

01 Differences Between Projector Lamps for Digital and Film Cinema

Lamps for digital cinema differ from those for film cinema because of optimizations for digital cinema projectors. Proper performance of a digital cinema projector requires the appropriate digital cinema lamp.

One of the fundamental differences between digital and film cinema lamps is the higher luminance characteristic of the digital cinema lamp. The many optical elements in a digital cinema projector present a more complicated optical system than that in film cinema projectors. Light beams exiting the lamp pass through these optical elements before reaching the screen. However, light utilization efficiency is reduced because of limitations in the areas and angles of incidence of the optical elements, and part of the light beam is lost in accordance with the transmittance and reflectance of the optical elements. Because of that, lamps for digital cinema are required to provide greater luminance.

The following design characteristics provide the higher luminance required for digital cinema.

- ☐ Higher lamp gas pressure and shorter arc length are achieved to increase luminous efficiency for the smaller point light source.
- ☐ Electrodes are shaped more sharply to increase current density.

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