- **I have a jointer/planer, so I don't use hand planes.**

* Hand planes will help to improve the finish quality of your work and overall quality of workmanship.

* Jointers/planers leave ripples in the wood surface that can be removed with a hand plane, providing a superior surface.

* Using a hand plane provides a cut surface, which is smoother than can be achieved with most machines or even sanding.

* Planes can be used for cutting small ~ 1º bevels for making finer fitting doors and drawers, rather than leaving a large gap around the opening.

* Use a hand plane to prevent to tearout to figured wood surfaces. Most machines do not do this well, and sanding obscures the appearance of the figure.

- **How do I remove the burr?**

* Alternately sharpening the bevel and back with the finest abrasive being used will remove the burr created during the sharpening process.

* Do not break the burr off, as this will create a ragged edge.

- **Why is Vanadium steel used for plane blades?**

* Vanadium is a soft ductile metallic element used as a carbon stabilizer as well as being a rust inhibitor. This does not make it a preferred choice for superior edge cutting tools.

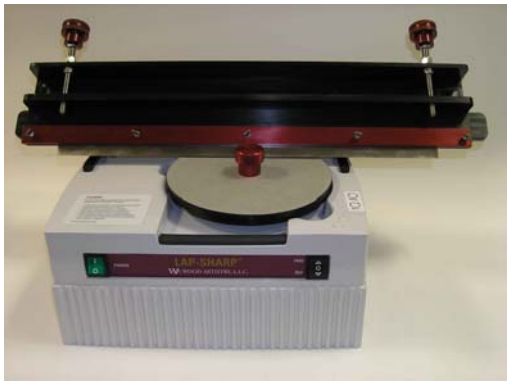
- **What is white steel and blue steel?**

* Aogami Hagane is blue paper steel. It contains tungsten and chromium.

* Shirogami is white paper steel. It is a carbon steel with few impurities. Blades made from these steels are usually wrapped in colored paper to distinguish the type of steel used.

- **What is A2 cryogenically treated steel?**

* An air hardened tool steel with high wear resistance and good toughness. It is cryogenically treated to make a more uniform grain structure and reduce internal stress in the metal.



Lap- Sharp LS-200 with Planer/Jointer Jig (option)

Features

Provides Flat Grind	**Cast aluminum frame**
Abrasives to 1 micron	**Interchangeable discs**
Slow rotational speed	**Wet or dry operation**
Reversible rotation	**Thermal protection**
Foot switch control	**Sharpens blades to 25"**
Uses PSA Abrasives	**Sharpens knives**

Wood Artistry, L.L.C.

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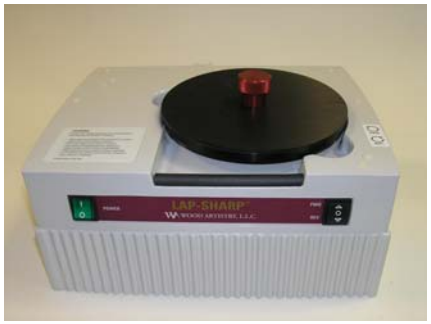
Windsor, CA 95492

Phone: **(707) 838-1976**

www.lapsharp.com

Truths & Myths about Sharpening and Planing

by Don Naples



Lap-Sharp™ LS-200

- **What is the most important part of the sharpening process?**

* Flattening the back of a plane iron or chisel is the most important part of establishing a sharp edge. Many new blades retain the original manufacturing grind marks, which should be removed. The flat back should be refined to a near mirror finish for a truly sharp edge.

- **What are important features of the bevel ?**

* The bevel edge must meet the back to create a cutting edge.

* The finer the finish on the two meeting surfaces, the sharper the edge will be.

* Hollow grinding the bevel creates a weaker edge than a flat grind.

* A micro bevel can reduce the time to sharpen an edge, creates a more durable edge, but may affect the cutting angle.

* Do not hollow grind hard steel tools, frequently found in laminated or cast steel blades. The hard steel holds an edge well, but is brittle. A hollow grind creates a weak edge that easily chips.

* Do not hollow grind planer & jointer knives. The weakened edge it creates should not be used in powered machines.

- **How do I know how fine a finish is needed for a sharp blade?**

* The hardness measurement of steel and titanium metals is defined on a Rockwell “C” scale, using a diamond indenter to determine the measurement.

