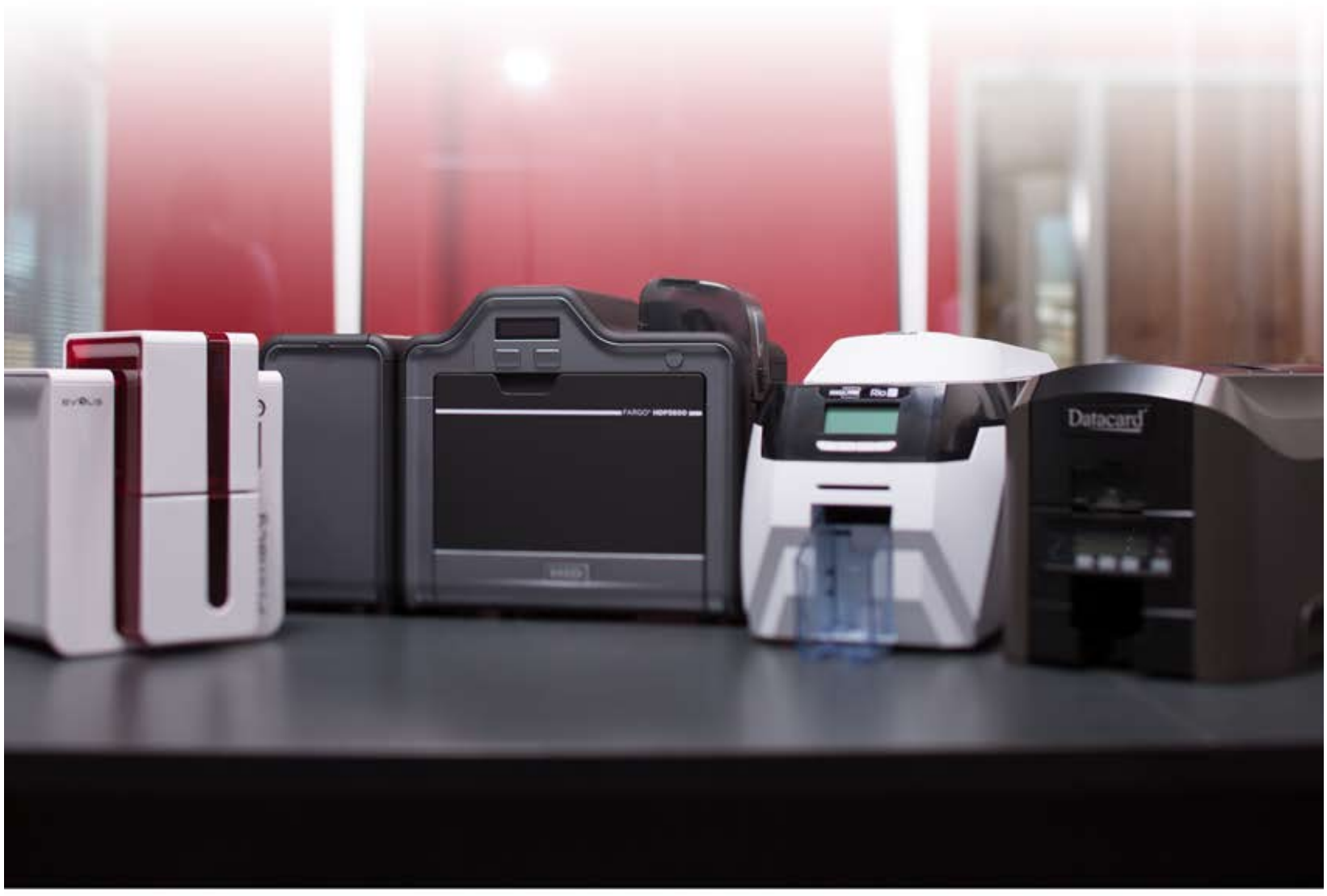
IDWholesaler
We know ID. It's what we do.

