

Lap-Sharp™ Abrasives & Applications

1. Standard Lap-Sharp™ Abrasives –

The abrasives that come with the Lap-Sharp™ include 120µ and 80µ Regal 972L which is used for coarse abrading of steel tools and Trizact™ of A35 and A10 for fine finishing the backs and bevels of tools, providing an excellent cutting edge.

2. Polish Pack Abrasives –

Finer than the Standard abrasives, this group is used for providing a very fine edge to hard steel tools such as A2 steel and laminated steel blades. The pack contains A5 Trizact™, plus 3µ and 1µ Aluminum Oxide polishing paper. This combination of abrasives will create a near mirror finish.

3. Planer/Joiner Knife Abrasives –

When reestablishing a cutting edge that has been badly rounded or chipped, a significant amount of steel must be removed. The slow speed of the Lap-Sharp™ will not damage the knives from excessive heat, but a coarse abrasive is needed to provide damage repair of knives more quickly than can be achieved with finer abrasive discs. The abrasives chosen are Regalite™ 777F in 36, 50, and 80, and 120 mesh grits. For finer finishing than is used commercially, Regal™ 972L in 80µ and 60µ may be used to create a finer edge, when the back of the knives is smooth from the original manufacturing machine marks. For additional knife edge refinement, Trizact™ A35 may be used.

4. Turning and Carving Tool Abrasives –

Aluminum Oxide Microfinishing film is excellent for sharpening these tools, as it is fast cutting, has a high grit consistency, and is available in micron grit sizes from 80µ down to 9µ. Shaping a tool edge should be done with the coarser Regal™ abrasives. Sharpening turning tools with 40µ or 20µ abrasive for a superior edge than is achievable with a grinder. It also wears away less steel in the sharpening process. The abrasives available are 40µ, 20µ and 9µ. Coarse grits of 180µ, 150µ, 120µ, and 80µ are available on special order. For fine edges on carving tools, use the polish pack abrasives or 1µ Lapping Film. When using the 1µ Lapping Film, WD-40® can be used as a lubricant to prevent the swarf from sticking to the abrasive surface and becoming part of the abrasive, causing sharpening flaws.

5. Trizact™ Abrasives –

These apex structured abrasives are available in A35, A20, A10, and A5 grit sizes. They must be used wet and are an excellent choice for sharpening plane irons and chisels. Care must be taken to use the surface evenly. Abrading a narrow tool in one spot can create a wear track in the surface of the abrasive. This is why they are not recommended for turning tools. The advantage they offer is long abrasive life and their apex structure, which allows the abraded material and worn abrasive to drop into the valleys of the pyramid structures, thereby keeping it out of the way of the abrading peaks. This feature of Trizact™ prevents gouging of the abraded surface from the swarf.

6. Diamond Abrasives –

Available in 120 mesh and 220 mesh grits, these abrasives may be used for sharpening carbide tools. These abrasives have a cloth backing and should be used with a continuous lubricant drip system.

7. Cubic Boron Nitride –

CBN is more expensive than diamond abrasives, but is an excellent choice for applications where durability of the abrasive is needed when sharpening high speed steel, die steel, hardened carbon steel, alloy steels, aerospace alloys, and abrasion-resistant ferrous metals.

8. Scraper Sharpening –

When sharpening hand scrapers or scraper planes (e.g. Stanley #80), if the condition of the metal is fairly smooth, use a sequence of 40 μ and 20 μ Microfinishing film on the backs or sides, followed by A10 and A5 Trizact (Figure A). Future sharpening may only require flattening the burr and a quick pass with the A5 Trizact abrasive on the two sides before redoing the edge. Repeat the above process on the edge or bevel using the tool guide bar for an angle reference of 90 degrees for the hand scraper (Figure B) to achieve a square edge as shown in (Figure C). The scraper plane should have a 45 degree bevel (Figure F).

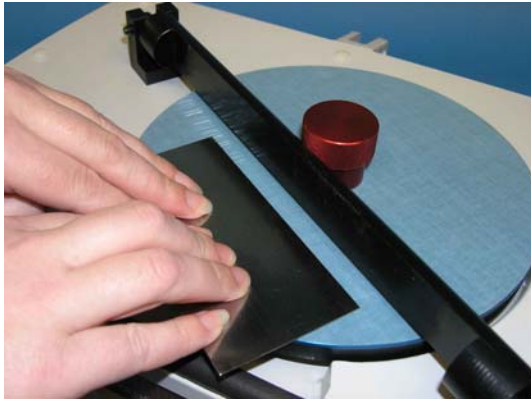


Figure A

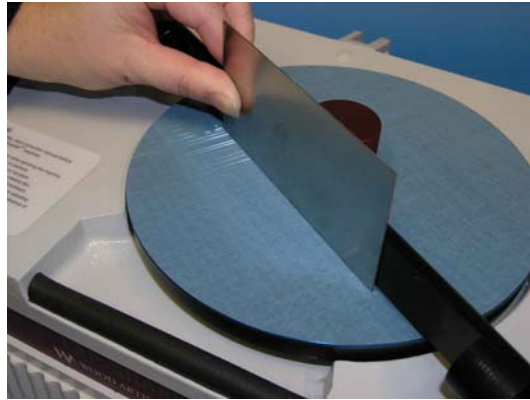


Figure B

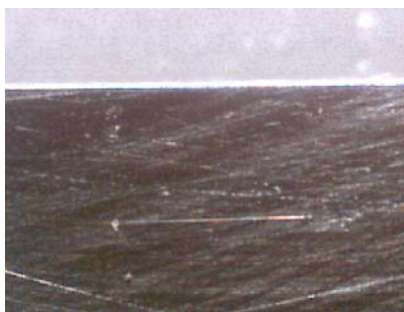


For hand scrapers, use a burnishing tool (engine valve stems or wrist pins make excellent burnishing tools) to apply some pressure while pushing flat along the side of the tool where you want a burr. This will push a burr out from the edge of the scraper (Figure D1). Some recommend a slight angle to the burnishing tool, to develop the burr, but this will push the burr down in the wrong direction. Next hold the burnishing tool at a 90° angle to roll the burr straight up (Figure D2). Next burnish the edge at the appropriate angle for the type of scraper (5 to 15 degrees from vertical for hand scrapers) and roll the burr back from the edge to form a hook (Figure D3) edge by taking one to three passes at slightly increasing angles along the edge. The size of the burr is controlled by the amount of pressure one applies to the edge. For chip out removal, a larger burr enables one to remove a fairly significant shaving, while a small burr may be more appropriate for scraping between coats of applied finish.

On a scraper plane, roll the bevel edge side about 15 degrees to make the hook (Figure G). You should now feel a fine burr along the tool edge. This is a fast way to easily make a great scraper edge.



Scraper with no burr (60x mag.)



Scraper with burr (60x mag.)



Scrapings of Bubinga