



Large Format Scanner Buyer's Guide

*Before You Choose a Large-Format Scanner...
Top Seven Factors to Consider*

- 1. Quality**
- 2. Reliability**
- 3. Customer Support**
- 4. Productivity**
- 5. Price**
- 6. Flexibility**
- 7. Technology**

Introduction

Congratulations. You are considering purchasing a large-format scanner to scan to file and/or print full-sized documents. The good news is that today's scanners have come a long way. They're faster, wider, and they deliver better image quality, color capture, and accuracy. They're also more affordable, making it easier for every user to transform large paper documents into an accessible digital archive—or integrate them into a digital workflow. Many come with easy-to-use copy and scanning software to optimize results.

Whether you're digitizing maps, architectural, engineering, and construction drawings, ads, posters, photographs, fine art, or fragile, one-of-a-kind records, there is a scanner for the job. The question is, how do you know which scanner is right for you?

About this guide

Purchasing a large-format scanner is an important decision. The purpose of this Buyer's Guide is to help you select the right scanner for your unique requirements. Whether you're a first time buyer or an experienced user, if you're in the market for a large-format scanner there are seven key factors you should consider to satisfy current and future needs.

1. Quality
2. Reliability
3. Customer support
4. Productivity
5. Price
6. Flexibility
7. Technology

Define your requirements

In order to choose the right scanner—one with the right imaging technology and the right set of features at the right price—you'll need to figure out how you'll be using it. How will adding a large-format scanner support your business applications and add value? What documents will you scan? Are they large or small? Old or new? Are you scanning for reproduction or to archive? In black and white or color? What about volume requirements—how many documents will you scan in a given day? Consider this:

- **Scan to file**—when you're scanning to file or archive, resolution is an important consideration. You want to precisely capture fine lines and details in black and white and/or color. The size of scanner you buy depends on the size of your originals, how fast you want to scan them, and your budget. You can run 24" x 36" originals through a 36-inch scanner in landscape orientation faster than a 24-inch scanner in portrait mode, but the investment may be slightly

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higher. The physical quality of originals is a factor too—documents in poor or damaged condition may require special handling or the use of a flatbed scanner, or may need editing or image processing software to correct hard-to-read areas on the document. Accuracy can also be important for some applications; especially for maps and some technical drawings. In this case, the ideal scan accuracy to look for in a scanner is 0.1% between any two points on the document. Contex delivers a very high level of precision and stability in the scanned image.

- **Scan to print**—if your primary applications will be scan-to-print, quality is paramount. But output quality is closely linked to the printers' capabilities, so you need a scanner that delivers excellent image capture and resolution and a wide format printer that performs equally well. Consider the size of your originals—if they're oversized, you'll need an extra-wide scanner that delivers excellent quality results. For scan-to-print, you'll need a scanner paired with a printer to provide a complete document copier solution. An application-specific dedicated printer driver and closed loop or ICC calibration for color matching is essential for accurate color results. For monochrome reprographic work – often in higher volumes - speed is also important. Scanning more documents to the print queue, with minimal software manipulation makes for a more productive workflow.
- **Color vs. black and white**—decide whether you need support for color or monochrome or both in your scanning requirements. Two considerations will drive this decision—your applications and your budget. Technical documents like blueprints and architectural drawings are often produced in black and white. However, many newer drawings often contain color as well. Likewise, there may be color highlighted information requiring color scanning capability, even if only limited. Documents like maps, posters, paintings and photographs are usually scanned in color. As for budget, while the price differential continues to shrink, you may pay between 10 and 15 percent more for a color scanner.
- **Volume**—how many jobs will the scanner be required to run each day? Are there peak usage times? How many users will the device support? What do you think your average monthly volume will be? The higher the volume, the faster the scanner you need. If you're scanning large numbers of originals, you'll need batch scanning capabilities. And if many people will use the scanner, it should be very easy to use.

