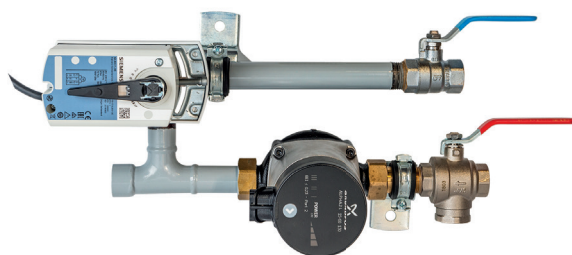


***GEBWELL***

## Installation Manual

### Heating Control Group LSR Si



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## GENERAL

LSRSi is a wall-mounted heating control group intended for the heating control of the heating system's secondary circuit. The heating control group is delivered as a complete package, which makes installation easy.

The heating control group makes precise regulation of heat in the heating system of the building possible with the help of the room temperature and the supply temperature sensor.

The heating control group must be dimensioned to meet the needs of the heating system. As standard, a heat pump can control one additional control group (mixing heating circuit). If more heating control groups are needed, the AVS expansion module available as an accessory is to be installed to the heat pump.

## CONTENT OF THE DELIVERY

The heating control group contains the following components:

- Circulating pump
- 3-way mixing valve
- Mixing valve actuator
- Supply temperature sensor
- Cable tie for attaching the sensor
- Wall brackets
- Fixing screws, 4 pcs
- Spare seals for the pump, 2 pcs
- Dirt separator (filter)
- Supply flow shut-off valve
- Return flow shut-off valve
- Draining/airing shut-off valve \*

\* not included in the LSRSi1 delivery

## TEMPERATURE SENSOR

The supply temperature sensor (GW1175243A) is installed behind the 3-way control valve in the supply pipe. The sensor must be insulated to prevent external thermal effect.



## TEMPERATURE/RESISTANCE TABLE:

LT °C	NTC 10 / Ω	LT °C	NTC 10 / Ω
120	389.0	25	10000.0
100	680.0	20	12490.0
90	917.7	15	15710.0
80	1258.0	10	19900.0
75	1480.0	5	25400.0
70	1752.0	0	32650.0
65	2082.0	-5	42340.0
60	2488.0	-10	55330.0
55	2968.0	-15	72980.0
50	3603.0	-20	97070.0
45	4368.0	-25	130400.0
40	5327.0	-30	177000.0
35	6532.0	-40	336500.0
30	8057.0	-50	670100.0

## CONNECTIONS / DIMENSIONS

	A Heat supply (shut-off valve)	B Heat return (shut-off valve)	C Heating group supply (3-way valve)	D Heating group return (T connector)	Weight kg
LSR SiQi	¾" it	¾" it	¾" it	¾" it	5
LSR Si KV4	¾" it	¾" it	¾" it	¾" it	5
LSR Si KV6,3	1" it	1" it	¾" it	1" it	20
LSR Si KV10	1 ½" it	1 ½" it	1" it	1 ½" it	20
LSR Si KV16	1 ½" it	1 ½" it	1 ¼" it	1 ½" it	20
LSR Si KV25	2 ½" it	2 ½" it	1 ½" it	2 ½" it	35
LSR Si KV40	2 ½" it	2 ½" it	2" it	2 ½" it	38

