



Océ
Wide Format
Printer Buyer's
Guide

A Wide Perspective





What Printer is Right for You?

Are you planning to purchase a wide format printer or plotter sometime in the future? If so, you've come to the right place. Before getting into the details of what printer may be right for you, let's get some terminology straight. The terms "plotter" and "printer" really mean the same thing. The term plotter at one time was used to describe a device that used multicolored pens traveling over paper to create an image. Due to advances in technology and user requirements, the

industry is well beyond plotter technology and for purposes of this guide we will use the term printer.

Some of the key things to look for include:

- Printer types
- Speeds
- Color vs. black & white
- Print technology and print sizes
- Scanners
- ENERGY STAR® Certification

Key factors to consider when buying a wide format printer

Printer types

Wide format printers generally come in one of two configurations: printer only or multi-function. Printer only configurations are just that, they print digital files either submitted from a user's desktop, print from a history queue located on the printer's controller, or make copies. A recent development is the ability to print directly from a USB drive at the printer. This accommodates walk-up printing in job-trailer environments for example.



Multi-function devices are printers that also come with a scanner and are available in one of two configurations; those with the scanner mounted on top of the printer and commonly referred to as single footprint devices, or stand alone scanners which are separate devices that sit adjacent to the printer. Single footprint devices are quite a bit smaller than their dual footprint counterparts, so consider these if your office space is tight. If you're not tight on space, a stand alone scanner may be a better choice. These devices can be configured to scan-to-file or print directly to one or more wide format printers. They also provide better depth of field and thus better quality scans.

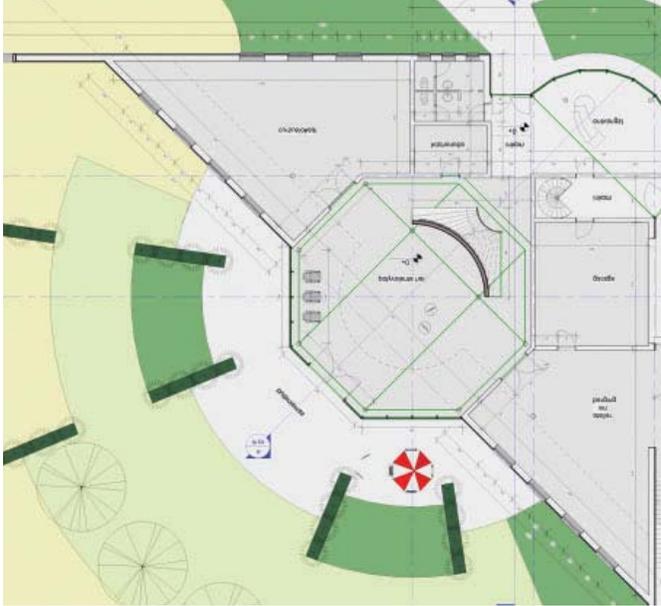
Speeds

Don't evaluate a printer just by the numbers. Most printers within their functional categories will have almost identical speed specifications; however their productivity may vary substantially. What this means is that when you figure in the amount of time it takes for the printer to warm up, the time it takes the printer to physically output a document, and then the time spent to retrieve, collate and handle the paper, a printer that is supposed to print four D-sized pages/minute (ppm), outputs substantially fewer documents when you consider all these productivity factors.

Most black & white printers are rated to print a designated number of D-sized drawings (24" x 36") per minute (ppm). Black & white printers will range from 1-2 ppm in the low-volume segment, 4-8 ppm in the mid-volume segment and 9-20 ppm in the high-volume segment. These speeds represent the physical output speed of the engine. You should also consider what the printout time is when printing from sleep mode. Some printers take less than a minute to wake up and print while others take 3-4 minutes. This is an important factor to consider since most office printers sit idle for the majority of the day and you don't want to sit and wait once you are ready to print.

Because color printers use inkjet technology (discussed below) and print much higher quality output containing more dense coverage, their speeds are slower than black & white devices. Speeds will typically range from 1-2 ppm in production mode and print much slower in quality mode.



