Custom Test Report

A Comprehensive BLI Laboratory Evaluation | DECEMBER 2012

EUROPEAN EDITION

Brother HL-S7000DN

100 PPM Inkjet Printer

Reliability	Excellent
Administrative Utilities	Very Good
Feedback to Workstations	Good
Ease of Network Setup	Very Good
Print Drivers	Very Good
Applications Compatibility	Excellent
Print Quality	Good
Print Productivity	Excellent
Ease of Use	Very Good
Feature Set	Good
Security Features	Not Rated
Environmental Features	Not Rated
Ink Yield	Good
Cost per Page	UK 0.467p, 0.00585€ (Germany)
Value	Very Good

EXECUTIVE SUMMARY

The HL-S7000DN is a new breed of monochrome inkjet printer engineered by Brother offering high speed and low running cost. Designed to compete against large workgroup and departmental laser printers, the HL-S7000DN offers a class-leading 100-ppm rated speed. This makes it 30 ppm faster than the fastest departmental printer on the market. As expected, the device outperformed all other high-end legal-size capable monochrome printers evaluated in nearly all of BLI's productivity tests.

The HL-S7000DN gave an outstanding reliability performance in its lab evaluation, incurring no paper jams or other service during its 137,500-impression test. Image quality was good overall and perfectly acceptable for internal and external use. Although compared with laser devices, text was rated only Fair, due to ink overspray and some bleed around characters, average users would likely not notice the minor shortcomings observed in BLI's evaluation.

Key factors in the device's competitiveness versus laser-based models are its ongoing running costs and maintenance. In fact, in BLI's tests, the HL-S7000DN delivered a very impressive cost per page of only 0.00585€, which is less than half that of the competitive group average. On the downside, the unit is priced considerably higher than competing laser devices. Consequently, while not cost competitive at lower monthly volumes, it becomes a very attractive proposition at monthly volumes above 7,500 impressions, especially for MPS suppliers, for whom its very low maintenance requirements will be an added benefit.

Test duration: Two months, including a 137,500-impression durability test.

Manufacturer's maximum monthly duty cycle: 275,000 impressions.

Manufacturer's recommended monthly volume: 5,000 to 20,000 impressions.

BLI's recommended monthly volume for optimum performance: 7,000 to 20,000 impressions.

More information on the Brother HL-S7000DN is available through bliQ (www.buyerslab.com/bliQ).

Though its paper and memory capacities are below average, HL-S7000DN offers a competitive feature set overall, boosted by WiFi in addition to the standard Gigabit Ethernet and USB connectivity commonly provided on devices of this type. It also includes support for Brother's open architecture platform - Brother Solutions Interface (BSI)- allowing integration with Brother and third-party solutions..

Device installation was a simple process and BLI was impressed by the functionality and feature set of the PCL driver. Administrators will find the device easy to manage via Brother's BRAdmin Professional 3 fleet management tool, and office users will find that the Status Monitor, which is part of the standard install, provides some useful information on the device, although no information on paper supply and no ability to view the print queue.

In summary, the Brother HL-S700DN is a very attractive option for high-volume monochrome print environments with monthly print volumes of 7,000 to 20,000 impressions.

STRENGTHS

- Highly reliable—flawless durability performance
- 101.5 ppm simplex speed
- Fastest running speed measured by BLI for tested desktop A4 monochrome printers; above average first-print times for three out of five test files
- Fast first-page-out times from daytime and overnight deep sleep mode
- WiFi connectivity included as standard
- BSI embedded open architecture allows for integration with Brother and third-party solutions
- Lower running costs than for laser-based rivals
- iPrint&Scan functionality allows mobile users to send print jobs to the unit without needing separate drivers to be installed
- Straight paper path capability
- Macro function in print driver provides overlay functionality at the device, saving bandwidth and reducing processing burden
- Very low energy costs compared to laser competitors
- Long-life ink cartridge and waste tank minimize waste generation compared to laser rivals
- Single-cartridge design and front access for misfeed removal simplifies routine maintenance procedures
- Tested ink yield was above average and exceeded the declared specifications

WEAKNESSES

- High initial hardware cost
- Input and output paper capacity more limited than competitors
- No finisher option
- Text quality not as crisp as that produced by laser competitors, with some bleed and overspray
- Output not as dense as output from laser competitors
- More disruptive background noise emissions than produced by laser competitors
- PostScript driver offers only basic functionality
- Memory capacity lower than that of competing units
- Larger than average file sizes created by PCL driver
- No ability to see paper tray settings from the desktop
- No ability to see the print queue from the desktop
- No device status and supplies information provided within printer driver and no paper supply information

RELIABILITY

EXCELLENT

+ The unit is certified highly reliable by BLI, completing a 137,500-impression durability test without a misfeed or need for service.

