How to Photograph Reflective Surfaces

Photographing reflective surfaces and objects is usually quite challenging and can easily turn the work of the photographer into a frustrating task.

Reflections are a hard to tame beast, but it gets easier to control if you know the rules. So, in this article I will show you how to create a high impact image with controlled reflections, like the one below, with a really simple, but highly effective, technique and using equipment you most certainly already own. Simply trying to control and modify the reflections that show up can prove to be daunting, particularly when you've got an object that reflects everything in the room, such as a highly reflective chrome kettle. Here's how bouncing or double diffusion lighting can save the day!

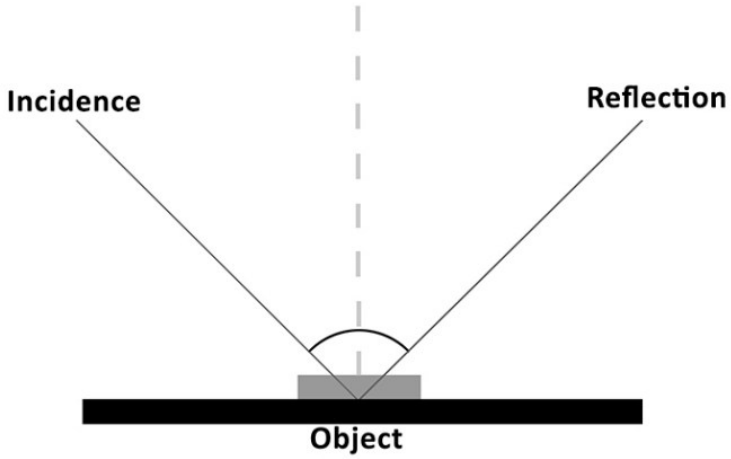
Once you know how to modify these reflections through the double diffusion technique, getting professional results can be a lot easier than you might think.

A reflective surface acts like a mirror reflecting light, so if the light source of your image comes from the same direction as the camera, it causes specular highlights resulting in blown out spots without texture, and an overall poor looking image like the following one photographed with the flash mounted on camera.

It all comes down to the basic principles of light and the way it behaves, which is in fact very predictable. The law of reflection explains this phenomenon. If you project a ray of light on a flat reflective surface like a mirror, then the angle of incidence equals the angle of reflection, like the following diagram illustrates:

So the equipment you will most likely need will be a range of reflective white surfaces. Portable pieces of white cardboard, foam core, polystyrene foam and corflute (real estate sign material) are your best bets. Then, have something that is not too reflective as a base. In the example above a tile of slate was used. This can be wet down, to give the image more strength, as shown. If your base is too reflective, it will compete heavily with your item/subject in the image.

Tiles can be found at Bunnings or Mitre 10 etc, they can usually be purchased quite cheaply and singly. They often will be reused and last a lifetime, need no care and come in a range of sizes up to a metre by a metre.



So, physics apart, what this really means is that if you are trying to photograph a reflective surface you should never light it from the same angle as the camera, otherwise you will only get light bouncing straight back at you (depending on the angle of the object).

The trick here is to use a big light source and position it in the same opposite angle of your camera, in relation to the photographed object (behind it).

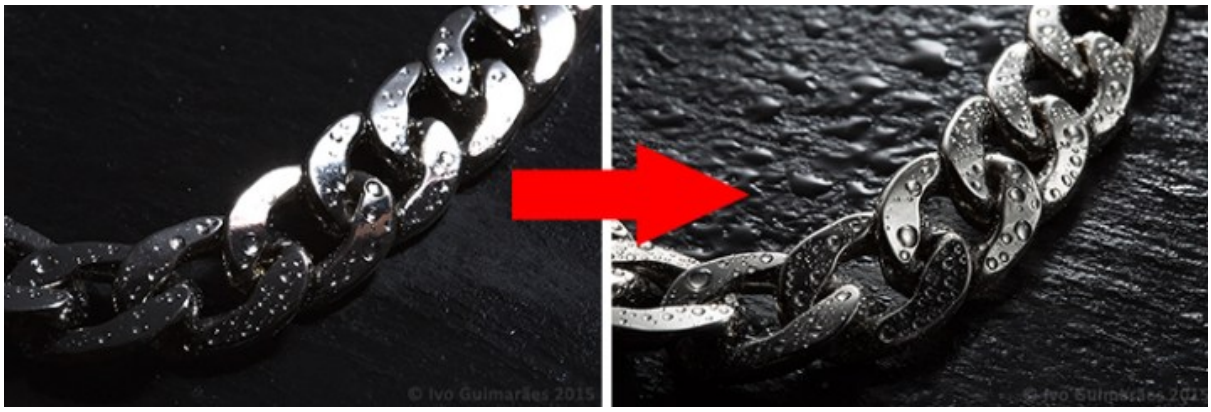
You can do this with a studio flash head and a big softbox, but there is a much simpler and cheaper way of doing it. You just need some white cardboard, a flash, and trigger system to fire it off-camera.

Left: A simple trigger system can cost from $70-$700 depending on your budget.