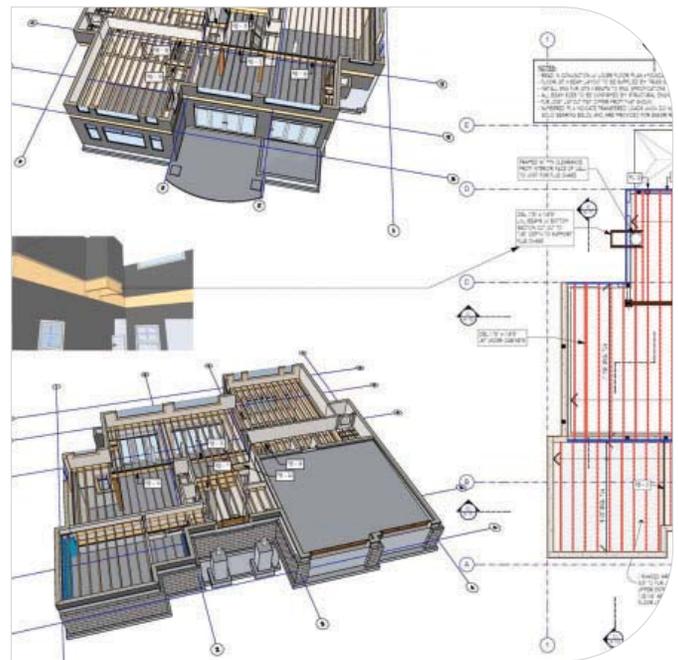


Color vs. black & white

Just like the home office, wide format printers provide the ability to print in black & white, color or both. If you primarily print 4-color graphics and posters, a color printer is most likely the best choice. Same goes for black & white if all you're printing is monochrome architectural drawings. However, if you print a combination of black & white and color such as architectural drawings that combine colorful images with line drawings or simple line drawings with a combination of black & white and color lines, there are "hybrid" printers ideally suited for these applications. Some of these hybrid color inkjet printers provide black & white operating costs that are comparable to a printer that prints only black, which provides you the flexibility to print color when you need to, without having to own two devices.

Color printers typically use inkjet technology and range from small inexpensive consumer models to large, more expensive machines used in a business environment. They are constructed with a printhead and a series of nozzles to spray drops of ink onto paper.

Inkjet printers use cartridge-based aqueous inks consisting of a mixture of water, dyes or pigments. These ink cartridges can be expensive and the output is difficult to control on the surface of the media, often requiring specially coated media. While coated media helps to provide crisp quality images, it requires extra time to dry before the print can be used, doesn't lend itself to stacking and tends to curl.



However, there is dry toner color technology available today capable of printing on traditional bond paper. This technology provides all the benefits of toner printing (e.g. no drying time, stackable prints and no paper curling), and the color quality benefits of inkjet printing.

Depending on the manufacturer and their model, ink cartridges come in various capacities usually measured in milliliters and are sold as separate black and color cartridges. The print head is a separate consumable item for inkjet printers.

Helping to distinguish which technology best suits your business

Print technology and print sizes

Which is best? There is really no best technology as it depends on what type of printing you do, but there are two common print technologies used with black & white printers and one with color printers.

Black & white printers use some form of electrophotography technology which was originally invented in 1938, with its first primary application being copy machines. This technology uses electrostatic charges, toner, which is the powder that forms the printed images on the paper, and light. To create a printed image, a coated photoconductive drum is positively charged, using a laser or LEDs, a negative of the image is beamed onto a drum, cancelling the charge and leaving a positively charged replica of the original image. A negatively charged toner is attracted to the positive image on the drum. The toner is then attracted to the paper, which is also positively charged. The final stage is fusing, which uses heat and/or pressure, causing the toner to permanently adhere to the paper.

One of the key differences in the application of the electrophotography technology is at the final fusing stage. Technologies today use either a hot fuser roller or radiant fusing to apply the image to the paper. During the radiant fusing process, the toner is fused to the media by heat rising from a grid of heating elements. The toner melts and is fused to the media without distorting the image or requiring any direct pressure. Because there are no pressure rollers to heat, printers using radiant fusing technology maintain a lower operating temperature. The fusing section heats up quickly

to fuse the toner to the media and cools quickly when the task is complete. Once print jobs are completed, radiant fusing printers go into a “sleep mode” and draw minimum power, allowing them to earn the U.S. Department of Energy, ENERGY STAR designation.

