

Title:

All About Dye-Sublimation Printers

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Summary:

Dedicated photo printers differ from all-purpose printers as they are designed to print photos only, as opposed to text or graphics documents in addition to photos. They are generally compact in size and lightweight, and some models even feature batteries that allow you to print without the need for an outlet. Most photo printers, including dye-sublimation (or dye-sub) printers, are built around a thermal dye engine, though there are a few that feature inkjet technology.

Keywords:

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Article Body:

Dedicated photo printers differ from all-purpose printers as they are designed to print photos only, as opposed to text or graphics documents in addition to photos. They are generally compact in size and lightweight, and some models even feature batteries that allow you to print without the need for an outlet. Most photo printers, including dye-sublimation (or dye-sub) printers, are built around a thermal dye engine, though there are a few that feature inkjet technology.

For many years, dye-sublimation printers were specialist devices used in demanding graphic arts and photographic applications. The advent of digital photography led to the entry of this technology into the mainstream, forming the basis of many of the standalone, portable photo printers that surfaced in the second half of the 1990s.

The term "dye" in the name refers to the solid dyes that were used in the process instead of inks or toner. "Sublimation" is the scientific term for a process where solids (in this case, dyes) are converted into their gaseous form without going through an intervening liquid phase.

The printing process employed by true dye-sublimation printers differs from that of inkjets. Instead of spraying tiny jets of ink onto a page as inkjet printers

do, dye-sublimation printers apply a dye from a plastic film.

A three-pass system (featuring solid dyes in tape form on either a ribbon or a roll) layers cyan, magenta, yellow, and black dyes on top of one another. The print head on a dye-sub printer uses tiny heaters to vapourise the dye, which permeates the glossy surface of the paper. A clear coat is added to protect the print against ultraviolet light. Although this method is capable of producing excellent results, it is far from economical. Even if a particular image does not need any one of the pigments, that ribbon segment is still consumed. This is the reason it is common for dye-sub printer compatible paper packs to contain a transfer film capable of producing the same number of prints. In addition, dye sublimation inks need a paper that allows the ink to remain on the surface of the paper.

Nowadays, a number of inkjet printers on the market are capable of deploying dye-sublimation techniques. The cartridges in such printers spray the ink, covering the page one strip at a time. The print head heats the inks to form a gas, controlled by a heating element that reaches temperatures of up to 500° C (higher than the average dye sublimation printer). A big difference in the results with dye-sublimation technique is that because the dyes are applied to the paper in gas form, they do not form distinct dots with a hard edge like inkjet printers. Instead, the edges are softer and blend into each other easily. Additionally, the infusion of the gaseous dye into the paper yields a more colour-fast picture.

#### Comparing Dye-Sublimation Printers and Inkjet Printers

Although it is difficult to point out every possible advantage and disadvantage when comparing inkjet and dye-sub printers, the following list mentions the major points that apply to most people printing photos at home.

#### Advantages of Inkjet Printers over Dye-Sub Printers:

- Prints are very precise with sharp edges
- Latest models offer incredible detail that exceeds most dye-sub printers
- Variety of papers/surfaces available—including matte, luster, glossy.
- Not locked in to one manufacturer's paper
- Some archival inkjets can produce prints that long-lasting
- Most inkjets can print on many different surfaces that are designed to accept ink, including CDs, CD inserts, envelopes, etc.
- Inkjets have a considerably larger colour gamut and usually produce more vivid photos than dye-sub
- Easier to obtain large format inkjets that can print 11x14, 13x20 sizes, or larger
- Inkjet printing is often cheaper than dye-sub printing

#### Inkjet Printer Disadvantages:

- Often much slower than dye-sub printers
- Most non-archival inkjets produce prints that fade a little (sometimes a lot) faster than dye-sub prints
- Print heads sometimes clog and require cleaning, or even replacement

#### Advantages of Dye-Sub Printers over Inkjet Printers:

- Very fast
- Relatively maintenance-free
- Smooth with no dot patterns visible, even under magnification
- Produce excellent shadow detail in dark areas where some inkjets may be "blotchy"
- Prints are usually more durable and more waterproof than inkjet prints
- For many viewers, dye-sub printers produce photos that look and feel more like real photographs due to the smoothness of the prints and the absence of visible dot patterns

#### Dye-Sub Printer Disadvantages:

- Consumer level models often smear high contrast edges (like a black square on a white background) to some degree, making charts, graphs, and line art look a little less "precise"
- Dye-sub prints typically only last as long or slightly longer than a good non-archival inkjet printer and are generally not considered "archival"
- Paper type selection is very limited and while dye-sub printers produce excellent glossy photos, most fall behind or do not even offer the option of matte prints
- Dye-sub printers use an entire page and an entire page worth of ribbon even to print one small wallet size photo
- Pages cannot be normally fed through the printer twice to fill more of the page as they can in inkjets
- Dust can sometimes get inside and cause vertical scratches on prints
- Dye sub printing and the cost of paper and toner (ribbon) is often higher than inkjet printing

#### Few Popular Models of Dye-Sublimation Printers

Canon Selphy CP710

Dye-sub printer for 150x100mm photographs

Samsung SPP-2040 photo printer

Dye-sub printer with 300x300dpi resolution

Samsung SPP-2020

Digital photo printer that produces 100x150mm snapshots

HiTi Photo Printer 641PS

Dye-sub printer for 152x102mm photographs

Sony PictureStation DPP-FP30

A user-friendly dye-sub photo printer

Kodak EasyShare Printer Dock 6000

A dye-sublimation printer for compatible Kodak cameras

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Olympus P-10 Digital Photo Printer

A dye-sublimation printer that prints straight from your Olympus digital camera

Polaroid PP46d photo printer

A dye-sub photo printer

Olympus P-440

Dye-sub printer capable of printing A4 photographs

Sony DPP-EX50

Dye-sublimation photo printer