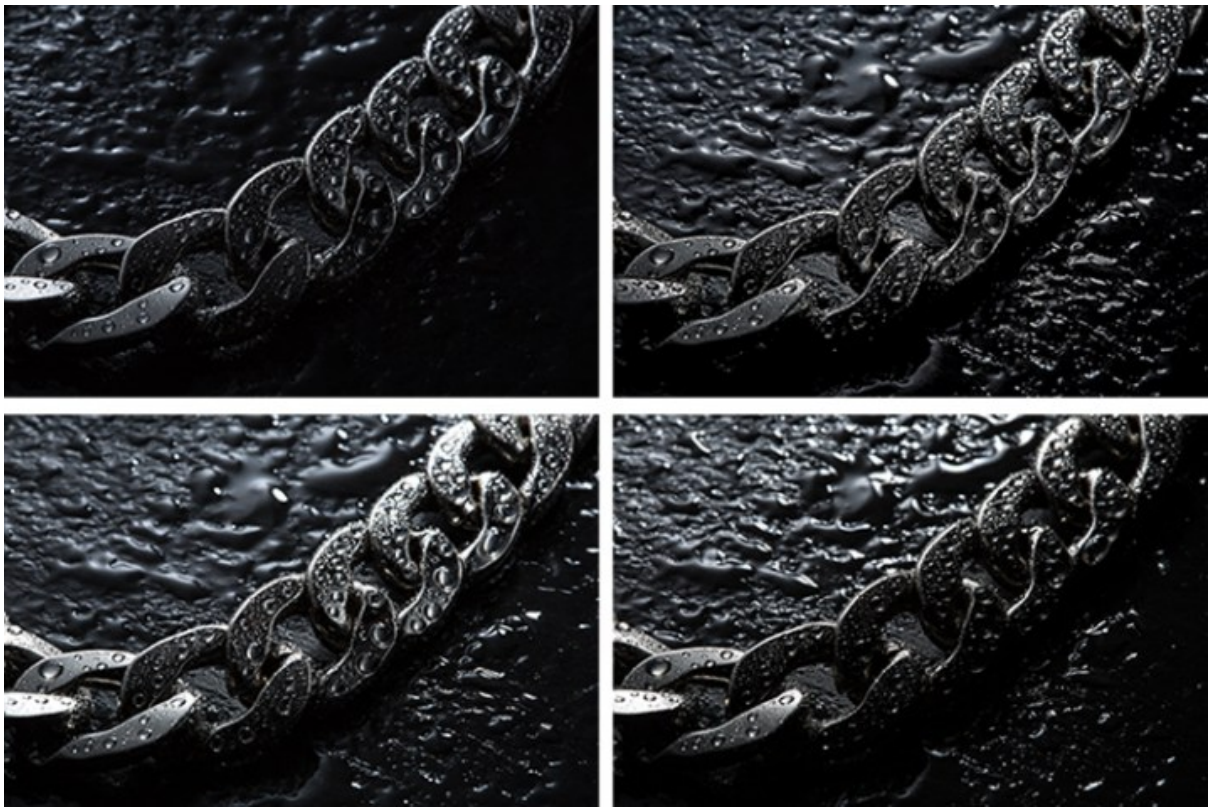
The light from the flash bounced off the cardboard is a much bigger light source, allowing you to control the reflections on your image, creating gradients that shape the object, and avoiding specular highlights. Notice it also creates texture on the rock background.

This simple technique allows you to create a lot of different lighting effects in your image, depending how you position your flash, and angle the cardboard in relation to the photographed object, which also creates texture on the background stone and water drops.

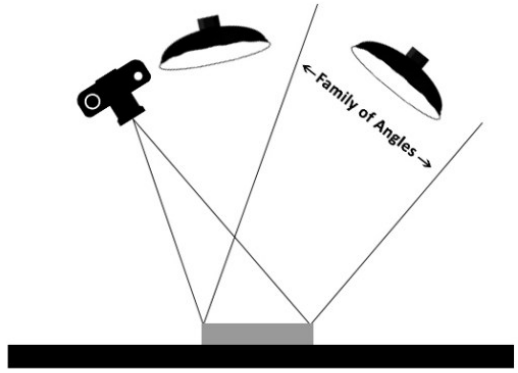
Depending on the texture and reflectivity of your bounce card, you will also get differing light offerings. A glossy card will offer up much more hard specular light, than a soft, matte card. Try several and view how they interact with your subject. The most commercial type of shot will be the one where very specular highlights are controlled. This can be seen on the next page, where the first image has strong returning light and by either moving the card or changing it to another with different textures or surfaces will change the result.



Here are some examples of light variations on this image with just some small adjustments to the cardboard positioning.



Knowing that light rays will always bounce from a reflective surface, at the same angle at that at which they strike it, makes it possible to determine the best positioning for the camera and the light source, taking into consideration the family of angles as you can see in the next diagram.



The light positioned within the family of angles will produce a direct reflection and the light outside of the family of angles will not light a mirror-like subject at all, from the camera's point of view.

Even though the reflections on these images are not direct, but rather diffused reflections (which makes difficult to calculate the light angle as it is being bounced and dispersed in different directions) the family of angles can give you a good estimate of how to position your light in relation to the camera angle, in order to control the reflections in your image.

Double Diffusion

The result reveals the common effects from this type of lighting. The camera rendered a good exposure of the teapot, but there are several reasons why this image fails as a product shot. First, there are the distracting reflections. Since the teapot is highly reflective, it mirrors everything in the room including windows, the table and three separate reflections of the camera flash. The flash also creates a hard-edged shadow on the table and flattens out the perspective of the teapot considerably.

The scene shown here is with no diffusion at top (on brown table). With a diffused soft box, the light is still too strong and visible in the result to left and then the same setup below lit through a large scrim. The resulting 'double-diffusion' is much softer and flattering.

Proprietary scrim frames do not need to be purchased. A lot of these items can be made at home using material sourced at Spotlight and a frame made out of wire, wood or PVC tubing. Most 5-way reflectors have a scrim at its centre, so using a cheap reflector also is another way of getting this result. 5-way reflectors can be bought from eBay at little cost. Expect to spend $30.