The Healthy Printer: the increasingly powerful levels of functionality and added resilience offered by the latest label, barcode, portable and point-of-sale printers can offer long, trouble-free life to serve busy pharmacies.

The printing of prescription, identification and barcode labels takes place every day in every pharmacy throughout the country. However, busy pharmacists probably never give a second thought to the printer they use, until it goes wrong, or unless it regularly causes problems such as jammed media and software incompatibility.

Problems occur for a number of reasons, including incorrect hardware or label specification, so it pays to understand and appreciate current developments in printer technology and thus consider which type of printer is best for a given application. Armed with this knowledge, pharmacists can then select machines based on the right criteria to ensure long life and trouble-free operation.

Today, barcode and label printers come in all shapes and sizes, enabling businesses large or small to benefit from the ability to print fast, high-quality labels. Indeed, these machines are now such an integral part of many businesses that employees and operators often take them for granted. This is a testament to the success and functionality of barcode and label printers, but the downside of this success is that the units are not always treated with enough care or specified to provide the most suitable service for the application concerned. With this in mind, it is important to consider the enhanced levels of functionality and defence against failure offered by the latest units, particularly given the cost of faulty or inefficient printers to a business that uses them day in day out.

In the pharmaceutical sector it is also crucial to be aware of current regulations. From the Cosmetic Products (Safety) Regulations to guidelines released by the Medicines and Healthcare products Regulatory Agency (MHRA) and the Food and Drug Administration (FDA), we have witnessed the introduction of a growing volume of complex legislation that impacts on the packaging and process operations of cosmetic, healthcare and pharmaceutical products. As a result, labels have become an increasingly critical element in the process, acting as a mechanism for delivering a wide range of variable data for efficient product identification and of adding key information for end users.

As the majority of today's cosmetics contain complex mixtures of industrially produced, synthetic chemicals and naturally occurring compounds, it is vital that labels on all such products contain important information so that consumers with allergies, for example, can identify which products to avoid. Equally, pharmaceutical products must carry labels that state expiry dates, precautions or warnings and dosage instructions to ensure maximum consumer protection.

Happily, today's barcode and labelling machinery is increasingly more resilient and easier to use, helping users to address many of the issues described above by offering more reliable production and higher levels of performance to meet regulations. Many printers are designed and built specifically to meet the demands of the sector, with strong in-built safety and reliability features that require minimal maintenance. This has resulted in a reduction in POS delays and machinery repair costs, both of which can dent profits.

Designers and engineers have carefully considered the kind of problems that develop when a printer is dropped or becomes dirty, such as faulty connections and failures in printer communications. They have also considered the problems that are caused when untrained operators use incorrect tools or adopt a heavy-handed approach when dealing with simple paper jams, especially when under pressure or at busy times. These considerations have provided some strong solutions.

Taking a broader view of the technology as a whole, one recent innovation that has proved to be most powerful is the GS1 DataBar code, which is fast becoming the global standard in the sector thanks to its impressive functionality. For example, these codes can hold considerably more information than standard barcodes, while also supporting Global Trade Identification Numbers (GTIN) for variable data such as batch, expiration date, serial number, price, monetary value, size and weight.

The introduction of these latest innovations looks set to have a big impact on the efficiency, traceability and safety in the pharmaceutical, healthcare and cosmetics sectors, however, it is important to recognise that these improved levels of performance can only be achieved when using the right printer technology. Although there is a wide range of printers already available to print the latest barcodes, not all have proved capable of operating reliably for extended periods of time in busy environments. However, market leaders have succeeded in providing features that can satisfy this need. For example, the latest portable models use a fail-safe, easy-to-use, drop-in paper loading system that dispenses with the usual fiddling involved with reloading; the media is simply dropped into the paper holder and the lid closed on the leading edge of the paper in a matter of seconds.

With regard to printing GS1 DataBar codes, the latest printer technology is able to accommodate different types and sizes of media. As well as being suitable for extremely small labels under 2.5cm in width, the new barcodes can be printed on specialised media, including antimicrobial polyester labels, plastic substrates and metal tags, as well as on conventional paper, making them ideal for small or irregularly shaped products.

The compact GS1 DataBar barcode is deceptively simple in appearance and reveals little of the additional data-carrying capability it offers. Nevertheless, DataBar not only encodes the pack price and product type but also the weight of items, and it is this information that, when used in stock management systems, can help indicate when replenishment orders are needed to ensure correct stocks levels are maintained. Another feature of GS1 DataBar is the encoding of a sell-by-date limit, so that perishables are sold within a specific time period and are actually prevented from being sold when that period has lapsed.

GS1 DataBar brings benefits to the cashier, too. The high-density encryption techniques used in DataBar enable the production of a compact barcode that ensures ease of scanning with packaging when placed in front of flatbed scanners. Item recognition is possible when orientated in any direction, which streamlines counter service in pharmacies to the benefit of both the chemist and the customer. These barcodes are also compliant with the latest barcode and label printers and can be printed with both existing EAN and GS1 DataBar formats. Indeed, the modern barcode and label printer includes a host of features to complement the GS1 DataBar, offering ease of integration with a wide range of existing applications or networks, as well as a cross-emulation function for different programmes. The machines are now more robust, faster, and offer the versatility of printing in both direct thermal and thermal transfer

modes that can print the compact GS1 barcodes labels up to 300 dpi.

To eliminate the risk of error, some of the latest printers also incorporate inline validation systems that automatically check and validate all printed labels for accuracy and possible degradation. Therefore, quality control and compliance with standards can be monitored quickly and reliably as each label is produced. If print quality drops, for example, as a result of contamination entering the printer's casing and obstructing the print-head, an alarm is activated to alert staff, enabling them to remedy the problem as soon as possible. Likewise, if the print-head needs replacing, staff are made aware sooner rather than later, allowing the printer to remain operational.