Seven Key Factors to Consider When You Buy a Large Format Scanner

Once you've considered factors like budget, the nature of your originals, whether you'll be scanning to print or file, and color vs. black and white, you're ready to consider these seven categories—quality, reliability, customer support, productivity, price, flexibility, and technology.

1. Quality

For scanned images, quality is measured against three main criteria:

- **Optical resolution** usually ranges from 400 to 1200 dots per inch (dpi). This represents the physical capability of the scanner to view image details and is related to both the imaging technology, *and the quality of the components used* in that technology. This specification is often the first number that buyers seek to determine the scanner's image quality capabilities – like MegaPixels on a digital camera. As the cost of storage space decreases, and as printing resolutions continue to increase, the demand for higher scanning resolution will also increase. But it is also important to note that optical resolution requirements will depend primarily on the documents scanned and the application.
- **Bit depth** describes the range of colors a scanner can capture—some color scanners can capture 24-bit color, while others can capture up to 48 bits. (see *Diagram A* below) Contex scanners capture images in 48-bit color for maximum precision and vibrant color, and capture monochrome images at 16 bits to bring out the detail and depth in any drawing.

8 Bit Grayscale



16 Bit Grayscale



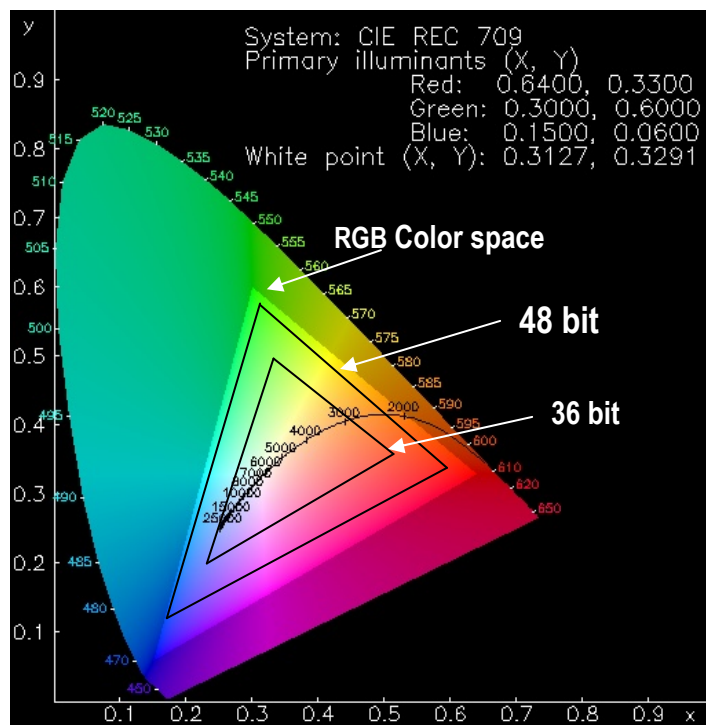


Diagram A

- When evaluating a scanner's spatial **accuracy**, look for a minimum of 0.1%. It is important to verify that the stated accuracy is between any two points in the document, not just between the two outer-most edges. Context HD scanners use a patented technology, Accurate Lens Enhancement® (ALE) to assure that geometric accuracy measures the spatial accuracy of an image compared to the original. Additionally, both the HD and SD scanners have All-Wheel-Drive (AWD) with precision rollers transporting the document through the scanner smoothly without distortion.

Clearly, you want a scanner that delivers the best performance in all three areas. However, there are other things to think about before you buy.

Calibration tools—while some manufacturers claim their scanners don't need calibration, calibration tools play an important role in quality—and without them quality suffers. Context is the only manufacturer that offers an automatic Scanner Maintenance application that adjusts light profiles, aligns cameras, and calibrates color. In addition, Context scanners automatically self-calibrate when the scanner is idle, so they never suffer degradation, unlike other scanners that don't have calibration support.

Design, hardware engineering, and quality—how is the scanner designed? Is it a sturdy, quality device built to last? Context large-format scanners feature best-in-class design and are backed by

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continuing product development. The combination of decades of industry knowledge plus an eye on innovative new technologies provide the foundation for an exceptional portfolio of products that has resulted in a long list of patents for imaging technologies and imaging software.

