

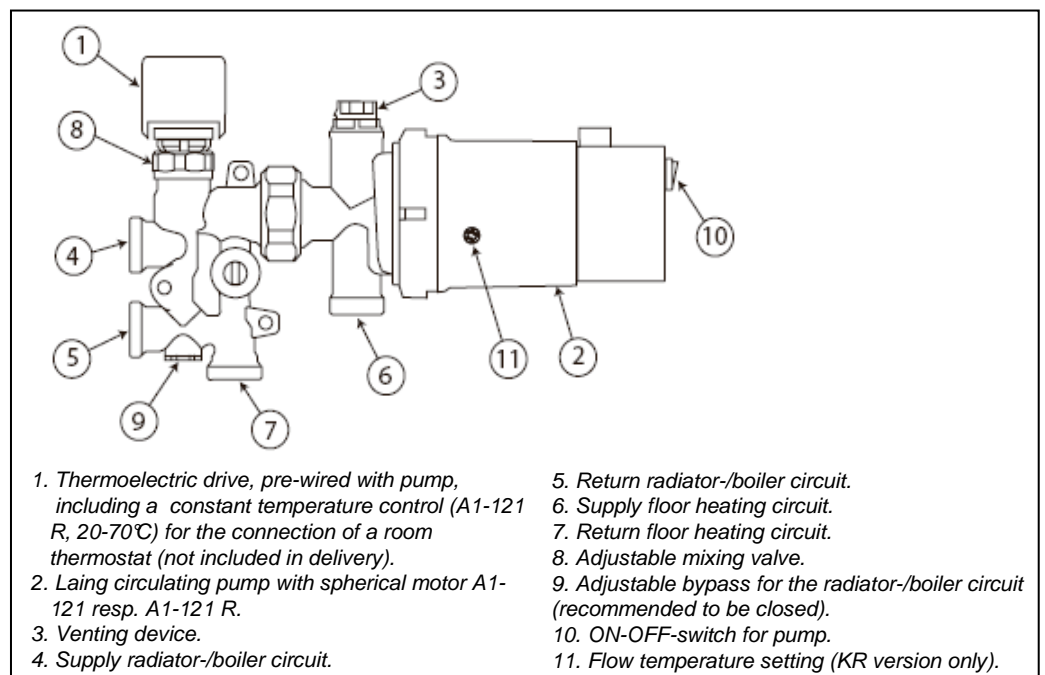


## MR2A Mini Mixing Valve & Pump Station

### Application

The MR2A mixing valve is designed to supply floor heating areas up to approx. 40 m<sup>2</sup> (from pipe 16x2 mm onwards) in one- or two-pipe-systems. The connection of up to 2 floor heating circuits is possible.

The MR2A mixing valve is provided with a temperature protection system that restricts the supply temperature in the floor heating circuit to max. 55°C.



### Mounting Instructions

The MR2A is connected directly to the existing radiator-/boiler circuit.

When two circuits are connected to the MR2A, the shortest circuit must be balanced by using an adjustable return screw connection.

The MR2A can be supplied pre-mounted in a flush mounted cabinet for wall opening (WxHxD: 40x33x11 cm) or pre-mounted in a surface mounted cabinet.

The MR2A must be installed on a higher level than the floor heating installation.

Ensure that the pre-pressure to MR2A from the radiator-/vessel circuit is minimum 10 kPa (1 m). Before running the MR2A please check, that the floor heating system is filled, pressure tested and completely purged of air.

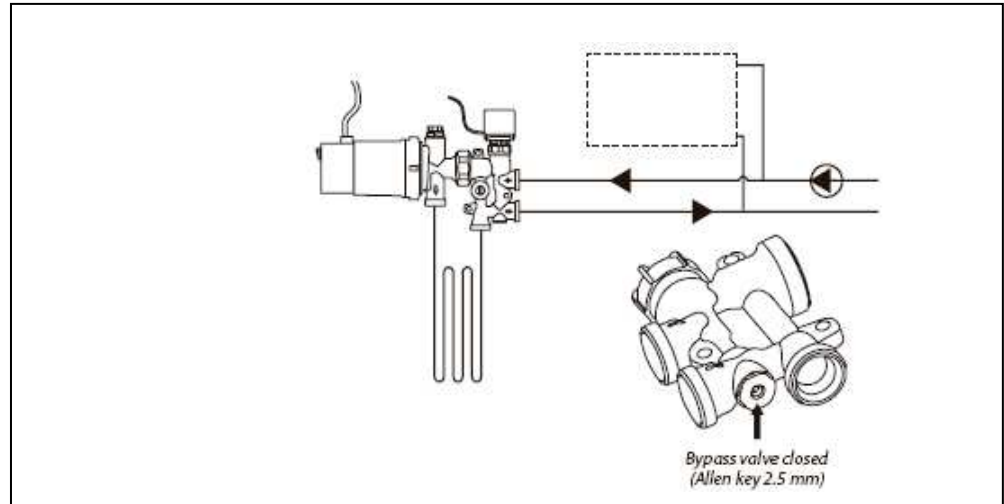
Since the circulation pump might create some flow noise under certain circumstances, the MR2A unit should be placed away from noise sensitive areas (i.e. bedrooms).

