

New Routers! Tablesaws! Cordless!

AMERICAN[®] WOODWORKER

2003 TOOL BUYER'S GUIDE

#97 Fall 2002
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New Tool Bonanza!

Special Section on New
Power Tools for 2003

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Big new router from Milwaukee,
perfect for a router table

Compact,
cordless drills
from Bosch



New Jet hybrid
tablesaw with
big saw features



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Table of Contents

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#97 2003 Tool Buyer's Guide

6 New Tool Bonanza

Looking for holiday gift suggestions? Here are 16 sensational new tools and accessories you'll want for your woodshop.

- 21** How to Buy a Bandsaw
- 29** How to Buy a Cordless Drill
- 35** How to Buy a Drill Press
- 41** How to Buy a Drum Sander
- 47** How to Buy a Dust Collector
- 53** How to Buy a Jointer
- 60** How to Buy a Lathe
- 67** How to Buy a Miter Saw
- 71** How to Buy a Planer
- 77** How to Buy a Portable Sander
- 83** How to Buy a Router
- 91** How to Buy a Scrollsaw
- 98** How to Buy a Tablesaw
- 112** Sources



page 29



page 6



page 71

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New Tool



What Happened to the SawStop?

Two years ago in AW #83, the 2001 Tool Buyer's Guide, we told you about the SawStop. This safety device stops and retracts the table-saw blade instantly if a finger contacts the blade. It can change a table-saw injury from a trip to the emergency room to a trip to the Band-Aid box. So, what's happened since then?

To date, no saw manufacturers have chosen to include SawStop as standard equipment. The SawStop group has taken the bull by the horns and is producing its own tablesaw.

The SawStop Smart Saw (\$2,200) is a fully featured, 10-in., 3-hp cabinet saw, and it has the SawStop built in. Replacement brake cartridges are \$60. The system works with

regular blades and dado heads. Replacement dado cartridges are \$70. The price is at the high end for a cabi-

net saw, but this is a machine that could save you an arm and a leg, or at least a couple of fingers.

Full-Size Saw, Mini Price

A 14-in. bandsaw for \$375? Yep. Grizzly has done it with their G0555 saw. It's packed with all the features typically found in saws costing twice as much. The saw has a 6-in. thickness capacity, but resaw capabilities can be increased to 12 in. by adding a riser block (\$50). The 1-hp motor also makes resawing a snap.

Unlike most other saws in this category, this machine has a 4-in. dust port. Dust collection on bandsaws is often difficult, and this larger-than-normal port really works.

Upper and lower guides are ball bearing, instead of the more standard steel guides. This is another feature that's beneficial when resawing, but the guides are configured to also take blades as small as 1/8 in.

Changing blades is made easier by a quick-release tension device. Just move a lever, and the tension is off the blade. After the blade is replaced you can push the lever back to its original position and assume the same tension. Both the upper and lower blade-cover doors are hinged, so you can just swing them out of the way for blade changes. And did we mention the direct-read fence? It's included too, all in the \$375 price tag.



Sources for all products, see page 112

Bonanza

by George Vondriska

NEW TOOL BONANZA

Jumbo Router

Milwaukee has a new 3-1/2 hp (15 amp) variable-speed router, that sells for \$330. This machine is ideal for router-table use. It's got a built-in mechanism that allows bit height adjustments from above the table, variable speed and the power required to handle large bits like panel raisers.

Above-the-table bit adjustment requires drilling a hole in the table's insert plate. Then you can use the T-handle height-adjustment wrench (included) to move the router. Simply reach under the table to release the lever lock on the base, then make all of your adjustments from above. A flexible flap prevents dust from falling into the mechanism. If space is tight in your router table, the handles on the base are easy to remove.

A motor shield minimizes the dust entering the motor while it's hanging upside down, while still allowing the motor to cool.

The machine has electronic variable speed, from 10,000 to 22,000 rpm, and comes with 1/4-in. and 1/2-in. self-releasing collets. Soft start, a feature that slowly ramps the motor up to full speed, makes the router easier to use when hand-held.

If you want to dedicate a base to your router table so you can leave it hanging there, you can buy one separately for \$65.



Inexpensive Magnifying Visor

The OptiSIGHT visor is great for close-in work, whether you're sawing dovetails, carving intricate details, or reading the 1/64-in. graduations on a ruler.

Light as a feather, you can wear the OptiSIGHT right over your prescription or safety glasses. It's easy to see over the visor, so you don't have to move it out of the way to focus on something else.

The OptiSIGHT comes with 3 acrylic, optical-grade prismatic lenses, 1-3/4X magnification at 14-in. focal length (f.l.), 2X mag. at 10-in. f.l. and 2-1/2X mag. at 8-in. f.l. Changing lenses is a snap, and replacements are available. A tensioning strap for the headband is included.

The OptiSIGHT is not to be used for eye protection.



Sources for all products, see page 112

Shed Light On Your Woodworking

Makita has a new line of tools with built-in lights. The lights appear on everything from routers to drills, but seem most useful on Makita's sliding-compound miter saw, jigsaw and circular saw.

Makita's LS1013 (\$500) sliding-compound miter saw was an Editors' Choice in our tool test, AW #84, December 2000, page 98. The LS1013F (\$560) has all the features of the LS1013 and a built in light that operates independently of the trigger switch. It throws lots of light right on the work area.

The jigsaw is available in a barrel-grip (model 4341FCT) or a top-handle-grip (model 4340FCT) for \$170 each. Along with the light, the saws have bases that tilt left and right, four-position orbital action for fast or fine cutting, a dust blower, variable speed, and a detachable no-mar base plate.

The 5007FK (\$130) is a 7-1/4-in. circular saw with an LED light that operates independently of the switch. The 15-amp motor cuts from 0 to 45 degrees, and up to 1-3/4-in. thick.



Makita LS1013F; \$560.

New Fein Vacuums

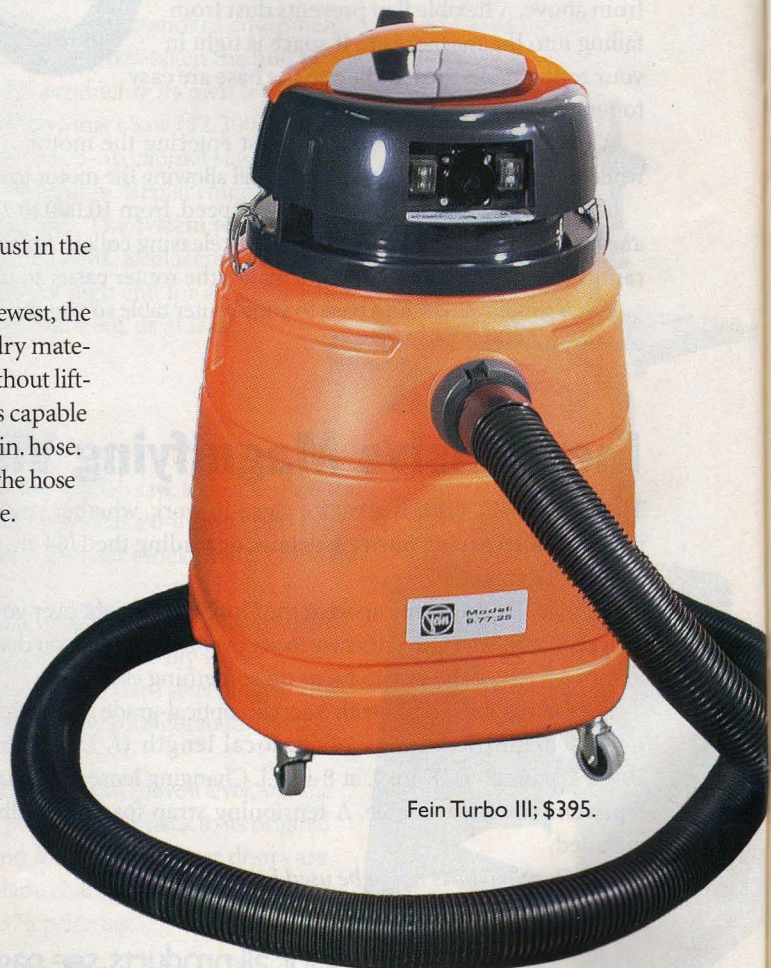
Fein's Turbo II is an elegant solution to the messy problem of dust in the shop. It's not a shop vacuum, it's a dust extractor.

The features of the Turbo II have been augmented in Fein's newest, the Turbo III (\$395). The drum is larger, holding 14.5 gallons of dry material. A drain port allows you to empty water from the barrel without lifting it. The Turbo III comes with a 2-1/4-in. x 10-ft. hose, so it's capable of sucking up big chunks that might clog the Turbo II's 1-1/4-in. hose.

The Turbo III also comes with a reducer to allow connecting the hose to tools, but the large-diameter hose is unwieldy for such use. Consider getting a 16-ft., 1-1/4-in. replacement hose from Fein (\$36).

The tool-actuated switch turns the vacuum on and off with the machine, and has the highest amperage rating on the market, serving tools from .3 to 19 amps.

If you use pneumatic sanders in your shop consider Fein's 9-55-13PE vacuum (\$500). It has all the features of the Turbo II, but is actuated by both electric and air tools. You can even connect air and electric tools at the same time and the vacuum will respond to both.



Fein Turbo III; \$395.

Sources for all products, see page 112

New Tool Bonanza

New Hybrid Tablesaw From Jet

Cross a contractor saw with a cabinet saw and you get a hybrid tablesaw. Jet's new SuperSaw (\$850) with 30-in. rails, is the latest example.

The left-tilt SuperSaw offers the advantages of other saws in this category, like an enclosed cabinet and 1-3/4-hp motor that runs on 120 or 240 volts, and is confined within the cabinet. It also has lots of other good-looking features.

Whether you're left or right handed, you can find a comfortable position for the switch. It slides and locks in virtually any position on the front rail. It also has a light that tells you if the saw is plugged in.

The direct-read fence has a micro-adjust mechanism built in. Once you get the fence close to the setting you want, the roller makes it easy to dial in the final position. The fence also has built-in T-slots so you can mount jigs directly to the fence instead of clamping them on.

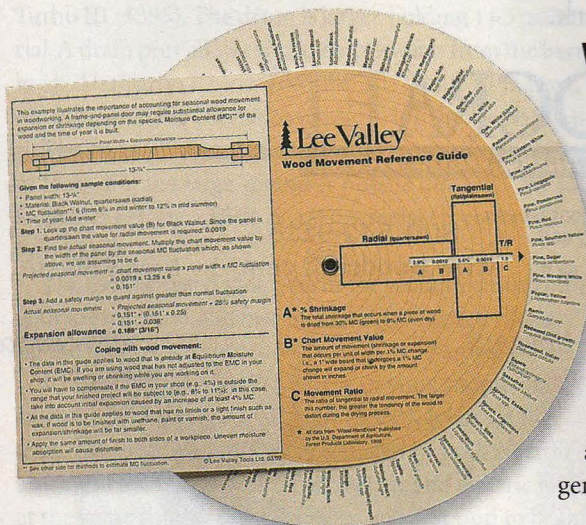
The cabinet includes a 4-in. dust-collection port and a perforated tray. The tray allows dust to go through, but traps chunks that might otherwise get stuck in the dust-collection hose.

The miter gauge has features usually found only on after-market gauges. The face extends from 14 in. to 34 in. so you



can easily support long crosscuts. The bar is adjustable so you can fine-tune its fit to the saw.

The saw table has cast-iron wings on both sides. You can replace the wings and add a sliding table with a 28-1/2-in. crosscut capacity for \$300. The saw, with 30-in. rails and the sliding table is \$1,200. Decked out with the same sliding table and 52-in. rails the saw is 100 bucks more.



Wood Movement Reference Chart

Seasonal changes in wood can be a problem. They can blow out a project if not dealt with properly. Investing \$5 in the new Wood Movement Guide from Lee Valley could save you untold amounts of labor and money by preventing unexpected wood movement.

The chart holds data on 73 domestic and imported species. Dial in the wood you're looking for, and you'll have all of the information to determine dimensional changes for quartersawn and flatsawn material. The chart also gives an overall rating of the general tendency of a wood to distort with moisture changes.

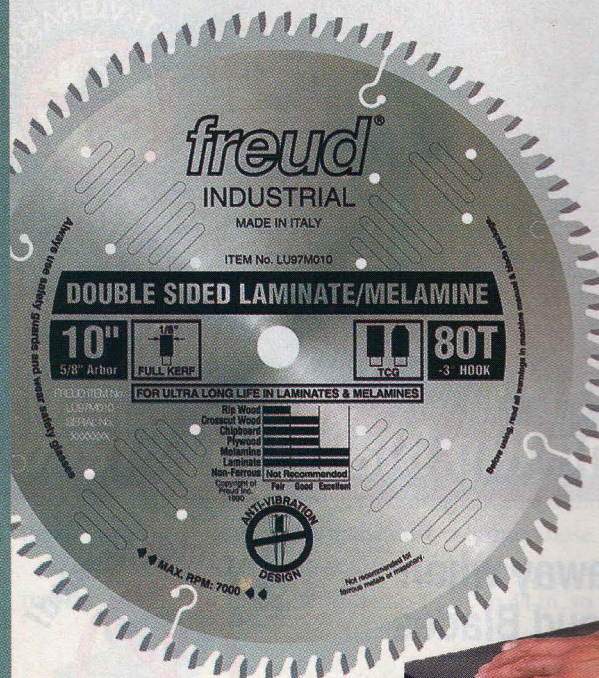
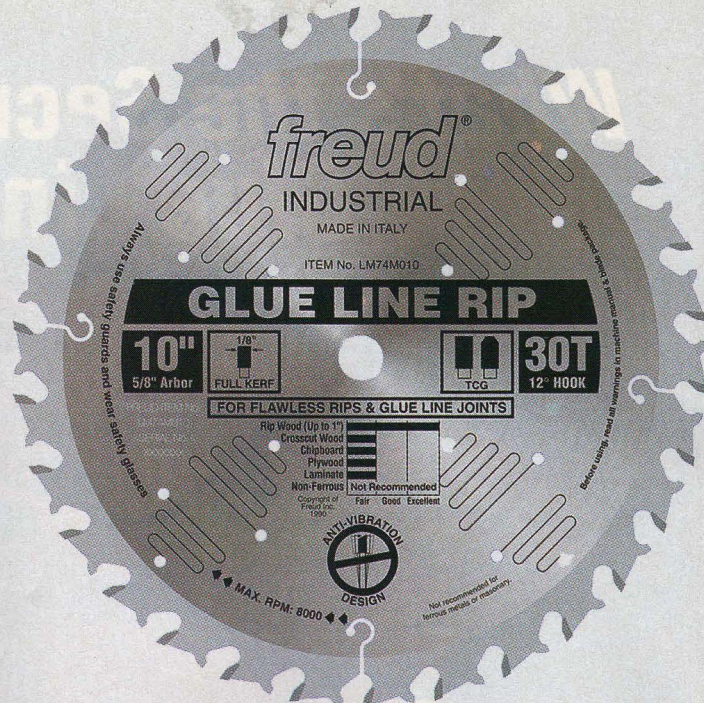
Sources for all products, see page 112

New Tool Bonanza

No Jointer Required

Plenty of large shops do edge gluing by simply ripping the boards and heading straight for the clamp table. How do they do it? They use tablesaw blades like Freud's LM74M (\$69).

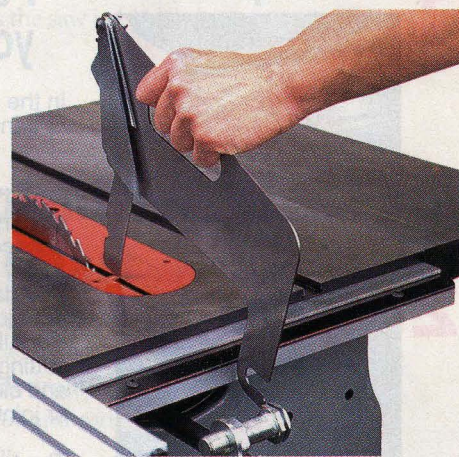
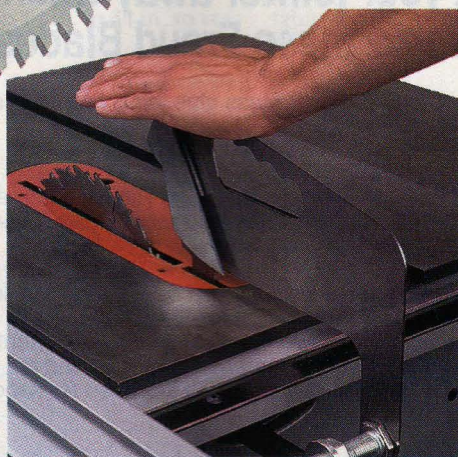
This is Freud's Glue Line Ripping Blade. It's a 10-in., 30-tooth blade with a triple-chip grind. According to Freud, the blade will produce extremely smooth and true surfaces for gluing. The thick kerf of the blade plate helps eliminate vibration and sideways movement, and eliminates any need for a stabilizer.



Cut Melamine Without Chipping

Nothing tests a blade like double-sided melamine. It's so prone to chipping it can make you pull your hair out. Freud's new laminate/melamine saw blade, LU97M, (\$99), promises to help alleviate premature baldness! Freud lays claim to a chip-free edge, even on the bottom of the cut.

The blade has 80 teeth and a triple-chip grind. Freud has also engineered a carbide blend that they claim will stand up to the abrasiveness of melamine much better than the average blade.

Aftermarket
Tablesaw
Splitter

Admittedly, splitters on tablesaws are crucial for avoiding kickback, but they often leave a lot to be desired. Thankfully, Excalibur has produced an easy-to-use, effective splitter.

The Merlin splitter (\$109) will work with thin-kerf blades and has anti-kickback pawls. It comes with all the hardware you need to mount it to your saw. A receiver mounts below the saw table using the original splitter-mounting holes. A rear-mount bracket slides onto the trunnion bar that projects out the back of the saw. Once the mounting brackets are in place, the splitter can be added or removed without the use of tools. In fact, drilling a small hole in the table insert allows you to release the clip and remove the splitter without even taking out the insert.

Excalibur is currently making splitters to fit a variety of saws. Their customer service people (800-357-4118) can confirm if there's one for your machine.

Sources for all products, see page 112

New Tool Bonanza



New Generation Lathe

Delta's new full-size lathe (#46-715; \$700, street price) combines user-friendly amenities with large capacity and a sliding headstock.

The sliding headstock provides outstanding bowl-turning access. After removing the tailstock, slide the headstock down to the opposite end of the bed. Lock it in place, leaving enough room to install the tool rest and banjo. The result: Unobstructed outboard turning.

The 46-715 has a 14-in. swing, 40-in. between centers and is equipped with a 3/4-hp motor. The spindle center is 42 in. from the floor, a good working height for turners up to 6-ft. tall. The head is indexed for decorative work, and a handwheel is supplied for convenience and safety.

The on-off switch which is mounted above the headstock and is easy to find and shut off, especially in an emergency. Speed changes are simple, thanks to the large lever that operates the 46-715's variable-speed mechanism.

The lock levers for the tool rest and tailstock are also generously sized. In addition, they're amply spaced and padded for a sure grip. Likeable lock levers are important—you'll swear at lousy levers every time you mount or remove work from the lathe.

The 46-715 becomes noticeably more stable when weight is added to its bolt-together steel stand. Install a shelf and load it down.

