RYOBI®

RYOBI 3404DI

A3-Size Portrait Format 4-Color Offset Press with Built-in Direct Imaging

PRESSTEK DI

Get the Fast Speed of Digital with the High Quality of Offset Printing

The RYOBI 3404DI—a digital offset printing system that embodies the new fusion of prepress and press—is destined to become the unchallenged leader in the short-run color printing market of the 21st century.

The digitalization of prepress and the penetration of the Internet have brought about a dramatic increase in presses capable of accepting original document data submitted for printing directly from the client or designer. The RYOBI 3404DI represents a new generation of digital offset printing presses that, by utilizing prepress data, can deliver full-color printing for only as few prints as are needed, quickly and with the high quality of offset printing.

The RYOBI 3404DI is an A3-size, portrait format four-color offset press incorporating the advanced digital imaging system from Presstek, Inc. of the U.S. It offers high productivity with the capability to directly print received data, user-friendly operation thanks to extensive automation, and the high print quality of offset printing. These features are combined to flexibly meet the needs of the rapidly growing short-run color printing market. The RYOBI 3404DI will generate tremendous business opportunities for today's printing companies, as well as for color separators and service bureaus.

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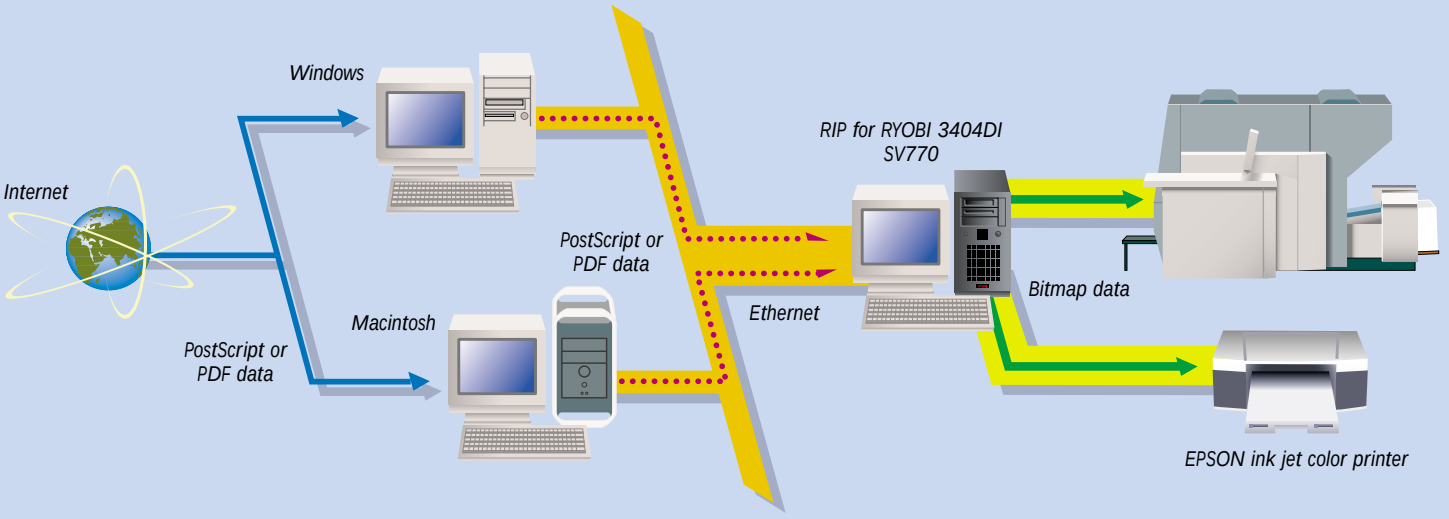
Photo: RYOBI 3404DI equipped with optional RYOBI PDS-E

An Ideal Work Flow for Digitalization

The rapid transition of prepress operations to computer-based digital processes and the spread of the Internet have made it possible to send original document data directly to the printer over ordinary telecommunications networks. By incorporating the RYOBI 3404DI into corporate network environments, it can be positioned as a high-performance output device.

