BUYERS LABORATORY INC.

Lab Test Report

A Comprehensive BLI Laboratory Evaluation

RISO RZ390UI
60 to 130 CPM Digital Duplicator

PERFORMANCE RATINGS

HIGHLY RECOMMENDED
2005 LAB TESTED

Click rating for details. Click ▲ and ▼ to move through document.

Reliability .... Excellent
Copy Quality ....Good
Ease of Use ....Good
Feature Set ....Good
Ink Yield ....Good
Value .... Excellent

Rating Scale: Excellent, Very Good, Good, Fair, Poor

Test duration: Two months, including a 500,000-impression durability test.

Manufacturer's maximum recommended monthly volume: 500,000 impressions.
BLI's recommended monthly volume for optimum performance: Up to 400,000 impressions.
More information on the RISO RZ390UI is available through bliQ (www.buyerslab.com/bliQ).

BLI RECOMMENDATION

The RISO RZ390UI digital duplicator, offering strong reliability and good overall output quality for a low price, gave a commendable performance in BLI's rigorous laboratory evaluation. While, like copiers, digital duplicators are used to make copies, unlike copiers, they do so by first creating an imaged thermal intermediate master of the scanned original and then producing the desired number of copies using liquid ink. Capable of supporting high speeds and high volumes at much lower cost than would be possible for a copier, digital duplicators are extremely economical compared to copiers when reproducing many copies from each original, and thus are very well suited for this type of application. To help maximize the unit's economy, an administrator can set the minimum print quantity allowed from a single master by the unit (default is zero; can be set from zero to 50, in increments of ten) to deter an operator from making too few copies from the master. Conversely, they are not well-suited to producing sets of multiple-page originals in smaller quantities. Although they require somewhat more operator attention, they also tend to be highly reliable. The reliability and economy that are hallmarks of digital duplicator technology were both demonstrated in BLI's test of RISO's RZ390UI.

The unit, which supports 11" x 17" imaging and printing, also proved to be easy to use. In addition to demonstrating good overall performance, the RZ390UI offers a competitive feature set that includes a speed of 60 to 130 ppm. Most digital duplicators offer a top speed of 120 ppm. Also noteworthy is the unit's master time (18.4 seconds), which is the second-fastest for digital duplicators tested to date. Combined with its good overall performance, the RZ390UI's aggressive pricing and low per-page supplies costs make it an excellent value. BLI highly recommends the RZ390UI as a reliable and economical choice for offices in need of a digital duplicator for monthly volumes of up to 400,000 impressions.

LAB TEST

Performance Overview

Reliability   EXCELLENT

+ Impressively, the test unit demonstrated flawless reliability, logging 500,000 impressions in its durability test without any service calls or even a misfeed occurring.

+ Further contributing to high uptime for this model is a PM interval that, at 500,000 impressions, is higher than that of most digital duplicators.

Copy Quality   GOOD

+ When compared with other digital duplicators tested, output of the RISO RZ390UI was rated "Good" in most categories (text, solids and halftone range).

+ The RISO RZ390UI produced the highest copy density rating for digital duplicators tested to date.

– Halftone output was clearly visible from the 15% dot-fill level, which is the minimum coverage level on the original, to the 100% dot-fill, level, but fill was grainy.

– Line art output displayed inconsistent line thickness.

o Copy quality is rated at the unit's default speed. Different speeds may affect image quality.

o It should be noted that, since digital duplicators use ink to produce documents, unlike laser printers, copiers and MFPs, which use toner, the pages must be handled carefully (for example, the copies produced on a digital duplicator are subject to smudging before the ink dries, and to image bleed onto the other side of low-weight paper). Documents requiring the highest image quality may not be best suited to a digital duplicator.

Ease of Use   GOOD

+ The control panel, which spans the length of the unit and allows for simple selection of both routine and advanced functions, is well laid out.

o The "main" panel consists of hard keys for functions including mode selection (i.e. master making and printing), quantity selection, proof print and adjust-

+, - and o represent positive, negative and neutral attributes, respectively.

Riso RZ390 Control Panel

ments to speed, print density and print position. It also features a graphical representation of the unit with numbered areas to indicate where problems could occur.

o The "sub" panel, which is inset on the left portion of the control panel, features soft keys for functions including reduction/enlargement, image type (i.e., line, photo, text/photo or pencil), ink-save mode and confidential mode.

+ The RISO RZ390UI earned good marks for its ease of loading paper, adjusting the paper feed table and removing misfeeds.

