

**METALLOGRAPH® PRINTING SERVICE****20180814****Sample Printing Program**

Although thermal transfer printing is one of the most straight forward digital printing technologies, and is used by millions for addressing and bar-code printing, getting good quality printing for electronics requires more attention to design, materials and process, each of which must be learned. In addition, selecting the appropriate printer(s) for the application is best with knowledge. For these reasons SPF-Inc offers a no-charge sample printing program for printing a limited number of customer files on selected substrates, so decisions are based on performance.

**Experimental Programs**

SPF-Inc has extensive experience with all printing, coating and laminating methodologies, and has conducted many development programs with films and papers for its extensive client base. Most flexible electronics products are made with multiple process steps – with our expertise we can help define functional, economical process steps, and identify machines and vendors to perform them. This work is billed based on time, materials and expenses. Contact us for a proposal and estimate.

**Pre-Production Program**

Companies looking to commercialize Metallograph® technology usually have a prototype development and qualification process to follow for their customer. The two primary outputs are approved functional prototypes and demonstrated production methodology suitable for use or purchase. In addition, staff gain expertise with the various technologies, quality measures and training needs that support not only product sales but also system purchases and installation. The principal of SPF-Inc in his industrial career managed development programs for his employers' products and processes, as well as for contract manufacturing for their customers. A substantial part of SPF-Inc's business not only includes comparable development, but also supervising out-sourced manufacturing and brokering printing. This service is greatly appreciated by companies who have deadlines to bring products based on Metallograph® to market. For this SPF-Inc may use its own or outsourced printers, and arrange for additional steps to be conducted by other contractors. We also support the transition from outsource to in-house. Again, this is a contract service, performed in a step-by-step process to match client qualification and approval.

**Printers Available:**

1. Zebra ZT 610 4 inch wide 300 dpi – in house
2. Zebra Xi4 or similar 4 inch 600 dpi – partner, planning to procure
3. Gerber Edge 12 inch 300 dpi – partner, planning to procure

**Substrates usually on hand:**

1. 4 inch printers:
  - a. Melinex 505 clear 100  $\mu\text{m}$  print receptive polyester film
  - b. Kemafoil HSPL 100 50  $\mu\text{m}$  acid etch polyester film
  - c. FLEXcon 21940 50  $\mu\text{m}$  white print receptive polyester label stock
  - d. UPM Raflatac Transfer Gloss premium paper label stock
  - e. UPM Raflatac Raflagloss premium paper label stock
  - f. UPM Raflatac 7 pt (180  $\mu\text{m}$ ) Thermal Transfer Tag Stock

Also a on hand are other films and label stocks from FLEXcon, Sihl, Polyonics, DuPont Films and other suppliers suitable for sampling.

2. Gerber Edge Printers (15 inch wide punched for 12 inch print)
  - a. Gerber 2mil (50  $\mu\text{m}$ ) Clear Polyester label stock
  - b. All stocks from Gerber Catalog available by purchase

**Guidelines for Fees and Charges**

1. Examples for our sample collection or your first file prints: no charge
2. Contact us for an estimate about more extensive testing, projects and programs.