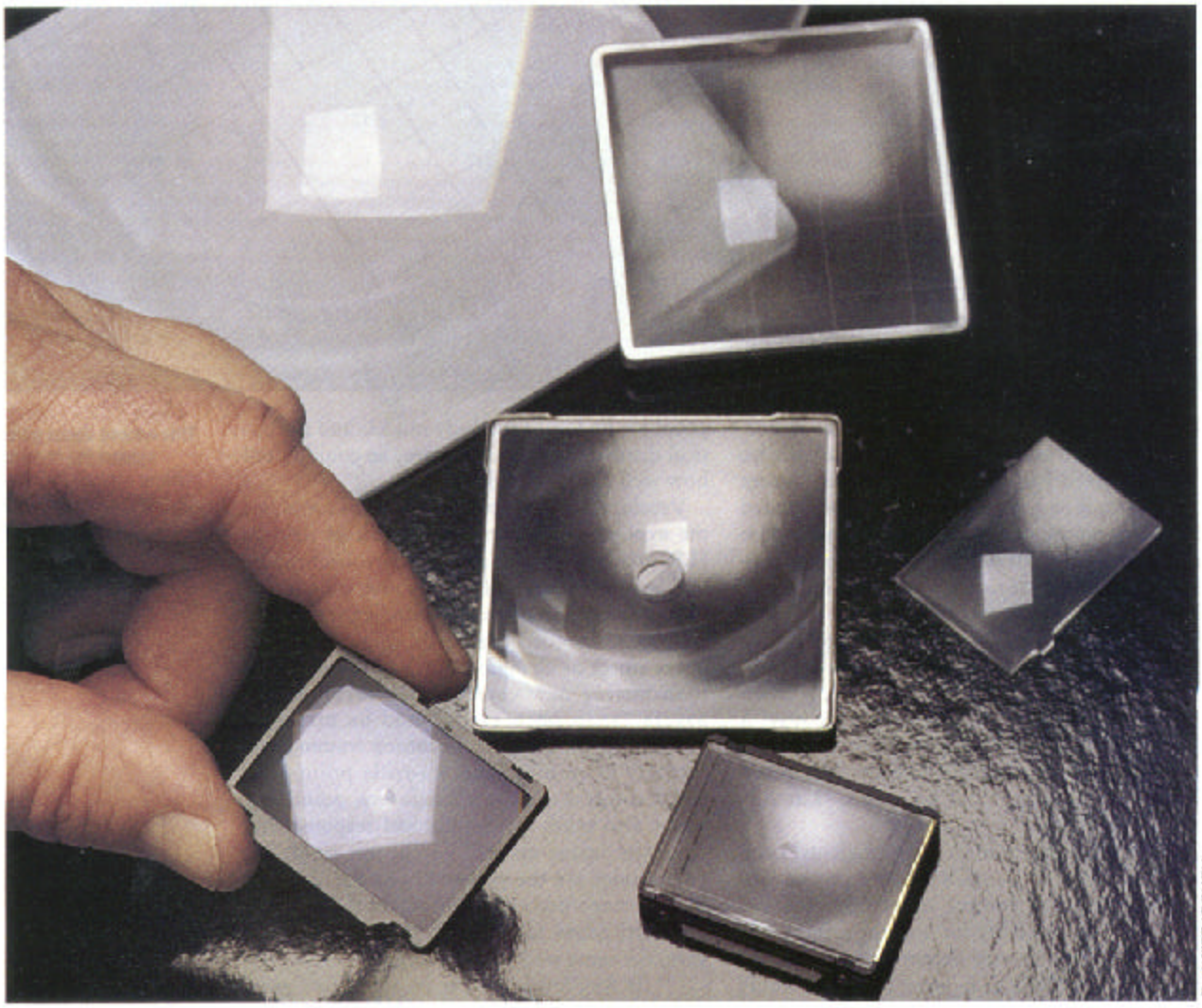
ARE "BRIGHT" FINDER SCREENS REALLY BETTER?



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Independent makers claim their viewing screens are brighter, contrastier and easier to focus. Here's what we found.

By the Editors

You've seen the ads in photo magazines describing special "ultra bright" viewfinder screens. These are screens made by independent manufacturers for 35mm and 2¼ SLRs, as well as view cameras. They have names like Intenscreen, Brightscreen, and Hi-Lux. Sometimes called "aftermarket screens," they're claimed to deliver a brighter and more contrasty viewing image that snaps cleanly in and out of focus, making focusing easier and producing minimal eye strain during extended viewing. The question is, do they?