Finger-Saving Featherboards

Featherboards are great for keeping fingers away from cutters, especially when working with small parts. If you're looking for featherboards that are easy to set up and work great, check out the Grip-Tite system. It's been around for a while, but has some new enhancements and features that make it a true multi-purpose safety system.

The GT 2000 (\$40) has a magnet on the bottom and side-mounted polycarbonate fingers to hold the material against the fence. A polycarbonate finger in the handle provides additional down pressure. The magnet allows you to easily locate the featherboard anywhere on the tabletop and provides an incredible amount of holding power. The long handle supplies the leverage to crack it loose when you're done. Grip-Tites work great on cast-iron or steel tables on tablesaws, bandsaws, shapers and jointers.

For greater hold-down pressure the Grip-Tite can be mounted on a fence. You'll need to add a steel plate like Grip-Tite's 4-in.-tall fenceplate (\$25). It's countersunk for fastening to a rip fence.

Roller Guides (\$15) from Grip-Tite are brand new. They can be used to replace the polycarbonate fingers when you're using the Grip-Tite on a fence. The Roller Guides are abrasive-coated rollers that have spring-loaded hold-down pressure and also pull the material in toward the fence. They add an extra margin of safety to the system.

Also new is the Grip-Tite Pro (\$55), which includes a Roller Guide and has a wide-body magnet that is 50-percent stronger than the magnet on the GT 2000. The stronger magnet is required on tools like shapers where the miter-gauge slot is close to the cutter and the magnet has to span it.



Sources for all products, see page 112

New Tool Bonanza

Hand-Friendly Drills

No matter how well a drill works, one of the most important features is how it fits in your hand. When Bosch designed their new Compact-Tough drill/drivers to be maneuverable in tight, hard-to-reach spots, the by-product is that they are incredibly comfortable to use.

The Compact-Tough drills are available in 9.6 volt (\$100), 12 volt (\$129) and 14.4 volt (\$169) models. They were specifically made to be user friendly when driving shorter screws and drilling small holes; perfect for woodworking and cabinetmaking. Along with comfort, the drills have all the requisite features, like a chuck that can be tightened with one hand, 16-position clutch and variable-speed trigger.



Workbench Hold-Down Clamp

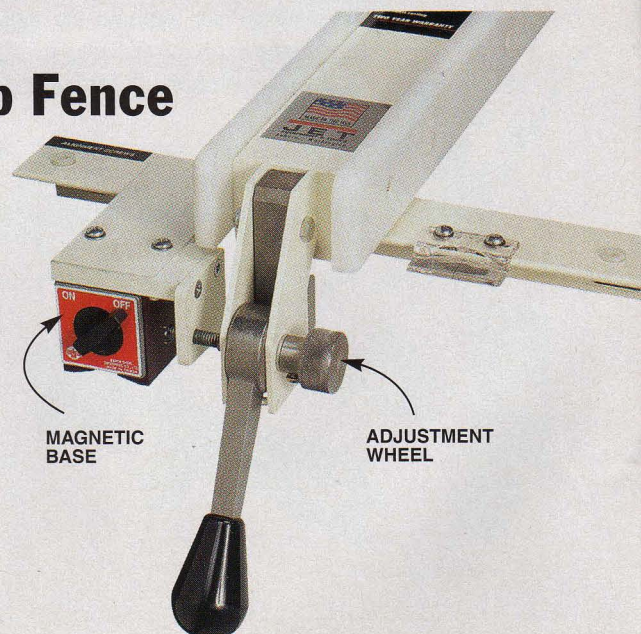
Kreg Tool has produced the new Universal Bench Klamp (\$40) to help when assembling pocket-hole joints. It works great and is handy for holding material when you're routing or sanding.

The Bench Klamp consists of a 10-in. x 10-in. x 1/4-in. steel plate and a hold-down clamp. The plate gets routed into a bench or slab of plywood. A channel in the plate interlocks with the base of the clamp. When you need it, simply engage the clamp with the plate. The clamp can be pivoted 360 degrees and will hold material up to 4-in. thick. It reaches 3-1/2-in. into the material. When you remove the clamp, you leave behind a flat work surface.

Add Micro-Adjust to Your Rip Fence

This clever device from Jet (\$85) employs a magnetic base with a threaded rod to help you precisely adjust your table-saw fence. The magnetic base attaches firmly to the front rail with the flip of a switch. The fence arm is fastened to the threaded rod, so it travels back and forth when you turn the adjustment wheel. Once you've dialed the fence to its exact location, engage the lock lever and flip off the magnet.

Installation is simple. Just remove the lock-lever bolt. The threaded rod mounts to the fence arm through the exposed hole. Versions are available for Xacta, AccuFence and Biesemeyer-style fences. **AW**



Sources for all products, see page 112

How to Buy a

Bandsaw



A bandsaw can rip, crosscut, resaw and handle curves, angles and compound cuts. This workhorse is one of the four basic stationary tools in most shops, and can greatly expand the kinds of projects you can build.

The Family

Bandsaws are sized by the diameter of their wheels. This measurement is roughly the same as the throat capacity, which determines the widest cut you can make (Photo 1). Bandsaws for the small shop have wheels ranging from 10 to 18 in. in diameter, with 14 in. as the most common.

Features

When shopping for a bandsaw, we suggest you look especially at these features:

Frame

Bandsaws come in one of two frame styles; cast iron and welded steel (Photo 2). A welded-steel frame does the best job of absorbing vibration under a heavy cutting load.

Base

A sturdy base helps control vibration as well. For this reason, we favor the closed- and floor-base styles over the open- and panel-base models (Photo 3).

Motor

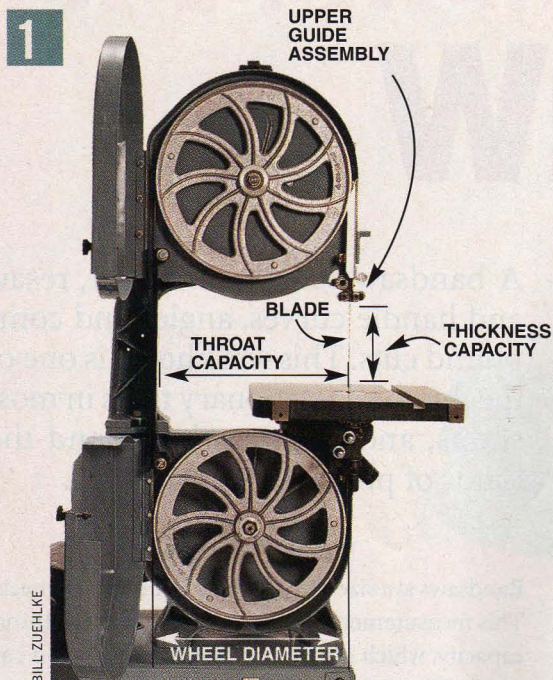
A 3/4-hp motor is good for most operations, if you primarily cut stock under 3-in. thick. If you regularly cut thicker stock or do a lot of resawing, go for at least a 1-hp. motor.

Riser Blocks

On some 14-in. bandsaws, a riser block increases cutting capacity from 6 to 12 in. (Photo 4). This is a great option if you want to use your bandsaw for resawing, cutting bowl blanks, or making lumber out of logs.

Laguna LT18; \$2,000.

Visit www.americanwoodworker.com for a complete list of manufacturers, models and costs.



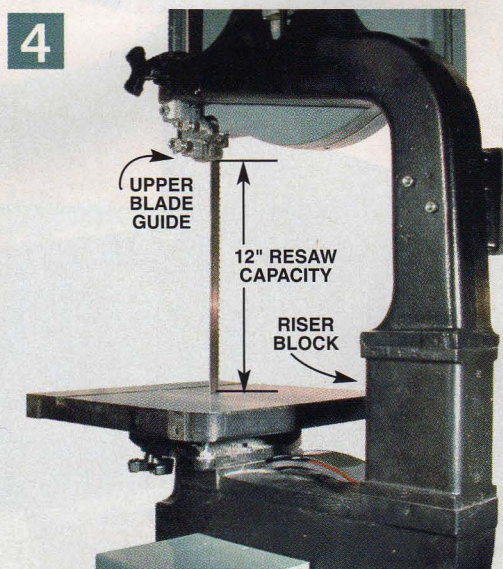
Throat capacity determines maximum width of cut. **Thickness capacity** determines how thick a board you can cut or resaw.



During heavy resawing the welded-steel frame (left) generally resists vibration better than most bandsaws with cast-iron frames (right).

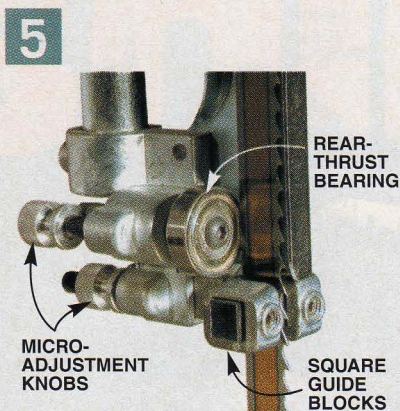


There are four common base styles. The floor- and closed-base models are sturdier and absorb vibration better than the panel- or open-base models.

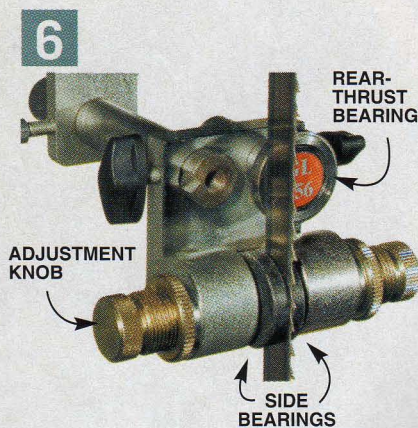


A riser block can be added to some 14-in. bandsaws. It's an inexpensive (less than \$100) way to increase resaw capacity from 6 to 12 in.

continued on page 24



Block-style guides are easy to adjust and work well with narrow blades.



Euro-style guides work well with 1/4 in. and wider blades.

Guides

Block-style guides (Photo 5) are easy to adjust and use. Replacing the stock-metal guide blocks with aftermarket synthetic blocks, such as Cool Blocks, is a good idea. These blocks can be adjusted closer to the blade for better support and enable you to use blades as narrow as 1/16 in.

Euro-style guides (Photo 6) are great for supporting wide blades and for heavy bandsaw work, such as resawing. They can be difficult to use with blades less than 1/4-in. wide.

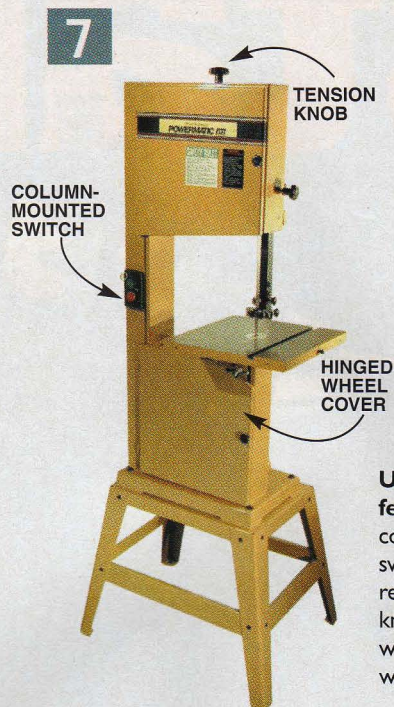
Switches, Wheel Covers and Tensioning Knobs

Column-mounted switches are the most convenient. Changing or checking the blade is quicker with wheel covers that are hinged rather than removable. Tensioning knobs that extend above the top wheel housing (Photo 7) are easy to use and prevent skinned knuckles.

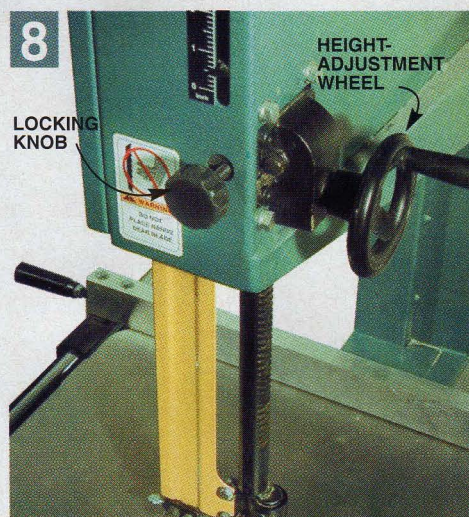
Height Adjustments and Guards

Height adjustment is easiest on machines with rack-and-pinion guards (Photo 8). This setup also keeps the guard from crashing to the table when the locking knob is loosened. Some saws use a spring-loaded, anti-slip guide post to keep the guard from falling when the locking knob is loosened.

Guards come in one-piece, telescoping and two-piece styles. We found the one-piece and the telescoping to be the easiest to use.



User-friendly features like a column-mounted switch, an easy-to-reach tensioning knob and hinged wheel covers are all worth looking for.



Rack-and-pinion height adjustment makes raising and lowering the guard easy.

Dust Collection

For general use, a 2-1/4-in. dust port hooked up to a shop vacuum will suffice. If you do a lot of resawing, look for a bigger port and hook it up to a dust collector.

Saving Space and Money

Buy a benchtop bandsaw if you're really cramped for floor space or on a tight budget. Benchtops typically have less sawing capacity, but are fine for small projects.

continued on page 26

Our Recommendations

We reviewed bandsaws in AW #88, August 2001, page 84. With an eye to resawing, we tested 17 bandsaws priced at less than \$1,350. We considered a saw's ability to do wide resawing in hard and soft wood and evaluated each saw for user-friendly features and general bandsawing.

In selecting a saw, don't overlook its electrical requirements. Some require 240 volts and some 120-volt saws have pretty high amperage requirements. Make sure your shop has the necessary wiring and circuitry. Check with a licensed electrician if you are in doubt. **AW**

Editors' Choices



**Laguna LT 16 in.;
\$1,095.**

Pros

This machine has a 1-1/2-hp motor, 12-in. resaw capacity, a welded-steel frame and can be purchased with either Euro-style or block-style blade guides. It features two 4-in. dust ports, a one-piece front guard and is prewired and fully assembled.

Cons

It requires 240-volt service and lacks rack-and-pinion guard adjustment.



**Jet JWBS 18 in.;
\$1,099.**

Pros

This machine has a 1-1/2-hp motor and it works with either 120 or 240 volts. It features a welded-steel frame, a one-piece front guard with rack-and-pinion guard adjustment and comes with a well-designed rip fence.

Cons

This machine is only available with Euro-style guides and has only a 10-in. resaw capacity.

Best Buys



**Delta 28-280 14 in.
with riser block; \$790.**

Pros

This machine features a 1-hp motor, 12-in. resaw capacity and a closed base. It accepts nonmetallic guide blocks and has the heaviest cast-iron frame among the 14-in. saws.

Cons

The two-piece blade guard is difficult to keep aligned and the dust port is small and marginally effective.

Note: Since our test, this model has been replaced by the 28-260; \$700 with riser block.



**Jet JWBS-14CS 14 in.
with riser block; \$670.**

Pros

You'll get a 1-hp motor and 12-in. resaw capacity with this saw. It runs on 120 or 240 volts, has a closed base, a telescoping front blade guard and it accepts nonmetallic guide blocks.

Cons

You'll have to put up with a small dust port and hard-to-access micro-adjustment knobs on the bottom blade guide.

How to Buy a

Cordless Drill



The Family

Cordless drills are available in a wide range of voltages. The higher the voltage, the more torque or maximum power the drill has. A battery's amp-hour rating, not voltage, determines the length of time a cordless drill runs before it needs recharging.

There is a wide range of prices within each voltage group. In general, when you pay more for a drill you're getting longer battery life and increased durability. You don't necessarily get more power.

9.6-Volt Drills

These drills are generally much smaller and lighter in weight than higher-voltage models. They usually have fewer features, as well. 9.6-volt drills have adequate power for most jobs in the woodshop, whether you're drilling holes or driving screws. This combination of weight and power makes compact 9.6-volt drills a favorite among many woodworkers. They are particularly good for drilling small-diameter holes and installing hardware because they're easy to control. But a 9.6 doesn't have enough guts to do other big jobs around the house, such as driving lag bolts and drilling holes for pipes.

12-, 14.4- and 15.6-Volt Drills

This group of drills is the best all-around choice for the woodshop. They have plenty of power for wood-working tasks and most home-repair jobs, but they're not too heavy or cumbersome.

Most manufacturers offer drills with similar features in 12-, 14.4- and sometimes 15.6-volt sizes. Other than delivering more torque, the major difference between the sizes is that the higher-voltage drills weigh noticeably more.

DeWalt DW987K-2; \$270.

Visit www.americanwoodworker.com for a complete list of manufacturers, models and costs.



Makita 6226DWE; \$132.

9.6-volt drills have the power you need for most furniture-making jobs, but can bog down under the larger torque requirements of garden furniture projects or carpentry jobs.



Bosch 32612; n/a.

12-, 14.4- and 15.6-volt models are our candidates for the best all-around shop drills. 12-volt models weigh less than the others but still have plenty of power for all but the most demanding jobs, such as drilling metal and concrete.



Porter-Cable 9826; \$200.

18-volt and larger drills are mighty powerful, but you'll be surprised when you pick up most of them. Man, are they heavy! They're just the ticket for construction work, but overkill for the woodshop.

Extra weight can be tiring. If you're buying a drill to be used almost exclusively in the shop, go for the lighter 12 volt. But if this is the only cordless drill you will own, and you plan to press it into duty for carpentry jobs, buy a 14.4- or 15.6-volt drill.

18- to 24-Volt Drills

Heavy, large and powerful: these are the distinguishing characteristics of this class of drills. They're a favorite of professional carpenters and others in the building trades, but if you need lots of continuous power for big jobs, a corded drill is a better and less-expensive choice.

Turn to this group of drills to supplement a smaller voltage drill, not as a first choice. Drills this large are more than you need for most woodworking jobs. They're perfect for driving a lot of deck screws or lag bolts but too unwieldy for more delicate work.

Features

As far as feel and convenience go, it's hard to go wrong buying a cordless drill. We tested all the 12-, 14.4- and 15.6-volt drills on the market and found more similarities than differences.

All the manufacturers have arrived at a common, basic design that works extremely well. Almost every drill includes a keyless chuck, removable battery, multiple clutch settings, a center-mounted handle, a reversing switch located near the trigger, two speed ranges (low speed delivers more torque) and a variable-speed trigger.

The following features made the difference between good drills and superior ones for use around the woodshop:

Weight

Lighter is better. We preferred drills that weighed 5 lb. or less.



We were delighted with easy-to tighten, one-handed chucks. Getting a firm grip on a bit requires only a simple turn of the wrist.

One-Handed Chuck

We loved chucks that allow you to safely tighten and loosen a bit with only one hand (Photo 1).

Ratcheting Chuck

Chucks that ratchet tight on a bit or driver are a new feature. These chucks are far less likely to lose their grip on a bit than standard chucks.

Handle Size

Drills with large handles may not be comfortable if you have small or medium-sized hands (Photo 2).

Rubber Grip

Softer handles are more comfortable than ones made from hard plastic.

Chuck Capacity

1/2-in. chucks are convenient but not essential. Many large bits have stepped-down shanks.

Batteries

You'll want two, and most drills come supplied with an extra. Batteries come in two types; the older, standard nickel-cadmium (Ni-Cd) and a newcomer, nickel-metal hydride (Ni-MH). Ni-MH batteries offer longer run times than Ni-Cd batteries, but take fewer charges over their lifespan. Both types should be recycled.