+ Replacing ink was a simple and clean procedure. The user opens the front panel, turns the ink cartridge to unlock it. The user then simply removes the old cartridge and replaces it with a new one and repeats the steps in reverse order. The inner front cover includes illustrations covering the procedures for installation and removal of supplies.

+ Similarly, replacing masters was a simple and clean procedure. The user opens the front panel of the unit, presses the master roll release button, pulls out the assembly, removes the master roll and places a new roll in the unit. The beginning master is then placed underneath the master guide and the cover is then closed. The inside section of the duplicator includes illustrations on installation and removal of supplies.

+ Emptying the master disposal box was also found to be a simple and clean procedure. The user grasps the lever on the waste container, pushes downward on the lever and pulls out the container. The user then empties the container and places it back in the duplicator.

– Unlike many other duplicators, which offer a text display for error messages, the RZ390UI offers only a four-character error code display, and the user will need to keep the User's Guide handy to interpret the codes.

Feature Set

GOOD

o   The RZ390UI offers the features that would be expected of a digital duplicator, including a flatbed scanner; standard non-upgradable paper capacity of 1,000 sheets; the ability to accommodate up to 110-lb. index; and zoom reduction/enlargement from 50 to 200 percent (as well as preset magnification modes).

+   The speed of the RZ390UI is adjustable from 60 to 130 ppm, while most digital duplicators offer a top speed of 120 ppm.

+   Total counters are offered for the number of copies and number of masters.

–   Unlike many other duplicators, the unit does not offer copy control codes, which allow administrators to track usage by individual operators.

o   An optional Key Card Counter enables administrators to limit duplicator access to card holders and to set minimum and maximum usage per user. In addition, the unit can track the number of copies produced and number of masters consumed within a given period of time.

o   Other features include a proof copy mode that enables users to check and adjust image quality as needed; vertical and horizontal print position adjustments; and confidential print (whereby the master created of an original will automatically be discarded to prevent unauthorized use).

o   This unit also features RISO's i Quality System, through which the duplicator and i Quality-equipped supplies (i.e., ink bottles and master rolls) communicate real-time data, including shortages of remaining supplies, to help optimize performance.

o   Options for this device, while not configured on the test unit, include a variety of color ink drums that can be inserted by the user into the unit's drum assembly (separate drums are required for each color), allowing copies in a choice of up to 70 colors (one color at a time); a network interface card, which connects the unit to the network and comes bundled with RISO-MONITOR remote printer-monitoring software; a printer control board, which directly connects the duplicator to a computer; and the capability to link a printer to the duplicator (either directly, via a crossover cable, or over the network) and software that enables smaller-quantity jobs to automatically be sent to the printer rather than the duplicator for more economical printing.

Ink Yield

GOOD

o   Though ink yield was below average when tested at lower volumes (i.e., 25 impressions and 500 impressions), it was competitive at 1,000 impressions and at 5,000 impressions. Since duplicators are designed for long runs, ink yield was judged to be good overall.

Value

EXCELLENT

+   The RZ390UI is priced better than the average for digital duplicators, even with pricing for print and network options included. Indeed, it's more than $4,000 less than the average. Only two models, also RISO models (the RZ220UI and the RZ310UI), have lower prices. Moreover, the unit's estimated cost per page for ink and estimated cost per page for supplies are excellent when compared to the average. The RZ390UI's good overall performance in the tests, combined with its competitive feature set and low acquisition and supplies costs, make it an excellent value.

Supporting Test Data

Test Environment

This product was tested in BLI's 10,000-square-foot test lab, in an environment monitored by a Honeywell Temp/RH chart recorder, which replicates typical office conditions.

Test Equipment

This product was tested as a stand-alone device. Network-enabled devices are tested on BLI's dedicated test network, consisting of Windows NT 4.0, 2000 and Microsoft Exchange servers, Windows 98 and 2000 workstations, 10BaseT/100BaseTX network switches and CAT5 cabling.

Test Duration

Products are tested for two months, one month of which consists of a durability test during which the product is run at its manufacturer-rated maximum monthly volume, with daily volumes evenly divided over the course of the test.

Tested Configuration

Base unit.

Test Procedures

The test methods and procedures employed by BLI in its lab testing include BLI's proprietary procedures and industry-standard test procedures. In addition to a number of proprietary test documents, BLI uses an industry-standard Katun test original for evaluating black image quality.

