DESIGNING FOR DTG: PREP SCHOOL

You're an amazing artist. You've mastered traditional media, Photoshop, Illustrator…maybe even MS Paint! But, if you're like most of the artists on TeePublic, you're probably still pretty new to printing your art on t-shirts; especially Direct-To-Garment (or DTG) printing, which is what makes the quality, cost effectiveness, and speed of TeePublic possible. That's where TeePublic's Prep School comes in.

A work of art that looks good on a computer monitor can look great on fabric, but it takes some specialized knowledge to make that happen. Prep is not just for the printers - optimizing the artwork they get for the print process - but for the artist as well: Knowing how to optimize your artwork before you even create it or upload it can make all the difference in print quality, sales, and fan/customer loyalty.

As an artist-driven company, it is important to TeePublic that you have all the tools you need to succeed. In that spirit, we have created this quick "Prep School" to give you a few things to think about when creating or preparing art for optimum results that you and your fanbase will love!

File Type

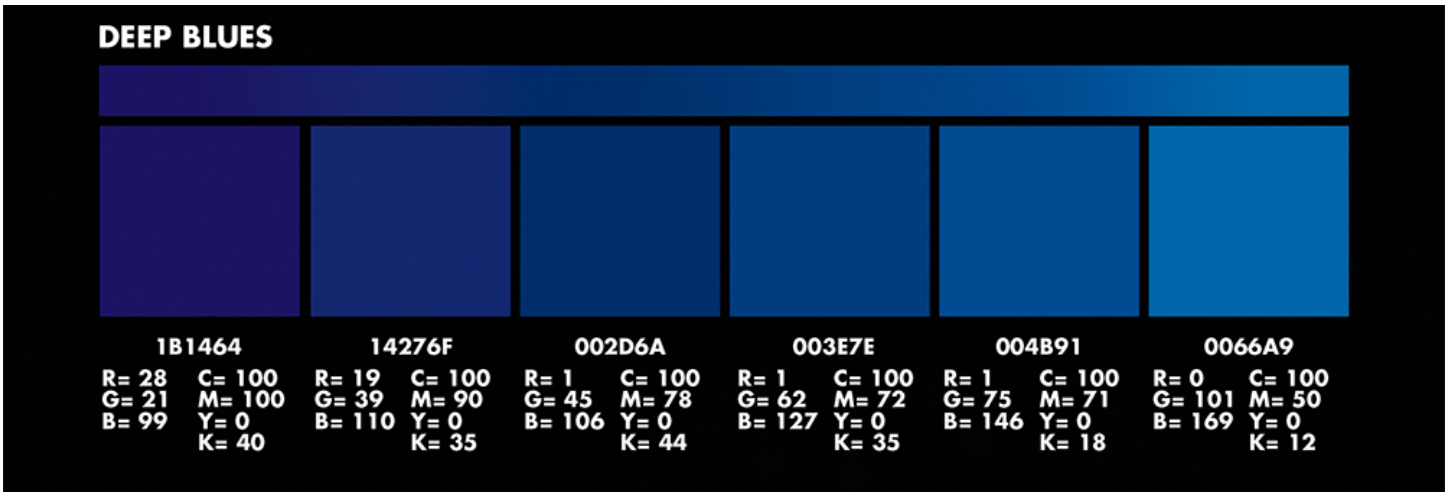
We print using hi-res PNG files. The recommend resolution is 150 PPI or above, with dimensions set to 1500x1995px or larger. Of course, the larger the better. We accept RGB files which we then convert to CMYK using our own color profiles.

