

Counting costs

HP thermal inkjet technology delivers best total value.



The robust, flexible HP Bulk Ink Delivery System delivers superior print quality, low cost per copy and low user intervention for high-volume print applications.

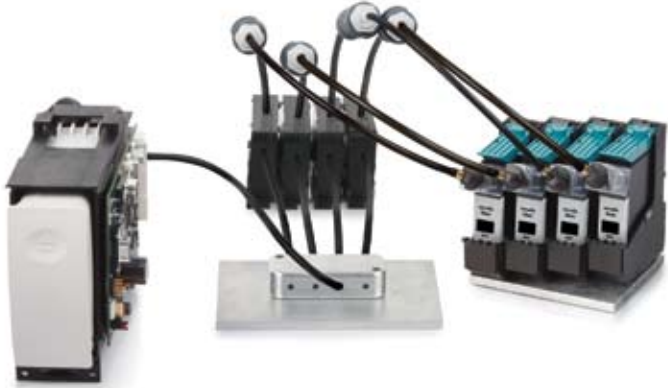


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Which mail-printing technology is most cost-effective for your company? When comparing technologies, remember to factor in the hidden expenses that drive up your operating costs, such as maintenance, labor, equipment downtime and lost financial opportunities. HP technology delivers the best total value through low acquisition costs, quick changeovers, easy operation, high reliability and outstanding print quality. Compare for yourself and see the value of HP thermal inkjet technology.

It's no secret that competition is tough in the mail-printing industry. Electronic communication is becoming more pervasive every day, displacing some traditional printing opportunities. Letter shops, mailing houses, service bureaus and commercial printers face tremendous pressure to cut costs and grow business as their customers continue to demand more flexibility and lower prices.

In the past decade, inkjet technology created great possibilities in mail printing, including personalized messages and affordable color printing. Direct marketers seized the opportunity to create true one-to-one marketing materials that deliver powerful results. But this market shift comes at a price to mail-printing providers, who are now faced with shorter runs and more frequent changeovers—two factors that drive up operating costs.

In this environment of narrowing margins, it's vital to be aware of all the costs—both visible and hidden—associated with owning, maintaining and using a mail printer. The price of ink alone doesn't tell the whole story. Rather, the total cost of owning a mail printer comes from the cost of consumables, such as ink, as well as less obvious expenses, such as maintenance, labor, downtime and lost financial opportunities. These hidden expenses drive up overall equipment costs.

HP technology makes a difference

Hewlett-Packard enables printer manufacturers to deliver the lowest equipment costs in the mail-printing industry. HP's integrated-circuit technology keeps machine costs low compared to other mail-printing technologies on the market.

There are three primary inkjet technologies in the mail-printing industry: continuous inkjet (CIJ), which uses a continuous flow of ink to form images on a page;

piezoelectric inkjet (PIJ), which uses mechanical forces to eject ink on demand; and thermal inkjet (TIJ), which uses integrated circuitry to precisely eject ink from hundreds of microscopic nozzles. HP is synonymous with TIJ technology, which delivers high performance and reliability that makes a big difference when considering costs.

Let your money work harder for you

Pay up front or pay as you go? It's a question that bears asking as you explore technology options. Equipment prices can vary by more than 75 percent between different technologies with similar capabilities. That's because the bulk of the technology is either built into the machine, as it is with CIJ and PIJ technology, or built into the supplies, as with thermal inkjet.

"TIJ technology enables a pay-as-you-print model that makes your money work more effectively than a front-loaded model," says Hal Jones, HP Specialty Printing Systems market development manager.

Here's why. Compare the up-front cost of a typical HP TIJ-based system with that of a CIJ printer with similar capabilities. While the ink supplies for the CIJ printer may be priced lower than ink supplies for HP TIJ-based systems, the capital expense for CIJ systems is several times higher. "To offset such large capital expenditures, mail shops are often forced to cut prices to keep their machines busy all day, every day. If you don't have that high overhead to contend with, you aren't as likely to sacrifice pricing to get jobs," says Jones. By contrast, HP TIJ-based systems require a much smaller initial outlay of cash for you to start being productive.

