

THERMAL RIBBON GUIDE

WHAT IS THERMAL RIBBON?

Thermal Transfer Ribbon (TTR/Thermal Transfer Ribbon/Printer Ribbon) is used in thermal printing to transfer ink from the ribbon onto a substrate such as a label or tag.

Thermal transfer printing results in clear, high-definition text and graphics. Which is why it is widely used to ensure barcode print quality and scannability.

Printing with thermal transfer ribbons generally provides a more permanent print than with direct thermal printing. Direct thermal printing can fade/deteriorate if exposed to heat, light or friction.

Thermal Transfer Ribbon has an ink layer on a plastic film along with a base and a release layer. Heat from the printer causes the ink layer to transfer from the ribbon and adhere to the label.

The main types of thermal ribbon are Wax Only, Wax-Resin, and Resin only.

Ribbon Types

If you print labels, then it's important to choose the right ribbon for your application, and to suit your printer. Ribbon type will determine print quality, cost and durability.

	PRICE	DURABILITY	PERFORMANCE	APPLICATION
WAX	\$	Can rub-off or smudge	Lower temp High speed	Coated & uncoated paper labels & tags
WAX-RESIN	\$\$	Medium	Finer print Longer lasting	Paper & most synthetic labels & tags
RESIN	\$\$\$	Very high (grade specific resistance)	Finest print Longest lasting	Synthetic, fabric & industrial applications

Wax



Wax is the most cost-effective but can rub-off if used on gloss labels or when exposed to heat or friction.

Needs a lower temperature for printing, which makes Wax TTR suitable for high speed printing.

It is recommended for coated and uncoated papers and is often used for shipping labels, warehouse labels, and retail price tags.

Wax-Resin



Wax-resin ribbon is more resistant to changes in temperature and moisture. So it is more durable than wax.

It is often used for barcode, product and food & beverage label applications. They provide a sharp and clear image on a wide range of material types.

Resin



Resin ribbon is made with pure resin which results in a very durable and long lasting print. Different grades have resistance to particular conditions. It is used for automotive, asset tags, outdoor, chemical (GHS) and textile/fabric labels.

Some of our resin ribbon grades are resistant to heat (300 degreesC), steam, gasoline, mineral spirits, isopropyl alcohol (IPA), engine oil, bleach, antifreeze and sulfuric acid. We also have textile specific resin grades that have resistance to ironing, stone washing, bleach, UV, sweat and rubbing.

Ribbon presentation/orientation

Thermal ribbon rolls can be wound with the ink on the outside (Coated Side Out/CSO) or ink on the inside (Coated Side In/CSI). The required orientation of the ribbon is dependent on your thermal printer. The matt side of the ribbon is normally the ink layer, and is the side that should be in contact with the substrate (i.e. label).

The most common ribbon cores have a 1" or ½" (notched) diameter.

Some printers require a reflective trailer to ensure the printer stops printing when the ribbon is finished.

Thermal Printing Technologies

Most thermal printers use Flat Head technology, in which the print head is positioned horizontally in relation to the substrate (i.e. label). Near Edge thermal printers have the print head positioned at an angle, which allows faster print speeds. However, the Near Edge printers require a specific thermal ribbon. The Near Edge ribbons have a quicker release layer than Flat Head ribbons. Using a Near Edge ribbon in a Flat Head printers (and visa versa) can cause issues with print quality.

Ribbon Performance

There are a few things that affect thermal ribbon that you should be aware of to ensure you are getting the best results for your product labels and barcode labels.

These include the following:

- The heat of the thermal printer settings.
- Speed of the thermal printer settings.
- Non-printable coating applied to labels.
- Incorrect ink applied to paper and no stampable gloss.
- Using the ribbon inside out.
- Using near-edge thermal ribbon on a flat head printer or vice versa.

If our guide did what it was supposed to... then you know what you need and can purchase your ribbons online [here](#)

We hope you have enjoyed our Thermal Ribbon Guide!

If you need advice with your thermal ribbons, labels or printing, please get in touch. We're happy to help.

*Tyrone
and the team at*

