

Choosing the best projector lamp for you.

The objective of this overview to give an independent explanation of the myriad of replacement projector lamp options that are currently available, however, given that the author is a shareholder of Diamond Lamps, it may be unintentionally biased. If this is the case, our apologies, but we hope it is educational none the less and helped you make the selection that is right for you.

The components of a lamp

We will refer to the components of a lamp throughout this document, so it is important to define what we mean: -



Original Equipment Manufacturer (OEM) lamps

If you have ever bought a lamp for a projector, chances are that you purchased an OEM lamp as these dominate the market. Sony, Epson and Panasonic are OEM examples, they make the projector and design the lamp that goes into it, they then supply the replacement part.

- **Performance** – 100%.
If you're buying an OEM lamp, expect it to perform exactly the same as the lamp originally in the projector, in fact it will probably look better as your old lamp may have started to dim with age.
- **Projector warranty** – unaffected.
As it's the manufacturer recommended spare part the warranty on the projector is fully supported, though in many cases that warranty has expired by the time a lamp is needed.
- **Price** – invariably the most expensive option.
- **Other comments** – there are approximately 170 current and obsolete OEM brands, some design and build their own projectors while others buy and re-badge or fully outsource their work. Because of these convoluted supply channels, replacement lamp boxes tend to not have any brand markings on them, if you are unfamiliar with your supplier, this makes it tough to verify if you've been supplied with an original lamp or a lower quality copy.

Genuine alternative lamps, E.g. Diamond Lamps

Defining what is 'genuine' is not easy, but here's our interpretation:

Although there are 170 brands of projector, practically all of them have to source their bulbs from a lighting manufacturer. Sony for example, develops a new projector, going to a lighting manufacturer such as Philips to specify and design the bulb for the unit. Given that it takes between 5kV and 20kV to ignite the lamp the electronics are pretty important and the tailored bulb driver is often purchased from the same company.

There are only seven bulb manufacturers who supply the OEM's, Philips (the pioneer of the bulb technology and market leader), Osram, Ushio, Iwasaki (Eye), Matsushita (Panasonic), Phoenix and more recently Epson who used to fully outsource but are increasingly manufacturing their own light sources.

A genuine alternative lamp uses the same specification bulb Philips supplied to Sony in the above example. It will also be supplied directly from Philips and the brand endorsed by Philips. The bulb is then fitted into a cage that is a duplicate of the OEM's cage so the delivered product looks and performs identically to the OEM product. This nit-picking description is necessary to differentiate against the next category of Grey genuine alternative lamps.

- **Performance** – 100%
The product is identical to the one supplied to the OEM.
- **Projector Warranty** – questionable, the situation has never been challenged as a projector has never failed using a Diamond Lamp. In theory, given the identical bulb, the warranty should hold, although it would be understandable if an OEM was reticent on supporting it.
- **Price** – noticeably cheaper than OEM lamps.
- **Other comments** – Some bulbs are interchangeable Sanyo for example supply spares using both Philips and Osram bulbs for the same projector. Some manufacturers print their name on the bulb; others just put markings making it more difficult to determine if you have an original bulb. Here is a list of genuine bulb markings you may find.

Bulb Manufacturer	Markings
Iwasaki (Eye)	HSCR, MSCR
Matsushita	UHM, HS, 'M'
Osram	P-VIP, VIP
Philips	UHP
Phoenix	SHP
Ushio	NSH, UMPRD
Epson	UHE, but also used on bulbs made for them by the above brands

Grey genuine alternative lamps

Quite a mouthful and not exactly a catchy title, but please read on.

The bulb manufacturers have a very short list of companies they will supply with their bulbs to make genuine alternative lamps. In the case of Philips that's currently 4 as they need to know that there are exacting standards of production and that the finished product will be distributed both honestly and ethically. Grey genuine lamps are not supplied directly from the manufacturers; they tend to come from OEM's selling off excess stock into markets near their Asian factories, the product subsequently leaving the territory.

The challenge here is that a bulb manufactured for one OEM's lamp often gets 'shoehorned' into another OEM's lamp because the correct bulb isn't available but there is a grey market item with similar ratings. This isn't always the case but the risk is real and it's a high voltage one! The simple check is to see if the genuine brand you are buying has been endorsed by the bulb manufacturers; if endorsed then you are pretty much guaranteed that the lamp is right for your projector.

- **Performance** – possibly 100%, but only if the right bulb is used.
- **Projector warranty** – questionable, if the wrong bulb is used it's more likely to damage the projector and less likely to be covered
- **Price** – similar to genuine alternatives for the most part, though cheaper models do crop up where a grey bulb has been sourced at a very low price

Copy lamps or Branded compatible lamps

Copy lamps do not use bulbs originally used by the OEM and have one distinctly attractive feature in usually being the cheapest option. Knowing it's an imitation, it is generally understood that there will be compromises in quality and it's a matter of deciding what's acceptable. Unfortunately, this can only be done through trial and error and it's a pretty expensive testing process.

Every user has different expectations and it is possible for the copy lamp to be perfectly acceptable. However others will prove to be a false economy compromised by low quality and life; it's basically down to each individual's budget and appetite for risk.

