

Thermal Printing Technologies

DIRECT THERMAL OR THERMAL TRANSFER?

Each bar code application has its own particular requirements. Some require special adhesives and custom papers. For others, the bottom line is cost. Intermec Technologies Corporation specializes in two printing technologies—direct thermal and thermal transfer—each with its unique advantages and a line of durable Duratherm® or DuraTran™ labels to match.

Direct thermal printers use a printhead containing tiny heating elements which activate special heat-sensitive papers to create characters. Thermal transfer printers use a heat-sensitive ribbon to transfer the image to a blank label stock, which allows for the use of a variety of facesheets.

All Intermec thermal transfer printers are capable of printing in direct thermal mode. Some models are limited to direct thermal only. Both technologies can create very high-quality images. What are the advantages of each? And which is better for your application?

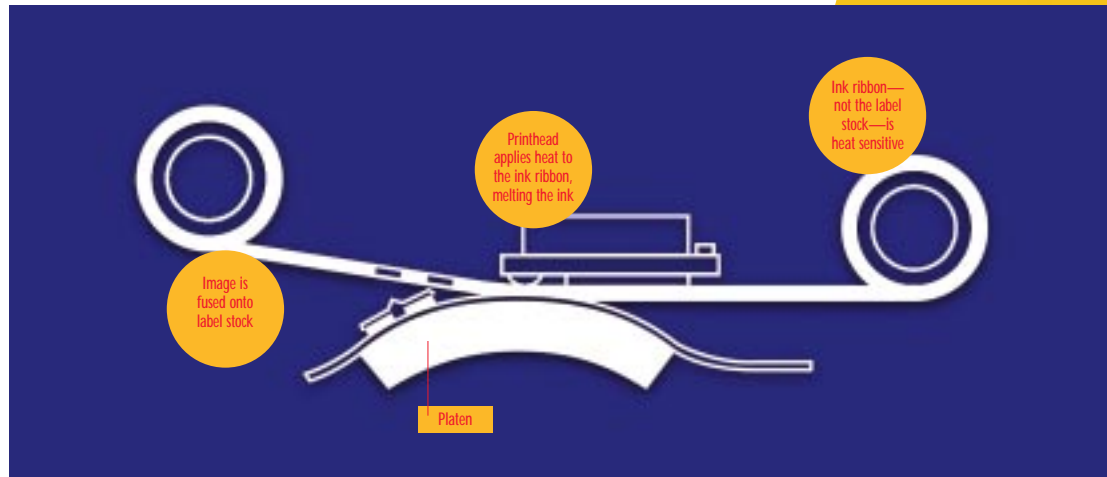


Thermal Transfer Printing

Thermal Transfer printing generally uses a fixed printhead with a single row of heat elements. Thermal transfer printers utilize a combination of label stocks and thermally-sensitive ink ribbons to produce a printed image. The printhead creates characters on the labels or tags by heating the ribbon to transfer the ink onto the facestock.

Thermal transfer is the most widely used technology in the world for printing bar codes. This is due to its inherent high reliability, high label throughput, excellent label durability, and exceptionally fine print quality.

Thermal transfer products are designed for long life in harsh environments. With the proper combination of facestock and ribbon, the finished label/tag can withstand heavy abrasion as well as exposure to heat, UV light, and certain chemicals. Variation in ribbons, as well as heat and dwell times, can affect print quality and durability.



FEATURES

- Excellent image quality
- Optimized for bar code scanning
- Resistant to sunlight and UV light
- Suitable for long life in harsh environments
- Resistant to abrasion when combined with smear-resistant ribbons
- More material options, including papers and plastics
- Moisture- and humidity-resistant materials available
- Superior performance in outdoor applications
- Unlimited format flexibility
- Duratran™ thermal transfer labels and tags provide solutions for a wide variety of applications in normal and harsh environments