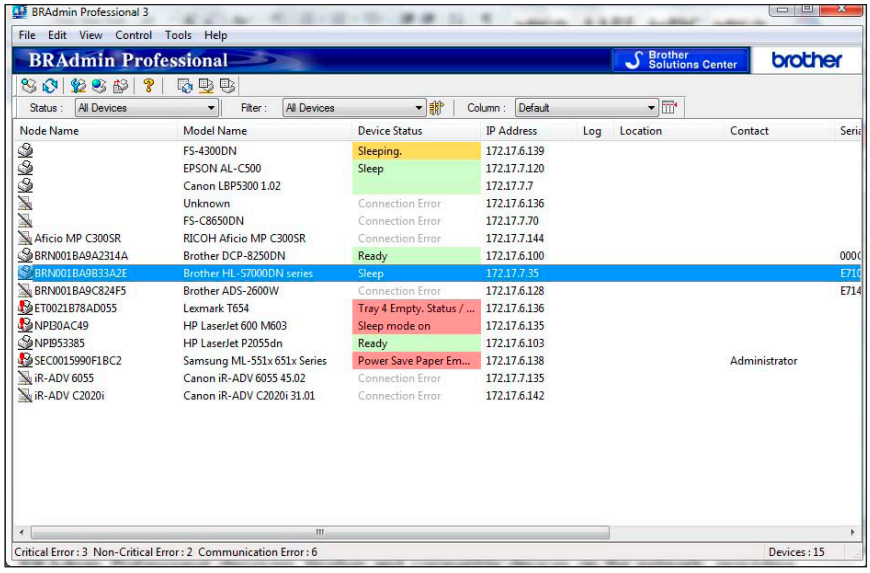
Reliability

PMs/Malfunctions	Service Required	Meter Count (Impressions)
Starting Meter Count		0
Ending Meter Count		137,500
Total Misfeeds/Misfeed Rate		0/Not applicable
Service Calls	0	

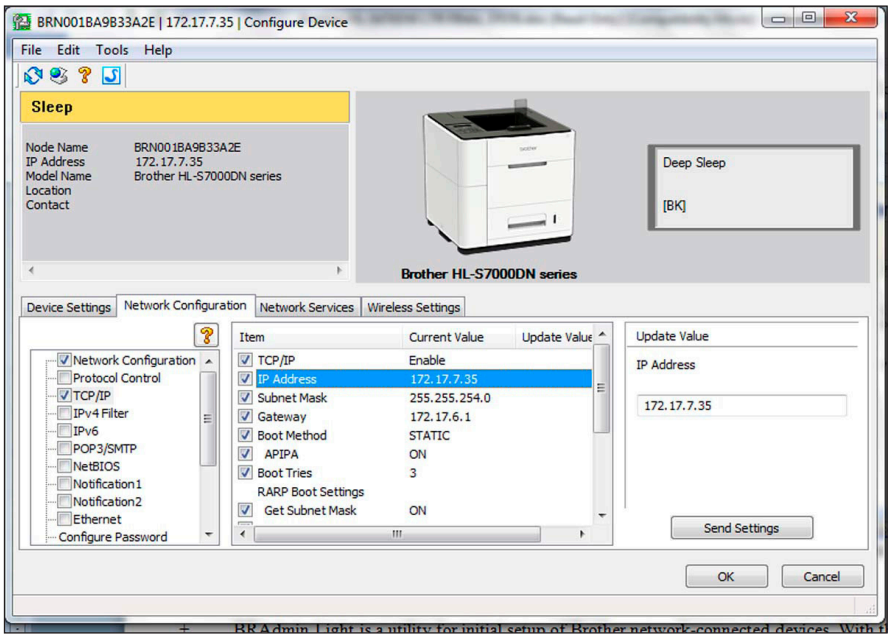
ADMINISTRATIVE UTILITIES

VERY GOOD

+ BRAdmin Professional, a free utility downloaded from Brother's website, locates all Brother and compatible devices on the network, and enables administrators to control the network settings and access the embedded Web page of monitored devices on the network to check their status. The utility automatically refreshes device status every 60 seconds by default; administrators can adjust the time from anywhere between 10 seconds to nine hours, in one-second increments. BRAdmin Professional also allows administrators to create printer logs that capture page counts and consumables information from all devices. The utility offers users extensive device and/or print job status information and lets the administrator change any of the unit's configuration settings; configuration settings of other devices on the network may be changed too.



BRAdmin Professional discovers all Brother and compatible devices on the network, providing current status information on each on the main screen.