To find out we contacted three major independent screen manufacturers—Beattie Systems, makers of the Intenscreen, Maxwell Precision Optics, who make Hi-Lux screens, and Brightscreen, makers of, you guessed it, the Brightscreen. From each, we requested a sampling of screens in 35mm, 2¼ and 4x5 formats (a complete survey of all screens for all cameras was out of the question). Our job was complicated by the fact that Maxwell markets select screens in three brightness levels: Normal, Brilliant, and Ultra Brilliant. More on this to follow.

We then teamed up two professional photographers, Lou Jawitz

and Ed Bohon, veteran SLR and view camera users, and had them compare the independently made (or modified) screens for manual-focus cameras to the camera-maker's original screens—the "K" from Nikon, the standard and Acute Matte screens used in the Hasselblad 500CM, and standard matte screens shipped with the Mamiya RZ67 and Calumet cameras.

Screens for AF cameras weren't included. Why? Since autofocusing is the primary and favored means of operating AF cameras, and since zoom lenses with comparatively small maximum variable apertures are the vogue, camera makers have concentrated on producing the brightest screens possible for their AF models—even at the expense of manual focusing ability. Substituting an improved screen would gain you little (except for the cases indicated below), and with many AF SLRs, it may create some on-screen inconveniences such as finder or AF-indication loss.

Still, if you do a lot of shooting in low existing light, you might wish to get a brighter screen, even though it may be at the expense of focusing ability at higher illumination levels. We'll come back to this later.

Jawitz and Bohon set up fourteen difficult-to-focus scenes, including macro shots, low-contrast portraits, and nighttime scenics. Light sources ranged from studio strobe setups with tungsten modeling lights to starlight. As you can see from the charts, Jawitz and Bohon compared the camera makers' original screens and the independent makers' improved screens for brightness, contrast, ease of focusing and viewing, among other criteria. We've printed charts for the situations where the most significant differences in screen abilities were evident.

While you will certainly want to take a careful look at the individual Jawitz/Bohon findings in the charts, here's a summary of their findings:

- In the 35mm, 2¼, and view cameras tested, the independents' improved screens we sampled were in almost all cases brighter, contrastier, and easier to focus and view with than the camera makers' original screens. The only exception? The Hasselblad 500C in which we used Minolta's very bright Acute Matte screen, now standard equipment on all Hasselblads.
- The independents' screens were most effective in low light. For photographers who routinely shoot in dim surroundings or use small apertures for viewing, one of the independents' screens could be helpful.
- In very bright light, some independents' screens were overly brilliant. The images they projected were quite grainy, and often we had difficulty distinguishing our subject amid the granularity.
- None of the split-image or microprism focusing aids we tested functioned well at apertures smaller than f/6.3. Half the split image would black out, whether testing the camera makers' originals or the independents' improved screens. Moral? Independent modification didn't seem to improve a focusing aid's ability.
- The differences between the independents' and camera makers' screens were significant. However,

MEDIUM FORMAT SCREENS: Portrait focused by modeling light (EV 5)*

Hasselblad 500C, 250mm f/5.6 lens

Screen	Brightness	Contrast	Focusing	Viewing	Comments
Standard Hasselblad	Very low	Flat	Fair-to-good	Fair	
Acute Matte from Minolta**	Exceptionally bright	Good	Very good	Very good	Split image blacks out, but not as dark as the others. A plain screen would be preferable with a lens of this speed.
Beattie Intenscreen with 45 deg. split image	Very bright	Fair	Good; we preferred focusing with outer area	Good	Diagonal split image is a nice feature, but a plain screen would be preferable with a lens of this speed because split image blacks out.
20/20 Brightscreen #5 with split image and microprism	Fair	Fair	Fair	Fair; found microprism and split image difficult to use here	A plain screen would be preferable with a lens of this speed because split image blacks out.
Maxwell Hi-Lux Brilliant Matte	Bright	Good	Very good	Very good	
Maxwell Hi-Lux Micro split (Intermediate Brilliance)	Bright	Good	Good in outer area; not easy to use microprism or split image	Good	A plain screen would be preferable with a lens of this speed because split image blacks out.

Typical Scene

© JAWITZ / BOHON

With studio strobes: The modeling lights used with most studio strobes are notoriously dim. Our suggestion? An independent's improved viewfinder screen could make focusing and composing easier. If you're using a fairly slow lens (i.e., f/5.6 or slower), steer clear of screens with split-image focusing aids. The split-image mechanism will black out.

* All EV's determined at ISO 100. ** Standard Hasselblad screen is now the Acute Matte from Minolta.

the brightness difference from one independent's screen to the next was often insignificant.

