

Many glamour and portrait photographers swear by beauty dish lighting-modifiers (see Image 001) for illuminating their headshots, but is the light quality produced by a beauty dish really any different from an octabox? Most photographers answer 'yes' to this and go on to describe the dish as giving, 'beautiful soft light, but with punch'. For the sake of simplicity since there are now many variations on the beauty dish such as folding Beauty Dish Octaboxes, I'm going to stick to the classic rigid hard-shell dish. Also, some beauty dishes come with a translucent white fabric accessory that you can stretch over the dish's front; this fabric sock pretty much turns it into a round soft-box, so I'm not going to discuss that either. To define the differences between octa and dish is not easy because of the infinite number of variables such as angle of subject's head, skin texture, make-up and, most importantly, size and distance of the main-light source. In all fairness to judge one against the other you need to use the same strobe-head and then swap out same size beauty dish with same size octabox while keeping angle and distance of this light source constant. In addition to all this, the subject has to stay perfectly frozen in time during the swap-out. Who has the time or the inclination to test this out? Not many! However, most of us after shooting with both for a time develop a preference, but what is it that actually drives that preference? What gives these lighting modifiers their own distinct look?

I've given this quite some thought and I believe I've got it, so here goes: First of all they are both similar in that they are more or less round – this is unlike a soft-box which is rectangular or square. If you look at the front of an octabox, or soft-box for that matter, with the strobe-head's modelling light turned on, you will notice that the front translucent white nylon material is bright in the centre and slowly falls off in brightness towards its edges. To counteract this unevenness, an inner baffle – also made of white nylon translucent fabric – is stretched and secured inside the octabox close to halfway between bulb/strobe-tube and the front white nylon. Technically speaking, the front white fabric, which is backlit by the strobe, is the source of illumination to the subject and the bulb/strobe-tube is the origin of this source. The inner baffle's purpose is to even out the light over the front white fabric surface; in practice it works but not completely – we still have some falloff. Also, this inner baffle obscures the glowing bulb/strobe-tube from showing through the front white nylon. Without this inner fabric, a nasty hot-spot shows up in the middle of the front white nylon. This creates an unbecoming reflection (specular highlight) on glossy surfaces such as dark, shiny cars, glass vases, and silverware to name a few; even on people it can be an issue if you are viewing eye catchlights close-up as in an eye-cosmetic ad or an up-close portrait of a face.

A beauty dish avoids this hotspot by blocking the light origin with a disk (see Image 001); the disk's degree of opaqueness or translucence can make this light modifier's centre brighter, the same or darker than the surrounding dish. Though different disks can be used, they all deflect light from their back surface onto the white or silver 'bowl' of the dish. The classic set-up of a beauty dish has a metal 6–8 inch disk with a matt surface, to scatter the light, installed several inches in front of the strobe-tube – this creates a darker centre with brighter perimeter, kind of the opposite of an octabox. Disks made of metal are totally opaque so all light from the bulb/strobe-tube is reflected back into the bowl of the dish; this creates a specular highlight with a dark centre like a donut hole. Another design of disk is made of a rigid white translucent material and allows some light to pass through while still reflecting light off its back surface to the dish. How translucent the manufacturer makes the disk determines whether your centre brightness is lighter, darker or the same as the dish brightness.

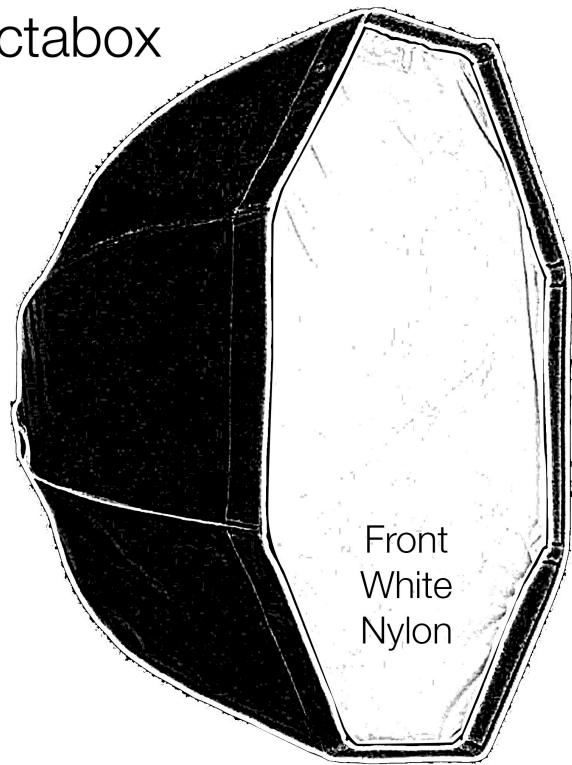
The best way to view the specular effects of any lighting modifier is to look at the specular highlights created by them on a smooth reflective

surface. Keep in mind that size and distance of light source come into play when creating specular light-form such as eye catchlights – if your light source is smaller and/or further away, the specular highlight imaging on your subject will appear smaller and brighter. For instance, if you back your light away then readjust its power to keep the same exposure; the brightness of this reflection will increase by the inverse square of the distance. All this to say that if the source is too small and too far away from the subject, you will end up with a round or octagonal small dot for a specular highlight; this reflection of the beauty dish or octabox imaging on a shiny portion of your subject will appear completely burned out to pure white; there won't be any gradation of tone left across its surface.

