter, no maintenance is required.

LK 520-25



LK 520-32



Article Type	Art. no.	Dim.	Kvs m <sup>3</sup> /h
LK 520	091043	G1 male x G1 male	10
LK 520	091193	G1¼ male x G1¼ male	22

# LK 525 Zone valve

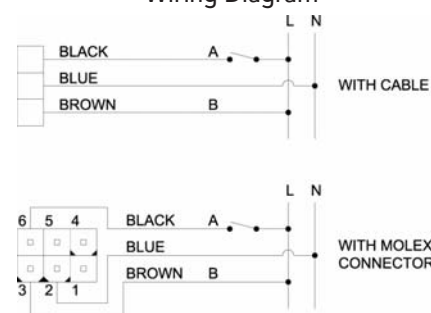
Zone valve for combined heating and tap water systems.

## TECHNICAL DATA

3-way valve	Motorised 3-way valve for on/off control
Actuator	7 VA, 230/24 VAC, 50 Hz
Working temperature	+5°C - +80°C (+90°C briefly)
Ambient temperature	+1°C - +60°C
Max. working pressure	1.0 MPa
Max. differential pressure	0.1 MPa
Leakage	< 0,1% of kvs
Operation time	8 seconds
Material, valve housing	Brass EN 12165 CW617N, (MS58)
Pipe connections	Compression fitting or male thread
Connection by cable	3-wire or Molex® connector
Signal connector	Single pole SPST
Protection class	IP 40
Cable specification*	R03VV, 3x0.75 mm <sup>2</sup>
Wire colours	Blue, brown, black
External insulation	PVC, black
Connector	Molex® or Molex® compatible connector, 6-circuit
<b>Type approval certificates:</b>	
TÜV (only the actuator)	
<b>CE</b>	



\*Wiring Diagram



## FITTING/INSTALLATION

The motor is installed by pressing it on and snapping the linch pin in place. The motor is removed by pulling the pin out and pulling the motor straight out. The zone valve must not be installed with the motor underneath the valve unit.

It is easier to fit the compression fitting if a lubricant is applied to the thread and bevel. Tighten first by hand and then with a box spanner. Soft pipes are to be fitted with a support sleeve.

## OPERATION AND MAINTENANCE

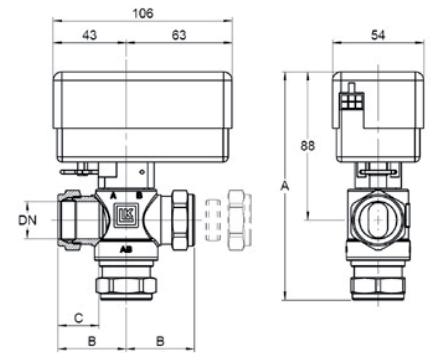
In case of a power failure, the valve cone stays in its current position. When the power is switched off, the valve can be manually set to the centre position, which distributes the flow between the heating and tap water circuits. Remove the motor and turn the spindle about 30°, or turn until hot water flows through both valve ports. When the power is restored, turn the valve

back to its original position and re-install the motor. Please note that the motor can only be installed in one position.

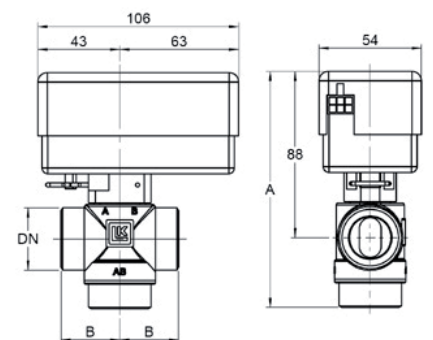
The valve unit requires no maintenance.

Article Type	Art. no.	Note / Dimension	Kvs (m³/h)	A mm	B mm	C mm
LK 525	066070	Valve / 22 mm	7,0	138	56	25
LK 525	066071	Valve / 28 mm	8,0	142	56	30
LK 525	066072	Valve / G1 male	7,0	125	31	-
LK 525	066073	Valve / G1¼ male	8,0	127	37	-
EMV 110-M SPST	066060	Motor 230 VAC with Molex®				
EMV 110-K SPST	066061	Motor 230 VAC with cable 1000 mm				
EMV 110-K SPST	066062	Motor 230 VAC with cable 3000 mm				
EMV 110-M SPST	066063	Motor 24 VAC with Molex®				
Cable-M	066083	3x0,75 L=1000 mm with Molex®				

LK 525 with compression fitting



LK 525 with male thread



# LK 538 EA Filling valve

Filling valve for heating systems.



## TECHNICAL DATA

Max working temp	90°C
Max working pressure	1,0 MPa
Material, valve body	DZR-brass, EN 12165 CW602N
Flow	Straight flow
Integrated shut-off and check valve	Ensures opening under low differential pressure
Backflow protection	Type EA complying with EN 1717
Pipe connection	Pipe connection 15 mm with compression fittings, or G½" male thread when the nut is removed. Both the inlet and the outlet side are designed for the LK Armatur o-ring seal system.

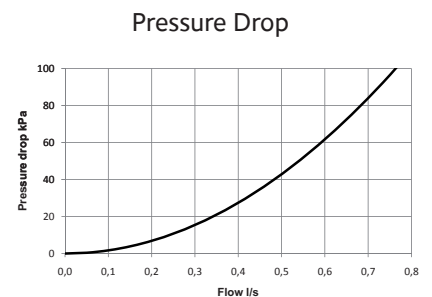
## FITTING/INSTALLATION

The arrow on the valve housing indicates the direction of flow. Pipe connector 15 mm with compression fittings, or G½" male thread when the nut is removed. The thread has to be sealed in the usual manner. Both the inlet and the outlet side are designed for the LK Armatur o-ring seal system. When connecting to this system, tighten first by hand until stop, then another 0.5-1.5 turns with an appropriate tool into the right position.

It is easier to fit the compression fitting if a lubricant is applied to the thread and bevel. Tighten first by hand and then with a box spanner. Number of turns to be tightened with a spanner: See the separate datasheet for compression fittings. Soft pipes are to be fitted with a support sleeve.

## OPERATION AND MAINTENANCE

The valve requires no maintenance.



Article Type	Art. no.	Dim.
LK 538 EA	068006	G½" male / G½" male
LK 538 EA	090269	G½" male / 15 mm
LK 538 EA	090271	15 mm / 15 mm

# LK 539 EA Filling valve

Filling valve for heating systems.

## TECHNICAL DATA

Max working temp	90°C
Max working pressure	1.0 MPa
Material, valve body	DZR-brass, EN 12165 CW602N
Flow	Straight flow
Integrated shut-off and check valve	Ensures opening under low differential pressure
Backflow protection	Type EA complying with EN 1717
Pipe connections	G $\frac{3}{4}$ " male thread

## FITTING/INSTALLATION

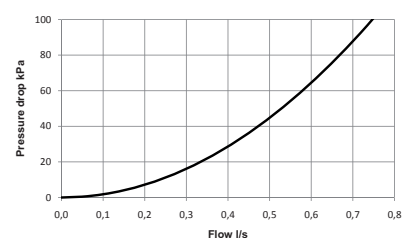
The arrow on the valve housing indicates the direction of flow. Pipe connections with G $\frac{3}{4}$  male thread. The thread has to be sealed in the usual manner. Alternatively, a G $\frac{3}{4}$  flat connection with captive nut and flat gasket.

## OPERATION AND MAINTENANCE

The valve requires no maintenance.



Pressure Drop



Article Type	Art. no.	Dim.
LK 539 EA	068008	G $\frac{3}{4}$ " male / G $\frac{3}{4}$ " male

# LK 548 Valve Combination

Valve combination including a mixing valve for water heating.



## TECHNICAL DATA

Max. working temp.	90°C
Max. working pressure	1,0 MPa
Material, valve body	DZR-brass, EN 12165 CW602N
Shut-off-/check valve	Combination valve with combined shut-off-/check valve.
Mixing valve	Operating temperature within the range of +38°C - +65°C
Connections	The shut-off/check valve has two G $\frac{1}{2}$ female connections for fitting vacuum breaker, safety relief or filling valves. Pipe connection with compression fittings, 22 mm.

## FITTING/INSTALLATION

The arrow on the valve housing indicates the direction of flow.

- KV = incoming cold water
- VV = incoming hot water
- BV = outgoing warm water

Female connections G $\frac{1}{2}$  are designed for the LK Armatur o-ring seal system. Other components are fitted in the usual manner. The valve has compression fittings for fitting to copper or steel pipes. When fitted to a male thread connection, adapter LK 373 22 x G $\frac{3}{4}$  art. no. 189 8055 is used.

It is easier to fit the compression fitting if a lubricant is applied to the thread and bevel. Tighten first by hand and then with a box spanner. Number of turns to be tightened with a spanner: See the separate datasheet for compression fittings. Soft pipes are to be fitted with a support sleeve.

## OPERATION AND MAINTENANCE

The valve knob is used to set the desired warm water temperature within the range of 38°C to 65°C. The maximum temperature can be calibrated as follows:

Increasing the maximum temperature:

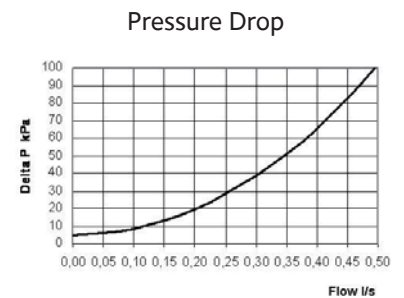
Turn the knob anticlockwise to (+). Loosen the screw and move the knob out to the side. Then turn the knob clockwise to (-) without it being engaged. Adjustments are carried out in small steps. A  $\frac{1}{4}$  turn corresponds to approximately 7°C. Reinstall the knob and check that it engages with the teeth. Tighten the screw and then turn the knob to max (+). Max calibration for increasing the temperature is a  $\frac{1}{2}$  turn.

Reducing the maximum temperature:

Do the procedure in reverse. Turn the knob clockwise to (-) and the disengaged knob anticlockwise to (+).

The valve requires no maintenance.

Article Type	Art. no.	Dim.
LK 548	090085	22 mm



# LK 550-15 Mixing Valve

Thermostatic mixing valve for tap water systems and water heaters.



## TECHNICAL DATA

Max. working temp.	90°C
Max. working pressure	1,0 MPa
Material, valve body	DZR-brass, EN 12165 CW602N
Warm water range	+38°C - +65°C
Pipe connection	Compression fittings, 15 mm, G½".
Vent screw	Separate vent screw to be used when emptying a water heater

## FITTING/INSTALLATION

The arrow on the valve housing indicates the direction of flow.

- KV = incoming cold water
- VV = incoming hot water
- BV = outgoing warm water

The valve has compression fittings for fitting to copper or steel pipes. When fitted to a male thread connection, adapter LK 373 15 x G½ art. no. 189 8022 is used.

It is easier to fit the compression fitting if a lubricant is applied to the thread and bevel. Tighten first by hand and then with a box spanner. Number of turns to be tightened with a spanner: See the separate datasheet for compression fittings. Soft pipes are to be fitted with a support sleeve.

