

3 Key Considerations for Barcode Printers



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What to consider when choosing barcode printers

Why Laser Printers make Poor Barcode Printers

Organizations now rely on barcodes to such an extent that robust, high-quality solutions for printing barcode labels are essential. However, even if laser printers are widespread and have a reputation for performance in many areas, they are not the best solution.

Firstly, laser printers are not optimized for printing the adhesive-backed media that many barcode labels require. The higher temperatures of a laser printer fuser station can cause adhesive bleeding from the label. Adhesive residue then builds up inside the printer, which causes media jams. If this residue is not removed, it can also cause costly premature toner cartridge and fuser roller failures and high ongoing replacement costs.



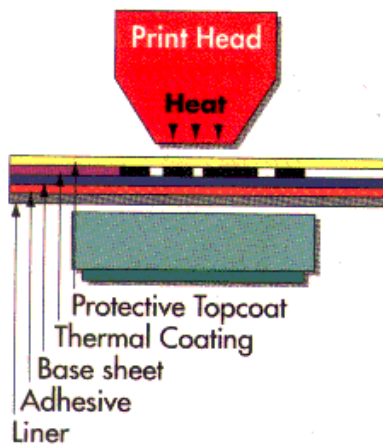
Secondly, labels printed with laser printers typically require you to “over-laminate” the printed image with a clear adhesive film, in order to protect the images from smudging or smearing. Otherwise, laser printed barcode labels must be replaced much more frequently than those printed with thermal printers. Over-laminates add cost and labor to the final product.

Thirdly, the volume of labels printed at any one time is another important factor to consider when comparing thermal to laser label printers. Laser printers are “cut sheet” printers and are therefore not as cost-effective as thermal printers when printing one or two labels at a time. Once a few labels are printed on a laser printer, the remaining labels on the sheet must be either discarded or remapped for the next print job. This causes either material waste or additional effort. Furthermore, the set cut sheet size makes it impossible to print labels that are larger than the cut sheet.

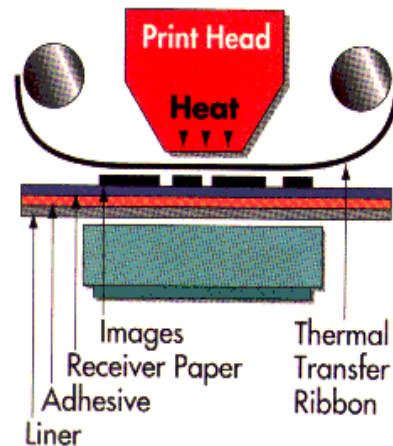
Thermal Transfer Printers as the Solution of Choice

Thermal printers are optimally designed for label printing: they are highly reliable and have the flexibility to print from one to several thousands of labels at a time. The thermal images are highly resistant to smudging, and the right combination of ribbon and media results in highly durable, scratch and solvent resistant images without any need for over laminating. Adhesive bleed is not an issue for thermal printers, as their operating temperatures are much lower than laser printer fusers. This makes thermal printers the solution of choice for barcode label printing.

There are two types of thermal printing: direct thermal; and thermal transfer. Direct thermal printers heat a specially coated paper to cause a chemical reaction that creates an image. Direct thermal printing is typically a little less expensive, but produces images that are less robust. On the other hand, thermal transfer printers use specialized inked film ribbons to print onto purpose-made thermal transfer papers or synthetic media. Thermal transfer printing creates very clear, long-lasting images that can stand up to challenging environments – examples are the extreme cold of laboratory freezers, exposure to UV light, exposure to chemicals and solvents, and elevated temperatures. The following image illustrates the difference between direct thermal and thermal transfer printing methods:



Direct Thermal



Thermal Transfer

Advantages of HP PCL over Proprietary Printer Command Languages

The integration of barcode-ready printers is now being undertaken by organizations in many sectors. Often, this means replacing laser printers within existing information systems. Almost all brands of laser printers are clones of the Hewlett Packard LaserJet. As such, they use the Hewlett Packard Printer Command Language (HP PCL, commonly referred to simply as PCL) as the communications language between a host computer operating system and the printer.