Quality assurance—look for a high-quality scanner built to last. Contex is one of the few manufacturers that employs a multi-checkpoint process to ensure that every scanner meets the highest level of quality before it leaves the plant.

ISO-9001 certified and eco-friendly—Contex scanners are produced in a state-of-the-art ISO-9001:2000 certified manufacturing facility and all products are developed to minimize their impact on the environment. Contex scanners comply with stringent criteria to promote energy efficiency and reduce pollution. The Contex SD series is fully Energy Star compliant, while all Contex scanners are also RoHS compliant - which means scanner components and materials are free of hazardous materials like lead, cadmium and mercury.

2. Reliability

Next to quality, you need a scanner that delivers predictable performance. Choose a device engineered for uptime and make sure the components are built to last. Consider these factors...

Technology—reliability starts with technology. Contex scanners are based on state-of-the-art technology proven to be very reliable. What's more, user-replaceable parts minimize the scanner downtime, keeping your operating costs low.

Quality of materials in manufacturing—make sure the scanner uses the highest quality parts and materials. Contex scanners use the highest grade of electronics, optics, plastics, and metals available, which makes a huge difference in quality and reliability.

Messaging system—proactively managing basic maintenance functions is a great way to ensure continuing performance. Choose a scanner that notifies you to replace a part before it is likely to fail. Contex scanners feature an intelligent messaging system that monitors the life-length of vital parts and alerts the operator when it's time to change a part or perform basic service functions, which saves time and money and keeps business moving without costly delays.

Design—when it comes to design, look for scanners that are ergonomically designed based on years of experience and end-user testing. Contex scanner designs incorporate worldwide customer feedback from the largest installed base in the industry.

3. Customer Support

Before you buy, consider after-sale service and support. This is an absolutely critical factor when considering the long-term cost of ownership. Look for on-site support, qualified dealers and distributors, online tools, and a robust, 24-month parts warranty.

Service and support—does the vendor offer quality service and support? All Contex scanners are backed by authorized, factory-trained personnel. In addition Contex offers a 24-month parts warranty for all scanner parts and on-site warranty coverage that may be extended for up to five years. Help desk support is available for immediate answers to software and hardware questions, and optional services such as on-site installation, training, a depot repair facility and additional time and material services are available.

Qualified Distributor/Dealer Channel—purchase your scanner from an authorized distributor or dealer trained to understand your environment, your applications, how to develop a solution tuned to your needs, and scanner features and benefits and how they support your requirements. Make sure you purchase from a professional imaging company and not from what often appears to be the “cheaper” alternative—a mail-order operation.

Web support—look for a scanner/vendor that offers online support. The ability to conveniently download tools, software and firmware upgrades over the web can go a long way toward driving productivity and eliminates the need to order software or schedule a technician visit. The more web-based tools, support and self-help offered with your scanner, the better.

Warranty—make sure your scanner comes with a robust warranty. Contex 24-month warranties cover all scanner parts and Contex distributors all provide on-site service and support options for “peace of mind” when investing in large-format scanner.

Documentation—if you can't use the documentation that comes with your scanner, you'll struggle with getting it up and running. Contex documentation is presented in nine different languages, with easy-to-use instructions, detailed color graphics, and a web tool to further simplify installation.

4. Productivity

Productivity is an essential factor when assessing and choosing a large-format scanner. Look for a scanner that strikes the right balance of speed, quality, reliability and ease of use.

Speed—if you want to avoid production bottlenecks, speed is critical. The more originals you have to scan, the faster the scanner should be. Speed is typically measured in inches per second, and with scanner widths ranging from 25 to 54 inches, Contex offers a full range of speeds up to 12 inches per second.

Automatic functions—when functions are automated, productivity accelerates. Contex automatic lens enhancement (the scanner automatically adjusts the lens) and automatic thresholding (automatic scan cleanup) features enable cleaner scans with minimal intervention.

