



# Near Edge & Flat Head Thermal Transfer Printers

Thermal transfer utilizes a digital printing process which makes it ideal for printing unique bar codes, lot codes, expiration dates and serial numbers. Both flat head and near edge are two types of print head technologies utilized in thermal transfer printing today.

The purpose of this bulletin is to discuss the difference in near edge thermal transfer (TT) printer technology and the commonly used flat head TT print technology that may be seen on applicators in the field.

## Flat Head TT Printers

All desktop printers, medium volume printers and most industrial printers use flat head technology. Brands include Zebra, Sato, Intermec, Datamax and Avery Dennison. In flat head TT printing, the print head is horizontal, and the heating elements are located in the center of the print head. As the ribbon passes over the heating element, ink is transferred to the substrate. Some printers struggle with print quality at the higher speeds, unless more expensive media is used. Flat head printers are very reliable and usually need less maintenance. Flat head printers can utilize wax, wax/resin combination or resin (black and color) thermal transfer ribbons.

## Near Edge TT Printers

As thermal transfer evolved, near edge print head technology emerged that would increase throughput and efficiencies with faster printing speeds. Near edge technology is also referred to as 'Floating Head Technology', because of the print heads ability to auto adjust to the substrate or media thickness. This allows edge type printers to print on a wide variety of media thickness because there is no manual set up for the substrate thickness.

To achieve higher print speeds, the near edge print head is angled up to 45 degrees, with the heating elements located at the edge of the print head. With the substrate only coming in contact with the ribbon as it passes under the print heads heating elements, the transfer of ink is immediate. The distance between where an image is printed and where the ribbon separates from each other is shorter than flat head printers. Therefore near edge ribbons must contain a release/primer layer, which allows the ink to quickly transfer to the substrate and creates a sharper image on the substrate. This unique ribbon chemistry limits ribbon selection to wax/resin or resin (black and color) thermal transfer ribbon formulations.

Manufacturers of near edge printers include, Markem, Video Jet, Bell Mark, Toshiba and Avery Dennison.