## OPERATION AND MAINTENANCE

The valve knob is used to set the desired hot water temperature within the range of 38°C to 65°C. The maximum temperature can be calibrated as follows:

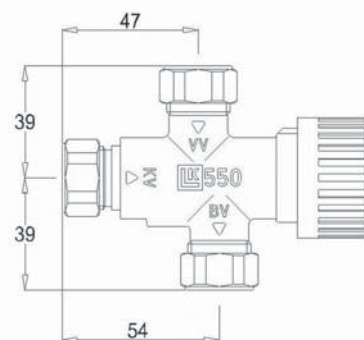
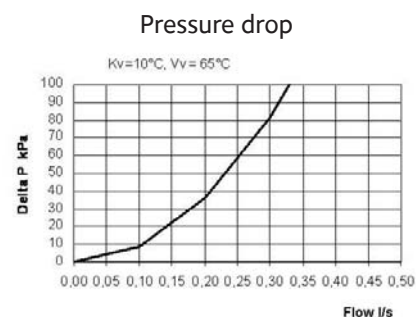
Increasing the maximum temperature:

Turn the knob counter-clockwise to (+). Loosen the screw and move the knob out to the side. Then turn the knob clockwise to (-) without it being engaged. Adjustments are carried out in small steps. A ¼ turn corresponds to approximately 7°C. Reinstall the knob and check that it engages with the teeth. Tighten the screw and then turn the knob to max (+). Max calibration for increasing the temperature is a ½ turn.

Reducing the maximum temperature:

Do the procedure in reverse. Turn the knob clockwise to (-) and the disengaged knob counter-clockwise to (+).

The valve requires no maintenance.



Article Type	Art. no.	Dim.
LK 550	090200	15 mm
LK 550 incl. backflow preventer	091038	15 mm
LK 550		G½"

# LK 550-22 Mixing Valve

Thermostatic mixing valve for tap water systems and water heaters.



## TECHNICAL DATA

Max. working temp.	90°C
Max. working pressure	1,0 MPa
Material, valve body	DZR-brass, EN 12165 CW602N
Warm water range	+38°C - +65°C
Pipe connection	Compression fittings, 22 mm

## FITTING/INSTALLATION

The arrow on the valve housing indicates the direction of flow.

- KV = incoming cold water
- VV = incoming hot water
- BV = outgoing warm water

The valve has compression fittings for fitting to copper or steel pipes. When fitted to a male thread connection, adapter LK 373 22 x G $\frac{3}{4}$  art. no. 189 8055 is used.

It is easier to fit the compression fitting if a lubricant is applied to the thread and bevel. Tighten first by hand and then with a box spanner. Number of turns to be tightened with a spanner: See the separate datasheet for compression fittings. Soft pipes are to be fitted with a support sleeve.

## OPERATION AND MAINTENANCE

The valve knob is used to set the desired hot water temperature within the range of 38°C to 65°C. The maximum temperature can be calibrated as follows:

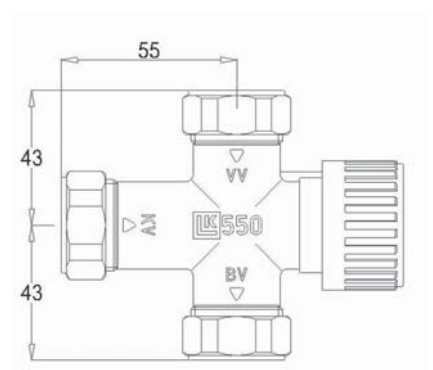
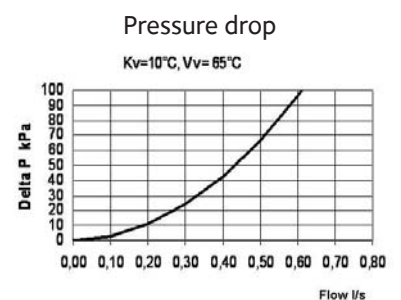
Increasing the maximum temperature:

Turn the knob counter-clockwise to (+). Loosen the screw and move the knob out to the side. Then turn the knob clockwise to (-) without it being engaged. Adjustments are carried out in small steps. A  $\frac{1}{4}$  turn corresponds to approximately 7°C. Reinstall the knob and check that it engages with the teeth. Tighten the screw and then turn the knob to max (+). Max calibration for increasing the temperature is a  $\frac{1}{2}$  turn.

Reducing the maximum temperature:

Do the procedure in reverse. Turn the knob clockwise to (-) and the disengaged knob counter-clockwise to (+).

The valve requires no maintenance.



Article Type	Art. no.	Dim.
LK 550	090205	22 mm
LK 550 incl. backflow preventer	091039	22 mm

# LK 810 Loading Unit

Compact loading unit for all types of solid fuel boiler/storage tank installations.

## TECHNICAL DATA

Voltage	230 VAC 50 Hz
Power consumption	65-95 W depending on pump speed
Max. boiler capacity	90 kW with 30°C ΔT
Max. operating temperature	110°C
Max. operating pressure	1,0 MPa (10 bar)
Max. flow	2800 l/h
Return temperatures	55°C, 60°C, 65°C or 70°C
Loading pump	Grundfos UPSO 65 Low Energy
Sizes	Rp 1", Rp 1¼" or 28 mm compression fittings. NPT threads available.
Material	Body of brass EN 1982 CB752S
Dimensions, WxDxH	215 x 130 x 270 mm
Weight	4.8 kg
Delivered with EPP-insulation.	

## DESIGN

The LK 810 loading unit ensures a minimum return-water temperature into the solid fuel boiler, which increases boiler efficiency, prevents tarring and considerably prolongs the lifetime of the boiler.

LK 810 eliminates the risk of destructive thermal shock caused by surges of cold water and renders a more effective burning. The boiler quickly reaches the right working temperature. In the end phase of the firing an automatic balancing valve closes the by-pass loop. This results in a maximum supply from boiler to storage tank. LK 810 is for boilers with a capacity up to 90 kW.

LK 810 loading unit comes in two versions, with or without backflow preventer. With a backflow preventer the LK 810 automatically allows self-circulation of the remaining hot water to the storage tank, as soon as the fire has gone out or in case of power failure. Back flow from storage tank to heating boiler is prevented.

## MOUNTING/INSTALLATION

LK 810 is mounted upright on the return pipe. The loading unit is reversible and can be installed on the right- or left-hand side of the heating boiler.

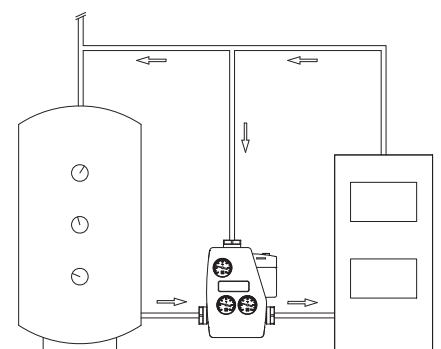
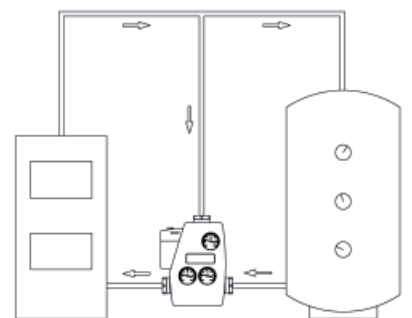
## OPERATION AND MAINTENANCE

LK 810 normally requires no maintenance. The loading unit has three ball valves. Any part can be changed without draining the system.



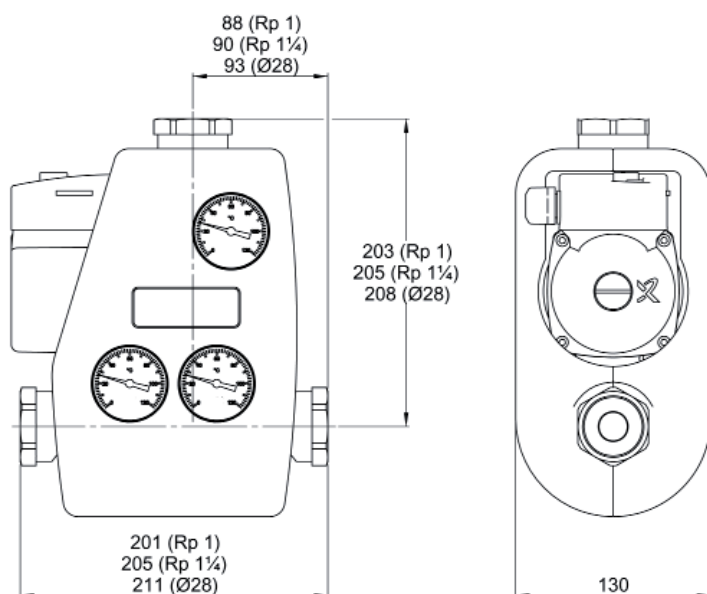
Grundfos UPSO 65 Low Energy

### Installation examples



Article Type	Art. no.	Dim.	Temperature
LK 810 without backflow preventer	180005	Rp 1"	55°C
LK 810 without backflow preventer	180007	Rp 1¼"	55°C
LK 810 without backflow preventer	180009	28 mm	55°C
LK 810 without backflow preventer	180011	Rp 1"	60°C
LK 810 without backflow preventer	180013	Rp 1¼"	60°C
LK 810 without backflow preventer	180015	28 mm	60°C
LK 810 without backflow preventer	180017	Rp 1"	65°C
LK 810 without backflow preventer	180019	Rp 1¼"	65°C
LK 810 without backflow preventer	180021	28 mm	65°C
LK 810 without backflow preventer	180596	Rp 1"	70°C
LK 810 without backflow preventer	180598	Rp 1¼"	70°C
LK 810 without backflow preventer	180600	28 mm	70°C
LK 810 with backflow preventer	180006	Rp 1"	55°C
LK 810 with backflow preventer	180008	Rp 1¼"	55°C
LK 810 with backflow preventer	180010	28 mm	55°C
LK 810 with backflow preventer	180012	Rp 1"	60°C
LK 810 with backflow preventer	180014	Rp 1¼"	60°C
LK 810 with backflow preventer	180016	28 mm	60°C
LK 810 with backflow preventer	180018	Rp 1"	65°C
LK 810 with backflow preventer	180020	Rp 1¼"	65°C
LK 810 with backflow preventer	180022	28 mm	65°C
LK 810 with backflow preventer	180597	Rp 1"	70°C
LK 810 with backflow preventer	180599	Rp 1¼"	70°C
LK 810 with backflow preventer	180601	28 mm	70°C

#### Loading Unit with Isolation



# LK 820 Thermic Loading Valve

Automatic thermally operated 3-way loading valve for solid-fuel boiler/ storage tank installations.



## TECHNICAL DATA

Opening temperature	45°C, 55°C, 61°C, 66°C, 72°C or 80°C
Max. operating temperature	110°C (61°C, 66°C, 72°C, 80°C) 95°C (45°C, 55°C)
Max. operating pressure	1.0 MPa (10 bar)
Material, valve body	Brass EN 12165 CW617N

## DESIGN

LK 820 ensures a minimum return-water temperature in the heating boiler, which increases the efficiency, prevents tarring and considerably prolongs the lifetime of the solid-fuel boiler. LK 820 eliminates the risk of destructive thermal shock to both steel and cast iron boilers. LK 820 thermally operated loading valve renders a more effective burning and is therefore a necessary part of a solid fuel installation with a storage tank. LK 820 loading valves are delivered with an opening temperature of 45°C, 55°C, 61°C, 66°C, 72°C or 80°C.

## FITTING/INSTALLATION

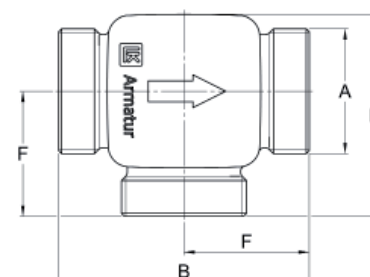
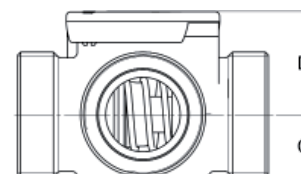
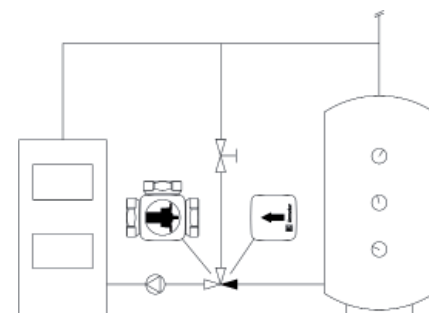
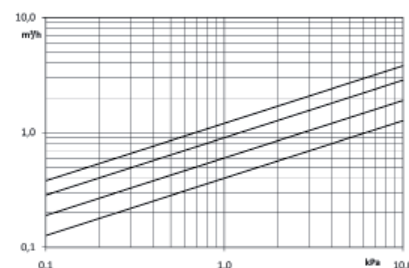
The valve can be mounted in any position.

