

Because of the differing lamp chemistry there is a wide range of lamps that vary in terms of their efficacy, colour and electrical properties.

One of the main problems with metal halide lamps that use quartz discharge tubes is colour stability. As the colour of the light output is a function of the ions present in the discharge tube, any changes to the gas composition due to some metals being absorbed by the quartz tube or changes in temperature in the tube can cause significant colour shifts. These colour shifts are particularly a problem for the lower wattage lamps. This problem has largely been solved by the introduction of a new material for the discharge tube. Ceramic or sintered alumina tubes are much more resistant to chemical attack than quartz tubes and can operate at higher temperatures. Lamps with these tubes are now very popular for low wattage (up to 150 W) metal halide lamps.

The construction of a metal halide lamp is similar to that of a high pressure mercury lamp. The key differences are that it is unusual to use an auxiliary electrode in the lamp, lamp ignition being achieved using a high voltage pulse from the control gear. Also, there is no phosphor coating on the outer bulb.

There are a wide variety of shapes of lamp. Figure 3.22 shows some of them.

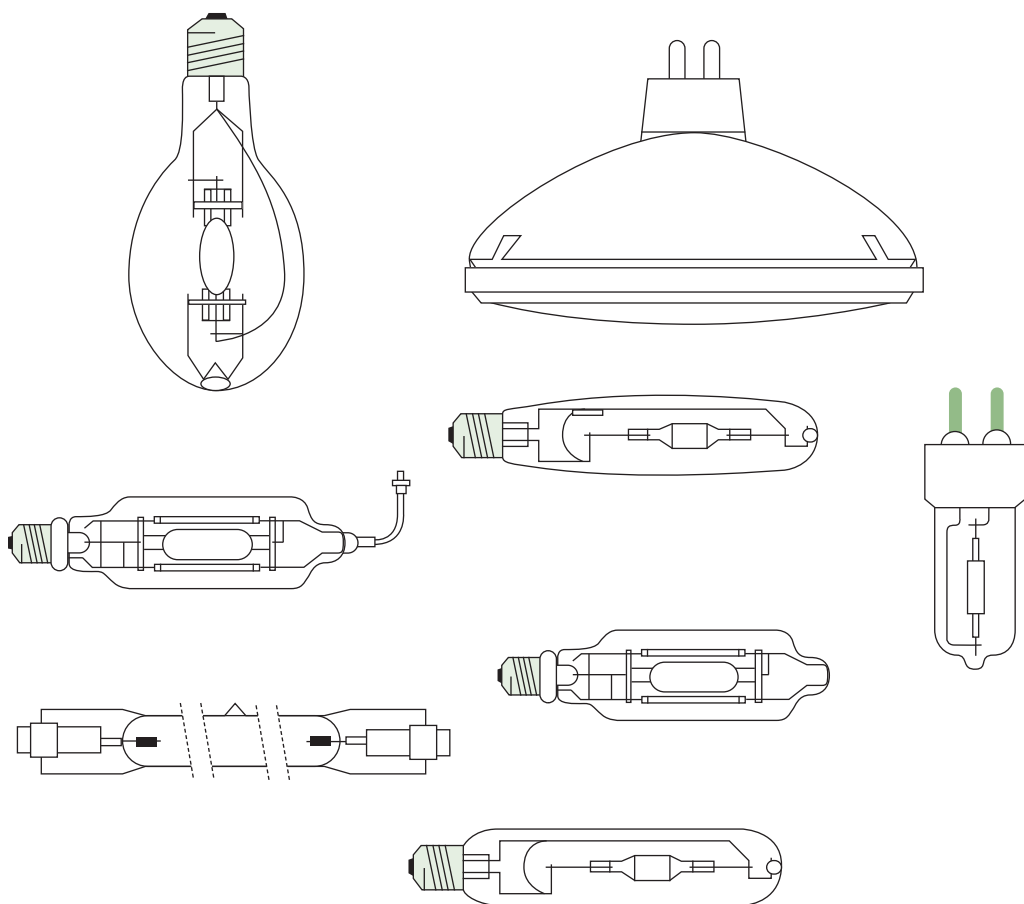


Figure 3.22 Forms of metal halide lamps