



What is Thermal Transfer Overprint (TTO)?

Thermal transfer overprinting (TTO) is a printing process that offers an alternative to hot stampers and other traditional analog printing methods. TTO uses a [near-edge printhead vs the more common flat head printhead](#). Thermal transfer overprinting creates high-quality and high-definition marks, codes and images to a flexible film or label by using a thermal printhead and a wax-resin or resin thermal transfer ribbon.



Thermal Transfer Printing Process

TTO printheads have small resistors that heat the print area, transferring the ink to the surface of the substrate. The action is precise, ensuring that heat causes no damage to the substrate. Like with all thermal printing, the thermal ribbon must touch the substrate or label in order to produce a code. The latest technology in TTO only uses a **minimal amount of ribbon** by guaranteeing a 0.5mm gap between each print. This makes Thermal Transfer Overprinters an economical solution for the flexible packaging industry.

TTO technology is ideal for flexible substrates, including:

- Plastics
- Foils
- Films
- Flat packaging
- Low-density polyethylene shrink-wrap and other delicate materials

Benefits of Thermal Transfer Overprinting

The benefits of TTO include:

- High-resolution 300dpi print quality, ensuring quality imprints and exceptional scan rates
- Prints directly onto packaging, no label required.
- The ability to code fast moving products in real time
- Optimum durability, which is ideal for industrial label printing and coding
- Solvent-free printing
- Low cost of ownership due to the optimal use of ribbon
- Highest reliability and increased line uptime



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Thermal Transfer Overprinting Market

Thermal transfer printers can be used for continuous or intermittent printing, making this technology suitable for an array of challenging applications including prices, date and time codes, barcodes, QR codes, logos, and ingredient or other mandatory information.



TTO Industries:

- Retail
- Transportation & logistics
- Food & Beverage manufacturing
- Industrial manufacturing
- Healthcare
- Hospitality
- Government

TTO Applications:

- Flow-wrappers
- Bags
- Tray seals
- Pouches
- Sachets
- Vacuum packs
- Labels

Fast-paced lifestyles and a growing number of Millennials demanding on-the-go options are two contributing factors to the rise in the **ready-to-eat (RTE) prepared foods market** with a **projected CAGR of 7.2%** between 2016-2026. (Source: Ready-to-Eat Food Market: Meat/Poultry Segment Expected to Dominate Market from 2016 to 2026: Global Industry Analysis and Opportunity Assessment, 2016-2026)

The growing consumer appetite for small, single-serve snack bags has pushed manufacturing lines to higher speeds in an effort to increase throughput. According to market researchers GlobalData, the **snack food flexible packaging sector** was valued at US\$101.2 billion in 2017 and is forecast to record a **CAGR of 6.1%** during 2017–2022. Flexible packaging offers excellent barrier properties, cost-effective production and consumer convenience.

According to Transparency Market Research, an increase in usage of thermal transfer overprinting in **retail applications** such as smart packaging, inventory management, and warehousing; transportation; and logistics applications is boosting the thermal transfer overprinting market in North America. These applications require barcode labels and tags for tracking the data of a particular asset.



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Thermal Transfer Overprinting Trends

Historically, [hot stamp](#) machines were sufficient for package coding, but evolving business requirements are fueling **demand for digital solutions**. Hot stamp machines are unable to image variable data which limits the usefulness of the equipment. TTO printing offers a quality imaging solution that **cuts costs, minimizes downtime and reduces coding errors**.

Most importantly, TTO printers were traditionally more expensive than hot stamp equipment. That has changed.

TTO printers have come down in price and therefor are being installed at an increased rate. Many TTO printer manufacturers have altered their selling strategy and offer printers and consumables through the reseller channel, modifying their pricing strategy and bringing it more in line with traditional flat head printers and ribbons.

Compliance regulations requiring traceability for foods and pharmaceuticals, along with an increase in product counterfeiting and diversion, are driving brand owners to incorporate variable, real-time data on their packaging.

Trends in the TTO market also include moving from a 4.5-micron film to a 4-micron film. This increases ribbon length by 20-25%, **reducing ribbon changeovers** resulting in **increased productivity for the production line**, a critical concern for these users. In addition, thinner films also optimize the printheads energy use, **extending the life of the printhead and allowing higher speed printing**



TTO Ribbon Save
feature (0.5mm
between prints)



Hot stamp ribbon
waste (6mm
between prints)

Market Dynamics

The consumables business for TTO ribbons is dominated by TTO printer OEM's. This creates a great opportunity for you to offer a lower cost alternative without sacrificing quality or performance.