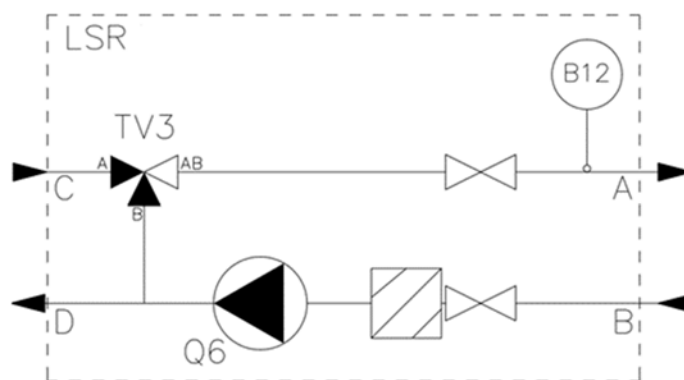
it = inside thread

A = Heat supply (heating circuit), shut-off valve

B = Heat return (heating circuit), shut-off valve with a filter

C = Supply from the heat pump (hot), 3-way mixing valve

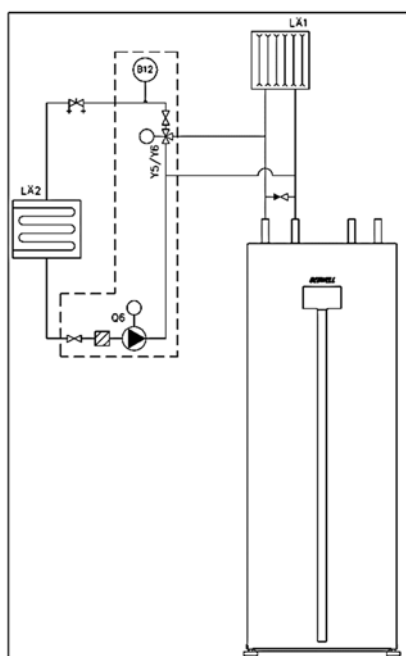
D = Return to heat pump (cold)



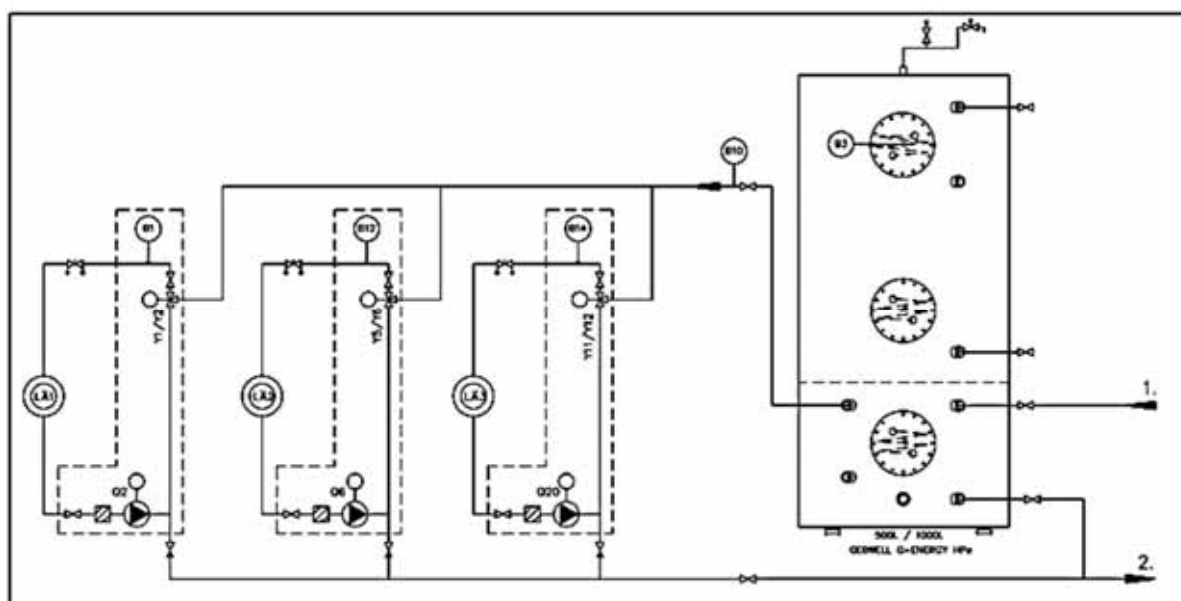
## PRINCIPLE DIAGRAMS

The diagrams below indicate the principle. To see the connection of the heating groups, see the HVAC designer's diagram.

