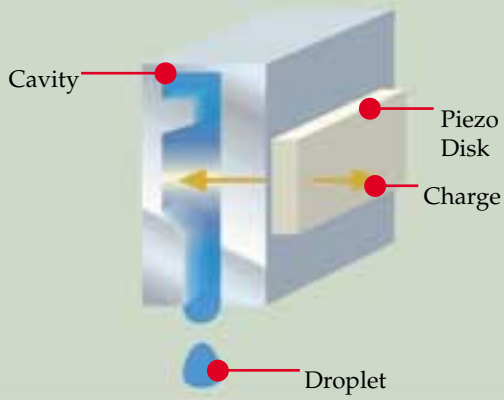


How Inkjets Work

From the outside, an inkjet printer doesn't look like much, even when it's printing. But inside, there's a flurry of activity. Motors whirl, components work together simultaneously, and the printhead moves back and forth across the page. Inside the printheads themselves, dozens of nozzles are squirting droplets of ink onto the page. All this activity is carefully choreographed so that users receive the best possible speed and the finest print quality.

The Piezo Inkjet Process



Piezo-electric inkjet printheads work by sending a current through a Piezo crystal. The crystal expands, squeezing ink out and onto the paper.

Controller

The controller is the "brains" of the printer. It is responsible for translating the data from the computer into actions for the printer components. It tells the various motors to advance the paper or to move the printhead across the page. It also keeps an eye out for problems, such as an empty paper tray.

Ink Cartridge

An ink cartridge is where your ink is stored. Color ink cartridges actually have three separate ink tanks inside: one for cyan, magenta, and yellow.

Printhead

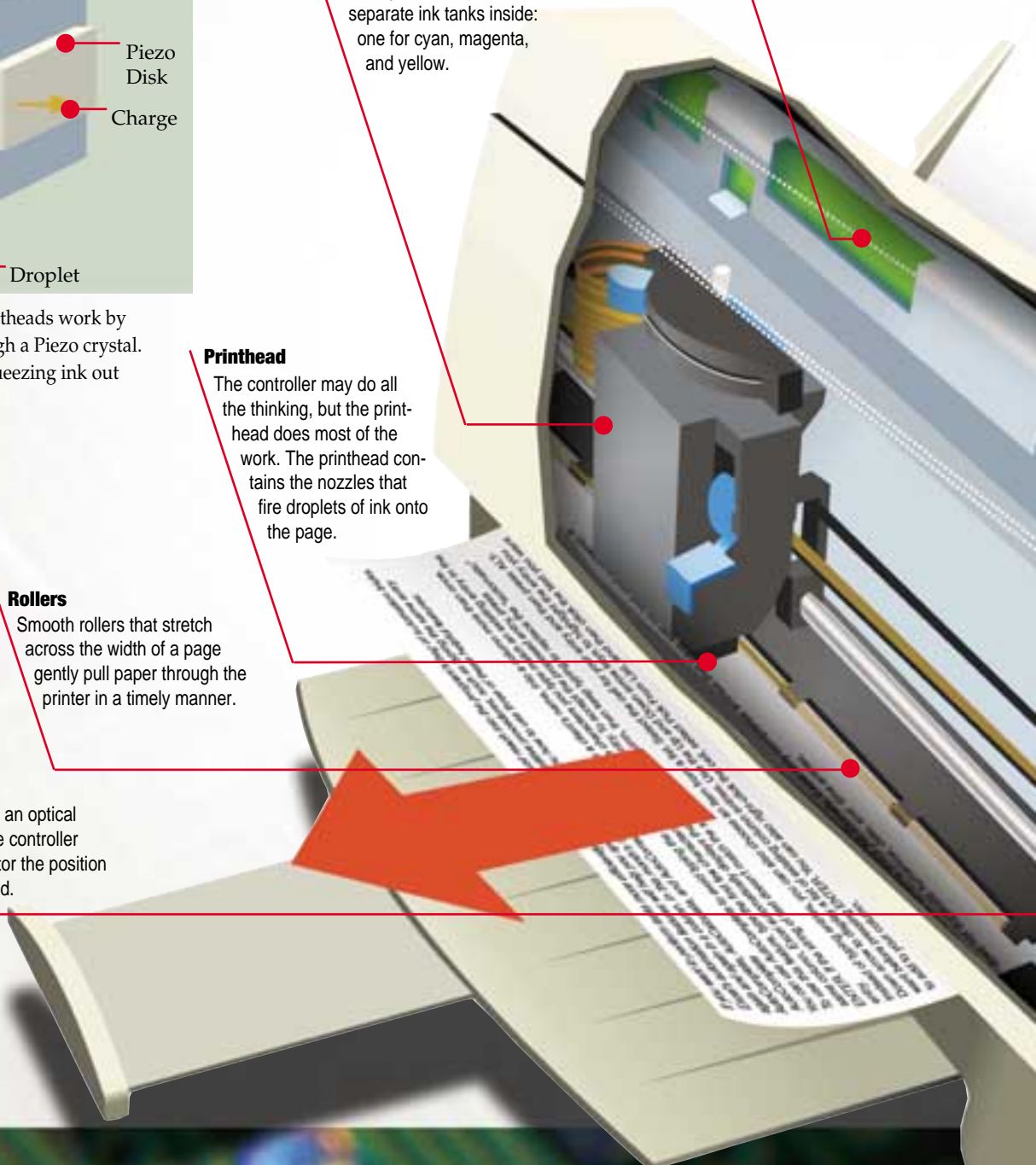
The controller may do all the thinking, but the printhead does most of the work. The printhead contains the nozzles that fire droplets of ink onto the page.

