

2.3 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.

See Figures 40, 41, 42.

Traditionally this is done with magnetic chokes but most manufacturers now use high frequency electronic control gear. Electronic control gear has a number of advantages:

- Driving the lamp at high frequency maintains the ions in the gas and thus makes the lamp run more efficiently.
- It reduces the amount of flicker in the lamp and, finally, electronic gear consumes less power than a magnetic choke.

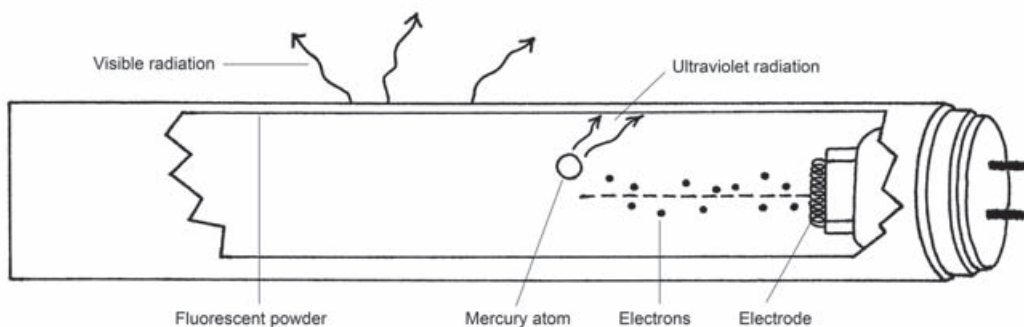
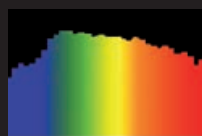
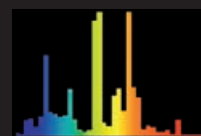


Figure 40
Working principle of a fluorescent lamp.



Daylight



Fluorescent (white)

Figure 41
Typical spectral light distribution of high pressure mercury lamp in comparison to daylight spectrum.