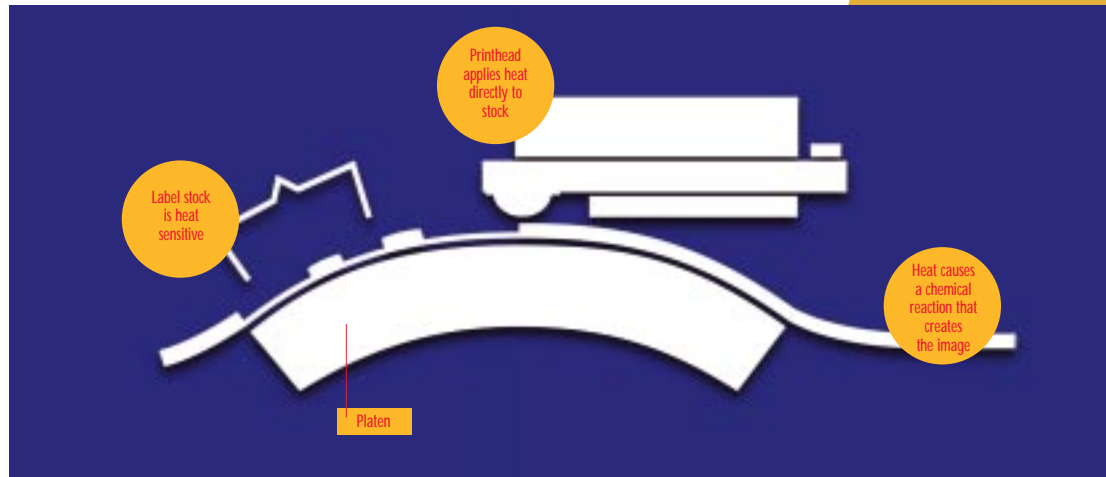
APPLICATIONS

Manufacturing
 Shipping/Receiving
 Product I.D.
 Inventory
 Work-in-Process
 Tool Tracking
 Indoor/Outdoor
 UL/CSA
 Moist/Humid Environments
 Compliance Labeling
 Drum Labeling
 PC Boards
 Shelf Marking
 Asset Tracking
 Flexible Product Labeling
 Frozen Environments
 Product Closure
 Auto Parts
 Hazardous Environments
 Clean Rooms
 Hospitals
 Nursery/Plants
 Security Labels
 Hazardous Waste Labeling
 Warning Labels
 Retail

Direct Thermal Printing

Direct Thermal printing, like thermal transfer printing, often uses a fixed printhead with a single row of heat elements. The printhead creates characters by directly contacting thermally-sensitive paper. A microprocessor turns individual dot elements on and off in a pattern corresponding to the desired image. Heat energy drives a chemical reaction in the paper. The resulting image is embedded in the surface coating, not laid on top as it is with an ink ribbon.

Direct thermal, in the world of label printers, is second only to thermal transfer in popularity. While label durability is reduced compared to thermal transfer, it is highly reliable, has high throughput, and excellent print quality. Direct thermal printers are often lower cost than thermal transfer printers. In direct thermal printing, with no ribbon required, the only thing to load and replace is the label stock itself.



FEATURES

- Produces high-quality labels
- Optimized for bar code scanning
- Available in paper labels and tags as well as plastic labels
- Plastic labels are designed for applications where moisture is a concern
- No ribbon changes
- Unlimited format flexibility
- Special UV-resistant direct thermal material available
- Intermec Duratherm® labels and tags are ideal for applications where short-term label life and high-quality printing are requirements

APPLICATIONS

Manufacturing
Shipping/Receiving
Inventory
Indoor
Work-in-Process
Medical Labs
Quality Control
Video Labeling
Product I.D.
Meat Packaging
Test Tubes
Compliance Labeling
Airline Bag Tags
Food/Beverage Labeling
Shop Floor Ticketing
Health Care
Transportation/Distribution
Freezer

Printing Technologies

Duratherm® and Duratran™ labels offer both durable and flexible options for a range of requirements. The chart below provides “rules of thumb” to help in making the choice for your application.

ENVIRONMENT	THERMAL TRANSFER	DIRECT THERMAL
Indoor	×	×
Outdoor	×	
Short-term	×	×
Long-term	×	
Low temperature	×	×
Medium temperature	×	×
High temperature	×	
Abrasion*	×	×
Smearing*	×	×
Chemicals*	×	
Solvents*	×	
Ultra violet	×	
Moisture	×	×
Dirt	×	×
Blood	×	×
Oil and grease	×	×
Alcohol	×	×

Call Customer Service:
800 227-9947

*Certain restrictions may apply. Contact an Application Analyst with any questions.

**Where
Information
Gets Down
To Business™**

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