ID Card Printer Buyer's Guide



www.idwholesaler.com | (800) 321-4405 | sales@idwholesaler.com

IDWholesaler
We know ID. It's what we do.

About this guide

Investing in the right ID card printer is critical, but with so many options to choose from, navigating the identification buyer's landscape can be overwhelming. This ID card printer buyer's guide contains valuable information and helpful tips for anyone preparing to purchase an ID card printer, especially those who are doing so for the first time.

To support you in your search, this buyer's guide:

- identifies pre-purchase questions to help you define your card printing needs
- introduces the two main types of plastic card printers available
- highlights card printer features and capabilities to look for as you compare models
- includes a handy ID Card Printer Buyer's Checklist
- offers helpful tips for selecting an ID card printer for your ID program

About ID Wholesaler

As the largest online retailer of photo identification equipment, ID Wholesaler has served more than 100,000 customers and fielded many first-time buyers' questions about ID card printers. Based on our extensive product knowledge and customer service insight, we created this guide as a tool to help first-time ID card printer shoppers make an educated card printer purchase confidently, on time, and within budget.

Step 1. Define your card requirements

Given the numerous markets requiring ID card printers (e.g., healthcare, government, education, corporate, etc.) and the variety of card issuance programs that exist for each, it should come as little surprise that not all ID card printers are created equally.

ID card printers offer a host of printing capabilities at various price points to satisfy a diverse range of needs. Your first task is to determine which card printer capabilities are necessary for your ID program, and which are nonessential. Consider the following questions to better define your card printing application:

- **How will you be using your printed cards?**
  For example, will you be using your cards for access control as well as visual identification?
- **How do you want your printed cards to look?**
  Do you want single-sided cards, or do you need to be able to print onto both sides?
  Are you willing to pay extra for full surface coverage, or is it OK if your card printer leaves a trace white border around the printed area of your cards?
- **How long do you need your printed cards to last?**
  Do you plan on reissuing cards frequently (as with student IDs), or on an as-needed basis (i.e., to replace lost or stolen cards)?
  Will your cards be regularly exposed to direct sunlight or other harsh elements?
  Will your cards be swiped through a reader on a daily basis?
- **How many cards do you need to print per year?**
  Will you be printing large batches of cards at once?

Your answers to these questions will alert you to which technologies, features, and capabilities to look out for as you shop for an ID card printer. In the next section, we will discuss the differences between the two main plastic card printer types. Then, we will discuss various printer features and capabilities in greater detail.

Step 2. Define your printing requirements

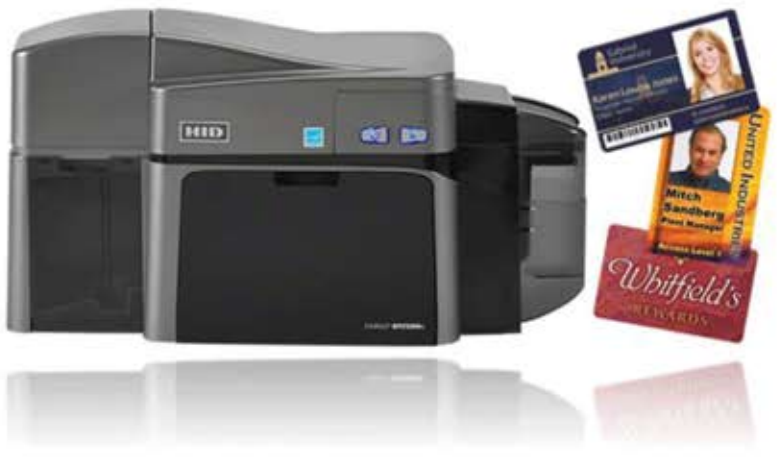
ID card printers are generally categorized by the printing methods involved and are classified as either **direct-to-card printers** or **retransfer printers** (also called reverse transfer printers). Depending on the security level of your facility or worksite, the desired on-card functionality, the way you would like your printed cards to look, and your budget – one of these two printer types will be better suited to your card printing needs.