Superior performance means superior value

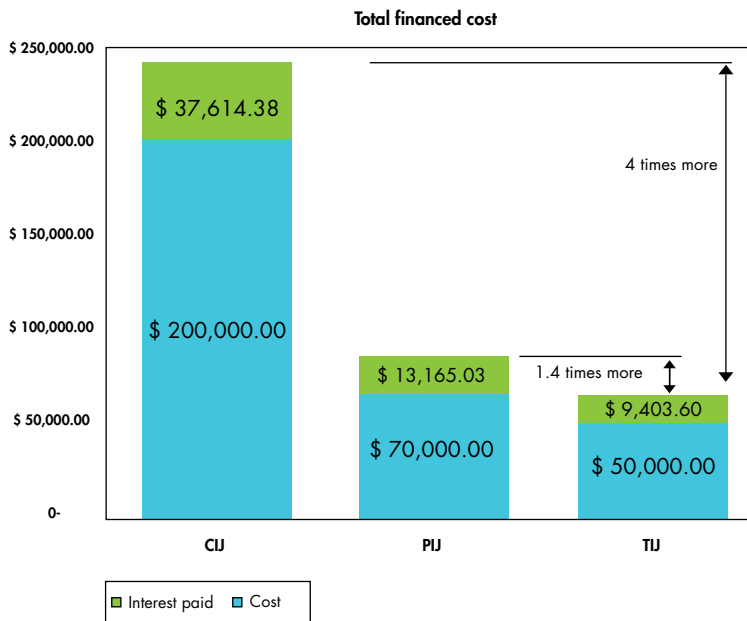
And while it may appear that HP TUJ ink and printheads may be more expensive to purchase than CIJ and PIJ ink, HP TUJ's superior performance actually adds up to better value.

Consider, for example, ink lost through frequent purging and priming, and even evaporation. Piezo relies on a mechanical process to force ink through the printhead. This physical movement makes piezo printheads more susceptible to air bubbles, which requires more ink purging and priming than TUJ technology in which nothing moves but the ink itself. Increased air bubbles can also boost nozzle clogging, which can quickly drive up operating costs. Piezo's fixed-printhead system can cost thousands of dollars to refurbish and even more to replace. Because faulty printheads will halt a printing line, businesses often keep a spare printhead on hand, adding several thousand dollars to inventory costs.

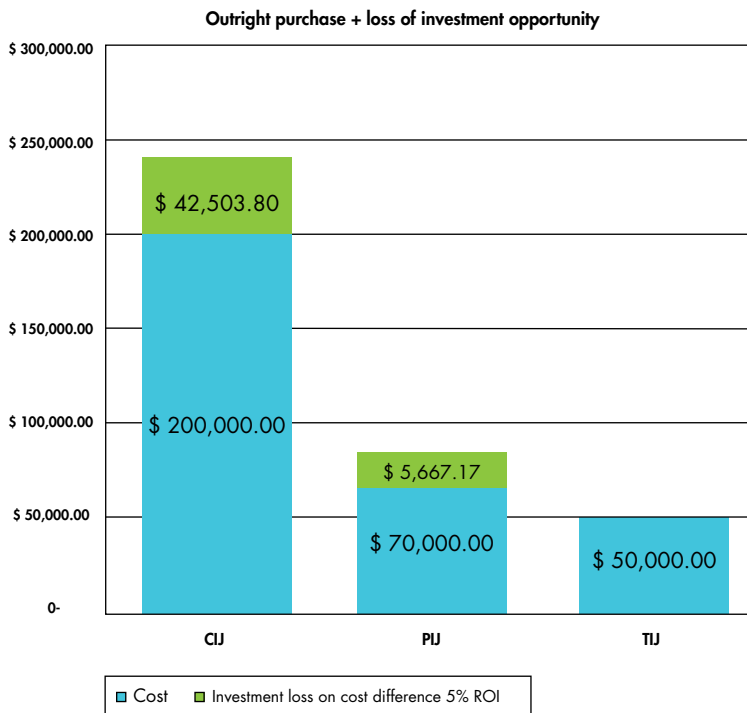
Continuous inkjet, on the other hand, uses a pressurized system. A CIJ printhead sends out a stream of ink droplets that pass through a charged tunnel and past a charged deflection plate. Uncharged drops strike a return block and are recycled to the ink module, which is constantly pumping fluid through the system. Whether it's printing or not, solvent ink is constantly being exposed to the atmosphere, where evaporation occurs. To counter evaporation losses, a make-up fluid is added to the ink, which in turn adds more cost.

In contrast, the TUJ ink-ejection process is highly efficient, using tiny resistors to create a vapor bubble that drives ink out of the printhead and dramatically reduces the risk of nozzle-clogging air bubbles. TUJ printhead's minimal servicing system provides more economical ink management than PIJ or CIJ technologies, considerably lessening the amount of lost or wasted ink.

