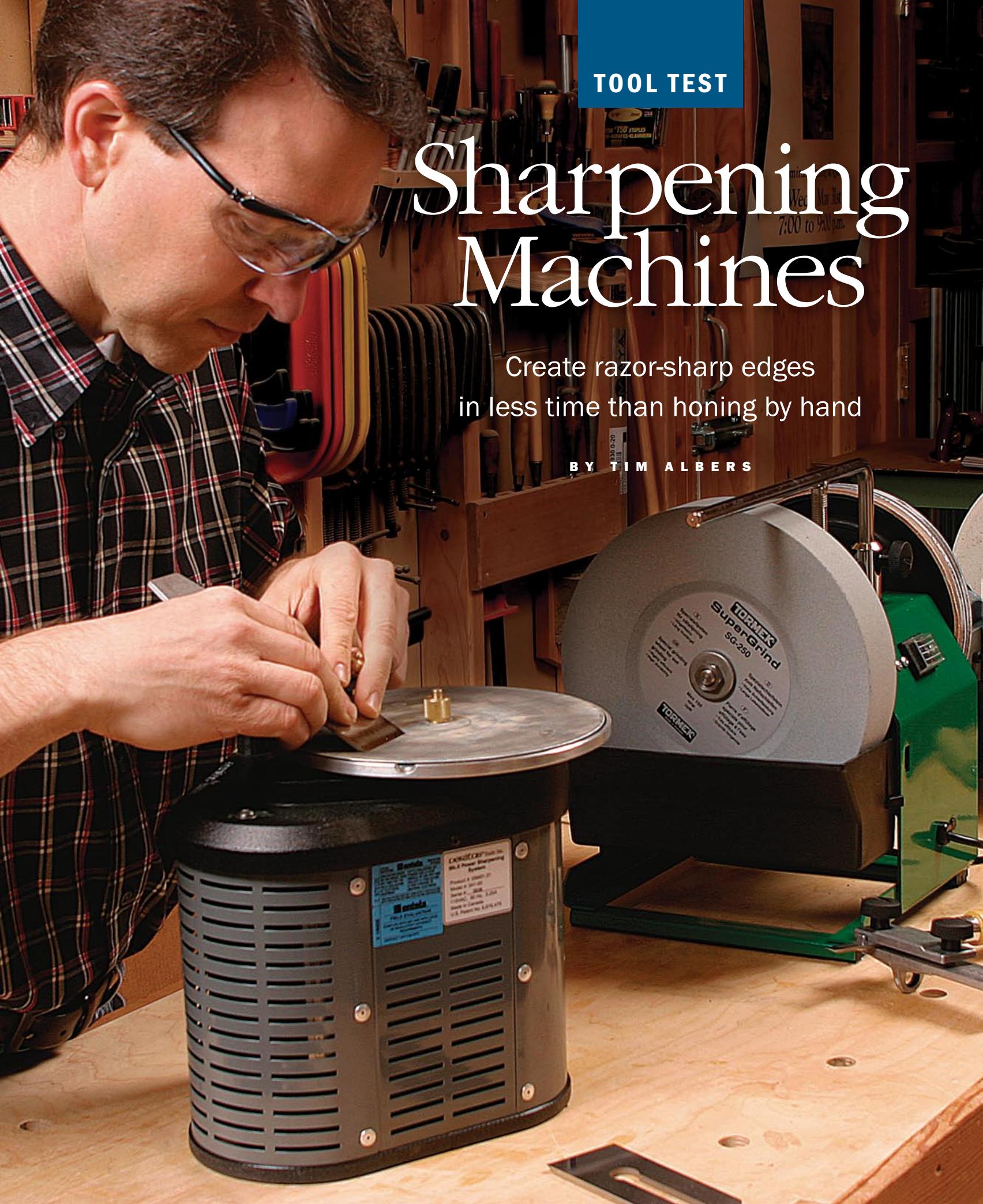


TOOL TEST

Sharpening Machines

Create razor-sharp edges
in less time than honing by hand

BY TIM ALBERS



When I'm in the middle of a project, I hate to stop and sharpen my tools. Instead I find myself picking up another chisel or plane—even if it's not ideal for the task at hand. Only after I have exhausted my supply of sharp chisels and plane irons will I dedicate time to sharpening, and at that point I typically have a day's worth of tools to grind and hone.

