

# Connection and Commissioning

**Notice:** Use only original WEM® connecting pipes, press-fit fittings as well as WEM® press jaws! Otherwise, wall warranty claims will be excluded. Use press-fit screw fittings for transitions to other systems. Ambient temperature > 5°C

## Press-fit connection

Cut the WEM Composite Pipe to the required length using a pipe scissor. The cut should be orthogonal to the pipe axis.

Widen and chamfer the pipe end to which you want to fix the press-fit fitting with the combined calibrating and chamfering tool.

Check the inner pipe wall subsequently for a uniform circumferential chamfer.

Push the WEM Press-Fit Fitting onto the clean, calibrated and deburred pipe end until it stops. Check the correct position of the fitting via the little opening on the pressing sleeve

Apply the pressing plyers in a right angle to the fitting. The pressing process is finished when the motorised tool switches off automatically, or, with hand-lever pliers, when you reach the stop.

The press fit is correct when the diameter measured in the central pressing groove is between 16.0 and 16.3 mm.



### Euro cone screw connection

Cut the pipe to length, deburr and calibrate it as described above in step 1 and 2.

Push subsequently the spigot nut and the compression ring, one after the other, onto the pipe.

Push the fitting body into the pipe until it stops.

Plug the threaded part into the counterpart and tighten the spigot nut with a torque of 40 Nm. Make sure not to pull the pipe out of the fitting sleeve when tightening the nut.



Seal unused manifold connections with safety caps.



### Flushing and venting

After connecting all heating circuits to the manifold, flush them individually, one after the other. Shut off all heating circuits with exception of the one to be flushed by disconnecting the motorized actuators (NC) from the power supply or by closing the valves with the hand dial. The ball valves on the supply and return bars shall be closed during flushing.

Fill the heating circuit that you want to flush with water using the fill-and-drain valve. The water runs out at the fill-and-drain valve of the return flow. Carry on flushing until the water jet running out of the return valve is completely clean and without air bubbles. Close the fill-and-drain valve of the return flow.

Upstream of the fill-and-drain valves, automatic air vents are fitted. When filling the heating system for the first time, some water may come out of the air vents. After some seconds, the venting valves seal automatically and the water flow ceases.

*Never tighten the knurled bolt of the air vent with pliers!  
Open the valves slowly by turning the dials to avoid pressure surges, which might cause jamming of the valves.*

*Flush every single heating circuit with utmost care to remove all dirt and residues of the assembly work from the pipes. Always flush and vent newly installed heating circuits separately.*

Close the heating circuit after flushing and repeat the procedure on all other heating circuits as described above.

#### **Pressure test**

Perform the pressure test before commencing any plaster work. The pressure test shall be performed in accordance with the Pressure Test Protocol (see chapter 4.6.) and shall be documented in the protocol.

If there is a risk of freezing, take the necessary precautions to prevent freezing of the pipes.

If you cannot detect any leakage after 24 hours, neither on the wall heating panels, nor on the connecting pipes or manifold connections and if the test pressure is still constant with a max. loss of 0.1 bar, the pressure test is deemed to be completed successfully.

Warning note: High temperature variations during the test may falsify the results.

Work steps for the pressure test:

1. Close the ball valve on the heating manifold.
2. Flush, fill and vent the heating circuits individually.
3. Apply a test pressure of five to six bars.
4. Refresh the test pressure after two hours (pressure drop due to pipe expansion may occur);  
testing time: 24 hrs.