LK 820 loading valves can be adapted for right- or left-hand mounting.

## OPERATION AND MAINTENANCE

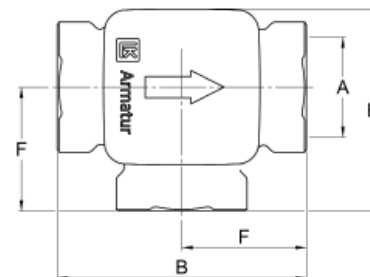
LK 820 requires no maintenance.

Capacity Diagram



Article Type	Art. no.	Kvs m³/h	A	B mm	C mm	D mm	E mm	F mm	Weight kg
LK 820 45°C	180491	4	Rp ½"	80	21	35	66	40	0,7
LK 820 45°C	180492	6	Rp ¾"	80	21	35	66	40	0,7
LK 820 45°C	180493	9	RP 1"	82	21	35	67	41	0,7
LK 820 45°C	180494	12	Rp 1¼"	84	21	35	68	42	0,8
LK 820 45°C	180495	4	G ¾"	80	21	35	66	40	0,7
LK 820 45°C	180496	6	G 1"	80	21	35	66	40	0,7
LK 820 45°C	180497	9	G 1¼"	84	21	35	68	42	0,7
LK 820 45°C	180498	12	G 1½"	84	21	35	68	42	0,8
LK 820 55°C	180499	4	Rp ½"	80	21	35	66	40	0,7
LK 820 55°C	180500	6	Rp ¾"	80	21	35	66	40	0,7
LK 820 55°C	180501	9	RP 1"	82	21	35	67	41	0,7
LK 820 55°C	180502	12	Rp 1¼"	84	21	35	68	42	0,8
LK 820 55°C	180503	4	G ¾"	80	21	35	66	40	0,7
LK 820 55°C	180504	6	G 1"	80	21	35	66	40	0,7
LK 820 55°C	180505	9	G 1¼"	84	21	35	68	42	0,7
LK 820 55°C	180506	12	G 1½"	84	21	35	68	42	0,8

Article Type	Art. no.	Kvs m <sup>3</sup> /h	A	B mm	C mm	D mm	E mm	F mm	Weight kg
LK 820 61°C	180507	4	Rp ½"	80	21	35	66	40	0,7
LK 820 61°C	180508	6	Rp ¾"	80	21	35	66	40	0,7
LK 820 61°C	180509	9	RP 1"	82	21	35	67	41	0,7
LK 820 61°C	180510	12	Rp 1¼"	84	21	35	68	42	0,8
LK 820 61°C	180511	4	G ¾"	80	21	35	66	40	0,7
LK 820 61°C	180512	6	G 1"	80	21	35	66	40	0,7
LK 820 61°C	180513	9	G 1¼"	84	21	35	68	42	0,7
LK 820 61°C	180514	12	G 1½"	84	21	35	68	42	0,8
LK 820 66°C	180515	4	Rp ½"	80	21	35	66	40	0,7
LK 820 66°C	180516	6	Rp ¾"	80	21	35	66	40	0,7
LK 820 66°C	180517	9	RP 1"	82	21	35	67	41	0,7
LK 820 66°C	180518	12	Rp 1¼"	84	21	35	68	42	0,8
LK 820 66°C	180519	4	G ¾"	80	21	35	66	40	0,7
LK 820 66°C	180520	6	G 1"	80	21	35	66	40	0,7
LK 820 66°C	180521	9	G 1¼"	84	21	35	68	42	0,7
LK 820 66°C	180522	12	G 1½"	84	21	35	68	42	0,8
LK 820 72°C	180523	4	Rp ½"	80	21	35	66	40	0,7
LK 820 72°C	180524	6	Rp ¾"	80	21	35	66	40	0,7
LK 820 72°C	180525	9	RP 1"	82	21	35	67	41	0,7
LK 820 72°C	180526	12	Rp 1¼"	84	21	35	68	42	0,8
LK 820 72°C	180527	4	G ¾"	80	21	35	66	40	0,7
LK 820 72°C	180528	6	G 1"	80	21	35	66	40	0,7
LK 820 72°C	180529	9	G 1¼"	84	21	35	68	42	0,7
LK 820 72°C	180530	12	G 1½"	84	21	35	68	42	0,8
LK 820 80°C	180531	4	Rp ½"	80	21	35	66	40	0,7
LK 820 80°C	180532	6	Rp ¾"	80	21	35	66	40	0,7
LK 820 80°C	180533	9	RP 1"	82	21	35	67	41	0,7
LK 820 80°C	180534	12	Rp 1¼"	84	21	35	68	42	0,8
LK 820 80°C	180535	4	G ¾"	80	21	35	66	40	0,7
LK 820 80°C	180536	6	G 1"	80	21	35	66	40	0,7
LK 820 80°C	180537	9	G 1¼"	84	21	35	68	42	0,7
LK 820 80°C	180538	12	G 1½"	84	21	35	68	42	0,8



# LK 821 Thermic Bypass Valve

Thermic 3-way bypass valves designed to change the direction of flow in hydronic heating applications.

## TECHNICAL DATA

Opening temperature	45°C, 55°C, 61°C, 66°C, 72°C or 80°C
Max. operating temperature	110°C (61°C, 66°C, 72°C, 80°C) 95°C (45°C, 55°C)
Max. operating pressure	1,0 MPa (10 bar)
Material, valve body	Brass EN12165 CW617N

## DESIGN

LK 821 is an automatic valve operated by a self-contained thermostatic element. The valves are delivered with an opening temperature of 45°C, 55°C, 61°C, 66°C, 72°C or 80°C. The valve works without additional energy. LK 821 bypass valves have a wide range of application. In a solarsystem the valve ensures an optimum stratification of temperature in the storage tank.

## FITTING/INSTALLATION

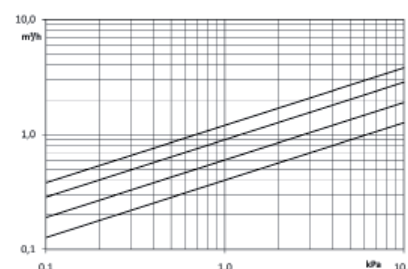
LK 821 bypass valves can be adapted for right- and left-hand mounting. The valve can be mounted in any position.

## OPERATION AND MAINTENANCE

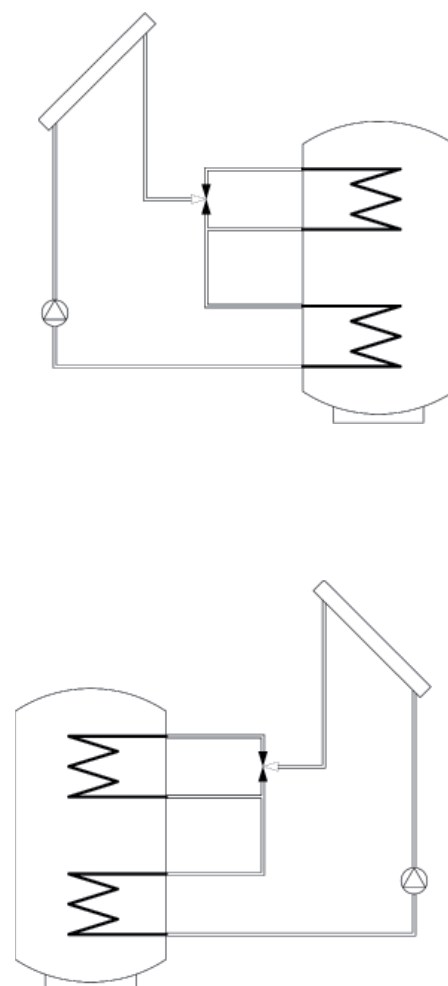
The valve requires no maintenance. The installation should be checked regularly.



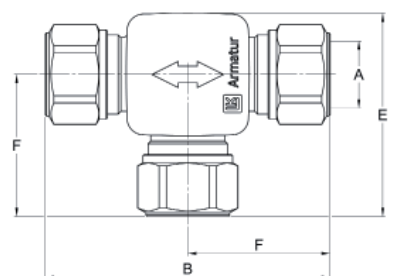
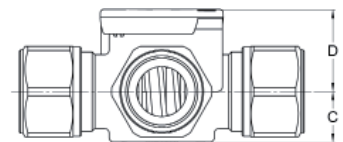
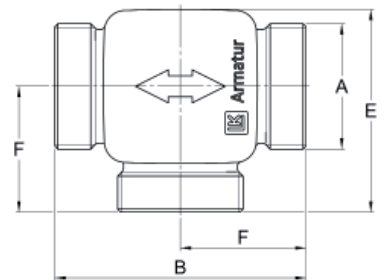
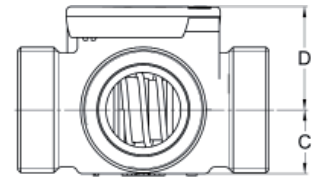
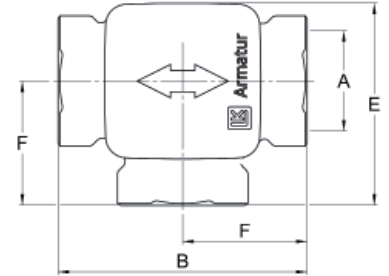
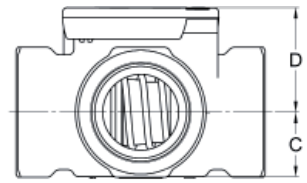
Capacity Diagramm



Article Type	Art. no.	Kvs m³/h	A	B mm	C mm	D mm	E mm	F mm	Weight kg
LK 821 45°C	180539	4	Rp ½"	80	21	35	66	40	0,7
LK 821 45°C	180540	6	Rp ¾"	80	21	35	66	40	0,8
LK 821 45°C	180541	9	Rp 1"	82	21	35	67	41	0,9
LK 821 45°C	180542	12	Rp 1¼"	84	21	35	68	42	1,0
LK 821 45°C	180543	4	G ¾"	80	21	35	66	40	0,7
LK 821 45°C	180544	6	G 1"	80	21	35	66	40	0,8
LK 821 45°C	180545	9	G 1¼"	84	21	35	68	42	0,9
LK 821 45°C	180546	12	G 1½"	84	21	35	68	42	1,0
LK 821 45°C	180901	4	15 mm	114	21	35	83	57	0,8
LK 821 45°C	180902	6	18 mm	114	21	35	83	57	0,8
LK 821 45°C	180903	6	22 mm	114	21	35	83	57	0,8
LK 821 45°C	180904	9	28 mm	120	21	35	86	60	1,0
LK 821 55°C	180547	4	Rp ½"	80	21	35	66	40	0,7
LK 821 55°C	180548	6	Rp ¾"	80	21	35	66	40	0,8
LK 821 55°C	180549	9	Rp 1"	82	21	35	67	41	0,9
LK 821 55°C	180550	12	Rp 1¼"	84	21	35	68	42	1,0
LK 821 55°C	180551	4	G ¾"	80	21	35	66	40	0,7
LK 821 55°C	180552	6	G 1"	80	21	35	66	40	0,8
LK 821 55°C	180553	9	G 1¼"	84	21	35	68	42	0,9
LK 821 55°C	180554	12	G 1½"	84	21	35	68	42	1,0
LK 821 55°C	180905	4	15 mm	114	21	35	83	57	0,8
LK 821 55°C	180906	6	18 mm	114	21	35	83	57	0,8
LK 821 55°C	180907	6	22 mm	114	21	35	83	57	0,8
LK 821 55°C	180908	9	28 mm	120	21	35	86	60	1,0
LK 821 61°C	180555	4	Rp ½"	80	21	35	66	40	0,7



