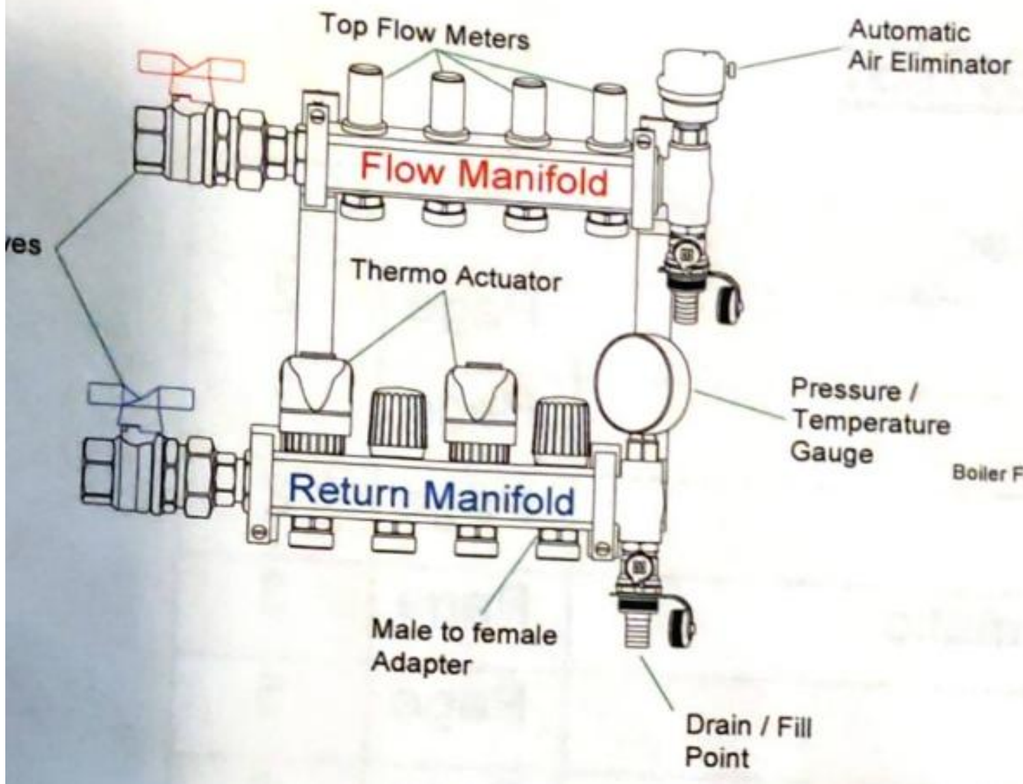
About the manifold:

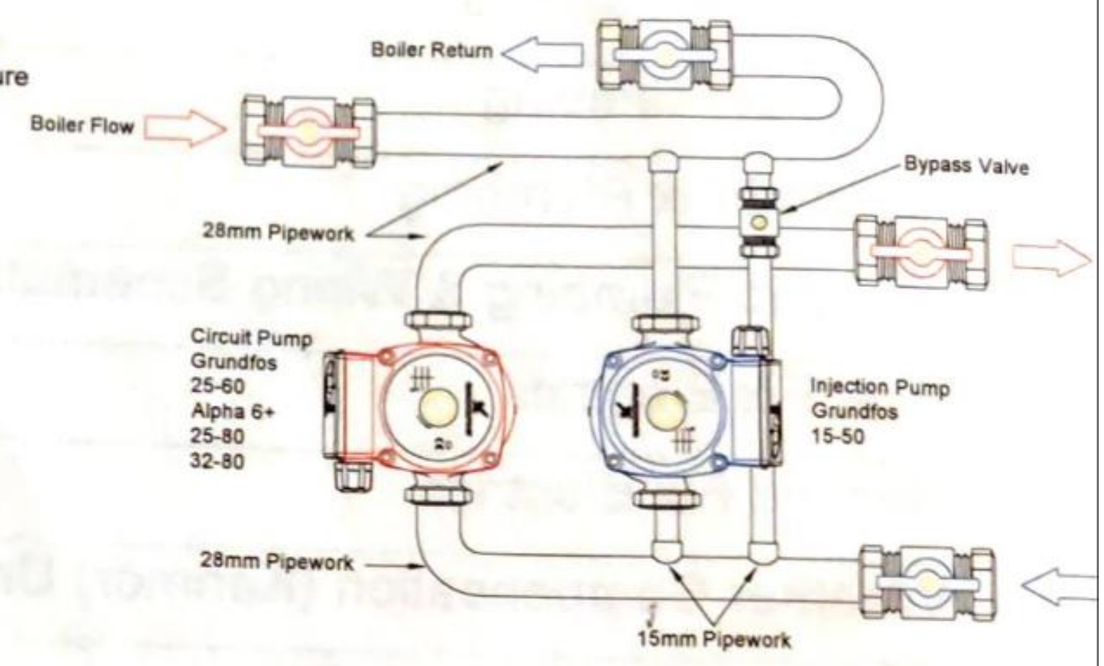


Return Manifold
Connects to the return side of the heating system.
Flow Manifold
Connects to the flow side of the heating system.
Top Flow Meters
Show the flow rate of water for each group. These can be adjusted to regulate the flow of water through the individual pipe circuits to balance the system as designed by floorwarming.
Auto air eliminators
Removes unwanted air form the system.
Fill/Drain points
Used when filling and testing. Also used for maintenance.
Pressure/Temperature gauge
Shows the flow temperature and system pressure.
Isolation Valves
These are used to isolate the underfloor heating circuit for maintenance and are also used when filling and testing the system.
Thermo Actuator
Opens and shuts the valve on each group. It is controlled by the room stat in each controllable area.