So naturally I was curious about the host of motorized systems on the market that promise to make sharpening not only faster and more convenient but also more accurate. The machines vary from horizontal sandpaper platters to water-cooled wheels. Some also include a dry, high-speed wheel for rapid grinding, but I excluded standard bench grinders from this review because they are not marketed as complete sharpening systems.

To evaluate the best edge each system could produce, I sharpened a plane iron on each one and installed it in a well-tuned handplane. I then compared—system to system—the quality of cut and ease of planing on figured maple, one of the more challenging woods. I did the same for chisels, comparing their ability to pare end grain cleanly. Last, I checked to see how these systems performed with turning tools, short blades, and carving tools.

I found that a few of these machines really are complete sharpening systems that can replace the bench grinder, sharpening stones (or sandpaper system), and grinding and honing jigs. Others work for grinding only; with these you'll need to keep your honing tools.

A few machines stood out

The Veritas is my choice for the best overall machine. For sharpening chisels and plane blades, it generates results equal to those achieved with the finest sandpaper or waterstones, but it cuts the time significantly and makes the process much easier.

I didn't choose one of the machines as the best value, because I still would recommend a bench grinder and sandpaper or stones as the least expensive option for an entire sharpening system. Just be sure to use a good honing guide.

If you want to upgrade your bench grinder only, the relatively inexpensive Delta 23-710 will flatten backs and grind bevels accurately with little chance of overheating the edges.

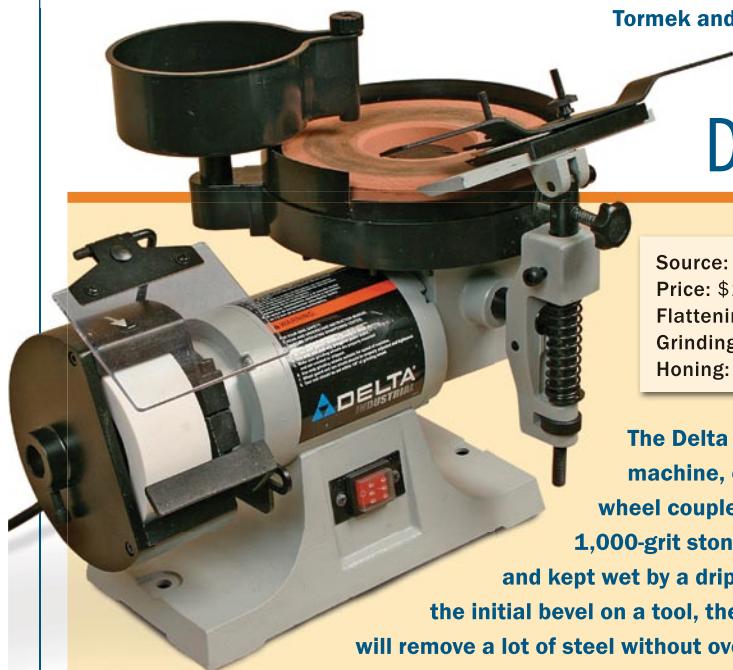
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WET-GRINDING WHEELS

With their slow speeds and constant streams of cool water, these wet-grinding wheels won't burn any edges (which removes hardness). However, only the Tormek and Scheppach machines offer a means to move beyond fine grinding into true honing.

Delta 23-710 Sharpening Center

Source: www.deltawoodworking.com
Price: \$160
Flattening/lapping backs: Good
Grinding bevels: Very good
Honing: n/a



The Delta model 23-710 is a two-part machine, offering a fast, dry-grinding wheel coupled with a horizontal, 1,000-grit stone spinning at about 400 rpm and kept wet by a drip system. For establishing the initial bevel on a tool, the small, friable white wheel will remove a lot of steel without overheating it, and the extra width is convenient. The traditional L-shaped tool rest is a bit crude, but with a little experience users can produce consistent results.