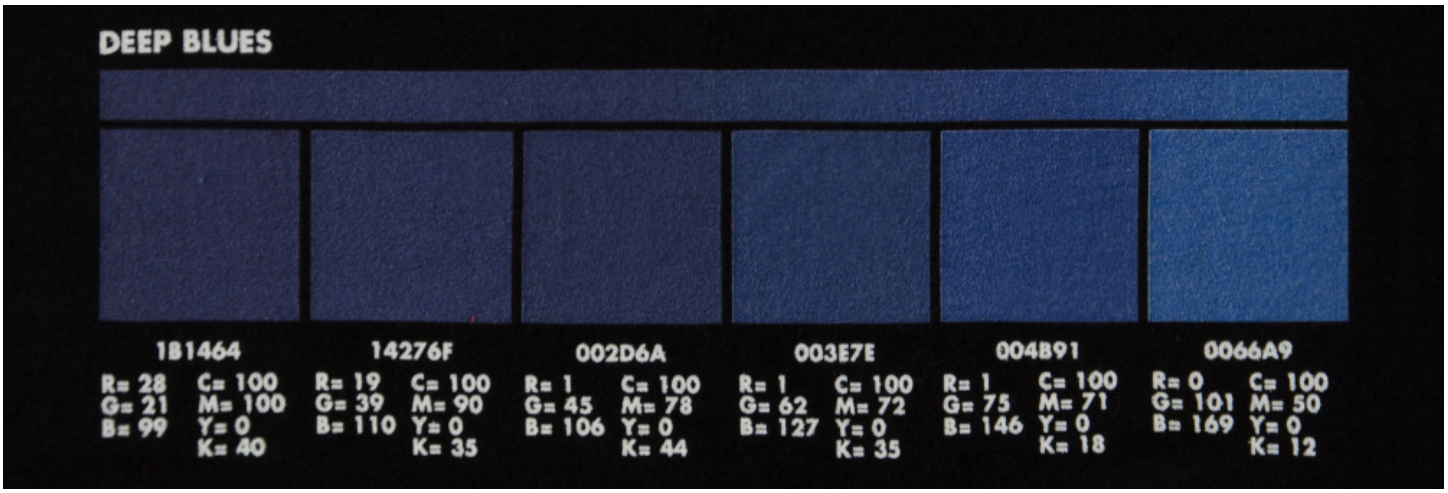
Color Issues

DTG printers use a standard CMYK color model. This means printing with a mix of cyan, magenta, yellow, and black inks. Magenta tends to get a little obscured (remember, it's a new technology). Because of this, reds and deep blues in some designs tend to vary slightly: Some blues will print more purple-ish, grays might have a warm tint, and some skin tones can appear more orange.

Here are some test prints to give you an idea of what this issue looks like, and some recommended CMYK colors to help prevent it:

Example of red color variaton. Top: Computer screen (RGB). Bottom: Printed shirt.





Example of blue color variaton. Top: Computer screen (RGB). Bottom: Printed shirt.

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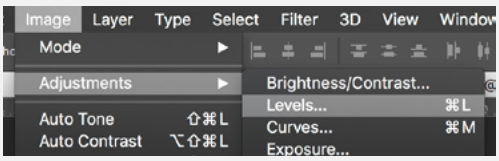
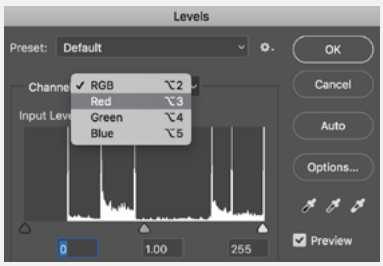
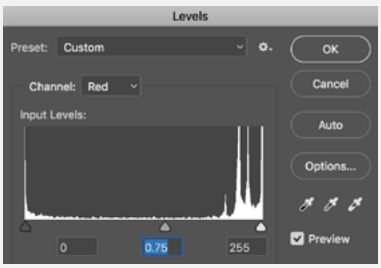
Since you can't just "not use red, blue, gray, and skin tones," there are ways to adjust your artwork to account for this. If you think you might have an issue with the amount of red in your piece, you can open your Levels panel in Photoshop, select "Red" from the drop down, and pull the middle slider to the right to cool down the reds. The amount depends on the relative warmth of your piece, but it will typically end up between .90 and .60.



