Glossary of Terms

- **Build-A-Heater™:** All Flex's online automated ordering method to quickly specify and purchase custom heaters.
- **Closed Loop Controls:** The generic term used to describe the common method of managing the performance of an etched foil heater. Closed loop control indicates that a sensing device coupled with digital control logic is actively identifying the temperature and is enacting the heater to change, resulting in altering heat rise/decline rates, on/off thresholds, and/or hold limits.
- **Combination Heaters:** A heater that has both a printed circuit board (control logic) layout and a heating pattern in one single heater unit, reducing cost and improving assembly time in certain applications.
- **Conductor:** The generic term for one individual line of the etched foil pattern.
- **Edge Insulation:** The linear distance between the outermost conductor and the cut edge (cutline).
- **Etched Foil:** Starting as a solid metal foil sheet typically between .0005" and .0020" thick, the heating element of an etched foil heater is patterned using a process utlizing UV or laser light exposure, followed by submersion in chemistries that etch away unwanted foil, resulting in a defined pattern.
- **Maxi-Flex™:** All Flex's brand name for extended length and oversized heaters.
- **Mounting Adhesive:** A tape mounted onto an etched foil heater for mounting the heater to a surface. Often the adhesive is a pressure sensitive adhesive (PSA) enabling the heater to be quickly stuck in-place. It is also common to have heaters mechanically held against the mating heat sink to ensure optimal thermal transfer, particularly in high temperature applications or when mounted onto curved surfaces.
- **Multi-Zone Heaters:** Heaters that have two or more areas with differing watt densities within one overall physical heater. The multiple zones can be in segregated areas or interwoven.
- **Polyimide Heaters:** A high performance, thin flexible plastic film with exceptional resistance to temperature extremes, chemical exposure, and dimensional variation while providing excellent electrical properties. Polyimide flexible etched foil heaters can be fabricated with thermosetting acrylic adhesives or adhesiveless bonding agents.
- **Profiled Heaters:** A feature of etched foil heaters is that the pattern of the heating element can be altered and adjusted in order to provide varying thermal outputs in a given area. All Flex offers Finite Element Analysis evaluations to create the customized pattern that can take heat sink mass variances, heat loss factors, and other impact items into account in order to achieve the finished-state thermal pattern desired for the particular application.
- **PSA:** Also known as Pressure Senstitive Adhesive, PSAs are the common 'sticky' adhesives that attach to the rear surface of the heater to enable it to be quickly attached to its mounting surface. Often an acrylic for polyimide heaters and a silicone-based adhesive for silicone rubber heaters.
- **Resistance:** All heaters can be specified and measured as a resistance (Ohms) for ease of inspection and control, although heaters are ultimately defined by their wattage when voltage/current is applie
- **Resistive Foil:** The conductive metal foil used to create the heating element. Various foil options with differing resistances are used by All Flex to meet the wattage requirements and fabrication capabilities for each heater application.
- **Silicone Rubber Etched Foil Heaters:** Typically re-enforced with fiber strands, silicone rubber heaters are fabricated using sheets of partially cured silicone rubber that are laminated under pressure and high temperatures to encase the heating element within. Although thicker than polyimide heaters, silicone rubber provides water resistance and increased mechanical protection in rugged environments.
- **Top Dielectric:** The layer of insulation on the top side of the etched foil heater - usually on the side of the heater where the wires are attached. Also called "coverlay" or "coverfilm" for polyimide heaters.
- **Watt Density:** The common unit of measure for heaters that enables universal design. Watt density is the overall wattage (power) of the heater divided by the area of the heater. Watt density is commonly measured in Watts/Square Inch, but the area unit of measure can be whatever the user specifies.
- **Wattage/Power:** The unit of measurement for the overall heater performance, regardless of size or area of the heater itself.