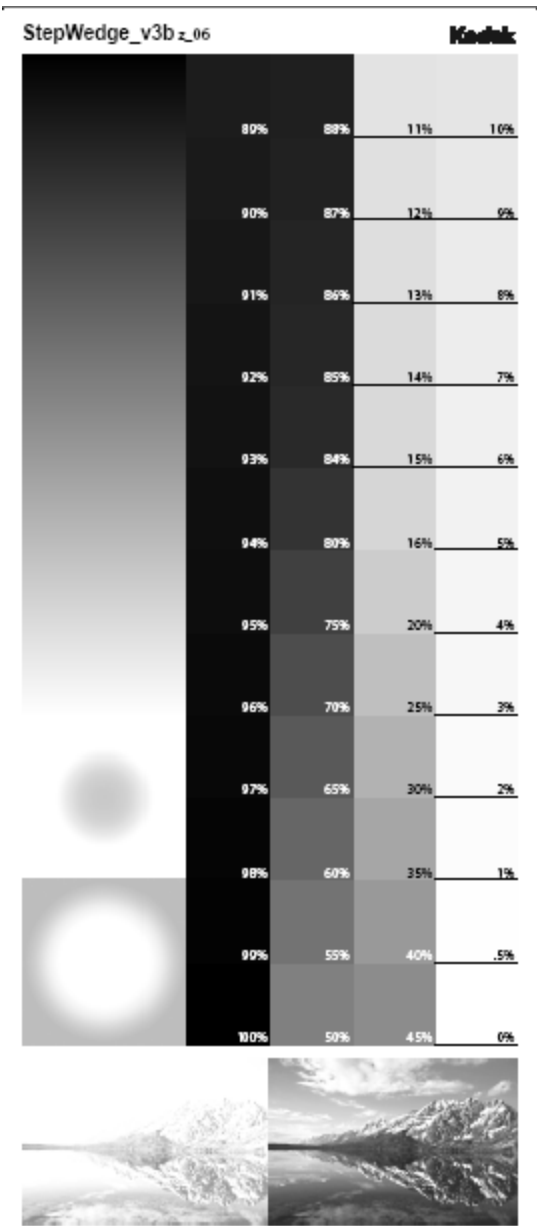


Configuring DigiCap

Unlike Maxtone and HyperFlex, there is no way to determine optimum settings for DigiCap by examining plates. DigiCap settings can only be determined by fingerprinting on press. Reproduction of solids is a combination of specific print conditions that exist only at one specific printing plant, the result of different plate durometer and chemical composition, type of stickyback used, composition of ink, press impression, and other factors. There is no way to avoid systematic press tests on a specific press, to determine DigiCap settings. DigiCap is specified at a specific feature size, in pixels, and is applied at a certain intensity, specified by percentage. To help determine a starting point for DigiCap settings, begin with the original linear step tests that you used to determine TRCs, as described in [Creating bump curves and tone reproduction curves](#). The important thing is to have step tests that have been run as close as possible to linear in the shadows, with as much detail as possible.



StepWedge_v3b provides shadow detail in 1% increments from the 84% tone

Normally, shadow areas in flexo will fill in and print as a solid at some point before the image area actually hits 100%. With an uncalibrated step test, you can perform a visual inspection to determine at what point the shadows start to print solid. Using a densitometer, you can also determine at what shadow percent you achieve the highest D-Max. This area of the image represents the optimum ink film thickness, and is the point where the most ink is being transferred to the substrate. If, with a linear printed step test, you can still see a reverse shadow dot at the 99% tone, and maximum density is not reached until 100%, then there is nothing that DigiCap can do to improve ink laydown in solids and shadow areas. However, shadow tones will often start to print as solids at some point. By visual inspection you might determine this to be at 93%. Additionally, by using a densitometer, you may determine that maximum density is reached at 95%. Use these numbers as a starting point. Using the same Kodak *Dotsize_Calculator.xls* spreadsheet used to calculate Maxtone size, you can calculate a starting point for DigiCap. You can consider a 95% shadow dot to be equivalent to a 5% white dot. Using *Dotsize_Calculator.xls*, you can see that the average dot area of a 5% dot at 150 line, in pixels, is 12.8. If this is the case, you could start by making DigiCap equivalent to 12 pixels (for example, 3x4 pixels, 4x3 pixels, 2x6, or 6x2 pixels). This feature size would be applied at 95%. You are effectively duplicating what is happening normally in the shadows. You are creating a texture in the surface of solids, which should reduce ink pooling. You are also reducing the amount of surface available to transfer ink, effectively reducing the ink film thickness in these areas.

