A Buyers Laboratory Document Imaging Device Assessment

November 2005

Performance Ratings*

Overall Rating...........................................★★★★★
Value................................................................★★★★
Ease of Use..................................................★★★★
Copy Productivity.........................................★★★★★
Print Productivity..........................................★★★★★
Image Quality................................................★★★★★
Multitasking..................................................Lab Test Report Only
Utilities......................................................Lab Test Report Only
Reliability....................................................Lab Test Report Only
Feedback to Workstations..........................Lab Test Report Only
Toner Yield/Costs per Page...........................Lab Test Report Only

*Based upon a five-star rating system where five is the best.

Konica Minolta bizhub PRO 920
92 PPM Segment 6 Monochrome Device
Copy • Print • Scan

Suggested retail price: $39,000 base unit. (Complete specifications information for this unit, including pricing for accessories and options, is available through bliQ™, at www.buyerslab.com/bliq.)

Testing method: The unit’s copy/print capabilities were tested using a Windows 2000 workstation with a crossover cable, the Konica Minolta print controller and the Adobe Postscript 3 print driver (version 1.00). The crossover cable eliminates network traffic, allowing for optimal productivity of the unit.

Comparative Analysis

Designed for users in production environments ranging from CRDs to print-for-pay to commercial printing to datacenters, as well as high-volume departmental settings, the Konica Minolta bizhub PRO 920 offers a manufacturer’s rated speed of 92 copies per minute (cpm). The unit offers standard copy functionality and optional print and scan capability. Featuring 256 MB of shared memory (upgradeable to 512 MB) and a 40 GB hard disk drive (HDD), the unit demonstrated outstanding image quality in all areas evaluated. The bizhub PRO 920 also demonstrated outstanding overall print productivity. For example, the unit’s efficiency when running BLI’s job stream test, which simulates the type of traffic a typical device might experience in a real-world, multi-user environment, is among the highest for similarly equipped models tested to date. Further, the unit’s print efficiency is the highest for the group in both simplex and duplex mode, and it demonstrated the highest efficiency for the group for booklet printing. The unit also demonstrated very good overall copy productivity, including the fastest first-copy time from the document feeder for similarly equipped models tested, as well the highest copy efficiency for the group in 1:1 mode.

The bizhub PRO 920 also demonstrated very good overall ease of use in relation to loading paper, adjusting the paper drawers and adding toner, as well as good overall ease of use from the print drivers. In addition, the unit features Konica Minolta’s user box functional-
ity. With a total of 1,000 user boxes and the ability to store up to 3,000 documents, users can manage individual user boxes, create public and private user boxes, assign passwords, and restrict the number of files stored. Security features include Hard Disk Drive Overwrite, Job Erase and User Authentication with NDS capability. Administrative utility features include PageScope, Konica Minolta’s family of integrated software applications and utilities that help businesses manage their documents and devices.

Other highlights include the ability of the unit to handle paper sizes up to 12” x 18” through the bypass tray, and also through the optional 4,000-sheet large capacity tray (LCT), as well as paper weights up to 110 lb. index from every paper source. Konica Minolta’s Simitri Polymerized Toner offers users smaller, smoother, more uniform toner particles for more even distribution, according

Advantages

- Outstanding overall print productivity. For example, the unit’s efficiency when running BLI’s job stream test, which simulates the type of traffic a typical device might experience in a real-world, multi-user environment, is among the highest for similarly equipped models tested to date.
- Very good overall copy productivity.
- Very good overall ease of use for loading paper, adjusting paper drawers and replacing toner.
- Good overall ease of use from the PostScript 3 Visual print driver (Adobe PostScript 3) used in testing. For example, most features for a typical print job are available under the main tab, the print driver is graphical and offers a point-and-click interface.
- The unit can handle paper sizes up to 12” x 18” through the bypass tray and optional LCT. Further, paper weights up to 110 lb. index can be accommodated from every paper source.
- Less user intervention than competitive models available, offering the highest toner yield (66,000 impressions) for the group.

Shortcomings

- None of the selections for a typical copy job are located on the Basic tab of the control panel. Further, it can initially be confusing to switch between functions, as they are all closely grouped together, one on top of the other.
- Procedures for removing misfeeds are not as simple as some competitive models tested.
- No consumables feedback (paper and toner, for example) via the print driver.
- Below-average paper capacities (2,000 sheets standard, 6,650 sheets maximum), leading to more user intervention in this area than most competitive models available.
to the company. Further, products that use Simitri toner have had consistently high toner yields in BLI’s in-house lab tests. In addition, new developer and fusing design advancements have been made to enhance imaging and increase yields, according to the company. Tandem copy and print capabilities will be available in early 2006, enabling the connection of two bizhub PRO 920 devices for up to 184 cpm output, according to the company.

