

Technology Brief

Skived Fin Heat Sinks

Although fin skiving is not a new manufacturing technology it has seen an increase in satisfying the need for low cost, high fin ratio thermal management parts. Ideal for cooling ultra-fast microprocessors and other small volume, medium Wattage heat sources skived fin heat sinks offer an alternative to aluminum extrusions.

- **The Manufacturing Process**

A skived fin heat sink start with a single piece of base material, typically either copper or aluminum. A cutting tool contacts one surface of the material and under controlled motion raises a fin. This fin might typically be called a “burr” but it is formed with controlled thickness, height and center-to-center spacing. Fins are uniform, consistent and accurately spaced next one. This drawing technique is similar to the way a woodworker shaves a board using a drawknife or plane. Except in this case the “shaving” becomes the fin and is securely connected to the base section.

- **The End Product**

Fin heights of can be as high as 1.25 inches (31.8 mm). Skived fin sinks can also be produced in fin spacing up to 14 fins per inch of width. The typical fin thickness is 0.20 inches (5 mm) but is dependent on height and air travel length. Thinner fins are also possible. The resulting heat sink product has fins that have the same physical properties (thermal conductivity, weight, alloy & temper, etc) as the base material. Fins are securely held in place with no epoxy, solder or braze material to interfere with heat transfer.

- **The Application**

Skived fin heat sinks offer the user a low cost alternative to brazed, folded fin assemblies and high ratio aluminum extrusions. For applications involving forced air flow and up to ~100 Watts of dissipation skived fin heat sinks offer lower cost per Watt dissipated and small packaging volumes than many competitive cost cooling solutions.

