Abrasive Grit Size Chart

FEPA "P"	Japanese JIS	Micron (µ)
P80		195
P100		156
	150	141
P120		127
P150		97
P180	180	78
P220	220	65
P240	240	58
P280		52.5
	280	50
P320	320	46
P360	360	40.5
P400		35
	400	32
P500		30
P600	500	
		30
P800		
P1000	600	18.3
	800	16
P1200		15.3
	1000	14
	1200	11
P2000		10.3
	1500	9.2
P2500		8.4
	2000	7.5
	2500	5
	3000	4
	4000	3
	6000	2
	8000	1.2
		1.0
	30000	0.49

A New Sharpening Method

Now you can easily achieve incredibly sharp and flat tool edges with a near mirror-smooth finish, in minutes. The Lap-Sharp™ LS-200 and LS-600VS systems uses easily interchangeable discs, on which PSA (Pressure Sensitive Adhesive) replaceable abrasive discs of a wide range of grit sizes and abrasive types are mounted.

The sharpening process is accomplished by lapping or honing with progressively finer grits until the finished edge is achieved. This process can be performed either wet or dry. Low operating speed, reversible rotation, and footswitch control of starting and stopping the motor enable the user to have excellent tool control. What previously took hours to do with water stones or oilstones can now be achieved in minutes, with significantly less effort and with greater precision.

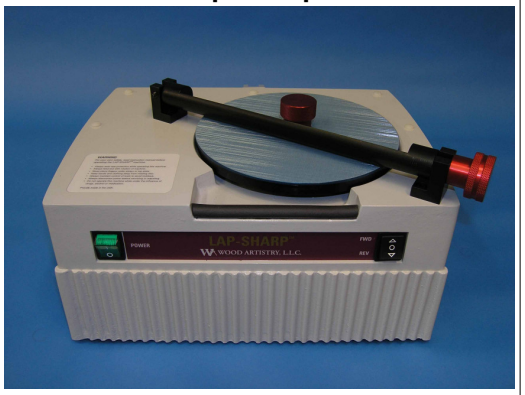
Wood Artistry, L.L.C.

7724 Bell Road
Windsor, CA 95492
Phone: (707) 838-1976
Fax: (707) 837-8075
Email: sales@woodartistry.com

© 2006 by Wood Artistry, L.L.C.
All rights reserved.

Wood Artistry, L.L.C.

Sharpening Tips from the makers of the Lap-Sharp™



Model LS-200 shown with tool bar.

For fine shavings, sharpen your tools faster - both backs and bevels - to a near mirror finish using the Lap-Sharp™.

The Lap–Sharp™ is available at:
The Japan Woodworker
Highland Hardware
Hartville Tool
Woodworker's Supply
Luthiers Mercantile International, Inc.
Select Woodcraft Stores

Chisel & Plane Iron Sharpening Process

1. **Flatten the back.** This procedure is usually needed once in the life of the tool. Flatten it with progressively finer grits to a near mirror finish.
2. **Shape the bevel edge.** Shaping is done to the desired profile and angle and may include a micro bevel if desired. Many plane irons are designed for a 25º angle. Adding a 5º micro bevel makes the bevel angle 30º. One could sharpen to 30º and avoid the micro bevel. Micro bevels are used to reduce sharpening time when using a manual process, as there is less surface area to abrade.
3. **Other Bevel Angles.** Mortise chisels may have steeper angles for added strength. Paring chisels are usually sharpened to 20º. Cabinet scrapers blades use a 45º angle.
4. **Hollow grind or Flat grind the bevels?** Use a flat grind for any laminated steel chisels or plane irons and mortising chisels. A hollow grind weakens the support of the edge of the tool. The hard steel in laminated tools, (Japanese planes and chisels) and most cast steel plane irons, will more easily chip if a hollow grind is used. Mortise chisels need the added strength of a flat grind.
5. **Using a grinder or belt sander.** This seems to be a quick method to begin the shaping process, but extreme care must be used or the heat generated may re-temper the tip edge of the tool where there is little metal to dissipate the heat. Tempering of steel is frequently done at low temperatures of 350ºF. If quenching during grinding is used, rehardening of the tip may occur, making it brittle and more prone to chipping.
6. **Using a Wet Wheel Grinder.** This is a cooler process for shaping the tool, but is limited to the grit size of the wheel. A wheel is not capable of flattening the tool and will not provide a finished edge on the tool. A wheel strop will cause rounding of the tool edge. A manual flat strop is better, but any compression of the strop will cause rounding of the tool edge. Figure 1 shows the bevel edge of a plane iron after grinding on a wet wheel grinder. The wheel is 220 grit which is equal to 65µ. This coarse an edge will not allow the tool to work at its potential.