### CONNECTION TO QI HEAT PUMP:



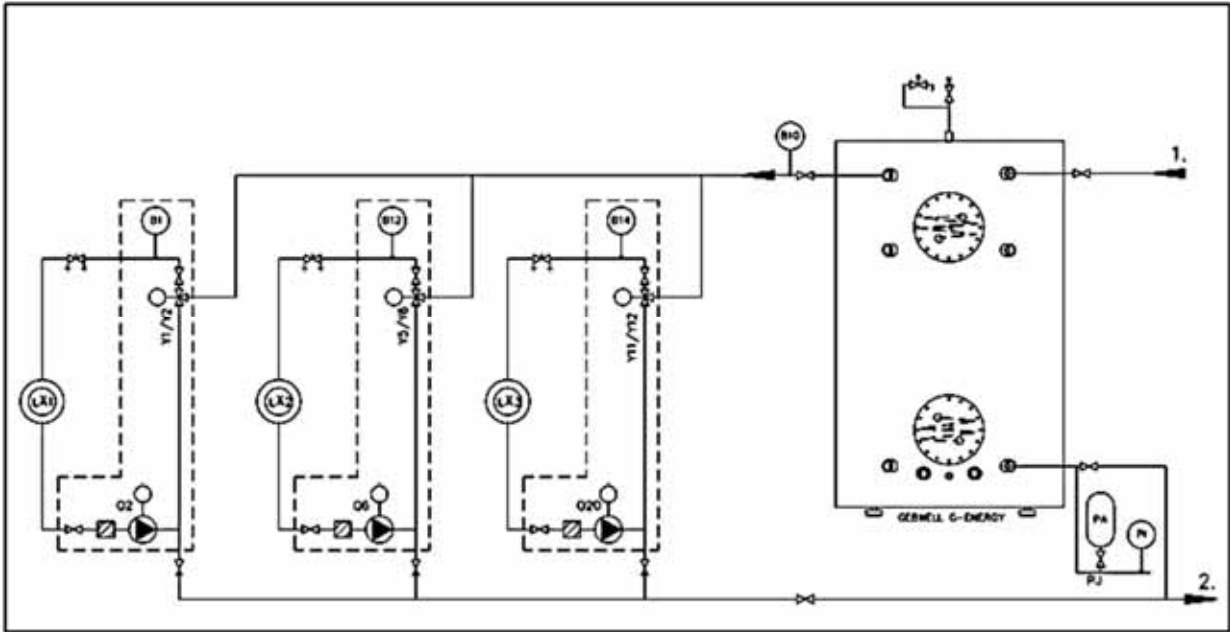
### CONNECTION TO HPE ACCUMULATOR:



1 = To the accumulator from the heat pump

2 = Return to heat pump

## CONNECTION TO G-ENERGY ACCUMULATOR:



1 = To the accumulator from the heat pump

2 = Return to heat pump

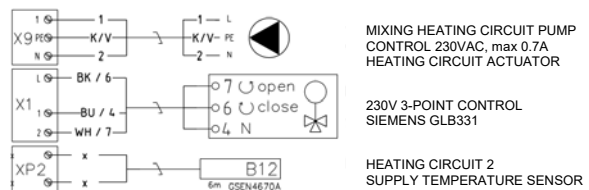
## ELECTRIC DIAGRAMS

The first mixing circuit is always connected to the heat pump's RVS controller.

The second mixing circuit requires the CONTROL EXTENSION FOR EXTRA HEATING CIRCUIT (LVLPO1A) accessory (LVLPO1A includes the AVS expansion module) to which you connect the circulating pump, actuator and supply temperature sensor of the second mixing circuit.

If the system has several heat pumps (cascaded system), the control groups are primarily connected to the RVS controllers of each device. If there are more mixing circuits than heat pumps, the devices must be equipped with the HEATING CIRCUIT CONTROL accessory.

- Insert plug X1 of actuator Y5/Y6 in the control centre socket.
- Insert plug XP2 of supply temperature sensor B12 in the control centre socket.

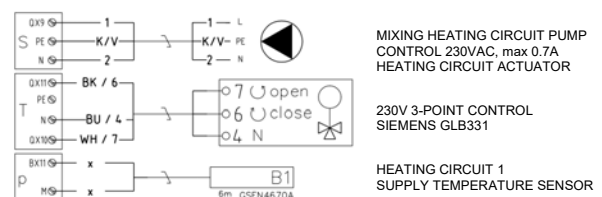


## CONNECTION TO THE RVS 61 CONTROLLER: (GEMINI, T2, TAURUS)

### CONNECTION TO QI HEAT PUMP:

**NOTE!** The heating group must be set in the heat pump's controller. Refer to the Qi heat pump's *Installation, Operation and Maintenance Manual*.

- Insert plug X9 of pump Q6 in the control centre socket. Start the pump with the control centre's switch F4.



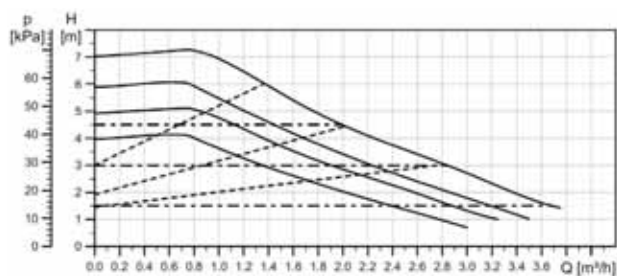
## PUMP AND PRESSURE LOSS CURVES

For instructions on the pump, see the manufacturer's operating instructions supplied with the delivery.