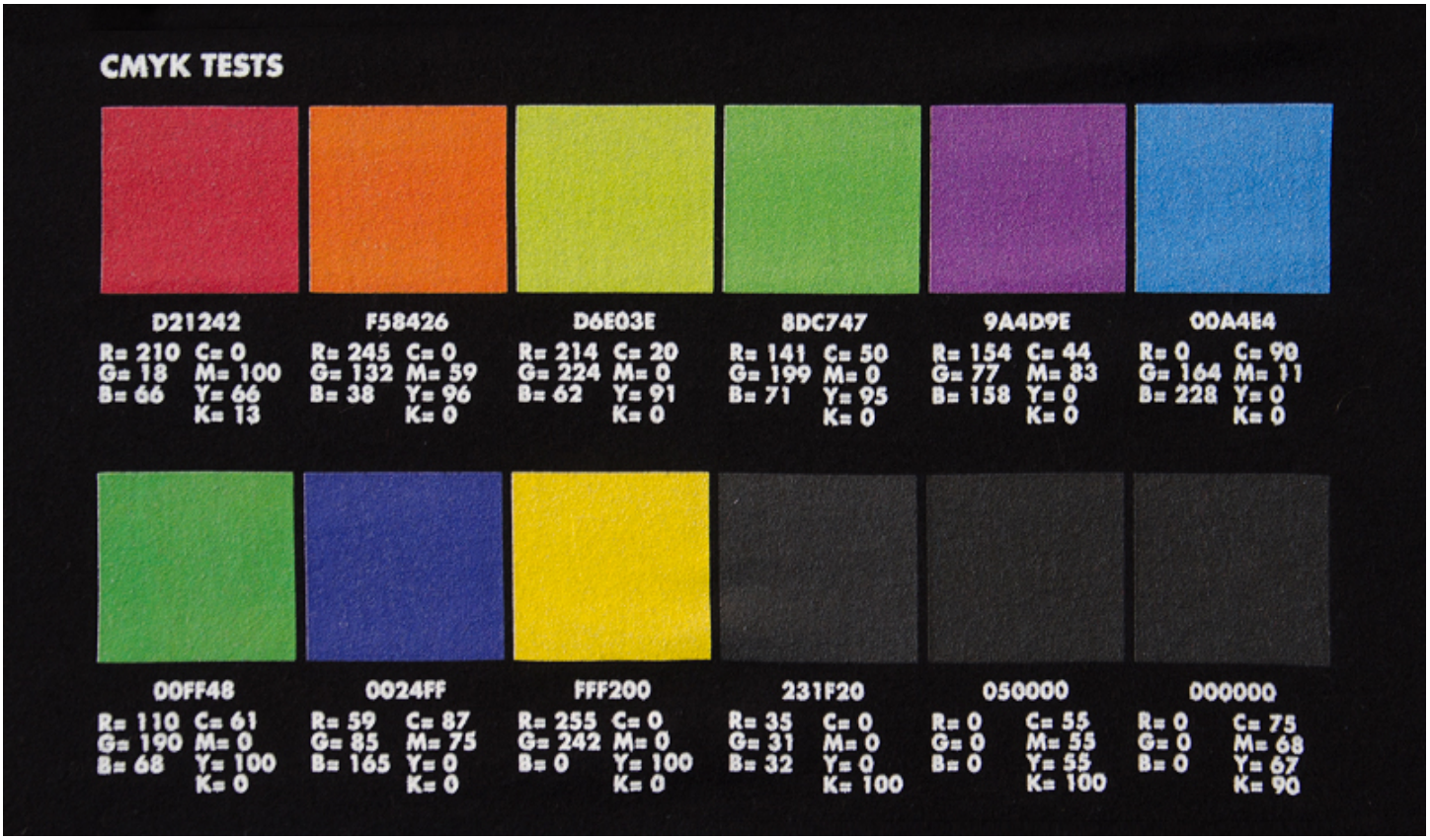




Make sure you don't adjust it so much that the colors in your piece completely change! Some bright reds may appear not to change, but that's fine, since bright reds should show up bright red anyway :)

Fluorescent Colors

Since DTG printers use the CMYK color model, there are no fluorescent inks. “Fluorescent” or “neon” colors in your design may print more muddled than expected. Here is an example of what “fluorescent” colors print like, and some recommended color options that will print as “neon” as possible:



8-Bit vs. 16-Bit Color

Some artists will choose to create their artwork using 16-bit color in Photoshop, which includes more color data per channel. However, in addition to being imperceptible to the human eye, 16-bit color encoding makes for larger files and slows down the printing process, which can result in delays to your fans and customers.