The water temperature in the supply radiator / boiler circuit should be at least 10 K higher than in the floor heating supply. The maximum length of each pipe must not be longer than 100 m for floor heating design with spread of 10 K, when using pipes 12 mm i.d. (i.e. pipe 16x2). Smaller diameter pipe results in a shorter pipe length.



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### Hydraulic connection of two-pipe systems



It is mandatory to flush the floor heating loops before putting the system in operation, because otherwise malfunction or damage to the pump may result. We recommend using two fill valves on the primary side of the MR2A, as shown in picture 2. Alternatively, the system can be filled using fill valves installed elsewhere in the system.

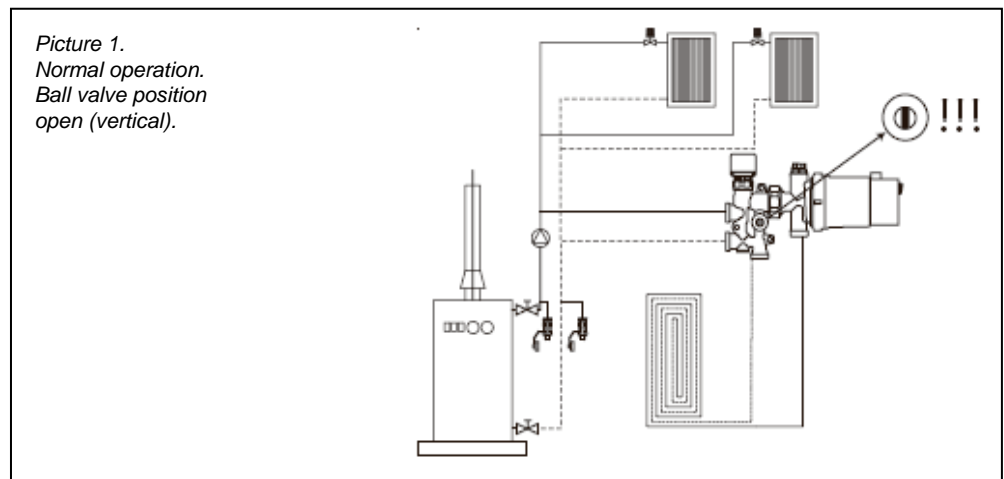
In any case, it is necessary to positively flush the system since otherwise the air in the system will not be purged completely.

Filling the system via the integrated manual air vent (see picture 4) is not possible!

Please observe the position of the ball valve in the bypass. If this is in the vertical position, the floor heating loops are hydraulically uncoupled

from the boiler loop. This position is ideal for normal operation (see picture 1), since the pump in the heating loop does not influence the floor heating loop. With the valve in this position, however, the floor heating system cannot be filled from the primary side. To fill the floor heating loops from the heating loop side, this ball valve must be closed (horizontal) – see pictures 2 and 3. After filling, the valve must be opened again (vertical position). Please observe that when filling from the primary side radiator valves on that side should be closed in order to have maximum pump pressure available for purging the floor heating loops.

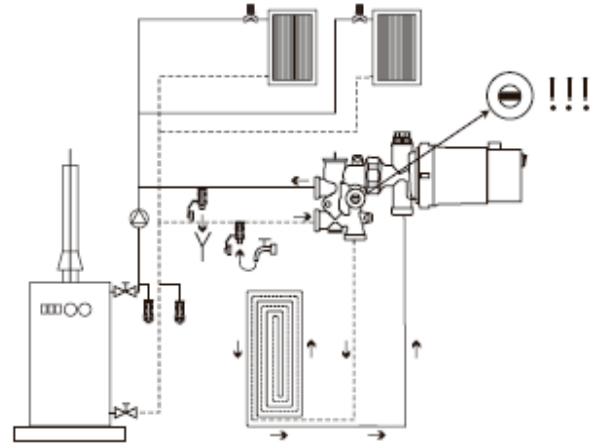
*Picture 1.  
Normal operation.  
Ball valve position  
open (vertical).*