Direct-to-card printers

Both direct-to-card and retransfer card printers use processes called **resin thermal transfer** (to render sharp black text and barcodes) and **dye sublimation** (to produce full-color imagery). Direct-to-card printers are named for the nature of the print method they use when applying these processes, which involves the printer's printhead coming into direct contact with the card surface.

Summary of printing capabilities

The most commonly used type of card printer on the market, direct-to-card printers work exceptionally well for the majority of card printing applications, including full-color photo IDs, membership cards, and proximity cards. These plastic card printers yield smooth, continuous tones for photographic-quality images, and are able to produce up to 16.7 million colors.



Due to the nature of the print method involved, however, direct-to-card printers tend to leave a thin margin or border around the perimeter of your printed plastic cards. In the industry, this is referred to as "edge-to-edge" surface coverage. This occurs because the printhead would be damaged if it came into contact with the card edge.

Cost and savings

Direct-to-card printers are available in a wide variety of prices and are often more affordable than retransfer printers. If you purchase a direct-to-card printer, be mindful of the fact that the printhead can be exposed to dust, debris, and oil from fingerprints when it comes into contact with the surface of your cards. This can lead to expensive printhead damage, so it's important to use caution.

If shopping direct-to-card printers, note the duration of the manufacturer warranties, especially as they pertain to printhead coverage. Often, extended warranties are available.

Note: *Direct-to-card printers accept standard PVC card stock and require a single ribbon to print. Keep this in mind when reviewing total cost of ownership, as fewer supplies translates to a slightly lower cost per printed card.*

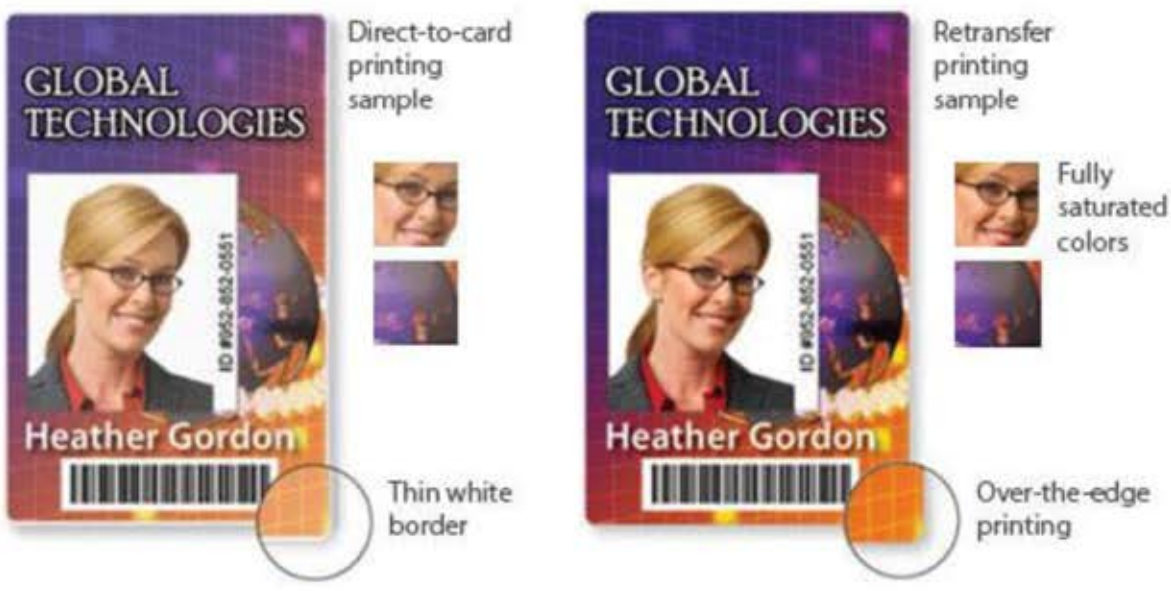
Retransfer printers

Retransfer printers use a two-step printing method called **reverse transfer** that involves printing to the reverse side of a clear film rather than directly to the card. This film is then heat rolled or thermally fused to the card surface, yielding slightly more durable credentials with greater print consistency as compared to cards printed by a direct-to-card printer.