Finishing options available include the FS-604 Folding Finisher and the FS-509 Finisher. The FS-604 Folding Finisher provides 50-sheet stapling, tri-folding capabilities and saddle-stitch booklet making for creating booklets on letter, legal or ledger up to 20 sheets (80 pages total). The FS-509 Finisher delivers sorting and 100-sheet stapling. The device also offers two- and three-hole punching, z-folding and post-sheet insertion from two trays with the ability to add both pre-printed covers and inserts to documents. A trimming unit is also available, which is not commonly found on competitive units.

▲ Value Analysis ( ★★ ★★ )

The bizhub PRO 920, configured as a copier/printer with PostScript 3 printing, saddle-stitch finishing and a reversing automatic document feeder (RAFD), has a suggested retail price (SRP) that is competitive with similarly equipped models available. Further, in addition to performing well overall during testing, the unit offers the highest toner yield (66,000 impressions) and bypass tray capacity (150 sheets) for similarly equipped models available, as well as a competitive preventive maintenance (PM) schedule (500,000 impressions), drum life (1,000,000 impressions) and document feeder capacity (100 sheets). BLI rates value by evaluating a unit’s SRP in relation to its overall performance, paper handling, and user and service intervention (see Advantages/Shortcomings).

▲ Summary

Because of its outstanding image quality and print productivity, very good copy productivity and competitive overall ease of use and price point, BLI gives the bizhub PRO 920 an overall Field Tested Rating** of Five Stars.
Ease of Use

Control panel: ★★★★☆
User maintenance: ★★★★☆
Print drivers: ★★★☆☆

Control Panel

Overall, ease of use from the control panel is competitive with similarly equipped models tested. To allow adjustments for various lighting conditions, the unit has a clearly labeled display contrast dial on the control panel, which BLI technicians consider a plus, as it is the easiest way for users to make adjustments. In addition, the bizhub PRO 920 offers a Help hard key. However, unlike some other units in the bizhub line, the control panel cannot be adjusted to enhance ease of use for individuals with disabilities or allow for adjustments in various lighting situations.

Users can easily switch between copy, scan and box mode with the control panel’s clearly labeled hard keys. Each of these hard keys also has a built-in LED that remains lit when the function is selected. However, none of the selections required for a typical copy job are located on the Basic tab. In addition, it can initially be confusing to switch between copy functions, as they are all closely grouped together, one on top of the other, which could lead to users selecting the wrong tab accidentally. However, the touch keys are clearly labeled. For example, selections for duplexing on this device are available when users select the Simplex/Duplex touch key. Also, duplexing selections such as 1:1 sided, 1:2 sided, 2:1 sided and 2:2 sided are available as one touch keys. In addition, finishing options such as sort, group, offset, staple and hole punch are available under the bizhub PRO 920’s Finishing touch key. A graphical icon located on the bottom right of the display shows the finishing options that have been selected, providing a visual aid to help users keep track of their selections. A job list on the Basic tab allows users to delete jobs without having to go into the job queue, which BLI technicians consider a benefit. However, the space the job list takes up on the Basic tab could instead be used to add some of the features required to program typical copy jobs. Options for paper size are located under the Paper touch key, selections for reduction/enlargement are located under the Zoom touch key and selections for exposure are located under the Density tab.

Although none of the selections required for a typical copy job are located on the Basic tab of the control panel, the touch keys are clearly labeled.
Users can view the unit’s electronic meter counter by selecting the Utility/Counter hard key. The electronic meter counter is very detailed, displaying the number of copies, prints and scans produced, as well as the unit’s total count, feed paper count and output paper count. When users select the Details touch key, an additional meter counter displays the unit’s PM count and cycle, developer count and cycle and drum count and cycle. Users can also print a report, but the process can initially be confusing, and the display does not prompt the user through any of the process. To print a meter count report, users must select the Details touch key, then the Copy touch key and Start. A mechanical counter also tracks total output of the device.

Advanced features include the unit’s job build functionality, which is available when users select the Separate Scan touch key. The unit’s job build functionality allows users to feed originals that exceed the RADF capacity. More advanced job build functionality is available under the Application tab when users select the Sheet/Cover/Chapter Insert key and then the Program Job key. This job build functionality allows users to program each section of a job independently. In addition, front and back covers can be programmed independently from each other. The process for programming booklet copying, however, is somewhat complicated.