On the other hand, printers with hot pressure rollers press the image to the media. These printers require a lubricant on the fuser rollers to prevent the print from sticking to the roller. This lubricant is usually silicone oil, which can leave a residue on the print. Pressure rollers tend to smash the toner into the media, which can blur the printed image. Printers using this technology tend to run hotter and consume more energy, especially when in sleep mode.

Regardless of the type of print technology, look for printers that are capable of printing sizes between 11"-36" and image resolution ranging from 400 dots per inch (dpi) and higher.



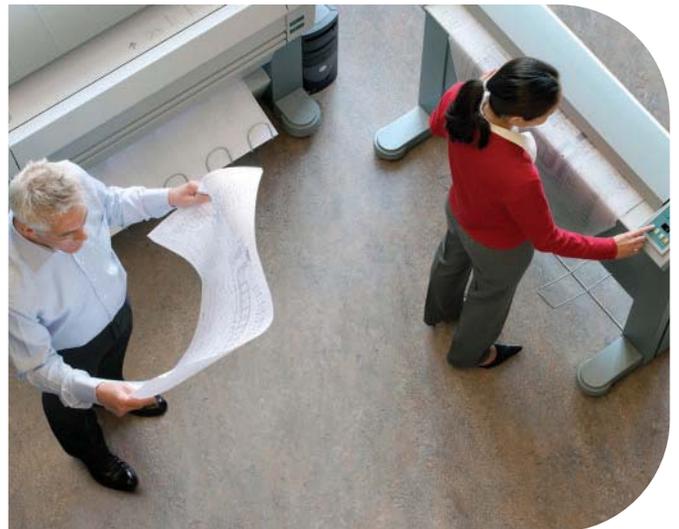
The complete office footprint includes a scanner

Scanners

Even in today's digital world, you'll need to scan posters, maps, and drawings so you may want to add a scanner to your wide format printer. As mentioned earlier, scanners now come attached directly to the printer making for an efficient single footprint, or they can be attached separately to a printer.

Key specifications to consider are:

- **Scan technology**—there are basically two choices with regards to technology, Contact Image Sensor (CIS) and Charged-coupled Device (CCD) technology. Generally, a CIS scanner is considered to be better for technical documents (CAD, AEC, GIS, Maps, Government, and Utilities) because it is able to reproduce fine lines and small type. A CCD scanner on the other hand is often used in the graphic arts arena to scan photographs, renderings and posters.
- **Image clean up software**—image processing technology that optimizes image quality, even while scanning even the most difficult documents. The way to see what's best is to scan your most difficult documents.
- **Range of document thickness**—most scanners handle documents up to .12 inches thick, while others designed for thicker originals handle documents as thick as .60".
- **Color or black & white capabilities**—if you have multi-colored originals that need to be scanned or if you want to capture markups in different colors to digitally distribute, a color scanner is a must.
- **Speed of scan**—black & white scanning will run faster than color. The smaller the dpi or resolution of the scan will impact speed and file size if you archive scans.
- **Warm up time**—less is obviously better.
- **Width of original document**—normal widths are 8"–36", but for oversized scanning, there are units capable of scanning up to 54".





Earth friendly engineering

ENERGY STAR Certification

Don't assume that all printers carry the Certification. Many do, but to confirm this go to the Energy Star website http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=IEQ

In addition to this, look closely at the specs and how much power the printer consumes both while it's operating and in sleep mode. Some devices run hot to stay ready when you need to print, but considering your printer is idle most of the day, all this time the printer is burning precious energy. Also consider the amount of time it takes for a machine to warm up before printing. This warm up time not only uses excess energy to get ready to print, but it also uses your time waiting for the prints to come out. There are devices today that use instant on technology, meaning that the printer sits in sleep mode burning energy on par with a 60 watt light bulb, but as soon as you submit a print, it's ready to go.

Also, closely investigate how much ozone is emitted from your printer. Because you'll work in close proximity to the device, a printer that emits more ozone may cause eyes to water or create an odor in your office.

Additional resources

Consult these independent industry websites as potential sources of information on the subject of Wide Format Printers:

- <http://www.cadalyst.com/>
- <http://www.berth.com/>
- <http://www.buyerszone.com/>
- <http://www.wide-format-printers.org/>

Beyond the Ordinary



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