Summary of printing capabilities

Retransfer printers yield more fully saturated colors for vibrant, photo-realistic imagery superior to the imagery produced by direct-to-card printers. They also offer "over-the-edge" or full bleed card surface coverage, meaning that there is no white border left on your printed cards.

Since the printhead of a retransfer printer does not come into contact with the card surface, these printers are recommended for printing and encoding advanced security cards like smart cards, which have minutely uneven surfaces due to their embedded technology. Since there are two steps involved in the printing method, you may experience marginally slower print speeds using a retransfer printer than you would with a direct-to-card printer.



Cost and savings

Reliably designed for volume printing and lasting performance, retransfer printers may cost slightly more than direct-to-card printers up front, but they offer greater protection on your investment. All retransfer printers come with a lifetime printhead warranty.

Note: *retransfer card printers perform best with composite PVC-PET card stock and use both a ribbon and retransfer film to print (as compared to only a ribbon for direct-to-card printers), resulting in a slightly higher cost per printed card.*

IDWholesaler
We know ID. It's what we do.

Step 3. Consider printer features and capabilities

Detailed here are all the features and capabilities of ID card printers that you will want to consider as you shop for your first card printer. Depending on your plastic card printing needs, some features may add more value to your card issuance program than others. As you read through this list, use the ID Card Buyer's Checklist below to note which features are priorities for your card printing application.

- Printer dimensions
- Field upgrades
- Platform compatibility
- Connectivity options
- Single-sided vs. dual-sided printing
- Design and visual security
- Lamination
- Encoding options
- Print volume
- Print quality
- Thermal erase and rewrite
- Warranties and support plans

IDWholesaler® ID Card Printer Buyer's Checklist

Use this checklist to note which ID card printer features and capabilities are most important to your card printing application.

Printer Size

- ☐ Small/compact printer footprint

Single-sided or Dual-sided Printing

- ☐ Single-sided printing
- ☐ Dual-sided printing

Print Quality

- ☐ Edge-to-edge printing
- ☐ Over-the-edge printing
- ☐ High resolution imagery

Platform Compatibility

- ☐ Mac-compatible
- ☐ Windows-compatible

Connectivity

- ☐ Standard USB interface only
- ☐ Ethernet connectivity for network access
- ☐ WiFi connectivity for mobile access

Print Volume

- ☐ Low to mid volume printing
- ☐ High volume printing

Resin Erase & Rewrite

- ☐ Yes
- ☐ Not necessary

Field Upgrades

- ☐ Duplex printing
- ☐ Magnetic stripe encoding module
- ☐ Smart card encoding module
- ☐ Lamination module
- ☐ Ethernet &/or Wi-Fi module
- ☐ Dual-input &/or output card hopper(s)
- ☐ Same-side input & output card hopper
- ☐ Not necessary (or not sure)

Encoding

- ☐ No encoding needed
- ☐ Magnetic stripe encoder
- ☐ Contact smart card encoder
- ☐ Contactless smart card encoder

Lamination

- ☐ Single-sided lamination
- ☐ Double-sided lamination

Non-lamination Security Effects

- ☐ Supports UV or F ribbon panels
- ☐ Supports microtext printing

Warranty & Support

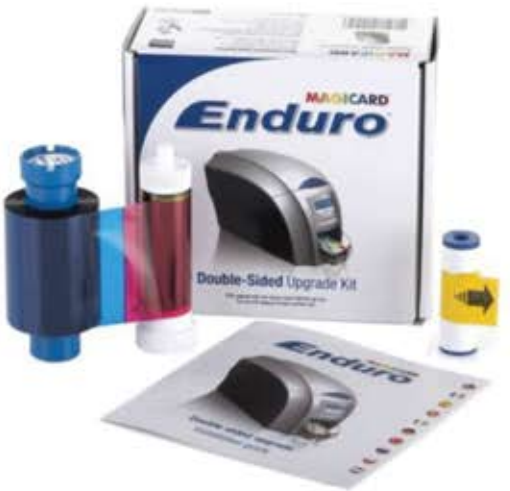
- ☐ Optional extended warranty
- ☐ Optional printer loaner coverage