**User Maintenance**

Overall, adjusting the paper size in the bizhub PRO 920 is simple. For example, BLI technicians noted the drawers are sturdy and well built. In addition, although users must press a handle to open each drawer, the paper plates lower automatically when users open the drawers. Users must lift up the paper feed roller in each drawer when loading paper, but the length and width guides slide to fit the size of the paper being loaded. BLI considers sliding length and width guides a plus, as opposed to having to remove the guides entirely and reinsert them. The drawers are also equipped with sensors that automatically detect paper size. Users can open the cover of the LCT without having to wait for the paper plate to lower, as the paper plate automatically lowers once users open the cover. Additionally, a button inside the LCT lowers the paper plate ream by ream. The bypass is intelligent, as it recognizes when paper has been loaded and detects the paper size.

Clearing misfeeds on the bizhub PRO 920 is not as simple as on some competitive models tested. Misfeeds are accessed from the front and sides of the unit. When a misfeed occurs, a graphic appears on the display indicating where misfed paper is located. Text is also displayed, but provides users with limited instructions.
When selected, the Illustration touch key provides users with a tutorial for removal of misfeeds, but it is not dynamic. Further, all of the misfeed locations are not always detected or displayed on the tutorial, and users need to use an additional indicator located within the body of the unit. This indicator has four lights which display the locations of misfeeds in the ADU unit.

The process for replacing toner is simple and clean. To change the toner bottle, users open the front cover of the unit and swing out the toner-bottle holder. Then, the user pulls back the toner-bottle securing lever and slides out the cartridge. After the new toner bottle is inserted, the user pushes the toner-bottle securing lever back to its locked position.
Print Drivers

Printing is optional on the bizhub PRO 920 with Konica Minolta’s print controller. The print controller features an 800 MHz processor, and shares the 256 MB of memory (upgradeable to 512 MB) and a 40 GB HDD with the copier. The print controller also offers standard PCL 5c/6 printing and optional Adobe PostScript 3 printing.

Overall, ease of use from the print drivers is competitive with similarly equipped models tested. Both the PostScript 3 Visual print driver (Adobe PostScript 3) and PCL 6 driver of the print controller automatically detect and display the device’s configuration, eliminating the need for the administrator to manually specify this information. Although the setup is similar between the Adobe PostScript 3 print driver and the PCL 6 driver, it is not identical, making it more difficult for users who need to switch between them for different types of jobs to navigate the screens. Further, the print drivers do not offer a paper or toner gauge, which BLI technicians consider a drawback. Consumables feedback is available via PageScope’s Web Connection.

The PostScript 3 Visual print driver (Adobe PostScript 3) used in testing is graphical and easy to use. For example, most of the selections required for a typical print job are available under the Setup tab of the Adobe PostScript 3 print driver, including paper selection, quantity, collate sets and finishing. In addition, the Layout window on the Setup tab provides clearly labeled icons that allow one-touch programming for various job settings, such as N-up and poster. When users select an icon, all the job settings are automatically applied for the type of job going to be run. A graphic on the right side of the Setup tab reflects the type of job selected, such as N-up. When users select the Printer View key under the Setup tab, a window opens within the tab displaying a graphic of the device that

An indicator located within the body of the unit is used to locate misfeeds in the ADU unit.

Most of the selections required for a typical print job are available under the Setup tab of the Adobe PostScript 3 print driver, including paper selection, quantity, collate sets and finishing.
Advanced features such as front and back covers and tab insertion can be programmed via the Per Page Setting tab.

The Special Functions tab allows users to add the date/time, page numbers and the copy number to printed pages, and also set up Z-folding.

Konica Minolta bizhub PRO 920

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The Printer View key also carries over to a number of the other tabs within the print driver. Although there is no indicator in the print driver notifying users when the paper size is changed, the device will automatically update the print driver and not print onto the wrong size paper, which BLI technicians consider a plus.