Reliability

PMs/Malfunctions	Service Required	Meter Count (Impressions)	Impressions Between Service
Meter count (beginning of test)		0	
End of test period		500,000	
Total misfeeds/misfeed rate	0 / Not applicable		
Service calls	0		
PMs	0		
Total service calls (including PMs)	0		
M.I.B.F.[1]	Not applicable		
M.I.B.S.[2]	Not applicable		

[1] *Mean Impressions Between Failures (To obtain this number, BLI divides the total number of impressions produced during the test period by the number of service calls required. In actuality, it reflects the average number of impressions produced without a malfunction.)*

[2] *Mean Impressions Between Service (To obtain this number, BLI divides the total number of impressions produced during the test period by the number of service calls, including preventive maintenance calls, required. In actuality, it reflects the average number of impressions produced without a service call.)*

Copy Quality

Density of original:
  1.65 to 1.70.

Density of copy:
  1.21 to 1.25.

Density for duplicators tested to date:
  0.94 to 1.25.

Density for copiers tested to date:
  1.04 to 1.58.

COPY DENSITY

Test Original	**Riso RZ390**	Range for Copiers	Range for Duplicators
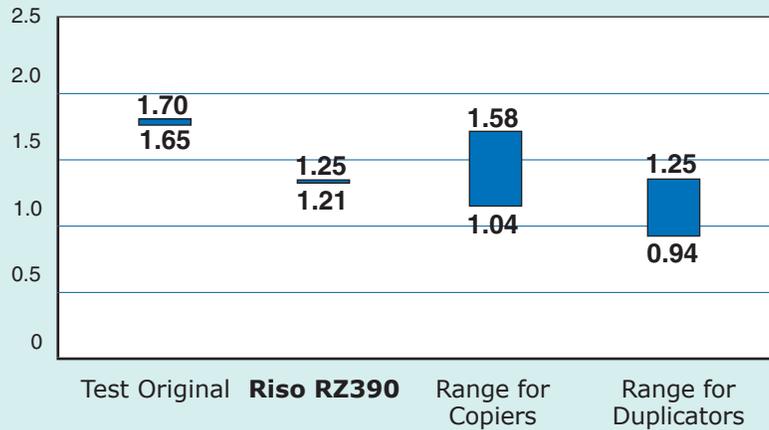
Measurements are based on eight readings corresponding to eight different solid black locations on the original. The higher the density reading, the darker the image.

Productivity

First-copy time:

18.4 seconds (master time from the platen , 8-1/2"
x 11" copies).

Copies per minute:

At 60 cpm:

38, including first copy with master.
56, including first copy without master.

At 130 cpm:

80, including first copy with master.
119, including first copy without master.

COPIES PER MINUTE

	AT 60 CPM*	AT 130 CPM*
Including first copy with master	38	80
Including first copy without master	56	119
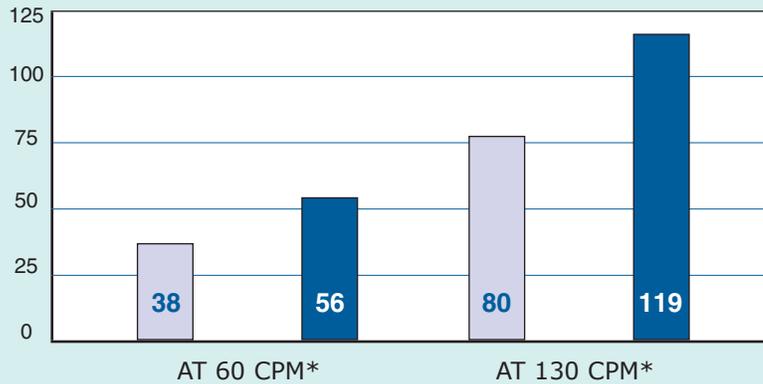
☐ Including first copy with master
■ Including first copy without master

*There are five print-speed settings: 60, 80, 100, 120 and 130 cpm.