The leading OEM's are:

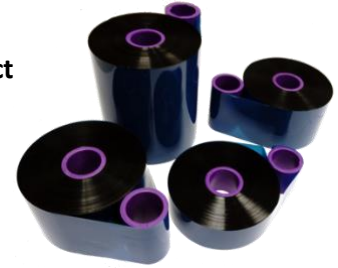
- Videojet
- Markem
- Domino
- Norwood
- Bell-Mark
- ID Technology
- Lynx



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Many of these OEM's use a bundling strategy with ribbons, substrate, and sometimes printheads. When selling against an OEM, keep in mind it is a **direct violation of the Robinson-Patman Act for the OEM's to advise or imply that end users must use an OEM ribbon or printhead or warranties/service contracts would be void.**



So – How can you find the opportunities?

Where to find TTO

- Food and medical manufacturing clients using TTR for traditional shipping label applications are likely to have TTO .
- Customers currently coding on their packaging lines
- Have you explored your local grocery store for store and brand name products packaged with flexible materials?
- Go to the grocery store and look for brands that are using flexible packing and adding a code – look for TTO or hot stamp (IMP offers Hot Stamp Ribbons as well). Skip over the inkjet coding.
- Google the brands you find as well as “snack manufacturers” or “contract packaging food”.

Who to talk to

- Production or maintenance floor manager
- Packaging engineer or specialist
- Purchasing agent

How to sell TTO ribbons

- Offer savings over the OEM
- Offer a bundle of ribbons and printheads for a wider service offering
- Offer a single source provider for Thermal Transfer from the shipping room to the plant floor

Why your customer should buy IMP TTO ribbons from you

- Lowers operating costs for significant savings vs. OEM
- Exceptional printing quality assures crisp, clear, durable imprints
- Same day shipping and stocking programs assure ribbon availability
- Vendor consolidation for all thermal transfer ribbons



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Handling TTO Ribbon Objections

I need to get ribbons and printheads from the TTO printer supplier.

Not anymore. IMP offers thermal ribbons *and printheads* for TTO printers in the market. We are happy to supply the correct printhead for your customer.

I don't want to make any printer adjustments.

IMP ribbons are a drop-in replacement for OEM TTO ribbons meaning they print at a wide range of darkness settings, all within the OEM recommended specifications.

The OEM came in to service my printer, now your ribbons don't work anymore.

Please call your IMP sales representative for assistance in restoring printer settings for optimal ribbon performance.

Will using a compatible ribbon void my warranty?

No. Any attempt by an OEM to offer service under the condition that you purchase their supplies exclusively can be considered unlawful tying.

Are your ribbons approved for food contact?

IMP's thermal transfer overprint ribbons are ISEGA certified and approved for direct and indirect food contact under FDA regulations 21 CFR 175. Please ask for details.



How Can IMP Help You Penetrate the TTO Market?

Ribbon selection is critical to a successful code. The ribbon must be matched to the substrate to ensure it meets the demands of the application. IMP's thermal experts can help you identify the optimum solution to your TTO challenges.

IMP offers [Wax Resin TTO Ribbons](#) that work flawlessly in your application. Our ribbons:

- Reduce Total Cost of Ownership
- "Drop in" performance...Plug and Play to the OEM ribbon equivalents.
- Excellent image density & edge definition ensures quality imprints and exceptional scan rates
- High-level durability
- High-speed printing up to 40 ips
- Heat resistance up to 212°F (100°C)
- Halogen free

IMP offers [TTO/Near Edge ribbons](#), which are **"plug and play" replacements** to OEM ribbons.

- [Z212 Near Edge Wax Resin](#) Ribbon – economical option when slower speeds are acceptable.
- [Z213 Near Edge Premium Wax Resin](#) Ribbon
- [Z214 Near Edge High Yield Wax Resin](#) Ribbon
 - 20-25% longer than standard ribbons – less changeovers
 - Thinner ribbon properties optimize energy use - extending the life of the printhead
 - Heat resistance up to 212°F (100°C)
- [Z311 Resin](#)
 - Maximum resistance to smudge and scratch.
 - Good resistance to chemicals and high temperature
 - Excellent print quality on variety of substrates

Thermal transfer overprint ribbons are available in black with silver and white produced upon request. Along with TTO ribbons, IMP also offers replacement printheads enabling you to be a one stop shop for your customers TTO needs.