Rollers

Smooth rollers that stretch across the width of a page gently pull paper through the printer in a timely manner.

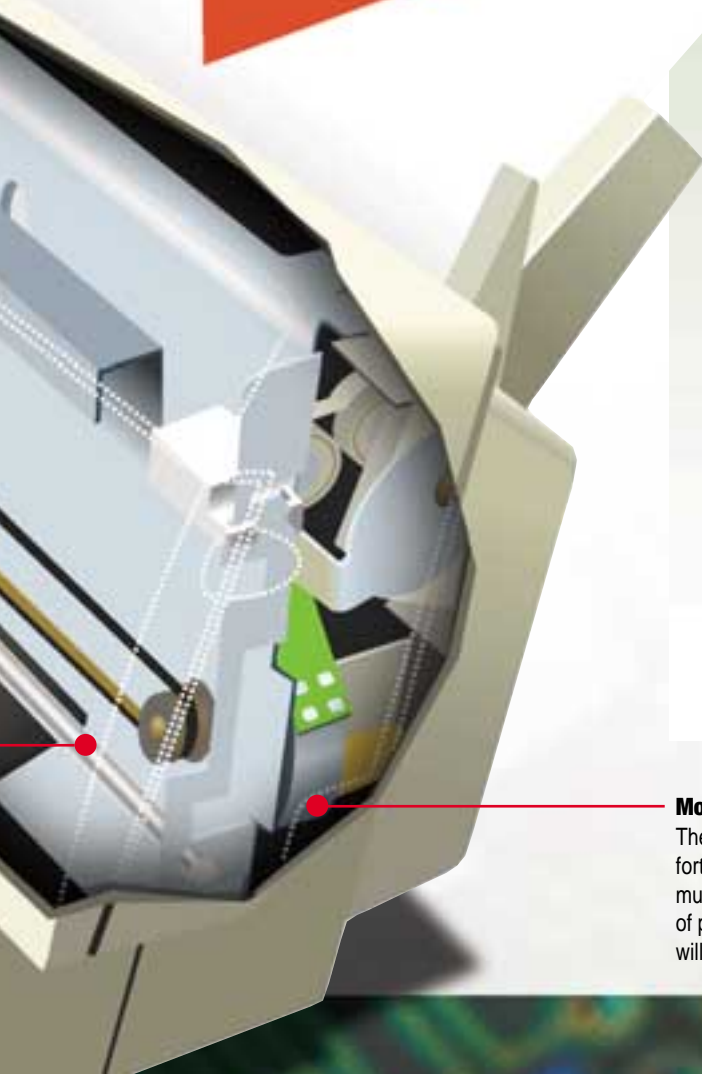
Guide

Some printers use an optical guide that lets the controller constantly monitor the position of the print head.



Paper Tray

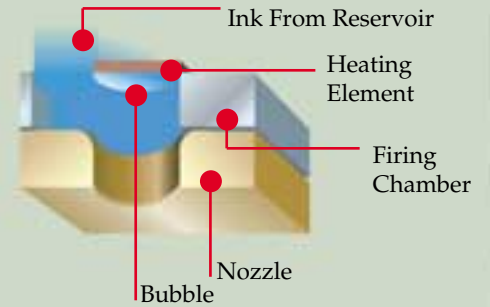
Most inkjet printers can hold 100 sheets of paper in their paper trays and include a sensor that stops the printer if the paper supply runs out.



The Thermal Inkjet Process

Inkjet printers fire ink droplets more than 6,000 times per second, per nozzle. That's so fast that it is hard to imagine but we'll try to slow the process down in order to explain it.

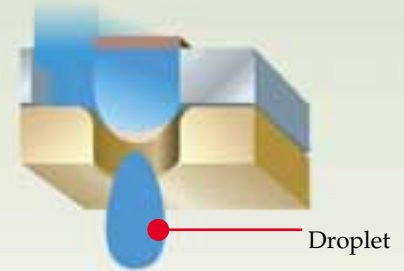
After the nozzle fills with ink, a heating element warms the ink, producing a bubble.



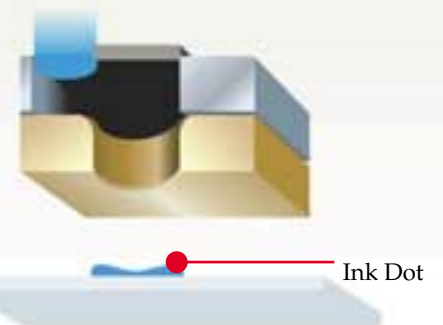
As the bubble expands to its maximum size, it begins to force ink out of the nozzle.



The bubble "pops," converting the ink into an airborne droplet.



The heating element cools and fresh ink is drawn into the nozzle so the process can begin again.



Motor

The motor pulls the printhead back and forth across the page. Its movement must be precise, otherwise the dozens of passes required to print a single page will not line up.

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