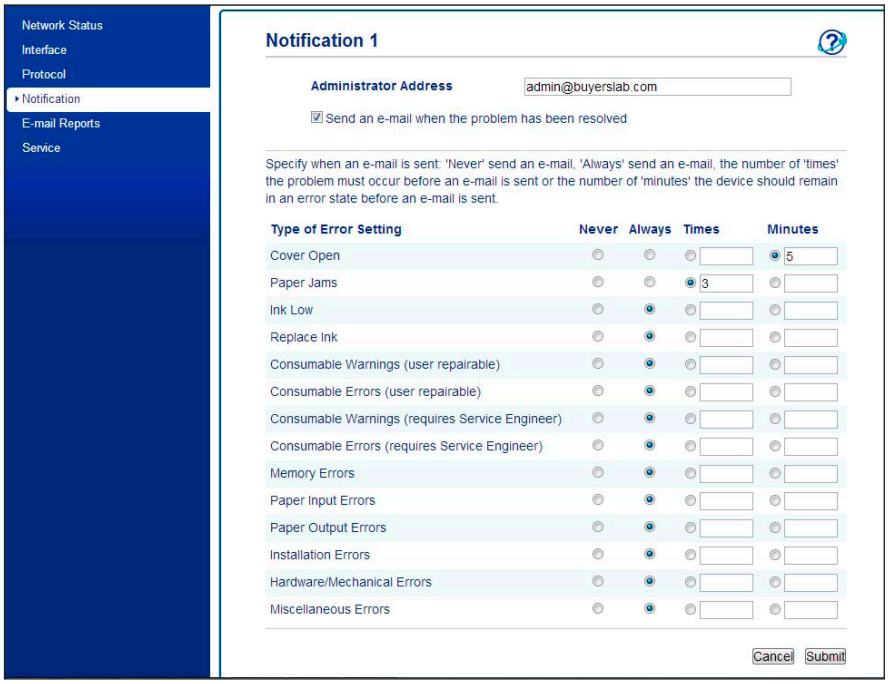


The administrator can change update settings, save and reload settings easily

+ Using BRAdmin Professional 3, administrators can make changes to device settings remotely. Device settings can be saved for device recovery and cloning purposes.

+ BRAdmin Light is a utility for initial setup of Brother network-connected devices. With this utility, users can search for Brother devices on the network, view their status and configure basic network settings such as IP address.

○ Two notification profiles can be set up on the device Web page, allowing for two different key contacts to be informed when specific error conditions occur.



Setting up notifications using the device Web utility

FEEDBACK TO WORKSTATIONS

GOOD

+ Included within the standard installation is Brother's Status Monitor, a utility that resides on the Windows taskbar, that keeps users informed about the status of a selected device.

+ The Status Monitor icon changes colour on the taskbar to indicate errors; a popup notification is generated to alert the user. Users can also be advised of status changes by the Status Monitor via a voice message or alarm. However in practice these become irritating and most users would opt for them to be disabled.

— If the user double-clicks on the Status Monitor icon on the Windows tasktray, they can see the ink remaining but not paper supplies, valuable information offered by some rival status monitors.

○ Users can also install BRAdmin Light, a utility that offers status monitoring and some entry-level management of Brother-only devices. With BRAdmin Light, users can click straight through to the device's Web home page.

○ E-mail alerts can be sent by BRAdmin Professional 3 to the administrator when an error occurs (e.g., cover open, paper jams) or consumables are depleted (e.g., replace ink).

— There is no capability to view paper levels via the Status Monitor, home page or BRAdmin, which is a limitation compared to many rival devices.

— There is no ability to see the print queue at the device from the desktop.

EASE OF NETWORK SETUP

VERY GOOD

○ Due to the unit's size and weight, BLI recommends at least two people lift the main body of the unit from the box, which simply stacks on top of the drawer/s, and put it in the desired location. Shipping materials aren't excessive. The unit ships with a full yield 30,000-impression ink cartridge which is packaged separately and must be installed during setup.

○ After the hardware and the ink cartridge are installed and the device is switched on, the device enters a hardware setup sequence that takes several minutes as the printheads are primed.

+ The device comes with a single CD containing all the relevant software, drivers and manuals. The disc auto-launches upon insertion in the drive, and after choosing their language of choice, users are given a menu of various options as to how to proceed (see screenshot below). The installation wizard is very intuitive, taking 11 clicks and one and one-half minutes to install the PCL driver and Status Monitor via a wired peer-to-peer network connection. Adding the PostScript driver includes one additional click during the same wizard process.

— Configured accessories are not automatically detected; users can specify the paper trays to be installed during the wizard process.

○ The CD also comes with a driver deployment utility, which allows the administrator to set up the installation routine, which can then be emailed or otherwise routed to network users for remote installation.

Users are provided a variety of options for installing the drivers and utilities they need.

+ Device setting cloning can be achieved using the BRAdmin Professional 3 fleet management utility; this function can only be done with devices in the same family, which is common.

PRINT DRIVERS

VERY GOOD

○ The unit is compatible with a PCL 6 driver that can be deployed in environments running various versions of Windows, while a separate graphical driver is available for Mac OS X operating systems. BR-Script3 provides PostScript printing for Windows and Mac operating systems. The install CD also includes a direct link to Brother's solution site where Linux drivers can be installed.

+ There is also a generic Brother PCL driver, recommended for environments other than Windows and Apple Mac, that enables printing to any Brother device that supports PCL 4 or higher.

+ The main screen of the PCL driver is where users can select common job types with a single click, and save custom settings.