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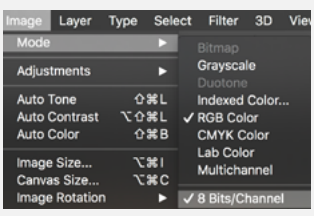
In Photoshop, just got to Image > Mode > 8 Bits/Channel.

16-Bit: Adobe Photoshop file - 230.1 MB

8-Bit: Adobe Photoshop file - 161.8 MB



Underbases

Light color inks on dark colored shirts are printed with an underbase. An underbase is a white layer of ink that the design sits on top of. This is very similar to laying down a primer or a base coat before painting a wall. It makes colors pop keeps inks from bleeding into the garment.

Garment Color Choice

TeePublic has a wide range of garment color choices for you to pair with your designs, both for consumer choice, and so you can find one that complements the colors in your artwork perfectly. Garment color choice is almost as important as the design itself - this is what your fans will see on the site, and ultimately what they'll be wearing around with your artwork on it, so it's important that it looks good!

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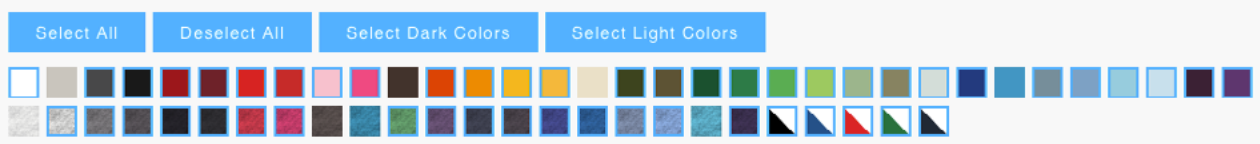
If your design is dark, we recommend selecting light tee colors; if it is light, we recommend dark tee colors. If your design looks good on one particular color, we recommend selecting that as your "default color," which is how your fans will see it on the site. We recommend disabling all colors your design doesn't look perfect on, since they won't result in sales...or happy customers.



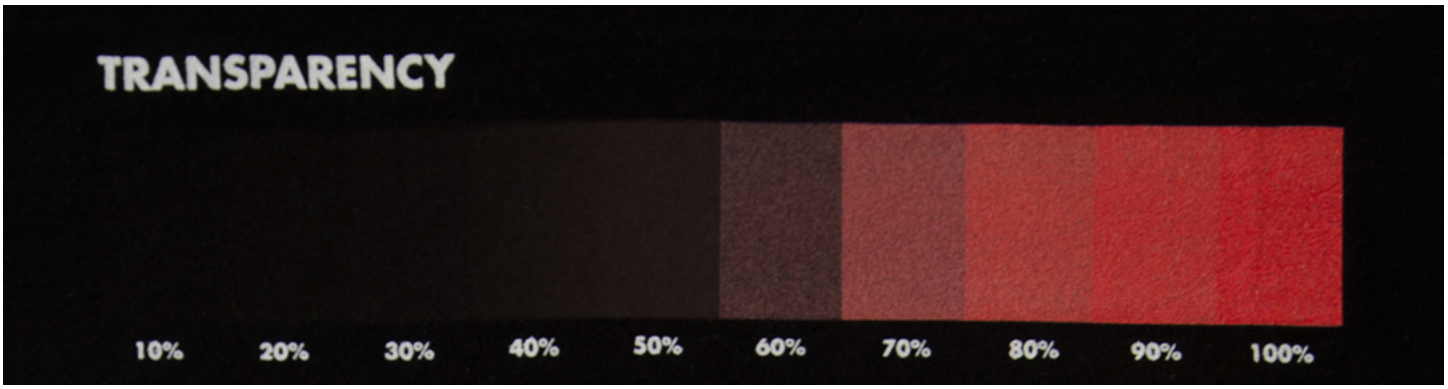
Also, if your design includes a knockout (to use the tee color as part of the design), it will limit your (and your fans') tee color choice, so plan accordingly!

Transparency

Unlike screen printing, DTG printing allows for transparencies. Sometimes on dark colored shirts printed with an underbase the transparency appears gray, or washed out. This is because the transparent color is mixing with the transparent white underbase. To prevent this, avoid transparent bright colors. Since the quality of transparencies are so variable in DTG printing, we recommend converting your transparencies to a halftone set at 25 LPI or lower (see “Halftones” below).