Ease of use—the simpler the device is to use, the higher your productivity. Ease of use means less training, fewer calls to the help desk, less strain on IT resources for problem management. Look for a system with simple operation, an intuitive user interface and easy-to-use online tools.

Feeding mechanism—most people find front feeding faster and easier to handle. In addition, face-up feeding can also be simpler for some users – as featured on the Contex SD series scanners. If speed is a top requirement, look for the fastest raw speed and front-loading feeding. If your budget permits, get an extra-wide model to run originals through in landscape mode. At 44-inches, the Contex SD series can capture an E-size document in landscape orientation, and the Contex HD5450 scanner is the widest available large format scanner today.

High volume batch scanning—many users need to scan several documents at once. If so, take a close look at the system's ability to batch-scan. Look for a device that can process an unlimited number of document scans consecutively without having to stop and scan each document individually. Software also plays a large role in batch scanning speed. With auto-naming templates, customized document presets, plus the ability to disable paper “staging” for a faster load, Contex Nextimage software makes batch scanning more productive than ever before.

5. Price

Price is always a key buying criterion. Note that all manufacturers price their scanners a little differently—be sure to compare apples to apples. While it's important to make sure the device is priced competitively, make it a point to look for value, not just the lowest price. Specifications can be manipulated, and often the speed and resolution of a scanner is not what you expect from the brochure. The best way to know if a scanner is right for your business is to contact an authorized dealer for a product demonstration.

Total Cost of Ownership—it's important to purchase a scanner built with quality parts and materials. Look for devices that use durable materials to ensure long-term reliability. If you purchase a less expensive device, your total cost of ownership may actually be higher in the long run, due to increased maintenance, repair, and downtime. Customer replaceable consumables help reduce downtime and service costs. Contex scanners are designed with this in mind and are built to go the distance using the latest manufacturing processes at state-of-the-art production facilities in Denmark.

Value—we all have heard phrases like “time is money” or “you get what you pay for” and this applies to large format scanners as well. If you're trying to decide whether to invest a little more and get a more capable scanner with quality, design, and durable materials engineered into it—do it. Look for a vendor that's been in business for several years and regularly invests in R&D. And look for a product line that combines superior technology with quality parts, materials, service and support.

Software tools—what imaging software supports the scanner and what functions does it provide? Contex Nextimage multi-function software is designed for both scan-to-file and scan-to-print applications, but is available in a more affordable Nextimage SCAN version designed without copying capabilities. Nextimage offers lots of tools for managing color and correcting and enhancing images to deliver excellent color-matched output on almost all large-format printers. Contex JETimage^{NET} software is an ideal tool for higher volume reprographics firms needing specialized printing features like nesting and paneling, or printing collated sets of documents. It also includes an accounting feature that can track scanner and material usage for each customer account.

6. Flexibility

When you're evaluating large-format scanner vendors and products, consider flexibility. Does the company offer a wide range of products to meet your needs? Your purchase decision should be driven by your application requirements and not the limitations of the technology. Are there several connectivity options? Options for handling different originals? What about software tools?

Connectivity—does the scanner offer multiple connectivity options? Context scanners offer two industry-standard plug-and-play interface options—FireWire and USB2. A Still Image Interface (STI) driver ensures problem-free compatibility with current and future versions of Windows. And innovative iJET technology enables easy setup and activation of scan-to-print and scan-to-file options directly from the scanner.

Product range—does the vendor offer a full range of products with varying widths, feeding mechanisms, speeds, models, and sophistication? Context offers scanners from 25 to 54 inches wide, sheet-feed and flatbed, base versions and enhanced versions, and systems for scan-to-file and scan-to-print applications.

Upgradeability—if you're interested in protecting your capital investment, upgradeability is essential. Can your scanner be easily upgraded? Or will you have to invest in a new scanner when your requirements change? All Context HD series scanners can be quickly upgraded to higher speeds and maximum resolutions with a simple smart card upgrade, giving you flexibility to start with an entry-level scanner and increase productivity or quality as your needs change.