System Flowchart



Supports Both PostScript and PDF

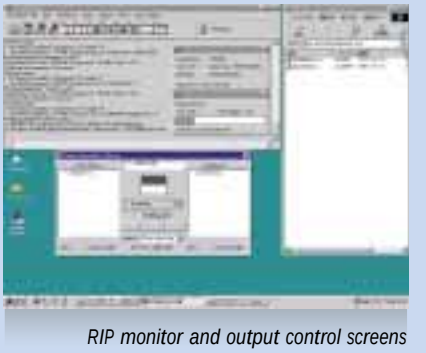
The RYOBI 3404DI supports both PostScript and PDF data in the Macintosh and Windows® environments, and achieves the fusion of prepress and press in a flexible, open system. In addition, by using Ethernet to link the RYOBI 3404DI to a digital front-end system, digital data received from the prepress side can be printed directly with impressively fast turnaround times.

RIP for RYOBI 3404DI SV770

Advanced RIP (Raster Image Processor)

- The RIP for RYOBI 3404DI SV770 utilizes Harlequin ScriptWorks (PostScript Level 3 compatible), which has a proven track record of performance and offers high speeds and reliability. Its Windows NT® Server operating system also has a long established reputation for stability and functionality. Optimized bitmap data for printing is generated quickly based on PostScript or PDF data received from a Macintosh or Windows-based computer.
- Generated bitmap data can be previewed on the RIP or on the monitor screen at the operation stand, allowing for quick and accurate verification of text and the print image.
- An optional color printer plug-in makes it possible to network with an EPSON ink jet color printer for proofing of layout and text.

Preview screen (DI file viewer)



RIP monitor and output control screens

Advanced Digital Technology To Boost Productivity

From prepress directly to the press—direct imaging technology from Presstek incorporated into the RYOBI 3404DI makes it possible to completely eliminate the need for analog intermediate processes such as film output and image exposure onto the plate. The RYOBI 3404DI raises productivity even with frequent job changes, and is the ideal system for short-run color printing jobs that demand quick turnarounds.

High-Speed, High-Precision Imaging Thanks to Advanced On-Press Imaging Technology

- FirePower™ multi-beam lasers developed by Presstek loosen the silicone layer on the surface of the plate, directly forming the screen dots. The RYOBI 3404DI is equipped with two imaging heads. Both imaging heads contain six laser modules, each of which emits four laser beams. A total of 24 laser beams burn the image onto the two plate surfaces (two colors) on each plate cylinder.
- The two imaging heads burn the plates for the four colors simultaneously in precise register.

Select from Either 1,270 or 2,540 dpi Imaging Resolutions

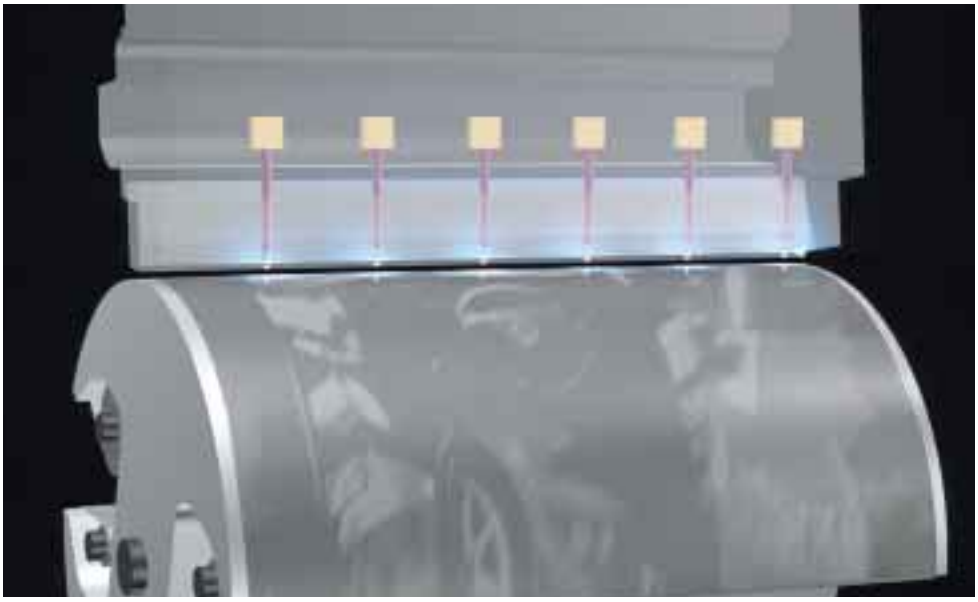
You can select 1,270 dpi or 2,540 dpi resolution depending on turnaround times and quality of printing demanded. The laser spot size* can be formed in two sizes—28 µm at 1,270 dpi and 21 µm at 2,540 dpi. The 2,540 dpi setting enables output equivalent to 200 lines per inch.