First Fix Plumbing:

Pumps are provided pre-plumbed in the pipe set shown below and are sized to deliver the correct flow rate for the system.

Ideally, the mixing kit should be located in close vicinity of the boiler (see first fix below).



For the plumbing first fix:

- Run appropriately sized pipework (normally 28mm) from the mixing kit position to each manifold position as shown on the AutoCAD.
- Run appropriately sized pipework (normally 22mm) from the boiler to the mixing kit position – the mixing kit should have at least 2m of flow pipe work between the boiler and mixing kit.

For incorporation into the whole plumbing scheme a general schematic is shown on page 3.

Depending on your clients needs, select the option required – additional two port motorised valves may be necessary.

Second Fix Plumbing:

Once fitted, the manifold will normally have been pressurised for some time. Check the pressure on the manifold. Connect the flow and Return pipework to the isolation valves.

- Note the isolation valves are fitted with a union fitting. If this is loosened, please retighten and re-pressurise the system.
- The flow isolation valve is normally coloured red and is located on the top manifold chamber.
- The return isolation valve is normally coloured blue and is located on the bottom manifold chamber.

Testing:

The majority of the initial testing should be undertaken by the electrician:

There are two distinct areas of testing, the Wiring Centre and the Kanmor unit.

Testing the KANMOR UNIT:

After all equipment connected to Kanmor/Tekmar Unit in accordance with the information supplied, switch on the fused spur and switch off all thermostats and time clocks.

Any sensor errors will be displayed first: The display will show Sensor Name ('BOIL', 'MIX', 'RTU' or '10K1'- for Indoor) and then error type:

- 'OPEN'. Check continuity from sensor to terminal
- 'SHRT' – check resistance of resistor, if very low a defective sensor is likely.

To test the system, press the 'TEST' button. The controller will display and run following items, please check the correct component operates with each step.

For the 361 Unit:

STEP 1 15-50 Injection pump (Mix pump) will run for 10 seconds @ 100%
STEP 2 Underfloor pump (Sys pump) will run for 10 seconds
STEP 3 The boiler will come on for 10 seconds

For the 3635 Unit:

STEP 1 15-50 Injection pump (Mix pump) will ramp up to 100% over 10 seconds
STEP 2 Ignore
STEP 3 15-50 Injection pump (Mix pump) will ramp down from 100% over 10 seconds
STEP 4 Underfloor pump (Sys pump) will run for 10 seconds
STEP 5 Boiler pump will turn on and remain on
STEP 6 Boiler will come for 10 seconds, then both boiler and pump will shut down
STEP 7 Will driver the Hot Water Valve open for 10 seconds

After the test sequence is complete, the word COMPLETE is displayed for one seond and the controller resumes normal operation.

If a piece of equipment is found to not function, check wiring connections in the first instance and then the component if necessary.

Finally, create a demand on each circuit in turn to prove correct operation.

- **Underfloor Heating demand** will be indicated with a pointer against 'Mix Demand' as labelled adjacent to the display screed.
- **Radiator demand** will be indicated with a pointer against 'Boiler Demand' as labelled adjacent to the display screed.
- **Hot Water demand** will be indicated with a pointer against 'DHW Demand' as labelled adjacent to the display screed.

NOTE: If a pointer is indicated against 'WWSD' or the reference 'WWSD' is shown, the system will not work – it is in Warm Weather Shut Down mode!

COMMISSIONING:

BS1264-4 recommends that the screed should not be heated for at least 21 days.

However, BS8204-1 suggests that the screed be left to dry out as slowly as possible.

Therefore, we would recommend the system be commissioned at least two months (and certainly no earlier than 21 days) after laying the floor screed.

Once the system has been tested & the settings checked:

- Set all timeclocks to desired parameters.
- Set all Room thermostats to their highest setting.
- Set the boiler thermostat to its highest setting.
- Check the balancing valve on the mixing kit until is lies at 45 deg C from vertical and adjust to suit.

Once this has been done, follow the procedure below:

Note that when switching the system on from cold, you may not notice any immediate increases in water temperature, on larger systems this could take a day or more.

1. The controller has been programmed with the mix max temperature limited initially to 35 deg C and the mix min temperature set initially to 25 deg C
2. Run the system like this for a period of 5 Days.
3. Slowly increase the mix max and mix min temperature by 5 deg per day to a mix maximum of 55 deg C and a mix min of 50 deg C
4. Next switch the mix min temperature off.
5. Leave to run for one day and then check that the mix target 'mix trg' and supply 'mix sup' temperatures are closely matched.
6. To help to reduce moisture in the screed, the system must be then switched off for two days and then this procedure repeated.
7. BSRIA and other research establishments recommends this is repeated two or three times.

Once this procedure has been followed, please set all components to their desired settings and leave the system to run normally.