

There is a vast range of metal halide lamps ranging in power between 20 W to over 2 kW. The lamps have a CIE general colour rendering index between 60 and 93 and they have high luminous efficacies, in the range 60 to 98 lumens per watt. For these reasons, this lamp type has many applications where a compact light source with good colour rendering is needed.

There are many points to watch for when selecting metal halide lamps as there are problems associated with some lamp types shattering at the end of life or giving off UV radiation. It is important with these lamps to ensure that the luminaire in which they are used is suitable.

### 3.3.6 Low pressure sodium

Low pressure sodium lamps are similar in many ways to fluorescent lamps as they are both low pressure discharge lamps. All the differences in characteristics stem from the use of sodium in the discharge tube rather than mercury. The key differences are the need to run the lamp hotter to maintain the vapour pressure of sodium, the need to contain the very reactive sodium metal; and the fact that sodium emits its light in the visible rather than the UV frequency range, so there is no need for a phosphor layer.

There used to be a range of designs for sodium lamps but currently the U-tube lamp is by far the most common type. A typical lamp of this design is shown in Figure 3.23.

**Figure 3.23**  
The construction of a low pressure sodium lamp