** Spot sizes were measured on the PEARLdry™ Plus plate after imaging was completed.*

Laser module

Faster Processing Thanks to Shorter Make-Ready Times

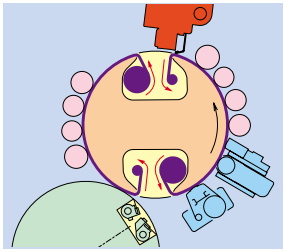
The RYOBI 3404DI carries out high-speed imaging for four plates simultaneously thanks to a high-speed plate cylinder rotation of 18,000 rph. This allows four-color imaging in approx. 4 min. 30 sec. at 2,540 dpi and approx. 2 min. 20 sec. at 1,270 dpi. Printing operations are fully automatic, from plate advancing and imaging to presetting the ink fountain keys and running a test print. Even at 2,540 dpi, make-ready time is short—approx. 9 min. from plate advance to start of test print, dramatically increasing productivity.



Imaging

Fully Automatic Plate Advance and Take-Up Mechanism

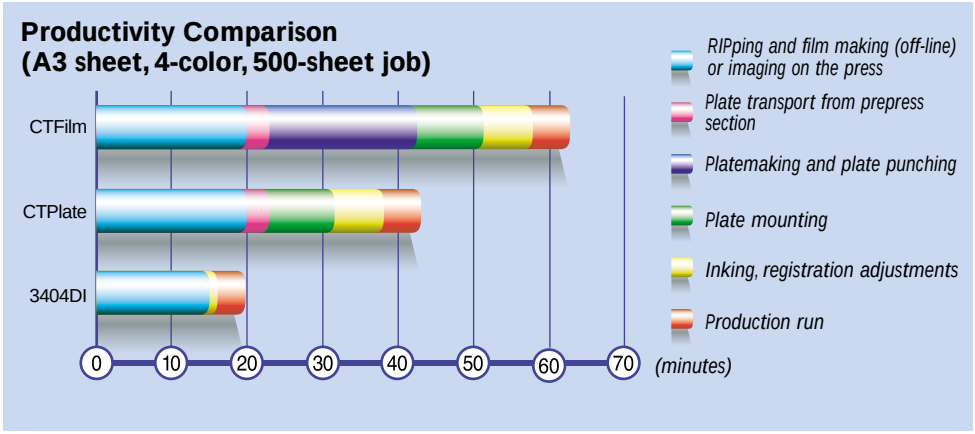
After four roll-type plates are set inside the plate cylinder gaps (one in each cylinder gap), the plates are advanced automatically and simultaneously (Auto Plate Advance Mechanism). With single-button operation, new printing plates are positioned automatically, and used plates are wound onto take-up spools. Each roll contains 28 plates.



Auto plate advance mechanism

Shortened Drying Times with an Infrared Dryer (option)

The delivery section can be equipped with an infrared dryer to shorten drying time for printed materials, an especially effective option for jobs with short turnaround times. Also, the use of powder sprays can be reduced for a cleaner working environment.



High Printing Quality From an Offset Press

RYOBI has packed the 3404DI's compact body with a host of outstanding printing features. Incorporating RYOBI's unrivaled offset printing know-how, it features a highly reliable, robust design that yields high printing quality and promises a long and productive service life.