* The harder the steel, the finer an edge it will hold.

* Soft steel ~c58 sharpened to ultra fine edges, will not hold the edge.

* Japanese blades often have steel in the c62 to c64 range of hardness. This steel will hold a very sharp edge, but care is needed as the steel is brittle and may easily be chipped.

* Warranted cast steel blades are also very hard ~c60 and will hold a very fine edge.

* Hard steel blades may be sharpened with a hard Arkansas oil stone or a JIS 8000 grit waterstone.

- **How can I tell the Rockwell hardness?**

* If no data is available from the manufacturer, a good indication of hardness can be judged by how large a burr is created during the sharpening process. The larger the burr, the softer the steel. Hard steel creates a small burr.

- **How fine is an 8000 grit waterstone?**

* This grit measurement is based upon the JIS (Japanese Industrial Standard). The grit measurement is approximately 1.2 to 3 microns.

* A Nagura stone may be used with this stone to create a fine slurry paste on the abrasive surface on this fine finishing stone.

- **What is the correct plane iron angle?**

* When planing soft woods use a lower iron angle than that used for hard or figured woods.

* Most bench planes have a common pitch of 45º. Creating a back bevel (putting an angle on the flat side of the blade) can raise the cutting angle of the blade if needed.

* Japanese Dai (plane bodies) are commonly available with blade angles of 40º to 47 ½º.

- **What is the correct bevel angle?**

* The correct angle depends upon the application and the type of material being cut. Most plane iron and chisel bevels are sharpened to 25º to 30º. Cabinet scrapers use 45° bevels.

- **What is the best abrasive to use for sharpening?**

* Waterstones, oil stones, and aluminum oxide are excellent. Diamond may be used, but is not good for finish work as it leaves scratches that must then be removed with fine abrasives. The scratches are caused by bits of diamond and abraded material in the slurry.

* Silicon carbide (wet or dry) has a sharp crystalline structure. It is a poor choice for use on steel as it quickly breaks down, begins to burnish the tool, making a shiny surface, and stops cutting the steel. It is better used on soft materials such as aluminum and plastics.

- **Can I use cloth backed abrasives for sharpening?**

* These cloth backings are not a good choice for single bevel blades as they easily compress causing rounding of the edge.

- **Should I strop the blade?**

* Stropping is fine for double bevel knives or razors, but causes rounding or rolling of the edge on single bevel blade. This is a fault to be avoided when creating a sharp bevel edge tool.

- **Are thick plane irons superior to thin ones?**

* Given the same quality metal, yes. Thick irons produce less vibration during the planning process

- **I sharpened my plane iron, but still don’t get fine shavings.**

* All plane bodies must be tuned to bed the plane iron and adjust the chipper, before it will perform at its best.

* A small throat opening will aid in providing fine shavings, while a larger throat opening will allow larger amounts of material to be removed per cutting stroke.

* The sole of the plane should be flattened with the iron installed, but retracted from the plane sole.

* Honing the cap iron will help to reduce plane iron vibrations.

- **Are waterstones better than oil stones?**

* Waterstones cut faster than oil stones.

* Oil stones are harder and require less frequent maintenance to keep them flat.

* Natural hard Arkansas oil stones are no longer readily available.

* Synthetic waterstones require soaking prior to use.

* Natural waterstones should not be soaked, but should be dried slowly after use.

* Natural stones may have inclusions and/or inconsistent grit sizes in the stone.

* Waterstones require frequent flattening to achieve good results.

* Both types of stones can provide excellent honed surfaces.

* Using either type of stone is a manual and labor intensive process that is time consuming.

* Both methods require attention to the sharpening process to prevent rolling the edge of the tool being sharpened.

- **I get tearout when I plane certain woods.**

* Tearout occurs when too much material is removed when going against the wood grain.

* Planing with the grain of the wood will reduce tearout.

* A plane with a tight throat and fine cut, such as when using a smoothing plane, will reduce tearout, even when planing against the grain of the wood.

* Plane highly figured woods with a smoothing plane or finely adjusted panel plane.

- **Should I use a honing guide?**

* Honing guides aid in maintaining a chosen angle for the bevel. They are useful with blades that have a small bevel surface area.

* Beware of honing guides that ride on the surface of the stone, as they can easily damage the flatness of the stone surface .