Varieties of originals—choose a vendor that offers scanners to support all types of originals—maps, drawings, blueprints, and thick or fragile originals. Context offers scanners that handle black and white and color originals in a variety of sizes, and a large flatbed scanner for delicate originals, and varying thicknesses including gator-board and foam-core. All Context HD scanners can handle thick documents—no need to decide. The SD series scanners are ideal for all technical documents and most maps as well.

7. Technology

One of the leading questions that comes up when buying a large format scanner is whether you should buy a CCD-based device or a CIS device. The answer in most cases depends on the type of documents you need to scan or copy. Both technologies have their strengths - **CIS-based scanners excel with technical documents and some maps, while CCD is more precise with color-sensitive applications, including graphics and photo work or any specialized media application.** However, there's more to technology than just "CCD" and "CIS". The way in which each technology is applied to the scanner design dramatically affects the quality of the images.

CCD (charged coupled device) technology is similar to the function of a digital camera. Photo-sensitive pixels stacked on a semiconductor chip capture and digitize an image that passes through a lens and mirror optical system. A light source is necessary to illuminate the document enough to capture the image. As the system is non-integrated (separate CCD, lens, light source, mirrors), the quality of the components is critical to the quality of the image. While other manufacturers sacrifice quality for low-cost components, Contex HD scanners are built with hi-quality full-sized Fuji camera lenses designed for the resolution of the scanner. The CCDs are 4-channel CCDs, capturing *and processing* true 48-bit RGB data (3 channels) and 16-bit grayscale and monochrome data. The lamp is an extended long-life, color-matched fluorescent tube with a Color Rendering Index (CRI) > 95. These components ensure optimal image quality – especially for color-sensitive graphics, photos, fine art, detailed maps, and folded or rigid materials that need extra light to capture detail and remove shadows.

CIS (contact image sensor)—first used to make fax machines more compact, CIS has been used primarily for small format devices (scanners, fax, copiers) and is still produced in A4 (Letter-size) widths. CIS combines a row of photo-sensitive pixels placed in contact with small rod lenses to capture an image, and built-in LEDs as the light source. The entire module is about the size of a pencil and this helps to make devices more compact. Placing 2 or more of these modules together can produce separate images that software and processing can "stitch" together to make a single wide-format image. Since the components are all integrated, the design and specifications of the CIS are critical to the image quality. Contex SD series scanners were designed by working with the manufacturer of the CIS modules to customize and improve the design for improved image quality. In addition, 1200dpi modules were selected to provide even better sharpness for fine lines and details on technical documents.

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Software—software that supports the scanner should be robust and comprehensive. As noted earlier, Contex Nextimage software provides all the essential tools for enhancing productivity and correcting images for both scan-to-print and scan-to-file applications. JETimage software remains the ideal tool for high volume reprographic work, with extra features for maximizing paper use and tracking customer account data.

Patents—the company's commitment to innovation is evidenced in its patents. Is the vendor's technology patented? Does the company protect your investment with regular enhancements and innovations? Contex, one of the only manufacturers that patents its technology, currently holds 11 patents covering everything from scanning capabilities and its feeding system to how the scanner uses icons on a screen.

Below selected patents are described in detail.

Patent	Description
US 6,295,383 B1 INTENSITY CORRECTION IN AN OPTICAL SCANNER	The ability to correct detected pixel intensities in an optical scanner through an automatic lens enhancement process.
US RE37,282 E OPTICAL SCANNER HAVING A VARIABLE RESOLUTION.	ALE: Automatic lens adjustment. "ALE" make sure that the scanner use the right resolution to fit the size of the document.
6,034,795 & 5,642,207 HIGH PRECISION COLOR SCANNER	To be able to scan in a good/high quality in different resolutions, the RGB color must be on line. This patent makes sure that the speed between R,G & B is automatically adjusted.
5,988,504 OPTICAL SCANNER USING WEIGHTED ADAPTIVE THRESHOLD	This patent ensures that a poor quality document can be scanned with good output results. The technology is able to collect the right information from a bad document
5,117,295 STRUCTURE FOR AND METHOD OF SCANNING WITH MULTIPLEXED LIGHT SENSOR ARRAYS.	The technology automatically adjust the stitching
US 6,262,816 B1 SCANNER START AND STOP	This technology make it possible to back the document and hit the exact same position, this ensure the image data is always correct.
Other patents	5,377,020 - 5,640,465 - 5,926,570