Compact Design Based on a Unique Cylinder Arrangement

The 3404DI uses a satellite V-shaped 5-cylinder system consisting of two sets of double-diameter blanket cylinders and plate cylinders, which rotate around a triple-diameter impression cylinder. Paper is tightly held by the impression cylinder grippers and rotated twice without a gripper change for precise 4-color printing. The large diameter of the impression cylinder reduces paper curling as well as damage to the printed material. Thanks to this cylinder arrangement, the RYOBI 3404DI achieves a compact design that's about the same size as a conventional 2-color press.

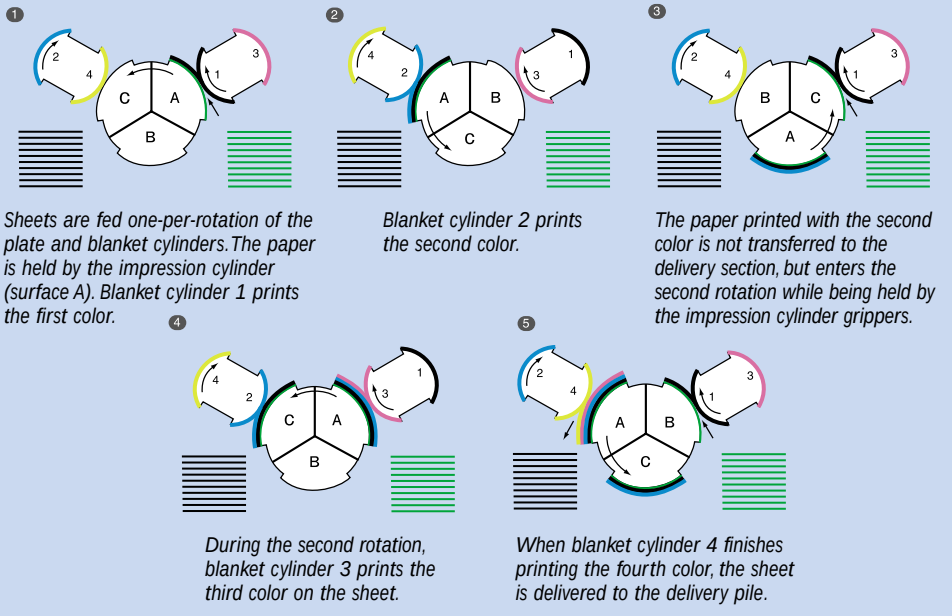
The triple-diameter impression cylinder reduces paper curl

Solid, Reliable Design

The 3404DI uses a bearer contact system to maintain constant plate pressure with each rotation of the cylinder. Plus, induction-hardened ultra-high-precision helical gears and cylinders fitted with ultra-high-precision bearings ensure consistent, stable printing quality over long periods of use.

Ultra-high-precision helical gears are used on the impression cylinder

Paper Travel



Sheets are fed one-per-rotation of the plate and blanket cylinders. The paper is held by the impression cylinder (surface A). Blanket cylinder 1 prints the first color.

Blanket cylinder 2 prints the second color.

The paper printed with the second color is not transferred to the delivery section, but enters the second rotation while being held by the impression cylinder grippers.

During the second rotation, blanket cylinder 3 prints the third color on the sheet.

When blanket cylinder 4 finishes printing the fourth color, the sheet is delivered to the delivery pile.

Three Plate Cleaning Devices

Once imaging has been completed, plate cleaning is carried out by three devices—a dry cleaning device, a wet cleaning device and a vacuum, to remove residual silicone on the plate.

