



Océ
Wide Format
Scanner
Buyer's Guide

Learn how to
choose the scanner
that is right for you



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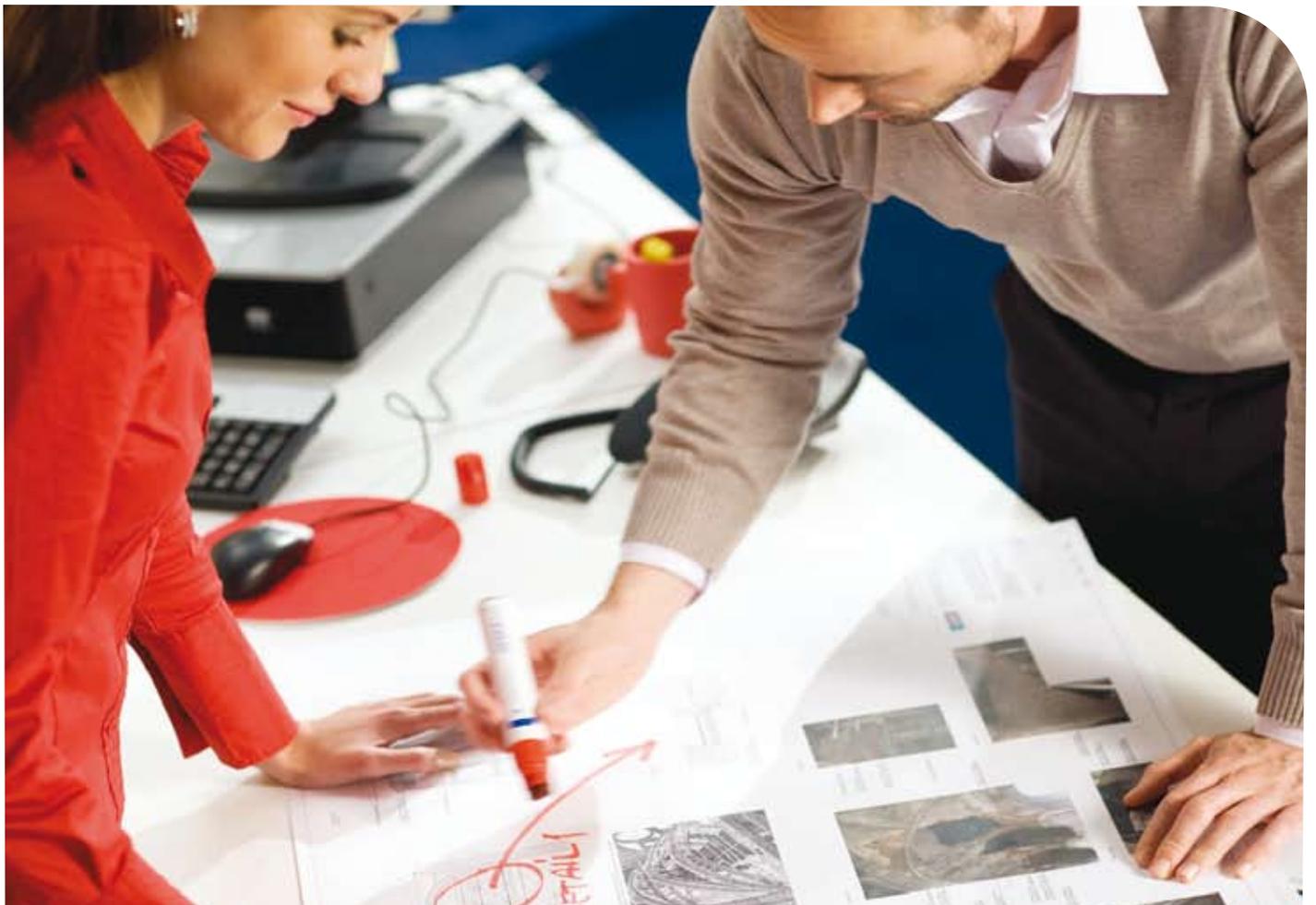
Wide Format scanner considerations

If you are considering the acquisition of a wide format scanner to scan full or partial sized documents for archiving purposes (i.e. scan to file) or copying purposes (i.e. scan to print), this buyer's guide will help you better understand the choices available. Today's scanners are faster, more productive, capture color more accurately, have better image quality and are more affordable due to advancements in technology.

Whether you plan to use your scanner for digitizing maps, fine art, construction drawings or posters, this Wide Format Scanner Buyer's Guide will assist you in choosing the scanner that best fits your needs.

