

THERMAL vs. LASER for printing WRISTBANDS and LABELS

	THERMAL BANDS	LASER BANDS
Durability:	Can be worn for 14 days	Can be worn 3-4 days (according to manufacture troubleshooting guide)
Material:	Durable synthetic (non-latex)	Paper with fold over laminate
Ease of use:	1 step application Quick loading roll	5 step, time consuming, and awkward process Confusion with print tray stack IT Difficulties printing from wrong tray
Price:	Thermal bands cost less No ink/ribbon/toner used	Laser product cost more + more waste Add cost of toner
Barcode quality:	Highest quality possible (100% read rate)	Hospital pilot had 50% barcode read failure rate
Safety:	Simple design resistant to alcohol, water, cleaner	Complicated design not durable and susceptible to water pockets that can breed bacteria
Print Speed:	Bands printed in 6 seconds	Laser printers have minimum 15-30 second warm-up period
Print Reliability:	No jams Good print alignment	Bands and labels frequently jam in laser printers Print on laser bands often misaligned
Bar-Codes:	BCMA 2D-Barcode Wraparound feature	Most laser printers do not provide native barcodes
Printer Durability:	Only one moving part Very long life	
Softness:	Thermal bands among softest available	
Security:	Built-in reapplication prevention security feature	

COMPARISONS CHART for LABELS

	THERMAL LABELS	LASER LABELS
Price:	Cost is same not counting waste No ink/ribbon/toner used	Have reports of more than 50% waste Add cost of toner
Ease of use:	Quick loading roll	Confusion with print tray stack IT Difficulties printing from wrong tray
Barcode quality:	Highest quality possible (100% read rate)	Hospital pilot had 50% barcode read failure rate
Print Speed:	12 Labels printed in 3 seconds	Laser printer has minimum 15-30 second warm-up period to print first page/band/label sheet
Print Reliability:	No jams Good print alignment	Bands and labels frequently jam in laser printers Print on laser bands often misaligned
Bar-Codes:	2D barcodes for document imaging and EHR-AID solution	Most laser printers do not provide native barcodes
Printer Durability:	Only one moving part Very long life	Labels 'ooze' glue into mechanics of laser printers causing jams that interfere with normal printing production and require laser 'rebuild kits' and other interventions from IT

LASER

Laser printers work much like photocopiers; they project controlled streams of ions onto the surface of a print drum, resulting in a charged image. The charged image then selectively attracts toner particles, transferring the image onto the paper substrate by means of pressure. The pressure from the printhead and drum then fuse the image to the paper, creating the image.

Advantages

- Accessible and efficient office document printer
- Document quality is high (except for barcodes)

Disadvantages

- Prints labels in sheets, resulting in waste
- Label and wristband adhesives can ooze from fuser and cause jamming
- Bar codes require more ink, driving up toner costs
- Output susceptible to toner flaking and smudging
- Media typically requires laminate overlay which can lead to bacteria build up and smeared images if not properly placed

THERMAL

Thermal printing is classified as either direct thermal or thermal transfer. The two technologies are suited to different applications. Direct-thermal printers create images by using a printhead to apply heat directly to chemically treated label media. There is no ribbon or ink required. In thermal-transfer printing, the printhead heats a ribbon, which melts the image to the material. Thermal transfer is used for high durability, long-lasting labeling applications. Direct-thermal printing is the technology of choice for most applications. Direct thermal is especially popular for wristband printers, because there is no ribbon to destroy to comply with HIPAA patient privacy requirements.

Advantages

- Designed specifically for label & wristband printing
- Simple wristband design for ease of use
- Media resistant to moisture, soaps, chemicals, temperatures, and bacteria
- Crisp, clear bar code printing with highest rates of scannability
- Print on demand no waste
- Simple to operate
- Durable and low maintenance
- No toner expenses

Disadvantages

- Printers not readily available in hospitals today.
- Thermal printers accept roll media and cannot print 8 1/2- by 11-inch documents.