Geljet™ system

Fact Sheet

Dataquest

Your Performance is our priority

RICOH imagine. change.

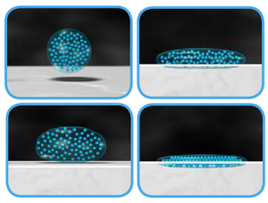
Introduction

Most printers on the market are either inkjet printers or laser printers. Ricoh has developed a printing system using GELJET technology (formerly known as GelSprinterTM), which incorporates some features from each of these other technologies, and has added some innovative new features as well.

Key features of GELJET system

GELJET system is a low-cost way of printing in black and white and colour using a viscous, pigment - based ink. It includes a set of technologies designed to maximize print speed and image quality:

- Viscous ink
- Modulation dot technology
- Dual tank system
- Belt transfer system
- Wide print head



Viscous ink

Ricoh's GELJET system uses a viscous ink with a number of key characteristics:

- High viscosity
- Instantly sets and dries upon contact with the paper
- Durable-fade- and water-resistant

The viscous ink remains in a liquid state while in the print cartridge, but due to its high viscosity, it sets and dries upon contact with the paper. This produces a solid and crisp image on plain paper.

Because it dries so quickly, Ricoh's viscous ink is suitable for high speed printing and duplex printing.

Dye-based ink	Pigment-based ink	Ricoh's viscous ink
Soaks into paper	Dries gradually	Sets and dries quickly
Spreads image	Smears easily	Solid image
Less thick colour	Thick ink	Thick ink

Comparison of dye-based and pigment-based inks

Modulation dot technology

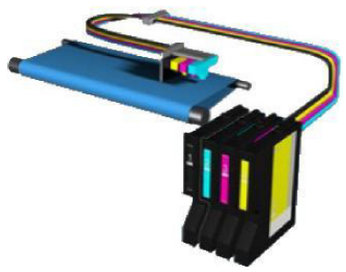
Inkjet printers compose a picture by firing tiny droplets of ink onto a medium. Different printer manufacturers use different firing mechanisms. There are two main firing methods used in inkjet printing:

- Bubble system, where the ink is heated to form bubbles that are then squirted onto the paper. Dots can be irregular in size, and there can also be splatter caused when the ink bubbles burst
- Micro-piezo system, where a small element in the ink nozzle is electrically charged so that it distorts, thus creating pressure within the nozzle. This causes the ink to be fired from the nozzle in a more controlled way than the bubble system

Ricoh's modulation dot (M-Dot) technology uses micro-piezo technology to produce precise, controlled ink droplets. Each droplet can be produced in three different sizes, and up to four droplets can be combined before reaching the paper. The fourth droplet is ejected from the nozzle faster and stronger than the previous droplets so that it will reach and absorb the other droplets before they hit the paper. This provides precision and flexibility in the size of the dots. The result is high image quality.

Dual tank system

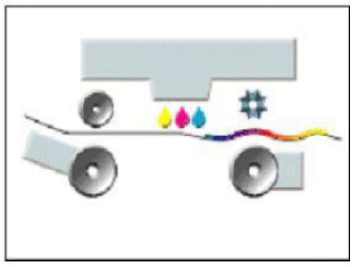
GELJET system uses a dual tank system. The viscous ink is vacuum-packed in ink cartridges, and each colour is pumped through a tube to the reservoir in the print head tank unit. The reservoir is replenished whenever the volume falls below a certain level, guaranteeing a continuous supply of ink, and printing is still possible for some time after the cartridge is empty. When the ink cartridge is completely empty, a notification is given that a replacement is due, thus ensuring zero waste.



GELJET system is a low-cost way of printing in black and white and colour using a viscous, pigment-based ink.

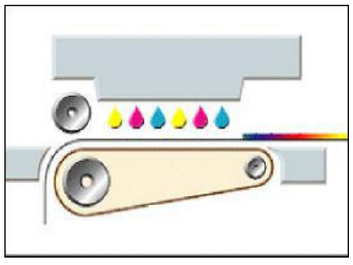
Belt transfer system

In inkjet printers, traditional paper transfer technology uses a roller feeding system in which rollers at the front and back of the print head flatten the sheets as they pass under the print head. However, the paper often ripples, causing the paper feed to become unstable, and making it more difficult to lay down the ink droplets accurately on the page.



Traditional paper transfer

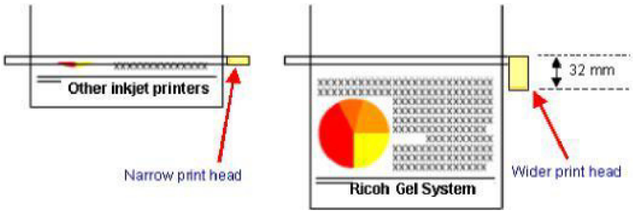
The Ricoh GELJET system uses a belt transfer system, similar to that commonly used in laser printers. An electrostatic belt keeps the paper flat and in place, enabling high-speed printing with consistently sharp images.



Ricoh's belt transfer system

Wide print head

Another advantage of the belt transfer system is the ability to use wider print heads. Ricoh's GELJET system uses a much wider print head (32 mm) than other inkjet printer systems. This results in an increase in the printed area on the page for each pass of the print head, which in turn results in faster printing speeds.



The wider print head allows faster printing

Due to the print head's design, the image quality is also consistently clear and solid, even at high speeds or low resolution.

If the printer is not used for a long period of time, the print heads will be automatically cleaned to prevent clogging.

Advantages of GELJET system

GELJET system has a number of advantages:

- Productivity
- Image quality
- Cost effectiveness
- Low maintenance

Productivity

GELJET system improves productivity in a number of ways:

- Wider print head-more surface area is covered in each pass of the print head, requiring fewer passes per page
- Double print head for black ink-prints 600 dpi in a single pass of the black print heads
- Fast-drying ink-allows high duplex productivity, where the device is fitted with a duplex unit
- Belt transfer system-keeps the paper flat and in place, allowing higher speed printing

Image quality

Ricoh's GELJET system provides high-quality images through a number of innovations:

- Viscous ink-sets and dries quickly on the page, providing a solid, crisp image on plain paper
- Micro–piezo technology-fires controlled, variable droplets, giving a precise image with no thermal stressing of the ink
- Belt transfer system-keeps the paper in place for precise placement of droplets
- Lighter print image for duplex-reduces the image density on duplex pages so that the image doesn't show through from the other side of the page

Cost effectiveness

Ricoh's GELJET system has a number of features that contribute to its cost-effectiveness:

- Zero waste-the dual tank system ensures that all ink in the cartridge is used
- No heating element-the micro-piezo technology does not require a heating element to heat the ink, so it has a short warm-up time and saves energy

Low maintenance

Because there is no heating element, there are no heaters or other mechanisms to deteriorate and replace. The automatic nozzle cleaning feature prevents