Summary

Deciding What's Right for You

Getting the most value for your investment

Clearly, choosing a large-format scanner that's right for you means weighing and evaluating several different factors. In summary, it's critical to understand what you want the scanner to do for your end users and how it will add value. It's also critical to know your applications—are you scanning maps, posters, graphic art, drawings, sketches or historical records? Are the originals on paper, Mylar, sepia or heavier substrates like foam-core? Are your documents less than 25 inches wide or more than 42 inches wide?

Finally, understand what's most important to you—speed, productivity, quality, flexibility and whether you need to scan in color, monochrome, grayscale or all three. Determine which considerations are most important, compare products, vendors and decision factors against your requirements and applications and go from there. Consider how the scanner addresses total cost of ownership, and how it will help you achieve your business goals.

Scanner Market Matrix The chart on the following page describes Contex scanners for specific market segments and applications. However, you should speak with an experienced sales professional to help you narrow the choice of products down to the right solution for your business.

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Scanner Market Matrix

Segment	Scanner Width	Scanner Model	Main Benefit (Unique Selling Points)	Where to Buy
Industry				
COPY Shops Reprographics	54"	HD5450	Flagship model - Handle all media types and sizes - increased productivity	Find Distributor
	44"	SD4490	High speed solution for technical document reprographics and scanning	
	42"	HD4250	Superior fast handling of color and monochrome reproduction	
	Flatbed A2 (18"x24")	FLEX50i	The ultimate in flexibility and simplicity for scanning fragile or odd-sized documents	
Publishing Graphics Photo	36"	HD3630	Ideal for newspaper scanning (with available newspaper kit) and OCR jobs	Find Distributor
	25"	HD2530	Desktop sized CCD-performance. Captures up to ARCH D and A1 size documents.	
	54"	HD5450	Super-wide scanner ideal for sign industry and show graphics	
	Flatbed A2 (18"x24")	FLEX50i	From photos and books to newspaper and magazines – a flatbed to capture anything	
Energy	42"	HD4230	Handles a wide range of media types relevant for the Energy industry	Find Distributor
	44"	SD4450	High productivity and low maintenance cost -	
	25"	HD2530	Supports unlimited length of originals with minimal footprint	
Government	44"	SD4410	Superior monochrome image quality with productivity being 2nd to none	Find Distributor
	44"	SD4450	High speed monochrome scanner with full color capability - especially for maps and drawings.	
	36"	HD3630	Flexible support of various media types	
1 Solutions				
GIS/Mapping	42"	HD4230i	1 scanner for all - can be shared between workgroups and departments on LAN	Find Distributor
	42"	HD4250	High scanning speed with accurate color capture	
	44"	SD4490	High scanning speed for less color-sensitive maps	
	44"	SD4430	Ultra-affordable color scanning for basic color maps and geographic data logs	
	54"	HD5450	For ultra-wide technical document scanning – the widest scanner available	
CAD/AEC	44"	SD4490	Maximum productivity for technical documents – fastest CIS scanner available	Find Distributor
	44"	SD4430	Entry-level color scanner, affordable enough to place at departmental levels	

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	44"	SD4410	High speed monochrome scanning with unmatched sharpness	
EDM/FM	54"	HD5450	Can handle any size document and thick or thin media, with CCD color image quality	Find Distributor
	44"	SD4490	Maximum productivity scanner for handling large volumes of technical documents or maps	
	Flatbed A2 (18"x24")	COPYMATE 18	Ideal for scanning media in fragile condition	

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