Amp-Hour Rating

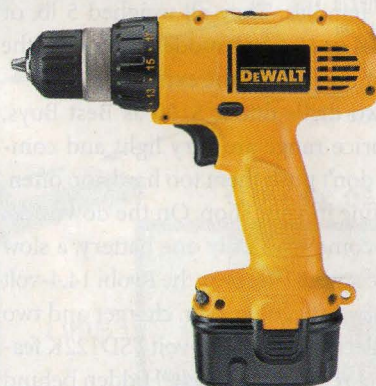
This number is a rough indication of a battery's run-time. It's important if you work far from a charger, but in the shop, where you have a second battery ready to go, small difference in amp-hours between models don't make much difference.



Handle size varies a lot. No matter how good a drill is in other respects, a handle that feels too large is a deal-breaker for many people.

What's New?

After we tested cordless drills, DeWalt upgraded their basic 12- and 14.4-volt models. The 12-volt DW927K-2 (\$140) and the 14-volt DW928K-2 (\$170) are much lighter and smaller than the more expensive models we reviewed. They have ratcheting chucks, so bits won't come loose, but the chucks aren't one-handed. You get two speeds, two batteries and a diagnostic charger. Both drills are an excellent choice for the woodshop.



DeWalt DW927K-2, 12 volt; \$140.

Chargers

One-hour chargers that evaluate the condition of your battery are the way to go (Photo 3). Slower chargers, on less-expensive drills, are not only inconvenient, but you must unplug them after the battery is charged to maximize its life.



We prefer drills with one-hour chargers. They typically contain sophisticated electronics to maximize a battery's life. You can store an extra battery in the charger, which is very convenient because you'll always have a battery ready to go.

Our Recommendations

We reviewed 12-, 14.4- and 15.6-volt cordless drills in AW #91, December 2001, page 47.

We liked many of the drills in the \$160 to \$195 range. The Panasonic 12-volt slightly edged out the rest, primarily because it's so compact. All of our Editors' Choices were 12-volt models with one-handed chucks, 1/2-in. chuck capacity and small- or medium-sized handles. They all weighed 5 lb. or less. Go for a 14.4 or 15.6-volt model if you need the extra power but don't mind the extra weight.

We chose two drills under \$100 as Best Buys. Drills in this price range are very light and comfortable. If you don't push them too hard, too often, they'll do just fine in your shop. On the downside, they generally come with only one battery, a slow charger and one speed. However, the Ryobi 14.4-volt HP1442M has two speeds, a 1-hr. charger and two batteries. The Black & Decker 12-volt FSD122K features an unusual removable chuck. Hidden behind the chuck is a screwdriver tip, so you can go from drill to drive in one quick step. **AW**

Best Buys



Black & Decker
12-volt FSD122K; \$80.



Ryobi 14.4-volt
HP1442M; \$85.

Editors' Choices



Panasonic 12-volt
EY6407NQKW; \$180.



Bosch 12-volt
3360K; \$170.



DeWalt 12-volt
DW980K-2; \$170.



Craftsman 12-volt
27121; \$140.



Hitachi 12-volt
DS13DV2; \$170.



Metabo 12-volt
BST12Plus; \$220.

How to Buy a Drill Press

When it comes to drilling accurate holes, you can't beat a drill press. It's a versatile machine that can also be used as a drum sander and for cutting mortises. It may not be the first stationary tool you buy, but a drill press is one of those basic tools every woodworker needs.

The Family

Drill presses are sized by swing capacity; a designation that harkens back to their origin as metal-working machines. Swing indicates the diameter of the largest circle the machine can drill the center of.

Drill presses are either short enough to sit on a bench or tall enough to stand on the floor. Fixed-head design is standard. On radial machines, the head is movable.

Floor Models

Stationary drill presses top out at larger than 6 ft., weigh a ton and take up a lot of floor space. For woodworking, 13-in. to 17-in. models offer the best compromise between capacity, footprint and price. Prices for these models range from \$200 to \$800.

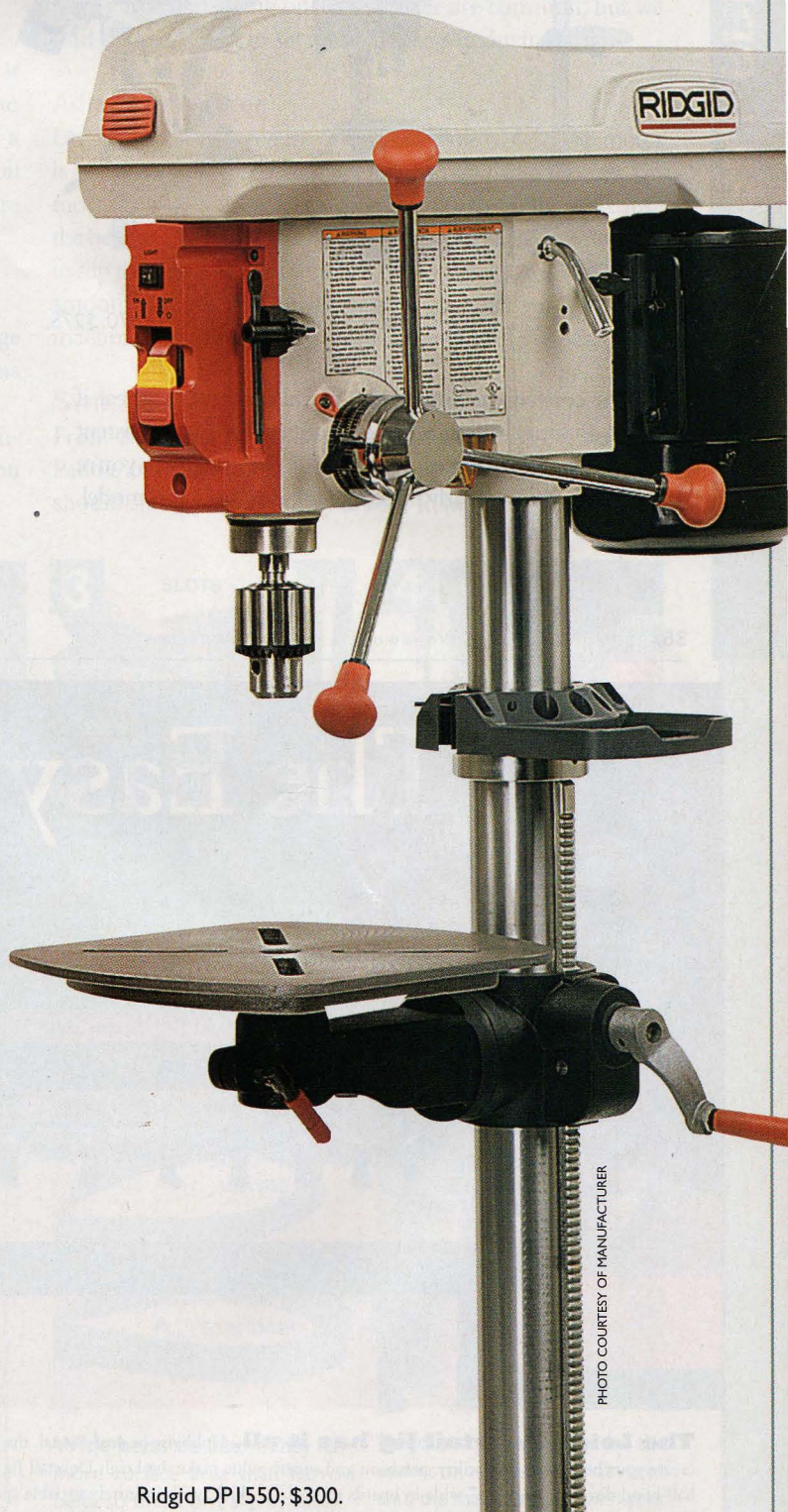
Benchtop Models

The largest benchtop drill presses have the same features and drilling capacities as the smallest floor models, except for stock thickness. They're too big and heavy to be considered portable. Expect to pay \$150 to \$250.

Benchtop machines smaller than 12 in. are the lightest and cost the least, but they usually come with small tables and limited capacities.

Radial Models

The head on a radial drill press swivels for drilling at angles other than 90 degrees. It can also be extended for increased throat capacity. Radial drill presses can cost up to twice as much as fixed-head models.



Ridgid DPI 550; \$300.

PHOTO COURTESY OF MANUFACTURER

Visit www.americanwoodworker.com for a complete list of manufacturers, models and costs.

Floor Model



Benchtop Model



Radial Model



Features

Throat Depth

Throat depth measures the distance between the center of the chuck and the column, so it determines how far you can drill from the edge of your workpiece (Photo 1). A drill press's throat-depth measurement is half of its swing.

For general-purpose woodworking, a 12-in. drill press is the smallest size you should consider. Its 6-in. throat is adequate, but we prefer the extra throat-depth capacity of larger machines. However, drill presses larger than 17 in. take up too much floor space to be practical in most shops.

Quill Stroke

This measures how deep a hole you can drill (Photo 1). Most machines can drill a little more than 3-in. deep—good for most projects, but not quite enough to make it through a 4x4. Smaller benchtops have shorter strokes and a few large 17-in. machines have strokes larger than 4 in.

Jet JDP 17MF; \$420. Fisch DP2000; \$230. Shop Fox WI670; \$275.

The convenience offered by radial machines is great if most of your drilling is done at angles. But for consistent accuracy at 90 degrees, especially if the machines you're comparing are similarly priced, go for the fixed-head model.

The Easy Rout.



The Leigh Dovetail Jig has it all. Hobbyist or professional, the Leigh D4 Dovetail Jig will ensure you create your best work. Versatility, precision and superb value make the Leigh Dovetail Jig better than the rest. Rout through and half-blind dovetails up to 24" wide in boards up to 1 1/2" thick, with infinitely variable spacing of pins and tails — all on one jig. Plus, rout sliding and angled dovetails easily with the D4. And create decorative Isoloc joints, finger joints, and multiple mortise & tenons effortlessly with Leigh attachments and our exceptional user guides! Make routing easier with Leigh. Call toll free now!

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User-Friendly Operator's Levers

For comfort and leverage, nothing beats big, round grips and long, stout rods (Photo 2). Smooth grips are best. Threaded rods can be removed if they're in the way.

Clamp-Friendly Tables

Look for tables with wide, flat rims (Photo 3). They make it easier to clamp fences and fixtures. We prefer square tables to round ones because it's easier to clamp a straightedge to a straight edge. Tables designed for metalworking have an oil trough around the perimeter. Flat tables without a trough are better for woodworking.

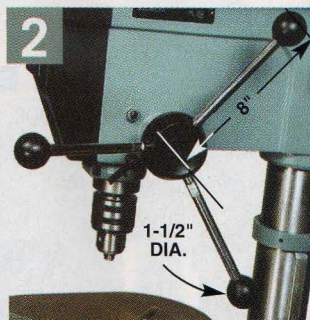
Easy Speed Changes

On many machines, getting the belts on and off to change speeds is difficult because the belt-tensioning mechanisms don't have enough travel.

Variable-speed machines put an end to fighting with tensioning mechanisms and belts. Instead, you change speeds on the fly, by moving a lever.



Throat depth and quill stroke determine how far in and how deep you can drill.



Big, round grips without serrations are most comfortable. Long rods give you better leverage.

Rod-Style Depth Stop

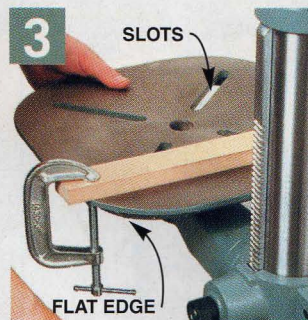
Rod-style stops, attached to the spindle, are easy to use and lock solidly every time. The best rod-style stops have large-diameter locking nuts (Photo 4). Ring-style stop mechanisms attached to the operator's lever are common, but we find them difficult to set and likely to slip during use.

Adequate Power

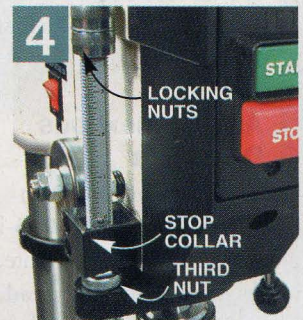
Drill presses don't need monster-sized motors. A 1/2-hp motor is adequate for most drilling operations, but 3/4 hp is better. On most machines, using large-diameter Forstner bits will cause the belts to slip before the motor stalls. Wide belts are less likely to slip than narrow ones (Photo 5). Poly-V belts, touted for their smooth and efficient power transfer on other woodworking machines, are just starting to show up on drill presses.

Switches

Front-mounted power switches are the most convenient. Paddle and push-button styles are best (Photo 6). Off switches should stand proud so they're easy to hit in an emergency.



Wide, flat table rims make clamping easier.



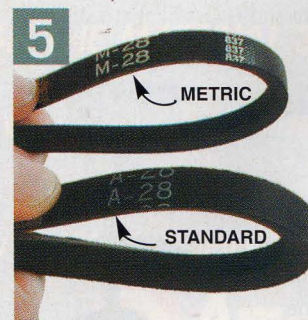
Rod-style depth stops with three large-diameter nuts are great. The third nut, located under the stop collar, acts as a low-tech quill lock.

Mortising Attachments

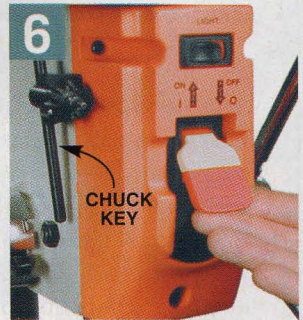
Mortising attachments on drill presses don't work as well as a dedicated mortiser. Drill presses aren't designed to exert the amount of force required to cut a mortise, especially with large (1/2 in.) chisels.

For occasional use, and mortises no larger than 3/8 in., the attachments are adequate.

We liked the attachments offered by Delta and Ridgid because of their superior hold-downs.



Wide belts are better. They have more surface area than narrow belts, so they don't slip as easily.



Paddle-style switches are the easiest to operate—you can even shut the machine down with your shoulder in an emergency.

Our Recommendations

What's New

Drill presses haven't changed much in over 100 years, but a couple manufacturers have added some new wrinkles.

Drill Press/Spindle Sander

The Shop Fox W1668 oscillating drill press is a 13-in. benchtop that doubles as an oscillating spindle sander. By travelling up and down as it spins, an oscillating sander sands faster than one that simply spins. It also makes sanding sleeves last longer. The W1668 has a 3-1/4-in. quill stroke for drilling and 3/4-in. oscillation for sanding. Changeover takes less than a minute.



Shop Fox W1668; \$200.

An Ambidextrous Drill Press

The operator's levers on Ridgid's new DP1550 15-in. drill press can be mounted on either side of the head, so you can drill right- or left-handed. Other improvements include a 3-3/4-in. quill stroke (long enough to drill through a 4x4), wider base and a new poly-V belt and pulley system that, according to the manufacturer, runs smoother and is less likely to slip.



Ridgid DP1550; \$300.

Variable-Speed Benchtop

Delta's new DP350 is a 12-in. benchtop model with a lever-operated variable-speed range of 500 to 3,100 rpm. It has a 3-1/4-in. quill stroke, rod-style depth stop, a quill lock and a tilting table. The bottom of the trough-style table has a flat ledge for clamping.



Delta DP350; \$275.

In AW #86, April 2001, page 68 we tested 28 floor-model drill presses that cost less than \$450.

Editors' Choice

Delta 17-965; \$400.

This machine was outstanding. It had plenty of power, and ran quietly, with minimal vibration. The quill-advance mechanism operated smoothly, and the smooth, round grips on the operator's levers were the most comfortable ones we tested. The quick-action depth-stop nut was convenient, but not quite as reliable as locking stop nuts. It was the only machine in the test equipped with a genuine quill lock. We liked the flat-rimmed table and large base. We also were impressed with Delta's mortising attachment (17-935, \$40), which is available as an accessory and installs easily on this machine.



Best Buys

Priced between \$200 and \$300, three machines stood out as good values. They're smaller machines, with narrow belts and ring-style depth stops. **AW**



Ridgid DP1500; \$300. This drill press had lots of user-friendly amenities and came with a great warranty. It's been replaced by the DP1550 (see What's New, at left).



Grizzly G7944; \$200 (plus \$55 shipping). This 14-in. tool felt better to operate than other machines its size because it was taller, heavier and delivered good power.



Central Machinery 38144; \$200 (free shipping, \$6 handling). This 13-in. tool appeared well built and performed admirably for such a low-priced machine.

How to Buy a Drum Sander

If you hate sanding, you'll love having a drum sander. Even a small machine can give you excellent results and save countless hours of sanding.

The Family

All drum sanders use interchangeable rolls of sandpaper, available in a wide variety of grits.

Single-Drum, Open-End Sanders

Open-end sanders are small machines with big capacity. They have one drum that's cantilevered over a table, so you can sand a panel that's up to twice the width of the drum itself. You simply sand one half at a time.

Open-end sanders are well suited for a small shop. They take up relatively little room and run on a 120-volt circuit.

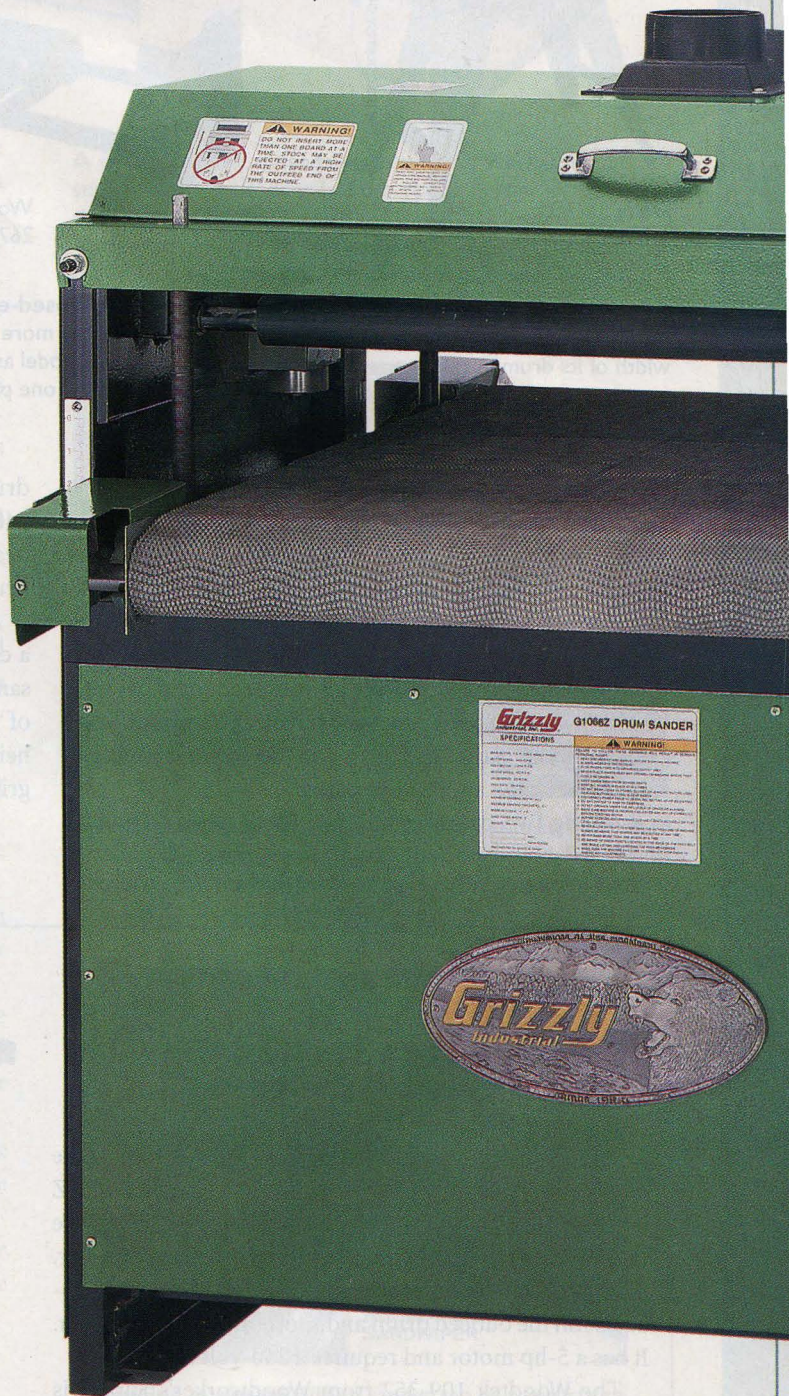
Accurate setting of the sanding drum is critical on an open-end machine. The drum should be set parallel to the table for stock that's less than the width of the drum. For wider pieces, the drum or table is tilted slightly to avoid overlap marks in the center. Look for a machine that's easy to adjust.

