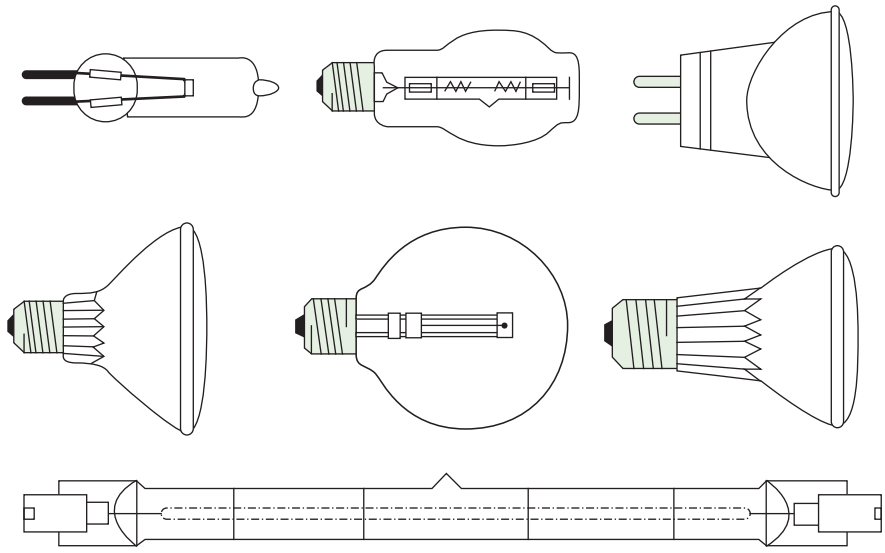

Figure 3.15 Forms of tungsten halogen lamps

Tungsten halogen lamps are more efficient and have longer lives compared with standard tungsten lamps. Also they are more compact than standard lamps. However they are more expensive as it is hard to make the quartz outer bulb and it is harder to introduce the gas fill into the lamp due to the high filling pressure.

3.3.3 Fluorescent

Fluorescent lamps are the most commonly used form of discharge lamp. They come in a variety of shapes and sizes and are available in a wide range of colours. The original form of the lamp was a long straight tube. New forms of the lamp known as compact fluorescent lamps have been developed where the lamp tube is bent or folded to produce a smaller light source.

Fluorescent lamps work by generating ultraviolet radiation in a discharge in low pressure mercury vapour. This is then converted into visible light by a phosphor coating on the inside of the tube. The electric current supplied to the discharge has to be limited by control gear to maintain stable operation of the lamp. Traditionally this is done with magnetic chokes but most circuits now use high frequency electronic control gear. Electronic control gear has a number of advantages: first, driving the lamp at high frequency maintains the ions in the gas and thus makes the lamp run more efficiently. Secondly, it reduces the amount of flicker in the lamp and, finally, electronic gear consumes less power than a magnetic choke.

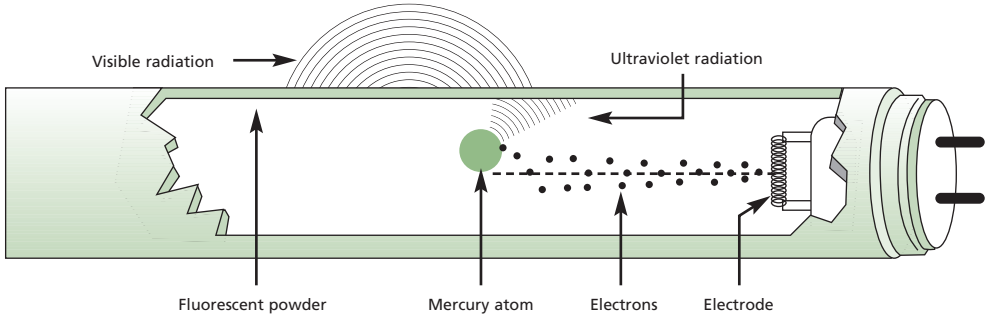

Figure 3.16 Working principle of a fluorescent lamp