### LSRSI1:

GRUNDFOS UPM3 15-70, 230V, 50/60HZ

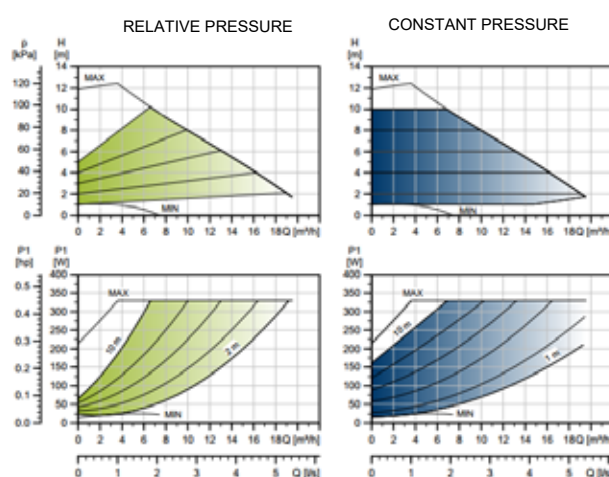
Speed	P1 (W)	I (A)
Min.	5	0.05
Max.	45	0.38



### LSRSI5 / LSRSI6:

GRUNDFOS MAGNA 3 32-120F, 230V, 50/60HZ

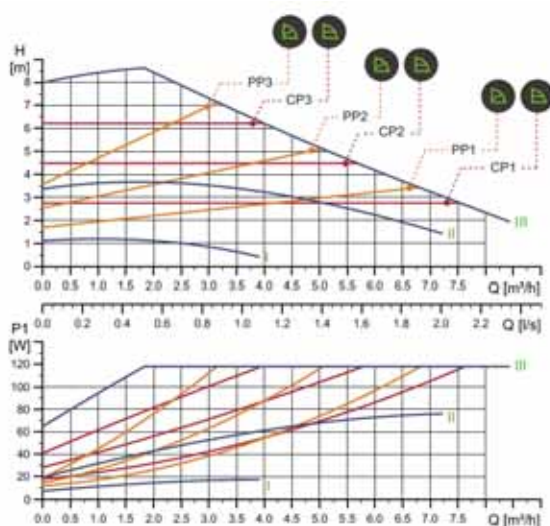
Speed	P1 (W)	I (A)
Min.	15	0.18
Max.	336	1.50



### LSRSI2 / LSRSI3 / LSRSI4:

GRUNDFOS MAGNA 1 25-80, 230V, 50/60HZ

Speed	P1 (W)	I (A)
Min.	8	0.08
Max.	119	0.96



## 3-WAY MIXING VALVE



### TYPE:

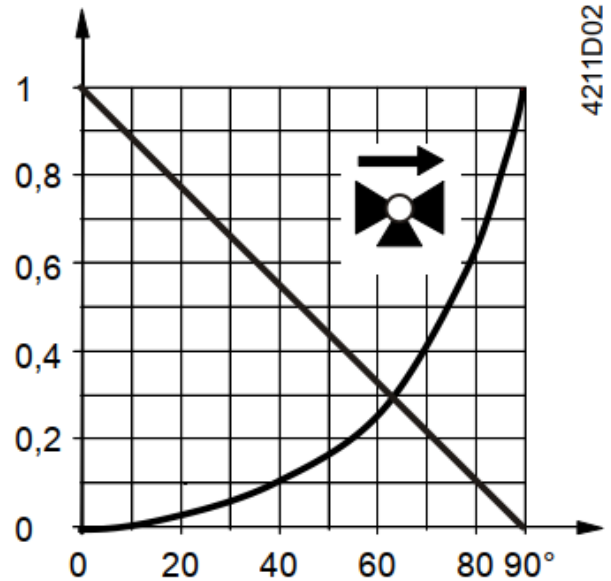
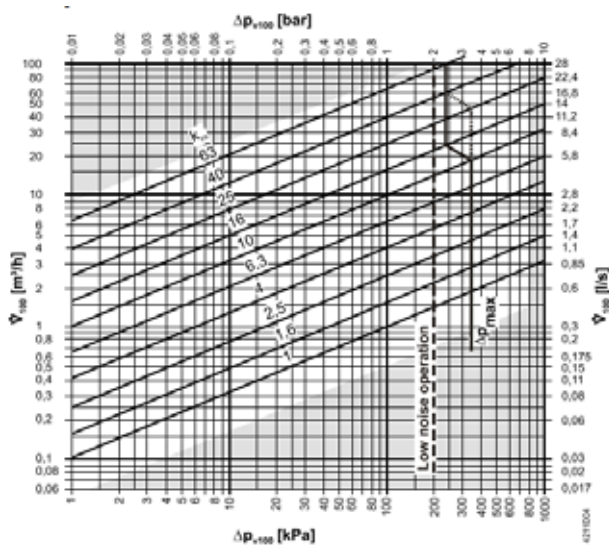
	Mixing valve	DHW
LSRSi1	VBI61.20-4	4.0
LSRSi2	VBI61.20-6,3	6.3
LSRSi3	VBI61.25-10	10.0
LSRSi4	VBI61.32-16	16.0
LSRSi5	VBI61.40-25	25.0
LSRSi6	VBI61.50-40	40.0

