

# Photo printing

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January 2014

*These notes were written to accompany tuition at Amersham Photographic Society, focusing on just the key facts needed to master each aspect of digital image manipulation with Photoshop Elements.*

## 1. Types of printer

Printing is the most demanding form of output because it is capable of resolving extremely fine detail. Flaws that were invisible on screen may be glaringly obvious in print. Consequently photographers demand the best from their printers and in recent years technology has delivered very high quality at very reasonable initial cost. The most common types of printer in use are:

- **Inkjet.** Has become synonymous with high quality photographic printing. Inkjets work by firing microscopic dots of ink onto the paper. Although the purchase price of the printers can be relatively low, special inks and papers are needed for the best quality output and these keep the per-print cost high. Only photo-quality models should be considered for the best results and these typically have 6 or more inks and resolutions of several thousands of dots per inch. Despite the marketing hype, expect to wait several minutes for a print of the highest quality. The Epson range of photo printers have given consistently good results over recent years and are probably the standard against which to compare. Models are divided into A4, A3 and A3+ paper sizes.
- **Dye sublimation.** Considered by some to produce the most 'photographic' looking continuous-tone output, dye sublimation works by melting a waxy ink ribbon onto the paper rather like early one-shot ribbon electric typewriters. Although pushed-out by inkjets, 'dye-sub' technology has made a comeback in small portable photo printers.
- **Laser.** Ideal for the rapid and inexpensive production of large quantities of text and graphics, laser printers produce poor photographic output and are not recommended for this use.

## 2. Inkjet paper types

Plain copy paper is only suitable for text and simple graphics and the cheapest types may shed fibres which could clog the works. Even when using an inkjet for non-photographic use eg correspondence, buy packets marked as suitable for inkjets. For photos there is a bewildering array of paper from a host of vendors. Common classes of paper include:

- **Photo quality inkjet paper.** The cheapest type of photographic paper, this produces quite acceptable results for everyday use and draft printing. It can be rather flimsy.
- **Photo paper.** A compromise between price and quality for suitable printers. Has a traditional photographic paper weight and feel.
- **Premium glossy, semi-glossy and lustre Paper.** Produce the highest colour saturation and fidelity but at a high cost.
- **Matte, archival matte or heavyweight matte.** Thick papers, producing a very pleasant matt finish and dense blacks for suitable images, but the surface is fragile and easily marked.
- **Speciality papers.** Available in a vast range of types and textures including canvas effects, rag-pulp, art papers and foils.

Experimentation is the order of the day to find the right product for you. It's also acceptable to print occasionally on non-inkjet watercolour papers and other materials, although the effect may be impressionistic rather than realistic. Epson papers in Epson printers produce consistent results although at high cost. Products from reputable photographic vendors such as Permajet work equally well at less cost but there have been many reports of problems with lesser brands such as inks remaining wet hours, or even days, after printing and papers that wrinkle or display a variety of undesirable characteristics. I would recommend that you take advice, experiment, and then stick with a successful product. Most papers are single sided, so ensure that you have the right side facing the print head or you will have a very disappointing and expensive candidate for recycling.

## 3. Inks

Inkjet printers use either dye or pigment inks. They are not interchangeable in a given printer. Dye-based inks have historically been brighter but suffer fading from exposure to light and

atmospheric pollution. Pigment inks are usually duller (although getting better) but last a lifetime without fading, even in direct sunlight. Ink cartridges and papers from the printer manufacturer give the most consistent results for photo printing purposes. It's very tempting to buy 'compatibles' at a fraction of the cost but the results are at best inconsistent and at worst dire. Discerning photographers usually go back to the original materials despite the price. Buying in bulk on the internet can halve the high street price and lessen the impact. Lyson is one exception – they do produce photo-quality inks with an excellent reputation. Some printers (e.g. Epson R2000) also have a 'Gloss Optimizer' cartridge which improves the finish – at a price. Others (e.g. Epson R3000) have two light black cartridges in addition to full black (and matte black), to improve monochrome printing.

#### 4. Monochrome printing

Sending a monochrome image to a colour photo printer can give disappointing results. This is largely because the single black cartridge can only put 256 shades of grey on the paper. Compare this with 17 million colours! More radical solutions involve replacing all of the coloured ink cartridges with monochrome inks in various shades and using special software. This really requires dedicating a printer for this purpose, and has fallen out of favour since the advent of 'mono-capable' colour printers. Some inkjet colour printers (e.g. the Epson R3000) include one or two additional grey ink cartridges to produce excellent greyscale reproduction when required.

#### 5. Colour accuracy

If you are entirely satisfied with your colour reproduction 'out of the box' it will be a happy accident rather than by design and unfortunately it won't last.

Photo printers are supplied with colour profiles which match the colour of the output to calibrated standards. It is important to follow the instructions to ensure that these are loaded correctly and activated for each print to avoid unexpected differences between screen colour and print colour. Unfortunately this is fraught with difficulty and Adobe and Epson have been particularly unhelpful over the years in explaining the maze of 'features' in this area to mere mortals and it remains a nightmare to set-up. Colour management is provided in both Photoshop and in the printer driver software. Unfortunately by default both are activated which produces poor results. It is necessary to de-activate one or the other for accurate and consistent results.

I have no idea why the implementation of colour management should be so ridiculously complicated. I have spent a lot of time understanding this subject and a proven recipe for Photoshop colour management is in my notes '*Matching colour from screen to print*'.

#### 6. Epson hints and tips

- Inkjet printers need to be used regularly as the nozzles are vulnerable to blockages or air bubbles. Switch the printer on at least once a week and perform a Nozzle Check routine before making important prints. Perform a Head Clean if blockages are revealed. If two or three cleaning cycles does not fix the problem do not continue. Leave the printer for an hour or two before trying again. Do not keep the printer near a source of heat such as a radiator or CRT monitor.
- When not in use, switch the printer off but leave it plugged into a live socket. This enables it to remember if it has been on recently and can inhibit unnecessary head cleaning routines and ink waste.
- The roller can often be adjusted for thick paper and envelopes. Check that it is set correctly.
- Experiment with the quality and speed settings in the printer driver to save time and money. You can often use lower settings to produce identical results in a fraction of the time and ink usage.

#### 7. Useful links

Photo quality printing is a complex topic and it can be hard to get optimum results; [www.marrutt.com](http://www.marrutt.com) has some excellent tutorials on using (and abusing) Epson and Canon printers. A wide range of speciality inks and papers as well as continuous inking systems to replace individual ink cartridges are marketed by Marrutt; see also [www.permajet.com](http://www.permajet.com) and [www.fotospeed.com](http://www.fotospeed.com).