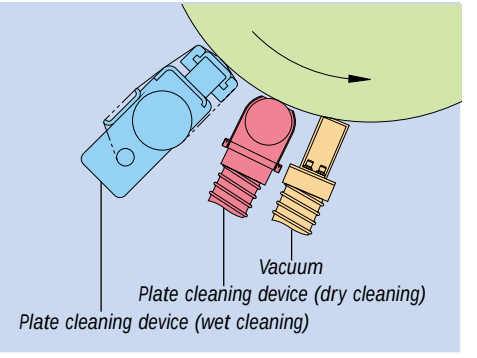


Plate cleaning devices

11-Zone Divided Ink Fountains

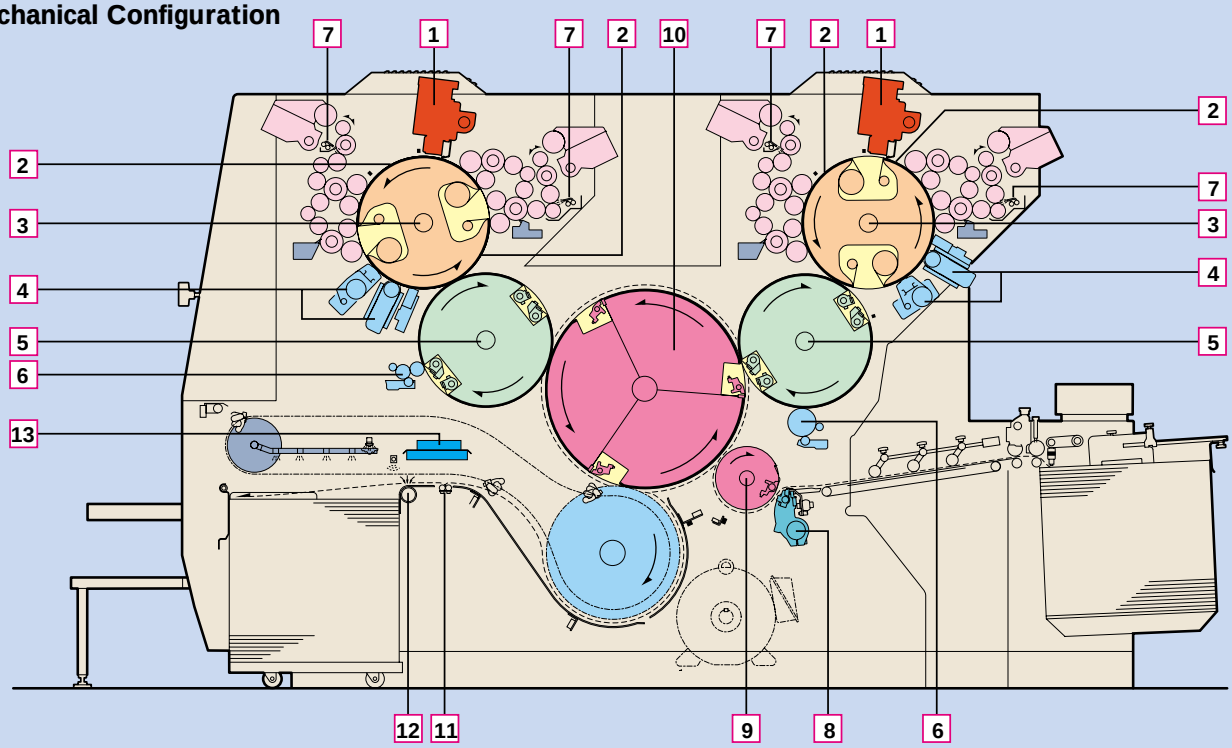
Ink fountains are divided into 11 zones, each having its own motor. The ink supply volume for each zone is remotely controlled from the operation stand.

Inking Mechanism

Each inking unit consists of 15 rollers including 4 form rollers, ensuring uniform inking.

Inking section

Mechanical Configuration



1. *Imaging head*
2. *Printing plate*
3. *Plate cylinder*
4. *Plate cleaning device*
5. *Blanket cylinder*
6. *Automatic blanket cleaning device*
7. *Automatic ink roller cleaning device*
8. *Underswing system*
9. *Paper feed drum*
10. *Impression cylinder*
11. *Decurling device*
12. *Suction wheel*
13. *Infrared dryer (option)*

Ink Roller Temperature Control System

Roller temperature is maintained at an optimum level by circulating temperature-controlled water (warm water and cold water) inside the oscillating rollers and fountain rollers. By minimizing fluctuations in ink roller temperature, consistent printing quality is maintained, even during long print runs.