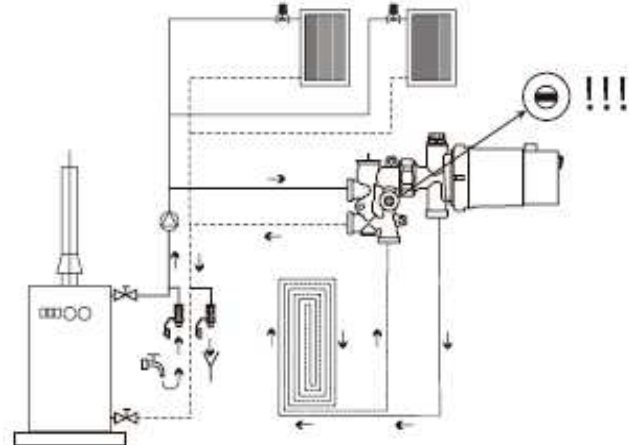


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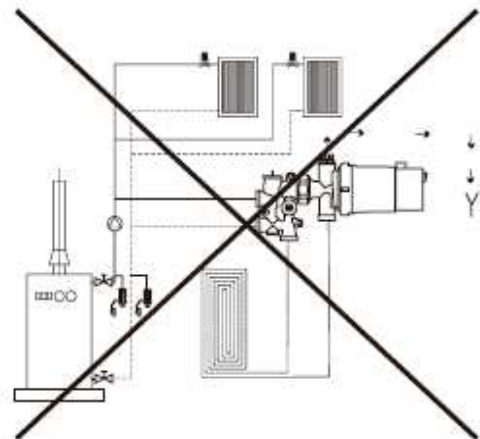
*Picture 2.  
Recommended filling of the system. Two fill valves on the primary side of the FH-MJB / FH-MJC allow for an easy filling and purging of air in the floor heating loops. The ball valve position must be closed (horizontal).*



*Picture 3.  
Good filling option. Two existing fill valves on the primary side allow for good filling and air purging. The ball valve position must be closed (horizontal).*



*Picture 4.  
Filling the system in this way is impossible since no forced flushing can be assured.*





## MR2A Mini Mixing Valve & Pump Station

### Starting of operation without given values

Remove protection cap / thermostatic head / electric drive from the MR2A - see page 14, picture 1.  
 Increase the supply temperature from the radiator-/boiler circuit to the designed value (normally 55-60°C). To perform the adjustment check, the room temperature has to be at least 20°C. If not, the system has to be run until the temperature increases.

Check the floor heating supply temperature. It should be about 35-40°C. If it is too high, the flow from the primary supply has to be adjusted (reduced) - see page 14 picture 3. The MR2A will be delivered from factory with fully opened mixing valve. We recommend an adjustment in small steps (1/2 turn). After each adjustment the floor heating supply temp

### Starting of operation with given values (pre-setting)

Example:

Given values:

Heat requirement of underfloor heating system . . . . . 2000 Watt

Supply temperature of radiator-/boiler system . . . . . 70°C

Return temperature of underfloor heating system. . . . . 40°C

Difference pressure of the radiator-/boiler circuit . . . . . 10 kPa

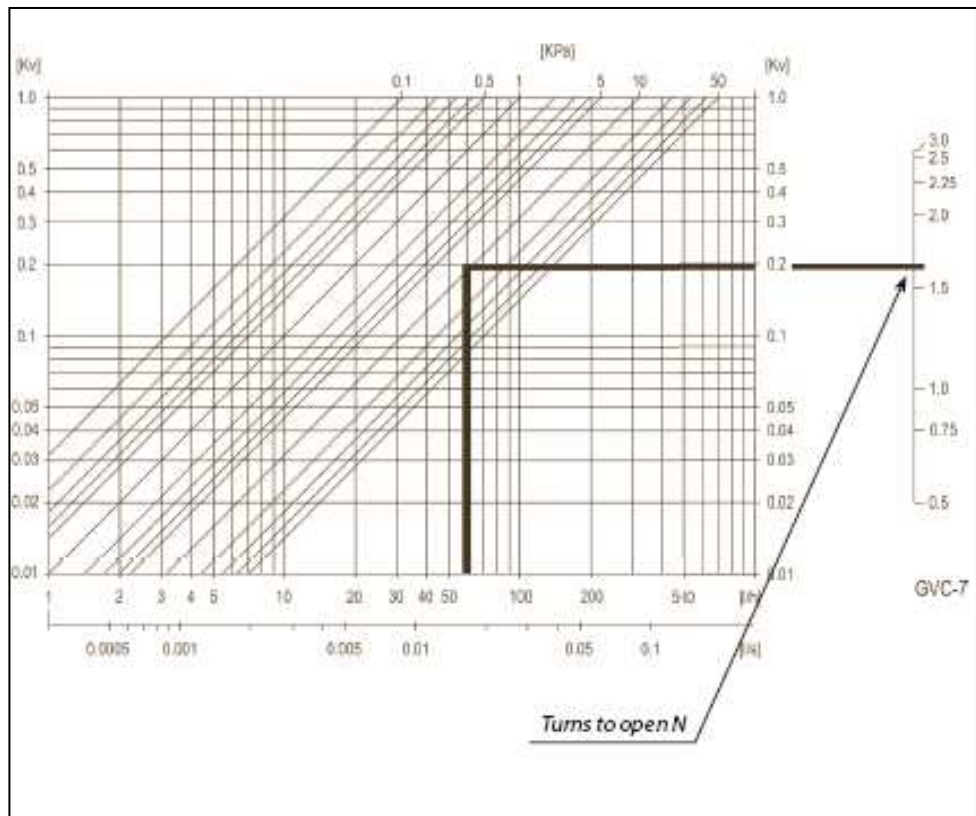
Specific heat capacity of water . . . . . 1.163 W/(Kg x K)