Single-Drum, Closed-End Sanders

Both ends of the drum are supported in closed-end sanders. This allows more power to be applied to a longer drum than in open-end machines. Closed-end machines take up more floor space and are much heavier than open-end models.

There is a wide range of price, horsepower and width capacity among closed-end sanders. The more horsepower a machine has, the faster the job gets done. Sanders with 1-1/2-hp motors run on 120-volt circuits. Machines with larger motors generally require 240-volt circuits and are staples in small production shops. All closed-end sanders can handle panels up to 25-in. wide. Machines with large motors and a 36-in. capacity start at about \$2,800.

Closed-end sanders require less adjustment than their open-end cousins. On a closed-end sander, once you've set the drum parallel to the bed, you're done.



Grizzly G1066Z; \$1,595.

Visit www.americanwoodworker.com for a complete list of manufacturers, models and costs.



PHOTO COURTESY OF MANUFACTURER

Delta 31-250;
\$800.



PHOTO COURTESY OF MANUFACTURER

Woodmaster
2675; \$2,199.

Grizzly G1066Z; \$1,095.

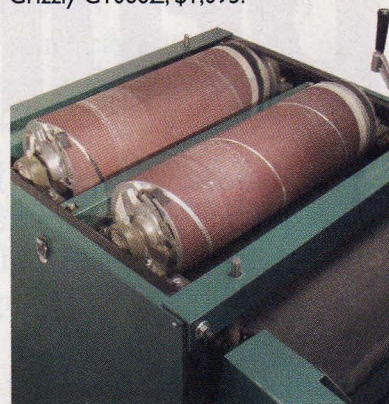


PHOTO COURTESY OF MANUFACTURER

An open-end sander can handle a panel up to twice the width of its drum in two passes.

A single-drum, closed-end sander typically has more power than an open-end model and can sand a wide panel in one pass.

A double-drum sander can completely sand doors and panels without a single paper change.

Double-Drum Sanders

You'll find two drums spinning at the same time under the hood of a double-drum sander. The whole idea is to get work done twice as fast. You can put the same grit on both drums or a medium grit on the front drum and a fine grit on the back drum.

Medium and fine paper are all you need for most jobs. Unlike using a single-drum sander, you can smooth wood fresh from the planer or sand a glue-up without having to stop the machine and change paper.

Running two drums requires a lot of power. Double-

drum machines have 2-hp or larger motors and require a 240-volt circuit. All double-drum machines are large and heavy, but they don't take up much more space than single-drum, closed-end models.

A double-drum machine requires more adjustment than a closed-end, single-drum sander. To run the full range of sanding grits in a project, you should reset the relative height of one drum to another for each run. The difference in height is a matter of thousandths of an inch, and varies from grit to grit.

What's New?

Two Double-Drum Sanders Expand the Field

Since our test, Grizzly Industrial and Woodtek have come out with new double-drum machines. The Grizzly G1066Z is substantially improved from the two Grizzly machines we tested. This new model has a variable-speed conveyor, uses hook-and-loop sandpaper, has an external micro-adjust on the outfeed drum and sports an amp-load meter. It has a 5-hp motor and requires a 240-volt circuit.

The Woodtek 109-352 from Woodworker's Supply is very similar in design and power to the General International 15-201M we tested, and you may find it priced lower.



Grizzly G1066Z;
\$1,595.

Woodtek 109-352;
\$1,195.



PHOTOS COURTESY OF MANUFACTURERS

Features

Drum sander features fall into two broad categories: performance and convenience. Performance features affect the results you get (Photo 1); convenience features affect how user-friendly the machine is.

Performance Features

Minimum length. A few drum sanders can handle boards as short as 3 in. No jointer or planer can surface pieces that small.

Anti-snipe adjustments. All drum sanders produce snipe under certain conditions. Adjusting the pressure rollers reduces snipe.

Removing cup. Unlike a planer, a drum sander can remove cup from a board, allowing it to perform like a very wide jointer. Sanders with rollers that apply the least amount of downward pressure work best on thin stock.

Maintaining square edges. Hard and soft sanding drums produce different surfaces (Photo 2). Hard drums are better for sanding surfaces that will be glued together, such as the edges of face frames.

Sanding large and heavy stock. Machines with long, stout beds are best.

Convenience Features

Paper attachment. Most drum sanders use a continuous roll of sandpaper that is pulled tight by springs and clips. Some machines require more finger dexterity than others to operate these clips. A hook-and-loop system avoids this problem, but you must remove the paper and pull it tight again after a few minutes of use (Photo 3).

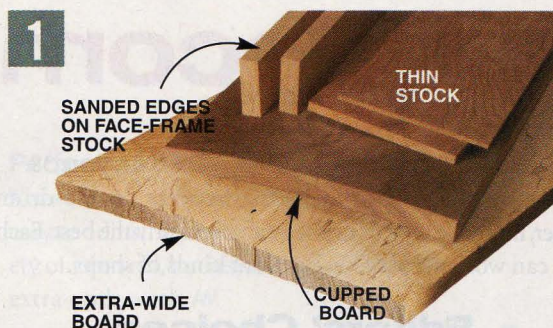
Good manual. A comprehensive troubleshooting guide will save you from ruining lots of sandpaper.

Depth-of-cut adjustment. Very small adjustments can make a big difference in results. We prefer a large-diameter crank that's easy to turn.

Independent switches for conveyor belt and drum. The depth of cut on the first pass is a critical setting. It's convenient, but not essential, to make this setting with the conveyor belt on, and the drum turned off.

Drum-angle adjustment. For sanding extra-wide stock we prefer an open-end machine with a tilting drum over one with a tilting table.

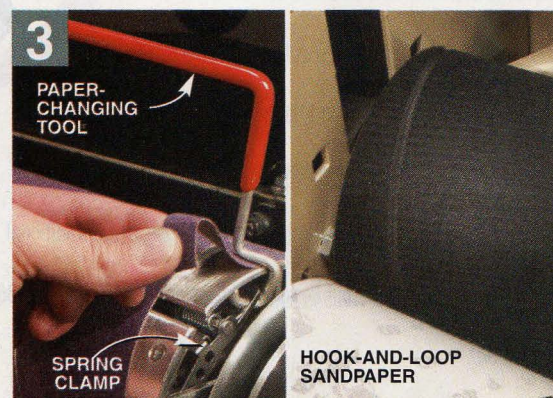
Rear-drum adjustment. The relative height of the rear drum in a double-drum machine should be easily adjustable for different grits of paper.



A drum sander extends your range of work. You can surface extra-wide boards from rough lumber, remove the cup from warped boards and thin panels, remove saw marks from surfaces for glue-up (such as the edges of face-frame stock) and accurately thickness thin, resawn boards without any tear-out.



Sanding drums have either a hard or soft surface. Hard drums make a precise, flat surface on your wood. Soft drums produce a surface with fewer visible sanding scratches, but they may slightly round over edges.



Changing paper on a drum sander can be a real chore. We preferred designs that make the job easier, such as this Performax tool (it holds the spring-clamp open) and the hook-and-loop system on the Woodmaster.

Our Recommendations

We tested drum sanders in AW #93, April 2002, page 38.

Whether it's an open-end, closed-end or double-drum sander, no single type of drum sander is clearly the best. Each type can work very well in different kinds of shops.

Before you buy a drum sander, ask yourself whether you'd rather have a machine that performs many jobs very well, but slowly, or a machine that performs fewer jobs very fast.

Editors' Choices

Performax 22-44PRO; \$2,000.

This versatile open-end sander has a wider capacity than any other we tested, but it takes up lots of floor space.



PHOTO COURTESY OF MANUFACTURER

General International 15-250M1; \$1,700.

This double-drum sander gets the job done quickly without much fuss. There's no scale for adjusting the height of the rear drum, however.



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Best Buy

Woodmaster 2675; \$2,199.

You get amazing power and speed with this closed-end sander, but it's not as versatile as other models.



PHOTO COURTESY OF MANUFACTURER



Performax 16-32 Plus; \$749.

This compact, open-end machine is easy to adjust. It performs a wide variety of jobs well, but it's slow-going with extra-wide work. **AW**



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American Woodworker 2003 TOOL BUYER'S GUIDE

45

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How to Buy a Dust Collector

Dust and chips are the bane of woodworking. They get tracked into your house, they're a pain to clean up, and they're unpleasant—maybe even dangerous—to breathe. But you can breathe easier with the right dust collector.

What Size Dust Collector?

The first thing you need to do is figure out how large a dust collector you need. A 1-hp collector is adequate for almost any tool, if you move it from one tool to another. For small central systems, like you'd have in a garage or basement, 1-1/2 to 2 hp is usually enough.

You can find the cubic feet per minute (cfm) requirements for woodworking tools, and lots of other necessary information for sizing and hooking up dust collectors, in "Dust Collection Basics: Recommendations for Home Shop Systems," available at www.amazon.com for \$6. Also, Oneida Air Systems offers a free system design service (800) 732-4065.

Central System or Roll-Around

All of the 1- to 2-hp collectors come on mobile bases. This allows you to roll the collector from machine to machine and hook it up directly with a flex hose. The small 1-hp collectors are the easiest to move around and have adequate cfm to collect from one machine at a time.

If you plan on hooking up your collector to a central system you'll need a collector that develops enough cfm to move the dead air between the collector and the machine.

Keep in mind that collectors over 2 hp will require a 240-volt circuit. Some manufacturers say you can run these bigger motors on a 120-volt circuit, but the amp draw exceeds the 20-amp limit found in most household wiring. Either way,

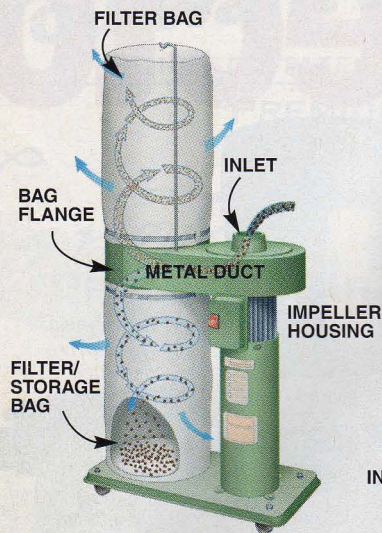


PHOTO COURTESY OF MANUFACTURER

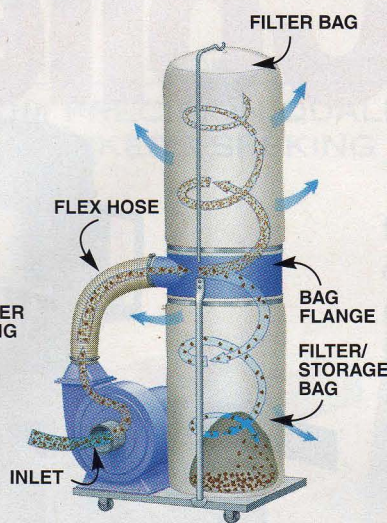
Oneida Systems
1.5 hp cyclonic
collector; \$659.

Visit www.americanwoodworker.com for a complete list of manufacturers, models and costs.

Single-Stage Collectors

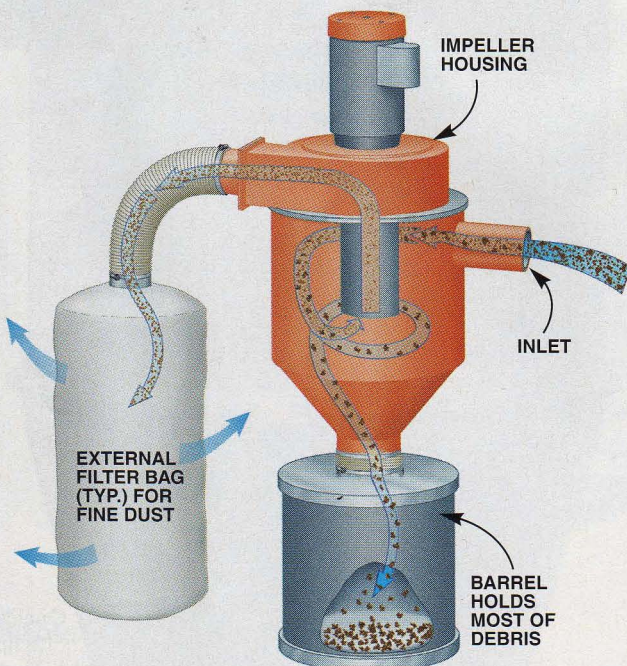


A 1-hp, single-stage collector works best when hooked directly to the machine it's collecting from. These collectors are easy to wheel around from machine to machine, but their bags require more frequent emptying. However, their small size is an asset in a shop where floor space is at a premium.



A 1-1/2- or 2-hp single-stage collector is better able to handle the cfm demands of a small central system. The 1-1/2-hp units can run on a 20-amp, 120-volt circuit while the 2-hp models may require a dedicated 240-volt circuit.

Two-Stage Cyclonic Collectors



Two-stage cyclonic collectors use a cone-shaped canister or "cyclone" to separate most of the debris before it reaches the impeller. The debris collects in a barrel, which is easier to empty than a bag.

you'll have to run a dedicated circuit for these bigger machines.

The Family

Single-Stage Collectors

In these machines, chips and dust travel through the impeller and accumulate in the lower bag, which doubles as a filter. The collectors range in size from 1 to 3 hp. One big drawback to single-stage collectors is the drop in cfm that occurs as the lower bag fills with chips and dust. For effective filtration of small dust (the stuff you can't see) make sure your single-stage collector comes with two 16-oz. felt bags (see "Bags and Filters" page 49).

Single-stage collectors need durable impellers to handle the occasional offcut or chunk of wood that gets sucked up with the dust. Steel impellers are the strongest. There is some speculation that steel impellers can produce a spark if a piece of metal is accidentally ingested and this may be a fire hazard. Aluminum and plastic impellers, while less durable, are incapable of producing a spark.

Two-Stage Cyclonic Collectors

This is a more efficient design than the single-stage collector because the filter doesn't have to do double duty as a dust-collection bag. That makes for more effective filtration and there is no drop in cfm performance as the barrel fills with debris. Because the debris never reaches the impeller, it can be designed for maximum airflow rather than durability.

Features

These are the features we considered for our tool test of 1- to 2-hp models costing less than \$1,000.

Inlet Diameter

A large inlet diameter is more important than hp when it comes to cfm performance. A 1-1/2-hp collector with a 6-in. inlet will outperform a 2-hp unit with a 5-in. inlet.

CFM

Most manufacturer's cfm ratings are suspect. We took our own more accurate readings when we did our tool test. "Max cfm" is the performance you can expect when your collector is hooked directly to a machine. "Under-load cfm" represents the real-world performance you can expect when the collector is

hooked up to a small central system with bags that have developed a dust cake. Note: cfm ratings on our online charts are manufacturer-supplied numbers.

Bags and Filters

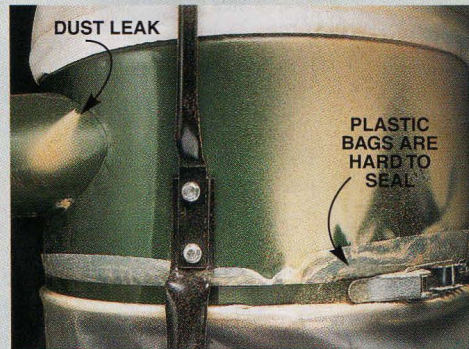
There's no sense pulling dust-laden air into a dust collector if it's going to be spewed right back into your shop. A proper filter is essential. Most collectors use bags to filter the air. To do a good job, bags should be made from 16-oz. polyester felt (Photo 1). Unlike the woven bags that come with most collectors, felt is a rated filter medium that really does trap the fine dust (that's the stuff you can't see but is the most damaging to your health). Beware of manufacturer claims that say their woven bags will filter out 5-micron particles. The truth is, they capture maybe 20 percent of the particles this small, and the rest are blown through the bag and back into your shop! Undersized bags are another problem. You should have one square foot of filtration for each 10 cfm of airflow. So, if your collector is pulling 500 cfm, you need 50 square feet of 16-oz. polyester felt. Most stock bags are too small. Also, the filter should have double- or triple-stitched seams (Photo 1).

Spring Clamps

Look for an adjustable spring clamp for holding the bags (Photo 2). They provide the best combination of tight seal and ease of use.

Dealing with Dust Leaks

- Use silicone caulk to seal dust leaks around ductwork welds.
- Plastic bags for chip collection look like a good idea, but they're really a poor choice. It's almost impossible to get a good seal around the bag flange no matter how well they're attached. Also, plastic bags don't filter air and are a pain to attach.
- Improve the bag-to-flange seal on any bag by applying self-stick weatherstrip around the metal flange to help form a better seal.



Poor welds create leaks, but they can be sealed with silicone caulk. Plastic bags tend to leak because it's hard to get them to seal tightly.



Polyester felt filter bags do a far better job of trapping the small stuff (less than 10 microns) than woven cloth. All bags should be constructed with triple-stitched seams to prevent dust from leaking out.



Adjustable spring clamps are best. They make a tight seal and are easy to get on and off.



Aluminum or plastic impellers won't produce sparks that can lead to fires from accidentally ingested metal. But they are less durable than steel impellers.

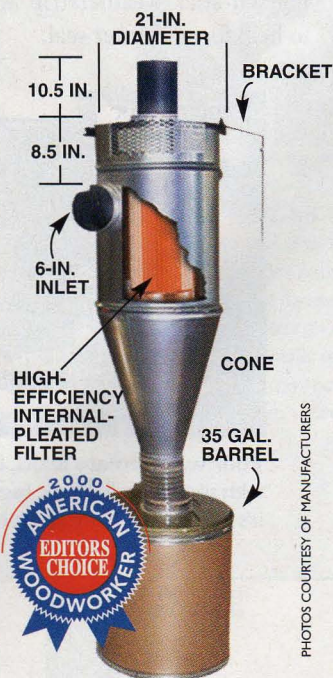
Our Recommendations

We tested dust collectors in AW #80, June 2000, page 80. The test was limited to machines most likely to be used in a small shop: 1- to 2-hp models costing less than \$1,000. If you can, oversize your collector; it's better to have a little extra capacity built-in than have an undersized unit.

