

Trends in Dot Impact Printers

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Oki Data's dot impact printers (impact printers), which are sold under the Microline brand, have received high evaluation marks in reliability from users all over the world. This article gives an overview of the impact printer market and describes technological transitions that affect impact printers

Overview of Impact Printer Market

In the printer market, sales of inkjet printers and page printers are increasing steadily, and continued growth is expected for the future. However, annual sales of dot impact printers (impact printers), which numbered 10 million units about 10 years ago, are steadily declining and have decreased to less than 3.5 million in 2001, as shown in Fig. 1.

Ten years ago, it was predicted that the growth of impact printers would be maintained. In reality, however, the market environment changed because of the rise to prominence of inkjet printers and page printers. Demand switched rapidly to inkjet printers for individual users and to page printers for business offices. Consequently, sales numbers for impact printers have decreased and that trend is continuing even today. Since 2000, the rate of year-to-year decrease has been about 15% and this trend is expected to continue.

Looking at the market situation, we see a succession of factors that have led to this business decline, including collapse of the IT bubble since 1998, the Y2K problem at the end of 1999, bank failures and bankruptcies of large corporations such as Enron in 2001 and 2002, and the multiple terrorist attacks in the U.S. in September 2001.

These factors have markedly curbed IT investments and accelerated the decline of the impact printer market.

When we look at the European and North American markets, the decrease in impact printer shipments accompanying the technological shift to page printers during system switchover is remarkable. In North America, about 80% of the impact printer market is the result of replacement of previous impact printers, but the repurchasing opportunities for impact printers are decreasing because of investment cutbacks.

In the Asian market, the demand for impact printers is expected to increase until 2003, but in China only. In fact, the market scope is expected to exceed that of Europe and North America within the next one to two years. In China, national projects for the construction of a Chinese-version "mini information highway" (Sankin Kotei, the so-called "Golden Projects") have begun. In addition, advanced computerization is being promoted through the introduction of nationwide systems, including a postal services and communication system, a national economics information system, a tax information system, and an increased-value tax (value added tax) system. Inter-bank networks are being set up for banks through nationwide communication networks and online network systems for nationwide banking. These networks allow deposit and refund transactions to be carried out between metropolitan areas and local areas. In addition, an integrated teller system that processes transactions for both business accounts and individual accounts has been introduced. Previously, bank operations were divided into operations geared toward companies and operations aimed at serving individuals, and the systems that were used were specialized for each type of operations. However, the new system supports both types of operations. These environment changes have increased the demand for printing to bank passbooks, the demand for tamper-proof multipart form printing, and the demand for impact printers that are superior in terms of ease-of-maintenance and high reliability, enabling the printers to operate in harsh environments.

In Japan, as in Europe and North America, the demand for impact printers has decreased because of the technology shift to page printers and inkjet printers. The market is becoming specialized toward business-use printers, such as printers for shipping invoices, receiving/shipment records, and other reports used in the distribution business.

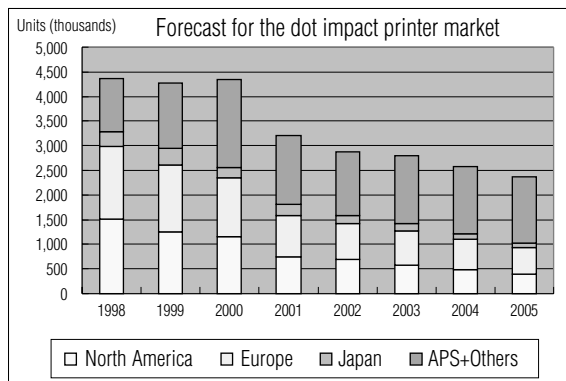


Fig. 1 Impact printers: past shipments and future market projections

Technology Transitions relating to Impact Printers

In the medical, automobile maintenance, and financial markets, impact printers are used as business printers for output and for tamper-proofing by printing onto multipart forms. Here, the impact printer technologies have changed along with market changes. As a result of innovative thinking focused on improving print speed and other printer specifications, developers are working on the following technological improvements, which take into account higher customer satisfaction and system considerations:

- Skew correction and media offset processing
- Media follow
- Improved connectivity to networks
- Support for printing on ultra-thick paper and improved copy capabilities
- Improved reliability (longer warranty periods)

In regard to media transfer systems for line printers, technologies such as skew correction and media offset processing are being developed. The skew correction technology detects the angle of the loaded paper, automatically corrects the skew if the paper was loaded at an oblique angle, and then feeds the paper straightly. The media offset processing technology uses paper detection sensors to detect the paper position automatically and then prints the data accurately to the specified position no matter in which position the paper is set, as long as the position is in a printable area. These two technologies are noteworthy functions that have improved the operability of the line printers themselves, and they also serve to prevent printing errors in counter operations that require multiple forms to be printed at the counter location. The media follow controls the print pressure according to the thickness of the print media so that the appropriate pressure is applied. This technology allows data to be printed on bank passbooks and other media of varied thickness. Regarding connectivity, cases where impact printers are connected to the same networks as page printers are becoming more widespread, and support to expand the usage flexibility of impact printers in network environments has become necessary. We also see increased activity in meeting demands for low cost and service improvement, which are reflected in indexes such as total cost of ownership (TCO). Extending the warranty period is one of the trends for enhancing reliability and improving support in the service area. Also, to meet the demands of the market, printer manufacturers are achieving low running costs and extending the ribbon replacement period by lengthening the ribbon, thus extending the service life.

While the market for business printers, such as line printers and general-purpose printers, is declining in Europe and North America, the printer market for point-of-sales (POS) units, which use the same impact printing technologies, is showing an annual upward trend of about 6% despite being a mature market. From a technological aspect, the types of printers being used in the POS market include impact printers, thermal printers, and inkjet printers, and these printers are used in printing receipts, checks, and journals. When we look at the North American market, for example, the market scale of

all POS systems exceeds 2.4 billion dollars, while the printer market is seen as about 10% of that amount, or 240 million dollars. As shown in Fig. 2, the share of impact printers in the POS market is currently about one-third¹⁾. With future replacements and upgrades, a technology shift to thermal printers and thermal/impact combination printers (hybrid printers) is expected to occur. Even in the future, needs for impact printing in the POS market are expected to be high with respect to multipart form printing for record keeping and tamper-proofing, reliability to withstand operation in harsh environments, and ease-of-maintenance.

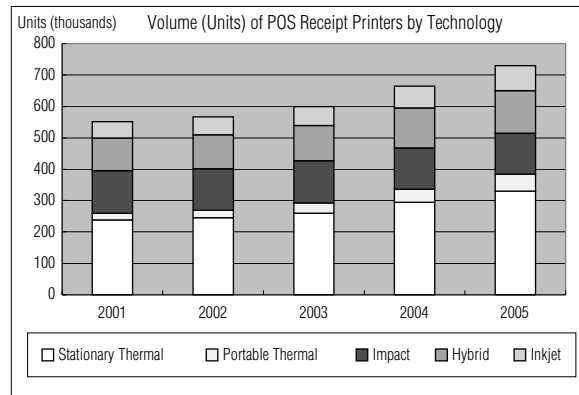


Fig. 2 Market forecasts for POS printers by technology (North America)

Conclusion

This article provides a general description of the market and technological trends that relate to impact printers. As a result of the relaxation of several legal constraints, applications that were handled by impact printings are being converted to applications that can also be handled by page printers. For example, multipart form printing, which up to now has been handled up impact printers, is being replaced by multiple copy printing, which has become more feasible because of the digitization of data and the realization of high-speed printing. Although the impact printer market will continue to decline due to the acceleration of the technology shift, markets specialized for applications that exploit the advantages of impact printers are expected to be maintained and further developed along with the POS market. These markets include line printers that focus on improved operability, demands for tamper-proof printing, high reliability, and low running cost.

References

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