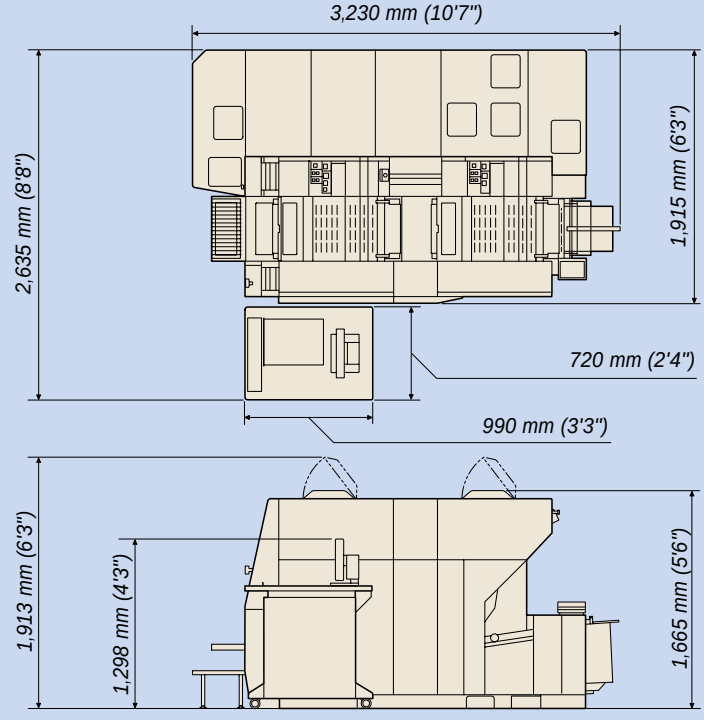
Ink roller temperature control system

Waterless Plate (PEARLdry™ Plus)

The 3404DI uses PEARLdry™ Plus, a roll-type waterless plate. This plate uses laser action to form surfaces that are either adhesive or repellent to ink. Each plate lasts for approximately 20,000 impressions, and will accommodate both short runs as well as longer, large-lot production.

Note: The number of available plate impressions depends on printing conditions such as the type of ink and paper stock used.

Dimensions



User-Friendly Operation Thanks to Automation

The RYOBI 3404DI is loaded with automated processes, from plate advance and imaging to making color adjustments—operations that once required high levels of experience and skill. Its user-friendliness ensures that even operators with little experience can achieve quality printing in a short period of time.

Simple, Straightforward Centralized Control from the Operation Stand

All major operations for the RYOBI 3404DI are initiated and controlled from the operation stand. Setting the number of printed sheets; job data entry, interruption and recall; presetting the ink fountain keys; and cleaning are all centrally controlled from the operator's position. A large-format 14.1-inch LCD ensures user-friendly operation.

Automatic Ink Fountain Key Presets

Calculating the image area ratio for each color is done simultaneously with imaging. Presetting the ink fountain key is done automatically from the operation stand based on this data. This allows easy control of the ink fountain key opening volume, dramatically reducing the time and effort involved in making color adjustments.

RYOBI Program Inking

RYOBI Program Inking automatically supplies ink to the ink rollers to match the image from the very start of printing. After the set number of prints is finished, the ink on the rollers is automatically restored to an even state, allowing the operator to proceed quickly to the next job and minimizing the amount of wasted paper generated at the start of printing.

Convenient Auto Print Function

The RYOBI 3404DI features a convenient Auto Print function. Printing operations start just by selecting the Auto Print command on the operation stand's monitor screen. Plate advancing, imaging, printing and blanket cleaning are all carried out at a click of a button.