There are several key attributes to consider when purchasing your wide format scanner:

1. Key User Requirements
2. Image Quality
3. Image Enhancement Capabilities
4. Scan Technology
5. Sustainability



Key user requirements

Color or Black & White (B/W)

Are you going to need color or B/W output or possibly both for your wide format scans? The document originals you are using will help decide this for you. For example, if your originals are both B/W and color and your archiving requirements are B/W, then a B/W scanner is perfect. However if you're scanning color documents or B/W documents with color markups and want to retain the color images, you'll need a color scanner. Documents such as posters, maps, photographs and paintings will almost always require a color scanner.

Scanner Usability

Scanners have a tendency to be a bit intimidating, so in order for novice users to be productive with little or no training, a number of features are key:

- **Scan Templates** — these are pre-programmable settings that let a user select the scan mode (e.g. lines and text, photo, etc.) as well as the document type and dpi (dots per inch) setting with a single push of a button. This makes it very easy for a user to walk up and create the best possible scanned images without going through a cumbersome trial and error process.
- **Matrix copying** — this feature is more commonly found on production speed scanners and lets a user create multiple copy/print jobs from many scanned originals. Copy jobs can be configured as full or half size or literally dozens of different combinations. This feature also lets users save the copy job and settings for future use.
- **Output trays** — The volume of documents scanned helps determine what type of output tray is best. If scan volumes are very low, users can just catch the documents as they exit the scanner. However, if you do any type of batch scanning, you'll want to make sure your scanner has at least a catch basket or, better yet, an original delivery tray to catch multiple original documents. The advantage of the delivery tray is that the originals are returned to the front of the scanner in a collated fashion. Many delivery trays are capable of holding 100+ documents. This functionality helps avoid productivity bottlenecks of scanning originals and having to manually retrieve and place each document on a separate table or retrieve them from a catch basket with the originals all bunched up.
- **Auto/Stream feeding** — this is a great feature that helps automate the batch scanning process. Once the first scan starts, you can continue to feed originals without the scanner pausing. This feature is more commonly found on production speed scanners, but it is very handy during batch scanning.

Scan Speeds and Scan Modes

Not considering speed when purchasing a wide format scanner could possibly create a large workflow bottleneck. The larger your scan volumes, the faster the scanner should be. Scanning speed is typically measured in ips (inches per second). B/W scanning runs faster than color. Lower dpi or scan resolutions impact the speed of the scanner as well. For example, a 200 dpi scan using the lines and text mode runs faster than a 400 dpi scan in photo mode.

Make sure the scanner you are considering has a broad range of flexibility when it comes to dpi and scan mode settings.

Common scan mode settings include:

- Lines and text mode
- Photo mode
- Grayscale mode



Scan Destinations and file types

Make sure your scanner supports the following Scan Destinations and File Types. The more flexibility users have, the better off they are.

- **Scan to file** — lets users select a digital destination where to store or send scanned files. Common destinations include scan to the device controller (e.g. C drive), scan to FTP and scan to a network directory. The more configurability these storage options have, the better off you are.
- **Scan to print**—this lets users create copies directly from scanned original(s). Many scanners come with programmable copy options that let you create sets of drawings from multiple originals.
- **File types** — make sure your scanner has common scan to file formats including PDF, PDF/A, TIFF and CALS.

Scanner Configurations

Make sure your scanner is capable of supporting or can be upgraded to meet one or all of the following types of configurations:

- **Stand alone scanner** — this is a common configuration when only scanning to file and no copies are required.
- **Scanner supporting multiple printers** — this is a popular configuration when a single scanner is required to make copies to more than one wide format printer. A common example of this is when a single scanner is configured to a wide format B/W printer and a color inkjet printer.
- **Multifunction scanner and printer combination** — this is a popular configuration where the scanner is mounted on top of the printer and is commonly referred to as a single footprint device. The benefit of this configuration is that the total footprint is quite a bit smaller than a standalone scanner and printer configuration. So consider this combination if your office space is tight.

Document Sizes

The width of scanner needed will depend on the sizes of originals being scanned. For originals, normal scanner widths range between 36"-54". Size also depends on the physical limitations of your own space and what size scanner will fit into your office.

Most scanners handle documents up to 0.12" thick while other scanners designed for thicker originals handle documents as thick as 0.60".

Image Quality Resolution

When evaluating a scanner there are two types of resolution: optical resolution and interpolated resolution. Optical resolution refers to the resolution at which a scanner can capture an image and has been an industry standard of quality. This is much like the mega pixel specification of a digital camera. In contrast, the interpolated resolution indicates the resolution that the scanner can provide through interpolation, which is the process of generating intermediate image values based on known values. Both are explained below in more detail.

