

HEAT SINK LAPPING “COARSE KIT” – Suggestions and Tips

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Note: Contents should include one each of ¼ sheets of sandpaper in the following grits: 180, 220, 280, 320, 400. Contents may be from USA, Japan, Canada, Korea, China, and/or EU countries. This is primarily designed for “roughing in” problem heat sinks, such as anodized aluminum sinks, heat sinks with heavy milling or manufacturing marks, and sinks that are badly concave or convex. **Use only the coarsest sandpaper required to flatten your heat sink.** This kit is designed to be followed with a standard lapping kit or premium lapping kit to continue the lapping and finishing process. The general instructions and directions are the same.

- 1) Read these instructions fully before you begin. Plan to get messy! Superfine particles of aluminum or copper will be very dark and hard to remove and clean up. Prepare your work surface accordingly. We suggest laying down a few sheets of newspaper and wearing an old shirt. Keep plenty of paper towels on hand. This job is best done near a sink.
- 2) Before you lap your heat sink, put a micro-bevel on the outer edges of the bottom surface. About 1/32” or less than 1/2mm should be plenty. The trick is to NOT remove too much metal so that you lose much contact area – but a slight bevel will help keep the heat sink from snagging and tearing your sandpaper. You can do this easily with a knife edge or even running it lightly at an angle on one of the coarser pieces of sandpaper for a few strokes on each edge.
- 3) Start with coarser grits first (lower numbers) and progressively use finer sandpaper. Use the lower grit sandpapers only if you have to, they will comparatively remove MUCH more material than the other finer grits and are best used for truing up and flattening the bottom surfaces. The sandpaper is stacked in the kit in order of grit coarseness – sometimes the grit number gets cut off in packaging.
- 4) Use plenty of water for lubrication. A few drops UNDER the paper will help keep the sandpaper from sliding on the glass while you lap your heat sink. Some people prefer to wrap the sandpaper sideways around the glass plate. You should use enough water and rinse often – if the metal begins to “build up” on the sandpaper, you are not using enough.
- 5) Vary the motion as you lap, and try to rotate the heat sink in your hand on occasion as you move it on the sandpaper. This will help prevent “angling” and give you a truer, flatter surface. Figure eights are hard to perform, you might try to alternate a few strokes each of reciprocal and circular motion. Circular motion will provide a flat, smooth surface but it may not be as reflective. Straight line or reciprocal motion will provide higher gloss and a more shiny finish.
- 6) You may need to clean your glass before starting the lapping process. Rinse your sandpaper, the glass plate, and your heat sink very well whenever you change sandpaper and go to a finer grit, and even often while working on the same grit. A few stray grains of larger grit than you are currently using will really scratch and be noticeable. Once you get the initial “flattening” process complete, it is time to change to a finer grit when the scratches from the previous grit level have been removed by the sandpaper you are currently working with - generally about 5 to 10 minutes per grit level.
- 7) Go slow and easy, don’t bear down too hard - let the sandpaper do the work. In most cases, the weight of the heat sink itself will be sufficient and you will only need to guide your sink instead of providing high pressure. “Slow and easy” is better than “hard and fast”! Along with using plenty of water for lubrication, this will help your sandpaper last longer. Give your sandpaper a final rinse and dry each sheet well, you may be able to use it again if you take care during the initial lapping process.
- 8) Install your heat sink a quality thermal compound; www.easypckits.com recommends and sells Arctic Silver products because we believe them to be the best thermal interface materials available. Follow the standard directions as given at www.arcticsilver.com, using a thin even coat. Each syringe of thermal compound will provide enough material to be used for several applications. Be aware that many the performance gains from lapping and using the Arctic Silver may improve over time, it is common that the best results are achieved after several hot and cold cycles and at least 24-48 hours of “burn in” at load.

DON'T HESITATE TO EMAIL IF YOU HAVE ANY QUESTIONS, AND WE'D LOVE TO HEAR YOUR RESULTS AND FEEDBACK. GOOD LUCK!

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