Operation stand

Automatic Cleaning Devices

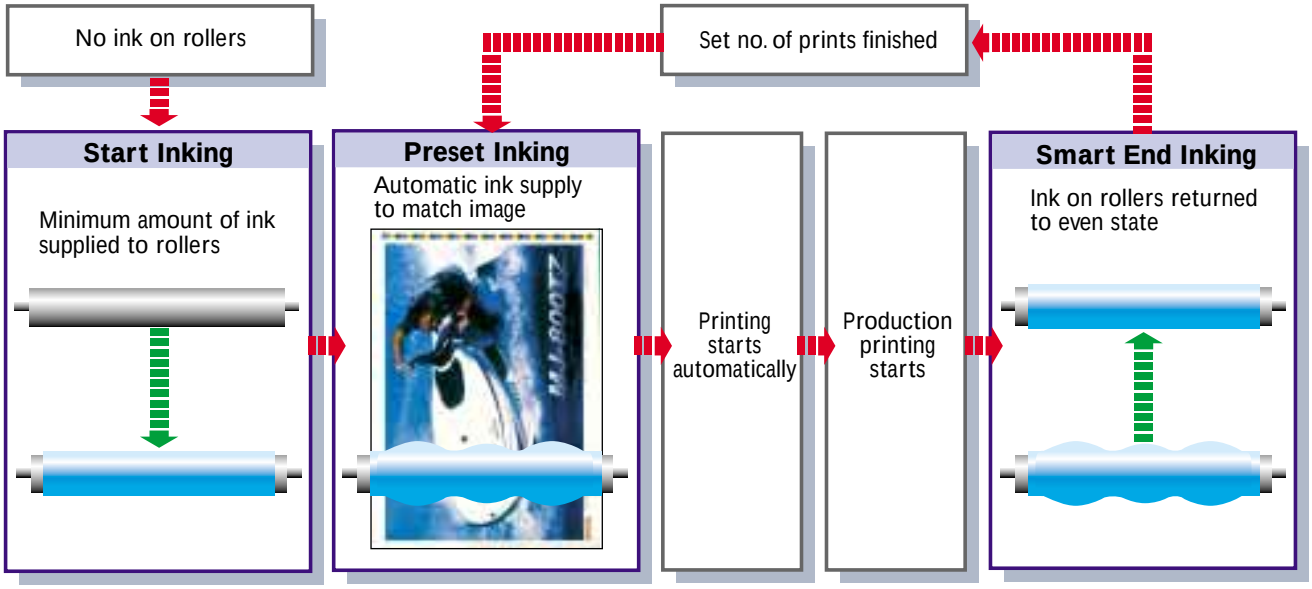
The RYOBI 3404DI comes standard with an automated cleaning system for both ink rollers and blankets (including an impression cylinder cleaning function). This reduces the cleaning time required when switching jobs, thus lessening the workload for the operator.

RYOBI PDS-E Printing Density Control System (option)

The RYOBI PDS-E Printing Density Control System is an option on the 3404DI. Color adjustments previously based on the experience and intuition of the operator can now be made using numerical values from solids densities calculated for each color. This system allows the operator to easily match printing output to the OK sheet and keep quality consistent.

RYOBI PDS-E printing density control system (option)

RYOBI Program Inking Flowchart



Note: Manual ink volume adjustment may become necessary depending on the printing conditions such as ink, stock and print image (especially when printing a much lighter image job after a heavy solid print job.)

Unmatched Versatility

The RYOBI 3404DI is capable of flexibly handling a wide variety of paper types and inks, and offers unmatched versatility. It can handle many types of printing, ranging from pamphlets and presentation materials to postcards.

Paper feed section

Push side guide registration

Wide Variation of Paper

The RYOBI 3404DI can accommodate a wide range of paper sizes and stocks to match the printing job—from smaller-than-postcard size of 90 x 100 mm up to a maximum 340 x 460 mm, and thicknesses from 0.06 mm onion skin to 0.3 mm card stock. It is also flexible enough to handle a variety of paper qualities—from regular printing papers to label stock and envelopes.

Simple, Easy Paper Size Change to Match the Job

Both the feeder table and the delivery table dolly are hoisted by motors. A convenient paper size change button allows quick and easy resetting of paper guides for different stock size. Thus, paper sizes can be changed quickly and efficiently whenever the operator needs to start a new print job.

Push Side Guide and Underswing Infeed System

- The push side guide ensures accurate paper positioning on the feeder board. Consistent registration accuracy is achieved even when printing on the back side of the paper.
- Thanks to a simple, yet precise underswing infeed system with cam-closed type sheet grippers and an accurate front lay system, the RYOBI 3404DI maintains stable registration accuracy.
- Mechanical and electronic double sheet detectors and multiple sensors monitor paper travel. The OK monitor on the operation stand clearly indicates the source of the paper trouble so the operator can take quick action.
- Suction wheels and a decurling system come as standard equipment, ensuring stable paper stacking in the delivery section.