## Hydraulic balancing

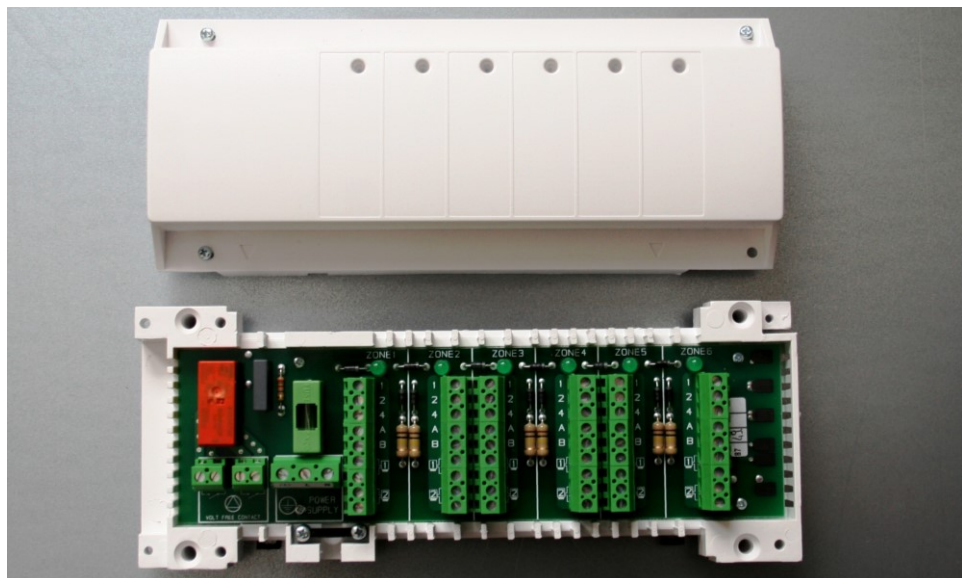
The General Technical Conditions of Contract for the Execution of Building Works VOB/C – DIN 18380 require hydraulic balancing of heating circuits to ensure the energy-efficient operation of the heating system. Hydraulic balancing of the individual heating circuits is achieved by adjusting the volume flows at the flow meters on the manifold. The purpose is to adjust the designed temperature spread, which ensures an efficient operation of the respective heat generator. The values to be adjusted shall be calculated specifically for the existing installation by an expert engineer or a specialist heating contractor.

Do not hesitate to contact WEM Wandheizung GmbH or one of our regional partners to enquire set values for the rough balancing of the volume flows in the manifold.

## Electrical connection

Use cables of the type NYM 3 x 0.75 m<sup>2</sup> or with greater sections for the wiring of the motorized actuator and the room thermostat.

A wiring module facilitates the connection considerably. The Master Wiring Module provides for the connection of up to six room thermostats with up to four motorized actuators each (up to 24 motorized actuators in total). The Slave Wiring Module allows the connection of four additional thermostats with four motorized actuators each (16 additional motorized actuators in total). The wiring module supports also the control of the heat generator or of a pump, such as that of the pump mixing unit.



A radio transmitter and a programmable timer are available as accessories.

The components should be connected by a specialist electrical contractor in accordance with VDE guidelines. The assembly instructions and component descriptions are to be observed.

**Controlling the indoor temperature**

WEM® Radiant Wall Heating systems are typically controlled via room thermostats. The German Energy Saving Ordinance EnEV requires an automatic indoor temperature control in each room.

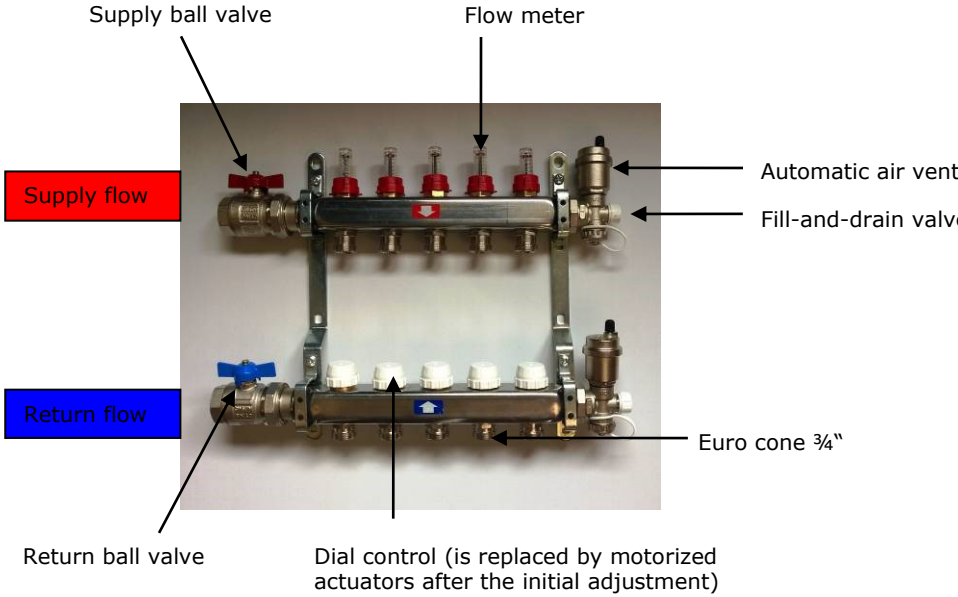
The room thermostat activates and deactivates one or more actuators on the heating manifold depending on the current indoor temperature. The actuators open and close the connected heating circuits as required. Consider the following criteria when determining the location of room thermostats:

The room thermostats should not be influenced by foreign energies. Therefore, you should not install them next to or above a heat source (wall heating panels, radiators etc.). They should have a distance of at least 20 cm to wall heating panels! Exposure to direct sunlight should be avoided!

**Heating manifold**

WEM® Heating Manifolds provide for the central distribution of heating and cooling water over the individual heating circuits in each storey. They are fully factory-assembled and fitted with all necessary components. This saves time-consuming assembly and sealing work. On the centrally installed WEM® Heating Manifold, the automatic control and the hydraulic balancing of the wall heating panels is performed.

The illustration below shows all different components of the heating manifold:





### Combining wall heating with radiators

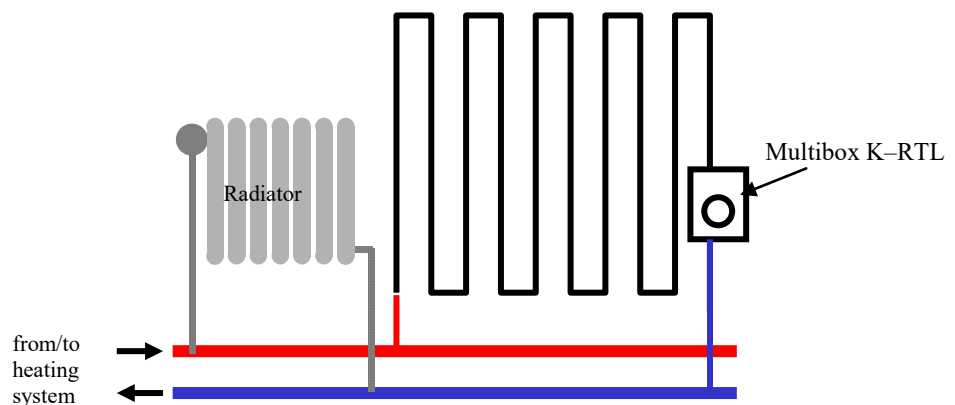
If WEM Wall Heating Panels should be integrated in systems with radiators, the current system temperatures must be lowered for the panel heating system. If only two heating circuits need to be operated with lower temperatures, we recommend installing a return temperature limiter (RTL valves) in the return flow of the wall heating system.



*Please note the following:*

The installation of a Multibox requires profound knowledge of the existing hydraulic system. We recommend entrusting a specialist company with the installation.

On the RTL valve, you can limit the return temperature of the wall heating system to values between 10 °C to 50 °C (factory setting is 40°C). The RTL valve is an automatic temperature controller that needs no power supply. When the return temperature reaches the set value, the valve closes. It opens when the temperature falls below the desired value. Return temperature limiters are fitted with an additional room thermostat, to allow the control of an individual room.



If more than two heating circuits require lower return temperatures, RTL valves are no longer appropriate for reasons of hydraulics. In this case, a pump mixing unit is used. In addition to the mixing valve for the lowering of the system temperature, it is fitted with an additional circulation pump, which ensures safe and reliable operation, especially in existing installations with many unknown components.

Control range: 20 to 70°C  
Thermal rating: 14 kW approx.  
Max. operating pressure: 6 bars  
Pump: Grundfos Alpha 2 15-60