Article Type	Art. no.	Kvs m <sup>3</sup> /h	A	B mm	C mm	D mm	E mm	F mm	Weight kg
LK 821 61°C	180556	6	Rp ¾"	80	21	35	66	40	0,8
LK 821 61°C	180557	9	Rp 1"	82	21	35	67	41	0,9
LK 821 61°C	180558	12	Rp 1¼"	84	21	35	68	42	1,0
LK 821 61°C	180559	4	G ¾"	80	21	35	66	40	0,7
LK 821 61°C	180560	6	G 1"	80	21	35	66	40	0,8
LK 821 61°C	180561	9	G 1¼"	84	21	35	68	42	0,9
LK 821 61°C	180562	12	G 1½"	84	21	35	68	42	1,0
LK 821 61°C	180909	4	15 mm	114	21	35	83	57	0,8
LK 821 61°C	180910	6	18 mm	114	21	35	83	57	0,8
LK 821 61°C	180911	6	22 mm	114	21	35	83	57	0,8
LK 821 61°C	180912	9	28 mm	120	21	35	86	60	1,0
LK 821 66°C	180563	4	Rp ½"	80	21	35	66	40	0,7
LK 821 66°C	180564	6	Rp ¾"	80	21	35	66	40	0,8
LK 821 66°C	180565	9	Rp 1"	82	21	35	67	41	0,9
LK 821 66°C	180566	12	Rp 1¼"	84	21	35	68	42	1,0
LK 821 66°C	180567	4	G ¾"	80	21	35	66	40	0,7
LK 821 66°C	180568	6	G 1"	80	21	35	66	40	0,8
LK 821 66°C	180569	9	G 1¼"	84	21	35	68	42	0,9
LK 821 66°C	180570	12	G 1½"	84	21	35	68	42	1,0
LK 821 66°C	180913	4	15 mm	114	21	35	83	57	0,8
LK 821 66°C	180914	6	18 mm	114	21	35	83	57	0,8
LK 821 66°C	180915	6	22 mm	114	21	35	83	57	0,8
LK 821 66°C	180916	9	28 mm	120	21	35	86	60	1,0
LK 821 72°C	180571	4	Rp ½"	80	21	35	66	40	0,7
LK 821 72°C	180572	6	Rp ¾"	80	21	35	66	40	0,8
LK 821 72°C	180573	9	Rp 1"	82	21	35	67	41	0,9
LK 821 72°C	180574	12	Rp 1¼"	84	21	35	68	42	1,0
LK 821 72°C	180575	4	G ¾"	80	21	35	66	40	0,7
LK 821 72°C	180576	6	G 1"	80	21	35	66	40	0,8
LK 821 72°C	180577	9	G 1¼"	84	21	35	68	42	0,9
LK 821 72°C	180578	12	G 1½"	84	21	35	68	42	1,0
LK 821 72°C	180917	4	15 mm	114	21	35	83	57	0,8
LK 821 72°C	180918	6	18 mm	114	21	35	83	57	0,8
LK 821 72°C	180919	6	22 mm	114	21	35	83	57	0,8
LK 821 72°C	180920	9	28 mm	120	21	35	86	60	1,0
LK 821 80°C	180579	4	Rp ½"	80	21	35	66	40	0,7
LK 821 80°C	180580	6	Rp ¾"	80	21	35	66	40	0,8
LK 821 80°C	180581	9	Rp 1"	82	21	35	67	41	0,9
LK 821 80°C	180582	12	Rp 1¼"	84	21	35	68	42	1,0
LK 821 80°C	180583	4	G ¾"	80	21	35	66	40	0,7
LK 821 80°C	180584	6	G 1"	80	21	35	66	40	0,8
LK 821 80°C	180585	9	G 1¼"	84	21	35	68	42	0,9
LK 821 80°C	180586	12	G 1½"	84	21	35	68	42	1,0
LK 821 80°C	180921	4	15 mm	114	21	35	83	57	0,8
LK 821 80°C	180922	6	18 mm	114	21	35	83	57	0,8
LK 821 80°C	180923	6	22 mm	114	21	35	83	57	0,8
LK 821 80°C	180924	9	28 mm	120	21	35	86	60	1,0



# LK 825 Thermic Loading Valve

Automatic thermally operated loading valve in cast iron for solid-fuel boiler/storage tank installations.



## TECHNICAL DATA

Opening temperature	45°C, 55°C, 61°C, 72°C or 80°C
Max. operating temperature	110°C (61°C, 72°C, 80°C) 95°C (45°C, 55°C)
Max. operating pressure	1.0 MPa (10 bar)
Torque	0,1 Nm
Material, valve body	Cast iron

## DESIGN

LK 825 ensures a minimum return-water temperature in the heating boiler, which increases the efficiency, prevents tarring and considerably prolongs the lifetime of the solid-fuel boiler. LK 825 eliminates the risk of destructive thermal shock to both steel and cast iron boilers. LK 825 thermally operated loading valve renders a more effective burning and is therefore a necessary part of a solid fuel installation with a storage tank. LK 825 loading valves are delivered with an opening temperature of 45°C, 55°C, 61°C, 72°C or 80°C.

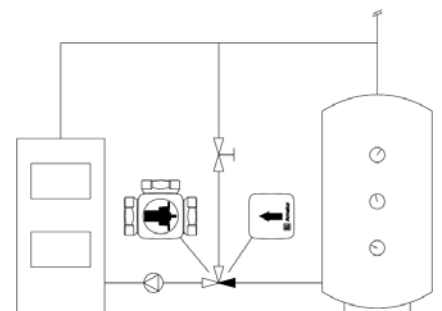
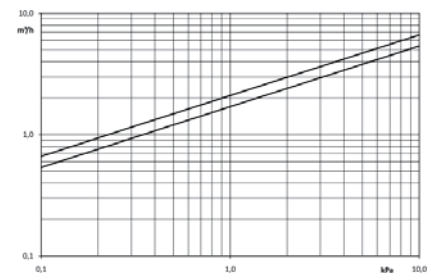
## FITTING/INSTALLATION

The valve can be mounted in any position. LK 825 loading valves can be adapted for right- or left-hand mounting.

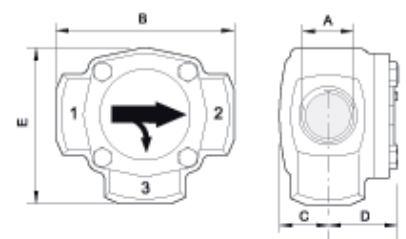
## OPERATION AND MAINTENANCE

LK 825 requires no maintenance. The installation should be checked regularly.

Capacity Diagram



Article Type	Art. no.	Kvs m³/h	A	B mm	C mm	D mm	E mm	Weight (kg)
LK 825 45°C	180201	17	Rp 1½"	127	40	48	100	2,8
LK 825 45°C	180204	21	Rp 2"	135	48	65	105	4,2
LK 825 55°C	180225	17	Rp 1½"	127	40	48	100	2,8
LK 825 55°C	180229	21	RP 2"	135	48	65	105	4,2
LK 825 61°C	180249	17	Rp1½"	127	40	48	100	2,8
LK 825 61°C	180254	21	Rp 2"	135	48	65	105	4,2
LK 825 72°C	180269	17	Rp 1½"	127	40	48	100	2,8
LK 825 72°C	180272	21	Rp2"	135	48	65	105	4,2
LK 825 80°C	180285	17	Rp1½"	127	40	48	100	2,8
LK 825 80°C	180288	21	Rp 2"	135	48	65	105	4,2



# LK 830 Bivalent Mixing Valve

4-way bivalent mixing valves for heating and storage tank systems.



## TECHNICAL DATA

Max. working temp	110°C
Max. working pressure	1.0 MPa
Max. pressure difference	50 kPa
Leakage	< 0.5% of Kvs at 50 kPa
Angle of rotation	90°
Torque	< 1 Nm
Material, valve body	Brass EN 12165 CW617N
Material, slide/spindle	Brass EN 12164 CW614N
Material, cover	Brass EN 12165 CW617N
Pipe unions	Compression fittings, male or female thread
Spindle sealing	Two O-rings
Material, O-rings	EPDM

## DESIGN

LK 830 4-way bivalent valves are used as mixing valves in heating systems, where energy is taken from two heating units connected in series or parallel. The valve is also designed for storage tank systems where energy is extracted from two levels. With an automatic control unit the most favourable heat source will always be selected.

## FITTING/INSTALLATION

LK 830 can be installed in any position. Union ports are marked 1-4. In the standard version the valve can be mounted according to 1. supply 2. secondary heat 3. primary heat 4. return. The valve can be adapted for right- or left-hand installation.

It is easier to fit the compression fitting if a lubricant is applied to the thread and bevel. Tighten first by hand and then with a box spanner. Soft pipes are to be fitted with a support sleeve. Threads are sealed in the usual way.

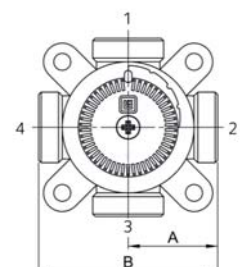
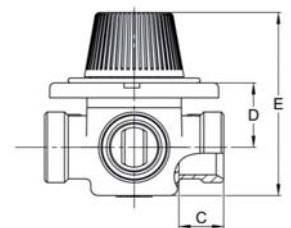
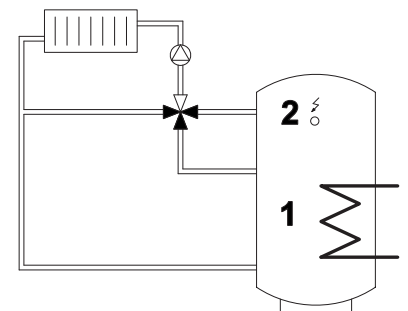
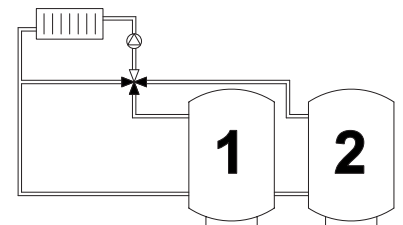
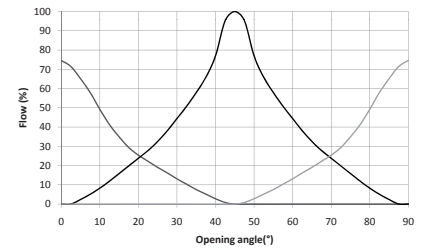
LK 830 bivalent valves can be easily fitted to most actuators.

## OPERATION AND MAINTENANCE

The valve requires no maintenance. The installation should be checked regularly.

Article Type	Art. no.	Dim.	Kvs m³/h	A mm	B mm	C mm	D mm	E mm
LK 830	180001	22 mm	4,0	36	72	18	26	80
LK 830	180002	G¾" male	4,0	36	72	-	26	80
LK 830	180003	22 mm	6,3	36	72	18	26	80
LK 830	180004	G¾" male	6,3	36	72	-	26	80
LK 830	180587	Rp¾" female	6,3	36	72	-	26	80
LK 830	180588	G1" male	6,3	36	72	-	26	80
LK 830	180589	Rp1" female	10	41	82	-	30	85
LK 830	180590	G1¼" male	10	41	82	-	30	85

Valve Characteristic



# LK 831 Bivalent Mixing Valve

4-way bivalent mixing valves for heating and storage tank systems.