Ink Yield

TESTED INK YIELD / SUPPLIES COST PER PAGE

Impressions Per Master	Net Weight of Ink	Ink Yield (Impressions)[1]	Impressions Per Gram	Ink Cost Per Page	Supplies Cost Per Page[1]
25 impressions	906.2 grams	4,657	5.14	0.539¢	1.786¢
50 impressions	906.2 grams	8,350	9.21	0.347¢	0.970¢
100 impressions	907.8 grams	13,852	15.26	0.209¢	0.521¢
500 impressions	894.1 grams	29,404	32.89	0.098¢	0.160¢
1,000 impressions	901.2 grams	33,933	37.65	0.085¢	0.116¢
5,000 impressions	914.5 grams	39,462	43.15	0.073¢	0.079¢

[1] The supplies cost per page is based on estimated retail pricing, BLI's tested ink yields at six volumes (based on BLI's ink yield test original with 6% coverage) and the manufacturer's rated yield for the master roll using a ledger-size drum and 8-1/2" x 11" paper.

Ability to manually duplex

Good. However, as with all digital ink duplicators, users must be sure to allow the ink on the copies to dry for several minutes and they must jog and fan the copies before reinserting them into the machine for duplexing. If this is not done, copies may stick together and set-off and/or jamming may occur.

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Specifications

BACKGROUND INFO — Dataquest Segment NA
SRP (USA; Canada): $9,995; $13,495
Manufacturing Status: New
Domestic Intro Date: October 2004
OEM: RISO, Inc. (China)
Also Sold As: None

Distribution: Dealers and branches
Mfr's Rec Mo Vol: Up to 500,000+ copies

TYPE — Digital duplicator
Configuration/Scanner: Console, digital
Toner: Ink technology

GENERAL SPECIFICATIONS/PAPER HANDLING
First-Copy Time: 16 sec
Multicopy (Ltr/Lgl/Ldgr): 60 to 130/60 to 130 cpm/Info not avail
Warm-Up Time: None
Std Paper Source(s): Single tray
Std Paper Capacity: 1,000 sheets
Paper Weights: 13-lb bond to 110-lb index
Bypass/Paper Weights: None
Max Paper Sources/Capacity: 1/1,000 sheets
Max Original Size: 11 x 17
Min/Max Output Size: 3-1/2 x 5/11 x 17
Scan/Copy Resolution: 300 x 600/emulated 600 dpi
Std/Max Copier Memory: Not applicable
Duplex: Manual
  Capacity/Paper Sizes: Not applicable
Document Feeder: Opt ADF
  Speed/Capacity: Info not avail/50 orig
  Paper Weights: 15 to 28 lbs
Sorter (Bins/Capacity): None
Stapler Sorter: None
  Bins/Stapling Capacity: Not applicable
  Stapling Positions: Not applicable
Finisher: None
  Tray/Stapling/Position(s): Not applicable
Other: Copies on NCR, envelopes, post cards and card stock; precision stacking tray; 5 adjustable copy speeds (60, 80, 100, 120, 130)

CONTROL PANEL — LED keypad w/indicators
Quantity Selector: 1 to 9,999 (0 to 9 keypad)
Message Display: Yes
Help Key: No

COPIER FEATURES
Automatic Features: AES, ASO

Book Copy:	Yes	Job Time:	No
Booklet Mode:	No	Language:	Std
Color:	Opt, 70	Margin Shift:	Yes
Copy Control:	Opt	Neg/Pos:	No
Covers:	No	OHP Interleaving:	No
Editing:	No	Photo Mode:	Yes
Energy-Save:	Yes	Poster Mode:	No
Erase:	Std	Preset R/E:	4R,3E
Image Insert:	No	Program Ahead:	Std
Image Overlay:	No	Sheet Insertion:	No
Image Repeat:	No	Stamping:	No
Image Rotate:	Opt	Timer:	No
Interrupt:	No	2-in-1:	Std
Job Build:	No	XY Zoom:	No
Job Programs:	2	Zoom Range: 50 to 200 (1%)	

Other Features:
RISO i Quality System monitors supplies & ensures print quality; line, photo & duo modes; ink-save mode; pencil mode; book/center erase w/adjustable erasure width; 2-up copying; print speed/density control; 70 colors; auto paper size detection; integrated stand

ADDITIONAL INFORMATION
Dimensions (H x W x D): 54" x 25" x 40"
Weight: 220 lbs
Power Requirements: 120 V, 3.5 A
  Dedicated Outlet: Not required
Energy Star-Compliant: No
Operating Noise Level: 63 dB

COMMENTS
11 x 17 image area; PM indicator; flatbed scanner; confidential mode; paper jump wing adjustment for accomodating heavier stock; proof print auto-process on/off allows user to set whether or not a job will print automatically after the proof print comes out. *295 masters per roll

OPTIONS
ADF: $1,550
Separator: $385
Key counter: $1,050
Print (color) cylinder: $1,295
TC5100 off-line collator: $6,295
Paper feed kit: $175