The issues for larger desktop printers can, of course, differ from those faced by small POS units, but the advances made regarding these devices have also made a positive impact on efficiency. Common, simple errors that, nevertheless, consume valuable time can be addressed more swiftly than before. Convenient, tool-free maintenance systems offered by modern units have been a great benefit to the smooth running of operations; for example, self-clearing cutters keep POS systems running without delay in the case of a cutter jam. Similarly, new options to painlessly replace auto-cutter and printer head components via vertical flip-top opening mechanisms, or load ribbons safe in the knowledge that automatic adjustment systems will ensure the correct tensioning, have been warmly welcomed. As a further insurance against downtime and repair costs, the leading printer manufacturers offer extended warranties of three or even five years, and have comprehensive dealer networks to provide technical support, ensuring that retail businesses run smoothly and efficiently.

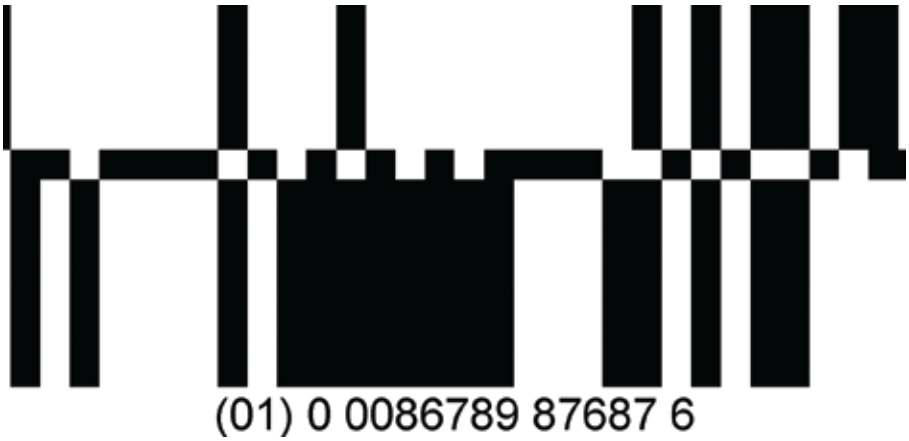
Such issues as those described above should dissuade readers from buying cheap barcode and label printers, a decision that can swiftly prove to be a false economy. This may not be a new argument but it remains an important one, especially when traders in all industries are fighting hard to manage costs and maximise profitability in a difficult economic climate. The difference between low-cost printers and those from leading brands is small, but that small saving can cost many hundreds of pounds in lost revenue and damage to brand integrity when printers fail.

It is also worth bearing in mind that if barcode labels are being produced then it is common for rigorous standards to be applied regarding factors such as the thickness of bars, bar spacing, the ratio of narrow to wide elements and the levels of contrast between dark and light elements. If these standards are not met, for example due to a printing problem, then there is a significant risk of rejected labels or packaged items.

Companies invest considerable time and resources in developing machines that will withstand the toughest conditions, ensuring that printers are not built to fail. Tests range from dropping printers on the floor, through to extended lifetime and environmental testing of print mechanisms and electronics. Some companies and their distributors and resellers also understand and advise

on the specification and management of printers because, in practice, most printer failures generally arise from incorrect specification, improper use and poor standards of maintenance, all of which can result in a reduction in print quality, problems with print-heads and cutters, and overheating of control boards and power supplies.

Correct specification depends on a number of factors. Although some may be specific to a particular application, they will generally include: the volume of labels required and the frequency of operation; the operating environment, in terms of temperature, humidity and levels of dust and other contamination; the type of labels being produced and the label stock; connectivity to other equipment; and lifetime cost of ownership, based on energy consumption, media costs and any service requirements.



Perhaps the most common cause of printer damage is exacted by users who, under pressure of a heavy workload, adopt a heavy-handed approach to releasing paper jams, as described above. Internal mechanisms that have been designed to produce fine quality printing are necessarily sensitive and not equipped to withstand brute force. Of course, although too much handling can cause complications, neglect can be just as bad. If maintenance and servicing is not performed at the prescribed intervals, then weak printing, wrinkled ribbons and, inevitably, printer failure will soon follow.

Without appropriate specification, installation, handling and maintenance, even the finest machinery can fail early. However, with the correct printer specification and the right attention paid to operational and maintenance requirements, today's printers can prevent those unwanted interruptions in your service that disappoint customers, protecting profits by offering long, reliable service.

The options available to operators of barcode and labelling machinery are many, and a little time spent selecting the most appropriate printer specification can save a lot of time and money. Modern barcode and labelling machinery can cut maintenance costs and deliver such a powerful performance that the investment is more than returned by protected revenue and the smooth running of the business.

With the pressures of new labelling regulations, and competitive global market pressures, the use of functionality of labelling equipment is progressively evolving. The recent developments in labelling technology are enabling pharmaceutical, healthcare and cosmetic packaging companies to improve both productivity and profits, as well as enabling them to be fully compliant with the latest regulations to ensure ultimate protection for consumers.

Jörk Schüßler

Educated in Germany, Jörk Schüßler is European Marketing Manager for Citizen Systems Europe, responsible for their activities across Europe, the Middle East and Africa, and has 20 years of experience within a sales environment including sales and marketing in hardware, software, e-learning and TV. In this time, Jörk has held several senior management roles, including ten years at Citizen, and is now set to develop Citizen's support infrastructure for its range of distributors, value-added resellers and end users in many different sectors, and is part of a wider long-term company strategy.

Email:joerk.schuessler@citizen-europe.com