## TECHNICAL DATA

Max. working temp	110°C
Max. working pressure	1.0 MPa
Max. pressure difference	50 kPa
Leakage	< 1% of Kvs at 50 kPa
Angle of rotation	90°
Torque	< 1 Nm
Material, valve body	Brass EN 12165 CW617N
Material, slide/spindle	Brass EN 12164 CW614N
Material, cover	Brass EN 12165 CW617N
Pipe unions	Compression fittings
Spindle sealing	Two O-rings
Material, O-rings	EPDM

## DESIGN

LK 831 4-way bivalent valves are used as mixing valves in heating systems, where energy is taken from two heating units connected in series or parallel. The valve is also designed for storage tank systems where energy is extracted from two levels. With an automatic control unit the most favourable heat source will always be selected.

## FITTING/INSTALLATION

Union ports are marked 1-4. The valve can be mounted according to 1. supply 2. return 3. secondary heat 4. primary heat.

It is easier to fit the compression fitting if a lubricant is applied to the thread and bevel. Tighten first by hand and then with a box spanner. Soft pipes are to be fitted with a support sleeve.

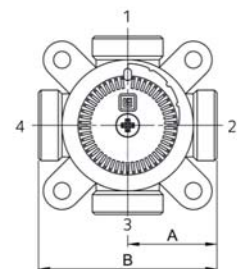
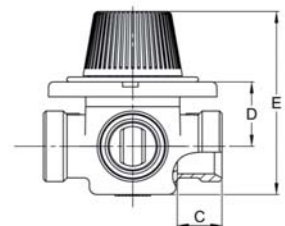
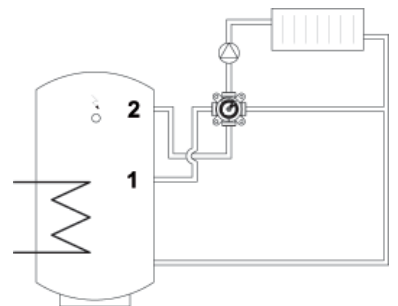
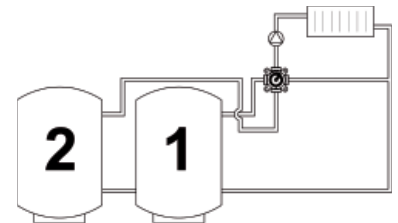
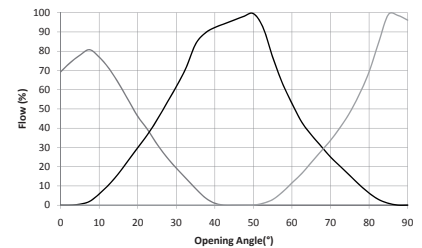
LK 831 bivalent valves can be easily fitted to most actuators.

## OPERATION AND MAINTENANCE

The valve requires no maintenance. The installation should be checked regularly.



Valve Characteristic



Article Type	Art. no.	Dim.	Kvs m <sup>3</sup> /h	A mm	B mm	C mm	D mm	E mm
LK 831	180591	22 mm	4,0	36	72	18	26	80

# LK 840 Mixing Valve

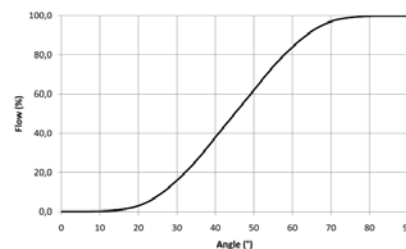
3-way mixing valves with female/male threads or compression fittings have been developed especially for hydronic heating systems.



## TECHNICAL DATA

Max. operating temperature	110°C
Max. operating pressure	1,0 MPa (10 bar)
Angle of rotation	90°
Torque	< 1 Nm
Material, valve body	Brass EN12165 CW617N
Material, slide/spindle	Brass EN12165 CW617N
Material, internal cover	PPS Composite
Material, external cover	Aluminium EN 1706 EN AC-46100
Spindle sealing	Two O-rings
Material, O-rings	EPDM

Valve Characteristic



## DESIGN

The valve can be used as a mixing valve or as a diverting valve. LK 840 has excellent control characteristics. It controls both supply and return lines.

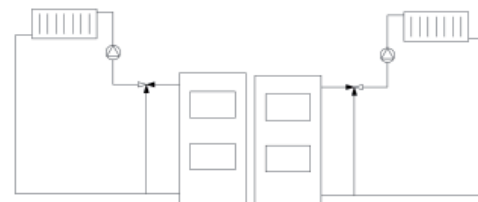
## FITTING/INSTALLATION

The valve can be mounted in any position. LK 840 can easily be adapted for right- or left-hand mounting.

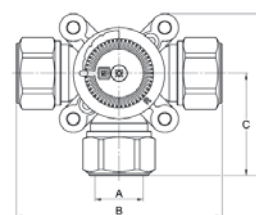
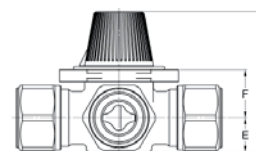
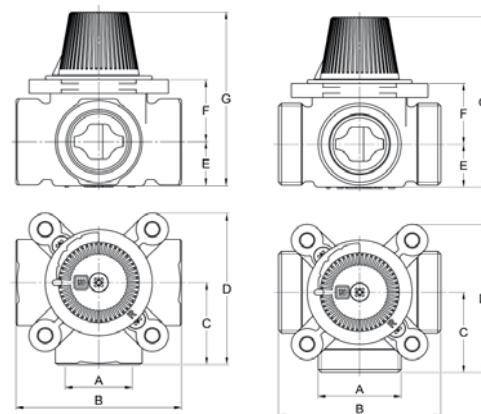
LK 840 is very suitable for motorizing because of its low torque.

## OPERATION AND MAINTENANCE

The valve requires no maintenance. The installation should be checked regularly.



Article Type	Art. no.	Kvs m³/h	A	B mm	C mm	D mm	E mm	F mm	G mm	Weight kg
LK 840	180845	2,5	Rp ½"	80	40	75	20	28	82	0,70
LK 840	180846	4,0	Rp ¾"	80	40	75	20	28	82	0,70
LK 840	180847	6,3	Rp ¾"	80	40	75	20	28	82	0,70
LK 840	180848	8,0	Rp 1"	82	41	76	22	31	87	0,75
LK 840	180849	12	Rp 1"	82	41	76	22	31	87	0,75
LK 840	180850	15	Rp 1¼"	84	42	77	25	32	91	0,85
LK 840	180851	2,5	G ¾"	80	40	75	20	28	82	0,70
LK 840	180852	4,0	G 1"	80	40	75	20	28	82	0,70
LK 840	180853	6,3	G 1"	80	40	75	20	28	82	0,70
LK 840	180854	8,0	G 1¼"	82	41	76	22	31	87	0,75
LK 840	180855	12	G 1¼"	82	41	76	22	31	87	0,75
LK 840	180856	15	G 1½"	84	42	77	24	32	90	0,85
LK 840	180857	2,5	15 mm	114	57	92	20	28	82	0,80
LK 840	180858	2,5	18 mm	114	57	92	20	28	82	0,80
LK 840	180859	2,5	22 mm	114	57	92	22	31	87	0,80
LK 840	180893	6,3	22 mm	114	57	92	22	31	87	0,80
LK 840	180860	4,0	28 mm	120	60	95	24	32	90	0,80
LK 840	180861	6,3	28 mm	120	60	95	24	32	90	0,80



# LK 841 Mixing Valve

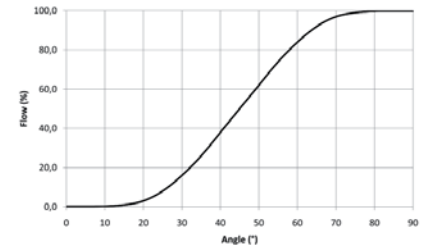
4-way mixing valves with female/male threads or compression fittings have been developed especially for hydronic heating systems.



## TECHNICAL DATA

Max. operating temperature	110°C
Max. operating pressure	1,0 MPa (10 bar)
Angle of rotation	90°
Torque	< 1 Nm
Material, valve body	Brass EN 12165 CW617N
Material, slide/spindle	Brass EN 12165 CW617N
Material, internal cover	PPS Composite
Material, external cover	Aluminium EN 1706 EN AC-46100
Spindle sealing	Two O-rings
Material, O-Rings	EPDM

Valve Characteristic



## DESIGN

LK 841 has excellent control characteristics. It controls both supply and return lines.

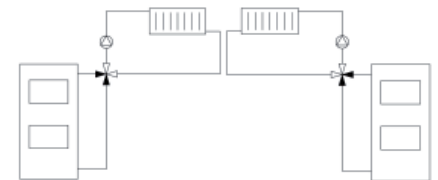
## FITTING/INSTALLATION

The valve can be mounted in any position. LK 841 can easily be adapted for right- or left-hand mounting.

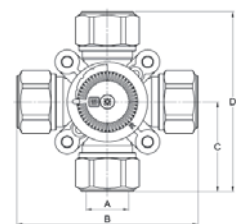
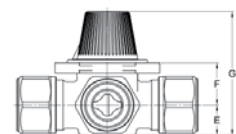
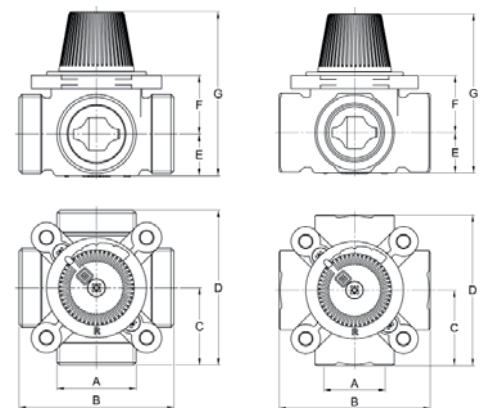
LK 841 is very suitable for motorizing because of its low torque.

## OPERATION AND MAINTENANCE

The valve requires no maintenance. The installation should be checked regularly.



Article Type	Art. no.	Kvs m³/h	A	B mm	C mm	D mm	E mm	F mm	G mm	Weight kg
LK 841	180862	2,5	Rp ½"	80	40	80	20	28	82	0,70
LK 841	180863	4,0	Rp ¾"	80	40	80	20	28	82	0,70
LK 841	180864	6,3	Rp ¾"	80	40	80	20	28	82	0,70
LK 841	180865	8,0	Rp 1"	82	41	82	22	31	87	0,75
LK 841	180866	12	Rp 1"	82	41	82	22	31	87	0,75
LK 841	180867	15	Rp 1¼"	84	42	84	25	32	91	0,85
LK 841	180868	2,5	G ¾"	80	40	80	20	28	82	0,70
LK 841	180869	4,0	G 1"	80	40	80	20	28	82	0,70
LK 841	180870	6,3	G 1"	80	40	80	20	28	82	0,70
LK 841	180871	8,0	G 1¼"	82	41	82	22	31	87	0,75
LK 841	180872	12	G 1¼"	82	41	82	22	31	87	0,75
LK 841	180873	15	G 1½"	84	42	84	24	32	90	0,85
LK 841	180874	2,5	15 mm	114	57	114	20	28	82	0,80
LK 841	180875	2,5	18 mm	114	57	114	20	28	82	0,80
LK 841	180876	2,5	22 mm	114	57	114	22	31	87	0,80
LK 841	180877	4,0	28 mm	120	60	120	24	32	90	0,80
LK 841	180878	6,3	28 mm	120	60	120	24	32	90	0,80



# LK 842 Mixing Valve

LK 842 is a compact mixing valve for pre-fabricated mounting on heating boilers.