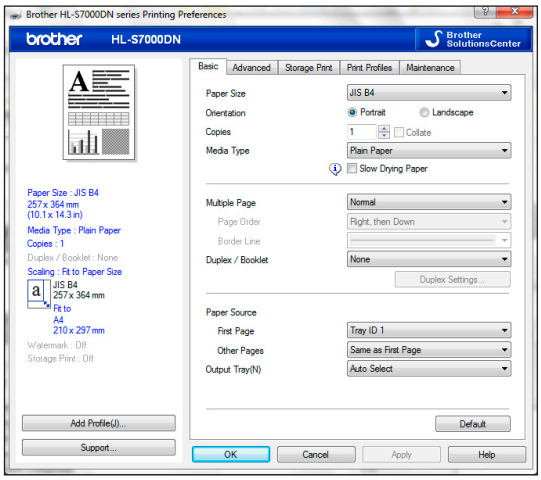
+ The driver is graphical, and all features required for a typical job are on the Basic tab.

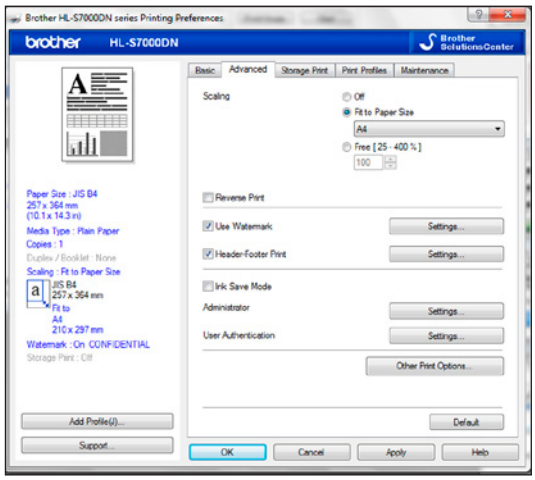
+ Users can customize the driver so that the opening tab is the one-touch profile tab rather than the default tab, which can reduce click counts for common tasks.

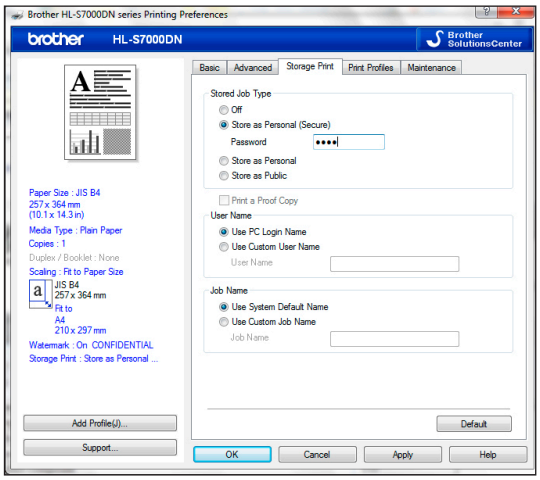
○ The printer driver also includes a maintenance tab allowing users to print a test page and run standard and advanced head cleaning routines.

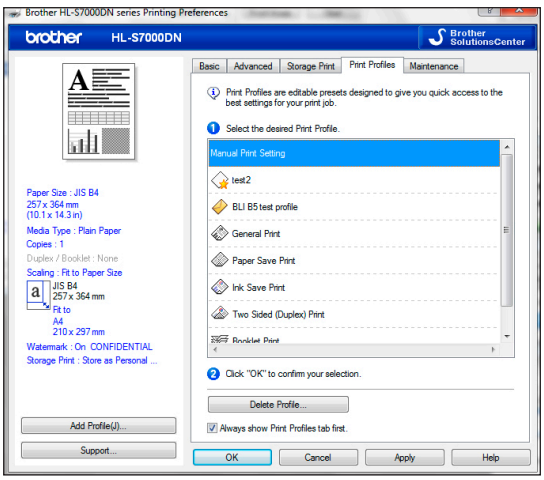
+ The driver includes a header/footer capability allowing users to include a date/time and user ID stamp to the top or bottom of the page, with user control over position, opacity, font and font size.

+ The watermark function allows users to customize the text and choose to use bitmap images, providing an overlay type function.









Brother PCL printer driver

\+ In addition to the watermark function, the driver also includes a macro capability. Users can set up a macro whereby a commonly used image such as a company logo, form or template is stored as a ripped image on the device hard drive. The user can then submit future jobs associating the job with the macro, with the printer adding the company logo or form to the document during printing. This can be a valuable function saving network bandwidth and reducing processing strain during large print jobs.

\+ An ink-save mode in both drivers helps to extend the life of the ink cartridge, reducing cost of ownership.

○ File size doesn't increase when selecting collate in the application.

– The PostScript driver lacks much of the feature set offered on the PCL driver and has a more traditional text-based layout.

