

Surface Print Options for Optical Media

Allied Vaughn has discovered that the surface print options on optical media is one of the least understood technologies used in the manufacturing process. Further, disc surface print has the greatest potential to create satisfaction (or dissatisfaction) with the final product. Let's face it, the surface of the disc is the visual interface between the user and the content, and it needs to generate interest, or inform, or call to act, or imply quality - none of which will happen without stunning print.

Next, we must look at the reality of project size, timeline requirements and budget constraints. Weighing in all of the factors, Allied Vaughn has put together several print options to help clients meet their overall objectives. By educating our clients on the various print technologies available to them, they can make informed decisions which will affect how their final product will look.

Read on to learn about the five main print options for optical media, recommended usage situations, print asset requirements for each, and what pitfalls to avoid. Armed with this knowledge, you will be well on your way to optimizing the look of your next optical project!

PDF Proofing & Color Match

With the advent of digital imaging and direct to plate technologies, printers have struggled with finding adequate color proofing devices.

There are many good digital options for offset print on board or paper, not so for offset print on disc. The choices are even worse for 4-color process silkscreen print on disc. Add to that the greater opacity of optical disc inks, color variables in "floodcoat white" and atmospheric variables at the time of print.

We prefer to use PDF files for proofing masking, layout and general color; but not exact color. Each monitor is unique and will display the very same pdf differently. So please do not view your PDF proof as a color match!

The absolute best way to get the color you want is to provide us with a print sample or color match expectation - we then do our best to meet your color requirements when the product is in production.

Silk-Screen Imprint is the traditional way of printing on the surface of replicated optical media. UV curable inks are forced, via squeegee, through a mesh screen onto the surface of the disc. It can be used with four-color process artwork and/or Pantone Spot colors. A maximum of 6 colors can be laid down in one pass on most presses.

Best Choice for artwork requiring the use of Pantone colors in identity items (i.e. Corporate Logos), vector shapes (i.e. line-art) or designs containing large blocks of solid color.

File Specs: For line-art or Pantone Spot colors, vector based artwork is required (.ai, .eps). For four-color process printing, a CMYK, 600 DPI file is preferred (.psd, .tif, .jpg)

Caution: Due to the phenomena of dot-loss in the screening process, lower line screen used (100 lpi), and dot gain during printing, there is not a correlation between four-color process silkscreen and four-color process offset for packaging. This caution should be noted if the same artwork is used for packaging and disc surface art – results will vary.

Offset Imprint is becoming the mainstream way of decorating optical media, specifically DVDs. This works similar to traditional offset printing, offering up to 175 line screen resolution. On most presses, an input head silk-screens the white flood, or donut, then all 4 colors are laid down on the disc at the same time – the results are impressive – sharper and smoother than their silk-screened counterpart.

Best Choice for larger quantity runs of media using photographic images for the disc imprint.

File Specs: The preferred file format for offset print is 300 dpi (minimum) CMYK raster art (.psd, .tif, .jpg) or any CMYK vector-based artwork (.ai, .eps)

Caution: Offset is four-color process only – no Pantone colors. Color-Match to offset printed packaging using the same artwork is closer with this method of imprint, but still may not be exact.

Duplication

For many companies, duplicated (burned) product is becoming the quickest way to get their optical products manufactured. Quantities in excess of 1,000 units are being delivered in just a few days. Below are three options for print on the surface of duplicated optical media without adversely impacting the turn time or quality of the product.

One Color Thermal uses a heat transfer process to put images and text directly on the surface of the media. Usually this is printed black on silver media, text and or line art only.

Best Choice for simple disc identification, internal corporate communications or large run dealer use type products.

File Specs: A 300 dpi, PC formatted bitmapped (.bmp) file is the print asset for this type of imprint.

Caution: No tone, shadows or grayscale images. They do not translate well with this imprinting process.

Full Color Thermal offers a very high-end look at quantities of one! An enhanced version of thermal transfer which requires special media to accept the color. A Cyan, Magenta and Yellow ink ribbon is used to duplicate four-color process printing. A final protective coating is provided, giving a premium look and shine to the surface of your discs.

Best Choice for lower volume marketing, promotional or entertainment type projects. Ideally suited to Photographic Images.

File Specs: A 300 dpi, RGB, PC formatted tiff (.tif) is the required print asset for this type of imprint.

Caution: Thermal transfer process does not do well with large blocks of solid color - especially lighter colors. These should be avoided when using this method of print.

Laser Printed Adhesive labels offer a very good look for the widest range of artwork, on a variety of media. CMYK toner based printers are used for the labels and for the packaging components, resulting in an exact match.

Best Choice for budget minded consumers who desire an exact match of the disc label to the printed packaging components.

File Specs: A CMYK, 300 dpi (minimum) raster file (.tif, .jpg) or any vector file (.ai, .eps, .pdf) is preferred for this method of print.

Caution: Long term effects of adhesives on optical media are yet undetermined, but it is known that adhesives don't hold up well under extreme temperature/humidity conditions. That said, this is a good choice for one-time use products or products with a relatively short shelf-life.

Silkscreen vs. Offset?

Too often, once customers see offset print, they somehow feel silkscreen is of a lesser quality. We always caution that silkscreen is not inferior to offset, but indeed it is different. Each method of print has its strengths and should be used accordingly.

Armed with this knowledge, designers can cater their artwork to the chosen type of imprint to help maximize the look of the finished product.

Allied Vaughn's CD and DVD templates offer specific guidelines to the graphic designer based on the target output for the project. Contact your Allied Vaughn Representative or visit the Toolkit section of our website for current templates.

Checklist

- Artwork Bleeds, no center knockout
- Template on a separate layer or deleted entirely
- Critical artwork between 116mm and 46mm
- All Rasterized Images embedded at 100% or smaller
- Spellcheck and Proofread
- 5 point minimum type size for one color text, 6 point minimum type size for text reversed out of one color, 8 point minimum type size for building or reversing text out of two or more colors.
- Rules (lines) made out of one color should be a minimum of .5 pt thickness and rules made of two or more colors should be a minimum of 1 pt thickness.
- White floodcoats are recommended for all 4 color process silk-screen or offset print.