The 40% Rule

Any transparencies, gradients, or glow effects below 40% opacity will either show too much of the underbase (resulting in faded or blobby looking prints), or not show up at all.



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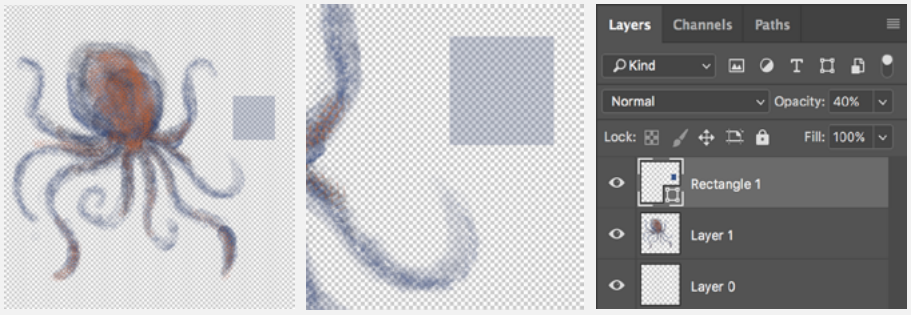
Create a square on its own layer in Photoshop, using the same color you’re testing, and set that layer to 40% opacity. Use this square to visually compare to the rest of your design, and assess if there are areas that could stand to be more opaque. In some cases, you can just duplicate your design layer enough times to bring the opacity levels up.



Use your best judgment as to how you want to adjust your design to comply with the rule. Sometimes it may work best to remove a gradient or glow altogether.

Shading

If you're planning to sell your design on a black or dark-colored garment, it may be tempting to use transparency as shading in your artwork, e.g. with lower opacities for the darker areas. However, this will almost always result in breaking the 40% rule, causing the underbase to show through and counteract the shading effect you were going for. It may also drastically - and perhaps unnecessarily - limit the garment color choices you can make available to your fans.

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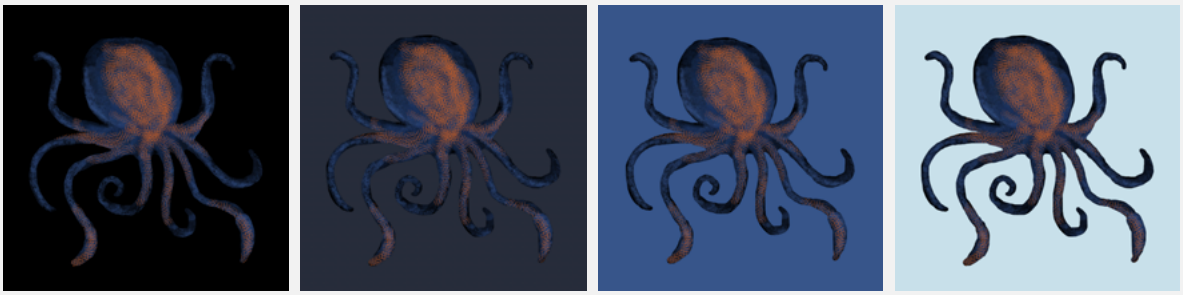
This problem is best to avoid during the creation of the design, but there is also a simple fix for existing designs. You can set your brush tool to whatever dark color looks best, create a layer beneath your artwork, and color in the transparent areas.

no backing

backing

glow deleted

In some cases, you can also just select the area around your artwork with the Magic Wand tool, invert the selection so it is only selecting the area beneath your artwork, and use the paint bucket to fill that area with a dark color on a layer beneath your artwork so that the shirt color won't show through. This will resolve any transparency issues, and won't limit your design to just a few garment colors!



expanded color options with backing

Distressing / Vintage Effects

One of the most popular effects right now is distressing designs to make them look like they've aged and been worn for a while, especially on otherwise vintage or retro style designs. There are ways to do this successfully, but it can also result in transparency issues in some cases.