Brother HL-S7000DN Print Driver Features

	PCL 6	PostScript
Auto Feature/Device Detection	No	No
Booklet Printing	Yes	Yes
Collate	Yes	Yes
Max Paper Sources per Job	2	1
Mirror Image	No	Yes
Negative Image	No	Yes
N-up Printing	2 to 25	2 to 16
Overlay	Yes	No
Paper Gauge	No	No
Print and Hold	Yes	No
Proof Print	Yes	No
Quantity Selection	999	9999
Reduction/Enlargement	Auto, 25 to 400%	1-1,000%
Resolution Modes	600 dpi only	600 dpi only
Save Settings	Yes	No
Secure Print	Yes	Yes
Watermarks/Custom Watermarks	Yes/Yes	No/No
Cover Mode	Yes (front only)	No
Poster Mode	Yes (up to 5 x 5)	No
Separator Pages	Yes	No
Ink Gauge	No	No
Ink Save	Yes	Yes
Print All Text as Black	No	No

APPLICATIONS COMPATIBILITY

EXCELLENT

\+ No problems were experienced with any of the test files used in the applications compatibility tests. Units are tested for compatibility on Windows 2000 platforms with Microsoft Word 2000, PowerPoint 2000, and Excel 2000, as well as Adobe PageMaker 7.0, Photoshop 6.0, and Acrobat 8.0, using 25 application test files that contain text, graphics, halftone images, tables, etc., enabling BLI technicians to evaluate memory usage, file processing, font rendering, and greyscale capability.

PRINT QUALITY

GOOD

— Compared with departmental laser printers, the output quality from the device was not as sharp, with text and fine lines having a less crisp appearance and solids having a less dense appearance. Ink overspray was visible even without magnification, and there was some bleed around characters.

\+ Halftones were reproduced well, earning a Good rating from BLI technicians, delivering smooth progression from light to dark. Halftones were also visible over a very good range, with clear separation between all levels.

○ Solids displayed below average darkness but above average consistency of coverage.

○ While output quality was of slightly lower quality in default settings compared with output from laser technology competitors, the general appearance of the output was of a perfectly acceptable level for both internal and external communication.

Print Quality

Text	Fair
Line Art	Good
Halftone Pattern	Good
Halftone Range	Very Good
Solids	Good

Print Density

Brother HL-S7000DN	1.16 to 1.18
Density for devices in this class tested to date	1.15 to 1.62

Measurements are based on four readings corresponding to four different solid black locations on output. The higher the density reading, the darker the image.

Halftone Range

Brother HL-S7000DN	1% to 100%
Typical range for competitive units	3% to 96%

△ PRINT PRODUCTIVITY — EXCELLENT

\+ Running speed when printing BLI's job stream, which simulates typical traffic in a workgroup, is the fastest of all legal-size large workgroup/departmental laser/LED printers tested to date when using the PCL driver.

— Print speed using the PostScript driver for the job stream was well below average at only 15.51 ppm.

\+ While the unit's efficiency (percentage of rated speed) when printing sets is competitive and below average in simplex and duplex mode, respectively, its running speed is the fastest of all devices tested to date. In fact, it's 29 ppm faster than average and when compared with the next fastest device, it's 27.6% faster in simplex mode and 13.1% faster in duplex mode.

\+ First-print times were above average for three of the five test files, with the other two being competitive.

○ When the device detects that no jobs are pending from the network, it enters a 33-second

cleaning routine during which time new jobs can be received from the network.

+ First-page time from overnight sleep is about half the average.

○ Every 500 impressions during a long production run, the Brother HL-S7000DN stops for a brief calibration check, which takes about 20 to 30 seconds. With this maintenance cycle, throughput speed drops from 86 to 83 ppm in simplex.

First-Page Time from Overnight Sleep | Competitive Average

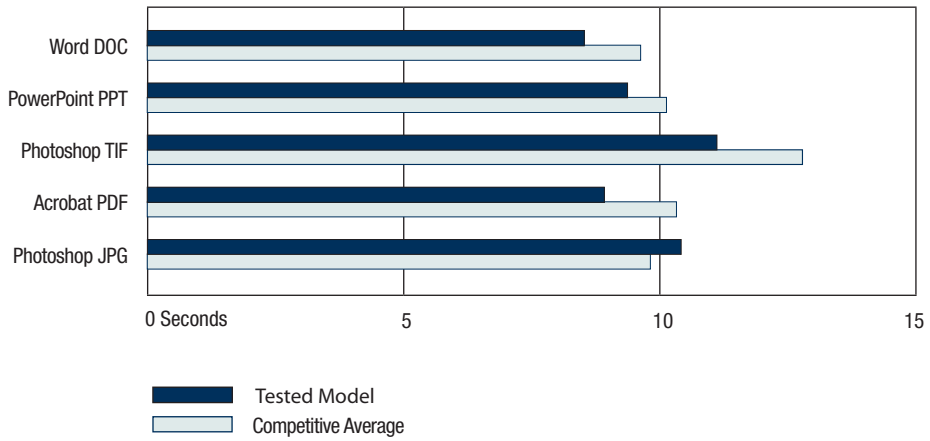
Brother HL-S7000DN	13.47
Tested Competitive Average	25.04

Device sits idle overnight; a single-page black Word document is sent to the device; first-print time indicates the time it took to RIP the image and deliver the first page of the test document to the output tray.