What, actually, is done to enhance the independents' improved viewfinder screens? While screen purveyors today are reluctant to reveal how the screens are made or improved, the manufacturers of Beattie Intenscreens explained the process as one in which they combine a special optical coating with a high-quality Fresnel lens. The Brightscreens achieve their brightness as a result of a secret, light-brightening chemical dip. Relative newcomer, Bill Maxwell of Maxwell Precision Optics wouldn't tell us what his Hi-Lux process is, only what it is not. He says he doesn't coat, wax, spray, repolish, regrind, or re-etch a screen. He also says that he doesn't touch the surface of a viewfinder screen.

How do you fit an independent's screen in your camera? First, you have to get the old screen out. With 35mm SLRs that have interchangeable viewfinders, and with most large-format cameras, the instruction book tells you how to pop out the screen. It's usually very easy. With some changeable-screen 35mm SLRs, the screen is removed through the lensmount opening. But this requires more care. Most independent screen makers provide tweezer-like tools for the task.

If your screen is user-interchangeable, several options exist: You can order an enhanced screen directly from Beattie, Maxwell, or Brightscreen (see box for addresses) and install it yourself. Or, with Maxwell or Brightscreen, you often can remove the original camera screen, and mail that in for modification. This saves you about 50 percent. (Beattie will also modify a supplied screen, but only if they don't manufacture a comparable replacement screen.) Speaking of pricing: If you supply the screen, most 35mm independently improved products start at about $35 per. From there, prices for 35mm screens rise to somewhere between $60 and $100, depending on whether the screen is plain, etched with a grid, or includes

35mm SCREENS: Indoor portrait in dim light (EV 2)

Nikon F3 and 28–70mm f/3.5–4.5 lens

Screen	Brightness	Contrast	Focusing	Viewing	Comments	Notes
Nikon K	Fair	Poor	Fair	Fair	Cannot focus with split image.	**Typical Scene**  © LOU JAWITZ / BOB LUM
Beattie Intenscreen Plus	Fair-to-Good	Poor	Good	Fair	Easiest of all for split-image focusing.7	
20/20 Brightscreen #4 with split image and microprism	Fair-to-Good	Fair	Fair-to-Good	Good	Difficult to focus with split image.	
Maxwell Hi-Lux K, (Intermediate Brilliance)	Fair-to-Good	Fair	Fair-to-Good	Good	Difficult to focus with split image.	**In very low existing light:** All the improved screens made a noticeable difference. At light levels this low, however, none produced a 'brilliant' viewfinder image, and focusing proved a problem.

35mm SCREENS: Low Light, outdoors (EV 12)

Nikon F3 and 500mm f/8 mirror lens

Screen	Brightness	Contrast	Focusing	Viewing	Comments	Notes
Nikon K	Poor	Poor	Fair	Fair-to-good	Split image inoperative.	**Typical Scene**  © LOU JAWITZ
Beattie Intenscreen Plus	Good	Good	Good-to-Excellent	Good	Because it blacks out in low light, a split-image focusing aid is not recommended with a lens of this speed in dim light.	
20/20 Brightscreen #4 with split image and microprism	Good	Good	Fair-to-Good	Good	Because it blacks out in low light, a split-image focusing aid is not recommended with a lens of this speed in dim light.	
Maxwell Hi-Lux K (Intermediate Brilliance)	Fair	Fair	Good	Good	Because it blacks out in low light, a split-image focusing aid is not recommended with a lens of this speed in dim light.	**Outdoors, in low existing light:** The independents' improved screens, especially the Beattie Intenscreen, clearly outperformed the camera makers' originals. Light levels were too low and the aperture too small, however, to use split-image focusing aids.

split image and/or microprism focusing aids. Screens for medium- and large format cameras can run as high as $200 and more.

If your camera has a non-user-interchangeable screen, you can mail the entire camera to Maxwell or Brightscreen for screen modification or replacement. For Beattie products, you'll have to have an authorized repair shop remove your screen and install the Beattie replacement.

When ordering a modified viewfinder screen, make sure to indicate the focal length of the lenses you'll be using. Some screens are incompatible with certain focal lengths, especially wide-angle lenses, and a bad screen/lens match can result in a finder image with darkened corners. The independent screen makers know the problem lenses for their lines.

Another tip? Screen makers claim their brighter wares are suited to specialized applications like macro-, astro-, and underwater photography. Perhaps so, but in our experience, the more specialized screens available from the camera makers for these applications are usually better for the job. Finally, fewer cameras today take their exposure readings from the viewfinder screen, but those that do (plus many older models) could give you incorrect readings from an unusually bright screen. The screen makers know which cameras are affected, so if you order, make it clear exactly which camera make and model you'll be using. Maxwell, for example, will tell you exactly how to adjust your metering for best results.