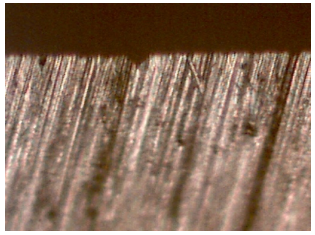


Fig.1

7. **Sharpening with Wetordry Paper.** The most common Wetordry paper available is made with Silicon Carbide (SiC) abrasive. This element is best for non-ferrous metals and cast iron, not steel. Aluminum Oxide is a better abrasive for use on steel, is available in PSA backed strips, and has a much higher grit consistency than Wetordry. SiC crystals break down too quickly for this abrasive to do much work before it begins to polish and create heat.

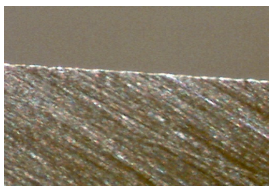


Fig. 2

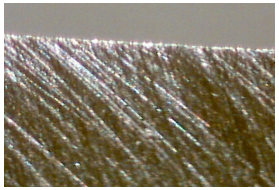


Fig. 3

Notice in Fig. 2 the back of a one half inch wide chisel after 15 single swipes on 600 grit SiC paper. Fig. 3 shows the same chisel after one swipe on 800 grit SiC paper. The 800 grit is coarser than the used 600 grit, since the crystals crushed and the abrasive became ineffective in abrading the steel. The 600 grit will make the steel shiny, giving one the impression it is sharpening. This is why woodworkers sometimes think the SiC at 2000 or 2500 grit is sharpening without scratches as compared to an 8000 grit waterstone. An Abrasive Grit Chart shows 2000 grit is 10.3µ, 2500 grit is 8.4µ and an 8000 grit waterstone is 1.2µ. The waterstone will provide a sharper edge and get the work done more quickly.

8. **Sharpening Flaws.** Figure 4 shows a **hollow** center edge of a plane iron sharpened with abrasive paper. If a wave is allowed to form in the paper as the iron is pushed, this flaw can occur. Using adhesive to hold the paper can prevent this, but exercise care to avoid contamination or lumps under the abrasive paper that can cause other flaws.

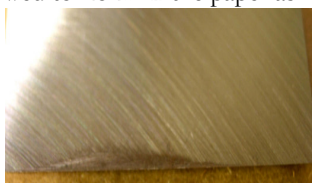


Fig. 4

Swarf can cause flaws in the abraded surface as shown in Fig. 5. Keep the abraded material and worn abrasive away from the tool surface by use of a sufficient amount of lubricant. This is critical when sharpening with finer grits.

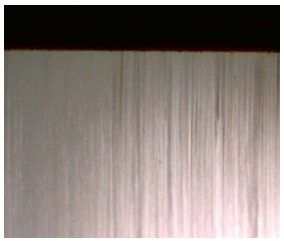


Fig. 5

Figure 6 shows gouges in a plane iron from **cross contamination** of abrasive grits. Wipe the tool clean between abrasive grit changes to prevent this flaw from damaging the surface.

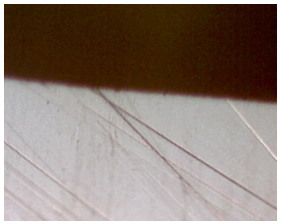


Fig. 6

Figure 7 shows **pitting** caused by rust on a plane iron. As the pitting reaches the edge during the sharpening of the bevel, edge flaws will occur. Additional flattening of the back will reduce this flaw if the iron is sufficiently thick.

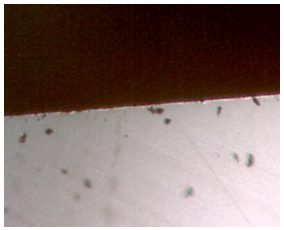


Fig. 7

9. **Properly Sharpened.** Figure 8 shows a plane iron sharpened to a 2µ finish. The surface is smooth and flat to the edge of the tool. When the bevel and back of the tool are honed to this fine an edge, the tool will be capable of making very fine shavings. Figure 9 shows a cast steel chisel sharpened to a 1µ finish. The back shows the reflection of the camera and a Lap-Sharp™ label. This flat finish will provide a fine surface to meet the bevel edge.

Fig. 8

Fig. 9

Note: *Figures 1-3 + 5-8 are at 200x magnification. Figures 4 + 9 are at normal magnification .*