First-Page Times by File Types | Competitive Average

Windows XP		Pre- / Post-Raster File Size		Time in Seconds	
Word DOC	Black Text	114	192 KB	**8.55**	9.65
PowerPoint PPT	Colour Graphic/Text	99	1.13 MB	**9.39**	10.16
Photoshop TIF	Colour Graphic	20,480	15.6 MB	**11.14**	12.81
Acrobat PDF	Black Graphic/Text	426	2.18 MB	**8.94**	10.32
Photoshop JPG	Colour Graphic	245	809 KB	**10.44**	9.85

First-print time indicates the time it took to RIP, image and deliver the first page of the test document set to the output tray. The unit's print speeds were tested at the default 600 dpi using the PCL driver.



Average Print Speeds	
Excluding First Page (PPM)	101.50
Including First Page (PPM)	95.37

Print speed is tested using BLI's Monochrome Test Original with 6% page coverage. The test page is printed in a quantity equal to double the vendor's rated print speed for the device in each mode tested (e.g., if the vendor's rated print speed is 20 ppm, 40 pages are printed). The unit's print speeds were tested using the PCL driver.

Average Print Productivity | Competitive Average

	SPEED IN PPM		PERCENT OF RATED SPEED	
1:1	**74.1**	45.3	**74.1**	78.9
1:2	**41.3**	31.1	**41.3**	51.4

Efficiency is tested using a 10-page black document. BLI obtains the overall efficiency for each 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 (1, 5, 10 and 20 sets). The unit's efficiency was tested using the PCL driver.

Job Stream | Competitive Average

	SPEED IN PPM		PERCENT OF RATED SPEED	
PCL 6	**53.4**	36.5	**53.4**	65.4
PostScript	**15.5**	21.6	**15.5**	51.6

BLI's job stream includes Word documents, Outlook e-mail messages, Excel spreadsheets, PowerPoint, HTML and Acrobat PDF files, totaling 19 pages. 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 device 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 device operates when producing real-world jobs. The closer the rate is to 100%, or if it exceeds 100%, the more efficient the device.

△ EASE OF USE

VERY GOOD

Brother HL-S7000DN Control Panel

○ The control panel has 23 hard keys, two LEDs, and a display, which can be tilted for easier viewing. Navigation of the LCD via the arrow and OK keys is intuitive. The contrast of the screen can be adjusted using the menu control.

\+ There is an alphanumeric keypad to allow for faster/simpler entry of data and secure print PIN codes.

○ Ink level remaining is displayed on the LCD.

\+ The paper trays all include an external guide indicator so users can see at a glance which trays require replenishing.

+ There is a dedicated button for accessing stored print jobs. Users store jobs using the printer driver and can choose to store them as public or private (personal) jobs. The personal storage option can be specified based on PC login name or as a custom user name, with a PIN associated with the job. The user can also decide whether to leave the job listed with its system default name or whether to give the job a new name. To release secure print jobs, the user selects the stored jobs hard button, browses to the personal login name, and then they will see all jobs associated with the account. To release PIN-protected jobs, the user must enter the PIN using the keypad. BLI would prefer to see access to the personal login list protected by a PIN, thereby protecting the identity of all print jobs being held in the stored queue, negating the need to change the default system file name before submission of sensitive or confidential documents where the file name itself could be a breach of security or confidentiality.

+ The paper drawers are easy to adjust; the length guide slides and the width guides move in sync once the requisite tabs have been pressed. The second drawer has a spring-loaded ramp, but it automatically locks down when the drawer is opened; with no corner separators or anything else that could make the process difficult. The paper tray can be extended easily to accommodate legal size and other oversize media.

Paper trays are easy to adjust

+ The device trays also include a tray ID option, which allows each tray to be set to a specific ID number (1 to 4) using a switch on the side of the tray. This means that if a tray is removed from the device and reloaded into a different location, jobs submitted to the tray ID will still be correctly routed to that tray. This is a useful feature when using special media such as letterhead, preprinted forms or labels.

+ The 100-sheet multi-purpose tray is easy to use: the tray is lowered, extended and the guides are adjusted to the paper size.

+ To print on heavy card or other media that might get damaged travelling through the standard U-turn paper path, the device offers a straight output route. The user lowers the output tray at the rear of the device. Media are printed on the face-up side of the multi-purpose tray.

Straight paper route through device via multi-function input tray and rear exit tray

○ Trays 1 to 4 can be set to a specific media size, or left at 'Any'. If left in 'Any' mode, the device will attempt to feed the paper into the print job and will reject any sheet to the output tray if the media size detected does not match the media size within the job. The mismatch detection can be disabled if so desired.