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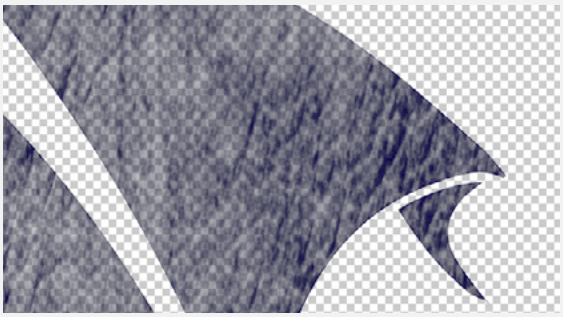
Make sure, however you create the effect, that it is clear and 100% transparent. Clear, because if a fan orders a design without realizing that there is an effect applied to it, they may assume their shirt is damaged, often resulting in a return and a disappointed fan.

looks okay on a preview...



...but semi-transparency will print poorly

The distressed areas should also be 100% transparent to avoid breaking the 40% rule and because that's what actual vintage tees look like: they chip and peel completely, they don't just gradually lose opacity in a few areas. There are many pre-existing distressed patterns that you can find on the web and simply mask out of your designs, which always look good and can help relieve some of the guesswork!

looks more like actual wear

...and 100% transparency will print better

Halftones

One of the best ways to create a gradient or glow effect without transparency is with halftone dots or lines. Since there are plenty of halftoning tutorials around the web that are easily accessible, we won't go over that again here; but there are some issues with halftones specific to DTG printing that are worth mentioning. Having dots or lines that are too small or thin can reveal the underbase and create an unwanted faded look. And anti-aliasing can result in semi-transparent dots that have similar problems to regular transparencies.

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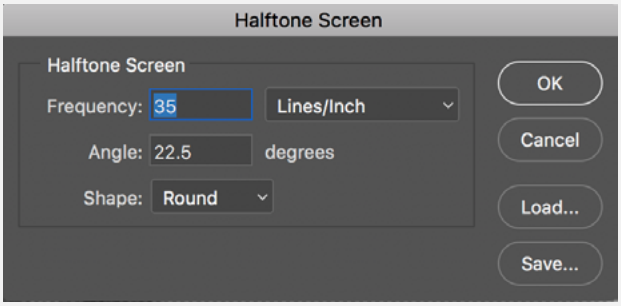
When creating a halftone effect, keep the Lines Per Inch below 25-35 (dots should be individually visible and larger than a few pixels). You should also set the angle to 22.5 degrees, or some other irregular angle, so you don't get the patterning that happens with angles at 45 degree intervals (0, 45, 90, 135, etc.).

transparent



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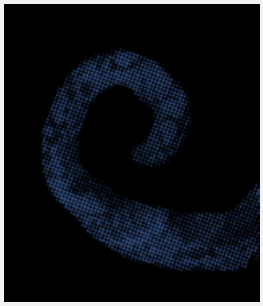
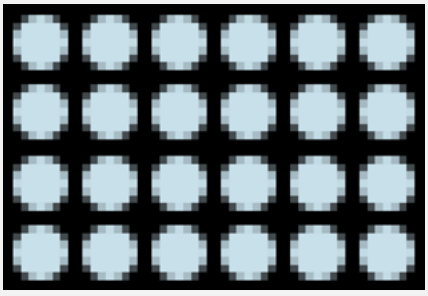
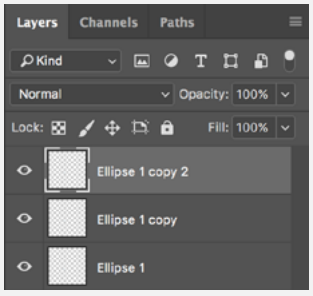
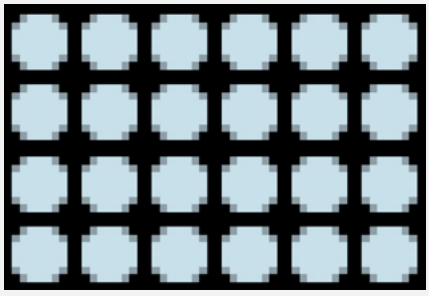