Wanted values:

Flow from the radiator-/boiler circuit:  $m = Q / (c \times \Delta T) = 2000 \text{ W} / (1.163 \text{ W}/(\text{kg} \times \text{K}) \times 30 \text{ K}) = 58 \text{ l/h}$

Pre-setting:

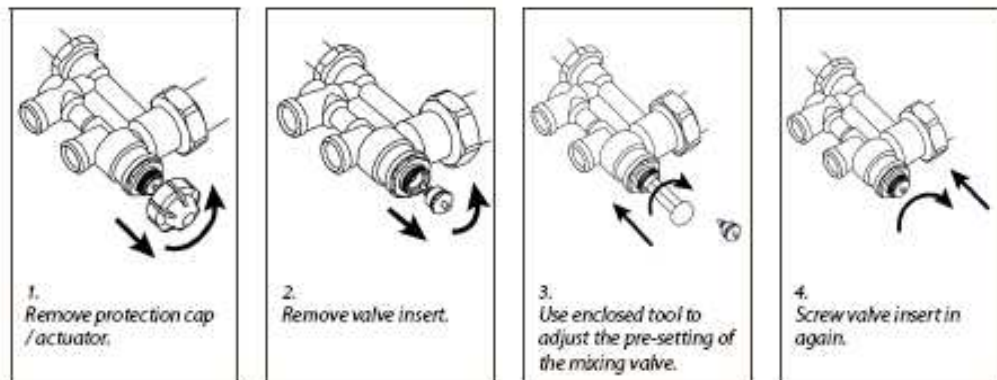
If the differential pressure from the radiator-/boiler circuit at the inlet and outlet of the FH-MJB / FH-MJC is 10 kPa and the flow requirement of the FH-MJB / FH-MJC is about 60 l, the mixing valve pre-setting has been opened by 1.6 turns.





## MR2A Mini Mixing Valve & Pump Station

### Replacing the valve insert

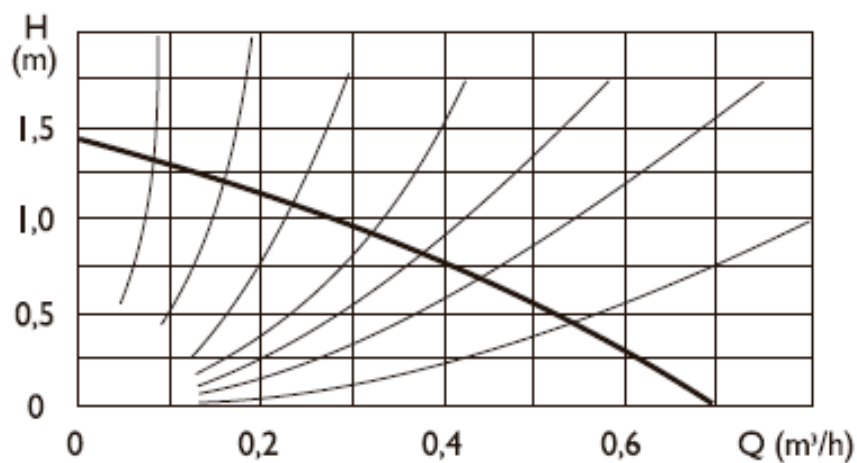


### Dimensions

The MR2A is supplied pre-mounted into a cabinet for flush mounting.  
 Dimensions (WxHxD), cm: 44,5 x 38,5 x 11,5  
 Wall opening (W x H x D), cm: 40,0 x 33,0 x 11,0 or is supplied pre-mounted into a cabinet for surface mounting. Dimensions (WxHxD), cm: 41,5 x 31,5 x 11,5



### Pump curve





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### Electrical connections