A number of advanced features are located under the Per Page Setting tab. For example, front and back covers can be programmed independently. Further, preprinted front and back covers can be added to any job from the post sheet inserter trays on the finisher. Up to 15 tabs can be added to a job from the Tab Paper Settings touch key under the Per Page Setting tab, providing users with flexibility in adjusting the space above and below, as well as gap and text position. Users can add the date/time, page numbers, add the copy number to the printed pages and set up Z-folding from the Special Functions tab. The Quality tab provides users with options to adjust the brightness and contrast of the image, smooth the edges of curved lines in printed characters and graphics, as well as adjust and control the print density to reduce toner consumption. Up to five paper sources can be selected per job. The print driver offers secure print and proof print. However, scheduled print is not available, which BLI technicians consider a drawback.
Copy Productivity .............. ★★★★★

First-copy time ........................................ ★★★★★
Copy efficiency ........................................ ★★★★★

First-Copy Time

The bizhub PRO 920’s first-copy time from the document feeder is the fastest for similarly equipped models tested to date, at 4.5 seconds. The unit’s first-copy time from the platen is competitive for the group, at 4.2 seconds.

First-copy time measures the time it takes for the first copy to be produced after the Start button is pressed. The test is conducted using BLI’s test original with 6% page coverage, using normal contrast and standard resolution and with all auto features off.

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<tr>
<th>FIRST-COPY TIME (in seconds)</th>
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<th>Competitive Units</th>
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<td>7.3</td>
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<tr>
<td>DOCUMENT FEEDER</td>
<td>4.5</td>
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Bold indicates that this unit is the best in the group.

Copy Efficiency

The bizhub PRO 920’s copy efficiency is the highest for similarly equipped models tested to date in 1:1 mode, at 86.4%. The unit’s copy efficiency is competitive for the group in 1:2 mode and 2:2 mode, at 74.5% and 80.0%, respectively.

BLI tests a unit’s copy efficiency (the percentage of the rated speed at which the unit operates when producing real-world jobs) by making one, five, 10 and 20 sets of a 10-page document in three copy modes: 1:1, 1:2 and 2:2. BLI obtains the overall efficiency for each copy mode by averaging
the efficiency ratings (derived by dividing the tested speed of the device by the rated speed and then multiplying by 100) for each run length. The closer the rate is to 100%, or if it exceeds 100%, the more efficient the unit.

**Booklet Copy**

BLI technicians found the procedures for programming booklet copies from the control panel confusing. The process takes several steps, and the message display does not prompt the user as to what keystrokes need to be made in order to program the job.

The unit’s efficiency when producing 30 sets of a 16-page document output in booklet mode is among the highest for similarly equipped models tested to date, at 80.4%. The unit completed the job in 6 minutes and 29.47 seconds, running at 74.0 cpm. The closer the efficiency rate is to 100%, or if it exceeds 100%, the more efficient the unit.

<table>
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<tr>
<th>COPY EFFICIENCY (in percent)</th>
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<tr>
<td>bizhub PRO 920</td>
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<td>Highest</td>
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*Bold* indicates that this unit is the best of the group.
Print Productivity .......... ★ ★ ★ ★ ★

Print efficiency...................................... ★ ★ ★ ★ ★
Job stream.............................................. ★ ★ ★ ★ ★

Print Efficiency

The bizhub PRO 920’s print efficiency is the highest for similarly equipped models tested to date in both simplex and duplex mode, at 71.1% and 67.5%, respectively.

*BLI tests a unit’s print efficiency by printing one and 20 sets of a 10-page document. Print jobs are sent using the PostScript 3 Visual print driver (Adobe PostScript 3) at 600 dpi resolution. BLI obtains the overall efficiency for each print mode by averaging the efficiency ratings (derived by dividing the tested speed of the device by the rated speed and then multiplying by 100) for each run length. The closer the rate is to 100%, or if it exceeds 100%, the more efficient the unit.*

Booklet Print

BLI technicians found the procedures for printing booklets from the print driver simple. However, BLI technicians noted that although an icon for Booklet is located in the Layout window on the Setup tab, it does not help program a booklet print job, which could be confusing to PostScript 3 Visual print driver users.

The unit’s efficiency when printing 30 sets of a 16-page Acrobat PDF file output in booklet mode from the PostScript 3 Visual print driver (Adobe PostScript 3) is the highest for similarly equipped models tested to date, at 80.8%. The unit completed the job in 6 minutes and 27.68 seconds, running at 74.3 ppm. The closer the efficiency rate is to 100%, or if it exceeds 100%, the more efficient the unit.

Job Stream

The bizhub PRO 920’s efficiency rate when printing BLI’s job stream is among the highest for similarly equipped models tested to date, at 39.3%. The unit completed the job stream in 31.50 seconds, running at 39.3 ppm.