Editors' Choice

Oneida Air Systems 1.5 hp, cyclonic collector; \$659.

This unique machine uses an internal-pleated filter instead of an external bag. This not only saves floor space, but allows the use of an efficient fan design, because it only handles filtered air. It performs well under load, its high-efficiency filter captures the fine dust and is easy to clean, rubber gaskets prevent leaks, the barrel is far easier to empty than any bag system and it has a high-quality, American-made motor. (Bracket and barrel sold separately.)



Best Buy

Penn State Industries 1-hp, single-stage collector DC1B-XL; \$220.

A real standout among the single-stage collectors, this machine is an excellent value. If you're on a budget and want a collector to use on one machine at a time, the Penn State is a great choice.

Its properly sized, triple-stitched felt bag is standard, the spring clamps are convenient, and the 5-in. inlet helps it achieve a high cfm rating.



Other Recommendations

Penn State's DC2-5 is a 1-1/2-hp collector, outstanding in every respect from felt bags to cfm under load. Its only failing was a leaky fitting where the exhaust port changes from a square to a round duct. A little judicious caulking would solve the problem and make the DC2-5 an excellent choice for those seeking the most cfm for the buck. It's a bargain at \$300. *AW*



What's New?

Jet has just introduced a pleated-filter canister designed to replace the upper bag on single-stage collectors. The canister offers six times the filter area of a standard-size bag and is available on their 1-1/2- (\$485), 2- (\$571) and 3-hp (\$999) models. It also offers a canister that will fit any 20-in. dia. collector (\$288).

Pleated-cartridge filters are space efficient and superior to bags in filtration ability.

Oneida Air Systems has been using pleated-cartridge filters in their cyclonic collectors for years. They now offer an external pleated-filter cartridge that's even easier to clean. **Penn State Industries** now carries pleated-cartridge filters for their cyclonic collectors as well.



How to Buy a

Jointer

If you work with solid wood, sooner or later you'll want a jointer. Jointers not only excel at flattening and straightening boards but they can also cut chamfers, tapers and even rabbets.

The Family

Jointers are sized by the length of their knives, which equals the maximum width of board you can surface. Six in. and 8 in. are the most practical for the average home shop. You can find jointers as narrow as 4 in. and as wide as 16 in.

Features

Infeed and Outfeed Tables

Longer infeed and outfeed tables do a better job of supporting your work and allow you to joint longer boards. As a rule of thumb, you can usually joint a board that's twice the overall length of your jointer, although jointing a heavy board of this length can be difficult. For most 6-in. jointers the overall length of the tables is 40 to 50 in. Eight-in.-wide jointers are about 20-in. longer, but will cost about twice as much.

Jointer tables must be exactly parallel to each other. Even a slight amount of twist or sag results in boards that are not flat or have snipe. Castings can go out of alignment after manufacturing. If the tables on your new jointer are not flat or properly aligned, contact the manufacturer for help or to get a replacement machine while it is still under warranty.

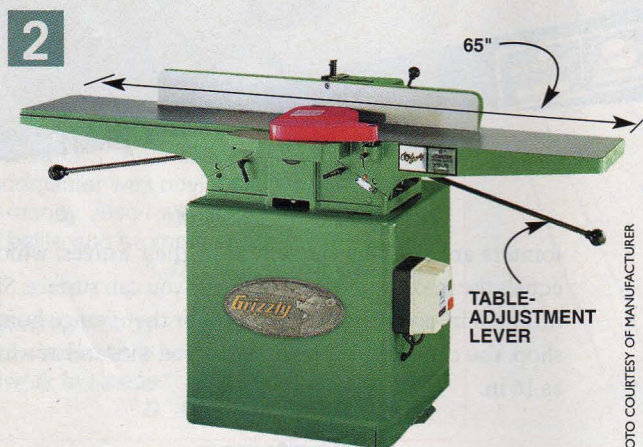
Sunhill 924028
(CT-60L); \$330.

Visit www.americanwoodworker.com for a complete list of manufacturers, models and costs.



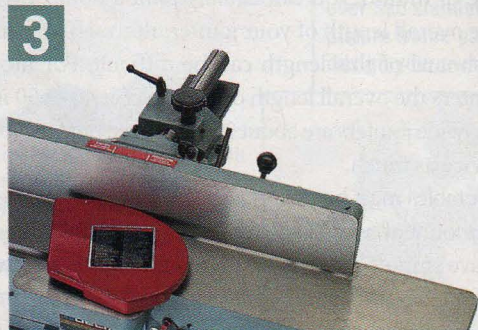
6-in. Jointer
Grizzly G1182ZX; \$475.

PHOTO COURTESY OF MANUFACTURER



8-in. Jointer
Grizzly G1018; \$695.

PHOTO COURTESY OF MANUFACTURER



A rack-and-pinion, center-mounted fence is easy to adjust and does an excellent job of keeping the fence square with the tables.

Motor

A 3/4-hp motor on a 6-in. jointer and a 1-hp motor on an 8-in. jointer will provide sufficient power for most operations. Many jointers come with bigger motors that are helpful if you do a lot of wide face jointing. Look for a totally enclosed, fanned-cooled (TEFC) motor. It keeps out the dust and lasts longer.

Dust Collection

Definitely get a jointer that either has a dust port or plan on adding one. Jointers produce piles of wood chips and dust and it's better to bag it than breathe it.

Fences

Most jointers have a center-mounted fence. Of these, we prefer Delta's rack-and-pinion system (Photo 3). Look for a fence with accurate positive stops at 90, 45 and 135 degrees. The fence should be easy to adjust and maintain its setting when it's slid in and out across the table. Like jointer tables, the fence should be straight and flat.

Jointer Knives

Jointer knives are most commonly adjusted with either jackscrews or springs (Fig. A). Both methods require patience, practice and a setting gauge. We're looking forward to the day that manufacturers include quick blade changing like you find on many portable planers.

FIG. A Jointer knives are supported by jackscrews or springs. Both work well but knife setting is easier with the spring system.

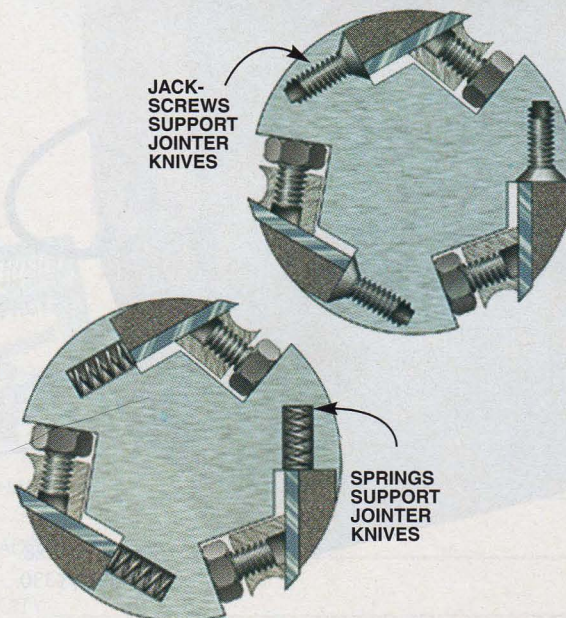


ILLUSTRATION: FRANK ROHRBACH



Lever-style table adjusters provide quick, easy adjustment control.

Table Adjustment

Both wheel and lever table adjusters get the job done (Photos 4 and 5). Some woodworkers prefer one over the other, but you will likely get used to whichever style your jointer comes with. Among the machines with wheels, we found the front-mounted style was easier to access than the under-the-table version.



Wheel-style table adjusters provide precise adjustment control. Front-mounted wheel adjusters are more convenient than the under-the-table style.



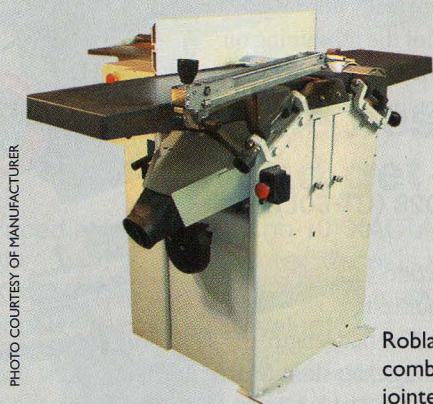
Craftsman 21788; \$230.

Buy a benchtop jointer if you're really cramped for floor space or on a tight budget. Benchtops typically have shorter beds and small motors but can work fine for small projects.

Jointer/Planer Combination Machines

Combination machines come in two styles. The over-under design shares the same cutterhead. The side-by-side style has separate cutterheads for each machine. Both

styles use only one motor. These machines take up a lot less space and usually cost less than two separate machines of similar size and quality.



Robland XSD-310 combination jointer/planer; \$2,395.

Over-under combination jointer/planers

Combination jointer/planers have one motor and one cutterhead. Switching between functions takes a few seconds, but you have a jointer that's 12-in. wide!



Hitachi P12RA; \$1,250.

Side-by-side combination jointer/planers These machines have separate cutterheads but a shared motor. They commonly come with a 6-in. or 8-in. jointer and a 12-in. planer.

What's New?

The Powermatic 54A (\$750) has a 6-in. cutterhead and an amazing 66-in.-long bed. A new style of lever adjustment on the infeed table of the 54A combines the quick action of a lever with a knob that twists for fine adjustments. At \$750, this machine is higher priced than other 6-in. jointers, but it has the longest bed in the 6-in. group.

Powermatic 54A; \$750.



PHOTO COURTESY OF MANUFACTURER

Our Recommendations

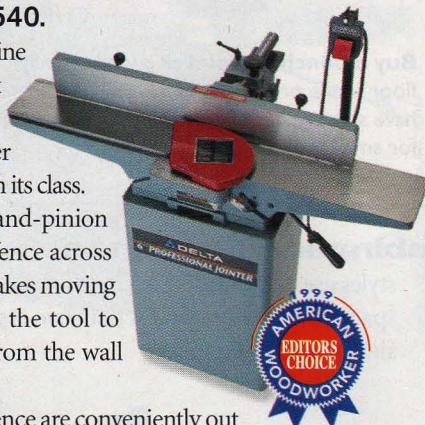
We tested 6-in. jointers in AW #77, December 1999, page 72.

Editors' Choices

Delta 37-195; \$540.

This is a unique machine with several distinct features. The fence is significantly longer and taller than most in its class. It has a unique rack-and-pinion system to move the fence across the bed. While this makes moving it easy, it also forces the tool to stand farther away from the wall than most jointers.

The handles on the fence are conveniently out of the way when edge-jointing. Woodworkers with sore backs will like the high switch placement. The lever on the infeed table locks in place in 1/32-in. increments. This makes it easier to use than most levers.



General 80-100LM; \$520.

With its bed extensions, this machine had the longest bed in the bunch. We liked the front-mounted hand wheels and the smooth-operating fence.



Jet JJ-6CSX; \$500.

All the features we like are here, including hand wheels on the front, a smooth-operating rigid fence, and plenty of power. Assembly was easy thanks to a well-written and illustrated owner's manual.



Best Buys

Bridgewood BW6R; \$399.

This machine offers lots of features for the money. The fence is rigid and we were really impressed with the quality of the machining on the beds. You'll need to wire in the switch, but the owner's manual explains how.



Sunhill 924028 (CT-60L); \$330.

You'll get the second-longest bed in our test with this jointer. The bed length comes from adding extensions to the infeed and outfeed tables. The assembly instructions say nothing about the extensions, but they're easy enough to put on. **AW**



How to Buy a Lathe



Lathe turning is like magic. Presto-change-o! A rough hunk of wood becomes a thing of beauty, right before your eyes.

The Family

With a lathe, you can turn gigantic bowls or tiny tops, 7-ft. bedposts or 5-in. pens. Knowing what you want to turn is the most important factor when you choose a lathe.

Wood lathes are categorized by overall size and by their turning capacities. Micro lathes weigh less than 30 lb. Heavyweight stationary lathes can weigh more than 1,000 lb.

Spindle capacity indicates the maximum length between the headstock and tailstock centers (Photo 1), for turning table legs, lamps, chair parts and the like. Swing capacity, an important consideration for bowl turning, measures the largest diameter blank a lathe can accommodate.

Many lathes allow both inboard (over the bed) and outboard (away from the bed) turning. You can turn larger diameters outboard, because the bed is out of the way.

Standard-Size Lathes

The standard general-purpose lathe has at least 12-in. swing for bowls and 36-in. spindle capacity, long enough to turn dining table legs and most other furniture parts. Standard lathes are available as light-duty benchtop or heavy-duty stationary models.

Most benchtop models weigh between 150 and 300 lb., come equipped with 1/2- to 1-hp motors and cost less than \$1,000 (Photo 1). Bolt-on leg sets are usually supplied.

Light-duty lathes can usually handle large table legs and other spindle work adequately. However, some of them (typically, lightweight benchtop machines equipped with small motors) aren't capable of handling green-wood blanks as large as their swing

Jet JWL1236; \$580.

Visit www.americanwoodworker.com for a complete list of manufacturers, models and costs.

- 1** **Benchtop standard-size lathes** are lightweight machines that usually come with bolt-together leg sets.



Grizzly Model G1067Z (180 lb.); \$450.

- 2** **Stationary lathes** are massive machines designed for production work.



Powermatic 4224 (950 lb.); \$3,550.

- 3** **Bowl-turning lathes** deliver slow-speed power. They're usually shorter than stationary lathes, but are just as heavily built.



Stubby 1000 (760 lb.); \$5,800.

capacity implies. They don't have the mass, power or slow enough speeds to safely turn big, heavy bowl blanks.

Stationary floor models (Photo 2) weigh well over 300 lb. and have larger motors (1-1/2 to 3 hp). Real heavyweights, they have the combination of weight, power and slow-speed capability that many light-duty machines lack. These heavily built machines often have electronic motor controls and much larger swing and spindle capacities. Prices escalate rapidly from \$1,500.

Bowl-Turning Lathes

Dedicated bowl-turning lathes cost between \$2,000 and \$6,000 (Photo 3). They're equipped with large motors and sophisticated speed-control systems designed to deliver plenty of power and very slow speed. Both of these are necessary to safely turn large, heavy bowl blanks. Extra-heavy construction is important for stability.

Big bowl-turning lathes don't necessarily take up a lot of space. Some of them have short beds. These lathes trade spindle-turning capacity for a compact footprint.

Mini Lathes

Mini lathes, much smaller and shorter than standard lathes, are benchtop machines designed to be compact and portable (Photo 4). Mini lathes have swing capacities up to 10 in., spindle capacity to 18 in. and weigh up to 100 lb. Most mini lathes cost less than \$500.

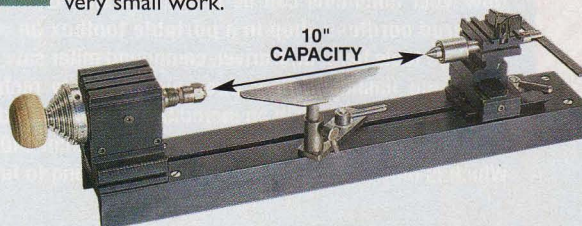
If space and portability aren't important considerations, don't buy a mini lathe. Remember: Even the smallest miniatures can be turned on a big lathe, but the reverse isn't true.

- 4** **Mini lathes** are compact and portable.



Fisch TC90-100 (81 lb.); \$300.

- 5** **Micro lathes** are good for pens and other very small work.



Klein (27 lb.); \$430 with motor.

Micro Lathes

The smallest mini-lathes weigh less than 40 lb (Photo 5). They feature high spindle speeds, good for turning pens and other small spindles, but they have limited swing capacity (6 in. or less).

Features

Weight

Weight is desirable because it makes a lathe more stable. Also, a lathe made with heavier components can handle larger stock.

By adding weight to the base, you make virtually any lathe more stable, because you lower its center of gravity. Some stationary lathes come with hollow bases that are meant to be filled with sand or cement.

Add weight to benchtop lathes with open-leg bases by putting sandbags on the lower shelf. Benchtop lathes without legs should be bolted down.

Power

The mass of the objects you plan to turn determines the power you'll need. As a rule of thumb, a standard-size benchtop lathe should be equipped with a 3/4- to 1-hp motor; 1/2 hp is best for mini lathes, but you can get by with less, if you're not turning bowls. Heavy stationary lathes and bowl-turning lathes (for green-wood bowl blanks over 12 in.) require at least 1-1/2-hp motors.

Speed Range

The diameter of the workpiece determines the safe turning speed. At 800 rpm, a 3/4-in.-dia. pen blank seems to be barely turning. At the same speed, however, a 12-in.-dia. bowl blank is going scarily fast.

High rpm capability (over 3,000 rpm) is a virtue for pen-making; slow speed oomph (under 400 rpm) is more important if you want to turn big bowls. In general, the smaller the diameter, the higher the speed, and vice versa. Expect to see speed ranges between 500 to 3,000 rpm on standard lathes that cost less than \$1,000. You'll have to pay more for effective operation at slower speeds.

Speed Changes

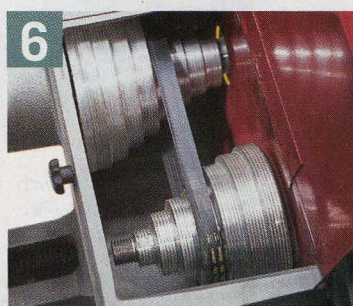
Belts on step pulleys require manual changing (Photo 6), but they effectively transfer the motor's power and are virtually maintenance free.

Mechanical variable-speed systems have been available for more than 50 years (Photo 7). They're convenient to use, but they sap a bit of the motor's power because there are more moving parts. You can't change speeds unless the lathe is running, which can be a safety hazard. Most mechanical systems allow you to lock into a fixed number of set speeds; a few offer infinite speed control.

Electronic variable-speed controls (Photo 8) offer the best of belts (power transfer, fewer moving parts) and mechanical systems (convenience, infinite speed choice), but they're expensive. You'll only find them on lathes that cost more than \$1,500.

Lock Levers

Being able to securely lock down the tailstock and tool rest is paramount, because parts that aren't held fast are dangerous. Lock levers (Photo 9) secure the tool rest and tool-rest base, the tailstock and tailstock center, and even the headstock (on swivel or sliding-head machines). Long levers give you the best leverage. These levers should be located far enough apart to minimize pinch points.



Belted pulleys allow up to eight separate speeds. They're simple, economical and durable. However, speed changes can be awkward.



Lever-operated mechanical variable-speed systems are easy to operate, but there are more moving parts to wear out.



Electronic variable-speed systems offer fingertip speed changes ranging from 0 to 3,000 rpm, but are hard to fix if they go haywire.



User-friendly lock levers are easy to grip and won't bust your knuckles.

Our Recommendations

In our mini-lathe tool test (AW #78, February 2000, page 68), our Editors' Choice award was given to the Jet JML-1014 and the Vicmarc VL100. Since our test, the VL100 has been redesigned and made larger, but it also costs more.

We considered "micro-mini" lathes separately. The Klein

spun away with Editors' Choice and the Taig received our Best Buy award. **AW**

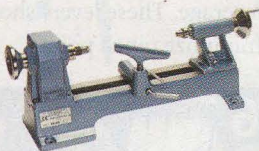
Watch for our tool test of standard-size, light-duty lathes, coming in AW #98, January 2003.