halftoned

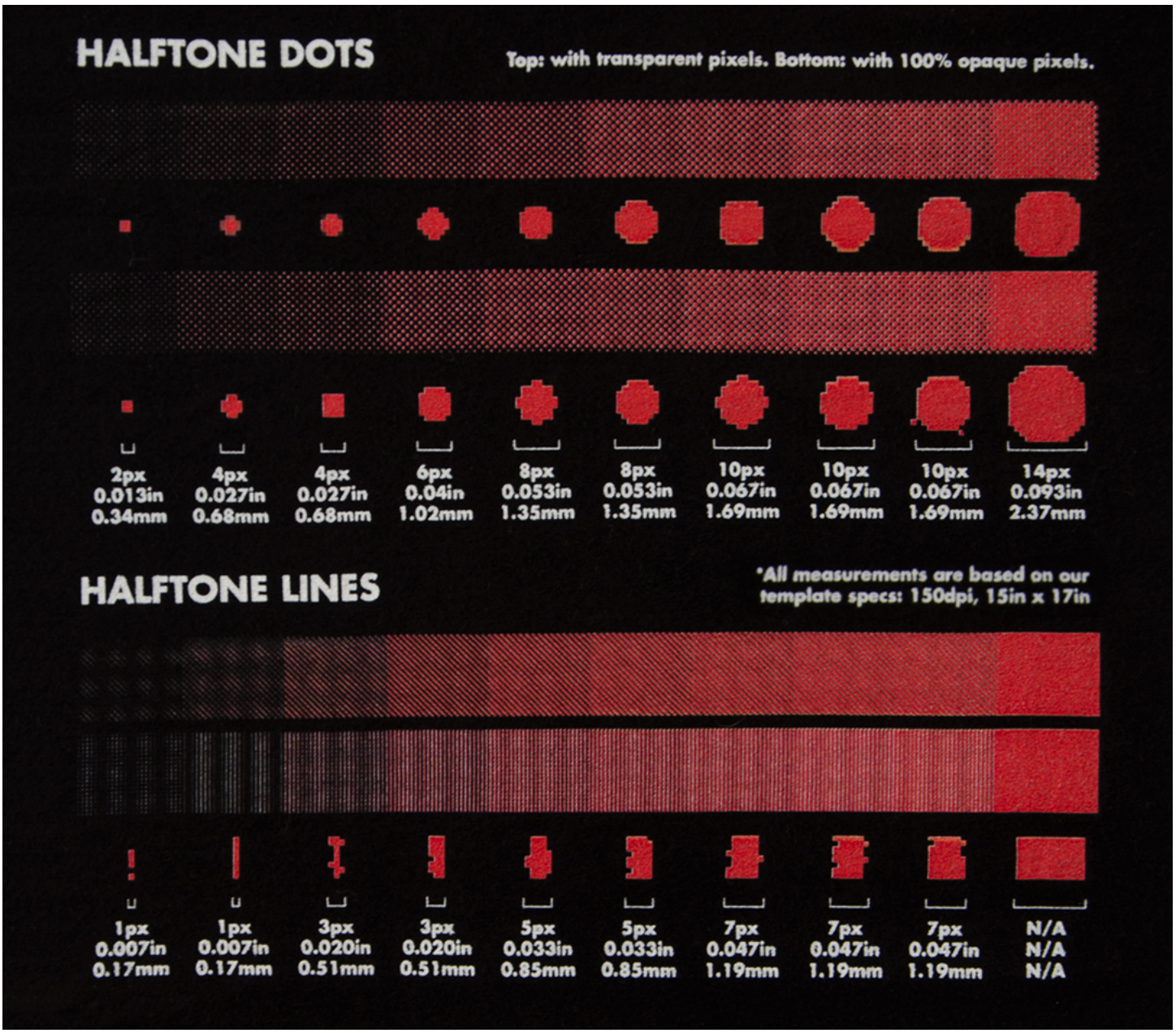
Finally, anti-aliasing will create semi-transparent pixels around each dot to make them appear more smooth and circular, but this will reveal underbase, so we would recommend turning off anti-aliasing, or duplicating the halftoned area to make those pixels more opaque. It is not necessary to halftone gradients that do not involve transparency.







Halftone Reference



Thank You!

We hope this helps you create and sell some amazing stuff! We would be nothing without the great work created by artists like you, so we're happy to help in any way we can. Cool artwork that looks good and prints well will bring you more sales and a happy fanbase that will return again and again!

Thanks for visiting TeePublic Prep School! We're looking forward to seeing what you create!

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