Waterless Offset Printing Inks

The RYOBI 3404DI uses waterless offset printing inks. These inks are available in standard process colors, as well as in custom specialty colors designed for printing spot colors such as logos and corporate names.

Press Specifications

Number of Colors	4
Printing Speed	1,500 – 7,000 S.P.H. Local conditions, ink, stock and printing quality required will affect the maximum printing speed.
Max. Paper Size (W x L)	340 x 460 mm (13.39 x 18.11")
Min. Paper Size (W x L)	90 x 100 mm (3.54 x 3.94")
Max. Printing Area (W x L)	330 x 450 mm (12.99 x 17.72")
Paper Thickness	0.06 – 0.3 mm (0.0024 – 0.012")
Blanket Type	Blanket with aluminum bar
Blanket Size	526 x 350 x 1.95 mm (20.71 x 13.78 x 0.077")
Plate Material	PEARLdry™ Plus (waterless plate)
Number of Plates	28 per roll
Plate Setting	Auto plate advance mechanism
Number of Imaging Units	2
Imaging Time	2,540 dpi: 4 min. 30 sec. 1,270 dpi: 2 min. 20 sec.
Laser Type	FirePower™ multi-beam lasers (laser diode system)
Feeding System	Universal feeder
Feeder Pile Capacity	400 mm (15.75")
Delivery Pile Capacity	400 mm (15.75")
Registration System	Push side guide, front lay
Infeed System	Underswing gripper, paper feed drum
Number of Rollers	15 (form rollers: 4) per unit
Gripper Margin	9 mm (0.354")
Oiling System	Automatic centralized oiling system
Power	3-phase 200V 50/60Hz 43A or other voltages (60A when equipped with infrared dryer)
Power Consumption	Press: 13.5kW (17.5kW when equipped with infrared dryer)
Motor Wattage	Main motor: 5.5kW
Recommended Operating Environment	Room temperature: 20 – 25°C Relative humidity: 50 – 60%
Dimensions (L x W x H)	3,230 x 2,635 x 1,665 mm (10'7" x 8'8" x 5'6") including foot step and operation stand
Weight	4,500 kg (9,950 lbs) including foot step and operation stand

RIP for RYOBI 3404DI SV770 Specifications

Software RIP	Harlequin ScriptWorks
Operating System	Windows NT® Server 4.0
CPU	Pentium III 933 MHz
Hard Disk	36GB HDD RAID (18GB x 2)
Memory	512MB
Network	100Base-TX /10Base-T
Input Language	PostScript, PDF Ver. 1.3
Pre-installed Fonts	35
CRT Monitor	17-inch (color)
CD-ROM Drive	Max.24x speed
Floppy Disk Drive	2-mode 3.5-inch

Press Equipment and Accessories

Standard Equipment

- RYOBI Program Inking
- Image area ratio data calculation function
- Cooling device for imaging unit and control unit
- Ink roller temperature control system (ink fountain rollers, ink oscillating rollers)
- Automatic ink roller cleaning device
- Automatic blanket cleaning device (includes impression cylinder cleaning function)
- Plate cleaning device
- Paper feed table motor drive
- Delivery table motor drive
- Powder spray device (spraying time adjustable)
- Decurling device
- Suction wheels
- Delivery paper pull-out device
- Delivery jam detector
- Static eliminator
- Double sheet detector (mechanical, electronic)
- Total counter
- Machine counter
- Preset repeat counter
- OK monitor
- Centralized oiling system
- Safety covers
- Safety bars
- Ink roller clean-up attachments
- Foot step

Optional Accessories

- RYOBI PDS-E printing density control system
- Infrared dryer
- Multi-size paper pile board

RIP for RYOBI 3404DI SV770 Equipment and Accessories

Standard Equipment

- 17-inch color monitor
- Keyboard
- Mouse
- 2-mode 3.5-inch floppy disk drive
- CD-ROM drive
- Cables
- 35 fonts

Optional Accessories

- Plug-in software for EPSON ink jet printer
  (Stylus color 3000, Stylus Pro 5000 /7000/7500/9000/9500)

*Color printer must be prepared by the user.

Design and specifications are subject to change without notice.
Specifications may differ slightly depending on the country.

RYOBI

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