

The PAR64 for Entertainment Lighting

Edition 1.1
(c) 1999 Bill Williams

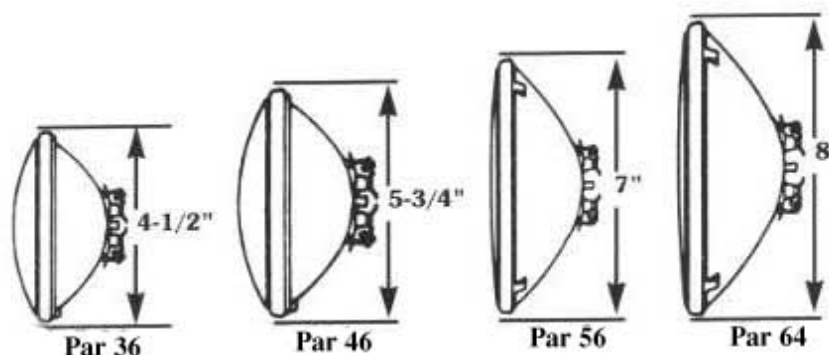
1.) Introduction

The PAR64 (or Par Can) is one of the most common and most useful lighting fixtures used today, for stage, studio and entertainment lighting applications. The fixture is lightweight and simple in design and construction. It is also economical to manufacture and easy to maintain. The fixture uses one of several different incandescent PAR lamps to provide an efficient spotlighting package. Both 120 and 240 volt versions exist, making the PAR64 a truly universal luminaire available and used throughout the world.



2.) PAR Lamps

The PAR lamp (or Parabolic Aluminized Reflector) is simply a sealed beam type of lamp, similar to an automotive headlight. This efficient lighting package has the base, filament, reflector and lens all optically aligned and sealed into a single lamp. PAR lamps are manufactured in several different diameters wattages and beam spreads for a wide variety of applications. Common sizes include the PAR36, 38, 46, 56, and 64. PAR lamps are commonly available in wattages from about 50 to 1000 watts in both 120 and 240 volt versions. For professional entertainment lighting applications it is usually the largest of the PAR lamps, the 1000 watt PAR64, that is used almost exclusively.



Common PAR Lamps

You can determine the diameter (in inches) of any PAR lamp by simply dividing the PAR number by 8. Example what is the diameter of a PAR56? Answer: 56 divided by 8 = 7 inches.

Although PAR lamps are also available in various HID (high intensity discharge) versions it is only the tungsten halogen lamp that is used for most stage lighting applications. The tungsten halogen lamp is still the only practical source that may be continuously dimmed and that has a continuous color spectrum with good lumen maintenance.

3.) PAR64 Fixtures

The typical PAR64 fixture used for entertainment lighting applications consists of a simple cylindrical (steel or aluminum) lamp housing, with an open front and a sealed back. The steel units are generally more durable and are usually painted black. The aluminum units are lighter in weight and are generally preferred for touring applications or where a high-tech look is needed.

A mounting yoke and pipe clamp are attached to allow the fixture to pan, tilt and lock into any position. The lamp plugs directly into an integral socket mounted inside the housing and is retained with 'clips' or a retaining ring. Units for the entertainment industry are generally considered to be 'portable', and usually have a short (36") power cord and connector attached.

Typical Specification:

Luminaire type: PAR64 spotlight,
Standard finishes: Steel (black) or natural aluminum or polished chrome
Accessories: C-clamp, color frame (10" x 10"), safety cable and wire mesh screen
Notes: Lamp rotates from rear of unit
Lamp: PAR64-1000 - vnsp, nsp, mfl or vwfl

Manufacturers of PAR64 luminaires include; Altman, Strand, Thomas, and many others.

PAR64 fixtures are also available for architectural applications and come in many different shapes and sizes. Some resemble the theatrical Par Can (above). Other units may be spherical or cylindrical in shape. Custom fixture colors are often used for architectural lighting applications. Architectural PAR fixtures are available from a wide range of manufacturers.

4.) Stage & Studio PAR lamps

Of the many available PAR lamps, it is the 1000 watt, PAR64 tungsten halogen lamp that is used most often for entertainment lighting applications. This lamp has an 8 inch lens diameter and is available in 4 different beam spreads from a very narrow spot to a wide flood. The beam pattern of the PAR64 is oval (not round) and is usually aligned by rotating the lamp socket at the rear of the fixture. In addition to their oval beam, PAR64's are often characterized by their 'splashy' beam with a hot 'punchy' center. They have a soft outside beam edge and produce considerable wide flare.

Most tungsten halogen PAR64 lamps have a life of 800 hours and a color temperature of 3200 degrees. Higher output (and higher color temperature) lamps - with lower life, are also available for special lighting applications. Standard 120 and 240 volt PAR lamps are available from all the major manufacturers (including General Electric, Osram Sylvania, Philips etc) and are part of their STAGE and STUDIO line.

5.) Lighting Applications

For entertainment lighting applications PAR64 fixtures are particularly suited to area lighting and other applications where 'flare' from the lamp is not of great concern. As they provide a beam with a soft edge they should be used for appropriate lighting applications only. The oval beam can often be used to advantage, providing a wider beam spread in one direction or the other. PAR64's are also very effective

when used with saturated color filters as this often tends to help mask or reduce the flare. They make effective acting area lights, wash lights, back lights and down lights for a variety of different entertainment lighting applications.

Because of the high degree of flare from these fixtures, the PAR64 is not commonly used for lighting applications where a high degree of control is required. They are not appropriate where very isolated lighting is needed or in close proximity to scenery or drapery. They are however particularly effective for applications where a small, inexpensive, lightweight and efficient luminaire is required and where a soft edge and wide flare is not of major concern.

For architectural lighting applications the PAR64 is particularly well suited to the lighting of three dimensional objects and sculptures. PAR64's can also be used to provide 'pools' of light on a floor or 'shafts' of downlight against a wall.

There are really no accessories for the PAR64 fixture. Sometimes a 'top hat' will be added to the color frame holder to help reduce flare. This also tends to narrow the beam slightly, depending on the length of the tube.

6.) Quick Reference Chart

Here is a PAR64 data sheet showing ILLUMINANCE and SIZE of any lighting area at any DISTANCE for standard lamps. Prints out as a single page.

[PAR64 Quick Reference Data \(120 volt\)](#)

[\(c\) 1999 Bill Williams](#)