However, almost all thermal printers use unique proprietary printer command languages that were developed by each printer manufacturer. These proprietary printers do not support PCL and can only be addressed with particular proprietary control commands. For a proprietary printer to work with a particular computer operating system, the printer manufacturer must deliver a separate “driver” (a software program) for that operating system. Different versions of an operating system may even require different drivers. The disadvantages of these drivers for proprietary printers are that there is no guarantee that they are available for different computing platforms, nor that they will work with an already installed print system. By comparison, printers that support an industry standard printer command language such as PCL do not depend on any special print system or computing platform version.

Transitioning from a PCL laser printer to a proprietary command language thermal printer can become very expensive. Initial integration may require an upgrade or a modification of an organization’s existing system application software or operating systems to support the proprietary printer command language. These proprietary languages require specialized printer drivers, custom integration software programming or specialized middleware to work with information systems. Once such proprietary and customized installations are implemented, they then also require ongoing downstream maintenance and support. An upgrade to an operating system may require a new printer driver to be available; for certain environments, it may mean recertifying proprietary printing solutions to comply with data accuracy and safety requirements. All of this adds to the total life cycle costs. In addition, proprietary printers lock end users into a sole source of supply.

Instead of expending time, effort, and money attempting to integrate a proprietary thermal printer, it is easier and more cost-effective to integrate a thermal printer that supports a standard printer language. For instance, if an HP PCL laser printer is being replaced, the natural choice is PCL.

This also permanently resolves downstream maintenance problems by eliminating the need for any special printer software updates when there are revisions in the information or printing system.

PCL = Lower Total Cost of Ownership						
	Command Language Integration	Custom Code Development	Custom Code Maintenance	Middleware Purchase	Middleware Maintenance	Cumulative Total Cost of Ownership
HP PCL	¢¢	o	o	o	o	¢¢
Proprietary Command Language	\$\$\$	\$\$\$\$\$	\$\$\$	\$\$\$\$\$	\$\$\$	\$\$\$\$\$\$\$\$\$\$\$\$\$ \$\$\$\$\$\$\$\$\$\$\$\$\$

An HP PCL thermal printer eliminates the need for middleware or custom coding by integrating seamlessly with a wide range of operating systems: Windows, Macintosh OSX, UNIX, Linux and OS400/i are examples. This means that if a system can print to an HP LaserJet or any other PCL printer, it can print to a PCL barcode label printer.



IntelliBar PCL Thermal Transfer Printers

If you can print to a LaserJet, you can print to an IntelliBar.

To sum up, in addition to providing superior label printing functionality compared to laser printers, HP PCL thermal printers have a low cost of integration and downstream maintenance relative to proprietary printer command language thermal printers. Each of these advantages contributes to a lower total cost of ownership, an important benefit for the financial wellbeing of any organization.



Conclusion

Barcode labels deliver a wide array of flexible solutions to meet the requirements of organizations in many different sectors. These solutions need to be effective, efficient and reliable. Industry standard HP PCL thermal transfer printers provide operational performance advantages compared to their direct thermal printer counterparts. They also provide lower total ownership costs than laser printers or proprietary language thermal printers.

Barcodes through IntelliTech

IntelliTech International works to help many industries reduce their costs and improve efficiency by providing optimized printing solutions for barcode labels. Depending on customer needs, IntelliTech solutions range from the simple to the complex and include customized label hardware (from printers and supplies) and software. Using IntelliTech products to introduce barcodes into your operations will contribute to a transition that is seamless, painless and cost-effective. [Contact us and let us help you to configure your barcode label printing solution](#) or take a few minutes to complete our online [Custom Label Request for Quote](#).