"TUJ printheads are designed—and priced—to be replaceable, easily snapping into place to keep equipment up and running," says Jim Martin, HP SPS product marketing manager. "In fact, you could inventory up to 375 TUJ printheads before you matched the cost of one piezo printhead, and you could replace nearly 250 printheads before you equaled the cost of refurbishing a single piezo printhead. And that doesn't include the cost of labor."¹



Illustrative figures based on a five-year period, 7 percent interest rate.



Illustrative figures based on investing at 5 percent return, the difference between the system purchase price of a typical TUJ solution against CIJ and PIJ solutions. For example: \$200,000 - \$50,000 = \$150,000. \$150,000 invested at 5 percent for 5 years would yield \$42,503.80 in return.

¹ Estimate based on \$40 TUJ printheads, \$15,000 piezo printheads and \$10,000 piezo refurbishment cost.

Uncovering the hidden costs of printing

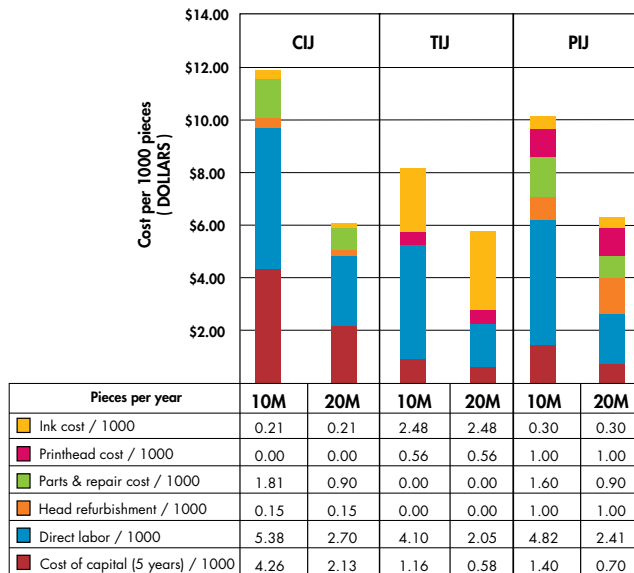
Where does labor fall in your total-cost equation? Obviously, the more complicated the system, the more skilled the labor must be and the higher your costs will be. For example, let's look at what's involved in starting a cold CIJ printer. First, the ink must be heated and quality-control adjustments made, which takes about 30 minutes. That's time out of production and time that ties up skilled labor. As the printer is used over time, evaporation causes the ink viscosity to change, so continuous adjustments are required to maintain acceptable print quality. As the viscosity of ink drops below a certain level, make-up fluid is added, which necessitates more adjustments. Plus, even becoming qualified to make these adjustments requires a high level of training, knowledge and experience, which further escalates labor costs.

By comparison, TIJ-driven printers are the easiest to operate and maintain in the mail-printing industry. Easy-to-replace printheads snap in and out in seconds; no special training or skills are required. The self-contained bulk ink supplies are clean and easy to handle, and can be hot-swapped to minimize print-run interruptions. Ink changeovers are quick and clean, making short-run printing not only possible, but profitable. And because TIJ machines need little intervention, they require less labor to operate and maintain.

"HP builds the bulk of the printing system into its highly engineered supplies. Each time you replace the printhead you refresh the printing system, minimizing the risk of nozzle clogging and maximizing print quality," says Martin. "This makes the system more reliable and nearly eliminates the need for the time-consuming and expensive routine maintenance required with other technologies."

Heavy solvent-based piezo and continuous inkjet require special handling, such as chemical cleaners, venting hoods, fluids disposal and special training that all add costs to printing. Because of all the handling and disposal procedures, ink changeovers are time-consuming and costly, making short-run printing nearly cost-prohibitive.

Approximate comparative TCO of technologies
(Based upon yearly volume over 5 years)



Note: Estimate only. Actual figures will vary by environment.

Total cost advantage: TIJ technology

As the mail printing market shifts to shorter runs and more frequent changeovers, TIJ technology has the clear advantage. It's no longer about amortizing your operating costs over long production runs. It's about getting the best return on your investment today. It's about minimizing your labor, maintenance and handling costs while you meet varying printing demands. It's about keeping your operating costs as low as possible, and maximizing the efficiency of your printing system. Count the costs and you'll see that TIJ delivers the best value in today's mail printing market.

For more information about HP Specialty Printing Systems and our partners in mail printing, please visit us at: <http://www.hp.com/oeminkjet/solutions>

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