MAINTENANCE
Fuser Rollers: Not applicable
  Yield: Not applicable
Cleaning Blades: Not applicable
  Yield: Not applicable
Other: Not applicable
  Yield: Not applicable
Fuser Oil: Not required
PM Schedule: 500,000

SUPPLIES
Photoconductor: Intermediate masters
  Yield: 5,000/master
  Price: Priced by dealer
Toner: 1,000-cc ink ctrdg
  Yield: Info not avail
  % Coverage: Info not avail
  Price: Priced by dealer
Developer: Not applicable
  Yield: Not applicable
  Price: Not applicable

MULTIFUNCTION MODES

Copier:	Std	Fax:	No
Internet Fax:	No	Network Fax:	No
Network Printer:	Opt	PC Fax:	No
Printer:	Opt	Scanner:	No

CONNECTIVITY SPECIFICATIONS

Operating System Support:	Win 98, 2000, Me, NT, XP
Parallel Interface:	Opt
PC Fax/Print/Scan:	No/Yes/No
Serial Interface:	None
PC Fax/Print/Scan:	Not applicable
USB Interface:	None
PC Fax/Print/Scan:	Not applicable
Network Interface:	Opt Ethernet
Interface Type:	10/100BaseT
LAN Fax/Print/Scan:	No/Yes/No
Networks Supported:	
NetWare:	No
Windows NT:	Yes
AppleTalk:	Yes
UNIX:	No
AS/400:	No
Other:	None

FACSIMILE SPECIFICATIONS

Scanner Technology:	Not applicable
Compression Method:	Not applicable
Modem Speed:	Not applicable
Max TX Resolution:	Not applicable
Gray Scale/Halftones:	Not applicable
Std/Max Fax Memory:	Not applicable
Min/Max Orig Size (W x L):	Not applicable
Max Paper/Print Width:	Not applicable
Effective Scanning Width:	Not applicable
Correct-Order Output:	Not applicable

Batch Files:	NA	Polling:	NA
Battery Backup:	NA	Relay Request:	NA
Confid TX/RX:	NA	Smoothing:	NA
Dual Lines:	NA	Timers:	NA
Multi Access:	NA	Transfer Hub:	NA

Dialing Capabilities

Broadcasting (Groups/Dest):	Not applicable		
Redial (Attempts/Intervals):	Not applicable		
One Touch:	Not applicable	Speed Dial:	Not applicable

Other:

CONNECTIVITY/MF OPTIONS

GDI integrated system controller: $1,100
Network interface card: $550

INTERNET FAX SPECIFICATIONS

TX/RX:	Not applicable
Fax-To-E-Mail:	Not applicable

PC/NETWORK FAX SPECIFICATIONS

Connection Type:	Not applicable
Type:	Not applicable
TX/RX:	Not applicable

PRINTER SPECIFICATIONS

Engine Mfr/Model:	RISO/RZ390 Printer-Duplicator
Compatibility:	IBM PC, Mac
Speed:	60 to 130 ppm
Max Print Area:	11 x 17
Enhanced Resolution:	600 dpi (emulated)
Unenhanced Resolution:	300 x 600 dpi
Std/Max Printer Memory:	64 MB/64 MB
Controller Mfr/Model:	RISO/RISORINC3N
Processor/Bits/MHz:	SH3/Info not avail/133
PDL/PCL:	Windows GDI
Controller Mfr/Model:	Not applicable
Processor/Bits/MHz:	Not applicable
PDL/PCL:	Not applicable
Controller Mfr/Model:	Not applicable
Processor/Bits/MHz:	Not applicable
PDL/PCL:	Not applicable

Other: Memory for job spooling and opt color separation software for Microsoft applications

SCANNER AND IMAGE MANAGEMENT SPECIFICATIONS

Connection Type:	Not applicable
Technology/Speed:	Not applicable
Max Resolution:	Not applicable
TWAIN/ISIS Compatible:	Not applicable
Scan/Image Software:	Not applicable
OCR Software:	Not applicable
File Mgmt Software:	Not applicable
Scan-To-E-Mail:	Not applicable
Other:	

COMMENTS

Minimum print quantity selection sets the minimum quantity that can be printed from a single master to deter an operator from making too few copies from the master

Info not avail = Info not provided by MFR. Specs were obtained from manufacturer/distributor and not confirmed by BLI testing.
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