Printer dimensions

Some ID card printers take up more space than others, particularly those that are expanded to include various modules (e.g., modules for dual-sided printing or lamination). If space is a concern, note the footprint or overall dimensions of the card printer by checking the specs as you shop. To accommodate tight spaces, some ID card printers offer optional **same-side input and output card hoppers** that consolidate access points needed to operate your card printer.

Field upgrades

Field upgradable printers offer optional modules, many of which can be easily installed on-site, that add functionality to your card printer. This feature allows you to expand the capabilities of your printer on an as-needed basis if your card printing program needs evolve in the future. Look for the words "*field upgradable*" or "*field upgrades*" when reviewing card printer specs to determine whether the model that you are interested in offers this flexibility.



Common upgradable printer fields include: duplex (dual-sided) printing, encoding options (e.g., magnetic stripe encoding or smart card encoding capabilities), interface options (i.e., Ethernet or WiFi connectivity), secure lamination, high capacity input and/or output hoppers, or a same-side input/output hopper to accommodate small workspaces.

Platform compatibility

When shopping for an ID card printer, look for a model that is compatible with your operating platform. The majority of card printers and card printing systems are Windows-based, so if you need a Mac-compatible card printer, make sure that the model you're considering includes a Mac driver that works with your operating system (OS) version.

Connectivity options

At a minimum, your ID card printer will offer USB connectivity. Standard USB is a great solution for small print operations with a single-station print center. If you need to extend your card printer access across a network, giving printer access to multiple users, look for a printer with Ethernet connectivity. For remote access to your card printer, or to connect multiple computers to your printer wirelessly, find a model with optional WiFi connectivity (often available as a field upgrade).

Single-sided vs. dual-sided printing

Single-sided ID card printers print onto one side of the card, while dual-sided or double-sided ID card printers are capable of printing onto both sides in one process. Reloading single-sided printed cards into a single-sided card printer to print to the reverse side of the cards can lead to expensive printhead damage, so it's wise to invest in a dual-sided printer (or a single-sided printer with an optional duplex printing module) if you know that you will need to print to both sides.

Design and visual security

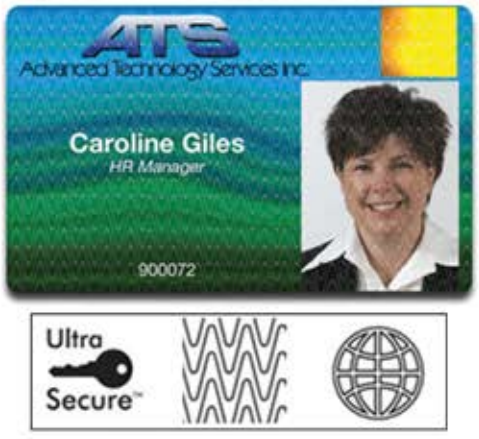
To enhance your cards with holograms and other design elements, or to protect your credentials from counterfeit copying, there are a number of visual elements that you can add. Some can be produced by a standard direct-to-card or retransfer printer, while more advanced visual elements may require a card printer with laminating capabilities.

Using a non-laminating printer (standard)

ID card printers that support ribbons containing UV or F panels are capable of printing with fluorescent or UV (invisible) ink. To produce this visual effect, simply check your printer's specs for compatibility and be sure to order the appropriate ribbon type. No matter which card printer you use, you can always apply holographic adhesives to your cards by hand after they are printed or print onto card stock that includes an embedded hologram.

In addition, some manufacturers offer branded technology, such as Magicard's Holokote® secure watermarking, built into the printer itself so you can add stunning visual effects to your credentials at no additional cost.