+ Tray priority and auto-cascade settings can be changed by the administrator, allowing trays to feed from lowest tray to top, thereby allowing empty trays to be replenished without disrupting the print run in progress.

+ Clearing misfeeds from any of the three access areas is easy. Consumables do not need to be removed. Text instructions on the LCD direct the user to the location of the jam, and graphical depiction of the jam locations and instructions for removal are provided on labels inside the device.

+ Replacing the ink cartridge is a clean process. Users open the front cover and can then simply pull out the spent cartridge and insert the new one. There are no instructions offered on the LCD of the device, which just prompts the user to exchange the cartridge. The cartridge box does, however, provide step-by-step instructions and the simple slide-out/slide-in process is very straightforward.

Ink cartridge is accessed via the front panel

△ FEATURE SET

GOOD

+ Brother's iPrint&Scan functionality enables printing from smartphones and tablet PCs by wirelessly handshaking with the unit without the need to install extra drivers, which BLI believes is a strong time-saving feature in today's mobile business world.

+ The unit is built on the manufacturer's open architecture platform BSI (Brother Solutions Interface), allowing administrators to install solutions—for document management or security, for instance—developed by Brother and third parties. BLI analysts installed Brother's B'Guard device management solution on the HL-S7000DN, which allowed for secure pull printing, cost control, implementation of print policies and advanced authentication via user name, PIN, or proximity cards. B'Guard also provides a QR code function, allowing mobile device users to scan the QR code, which routes users to an internal B'Guard Web page where users can log in and release their secure print jobs.

○ Automatic duplex printing is standard, as with the great majority of models in this group.

+ In addition to standard high-speed USB 2.0 and Ethernet interfaces, the device provides a standard wireless interface, which is more commonly offered as an optional purchase item on devices in this class.

+ The HL-S7000DN provides a number of security features, including secure print, Secure Function Lock, 802.1x Enterprise Security, IP address filtering, wireless network security and WiFi protected setup (AOSS).

+ The standard 512-MB RAM capacity is above average for devices in this class.

— However, the maximum RAM and permanent storage capacities (512 MB and 2 GB, respectively) are well below average compared with A4-size laser/LED printers in this speed range and class.

— The standard paper capacity of 600 sheets and its maximum capacity of 2,100 sheets are both below average for this group. Media weight support for the main and multi-purpose paper sources is competitive.

○ The optional output expander takes maximum stacking capacity for a single job to 1,000 sheets, which is competitive with rival laser-based units in its class.

+ The Sleep Schedule allows users to configure the unit automatically to enter or wake up from sleep mode at specified times.

+ With its low-power inkjet technology the HL-S7000DN offers significant energy-saving opportunities versus its laser-based technology competitors.

— The unit does not offer a USB host port for direct printing of documents stored on USB memory sticks. Many competing units offer this capability.

○ The bypass has a competitive capacity of 100 sheets.

SECURITY FEATURES

NOT RATED

Administrator password length (characters)	34 alphanumeric
Authentication	
Network user authentication	Yes
Windows	Yes
Novell NetWare NDPS	INA
LDAP authentication	INA
802.1x wireless authentication	Yes
Kerberos protocol support	Yes
Authentication via department or user ID codes that are registered on the machine	Yes
Number of codes	100
Restrict usage of colour	N/A
Restrict usage of other features	N/A
Authenticated printing	Yes
Common Criteria Certification	N/A
Control panel lock/disablement	Yes
Digital user signature	No
Encrypted PDF mode/encrypted scanning	N/A
Encrypted secure print	Yes
Hard drive encryption	No
Hard drive lock	No
Hard drive overwrite	No
Max number of overwrites after every job	N/A
Overwrite method	N/A
IP address filtering	Yes
IPsec	Yes
Job logs (e.g., activity monitoring, compliance auditing)	Yes
MAC address filtering	No
Password-protected mailboxes	No
Password-protected web server	Yes
Port disablement	Yes
Removable hard drive	No
Secure print	Yes
Secure Sockets Layer (SSL)	Yes
SNMPv3 support	Yes
Third-party security features	Card reader for user authentication via B'Guard
Transport layer security	Yes
Unauthorized copy prevention (secure watermark)	No
USB block	N/A
Additional security features	IPv6, AOSS, WPS, 802.1x