Should you investigate independently modified viewfinder screens? If you have no difficulty focusing or viewing now, why bother? If you have a viewing problem that's due to failing eyesight, sorry, often these products won't help. If, however, your viewfinder image is too dim for easy focusing—either because you frequently shoot in low light levels, or your gear is just too dim overall—then a viewfinder screen from an independent maker is something you probably should

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35mm SCREENS: Macro subject in low light (EV 2)

Nikon F3 and 55mm f/3.5 lens with extension ring

Screen	Brightness	Contrast	Focusing	Viewing	Comments	Notes
Nikon K	Fair	Fair	Fair in outer area	Fair		Typical Scene
Beattie Intenscreen Plus	Very good	Good	Very good	Good	Split image starts to black out at f/5.6.	
20/20 Brightscreen #4 with split image and microprism	Very good	Good	Very good in outer area	Good	Split image does not black out, but cannot focus with split image beyond f/4–5.6 when using depth-of-field preview.	
Maxwell Hi-Lux K (Intermediate Brilliance)	Very good	Good	Very good in outer area	Good	Split image starts to black out at f/4.	

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In macro work: The Independents' improved screens were significantly easier for focusing and viewing, although the lighting was too dim to make use of split-image focusing aids.

LARGE FORMAT SCREENS: Scenic under bright sun (EV 16)

Calumet 4x5 and 210 f/6.3 lens

Screen	Brightness	Contrast	Focusing	Viewing	Comments	Notes
Standard Calumet	Good at f/6.3; fair in mid-aperture range; very poor at f/45	Good	Very easy at f/6.3; easy in mid-aperture range; fair at f/45	Good at f/6.3; fair in mid-apertures; very poor at f/45	Brightness, focusing improved slightly with addition of a fresnel.	Typical Scene
Maxwell Brilliant Matte Grid with Fresnel	Very good at f/6.3, becomes very dark but still usable by f/45	Good at f/6.3 through mid-range apertures; low at f/45	Very easy at f/6.3; easy in mid-aperture range; fair at f/45	Excellent at f/6.3; fair but acceptable at f/45; corners darken as lens is stopped down	Lower contrast revealed more detail in shadows. Grain of groundglass interfered with focusing starting at f/11 and growing worse as we stopped down, making it difficult to focus on textured surfaces.	
Maxwell Ultra Brilliant Matte Grid with Fresnel	Excellent from f/6.3 through mid-range apertures; very good at f/45	Excellent from f/6.3 through mid-range apertures; very good at f/45	Excellent at f/6.3; very good in mid-range apertures; good at f/45	Excellent at f/6.3; very good in mid-range apertures; poor at f/45	Corners darken more than Brilliant screen making viewing difficult at f/45 if eye is not centered directly behind groundglass.	

In average daylight: Independents' screens excelled at smaller apertures. They were particularly useful when checking depth of field.

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look into, especially if your camera is an older manual-focus 35mm, 2¼, or large-format model that hasn't been updated in the last, say, twenty years. A two- to three-stop increase in viewfinder brightness is common with older models. Cameras like the Pentax 6x7, for example, tend to benefit greatly from an independently improved screen, while the more modern Pentax 645 may not warrant a screen change for general shooting.

And how about you AF shooters? As noted above, your original screen is already bright-going-on-brilliant. If, however, you often have an overly dim viewfinder due to the nature of your subject, lighting, or equipment, you might want to check into the independents. The Beattie Intenscreens for Nikon, Canon, and Pentax AF cameras all claim a one stop increase in brightness. (Beattie doesn't sell screens for Minolta cameras. Why? Because, Beattie claims, the Minolta screen can't be improved enough to justify the cost.) Brightscreen carries product for Minolta, Canon, and Nikon AF cameras, but publishes no brightness claims in its catalogue. Their line is distinguished by the BIGscreen; at 13mm across, it's probably the largest split image focusing aid in 2¼ photography. Finally, Maxwell Precision Optics offers a three-tiered approach to virtually all AF cameras. Their Standard, Brilliant and, especially, their Ultra Brilliant treatments can brighten any camera screen—with the distinct advantage of retaining on-screen focusing or metering lines. (Beattie Intenscreens for the Canon EOS A2E, for example, lack the five AF sensor outlines.) Unfortunately, it's impossible to predict just how much brightening power the Hi-Lux treatment will provide, because it's different for each screen model.

Brightness gains for any of these AF cameras are rarely more than one stop, no matter the independent screen manufacturer. While this isn't a lot of extra light, for the sports photographer working a dim gymnasium, the wedding photographer shooting in an underlit reception hall, or a nature photographer working with a dark 500mm f/8 mirror lens, it could just be *enough*.