The wet wheel is really the heart of the machine and the reason most woodworkers would consider purchasing it. Once set up, the tool rest works well for grinding the bevel on most tools. The tool clamp holds the tool square to the wheel as you move it from side to side. This system is an upgrade over a standard bench grinder, but keep your sandpaper or stones for honing a truly sharp edge.

For flattening the backs of blades, the 1,000-grit wheel works well but takes longer than sandpaper on a flat surface would. And when you are done, the surface requires additional work with finer stones.



First-time setup is fussy. At least four adjustments are needed to set up the tool rest for sharpening.



Lapping is effective but inconvenient. You'll either have to remove the tool rest or lower the splash guard, sending water flying.

WET-GRINDING WHEELS (continued)



Delta 23-700 Sharpening Center

Source: www.deltawoodworking.com

Price: \$155

Flattening/lapping backs: Fair

Grinding bevels: Good

Honing: n/a



The dry wheel has a poor tool rest. It is rounded and too far from the wheel.



Wet wheels grind nicely but don't hone. On this machine, a small miter gauge keeps the tool square for an accurate grind.

The 23-700 incorporates a traditional dry-grinding wheel for initial grinding and a slow-speed wet-grinding wheel for finer work. The 10-in.-dia. wet wheel spins at an extraslow 70 rpm.

Tool backs must be flattened on the small usable side surface of the wet wheel, which is awkward. Backs and bevels ground on the 1,000-grit wet wheel must be further honed on sandpaper or stones to produce a truly sharp edge.

Grinding the bevel goes quickly if you use the dry wheel to establish the bevel, and refine the edge on the wet wheel. The tool rest for the wet wheel has drawbacks: It is easy to adjust and has a large working surface, but it is too large for short chisels and occasionally flexed during use.

Makita 9820-2 Blade Sharpener



Source: www.makita.com

Price: \$260

Flattening/lapping backs: Good

Grinding bevels: Good

Honing: Fair

The Makita model 9820-2 uses a horizontal, 8-in.-dia., 1,000-grit waterstone, spinning at 650 rpm and kept wet by a drip system. There are optional 60-grit and 6,000-grit wheels. While the tool-rest assembly is substantial and easy to adjust, it has no blade holder for chisels and plane irons. The 1,000-grit wheel flattened backs and ground bevels a bit more quickly than the other 1,000-grit wheels in this review. When working the backs of tools, however, the splash guards had to be lowered.

To get the best edge possible, I tested the Makita system with the 6,000-grit waterstone. It yielded a scratch pattern equal to a 4,000-grit (or less) waterstone, so the edge required honing on finer abrasives. Also, it took a few minutes to switch stones and readjust the tool rest.



Great for planer knives. The tool rest and tool clamp are designed for sharpening planer and jointer knives and work well.



Not as good for everything else. Chisels and plane irons must be guided freehand on the tool rest.

Scheppach TiGer 2000



Rougher grinding means slower honing. Even when graded to its finest grit, the Scheppach's grinding wheel (top) leaves deeper scratches than the Tormek's does, which means more time at the honing wheel (bottom).

While the Scheppach TiGer 2000 has been produced and sold in Europe for several years, it is new to the U.S. market. It is very similar to the Tormek in its appearance, operation, and wide variety of tool-holding jigs.

The wet wheel on both machines can be modified from rough to fine with a grading tool. Opposite the grinding wheel is a slightly smaller, leather wheel, which gets charged with honing compound.

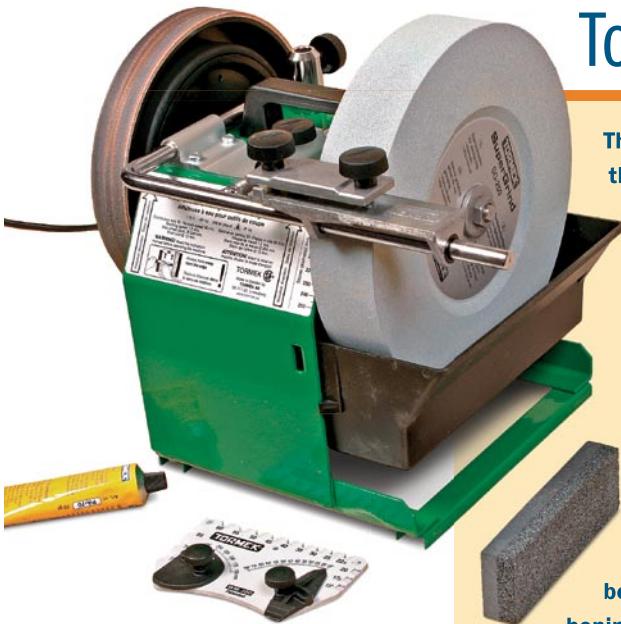
While the initial setup is simple, the owner's manual is crude in comparison to the Tormek. But the TiGer offers nearly as many sharpening jigs, and they attach in the same way.

