

# Basic lighting options for jewelery and small object photography

## Lights (photofloods)

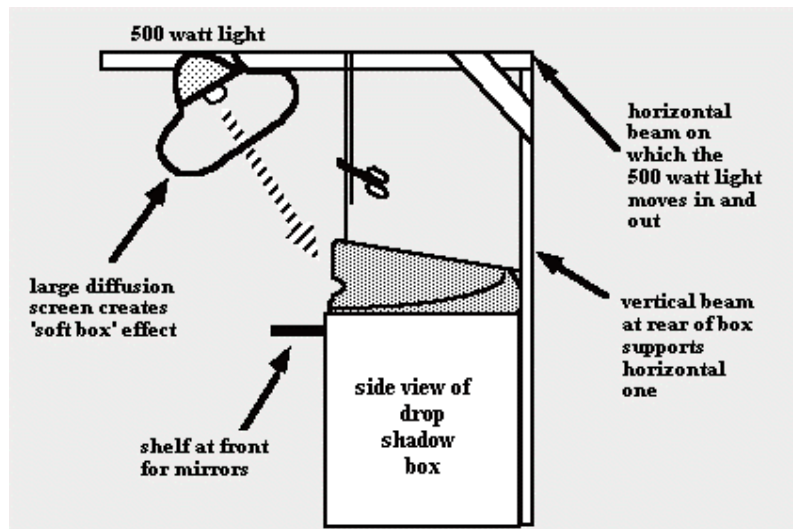
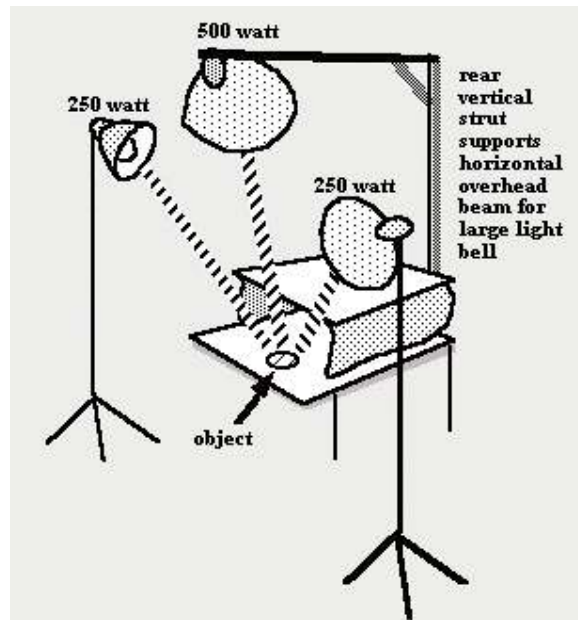
The kind of lights and lighting that I recommend for our drop shadow system are photofloods (type B). You can buy these bulbs at many photo stores but you should shop around: prices vary from 2 dollars to 10 dollars per bulb. They are a pretty standard item in photo stores that sell to professionals. Tell the camera store staff you will be using tungsten film.

They are mounted in clamp - on lights, such as you might find at a hardware store, where there's a spun aluminium bell and a little clamp - on part to the light socket. The best quality ones have ceramic sockets, so you should try and find ones with ceramic sockets if at all possible. The plastic socket kind can overheat, their switches tend to wear out and they are usually not rated for the high wattage used in photoflood bulbs - which makes them both dangerous and probably illegal in the event of a fire.

We will use three main light sources for our system: two 250 watt bulbs and one 500 watt bulb. The 500 watt one is above the shooting surface and the 250 watt ones are above and on the sides. I recommend buying at least four of the 250 watt bulbs and three of the 500 watt bulbs and having that many on hand most of the time. It can be very frustrating to burn out your last bulb in the middle of an important photo shoot and not have a replacement on hand. We will be using three lights for our system and that will serve us very well most of the time. When you handle and change the bulbs use a clean cloth like a handkerchief or cotton gloves like they sell in camera stores. Grease traces on the bulb can apparently sometimes contribute to bulb failure (note that if you ever change halogen slide projector bulbs you should treat them the same way).

Remember to shut off any other sources of light when you are shooting as incandescent bulbs or fluorescent bulbs nearby can affect the colors you get in your photographs. Tungsten films do not react well to other types of lights being on at the same time when you take photographs with them.

The photoflood bulbs in the clamp - on lights are used most of the time with light diffusion screening such as Mylar between them and the object being photographed. Mirrors are used to collect light from the photofloods and so add light to different parts of the object. Diffusers have been omitted in the following drawing for clarity.



### Light dimmer box: ramping the lights up and down

The light bulbs and your entire lighting system should, if possible, be run through a light dimmer box. You can buy a light dimmer at the hardware store and construct a box, or get an electrician friend to do this for you. Remember that the dimmer box should be rated for the wattage you will run through it to avoid any fire danger. The reason for having a dimmer box is that we want to ramp the lights up and down. In my experience it is when you turn the lights on that you blow the bulbs. One therefore tries not to turn them on suddenly. If you ramp the lights up and down, you'll find they last a lot longer, and it's a lot gentler on them. In addition you want, if possible, to turn the lights on and off from a single place to make life easier. The dimmer box should be wired to plugs for the lights. If you use the on/off switches on the clamp - on lights themselves, they often break after a period of time, so anything you can do to displace that switching as well as the on/off shock to the bulbs is beneficial.

## **Log book**

A point about photofloods and professionals: professional photographers will keep a logbook of their photoflood use, and they will note every minute of running time, and when that bulb hits 2 hours they scrap the bulbs, even if the bulbs are still functioning. Now after a lot of experience, I don't feel this is necessary. I feel that if you start off with three photoflood bulbs and you just use them, after a little while you have one old, one new, and one medium, there is a blend of light qualities and it all works out. I have yet to see any disturbance in color temperature from not keeping a log book and not trashing my bulbs every few hours. I use the bulbs until they die and then change them. This lowers your overhead. A professional photographer told me once that when bulbs are tested more sensitive films than normal are used and so in real life it doesn't make as much difference as one might think.