- **Optical Resolution**— Specifications for optical resolution typically range between 200 and 600 dpi but can perform at a much higher dpi depending on interpolation. Black and white applications typically call for 200-400 dpi while color scanning applications call for requirements up to 600 dpi.
- **Interpolated Resolution** —Unlike optical resolution, which measures how many pixels the scanner can see, interpolated resolution measures how many pixels the scanner can guess at. Through a process called interpolation, the scanner can turn a 300 x 300 dpi scan, for example, into a 600 x 600 dpi scan by inserting new pixels in between the old ones, and intelligently guessing at what it would have sampled in that spot had it been there. This process usually diminishes the quality of the scan and should therefore be used with caution. Interpolated resolution can also be accomplished by many image editing software applications. Although interpolated resolution provides a specification with a large dpi, it doesn't necessarily add that much to the value of the scanner.

Higher scan resolution means better image quality; however a larger dpi will reduce the scanner's speed as well as increase the size of the stored file. This is less of a problem today with the low cost of data storage.

The key to selecting the right resolution is to know what your applications are. If you are scanning to print for applications such as painting replicas, photos or posters, you are naturally going to require a higher dpi to capture the image correctly. Conversely, if you are archiving B/W files, 200 dpi is more than sufficient.

Bit Depth

Bit depth is important when scanning color images and specifies how much color information is available for each pixel in an image. The more bits of information per pixel, the more available the colors and the more accurate the color representation.

Image Enhancement Capabilities

Your scanner should also have software available to clean up damaged or dirty original drawings (e.g. remove background smudges, fold lines, etc.) while enhancing weak lines. This saves time since the process of copying and scanning can be a very time-consuming task. However, when the copies are not acceptable the first time or when the prints are delivered with important information missing, the costs of the reproduction can skyrocket. Image enhancement software helps to enable that your originals are scanned with the optimal quality the first time with minimal operator intervention. The more the scanner's software can automatically perform this clean-up, the less time you'll need to spend manually cleaning up later. This can be especially important when scanning older documents.

Look for image enhancement technology that analyzes and enhances every line of the document in real time from the top to the bottom of the original. Some image enhancement technologies only analyze the first few inches of the original and make all the adjustments based upon that information. This can often lead to inferior scan quality due to image diversity within the original document.

Additional key factors that lead to optimal image enhancement and quality include:

- **Automatic background compensation** — background “noise” in the image is removed.
- **Filtering** — filtering distinguishes weak information; such as fine pencil lines, from other information and digitally enhances it.
- **Half Toning** — half toning converts grayscales into a black and white image. This creates the perception of smooth shades of gray to the eye, while at the same time ensuring that lines, solids and text characters are sharply and crisply filled.
- **File Size Optimization** – allows the user to optimize for scan quality or file size, which is best used with good quality originals. This usually results in a smaller file size for storage or electronic delivery.

Scan Technology

CCD vs. CIS

There are essentially two choices with regards to scan technology, CIS (Contact Image Sensor) or CCD (Charge Coupled Device). Generally a CIS scanner is considered to be better for technical documents (CAD, GIS, AEC, Maps, Government and Utilities) because of its ability to reproduce fine lines and small type. A CCD scanner, on the other hand, is often used for graphic arts applications to scan photographs, renderings and posters.



In the CIS method, the light from the three RGB color LEDs used as the light source are reflected by the document. This reflected light is received in turn by the CIS sensor, which performs the actual scanning. The LEDs, lens, and sensor are integrated into a single module. Since these components are all rods of the same length in close contact, this method is called the “contact image sensor” method.

In the CCD method, light from the light source is reflected by the document's surface onto a mirror or series of mirrors, then onto a lens, and received by the CCD array (a collection of tiny light-sensitive diodes that convert the light into electrical charges). Since the CCD reads light reduced by the lens, this method is called the “optical reduction method”.

In order to determine which technology is best for you, it is highly recommended that you run test scans using your more commonly used documents and then decide which scanner provides the best images. If quality differences are not that discernable, which could very well be the case, look at other factors like scanner speed and cost.

Beyond the Ordinary

Sustainability

Energy consumption is a concern for many wide format scanner consumers. Look closely at the specs and how much power the scanner consumes. In order to minimize energy waste when the scanner is not in use or during warm up times, you should select a scanner that has fast warm up times with a standard timer clock so users can set power-up and power-down modes according to their operation. The scanner should also be ENERGY STAR® certified as well as ISO 14001 and RoHS certified.



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