The major difference between the two machines, when it comes to flattening backs and grinding and honing bevels, is that the finest grind achieved with the TiGer is coarser than that of the Tormek. So you'll spend more time at the leather honing wheel removing the deep scratches left by grinding. Also, at less than 8 in., the grinding wheel is smaller, and the container for the honing paste is awkward. That said, the Scheppach TiGer is an effective and versatile machine, which retails for less than the Tormek.



Source: www.hartvilletool.com
Price: \$300
Flattening/lapping backs: Fair
Grinding bevels: Very good
Honing: Very good

Tormek SuperGrind 2006



Source: www.sharptoolsusa.com
Price, as equipped: \$400
Flattening/lapping backs: Good
Grinding bevels: Excellent
Honing: Very good

The Tormek employs a 90-rpm, 10-in.-dia. grinding wheel that runs through a water trough. The system offers a variety of optional jigs and excellent instructions for precise sharpening of just about any tool, including planer and jointer knives, axes, and scissors.

The heart of the system is the micro-adjustable steel rest, which supports the jigs solidly in different positions. The straight-edge jig is included with the basic machine. A bevel-setting guide quickly registers the tool against the grinding wheel at almost any angle. After establishing the bevel, the tool rest can be moved to the honing wheel or honing can be done freehand. It takes a couple of minutes to grind and hone an edge—just a little slower than the Veritas.

The basic machine is \$400; a deluxe system with all 13 accessories is priced at more than \$900.



A great grinder. The clever tool holder offers easy setup and precise results.



Flattening is easy on the side of the wheel. But lapping is done on the leather wheel, and requires careful technique to avoid rounding the back.



Charge the leather wheel with honing compound. Then switch over the tool rest, or do the honing freehand.

SANDPAPER PLATTERS



Source: www.woodartistry.com
Price, as equipped: \$600
Flattening/lapping backs: Excellent
Grinding bevels: Very good
Honing: Very good

These systems employ horizontal platters covered with adhesive-backed sandpaper. In general, they provide speedier grinding and honing than machines that use wet-grinding wheels.

Lap-Sharp LS-200

The Lap-Sharp's abrasives are applied to 8-in.-dia. aluminum platters that can be changed quickly. The abrasives that come standard with the machine go up to 10 microns, equivalent to 800-grit sandpaper, so I opted for the Polish Pack (\$67), which includes three additional aluminum platters with 5-micron, 3-micron and 1-micron abrasives (1 micron is the rough equivalent of an 8,000-grit waterstone). The unit comes with an excellent manual and a DVD.

This very solid machine didn't slow even under heavy pressure. The foot switch is standard, and makes it possible to keep both hands on a tool when starting the machine, a help when working on the backs of tools. For working on bevels, I was slightly disappointed in the \$80 tool-guide assembly. It works best when used with the tool clamp, which takes some setup. Once tightened, however, an excellent edge can be ground and honed quickly and accurately on chisels and plane irons.



Unmatched at flattening and lapping backs. The foot switch and slow speed make the process easy to control, and the sandpaper quickly produces a mirror polish.



The tool clamp could be better. You must eyeball the angle to determine blade extension, and use a small square to ensure the blade is 90° to the clamp.



Fast but inaccurate. Runout in the thin aluminum platters creates rounded surfaces when lapping and grinding.