### OPERATING PRINCIPLE:

The adjustment ball valve is controlled with a rotating actuator. The actuator moves the ball in the valve according to the adjustment signal. The valve opens clockwise and closes counter clockwise.

### CHARACTERISTIC:

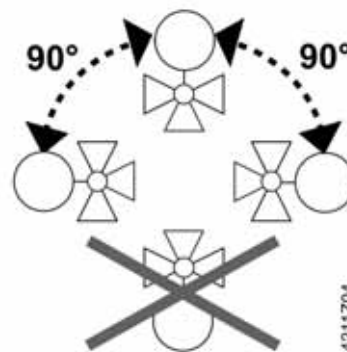
Flat characteristic curve due to a flow adjustment plate.



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### RECOMMENDED INSTALLATION POSITIONS:

The ball valve can be installed vertically or horizontally. The valve must not be installed with the stem down.



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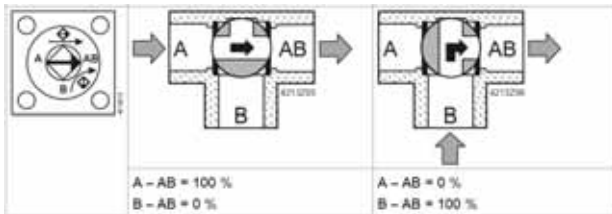
### QUALITY REQUIREMENTS FOR THE FLOW SUBSTANCE:

The quality of the flow substance must conform to VDI 2035. Adjustment ball valves are adjustment devices. The use of dirt separators and filters is recommended so as to retain the adjustment characteristics of the valves.



## FLOW DIRECTION:

The direction of flow indicated with an arrow on the valve must be adhered. Make sure the ball is in the right position (indication on the stem).



## MIXING VALVE ACTUATOR

A GLB-type actuator is used in the heating groups.

The valve's manually turned lock is preinstalled in the actuator. Once the electrical connection is made, it is immediately ready for use. The motor is controlled with three-point control. At its mechanical limit, the limit switch automatically disconnects the control voltage.

If the actuator is moving the wrong way, reverse the direction with the controller's connector (QX10/QX11 or QX21/QX22).

## MAINTENANCE

### CLEANING THE FILTER:

Clean the return-side filter in the heat distribution pipe network when necessary.

**CAUTION!** Be careful not to burn yourself. The water in the strainer can be hot.

1. Close the maintenance shut-off valve.
2. Open the filter cap.
3. Remove the filter gauze.
4. If necessary, rinse under running water.
5. Replace the filter and close the cap.
6. Open the maintenance shut-off valve.

### 3-WAY MIXING VALVE:

The valves and actuators are maintenance-free. Before carrying out maintenance, it is important to disconnect the valve actuator from the power source (disconnect the power cable). The pipeline pumps must be deactivated and the appropriate shut-off valves must be closed (let the parts cool down first, if needed, and reduce the system's pressure to the ambient level). The system must not be activated again before the ball valve and the actuator have been reinstalled according to their instructions and the pipeline has been filled appropriately.

### CIRCULATING PUMP:

For the maintenance instructions of the circulating pump, see its manual.

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