Magicard Holokote



Using a laminating printer (advanced)

With a laminating card printer, you can select from a variety of security overlays (also called overlaminates) featuring holograms, guilloche patterns, microtext, hidden imagery, or optically variable ink (OVI) to produce a range of visual effects. Custom holographic laminates are by far the most secure method available for fail-safe card protection from tampering, fraud, and counterfeiting.

Lamination

Lamination protects your printed plastic cards from daily wear, abrasion, dye migration, and color-fading from UV rays to extend overall card life. Lamination is especially useful if you plan to issue cards with magnetic stripes or barcodes that will be read or swiped on a routine basis, or if your cards will be worn outdoors or exposed to harsh conditions. See below for examples of how lamination can protect your ID cards.

Lamination also deters tampering and increases the overall security of your credentials. For maximum card security, you can laminate your cards using custom, secure overlaminates that feature covert (hidden) or difficult-to-reproduce, overt design elements.

Some ID card printers feature built-in single-sided or dual-sided lamination, while others can be upgraded for lamination with the addition of an optional lamination module. Although lamination increases the cost of your card printer up front, you will see savings over time because laminated cards last longer and are less likely to bend or break, reducing the number of cards that you have to reissue.

Encoding options

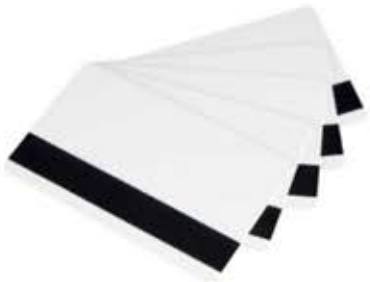
Plastic cards can be encoded to include secure and confidential personalized data. Encoded data can be used for more secure ID authentication, or to expand the capabilities of your plastic cards to include secure access control, time and attendance tracking, cashless payment, rewards points tracking, public transportation ticketing, and more.

Available encoding methods for ID card printers include: barcode printing (1D and 2D barcodes, and QR codes), magnetic stripe (like the strip on a credit or debit card), and contact or contactless smart card encoding (embedded microchip technology).

Barcode printing

Barcodes are the most cost-effective encoding option on the market, especially for high-volume printing, but also the least secure. They can be produced by any ID card printer using the black resin panel of a ribbon.

Magnetic stripe encoding



Magnetic stripes or "mag stripes" are more secure and relatively inexpensive but offer limited storage space (for information such as an account number, ID number, or balance on a gift card) when compared to a smart card. They are also subject to wear because they need to be swiped to access the encoded data. One important advantage of mag stripes as compared to barcodes is that they can be rewritten to reflect updated cardholder information.

Contact and contactless smart card encoding

Featuring embedded computer technology, smart cards are used to store and provide access to personal data and can also perform on-card functions (e.g., encryption and mutual authentication) by interacting intelligently with a smart card reader. Smart cards are tamper-proof, store 100x more data than mag stripe cards, and can be reconfigured to add, edit, or erase hosted data. The most secure encoding method on the market, smart cards are ideal for hosting financial information, biometric data, personal records (e.g., medical records), and other highly sensitive or classified information.

Note: To encode your plastic cards, you will need an ID card printer outfitted with your choice of encoder. Be sure to order the appropriate card stock (mag stripe cards or smart cards, depending on the application).

Print volume

Card issuance programs can be categorized as being low-volume (*fewer than* 1,000 cards per year), mid-volume (1,000-5,000 cards per year), or high-volume (*more than* 5,000 cards per year) depending on annual output of printed plastic cards.

Print volume is something that you should keep in mind when shopping ID card printers, especially if you know that you have high print volume needs. Features such as **dual-input hoppers** (where blank card stock is fed) or **dual-output hoppers** (where printed cards come out) can save time and maximize productivity if you need to batch print a large quantity of cards. You may also want to pay attention to per-card print speeds.

Print quality

Print quality can vary greatly depending on printer type, manufacturer, and model. Direct-to-card printers yield professional-quality imagery appropriate for the majority of applications, however, they leave a slight border around the printed area due to the print methods involved.