To my mind, the main difference between a beauty dish and octabox is (see Image 001), the parabolic shape of the beauty dish inside surface versus the flat two-dimensional front white fabric of the octabox – the inside dish surface and the flat front white fabric of the octabox are what actually light your subject, so these surfaces are the sources of illumination to your subject, not the bulb/strobe-tube. Remember that a source of illumination is the last thing that light bounces off or comes out of to light your subject; that surface is what determines light quality from that source. So why does this make any difference? A parabolic source creates higher specular contrast, meaning brighter specular highlights than a flat source. With a face this means that the shine on the flesh is brighter with a dish compared to an octabox of the same diameter. A camera flattens reality, so you have to think in two dimensions to understand this. If the diameter of a dish equals that of an octabox, the dish actually has more surface area because of its parabolic shape. The resulting specular highlight or shine on your subject will receive the same amount of light as the octabox, but since the extra surface area is 'scrunched down' or compressed two dimensionally it appears brighter; any time you make a given amount of energy cover a smaller area, its intensity over that smaller area will increase. Umbrellas are also parabolic, and so the same is true.

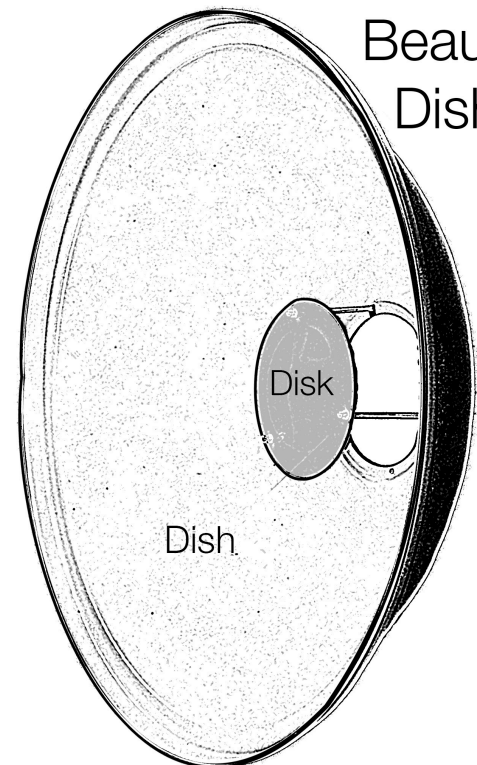
The answer to why photographers say, 'A beauty dish gives soft yet punchy light', is this – the softness of the shadow will be much the same between the two types of light sources providing they are both of the same diameter, so they have the same degree of shadow edge softness. The light quality is fairly soft when a 24-inch or larger diameter source is placed just a couple of feet away from the subject. With this set-up, the source sees further around obstructions such as a person's nose, eating further into the shadow. Wherever part of the light source 'sees' into the shadow, that area of the shadow ceases to be true shadow; it is now a transition area called Shadow Edge Transfer. The larger this transition area, the softer the light quality appears in terms of shadow edge. By the way, a softer edge transfer draws less attention to shadow, hence we use the word 'soft' to describe the look whereas a sharper edge transfer draws more attention, it is more defined and so we describe this look as 'hard'. For example, facial wrinkles and blemish texture on lighter-toned flesh are less noticeable with softer light and more pronounced with harder light. When glamour and portrait photographers work with an octabox or soft-box in really close to the subject to create beautiful forgiving soft-edged shadows, this distance choice also affects the specular shine on the subject – the larger and/or nearer the source gets to the subject, the less bright the shine becomes. You start to lose 'punch' which really means you have lowered Specular Contrast (lessened shine brightness). By increasing the light source area of the lighting modifier without increasing its diameter – as does the beauty dish – the softness of the shadow edges remain untouched but the shine becomes brighter or you could say punchier. The disk on the beauty dish affects this too since it blocks some light from the centre; that reduction in light means that the exposure on your subject is less than if the disk were not there and so you need to increase exposure which in turn increases the intensity of the specular highlight.

Octabox



VS.

Beauty Dish



Wow! That was a huge download from my poor little brain, I think I could use a little punch myself at this point, but before I quit tickling the keyboard, here's one last point to squeeze in – the fact that the beauty dish is a reflective light-source and the octabox is a transmissive light-source makes no difference to specular (shine) brightness, only size, distance and parabolic or flat dimensions affect this. Wait wait! One more point, then I promise I'll go away; photographers say that the silver interior beauty dish is more specular than the white interior dish. The light from the bulb/strobe-head distributes less evenly over the silver and more evenly over the white – the silver allows the light energy to stay more focused whereas the white spreads and evens it out. So the silver has some 'hotter' surface areas creating a gradation of brighter to darker. These brighter areas are brighter than what the white bowl beauty dish produces, so you could say that the silver is more 'punchy'.

Bio
Dave Montizambert lectures internationally on lighting, digital photography and Adobe Photoshop. He is also a published author having written two books on lighting and digital photography (www.montizambert.com) plus numerous magazine articles on these topics in North America, Europe, Russia and Asia. Dave also creates lighting and Photoshop tutorial DVDs for www.software-cinema.com & www.photoshopcafe.com/video and authors 'Dave On Demand' (www.montizambert.com) lighting tutorial based photo-training. Dave is available for lectures and workshops in your area and can be reached through www.montizambert.com.

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creating with light