Physical dot diameter as a function of tint, screen ruling and resolution.		
resolution (dpi)	2400	<- 1. Enter dot parameters here
screen ruling (lpi)	150	
tint value (%)	5.0%	
average dot area (sq. in)	0.000002222	2. review results
average dot area (sq. microns)	1433.69	
average dot area (pixels)	12.80	
nominal dot diameter (microns)	42.73	
nominal dot diameter (pixels)	4.04	
minimum dot diameter (microns)	42.7	-> 3. Use this value as minimum dot size

Using *Dotsize_Calculator.xls* to calculate the average area of a reverse dot, in pixels

Note: A 95% reverse dot can be considered equivalent to a 5% positive dot.

The resulting feature size is applied at the percentage determined to give the maximum density on the linear press test.

At 150 line, a 5% dot average dot area is just over 12 pixels. You can use this to specify a DigiCap feature size of 4 x 3 pixels.

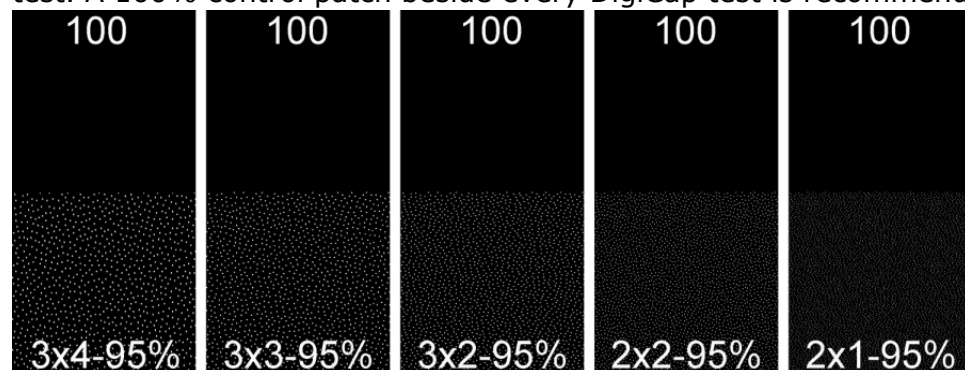
DigiCap

☒ Texture with x pixels ...as % Keepaway pixels

Process template showing DigiCap settings 3x4 at 95%

You can bracket this starting point by creating test images with a range of feature sizes and percentages. Start at 3x4 pixels, at 95%, but also create alternate tests with the same feature size but with intensity changed from 90% to 99%. Continue to bracket feature sizes close to this, also in a range. You can try 2x3, 3x3, 3x4, and 4x4, to see which combination of feature size and intensity produces the best visual appearance and the highest density.

In order to evaluate results, it is important that you have a control strip beside each DigiCap test. A 100% control patch beside every DigiCap test is recommended.



1-bit TIFF, DigiCap 3x4 at 95%, with control strip

You can only apply DigiCap as a post-raster process at the time of output, which means that you cannot use DotShop to screen different areas of the same file with DigiCap. Each DigiCap patch must be output separately and assembled individually into a test form. The easiest way to do this is in Adobe PhotoShop. Import the DigiCap screened area into Photoshop, place it together with a solid control patch, and label both with reverse type, quickly building up a custom DigiCap test form.

Press testing should duplicate the same DigiCap test tiles at intervals across the web. In wide-web printing especially, differences in impression at different parts of the web can have a significant effect on the appearance of solids and the DigiCap tests. Tests should ensure that DigiCap tiles are being compared to solids in all conditions. Ideally you would have the same test tiles duplicated on the right, center, and left sides of the web. Inspect tiles manually, and use a densitometer to confirm whether density is increased over that of the control solid. The goal of DigiCap is to create the best looking solid, with the highest density, without allowing any DigiCap features to start showing up as reverse dots in solid areas. Once the optimum DigiCap setting has been determined, you can apply it to all output for that print condition.