If vivid, photo realistic image quality with fully saturated colors, detailed graphics, and complete "over-the-edge" card surface coverage are essential to your ID program, shop retransfer printers. Retransfer printers offer the highest, most consistent print quality on the market.

Thermal erase and rewrite

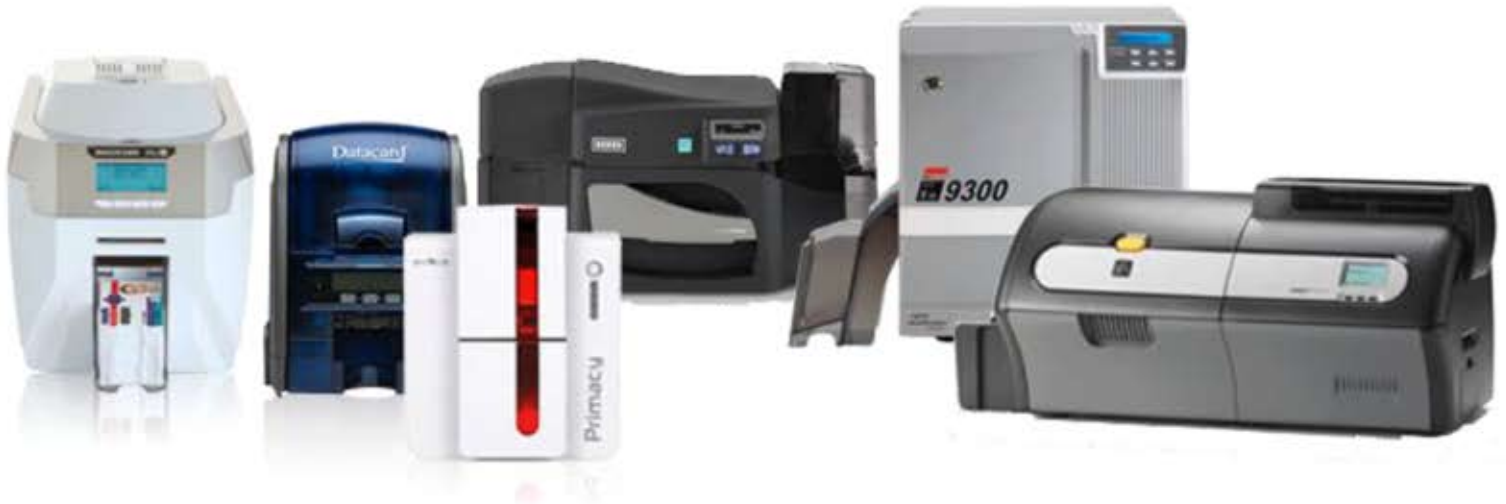
Select ID card printers include a rewritable printing mode that allows you to erase and reprint one side of your cards to reflect updated cardholder information. This feature requires special thermosensitive card stock that can be "rewritten" up to 500 times and is most beneficial for producing visitor badges or temporary IDs. Thermal erase and

rewrite is best for printing text-based information and simple graphics, as it is only available in monochrome blue or black ink.

Warranties and support plans

ID card printers typically include a manufacturer's warranty ranging from 1 to 3 years. For direct-to-card printers in particular, **printer warranty coverage** is very important, as improper or negligent use of a direct-to-card printer can lead to expensive printhead damage. This is not an issue with retransfer printers (which include a lifetime printhead warranty).

Some manufacturers and retailers offer printer loaner coverage to ensure that your card printing program can continue uninterrupted in the event that your card printer is out for repair. This service is especially important for high-volume printing programs.



Conclusion

This concludes our ID Card Printer Buyer's Guide. We hope that this guide has proven useful in giving you a basic understanding of the type of plastic card printer and capabilities needed to implement your secure ID or personalized card printing program.

If you have additional questions about ID card printers, visit the ID Wholesaler Learning Center or contact us for a personal consultation. Our team is eager to learn about your business and provide you with a personalized recommendation for your card printing program.

Call **(800) 321-4405 x2** or email sales@IDWholesaler.com for a personal consultation.