Mini Lathes



Jet JML 1014; \$345.

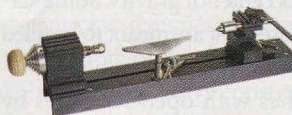
Best all-around mini lathe. Easily handled all aspects of our test. Good choice for anyone.



Vicmarc VL100; \$600 with motor.

One of only two lathes with indexing. Good choice for people who need a low profile for sitting at the lathe.

Micro Lathes



Klein; \$429 with motor.



Designed with the woodturner in mind. Good choice for anyone wanting to do small-scale turning on a truly portable lathe.

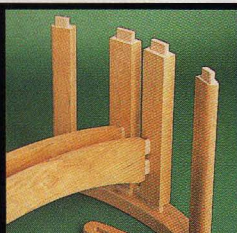


Taig; \$305 with motor.



Good choice for small-scale turners on a budget.

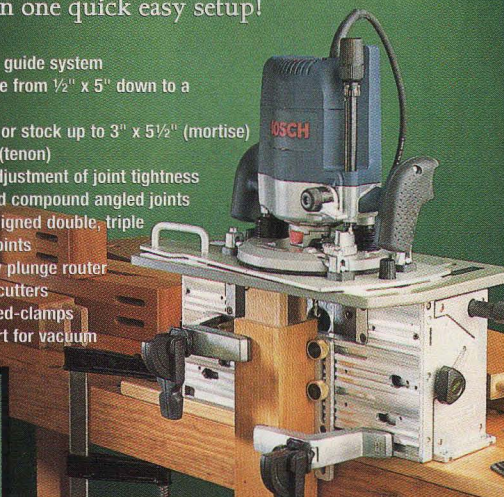
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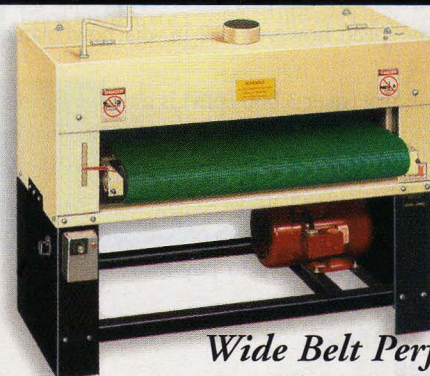
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How to Buy a Miter Saw

A miter saw is just the ticket for accurate cuts, whether you're building a house or assembling a picture frame.

What is it?

Miter saws are designed for making precise crosscuts at any angle from 0 to 45 degrees (some saws have a 60-degree capacity). Miter saws are versatile and portable. They can be hauled to a jobsite to rough-cut boards for a deck one day and brought back to your shop to cut delicate moldings for a furniture project the next.

The Family

There are three branches of the miter saw clan. The first is the conventional miter saw. Designed primarily to make dead square crosscuts and miters, these saws have been fixtures in woodshops and at jobsites for decades. The saw head can swing at least 45-degrees left or right of the centerline for miter cutting.

The second branch of the family is the compound miter saw. Cutting a compound angle means cutting a bevel and an angle at the same time. With a compound miter saw you simply set the bevel cut by leaning the cutting head to the desired angle, and set the miter angle on the table. A number of these saws allow you to bevel the head left and right. Some moldings, like crown for example, require compound angles. On a conventional miter saw you have to prop the molding upside down against an extra-tall auxiliary fence. It's a pain! A compound miter saw allows you to make the same cut with the crown molding laying flat on the bed of the saw—a huge advantage. A compound miter saw is more versatile than a conventional miter saw.

At the head of the family is the sliding-compound miter saw. The big advantage of these saws is the huge leap in cutting capacity made possible by the sliding head. Most of these saws will crosscut 11-1/2 in. or wider stock, which rivals the cutting capacity of some radial-arm saws. But, sliding saws are safer to use than radial arms because you push the saw through the cut instead of pulling it. This eliminates climb cutting (cutting in the same direction as



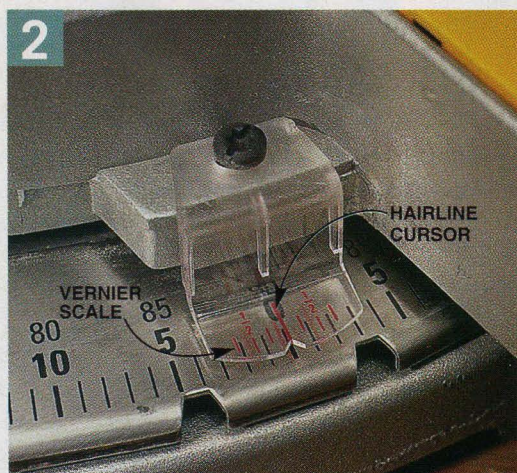
PHOTO COURTESY OF MANUFACTURER

Craftsman 21224; \$300.

Visit www.americanwoodworker.com for a complete list of manufacturers, models and costs.



Distinct positive angle stops are user-friendly.



Angle and bevel indicators should be easy to read. Hairline cursors are the best.



A tall fence makes it easier to cut crown molding.

the spinning blade). Like a radial-arm saw, the head can be tilted for bevel cuts and angled for miters. Combine the tilting head with the slide and you can bevel wide stuff like big base moldings. Unlike with a radial-arm saw, you can't rip or dado on a sliding-compound miter saw, but that's what your tablesaw is for.

Features

Positive Angle Stops

Distinct positive stops are best (Photo 1). A spring-loaded pin firmly drops into the angle-stop recess as you're swinging the saw to the angle setting. These stops leave no doubt about whether you're on the right spot.

Easy-to-Read Angle Indicator

An easy-to-read angle indicator, like the hairline cursor in Photo 2, makes setting the saw quick and accurate. The vernier scale allows you to set 1/4- and 1/2-degree increments.

Fence Height

A tall fence is best because it allows you to cut 3-1/4-in. crown molding on a conventional miter saw without having to add a wooden sub-fence (Photo 3). The compound miter saws also benefit from the increased support offered by a taller fence.

Handle Style

Handles are either horizontal or vertical. Our testing panel preferred the horizontal style and the Hitachi and DeWalt were voted the most

What's New?

Double Lasers Show the Kerf

Porter-Cable and Delta have added a new dimension to the laser-guided miter saw. Instead of a single laser line, these new saws feature a double-laser system that shows the exact line of cut on both sides of the blade. That means you can make cuts from the left or right side of the blade. That's huge!

The factory-set lasers can be adjusted to exactly fit the kerf of your

blade. The lasers operate independently of the motor so you can activate them for positioning without a spinning blade to worry about.



Delta 36-255L and Porter-Cable 3802L, 12-in. compound miter saws; both available fall 2002 for under \$400.

“left-hand friendly.” We recommend trying both to see what’s comfortable for you.

Blade Size and Tooth Count

A 10-in. blade is the way to go. Bigger blades yield modest capacity increases for a big price. For carpenters who need to cut 45-degree angles on a 2x8, the bigger blades may be worth the extra cost. Also pay attention to the tooth count of the blade that comes with the saw. A 40-tooth, 10-in. combination blade is great when you’re framing walls, but not so good for framing photos. Plan on spending another \$50 if you need to buy a high-tooth-count blade for your saw.

Quick-Acting Hold-Downs

Some saws come with hold-downs to aid in cutting large stock. Quick-acting hold-downs are best. They work like toggle clamps so it’s a snap to secure material to the saw. Hold-downs that work on a screw thread, like a C-clamp, are more poky.

Two-Way Bevel Setting

If you’re considering a compound miter saw, go for one that bevels both left and right. It’s something no tablesaw or radial-arm saw offers and, because you can work from either side of the saw, it makes it much easier to do compound cutting. An easy-to-read bevel indicator is also important. **AW**

Our Recommendations

We tested sliding-compound miter saws in AW #84, December 2000, page 98.

Here are the finalists from our tool test. All five are excellent saws. The Editors’ Choice went to the Makita LS1013 because it has the most features for the buck, especially the left- and right-bevel feature. In fact, the price is so competitive we didn’t pick a separate Best Buy. Instead we chose four runners up that came in a close second. In case you really need the extra capacity of a 12-in. blade, we included two 12-in. models: the DeWalt DW708 and the Makita LS1212.

Editors’ Choice

Makita LS1013; \$500.

A nearly perfect saw with great features at a great price.

Pros

- Bevels left and right
- Very good blade
- Firm positive stops
- Nice fence
- Smallest footprint of the top five

Cons

- No quick-release hold-downs



Four Runners Up

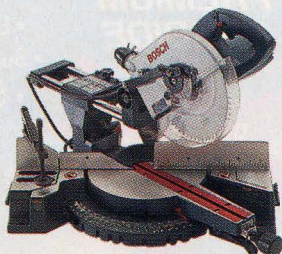
Bosch B3915; \$390.

Pros

- Angles up to 60 degrees
- Good blade
- Tall fence
- Long table

Cons

- Bevels only one way
- Preset angle-release trigger a possible pinch point



DeWalt DW708; \$600.

Pros

- Cuts a 60-degree angle
- Tall fence
- Excellent angle and bevel indicators
- Bevels left and right

Cons

- Heaviest saw
- Dust bag and hold-downs cost extra
- No quick release hold-downs



Hitachi C10FS; \$470.

Pros

- Bevels left and right
- Great soft-start and brake
- Rear blade guard for supporting work and providing line-of-cut indicator

Cons

- Spongy positive stops
- Hard-to-read angle scale
- No quick release hold-downs



Makita LS1212; \$650.

Pros

- Great blade
- Positive stops firmly engage
- Nice fence
- High-amp motor
- Bevels left and right

Cons

- No angle presets for compound cuts
- No quick release hold-downs.



How to Buy a Planer

Buy a thickness planer to turn inexpensive rough lumber into smooth, uniform boards of just the right thickness.

The Family

Portable Planers

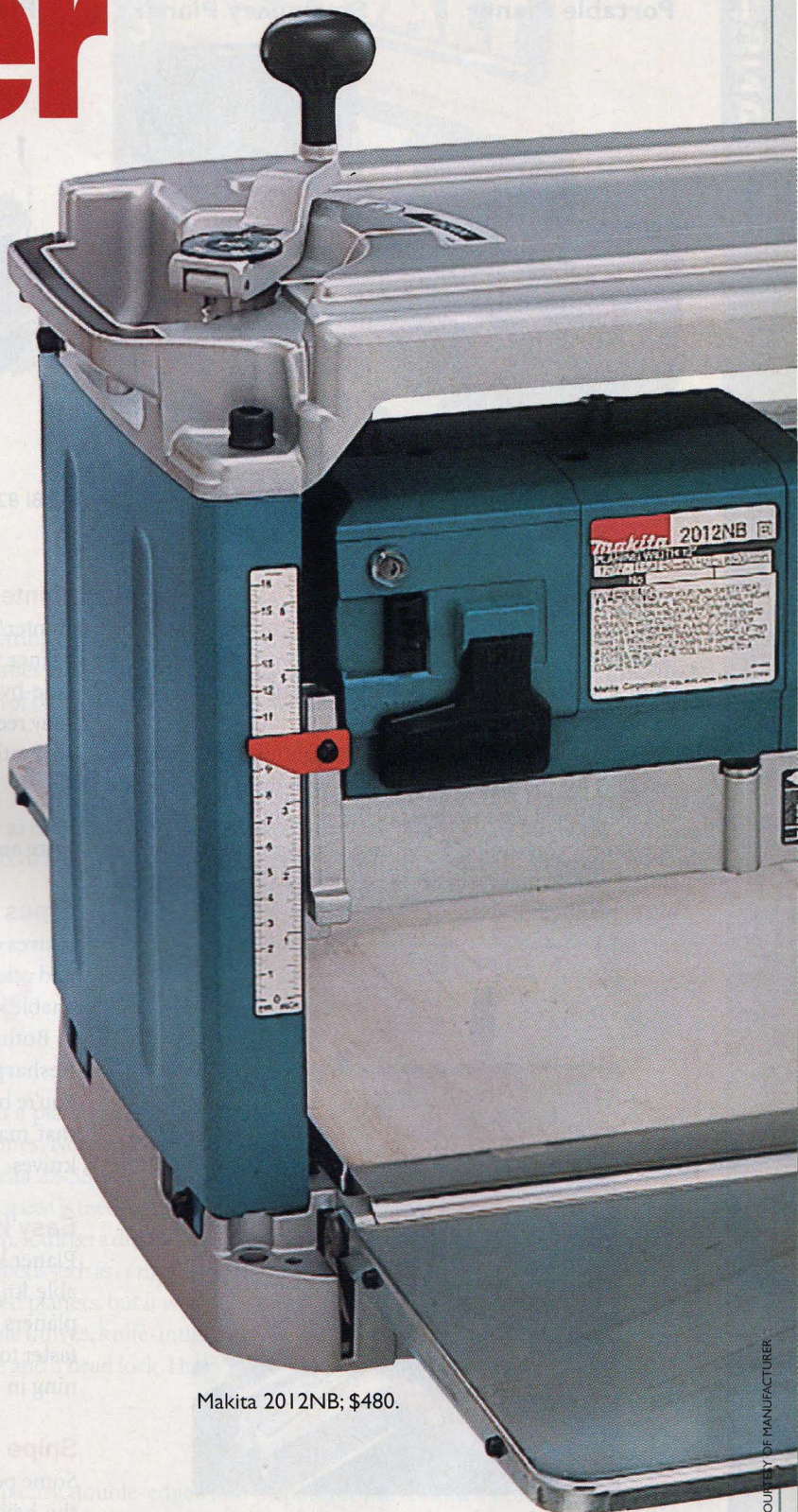
Portable planers, which start at less than \$300, can handle stock 12- to 13-in. wide. These space savers are small enough to store in a cubbyhole. Their universal motors run on 120-volt circuits and turn a two-knife cutterhead at high speed. They can produce as smooth a cut as larger stationary planers.

However, portable planers cannot quickly process a lot of lumber, because they perform best when taking off only 1/32 in. per pass. Also, portable planers are infamous for producing snipe (a deep bite at each end of a board), but new headlock mechanisms can minimize the problem.

Stationary Planers

Prices for stationary planers range from \$700 to more than \$5,000. They handle stock anywhere from 12- to 24-in. wide. Some operate on 120-volt circuits; most require 240 volts. You'll also need a parking spot in your shop for one of these 200- to 400-lb. machines—you won't often move it.

Stationary planers have powerful induction motors that allow them to take off more material per pass (as much as 1/8 in.) than a portable planer. Their three-knife cutterheads mean more knives do the work, so less frequent sharpening and knife replacement is necessary. You should be able to produce a snipe-free cut with a well-tuned stationary planer.



Makita 2012NB; \$480.

PHOTO COURTESY OF MANUFACTURER

Visit www.americanwoodworker.com for a complete list of manufacturers, models and costs.

Portable Planer

PHOTO COURTESY OF MANUFACTURER

Craftsman 21722; \$390.

Stationary Planer

PHOTO COURTESY OF MANUFACTURER

Woodtek 875-001; \$1,000.

Planer/Molder

PHOTO COURTESY OF MANUFACTURER

RBI 820; \$2,189.

Jointer/Planer

PHOTO COURTESY OF MANUFACTURER

Hitachi P12RA; \$1,250.

Planer/Molders

Some stationary planers accept molding cutters. This feature is especially handy if you'd like to do all your own millwork from scratch, or if you work with types of wood that aren't commercially made into moldings.

Adding the cutters is typically straightforward. However, you can't use the machine as a planer with the molding knives installed. You'll have to reinstall the straight knives, and that can be time consuming. Some machines have interchangeable cutterheads to make it easier to go back and forth from molding to planing.

Jointer/Planer Combos

Jointer/planers use one motor to power both a jointer and a planer. Some models have the two machines positioned side-by-side, so you can use either one at any time. Others may require some adjustment to switch from one operation to another.

Features

Here are the key features of portable planers:

Types of Knives

Knives come in two basic types. Some can be resharpened and others are disposable. All disposable and some resharpenable knives have two edges.

Both types of knives cost about the same in the end. Resharpenable knives are difficult to sharpen yourself. You're better off having the job done by a professional, and that may cost about the same as a new set of disposable knives.

Easy Knife Changes

Planer knives must be set very precisely. We prefer disposable knives that are indexed with pins (Photo 1). Other planers use jigs to position the knives. Indexed knives are faster to replace, but even with a jig you can be up and running in 15 minutes.

Snie Control

Some portable planers are equipped with devices that lock the height of the cutterhead. Machines with these head locks produce significantly less snipe (Photo 2). No portable planer has the problem totally licked, however.



Knife changing is easier with indexed, disposable knives. These knives have two cutting edges.



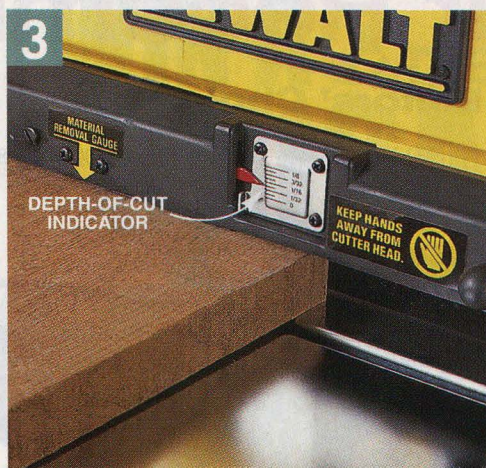
A head lock helps keep the cutterhead from tilting at the beginning and end of each board. It minimizes snipe (that little overbite at the end of a board), but it doesn't completely eliminate it.

Depth-of-Cut Indicator

This indicator is very useful for making the initial setting on your planer. It measures the amount of wood the planer will remove in one pass (Photo 3). If you take off too much at once, you can bog down a portable planer.

Weight

A large portable planer is difficult to lift. If you'll have to move your planer around a lot, consider one that weighs 65 lb. or less.



A depth-of-cut indicator instantly tells you how much wood you'll be removing. It's handy for setting up the planer for the first pass.

Depth Stops

Depth stops allow you to preset the final thickness of your boards. You can take boards to the same exact thickness time after time, without measuring.

Dust Chute

A planer produces lots of shavings. Dust chutes are sold as accessories to most portable planers. The larger the opening of the chute, the less likely it will clog with shavings. We prefer chutes with 4-in. openings.

What's New?

Two-Speed Planer Eliminates Tear-Out

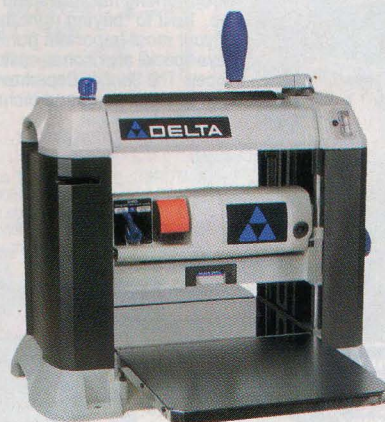
Changing the speed at which boards run through a planer used to be a feature found only on expensive stationary machines. Now you can buy a portable planer with this option for \$420: the Delta 22-580.

This planer has two speeds, regular and slow. The slow speed is used for making the final pass on a board, and produces more cuts per inch. You'll get a dramatically improved surface finish, particularly on tear-out-prone woods such as curly maple.

This planer wasn't in production when we last tested planers, but it would have fared very well. It has double-edged disposable knives, knife-indexing pins, a depth-of-cut indicator, a very legible scale and a head lock. However, it's a bit heavy at 88 lb.