## TECHNICAL DATA

Max. operating temperature	110°C
Max. operating pressure	1.0 MPa (10 bar)
Angle of rotation	90°
Torque	< 1 Nm
Material, valve body	Brass EN1982 CB753S
Material, slide/spindel	Brass EN12165 CW617N
Material, internal cover	PPS Composite
Material, external cover	Aluminium EN 1706 EN AC-46100
Spindle sealing	Two O-rings
Material, O-rings	EPDM

## DESIGN

The valve has male threads or compression fittings. LK 842 has excellent control characteristics. It controls both supply and return lines. Gasket LKA art. no. 013083 is mounted to indicate the supply line and can be ordered as an accessory.

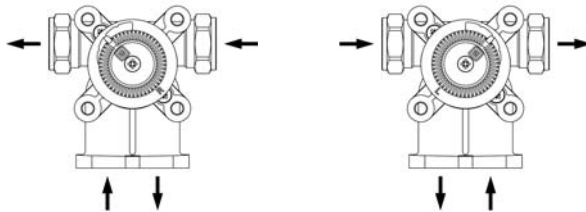
## FITTING/INSTALLATION

The valve can be mounted in any position. LK 842 can easily be adapted for right- or left-hand mounting.

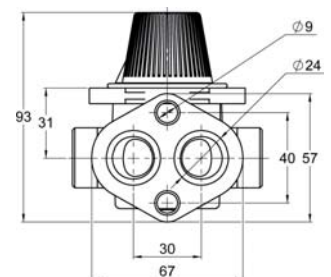
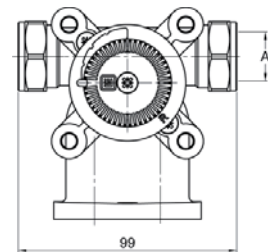
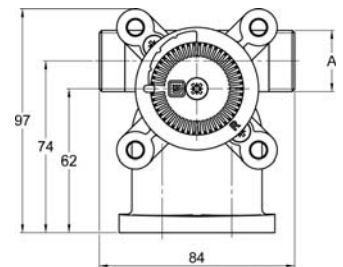
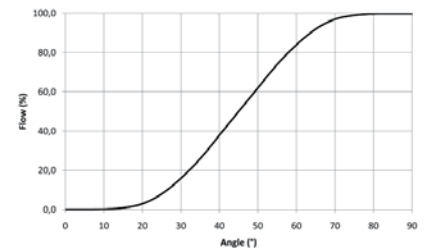
LK 842 is very suitable for motorizing because of its low torque.

## OPERATION AND MAINTENANCE

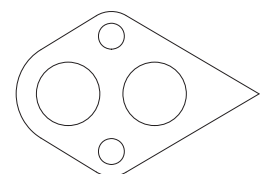
The valve requires no maintenance. The installation should be checked regularly.



Valve Characteristic



Gasket LKA art. no. 013083 - the point indicates the supply line



Article type	Art. no.	Kvs m <sup>3</sup> /h	Dim.	Weight kg
LK 842	180880	5,5	15 mm	0.8
LK 842	180881	5,5	22 mm	0.8
LK 842	180879	5,5	G $\frac{3}{4}$ "	0.8

# LK 845 Mixing Valve

3-way mixing valves of cast iron have been developed especially for hydronic heating systems.

## TECHNICAL DATA

Max. operating temperature	110°C
Max. operating pressure	1,0 MPa (10 bar)
Angle of rotation	90°
Torque	0,2 Nm
Material, valve body	Cast iron
Material, slide	Brass
Material, spindle	Brass
Material, cover	Aluminium
Spindle sealing	Two O-rings
Material, O-rings	EPDM

## DESIGN

The valve can be used as a mixing valve or as a diverting valve. LK 845 has excellent control characteristics.

## FITTING/INSTALLATION

The valve can be mounted in any position. LK 845 can easily be adapted for right- or left-hand mounting.

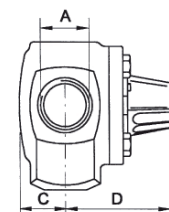
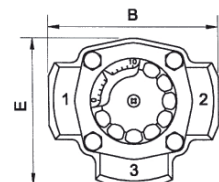
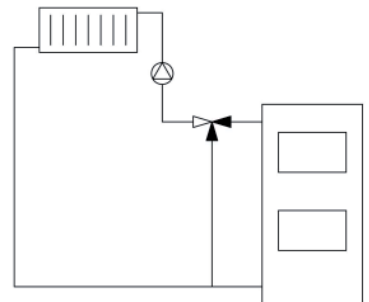
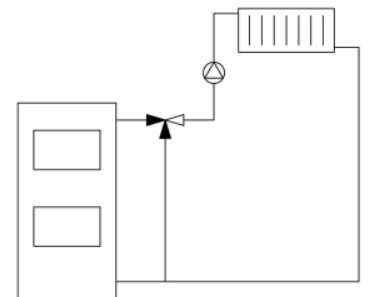
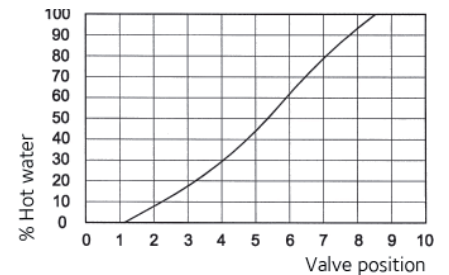
LK 845 is very suitable for motorizing because of its low torque.

## OPERATION AND MAINTENANCE

The valve requires no maintenance. The installation should be checked regularly.



Mixing Characteristic



Article Type	Art. no.	Kvs m³/h	A	B mm	C mm	D mm	E mm	Weight kg
LK 845	180106	13	Rp ¾"	110	32	67	94	1,7
LK 845	180107	17	Rp 1"	112	32	67	94	1,8
LK 845	180108	24	Rp 1¼"	127	36	70	100	2,4
LK 845	180109	31	Rp 1½"	127	40	73	101	2,7
LK 845	180110	41	Rp 2"	135	48	80	105	4,1

# LK 846 Mixing Valve

4-way mixing valves of cast iron have been developed especially for hydronic heating systems.

## TECHNICAL DATA

Max. operating temperature	110°C
Max. operating pressure	1,0 MPa (10 bar)
Angle of rotation	90°
Torque	0,1 Nm
Material, valve body	Cast iron
Material, slide	Brass
Material, spindle	Brass
Material, cover	Aluminium
Spindle sealing	Two O-rings
Material, O-rings	EPDM

## DESIGN

LK 846 has excellent control characteristics.

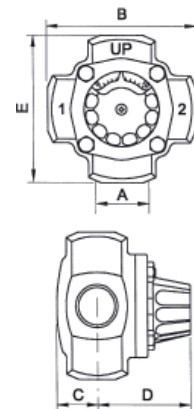
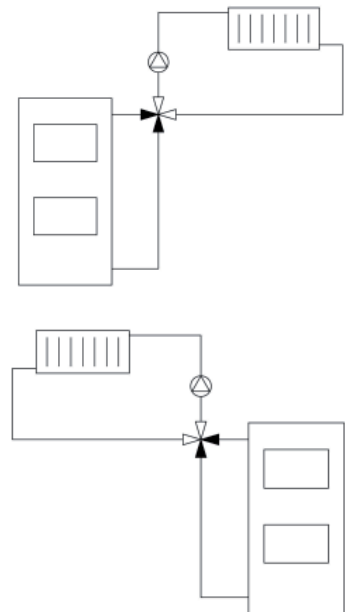
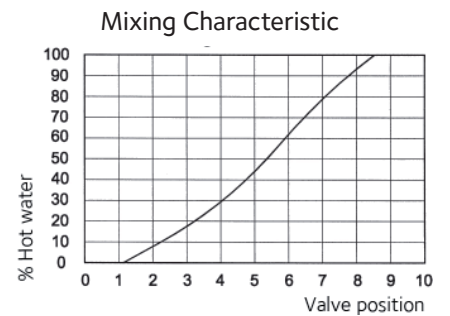
## FITTING/INSTALLATION

The valve can be mounted in any position. LK 846 can easily be adapted for right- or left-hand mounting.

LK 846 is very suitable for motorizing because of its low torque.

## OPERATION AND MAINTENANCE

The valve requires no maintenance. The installation should be checked regularly.



Article Type	Art. no.	Kvs m³/h	A	B mm	C mm	D mm	E mm	Weight kg
LK 846	180111	13	Rp ¾"	110	32	67	110	1,8
LK 846	180112	17	Rp 1"	112	32	67	112	1,9
LK 846	180113	24	Rp 1½"	127	36	70	127	2,6
LK 846	180114	31	Rp 1½"	127	40	73	127	3,1
LK 846	180115	41	Rp 2"	135	48	80	135	4,6

# LK 950 Valve Actuator

LK 950 is a series of compact actuators designed to motorize rotary mixing valves.



## TECHNICAL DATA

Power supply*	230 VAC 50/60 Hz, 24 VAC 50/60 Hz, 24 VDC/AC 50/60 Hz
Dimensioning*	1.5 ... 3.5 VA
Power consumption*	1.5 ... 3.5 W
Connection cable*	1.5 m, 3 x 0.75 mm <sup>2</sup>
Direction of operation	Selectable
Manual override	Disengagement of gears
Torque*	5 / 10 Nm
Angle of rotation	90°, electrically limited
Running time*	35 / 70 / 140 / 280 sec
Direction of operation	Selectable
Sound level	Max 35 dB (A)
Position indication	Reversible scale
Mounting position	Selectable except below the valve
Accessories*	Alternative mounting kits and additional auxiliary switch with adjustable angle
Protection type	IP 40
Protection class	II (Double Insulated)
Ambient temperature	0 ... +50°C
Storage temperature	-10°C ... +80°C
Safety	CE (see Declaration of Conformity)

\* = Depending on model

## DESIGN

The actuator can be operated by a controller with a 3-point SPDT output. LK 950 fits most rotary valves. Alternative mounting kits and an additional auxiliary adjustable switch can be supplied as option.

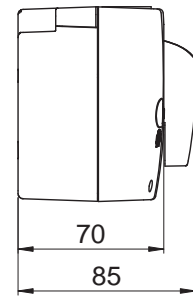
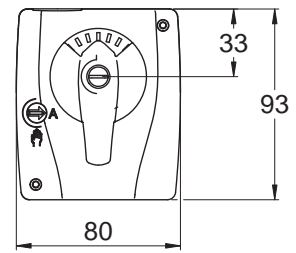
## FITTING/INSTALLATION

The actuator can be mounted in any position except below the valve. Thanks to its small size and compact form the LK 950 fits most installations.

The actuator is mounted directly onto the valve spindle with a screw. An anti-rotation bolt is screwed onto the valve. The angle of rotation is limited to 90°. When the actuator reaches either end position the voltage supply is interrupted by limit switches. The actuator can be put into manual mode by turning the button on the housing cover which will disengage the gears. The actuator can now be put in any position by turning the handle on the front and this position is indicated by means of a reversible scale.

LK 950 is delivered, if not otherwise indicated, with a standard mounting kit and a connection cable with a length of 1.5 meters.