*BLI’s job stream includes Word documents, Outlook e-mail messages, Excel spreadsheets, PowerPoint, HTML and Acrobat PDF files. This test simulates the type of traffic a typical device might experience in a real-world, multi-user environment. All of the files are sent to the printer as a group, at which time the stopwatch begins; timing ends when the last page of the last file exits the device. Job stream efficiency is determined by the percentage of the rated speed at which the unit operates when producing real-world jobs. The closer the rate is to 100%, or if it exceeds 100%, the more efficient the unit.*
Image Quality ....................... ★★★★★

Copy
Solids, line art and text are dark and consistent. Copy density is competitive for 600-dots-per-inch (dpi) multifunctional devices. Halftone output is outstanding, with grayscale visible from 15% (which is the minimum coverage level of the original) to 100%, even fill within levels and distinct separation between levels.

Print
Solids, line art and text are dark and consistent. Print density is above average for 600 dpi multifunctional devices. Halftone output is outstanding, with grayscale evident from 1% to 99%, even fill within levels and distinct separation between levels.

Multitasking

Reserves
The bizhub PRO 920 allows users to reserve up to 99 additional copy jobs while a print or copy job is in progress.

Interrupt
To pause a job in progress in order to perform an immediate copy job, the user selects the Interrupt hard key on the control panel and is able to access most features required for a typical copy job, including the RADF, multiple sets, duplexing and finishing. However, an interrupt job cannot be programmed until the machine stops running the current set. This setting can be changed to allow the machine to interrupt a set immediately, according to the manufacturer. During testing, the unit returned to non-interrupted copy mode after approximately 45 seconds. However, users have to press the Start key in order to return to non-interrupted copy mode. The unit automatically returned to non-interrupted print mode after approximately 43 seconds and restarted the job that was interrupted without user intervention during testing. This would be beneficial in a networked environment where many jobs would likely be waiting in the queue. The time it takes for a non-interrupted copy or print job to restart is also selectable, according to the manufacturer.
Other Features

Scan

Scanning is optional on the bizhub PRO 920. When scanning is installed, users can scan to e-mail, scan to file transfer protocol (FTP), scan to desktop folder and scan to mailbox in PDF or TIFF formats.

Designed mostly for convenient scanning and storage of personal documents, the user box feature supports each of the device’s functions (copy, print and scan). With a total of 1,000 user boxes and the ability to store up to 3,000 documents, users can manage individual user boxes, create public and private user boxes, assign passwords, and restrict the number of files stored.

Available in early 2006, e-mail addresses and scan receiver groups will be able to be stored or searched in and retrieved from users’ e-mail address databases via lightweight directory access protocol (LDAP) technology. TWAIN compatibility allows files to be imported to image editing or layout applications. However, Internet faxing is not available.

Security

The bizhub PRO 920 is ISO-15408 compliant and supports Hard Disk Drive Overwrite and Job Erase, which automatically overwrites the hard disk drive after each job. The bizhub PRO 920 also offers User Authentication with NDS capability to protect a user job by prohibiting its modification or deletion. With User Authentication, it is also possible to enable or disable each user’s access to the device based on function—copy, print, scan and hold job control.

Administrative Utilities

Users of the bizhub PRO 920 have access to PageScope, Konica Minolta’s family of integrated software applications and utilities that help businesses manage their documents and devices. As part of PageScope, Net Care provides network administrators with detailed information about the operating conditions of all network-connected output devices containing a Management Information Base (MIB) from any Web browser. Therefore, administrators can monitor not only the bizhub PRO 920, but also network printers from other manufacturers on the same network. In addition, administrators can get total print, copy and scan meter reads from one PC. Also included is PageScope’s Web Connection, which allows users to check device conditions on all networked-connected Konica Minolta printer/copiers from their desktop on a one-to-one basis.

In addition, the bizhub PRO 920’s PageScope utilities are tightly integrated with the device’s engine and are designed for improved document management. PageScope Direct Print enables users to print PDF and TIFF files by simply dragging the file to the PageScope Direct Print icon (pre-configured for the bizhub PRO 920) on the user desktop. PageScope Job Spooler allows users to view and manage the print queue, hold jobs and reprint jobs. Also available as an option for the bizhub PRO 920 will be the soon-to-be-released PageScope Workware, which will allow users to view documents as thumbnail images, drag-and-drop to share or print and search files by filename, date and tag. Users will also be able to perform full-text search on documents that have been OCR-converted.
Pagescope’s Web Connection allows users to check device conditions on all networked-connected Konica Minolta printers/copiers from their desktop on a one-to-one basis.