Other Models

The Craftsman 21743 (\$439) has a 13-in.-wide capacity, double-edged and disposable knives and a head lock. It weighs 98 lb. The Ryobi AP1300 (\$275) has a 12-in. capacity, double-edged disposable knives, knife indexing pins and a head lock. It weighs 63 lb.



Delta 22-580; \$420.

PHOTO COURTESY OF MANUFACTURER

How to Buy a

Portable Sander

Every woodshop should have one or two portable sanders. Choose the ones that best suit your style of woodworking.

The Family

Random-Orbit Sanders

Random-orbit sanders are the best choice if you're going to own only one sander. They're great all-around tools.

The random-orbit motion comes from an off-center shaft that spins the sanding pad. This same motion, when matched with coarse-grit paper, is quite aggressive. When matched with fine-grit paper, it does a superb job of preparing your project for finishing. When compared to an older-style finishing or vibrating sander, the random-orbit sander is faster and leaves fewer swirl marks.

Features

Sandpaper

Sandpaper discs are either pressure-sensitive adhesive (PSA) or hook and loop (H&L). PSA discs are less expensive, but are for one-time use only. Once peeled off, you probably won't be able to re-stick them. H&L discs can be removed, set aside, and reused and are the best choice for most non-production shops. The most common disc sizes are 5- and 6-in. diameters.

Dust Collection

Look for a sander with built-in dust collection, or a port that accepts a shop vacuum. Random-orbit sanders with built-in dust collection use sandpaper discs with holes that the dust is drawn through. Not all sanders have the same hole pattern, so make sure you can readily buy paper to fit your sander.



Fein MSF636; \$656.

PHOTO COURTESY OF MANUFACTURER

Visit www.americanwoodworker.com for a complete list of manufacturers, models and costs.

1

Palm-grip sander
Craftsman 11621; \$40.

PHOTO COURTESY OF MANUFACTURER

2

Pistol-grip sander
Metabo SXE450; \$200.

PHOTO COURTESY OF MANUFACTURER

Handle Style

Palm-grip-handle sanders can be used with one hand and are good for getting into tight spaces. They're generally less expensive and less powerful than pistol-grip sanders. A palm-grip sander is a good choice for most woodworkers.

Pistol-grip-handle sanders are larger and generally more powerful than palm-grips. You have to hold them with two hands. Pistol-grip sanders are best for larger projects like tabletops and casework.

Variable Speed

It's not often needed, but variable speed gives you more control when you're working in a tight area or on a delicate veneer.

Air Power vs. Electric Power

Random-orbit sanders are available in both pneumatic (air-powered) and electric-motor models. Electric versions are more convenient and less expensive than air-powered sanders. The pneumatics are powerful, cut faster, and are capable of very smooth finishes. However, these air guzzling machines typically require at least a 5-hp compressor to run effectively.

Our Recommendations

We originally reviewed random-orbit sanders in AW #75, October 1999, page 66. That's a while ago, but current

models still have similar features. We found all of these sanders to be reasonably priced, so no Best Buy was chosen.

Editors' Choices**Dynabrade 59035; \$190.**

We found this palm-grip, pneumatic sander to be the best overall random-orbit sander in our test. It's a compact, powerful sander that can be fitted with an optional dust-collection port, which we strongly recommend.

**Bosch 1295D; \$85.**

Dual speeds, large dust-collection canister, and a rubber-coated palm grip make this electric random-orbit sander user friendly. It uses hook-and-loop sanding discs.

**Makita BO5010; \$60.**

This electric palm-grip sander uses hook-and-loop sanding discs. The dust port can be rotated to any position and it has an easy-to-use power switch.

**Makita BO5021; \$100.**

This pistol-grip electric sander is compact and easy to handle. It has a round dust port that makes it easy to attach a shop vacuum.

Belt Sanders

Belt sanders pack a big punch as the most aggressive of all the portable sanders. They're great for flattening large surfaces or grinding away extra wood, but they require some skill and practice to get good results. They can easily take off too much wood or gouge your project. Belt sanders are available in a variety of sizes.

Belt Sizes

Large machines sand aggressively and are best suited for horizontal work. Smaller machines are lighter and easier to maneuver, especially on non-horizontal surfaces.

3 in. x 18 in.

These are lightweight and easy-to-handle sanders. They're handy for scribing cabinets and countertops, but are not well suited for general horizontal work in a shop.

3 in. x 21 in.

These are good general-purpose sanders—an excellent choice for most woodworkers. They're fairly stable without being too heavy and bulky.

3 in. x 24 in.

These sanders can be a bit heavy for vertical work but are a good choice if you do a lot of horizontal sanding. They are also a good general-purpose workshop tool.

4 in. x 24 in.

This size is the best choice for sanding big horizontal surfaces. They're significantly heavier and harder to control than the smaller models.

Features

Dust Collection

Belt sanders make lots of dust! They all come with bags, but if you really want to contain the dust, hook up your sander to a shop vacuum or central dust collector.

Amps

Amperage is the best measure of how aggressively a sander will remove wood. You guessed it; more amps means faster sanding.

Variable Speed

This useful feature provides greater control when sanding plywood, or other delicate projects.

Weight

A big belt sander's weight is beneficial when you're removing a lot of material from a tabletop. If you plan to use your belt sander for vertical work such as scribing cabinets, you should consider one of the midsize or smaller machines. Your arms will thank you.

Sanding Stand

This accessory is available for some models. It's very useful because it holds the machine upside down for sanding small parts.



When it comes to motor style, transverse is more powerful, but less maneuverable in tight spaces. Inline motors are more compact and can be used upside down in a vise, but they aren't as powerful.

Our Recommendations

We reviewed 26 belt sanders in AW #79, April 2000, page 66. They all performed very well and had equivalent features, so we did not make an Editors' Choice.

One sander, however stood out as an excellent value, and we gave it a Best Buy award. The Hitachi SB75, at \$145, is an excellent 3-in. x 21-in. machine. It has the highest-amp motor in the group, the dust bag works well, and it has two speeds. Add the bench stand for \$31, and you've got a highly versatile sander.



Hitachi SB75; \$145.

Finish Sanders

Finish sanders are the predecessors of random-orbit sanders. They simply move sandpaper in small circles to slowly remove the wood. Most models use either a quarter or a half sheet of standard sandpaper, which is convenient because it's available everywhere. Some woodworkers prefer a finish sander for sanding fine veneers and plywood because they are less aggressive.

Detail Sanders

Detail sanders are made for sanding into tight corners and right up to edges. Some models have interchangeable sanding pads of different shapes that enable you to sand curves and other profile shapes.

Detail sanders are useful but specialized and are no replacement for a good random-orbit sander.

4



PHOTO COURTESY OF MANUFACTURER

Finish Sander

DeWalt DW411K; \$55.

5



PHOTO COURTESY OF MANUFACTURER

Detail Sander

FEIN MSXE 636-II; \$180.



PHOTO COURTESY OF MANUFACTURER

What's New?

Black & Decker's new Mega Mouse (\$66) is a four-in-one sander/polisher. There are three interchangeable sanding pads: a large one for finish sanding and getting into corners; a small one for detail sanding; and a round one for random-orbit sanding. A firm and a soft polishing pad also come with the kit. The Mega Mouse has a built-in dust-collection bag and a pistol-style handle. **AW**

Black & Decker Mega Mouse 4-in-1 Sander/Polisher; \$66.

How to Buy a Router



Hand held or in a table, a router is a machine that's spinning with possibilities. It allows you to create beautifully shaped edges and a host of woodworking joints. Here's what you need to know to choose the router that's best for you.

The Family

Routers can be separated into three categories based on the size of the motor: mid-size, large and trim routers. Within the mid-size and large categories, you can further divide the machines between fixed- and plunge-base routers.

Mid-Size Routers

These basic, general-purpose routers are the first routers purchased by most woodworkers. With motors ranging in size from 1-1/2 to 2-1/4 hp, mid-size routers are very versatile. They've got enough punch to handle a variety of bits in a router table, but are small enough to be manageable for hand-held operations.

Large Routers

These workhorses have motors in the 3-hp range, and are a great choice for a second router. With power to spare, they're excellent machines for mounting in a router table and driving large bits like panel raisers. Some of the routers in this category weigh close to 20 lb., so they can be unruly brutes for hand-held operations. Be sure to look for one with variable speed so you can lower the rpms when you want to run large bits.

Trim Routers

The little tikes of the router family, the motor in a trim router is 1 hp or less. Trim routers are petite and very easy to handle, but the diminutive motor also limits the machine to small-diameter round-over, ogee and straight bits. Trim routers are only available with 1/4-in. collets.

Porter Cable 690LRVS; \$155.

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Visit www.americanwoodworker.com for a complete list of manufacturers, models and costs.

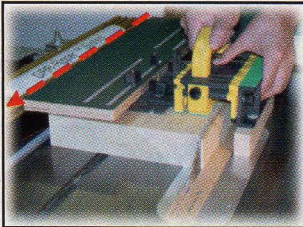
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Bases

Fixed Base

Depth of cut on a fixed-base router is set by releasing a lock on the base, moving the motor up or down to position the bit, and then locking the base. Many fixed-base routers allow the user to remove the motor completely from the base, which simplifies bit changes.

Fixed-base routers answer the call when it comes to edge and template routing and router-table use. A D-handle, fixed-base router offers the advantage of the power switch being right on the handle instead of on the motor. This allows you to keep both hands on the router when turning it on and off.

Plunge Base

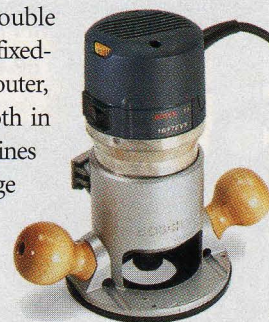
Plunge-base routers have a motor that travels up and down on columns. The motor can be locked in any position on the columns using a lever lock. A multi-position turret controls the depth of cut.

The plunge mechanism allows you to start with the router on your work, plunge into the material, travel to the end of the cut, and retract the bit. This makes plunge routers an excellent choice for cuts requiring a distinct starting and stopping point, like dados and mortises. Most plunge-based routers don't allow removing the motor, making bit changes more of a chore.

If you plan on hanging a plunge router in a router table, make sure it has a micro adjust, which makes height adjustments much easier.

Can't Decide?

If you're having trouble choosing between a fixed- or a plunge-based router, consider getting both in one. There are machines in the mid-size range from Porter-Cable, Bosch, DeWalt and Makita that offer one motor that fits fixed, plunge and D-handle bases. It's easy to switch from one



Bosch 1617EVSPK; \$240. You get fixed and plunge bases in a single package.

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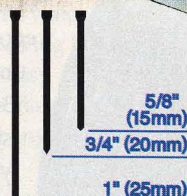
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function to another. These are excellent machines for a one-router shop.

Best Choice For Router Tables

Most router-table work can be done with a mid-size router. Routers in this category can generally drive bits up to 1-3/8-in. dia., which includes most rail-and-stile cutters.

Frequent use of large-diameter bits, like panel-raising cutters, demands the use of a larger, 3-hp router.

Woodworkers in our tool tests preferred fixed-base to plunge-base routers when it comes to easy bit-height adjustments.

Features

Removable Base

Changing bits is easier if you can separate the router motor completely from the base, especially when the router is hanging in a router table.

A removable base also means you can buy an extra base and dedicate it to your router table. This makes changing from hand-held to router-table operations easier.



PHOTO COURTESY OF MANUFACTURER

Porter-Cable 690 (this model is no longer available).

Variable Speed

As bit diameter goes up, router speed must come down. It's suggested that bits larger than 1-3/8-in. dia. run at less than 18,000 rpm. So, most panel-raising, lock-miter, and even large round-over bits need to run slow to run safe. A variable-speed router gives you added versatility.



PHOTO COURTESY OF MANUFACTURER

Makita RF1101; \$200.

Dust Control

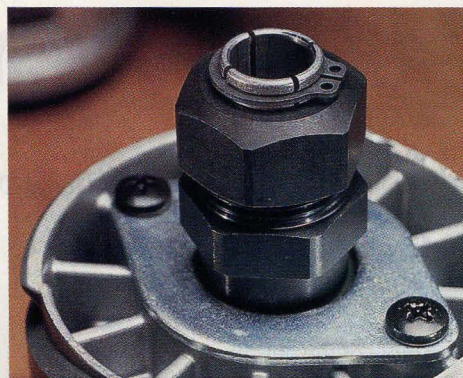
Routers and dust—lots of it—go hand in hand. You can sever this relationship if you can hook a vacuum hose directly to the router.

Some routers come with dust collection, and more and more manufacturers are offering dust collection baskets that can be fastened to the router base.



PHOTO COURTESY OF MANUFACTURER

Some routers, like the Black & Decker RP400K (\$94), have built in dust-collection ports.



1/2-in. Collet

It's best, whenever possible, to use router bits with 1/2-in. shanks. This creates a more stable cutter with less chatter, and also provides more surface area for the collet to grab on to.

In mid-size and larger routers, look for a machine that will accept both 1/4-in. and 1/2-in. collets.



Depth-of-cut indicators, like on this Freud FT2000E, should be easy to read.

Easy-to-Read Depth-of-Cut

A depth-of-cut indicator, found on plunge routers, can be extremely useful for setting bit depth. Look for one that's easy to read and use.

Soft Start

On routers equipped with soft start, the motor comes up to speed slowly, instead of instantly coming to full speed when you turn on the machine. This is a great feature when you're using mid-size and larger routers for hand-held operations.

Our Recommendations

Mid-Size, Fixed-Base Routers

We tested these machines in AW #85, February 2001, page 70.

Editors' Choices

Bosch 1617EVS; \$175.

Here's a great example of the new breed of routers. These are mid-sized routers at the top of their class. With variable speed, soft start, plenty of power, and a pile of other user-friendly features, this is a great machine. It was one of the lightest and easiest-to-handle routers in our tool test. An easy-to-use micro-adjust makes this router a great candidate for router-table applications. You can buy this router as a kit (1617 EVSPK) that includes a plunge base for \$240.



Makita RF1101; \$200.

Here's another mid-size router that has almost everything you could want in router features. Its only downfall is the small bit opening in the base (1-3/16 in.).

The 1101 router runs very quiet. You'll still need hearing protection, but the lack of noise makes the machine very pleasant to use. You can buy this machine in a kit that includes a plunge base (RF1101KIT) for \$270.



Best Buy

Porter-Cable 690; n/a.

The Porter-Cable 690, as we tested it, is no longer available. It has been replaced by the 690LR, \$145. The new model has a larger motor, a new lock on the base, and a covered rocker switch instead of a toggle switch.



3-hp routers

We tested these machines in AW #78, February 2000, page 75.

Editors' Choice

Fixed Base: Porter-Cable 7518; \$350.

This machine was easier to adjust in a router table than any other machine in our test. There's an opening in the base that's large enough to handle even the largest of bits. The motor can be removed from the base, so bit changes are easy. The speed control reads in actual rpms, instead of numbers or letters like many other routers.



Plunge Base: DeWalt DW625; \$260.

This router feels good in your hands, and has great balance. It felt less top heavy than other machines in this class. The depth-of-cut gauge is easy to use and read, and includes a magnifier to help reduce eye strain. The base of this router limits use to 2-1/2-in.-dia. bits and smaller.



Plunge Base: Porter Cable 7539; \$340.

This machine is very similar to the P-C 7518, but it has a plunge base. The trigger switch is on the handle, a feature we prefer over motor-mounted switches. This router, like the 7518, can handle even the largest bits. The locking lever is large and easy to use. You can add a micro-adjust knob for \$25.



Best Buy

Plunge Base: Freud FT2000E; \$195.

There are lots of great features here packed into a machine with a great price. This router comes with a micro-adjust knob, which costs extra on many other routers. The lock lever is easy to use, and the depth-of-cut gauge is very easy to read.



What's New?

In the last year, there have been significant additions to the router world:

- **Bosch's** 1619EVS plunge router (\$330). A powerful, easy-to-adjust router, with features that make it easier to use in a router table.
- **DeWalt's** router system. Variable speed, soft start and interchangeable, fixed, plunge and D-handle bases, in either 1-3/4 or 2-1/4 hp. Prices start at \$199.
- **Milwaukee's** 5615-21 (\$180) "Body Grip" router. An innovative fixed-base router that, when installed in a router table, allows height adjustment from above the table!
- **Porter-Cable's** 9290 (\$250). The world's first cordless router.
- **Porter-Cable's** 693 VSPK (\$220). An improved version of the popular 690 model, with variable speed and cam-lock base. Shown here in a package with both fixed and plunge bases. **AW**



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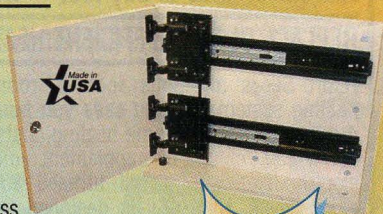
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How to Buy a Scrollsaw

Scrolling is fun! There's no doubt about it. For many people it's the perfect introduction to woodworking. For others, it's practically a way of life.

Scrollsaws are not just for beginning woodworkers, though. A scrollsaw is handy for all sorts of small projects in the shop. Beyond cutting curves, a scrollsaw can be used to make dovetails, coped cuts in moldings and intricate fretwork for period furniture.

The Family

Entry-level saws are generally priced at less than \$200. These machines get the job done without the convenience features (like tool-free blade changes) that serious scrollers find essential.

At the mid-level, you'll find some solid, feature-filled saws in the \$200 to \$500 range. This is where we found our Best Buy and Editors' Choice.

If you really catch the bug, there are some professional-grade scrollsaws for \$1,000 and up. They are completely tricked out and extremely well machined to eliminate vibration.

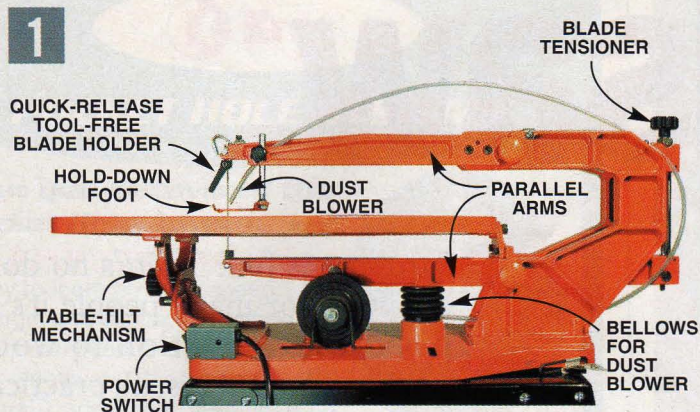
Features

Parallel-Arm Saws

Most scrollsaws on the market today have parallel arms that keep the blade perpendicular to the table as it cuts (Photo 1). This produces a smoother (though less aggressive) cut than the older C-arm design that rocks the blade back and forth while cutting.

Delta 40-570; \$230.

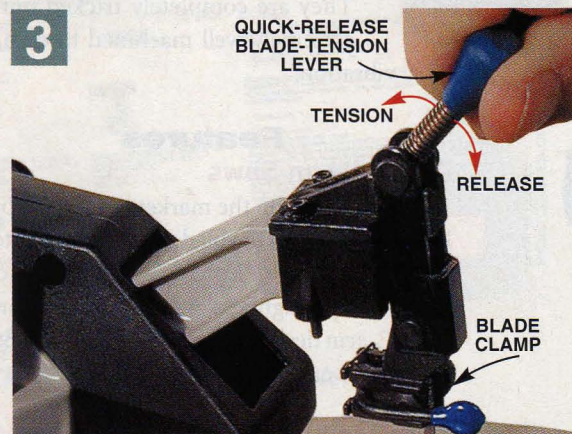
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Most scrollsaws feature a parallel-arm design. These machines move the blade straight up and down, resulting in smoother cuts and near-perfect inside corners. Most scrollers prefer this type of saw.