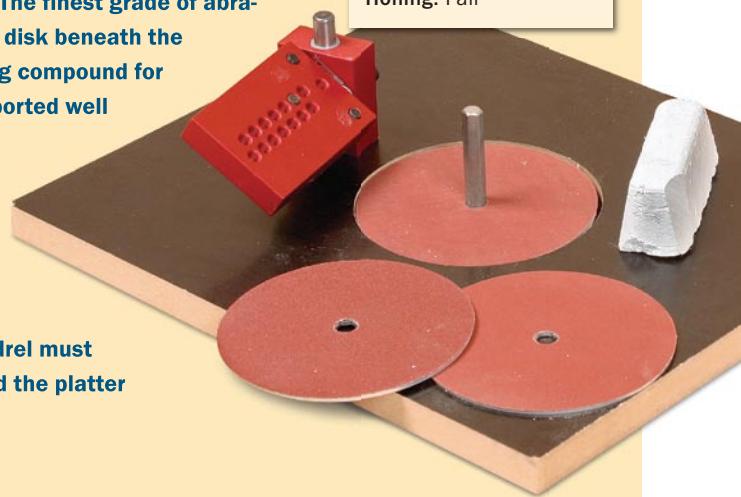


Tool holder requires trial and error. To adjust it, the holder must be lifted off the guide post.

ShopStrop Precision Sharpening Kit

The ShopStrop is the only system in the group that is not self-powered. It is mounted on a drill press, which provides the power and a stable base for the sharpening platform. The ShopStrop uses three thin, 4-in.-dia. platters that slide over a mandrel, which is chucked in the drill press. The finest grade of abrasive paper is 600 grit, but a leather disk beneath the platters can be charged with buffing compound for final honing. The tool holder is supported well by a work platform and guide post.

The thin aluminum platters were distorted, which caused excessive wobble. I could create a mirror polish quickly, but the backs and bevels weren't flat. Also, for each abrasive change, the mandrel must be removed from the drill chuck and the platter re-leveled with the work platform.



Source: www.bigleg.com
Price: \$100
Flattening/lapping backs: Fair
Grinding bevels: Good
Honing: Fair



Veritas Mk.II Power Sharpening System



Source: www.leevalley.com
 Price, as equipped: \$320
 Flattening/lapping backs: Very good
 Grinding bevels: Excellent
 Honing: Excellent

The Veritas spins an 8-in.-dia., grit-covered disk at 650 rpm. The standard machine comes equipped with two dead-flat, stable aluminum platters, each with a different grit of sandpaper on both sides, with

9-micron (1,200-grit) paper the finest grit. As with the Lap-Sharp, a thumbscrew allows the platters to be changed out quickly. A great touch on the Veritas is that the two aluminum disks are of different thicknesses—4 mm for the coarse abrasives and 3 mm for the fine abrasives—creating an automatic 1° microbevel when you are using the tool holder and switch disks. The tool holder works for both straight-edged tools and skew chisels, both short and long blades.

I opted for the accessory felt wheel (\$25), which is charged with honing compound (\$7) and used freehand to deliver an edge equal to one honed on an 8,000-grit waterstone.

The Mk.II is a solid machine. Under heavy pressure, the disk spins smoothly and quietly at full speed. The cutting action is fast and aggressive, so it requires careful technique to get even results when flattening and polishing the back of a blade: Touch down an area far from the edge first, and then lower the leading edge onto the disk.

For working on bevels, the entire tool holder assembly is simple, solid, and well thought out. Because the machine works dry and can be left set up, periodic touchups can be completed quickly. Curved-edge tools can be guided by rocking them on the tool rest. While this is not an ideal approach, with a little practice I was able to put a uniform edge on basic turning and carving tools.

The downside to this machine is the continuing cost of abrasive disks, which are \$2.95 each. However, the finest grits will last for 20 to 30 sharpenings, and the coarser disks much longer.



Setup is quick and precise. A clever registration jig sets the projection of the tool for various angles, and the tool holder keeps the blade square and level.



The work goes quickly. The speed of the platters makes for rapid cutting action, while the tool holder rides on a level rest for precise results.



Use the felt wheel for truly sharp edges. This accessory wheel is charged with buffering compound and used freehand to bring backs and bevels quickly to a mirror polish.