

## Automatic bypass valves

Please see **AC2.9 State the operating principles of central heating control components**, in this unit

## Thermo-mechanical cylinder control valve

Please see **AC2.9 State the operating principles of central heating control components**, in this unit

## Anti-gravity valve

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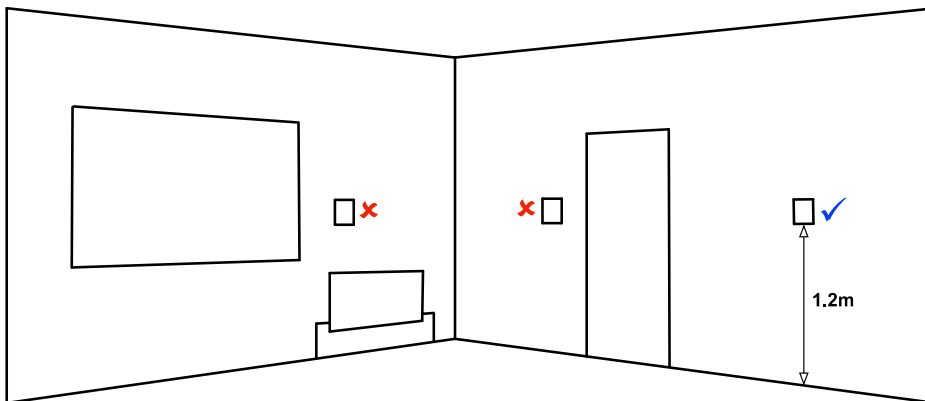
## Drain valves

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## Timing devices – clocks and programmers

Timeclocks and programmers are usually sited in a position of convenience for the end user. In most instances, this is the kitchen or utility area of the property. However, such is the nature of programmers that they can be positioned almost anywhere. Consideration should be given to the position of the boiler, since many boilers are now available with integrated timing devices on the boiler front facia. This would prove inadequate should the boiler be installed in a roof space or garage. In these instances, a separate timeclock/programmer positioned inside the property at a convenient location would be required.

## Room thermostats



The performance of room thermostats is affected by airflow in the room. If a room thermostat is positioned incorrectly, then the airflow across it will not be representative of the airflow in the room in general and, therefore, the

temperature control effectiveness will be lost.

It is difficult to suggest the 'perfect' place for a room thermostat since all dwellings and heating systems are different, but there are definite places to avoid:

- ✗ In a room with another heat source other than a radiator, such as a cooker, gas fire or open fire etc.
- ✗ An unheated room
- ✗ A room with a radiator fitted with TRVs
- ✗ In direct sunlight
- ✗ Behind curtains
- ✗ A warm or cold draught

- ✘ Directly above or opposite a heat source or radiator
- ✘ Near electrical appliances such as TV, DVD player, PC etc.
- ✘ In the corner of two walls or the junction between wall and ceiling
- ✘ Near a door or window

In general, it is best to position a room thermostat in a heated room in the zone being controlled, where it has a free flow of air around it, preferably on an internal wall, about 1.2m above finished floor level.

### Cylinder thermostats and overheat protection devices

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### Frost and pipe combined thermostat

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## AC5.7 Identify suitable methods for making new central heating pipework connections to components

Pipework connections to heating components and appliances are usually dictated by the manufacturer and in most cases involve either male/female screwed joints or compression fittings.

- a) **Boilers** – these generally require that copper tubes are installed from the boiler for at least 1m before any changes i.e. to plastic pressure pipe – are considered. Modern boilers have dedicated compression fittings that are designed and made by the manufacturer.
- b) **Central heating control system components** – again, like boilers, controls such as zone and diverter valves have manufacturer designed compression fittings. In some instances male or female threaded joints are needed and these can be suitably made with the correct conversion fitting and PTFE tape.
- c) **Heat emitters** – there are many forms of central heating heat emitter from radiators to underfloor heating and many have specialist connections dictated by the manufacturer. In general, radiators have ½ “ female connections at all ends of the radiator. Radiator valve connections are via a male tapered thread that requires a jointing medium, usually PTFE tape or linseed oil jointing compound and hemp wrapped in a clockwise direction around the thread. A special radiator spanner or allen key is then used to wind the valve tail into the radiator. Connection to the pipework is by compression fitting method.
- d) **Hot water storage cylinders** – cylinder connections vary from manufacturer to manufacturer and this can often be regional. For example, a hot water cylinder purchased in the east midlands area of the UK will have 1” female connections for the cold feed and hot water draw-off with 1” male connections for the heat exchanger coil. A cylinder purchased in the north of the UK will probably have all connections 1” male thread.

Because of these variations, making the copper pipe on to the hot water storage cylinder will vary. For those cylinders that have all male thread connections, a straight union adapter can be used.