Article Type	Art. no.	Power supply	Torque	Running Time	Note
LK 950	180742	24 VAC	5 Nm	70 s	
LK 950	180744	24 VAC	5 Nm	140 s	
LK 950	180755	24 VAC	10 Nm	280 s	
LK 950	180756	230 VAC	5 Nm	70 s	
LK 950	180759	230 VAC	5 Nm	140 s	
LK 950	180760	230 VAC	5 Nm	140 s	3m cable
LK 950	180762	230 VAC	10 Nm	280 s	
LK 950	180763	230 VAC	10 Nm	280 s	3m cable
LK 950	180764	230 VAC	10 Nm	140 s	
LK 950	180931	230 VAC	5 Nm	280 s	incl. auxiliary switch
LK 950	180978	230 VAC	5 Nm	280 s	
LK 950	180972	230 VAC	5 Nm	280 s	incl. mounting kit for new ESBE valves
LK 950	180978	230 VAC	5 Nm	280 s	
LK 950	180765	24 VDC/AC	5 Nm	70 s	0 - 10V without cable
LK 950	180767	24 VDC/AC	5 Nm	35 s	0 - 10V without cable
LK 950 Standard mounting kit (accessory)	180739				delivered with all LK 950 unless otherwise indicated
LK 950 Mounting kit new ESBE (accessory)	180403				
LK 950 Mounting kit WITA (accessory)	180740				
LK 950 Auxiliary switch (accessory)	180741				



# LK 961 Compact Controller

Compact controller for hydronic radiator and underfloor heating applications.



## TECHNICAL DATA

Type of control	PI-control with microprocessor
Voltage	230 VAC 50 Hz
Power consumption	3 VA
Torque	5 Nm
Angle of rotation	90°, electrically limited
Heating curve	1 - 9, stepless
Parallel displacement	±10°C supply water temperature, stepless
Supply water limiter min.	+15°C - +35°C (Freeze protection)
Supply water limiter max.	+40°C - +90°C
Room sensor (LK 961 RB)	+12°C - +27°C
Remote control (LK 961 RC)	-9°C - +6°C
Manual override	Yes
Protection class, actuator	IP 40
Protection class, remote control	IP 20
Dimensions, actuator, WxDxH	80 x 90 x 93 mm
Weight	0.6 kg



## DESIGN

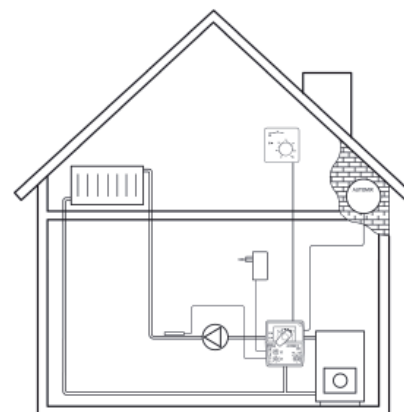
LK 961 fits directly onto a mixing valve and acts as a weather compensated heating controller. The LK 961 automatically adjusts the supply water temperature as the outdoor temperature changes. LK 961 includes a freeze protection feature and an adjustable minimum and maximum temperature limiter for the supply water temperature.

LK 961 includes:

- Valve actuator with built-in electronics
- Mounting kit
- Adapter 230/18 VAC 200 mA with 1.7 m cable
- Supply water sensor T1 with 1 m cable
- Outdoor sensor T2 with 15 m cable
- Room temperature sensor LK 961 RB with 15 m cable (optional)
- Temperature remote control LK 961 RC with 15 m cable (optional)

## FITTING/INSTALLATION

LK 961 is very easy to install as all cables are ready to connect without tools. The plug-in adapter provides quick and easy do-it-yourself installation saving on labor costs.



Article Type	Art. no.
LK 961 Weather compensated controller	180612
LK 961 RB Room temperature sensor (accessory)	180617
LK 961 RC Remote control (accessory)	180619

# LK 962 Electronic Temperature Controller

Electronic temperature controller for radiator and underfloor heating applications.

## TECHNICAL DATA

Type of control	PI-control with microprocessor
Voltage	230 VAC 50 Hz
Power consumption	3 VA
Torque	5 Nm
Angle of rotation	90°, electrically limited
Supply water limiter, min.	+5°C – +30°C, (Freeze protection)
Supply water limiter, max.	+20°C – +80°C
Room temperature setting	+5°C – +26°C
Night setback	7 or 9 hours
Temperature setback	1°C, 2°C or 3°C (room temperature)
Indication	Four LED indicators
Manual override	Yes
Protection class, room thermostat	IP 20
Protection class, actuator	IP 40
Dimensions, room thermostat, WxDxH	70 x 30 x 70 mm
Weight	0.8 kg

## DESIGN

LK 962 includes an electronic timer with night and day program, adjustments for minimum and maximum supply water temperatures and a freeze protection feature. All essential settings are adjustable at the room thermostat. LK 962 actuator fits directly onto the mixing valve and can easily be integrated into existing heating systems. LK 962 needs no outdoor sensor. It responds to all kinds of temperature changes in the house caused by e.g. solar heat through windows, strong winds etc. The microprocessor compensates for such changes in temperature which a system with an outdoor sensor cannot do. LK 962 is an advanced electronic temperature controller. Through impulses from the room sensor, changes in room temperatures are forwarded to a microprocessor which directs the actuator to set the mixing valve in the position that corresponds to the heat required in the building.

LK 962 includes:

- Room thermostat with micro processor, electronic timer with daily program facility, four LEDs for indication
- Valve actuator
- Mounting kit
- Adapter 230/18 VAC 200 mA with 1.7 m cable
- Supply water sensor T1 with 1 m cable
- Actuator cable 15 m
- Actuator cable 23 m (optional)
- Actuator cable 40 m (optional)
- Actuator cable 60 m (optional)



## FITTING/INSTALLATION

LK 962 is very easy to install as all cables are ready to connect without tools. The plug-in adapter provides quick and easy do-it-yourself installation saving on labor costs. LK 962 is easy to program and use.

Article Type	Art. no.
LK 962 Room temperature controller	180621
Actuator cable 23 m (accessory)	180095
Actuator cable 40 m (accessory)	180096
Actuator cable 60 m (accessory)	180097

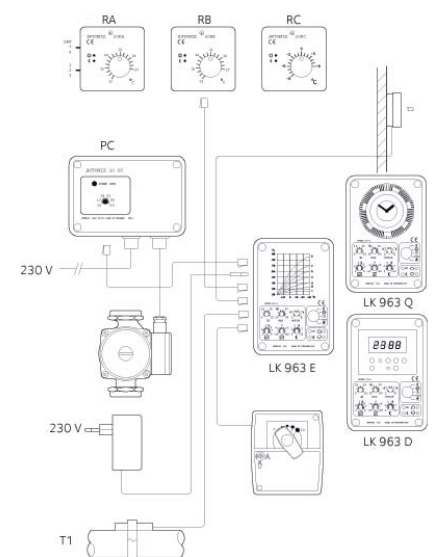
# LK 963 Electronic Temperature Controller

Electronic temperature controller for hydronic radiator and underfloor heating applications.



## TECHNICAL DATA

Type of control	PI-control with microprocessor
Voltage	230 VAC 50 Hz
Power consumption	4 VA
Torque	5 Nm
Angle of rotation	90°
Supply water limiter, min.	+5°C – +35°C (Freeze protection)
Supply water limiter, max.	+20°C – +90°C
Pump control (LK 963 PC)	+15°C – +25°C, outdoor temperature
Heating curve	1-9, stepless
Parallel displacement	± 10°C supply water temperature, stepless
Remote control (LK 963 RC)	-9°C – +6°C supply water temperature
Night setback	0 – +10°C supply water temperature
Room sensor (LK 963 RA/RB)	+12°C – +27°C, room temperature
Indication	Four LED indicators
Manual override	Yes
Protection class, controller	IP 40
Protection class, actuator	IP 40
Protection class, remote control	IP20
Dimensions, controller, WxDxH	90 x 75 x 130 mm
Weight	1.2 kg



## DESIGN

LK 963 is available in three designs with options: LK 963 E - electronic timer with 24 h program facility for night setback. LK 963 Q – quartz timer with daily and weekly program facility for night setback. LK 963 D - digital timer with daily and weekly program facility for night setback.

LK 963 has an automatic booster function after night setback. LK 963 includes adjustments for minimum and maximum supply water temperatures and has a freeze protection feature. It supports both left and right turning actuators. LK 963 has room temperature sensor, pump control with warm weather shut down and remote control as optional accessories.

LK 963 includes:

- Electronic controller LK 963 E, LK 963 Q or LK 963 D
- Actuator
- Mounting kit
- Adapter 230/18 VAC 200 mA with 1.7 m cable
- Supply water sensor T1 with 3 m cable
- Outdoor sensor T2 with 15 m cable
- LK 963 RA Room temperature sensor for LK 963 E with 15 m cable (optional)
- LK 963 RB Room temperature sensor for LK 963 Q/D with 15 m cable (optional)
- LK 963 RC Remote control with 15 m cable
- LK 963 PC Pump control with 2 m cable
- Sensor extension cable 5 m
- Sensor extension cable 10 m



## FITTING/INSTALLATION

LK 963 plug-in compact control unit is simple to install, program and operate. The main power supply and all sensors have plug-in connections which simplifies installation. The quick and easy installation saves on labor costs.

Article Type	Art. no.
LK 963 E – Electronic timer	180632
LK 963 Q – Quartz timer	180634
LK 963 D – Digital timer	180042
LK 963 RA - Room temperature sensor with 15 m cable for LK 963 E (accessory)	180043
LK 963 RB - Room temperature sensor with 15 m cable for LK 963 Q and D (accessory)	180044
LK 963 RC - Remote control with 15 m cable (accessory)	180045
LK 963 PC - Pump control 230 V 2 A with 2 m cable (accessory)	180046
Sensor extension cable 5 m, 4-pin plug-in connection (accessory)	180488
Sensor extension cable 10 m, 4-pin plug-in connection (accessory)	180489

# LK 964 & LK 965

## Electronic Constant Temperature Controller

Compact electronic constant temperature controller designed to operate 3- and 4-way mixing valves in underfloor heating, solid fuel and industrial applications.

### TECHNICAL DATA

Type of control	PI-control with microprocessor
Voltage	230 VAC 50 Hz
Power consumption	3 VA
Angle of rotation	90°, electrically limited
Torque	5 Nm
Temperature range	LK 964: 0 - +90°C, stepless LK 965: +10 - +80°C, stepless
Running time	140 seconds
Max. temperature of sensor	+110°C
Manual override	Yes
Indication	Two LEDs indicators
Protection class, actuator	IP 40
Protection class, remote control (LK 965)	IP 20
Dimensions, actuator, WxDxH	80 x 90 x 93 mm
Weight	LK 964 0.6 kg / LK 965 0.8 kg

### DESIGN

The supply water temperature can be selected steplessly from 0°C to +90°C with LK 964 and from +10°C to +80°C with LK 965.

LK 964 includes:

- LK 964 valve actuator with built-in electronics
- Mounting kit
- Adapter 230/18 VAC 200 mA with 1.7 m cable
- Supply temperature sensor T1 with 1 m cable

LK 965 includes:

- LK 965 valve actuator with built-in electronics
- Mounting kit
- Adapter 230/18 VAC 200 mA with 1.7 m cable
- Supply temperature sensor T1 with 1 m cable
- Remote control with 15 m cable

### FITTING/INSTALLATION

LK 964 and LK 965 fit directly on mixing valves in new as well as existing installations. Both versions are very easy to install as all cables are ready to connect without tools. The plug-in adapter provides quick and easy do-it-yourself installation saving on labor costs.