Tool-free blade changes make for hassle-free scrollsawing.



Quick-release blade tensioners simplify blade changes even further.

Tool-Free Blade Changes

It's not unusual to make dozens of blade changes during a single scrollsaw project. Quick and easy blade changes are the difference between scrollsawing that's a pleasure or a chore (Photo 2).

Quick-Release Blade Tensioner

A quick-release blade tensioner allows you to set and release blade tension with little or no manipulation of the tension knob (Photo 3). This is a godsend when you're doing frequent blade changes. Saws without this feature require cranking a knob to loosen and tighten the blade with each change—a huge hassle.

Controls Up Front and On Top

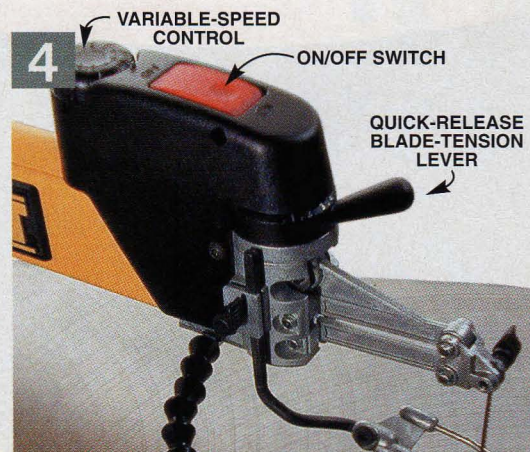
Convenient access to all the controls is essential for happy scrolling (Photo 4). Having to reach to the back of the saw to tension the blade or fumble under the table for the power switch can be a real hassle, especially from a seated position. Look for all of the controls, including power and speed, to be up front and on top of the saw.

Electronic Variable Speed

Electronic variable speed is a must. Turning a knob to vary speed sure beats manually moving a belt around on a set of step pulleys.

Adjustable Dust Blowers

Nothing is worse than having to huff and puff to clear a path in the sawdust as you cut. Look for an adjustable blower because it can be set in the best position to maximize dust removal (Photo 5).



Power and speed controls, along with blade tensioners, should be located up front and on top of the upper arm for easy access.

Dust Collection

Some saws do have dust collection ports, but it's not easy to collect dust from a scrollsaw. The saws that do the best job have a shroud that encloses the blade area under the table to concentrate the vacuum's power. In general, dust collection on these saws merely helps with the house-keeping. There'll still be plenty of dust in the air, so don't put away your dust mask.

Slotted Table Insert

Look for a slot in the table or insert so the blade can be unclamped from the upper holder, tipped forward, threaded through the work, and clamped back (Photo 6). Internal cuts on complicated fretwork require repeated threading of the blade through a hole in the wood.

Tilting Tables

Scrollers tilt the table to create a host of special effects like incised lettering, sawing chamfers, inlays and marquetry. Look for tables with a positive stop at 90 degrees, so you don't have to manually square the table each time you move it (Photo 7). A table that tilts 45 degrees in one direction and at least 15 degrees in the other allows you to cut dovetails on your scrollsaw.

Table Size

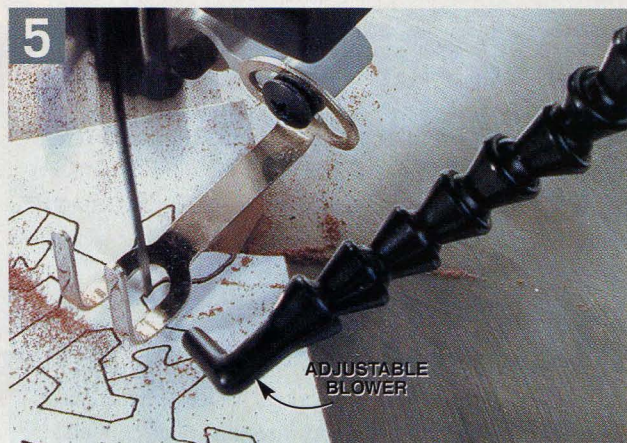
Bigger is definitely better. Large scrollsaw tables are better able to support your work. This can be critical because many patterns are quite delicate and can't support themselves over the edge of the table.

Weight

The rapid up-and-down movement of the arms and blade create a lot of vibration. A heavy machine absorbs more vibration, but is harder to move around.

Throat Depth

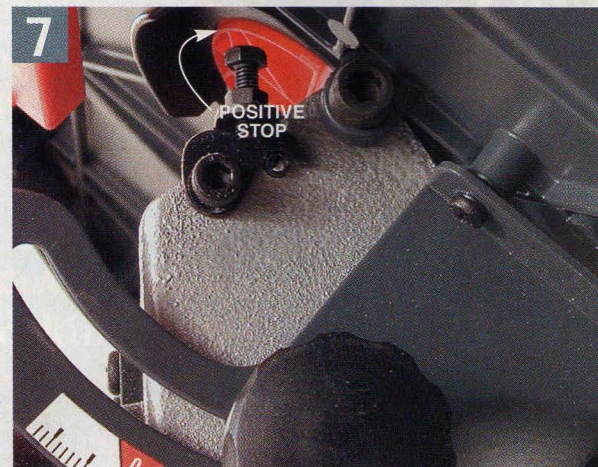
Throat depth is the distance from the blade to the rear of the saw. It dictates the size of the biggest piece you could swing through a full 360-degree circle on the saw. A 16-in. throat can cut to the middle of a 32-in. workpiece.



Adjustable dust blowers keep your work area clear.



Slotted table inserts allow the blade to tip far enough forward so you can thread the blade through the workpiece.



A positive stop makes resetting the table a breeze. Tables must tilt 45 degrees in one direction and at least 15 degrees in the other if you want to cut dovetails.

Our Recommendations

We tested scrollsaws that cost less than \$500 in AW #87, June 2001, page 66. We chose a couple of featured-filled saws that will keep all but the most hard-core scrollers happy. There are also a number of entry-level saws that lack the

convenience features we liked. They're priced below \$200 and will get the job done if you just want to test the scrollsawing waters.

Editors' Choice

DeWalt DW788; \$425.

This tool was our hands-down favorite. It has features that make it user-friendly for the amateur but is sophisticated enough to satisfy the demands of an advanced scroller. It offers the lowest vibration of all the saws we tested and an upper arm that lifts up to clear the way when threading blades for pierced work. The controls are up front and on top. It also features a simple quick-release, tool-free blade change system, plus a large table that tilts left and right with a 90-degree stop.

Electronic variable speed and an adjustable blower round out the package.

This scrollsaw's only drawbacks are the lack of dust collection, and its weight.

At 61 lb., it's a bit heavy for portability.



Best Buy

Delta 40-570; \$230.

The 40-570 is a well-designed, user-friendly machine that offers tool-free, quick-release blade holders. All controls are up front and on top except the power and speed controls, which are located under the table.

A dust collection shroud under the table offers one of the most effective dust collection systems we've seen on a scrollsaw.

On the downside, the table only tilts one way and it would be better if the power and speed controls were on top. The "sweet spot" on the blade holders can be a little hard to find with small blades, and the machine is a little heavy for portability. **AW**



What's New?

Pinpoint Lighting

Ryobi has just introduced a lighting system that's integral with its flexible dust blower. Now, the blower not only removes dust, but gives you pinpoint lighting right where you need it most and you'll never get a shadow from your head or hand.



SC180VS; \$180.

New Design from an Old Idea

The 20-in. **Eclipse** is one of the most revolutionary saws to come on the market. It uses an "oscillating-loop" mechanism to move the blade. The idea came from 100-year-old scrollsaws that used a similar system. The oscillating loop is a flat belt with a blade holder on each end. Fastening a blade in the holders makes a complete loop. The loop is tensioned and travels over a series of pulleys to create the saw stroke. The unique system provides perfectly true vertical blade travel. This makes it easier to cut extremely delicate patterns accurately and without mishap.

One-Arm Scrollsaw

Hegner's new fret saw, the **Unimax**, has a removable overarm which provides unlimited throat depth and requires no setup time for blade threading—a real timesaver for doing fretwork or miniatures. The Unimax also has a ceramic guide and direct-drive system for wear-free control and low vibration.

PHOTO COURTESY OF MANUFACTURER

How to Buy a Tablesaw

A reliably accurate tablesaw is essential in a well-equipped woodworking shop.

The Family

Benchtop Saws

These portable saws with small tables are best suited for carpentry work at jobsites, where they are rapidly replacing heavier contractor's saws. However, a number of new benchtop saws have features that make them fine choices for home woodworking shops with very limited space. These full-feature benchtop saws cost from \$400 to \$500.

For a home shop, look for a saw with 24-in. of rip capacity, a 1-in.-long arbor (so it can handle a full stacking dado set), a standard 3/4-in.-wide miter slot (so you can upgrade to a precision miter gauge) and a dust port attached to a shroud around the blade. You can hook up a shop vacuum or dust collector directly to the dust port.

Contractor's Saws

Most home woodworking shops are built around a \$400 to \$850 contractor's saw.

You can spot contractor's saws by their open-legged bases. These saws have large tables, 30 or 52 in. of rip capacity (depending on what set of rails you buy) and a 1-1/2- to 2-hp motor that runs on 120-volt power. Some motors can be wired to run on 240-volts to reduce their amp draw.

A contractor's saw can be mounted on a mobile base and pushed to the side of your shop when not in use. The saw's motor sticks out the back, however, so you can't tuck the saw tight up against a wall. You need a space 3-ft. deep by 5-ft. wide for a saw with 30-in. rails. Dust collection is difficult on a contractor's saw because the opening for its motor can't be blocked off.



Powermatic 64A; \$900.

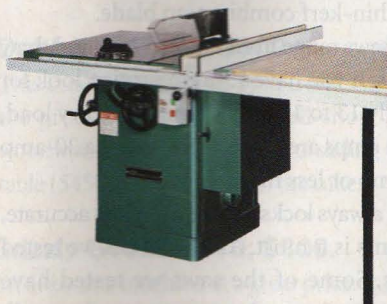
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Benchtop saws are very compact. Many new models have excellent fences and other features formerly found only on larger saws.



Contractor's saws are common in home woodshops. Their 1-1/2- to 2-hp motors run on 120-volts and have adequate power for most jobs.



Cabinet saws are widely used in production shops. Their 3- and 5-hp. motors can withstand a lot of hard use.



Hybrid saws are a cross between contractor's and cabinet saws. Their 1-3/4-hp, 120-volt motors are tucked inside an enclosed base.

What's New?

A Hybrid Saw from Jet

Jet has recently introduced a new hybrid tablesaw with an auxiliary sliding table (see page 10 for more details). It has all three key features we identified in our tool test: it tilts left, has two cast-iron wings and good dust collection.

Sears Craftsman Saws

Sears Craftsman is revamping their entire line of table-saws, which are due out in 2003. We weren't able to test their latest models.

Ryobi's Updated Benchtop Saw

The Ryobi BT3000 is the only benchtop saw with an integral sliding table. The entire saw, shown here on a base, is being redesigned for the first time in 10 years. The new model is due out this fall, and will sell for \$300.



Ryobi BT3100; \$300.

PHOTO COURTESY OF MANUFACTURER

Cabinet Saws

Cabinet saws are so named because of their enclosed bases. These heavy saws are designed to stay put and run for hours on end in production work. Their durable and powerful motors have made them staples in professional shops. They cost from \$800 to \$2,000.

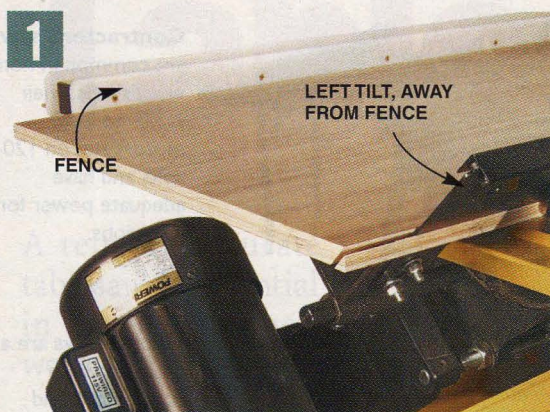
The table size and rip-fence capacity of cabinet saws is about the same as for contractor's and hybrid saws. The enclosed base of a cabinet saw collects dust very well.

Cabinet saws typically have a 3- or 5-hp motor and require a 240-volt circuit. A 3-hp motor is fine for a home woodshop. If you add a power feeder or rip very thick hardwoods daily, go for a 5-hp motor.

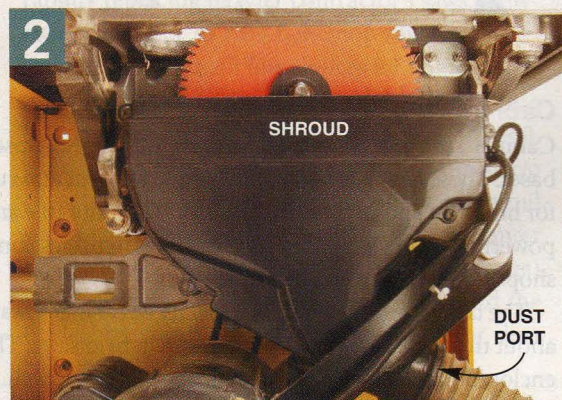
Hybrid Saws

These relatively new saws are a cross between contractor's and cabinet saws. They're well suited for home woodshops. They have better dust collection than a contractor's saw but don't require the 240-volt circuit that cabinet saws generally need. They cost from \$850 to \$1,000.

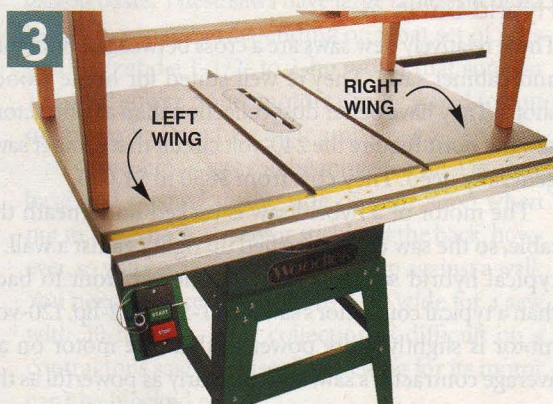
The motor of a hybrid saw is tucked underneath the table, so the saw can be pushed up tight against a wall. A typical hybrid saw is about 1-ft. shorter front to back than a typical contractor's saw. The 1-3/4- to 2-hp, 120-volt motor is slightly more powerful than the motor on an average contractor's saw, but not nearly as powerful as the motor on a cabinet saw.



Left-tilt saws are safer and easier to use than right-tilt saws because the blade tilts away from the fence. One major advantage of a left-tilt saw: You can cut a bevel on a wide panel with less tear-out, because the bevel faces down.



Good dust collection is a big bonus. The DeWalt DW746X has a shroud around the blade that directs dust to a 2-1/2-in. port. Cabinet saws have fully enclosed bases and 4-in. ports to trap and carry away dust.



Two solid, cast-iron wings have a lot of advantages, even when you're not using your saw to cut wood. They turn your saw into a truly flat assembly table, so you don't get a twisted glue-up. These heavy wings also give the saw extra mass for dampening vibration.

Features

There are two features everybody wants to know about: a saw's power and the quality of the fence. We found that across the board, the saws we tested had roughly equivalent power and excellent fences.

Power. All 120-volt saws have adequate power for ripping thick hardwoods, but you must tailor your feed rate to the job. You'll make the most of these saw's somewhat limited power by using a thin-kerf combination blade.

Motors in these saws range from 1-1/2 to 2 hp and draw from 13 to 24 amps. If you have 15-amp service, look for a saw that pulls only 13 to 15 amps. Under a heavy load, motors that pull 24 amps are more likely to pop a 20-amp breaker than 18-amp or less motors.

Fence. A fence that always locks square and gives accurate, direct measurements is a must. All the fences we tested passed both tests. Some of the saws we tested have optional, less expensive fences that may not work as well.

Left Tilt. Saws tilt to the right or left. Bevel cuts are safer and easier to set-up on a saw with a left-tilting blade (Photo 1).

Good Dust Collection. Saws with closed bases or a shroud around the blade cut down on the dust in your shop better than saws with open stands (Photo 2).

Two Solid, Cast-Iron Wings. Wings support your work on either side of a main table. The best material is solid cast iron, and the best set-up is to have two wings (Photo 3). Some saws with other kinds of wings can be upgraded to solid cast iron.

Tool-Free Blade Guard. You're much more likely to use a blade guard that requires no tools to mount or dismount.

Magnetic Switch. If you trip a breaker, this switch prevents your saw from automatically starting back up after you restore power.

Easy-to-Access Switch. Sometimes you need to shut off your saw in the middle of a cut. A switch that's easy to turn off with your hand or knee is best.

Replaceable Faces on Fence. We prefer fences with faces that are easy to remove and replace. We also like aluminum fences with T-slots because it's easy to slide on auxiliary wooden faces.

Easy-to-Read Cursor and Rule. A cursor is the little plastic window on a fence that you look through for setting a measurement. Some cursors have magnified bubbles, but we found those harder to read than plain ones. We like uncluttered rules that have large numerals.

Easy-to-Access Front Wheel. We like having a lot of room around the wheel that raises and lowers the blade. It's too easy to bust your knuckles on a saw with limited space.

Our Recommendations

We tested 120-volt stationary saws in AW #96, October 2002, page 36. The group included contractor's and hybrid saws, as well as one cabinet saw.

The best 120-volt saws we tested are well suited to the

needs of a home woodshop. They have adequate power and very good fences. Look for these key features: left tilt, good dust collection and two solid, cast-iron wings. No saw has all three without adding accessories, however. **AW**

Editors' Choice

DeWalt DW746X; \$900.

This innovative saw was built from the ground up with the small-shop woodworker in mind. An integral sliding table (\$450 extra) is icing on the cake.



Grizzly G1023 S110; \$800.

An awesome machine at a great price. This genuine cabinet saw is loaded with good features, but there's a catch. Its high-amp motor may repeatedly trip a breaker or blow a fuse if you don't have 240-volt electrical service in your shop.



Best Buys

Bridgewood TSC-10CL; \$550.

This left-tilt contractor's saw is a fine place to start on your way to a terrific saw. You can upgrade it later with an additional cast-iron wing and improved dust collection.



Ridgid TS 3612; \$600.

This left-tilt saw runs well on either a 15- or 20- amp circuit, but it won't cut thick hardwoods as aggressively as higher-amp saws. It has a blade guard that's a cinch to remount. It also has a built-in mobile base.



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101

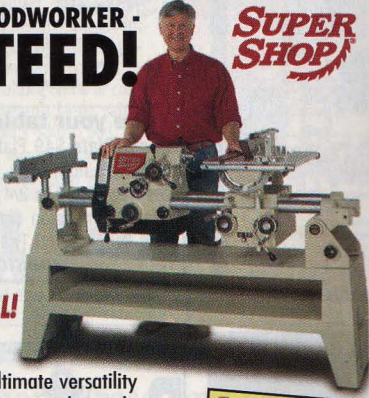
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