

## 2.4 SYSTEM FILLING

To speed up system filling, we suggest setting the regulating knob of the thermostatic mixer to the MAX position, in order to achieve the maximum inlet opening. We also recommend opening the drain cock on the return manifold. Once filled, the system will discharge any air in the return pipe via the manual air vent valves (11 and 15 on the drawing on page 2). When the system comes into operation, the air vent valves

will automatically discharge air as the temperature rises. To completely fill the heating circuits it is necessary to close each valve on the return manifold and then open them one by one. We recommend cleaning the system to prevent any impurities obstructing the waterways, or even causing a malfunction of the regulating controls.

## 2.5 CIRCUIT BALANCING

Balancing the circuits can be achieved by regulating the micrometric lockshield valves through a 5 mm wrench, taking away the protective cap. The following pages show the flow resistances on the single connection as a function of the gear setting of the lockshield valve.

It is also possible to install flowmeters or temperature gauges on the manifold connection to give visual indication of the return water temperature of each individual loop.



## 2.6 COMPONENTS FOR INSTALLATION

### Flowmeter and temperature gauge

To balance the circuit it will be necessary adjust the lockshield valve and set up the flow rate. To do this flowmeters are available with two measuring scales: from 1 to 3,5 l/min or from 2 to 8 l/min, depending on system requirement.

Moreover, the flowmeters make it possible to use a thermometer Art.3434 to reveal the temperature of the return water on every single circuit and balance the system on temperature rather than on flow.



### Thermo-electric actuators

To control the opening of a single circuit, it's possible to use the thermoelectric actuators with microswitch. In this case you can switch off the pump when all the valves are closed.



### By-pass kit

During operation it is possible to verify that one or more outlets are closed, or rather that there are zones in which flow is not required. In this event there will be an increasing resistance in the circuits. At this time the pump is working at high pressure. To avoid this drawback a bypass connection with an integral differential pressure control valve is available for fitting to the manifolds.

When a set level of pressure is reached, this valve ensures that the excess flow is drained onto the return manifold. In this way the pump can work at a constant head.



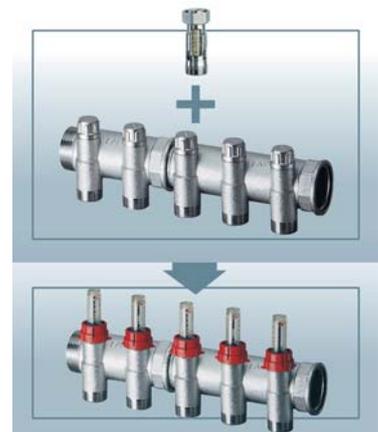
## 2.7 MANIFOLDS WITH FLOWMETERS

FAR offers a range of manifolds complete with flowmeters which can monitor, regulate and check the flow to each connection. Compared to traditional systems with a flowmeter located on the primary, this new version is more compact – making for easier system installation and regulation.

This is possible because the flow meter is a combination between a lockshield valve – which regulates flow of fluid in the circuit - and a flowmeter which measures the volume of fluid circulating in the system (l/minute).

The flow measurement principle is based on the movement of a baffle disc located in a measuring pipe. Position is replicated on the indicator by means of a longitudinal stem which connects the baffle disc to the indicator body.

Fluid enters the flowmeter in a radial direction in relation to the axis of movement and exits with an axial direction investing the baffle disc.



(For more information see data sheet ST.008 on manifolds with FAR flowmeters)