Article Type	Art. no.
LK 964 Constant temperature controller	180047
LK 965 Constant temperature controller with remote control	180049



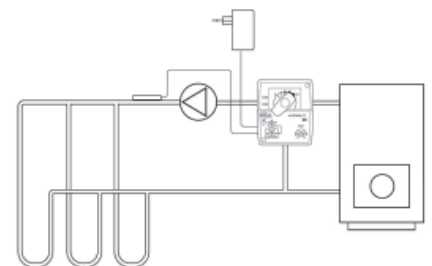
LK 964



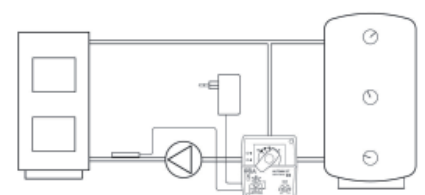
LK 965



LK 964 in an underfloor heating system



LK 964 in a solid fuel system



# LK 970 Differential Temperature Controller

Differential temperature controller and performance monitor for storage tank applications in which heat is returned from the storage tank to the heating boiler.



## TECHNICAL DATA

Type of control	On-off, microprocessor
Voltage	230 VAC 50 Hz
Power consumption	5 VA
Output relay max.	2 A / 400 VA
Max. temperature of sensor	+110°C
Max. media temperature	+110°C
Max. operating pressure	1.0 MPa (10 bar)
Length of sensors	T1 = 3 m, T2 = 5 m
Temperature display	+10°C – +110°C
Indicators	Five LED indicators
Thermic loading valve	Opening temperature +72°C
Check valve	With double acting flow
Protection class, electronics	IP 40
Dimensions, WxDxH	130 x 75 x 90 mm
Weight	Electronics 0.8 kg / Valve Set 2.1 kg

## DESIGN

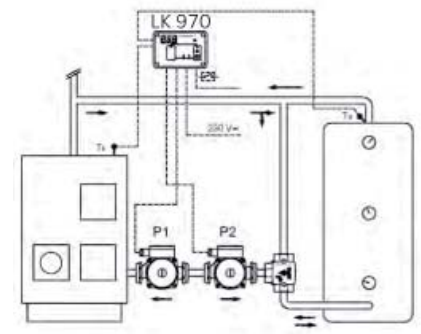
LK 970 controls both charging and heat return pumps. When the boiler is fired the storage tank is charged. When the fire has gone out and the temperature in the boiler sinks the heat return pump is automatically started. The flow back and forth from the storage tank is controlled so that the storage tank keeps its energy with a maintained stratification thanks to a specially designed thermic loading valve set and check valve with double acting flow.

LK 970 has a digital display for boiler and tank temperatures and a relay to automatically operate an additional heat source.

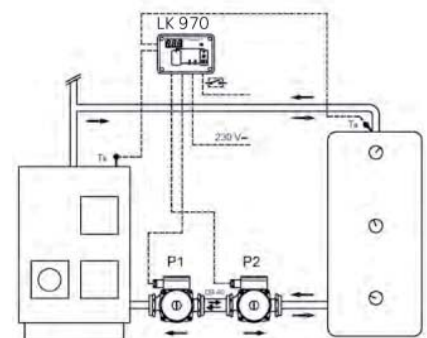
LK 970 includes:

- Electronic control unit TM1
- Two temperature sensors with 3m and 5m cables respectively
- Two sensor housings 90 mm with 1/2" thread
- LK 970 valve set with a thermic loading valve 72°C and three union valves (optional)
- Two circulation pumps Grundfos UPS 25-60 (optional)
- LK DB 40 double-acting check valve (optional)
- Sensor extension cable 5 m (optional)
- Sensor extension cable 10 m (optional)

Function with a thermic loading valve



Function with a double-acting check valve



## FITTING/INSTALLATION

The LK 970 plug-in control unit is simple to install as the sensor cables are ready to connect without tools. The quick and easy installation saves on labor costs.

Article Type	Art. no.
LK 970 Differential temperature controller without valve set	180466
LK 970 Differential temperature controller with valve set	180477
LK 970 Differential temperature controller with valve set and two circulation pumps	180479
LK 970 Differential temperature controller with LK DB 40 and two union valves Rp1"	180480
LK 970 Differential temperature controller with LK DB 40, two union valves and two circulation pumps	180834
LK 970 Valve set with thermic loading valve 72°C and three union valves Rp1" (accessory)	180476
LK 970 LK DB 40 double-acting check valve Rp 1½" (accessory)	180487
LK 970 Sensor extension cable 5 m, 4-pin plug-in connection (accessory)	180488
LK 970 Sensor extension cable 10 m, 4-pin plug-in connection (accessory)	180489

# LK 981 & LK 982 Solar Pump Units

LK 981 is a compact factory-assembled pump unit for solar heating installations.

## TECHNICAL DATA

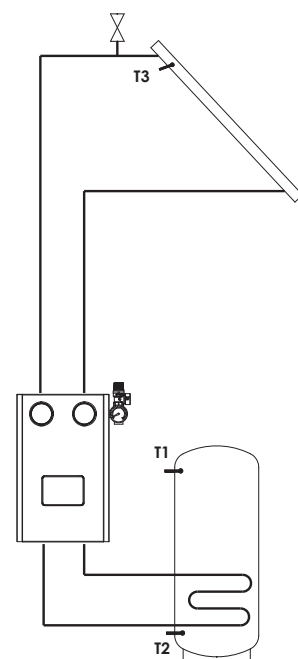
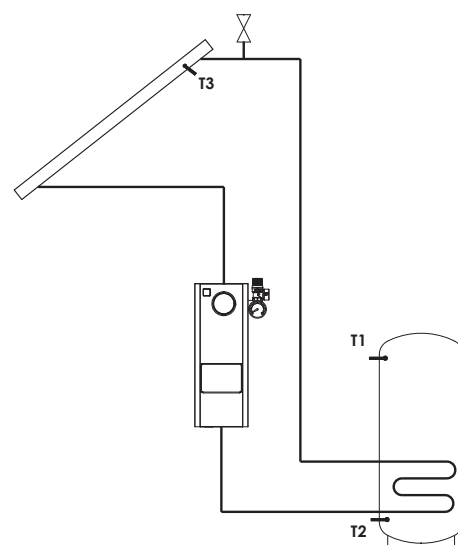
Voltage	230 VAC 50 Hz
Sensors	Collector sensor Tank sensor Extra sensor
Limitation of tank temperature	Tmax adjustable +20°C to +99°C
Max pressure	1,0 MPa (10 bar)
Operating pressure	0,6 MPa (6 bar)
Max temperature	120 °C (150°C short-term, 20 sec)
Connections	15 mm, 22 mm and 28 mm compression fitting. Connection for expansion vessel and filling/ drainage valve G 3/4"
Media	Water with antifreeze (propylene glycol 40-50 %)
Protection class	IP 40
Outer dimensions LK 981	435 x 217 x 191 mm (HxWxD)
Outer dimensions LK 982	464 x 330 x 192 mm (HxWxD)
Weight LK 981	10 kg
Weight LK 982	15 kg

## DESIGN

**LK 981** is a compact single-pipe solar pump unit, with an insulated casing of brushed stainless steel. It contains all the necessary components for a safe operation and control of the solar heating system.

**LK 981** consists of:

- Flow meter 2-12 l/min or 8-28 l/min with shut-off, filling and drainage valves, connection 15 mm, 22 mm or 28 mm compression fitting. Connections for filling G 3/4"
- Safety group 6 bar with pressure gauge 0-10 bar, connection G 3/4" for expansion pipe
- Circulation pump Grundfos Solar Low Energy 25/65
- Ball valve with blue-ring thermometer, 0-120 °C and built-in backflow preventer. Connections 15 mm, 22 mm or 28 mm compression fitting
- Integrated solar control with digital display and three sensors.



**LK 982** is a compact dual-pipe solar pump unit, with an insulated casing of brushed stainless steel. It contains all the necessary components for a safe operation and control of the solar heating system.

**LK 982** consists of:

Return pipe:

- Flow meter 2-12 l/min or 8-28 l/min with shut-off, filling and drainage valves, connection 15 mm, 22 mm or 28 mm compression fitting. Connections for filling G 3/4"
- Safety group 6 bar with pressure gauge 0-10 bar, connection G 3/4" for expansion pipe
- Circulation pump Grundfos Solar Low Energy 25/65
- Ball valve with blue-ring thermometer, 0-120 °C and built-in backflow preventer. Connections 15 mm, 22 mm or 28 mm compression fitting.

Supply pipe:

- Ball valve red-ring with thermometer 0-120 °C and built-in backflow preventer, connections 15 mm, 22 mm or 28 mm compression fitting
- Air separator with manual air vent connection 15 mm, 22 mm or 28 mm compression fitting

Integrated solar control with digital display and three sensors.

### FITTING/INSTALLATION

The LK 981 pump unit is connected at a suitable location to a solar collector return pipe.

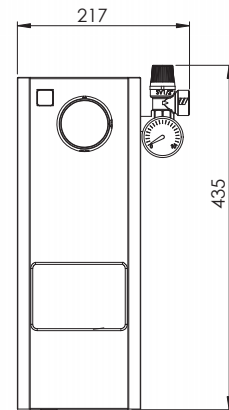
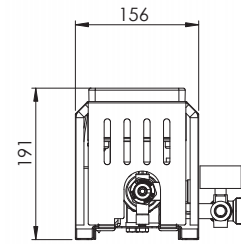
The LK 982 pump unit is connected at a suitable location to a solar collector supply and return pipe.

The discharge pipe from the safety valve is run to a heat resistant collection vessel.

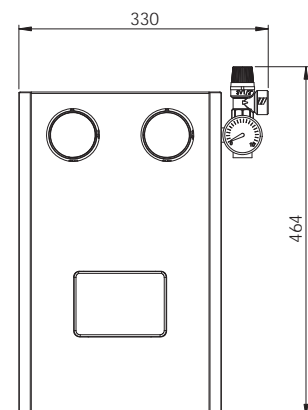
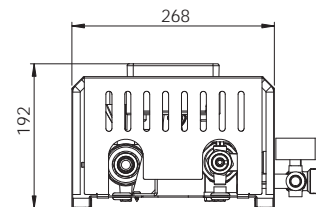
The electrical installation must be performed by a qualified electrician.

Article Type	Art. no.	l/min	Connection
LK 981	181099	2-12	15 mm
LK 981	180987	2-12	22 mm
LK 981	180989	8-28	28 mm
LK 982	181100	2-12	15 mm
LK 982	180986	2-12	22 mm
LK 982	180988	8-28	28 mm

LK 981



LK 982



# The LK Group

- four business areas



## Heating & Plumbing

**LK Systems** is one of Scandinavia's leading heating and plumbing suppliers and provides systems developed by the company itself for water heating, underfloor heating, tap water and radiator heating. The company is a market leader in several of these areas. LK Systems AS, LK Systems OY and LK Systems Ltd. are independent companies in Norway, Finland and the UK.

**LK Prefab** designs and manufactures prefabricated constructions for drains as well as piping for heating and tap water. The products are used primarily in new constructions where they save time and labour during installations.



## PEX-Pipes

**LK Pex** – High-tech manufacturing of plastic pipes in PEXa-quality. The pipes are provided to the heating and plumbing industry throughout the world. LK Pex also supplies sister companies with PEXa-pipes for their production of underfloor heating and water installations.



## Industrial & Marine Valves and Strainers

**LK Valves** develops and manufactures industrial valves, filters and actuators for the global marine industry. A production plant, **LK Valves Co.Ltd.**, has been established in Changzhou, China as well as a sales office, **LK Valves Asia Pte.Ltd.**, in Singapore.



## Technical Armature

**LK Armatur** is Scandinavia's leading manufacturer of valves, components and prefabricated heating, water and sanitation products for the European OEM market. In addition to designing and manufacturing its own products the company also markets a complementary range of trade products. LK Armatur's products are mainly used for water heating systems, heating installations and equipment for hospitals and large kitchens. There is also an energy-saving range that is used in all kinds of hydronic heating systems.

A production facility for the prefabrication of pipes, **LK Armatur d.o.o.**, has been established in Zrenjanin, Serbia.