While not a log book as such I strongly recommend keeping a note book and pen next to your shooting area to note your observations and experiences in. This will help you better understand what you are doing and help keep you out of trouble when similar problem situations crop up more than once.

## **Mirrors**

A major part of our system, and what makes it an extremely good one, is the use of mirrors. I like swivelling shaving mirrors, which cost two or three dollars each. You can also use the kind of make - up mirror that enlarges things on one side and on the other there is a regular reflection. Make sure that the rim on the mirror is silvery or white as colored rims can reflect in your work. These kinds of mirrors are very useful for our purposes. I have some 15 to 20 mirrors in various sizes around my own set - up. The photofloods and mirrors will be all you need in lighting equipment to obtain good results. Mirrors used should be stable and easy to tilt and position. They should also not move after you position them. The mirrors catch hard light falling from the sides of the clamp - on lights and give us miniature spotlights on the object. It is the mirrors that allow us to model light on the object and obtain results equal to or better than those available with professional photographic lighting equipment costing thousands of dollars.

This is all antique technology. This is how they made the original 1920s *The Hunchback of Notre Dame*; they used mirrors to shine the light, and it's something that photographers these days have forgotten about to some extent, but it's extremely useful, particularly for the small scale objects that we'll be shooting.

I often use the mirrors in ranked layers, one behind and perhaps above the next so both can be used. I also have mirrors that drop down from the ceiling; I have mirrors everywhere I can put them. I like microscope mirrors too, small ones which I then mount so that

they can swivel. You can buy them at a flea market, and these can sit right on the shooting surface to direct light onto your object.

Several additional options that can sometimes be useful follow.

### **Projectors**

A source of light that I sometimes use for my photo - booth is slide projectors. Slide projectors have the correct color temperature light for the type of film that we'll be using. If you go to a flea market you can buy a functional older slide projector for 5 or 6 dollars - often they are the type of slide projectors that have the slides organized in a long rectangular tray. They're such a pain to use that people are happy to get rid of them and they're very cheap. When one considers that the bulbs alone used to run about \$25.00 each it is a pretty good deal. So, if you can buy a slide projector inexpensively, mount it onto some kind of tripod, then that too becomes a light for our system. One can mask parts of the lens with dark paper to create 'stripes' of light. Occasionally a slide projector provides a great 'feed' of hard light to a mirror or may be bounced off a white surface onto an object as a 'fill' light to illuminate a dark portion of a piece.

### **Quartz - halogen work lamps**

There are now quartz - halogen 'work lamps' available at hardware stores for between fifteen and thirty - five dollars which gives you a photo lamp that several years ago a photographer would pay three or four hundred dollars for. They have more or less the same color temperature as photofloods. They tend to be rather bright though and I don't use them for the small scale system we are talking about, more for larger objects outside of the photo - booth or for shots of rooms. For larger objects however they can be a very cost - effective addition to photographic lighting for tungsten films.

### **Daylight photofloods (blue bulbs)**

An option that some people use for photography instead of the tungsten photofloods is daylight balanced photofloods, often called 'blue bulbs'. These are bulbs intended for daylight film types rather than the tungsten film that I recommend. The main advantage here is cost: the tungsten film costs more than daylight film. However, blue bulbs (and blue filters) cut down on the amount of light that reaches the film and this may affect the capabilities of your system. Again, choose a system, learn it and live with it.

### **Blue filters**

Instead of using the blue bulbs, it is also possible to use a blue filter on your camera lens, which allows you to use tungsten lighting with daylight film. Some people really like the option of being able to use daylight film. This is a pretty inexpensive way of having the flexibility of both options with your photo system. I don't have one and it is not something that I do because I like to stick to a single film type to avoid surprises, but it may be useful for you to know

about at some point. At the photo shop ask for the filter that allows you to shoot daylight film using tungsten photoflood (3200K) bulbs. In the Kodak Wratten system this would be an 80A correction filter. This requires an exposure increase of about two f-stops

The reason some people like the daylight film option (besides the ability to use Kodachrome) is because they prefer to shoot color print film of their work which can be processed rapidly almost anywhere and is relatively inexpensive. In practice I personally don't find color prints that useful when compared with slides.

If I need to have color prints then slides can be easily duplicated onto color print film. As well, good prints can be made from slides at most photo shops and there is always the option of having a laser - scanned color photocopy made from a slide. If on the other hand you do have color prints you want slides of you can get fairly good results by taking slides of the color prints themselves using the principles of a horizontal copy set - up (described later).

### **Fiber - optic lights**

If you have an extra couple of hundred dollars around I strongly recommend obtaining one or two fiber optic light sources as well. They can be purchased from gemology suppliers. They provide several settings of a tungsten - halogen intense spotlight on a long gooseneck that can be twisted and positioned fairly close to a small object. The end of the 'light pipe' or gooseneck is about 1/2" across. They are very pleasant to have around and enable some really accurate spotlighting and elimination of shadows on a piece. I don't have one of my own but I use them whenever I have them available.

### **My Recommended Lighting Pick for Beginners:**

Until you have some experience I suggest my recipe for basic success: 3 photoflood bulbs, one large one above, two of less wattage on the sides, diffusion screens on all of them and use 64 ISO tungsten film (don't bother using blue bulbs, daylight film etc. for a bit). This is what I use.

Again, whatever you do, set up a strict system, and live with it, and that way you'll get the best results.