- **Performance** – typically poorer in terms of brightness, colour uniformity and life.
This is mostly down to less exacting standards in manufacturing and build.
- **Projector warranty** – less likely to be honoured by the OEM
- **Price** – often the cheapest lamp option.
There may be different copies available for the same projector model at different prices, as with most things in life; you tend to get what you pay for.
- **Other comments** – Although manufacturing and selling copy lamps are legal, there are a number of copy lamps that are alleged to breach the intellectual property of the original bulb manufacturer. There has already been successful litigation in the USA for distribution of IP infringing product (with damages at \$28 per unit sold) and current litigation is underway with others in a number of continents.

Further information on the quality of copy lamps there is an independent study (commissioned by Philips) performed by KEMA. The results can be seen at this web address.

www.diamondlamps.net/news.asp. Click on the link at the bottom of the page to go to the full report.

Further information on Intellectual Property rulings can be seen at this web address

<http://amlawdaily.typepad.com/PhilipsIwasaki.pdf>

Re-lamping / refurbished lamps – changing the bulb

All the above options have a new bulb and a new cage. In re-lamping or refurbishing the lamp the old cage is retained and the bulb replaced.

There are three types of bulbs that may be supplied.

1. An identical genuine bulb
2. A grey genuine bulb
3. A copy bulb

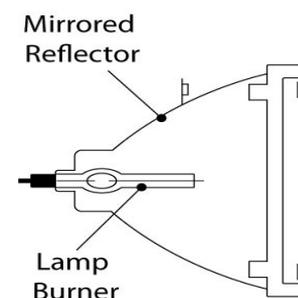
The performance risks are identical to the above lamp categories. However, there is also some debate as to the viability of using a cage multiple times, arguing that connectors may have degraded and / or the plastic being heat stressed. There may be merit in the arguments, although with no moving parts it is hard to see how there could be issues. In our experience there are no issues, but perhaps this is down to the quality of processes used in our re-lamping.

Quality is also determined by who is doing the re-lamping and even some OEM's offer the service themselves, however, these are pretty much exclusively provided for large venue Xenon based lamps that cost many thousands of dollars.

- Performance – variable, depending on the bulb used
- Projector warranty – As above lamp options
- Price – usually a little cheaper than the all new alternatives
- Other comments – Usually you will need to send your old lamp off to be re-lamped leaving you without a working projector unless you invest in a spare.

Re-lamping / refurbished lamps – changing the burner

Now we're getting more technical. The bulb constitutes a mirrored reflector, some bits of wire and a burner the really clever bit in the middle where all the action takes place. Some refurbishment options will swap the burner retaining some or all the components around it, most particularly the reflector.



Our understanding is that no original bulb manufacturer sells their burners to third parties, so any refurbishment service will be using a copy burner. This can become highly misleading when the reflector is retained that still displays the original markings implying the specification and origin of the burner. In addition to the question of burner performance using copy product, there can also be concerns about the burner alignment. A poorly aligned burner means the light is not reflected accurately, seriously restricting the light output of the lamp and disrupting the colour uniformity across the image. Unfortunately, it is not possible to identify a copy burner with the naked eye.

- **Performance** – at the level of copy lamps as a maximum, but potentially lower
- **Projector warranty** – no chance, although given the reflector retains the same markings, some OEM's wouldn't notice what's transpired.
- **Price** – usually the lowest price point, although there are invariably drawn out logistics involved in the return of product as it needs specialist assembly.

Counterfeit Lamps

Unfortunately these do exist and there is a growing trade in them that many resellers are unwittingly passing to users.

Asian factories are installing copy burners in copy reflectors that then have counterfeit markings. As grey genuine bulbs bounce from agent to agent across Asia the copy bulbs get mixed in and until sold to the west as 'genuine'. Because it is impossible to neither distinguish a copy burner with the naked eye nor test it without a projector, resellers in the western world who don't buy from genuine sources are unaware that counterfeit goods have infiltrated their product line.

The easiest way to safeguard against these is to be wary of items that are too cheap to be true and to be circumspect about buying from by individuals on internet auction sites rather than registered companies with a trading history and reputation.

Some brands such as Diamond Lamps are manufacturer endorsed as being from genuine supply lines, it is recommended that if you don't buy the OEM lamp you seek out endorsed brands such as these.

Bulb only options

Strictly speaking the above dialogue is about lamps, but to give a full covering of the options available, some channels will sell you a bulb only solution. As with all the categories above the quality will vary according to the bulb you are supplied and you might be lucky enough to get a genuine identical replacement for a very good price.

Counterfeit bulbs are more prevalent than counterfeit lamps, where the burner in an original housing has been changed (as described above) or false markings put on the bulb. As with counterfeit lamps, be sure of the source and if it's too cheap, be suspicious as it may be more than just the cost of a bulb you're risking; it could be your projector, your reputation (if you're a reseller) and even your health!

The key drawback in bulb only solutions is that you need to change the bulb in the cage yourself, so get your wrenches and screw drivers out! In many cases this is quite straightforward though the cages don't have much 'give' on them as they weren't designed for refurbishment, so be careful not to break any part. Our strong recommendation is to take a long look at the old unit before you buy and maybe even take it apart if you no longer use it to see how it goes together. Just remember that there are some seriously high voltages going on around here, so please be careful.

About the author

After 20 years in the professional audio visual displays industry, Dave Bethell founded Just Lamps, the OEM lamp distributor, in 2002. Just Lamps was the first specialist projector lamp company, and now operates in five continents with sales to date of over half a million units.

Looking for an ethical alternative to copy lamps that didn't compromise performance or IP, Diamond Lamps was founded in 2007 endorsed by Philips Lighting. Subsequently, other bulb manufacturers have made product available to Diamond Lamps expanding the range of this popular brand.