INA: The vendor declined to provide this information

NA: Not applicable

ENVIRONMENTAL FEATURES

NOT RATED

Specified capable of running 30% post-consumer recycled paper	Yes
Specified capable of running 50% post-consumer recycled paper	Yes
Specified capable of running 100% post-consumer recycled paper	Yes
Instant/Quick Fusing	Yes
Duplexing	Yes
Ink-save mode	Yes
Energy-save mode/modes	Yes
RoHS compliant	Yes
Percent of product made from previous devices	INA
Percent of product made from post-consumer materials	INA
Percent of product made from pre-consumer materials	INA
Percent of product made from bio-based materials	INA
Product designed for recycling (easily disassembled, no binding agents)	INA
Items that can be recycled	INA
Hardware remanufacturing program for this product	INA
Ink cartridge recycling program for this product	N/A
Prepaid label for return of ink cartridges/bottles for this unit	N/A
Toner recycling system	N/A
Ability to program features such as duplexing and auto shut-off over entire fleet	Yes
What tool can be used to do this?	BRAdmin Professional 3
Green packaging materials for the product	Yes
Green packaging materials for its consumables	Yes
Packaging materials used	Yes
Typically, who is responsible for getting rid of packaging materials after products are shipped to the customer location (e.g., customers, dealers, shippers)?	
Eco-Label Certifications	
ENERGY STAR	Yes
Other	Germany Blue Angel
Tested energy consumption levels of the device (watts)	
Ready/Idle	30W
Energy-save	N/A
Sleep mode	0.9W
During Printing	130W
How fast can this product be programmed to go into the following modes (seconds)	
Ready/Idle	No
Energy-Save	No
Sleep mode	1 minute
Can the above settings be programmed by a walkup user?	Yes
First-print time out of sleep mode (seconds)	INA
Emissions output from this device for the following substances (mg/h)	
Ozone	INA
Styrene	INA
Benzene	INA
TVOC	INA
Dust	INA
Other	None

INA: The vendor declined to provide this information
NA: Not applicable

INK YIELD

VERY GOOD

○ Based on an average of two ink cartridges, tested yield is above average for legal-size color laser/LED printers in this class tested to date.

\+ The average tested yield exceeded the declared specifications.

Tested Toner Yield | Competitive Average

Tested Impressions	**34,030**	27,186
Tested Impressions / Gram	**53.77**	44.66
Rated Yield	**30,000**	24,950
Rated Drum Yield	**N/A**	38,571

Tested impressions s based on an average of two cartridges per colour using the ISO 19752 toner yield test original. Some devices in the competitive group employ a cartridge that includes the toner and drum in a single component. In those cases, rated toner yield is used as the rated drum yield in calculating the average. Because the Brother device is an inkjet device, there is no drum required. The Brother includes a low-cost waste ink tank that Brother quotes as needing replacing every 600 to 800,000 impressions.

VALUE

VERY GOOD

— The Brother HL-S7000DN is priced considerably higher than similarly equipped legal-size laser/LED printers in the large workgroup / departmental class.

\+ Supplies cost per page is considerably lower (less than half that of some competing models) compared with legal-size laser/LED printers in this class tested to date.

\+ Above 7,500 impressions per month, the lower running costs of the Brother device offset the higher capital hardware cost and deliver a TCO advantage over the majority of competing laser-based units.

\+ The very low energy consumption of the device will deliver power cost savings versus laser competitors.

Supplies Cost per Page

	France	Germany	Italy	UK
Toner Cost per Page1	0,00585€	0,00585€	0,00585€	0.467p

[1] Based on Brother's suggested retail pricing for the print cartridges and BLI's tested yields using the ISO 19752 toner yield test original.

SUPPORTING TEST DATA

Test Environment: Testing was conducted under ambient conditions of 22°C (+/-2.7°C) and 45% RH (+/-10%); monitored daily by Dickson Seven-Day Temperature/Humidity Chart Recorder, in Buyers Lab's test facility at Unit 1 Station Industrial Estate, Wokingham, Berkshire RG41 2YQ. All products lab tested by BLI are powered by dedicated circuits that are protected by ESP (Electronic Systems Protection, Inc.) surge protectors to prevent transient power and communication disturbances from affecting equipment under test.

Test Equipment: BLI's dedicated test network, consisting of Windows NT 4.0, 2000 and Microsoft Exchange servers, Windows XP workstations, 10BaseT/100BaseTX network switches and CAT5 cabling. BLI's daily test usage is designed to replicate real-world use over an eight-hour workday, and as such includes a mix of various-size documents, simplex and duplex modes, and a mix of short, moderate and long run lengths, and on/off cycles, throughout the day.

Test Duration: Products are tested for two months, three weeks of which consists of a durability test during which the product is run at half of its manufacturer-rated maximum monthly volume. BLI's daily test usage is designed to replicate real-world use over an eight-hour workday, and as such includes a mix of various-size documents, simplex and duplex modes, and a mix of short, moderate and long run lengths, and on/off cycles, throughout the day.

Tested Configuration: Brother HL-S7000DN with three additional LT-7100 paper cassettes and the MX-7100 output expander.

Test Procedures: The test methods and procedures employed by BLI in its lab testing include BLI's proprietary procedures and industry-standard test procedures, including a BLI-developed variation of ASTM's 1318-90 Test Method for Determination of Productivity using Electrostatic Copy Machines. In addition to a number of proprietary test documents, BLI uses an industry-standard KATUN test original for evaluating black image quality and test suites from Quality Logic to evaluate applications compatibility. In addition, density of output is measured using an X-Rite 508 Densitometer.