

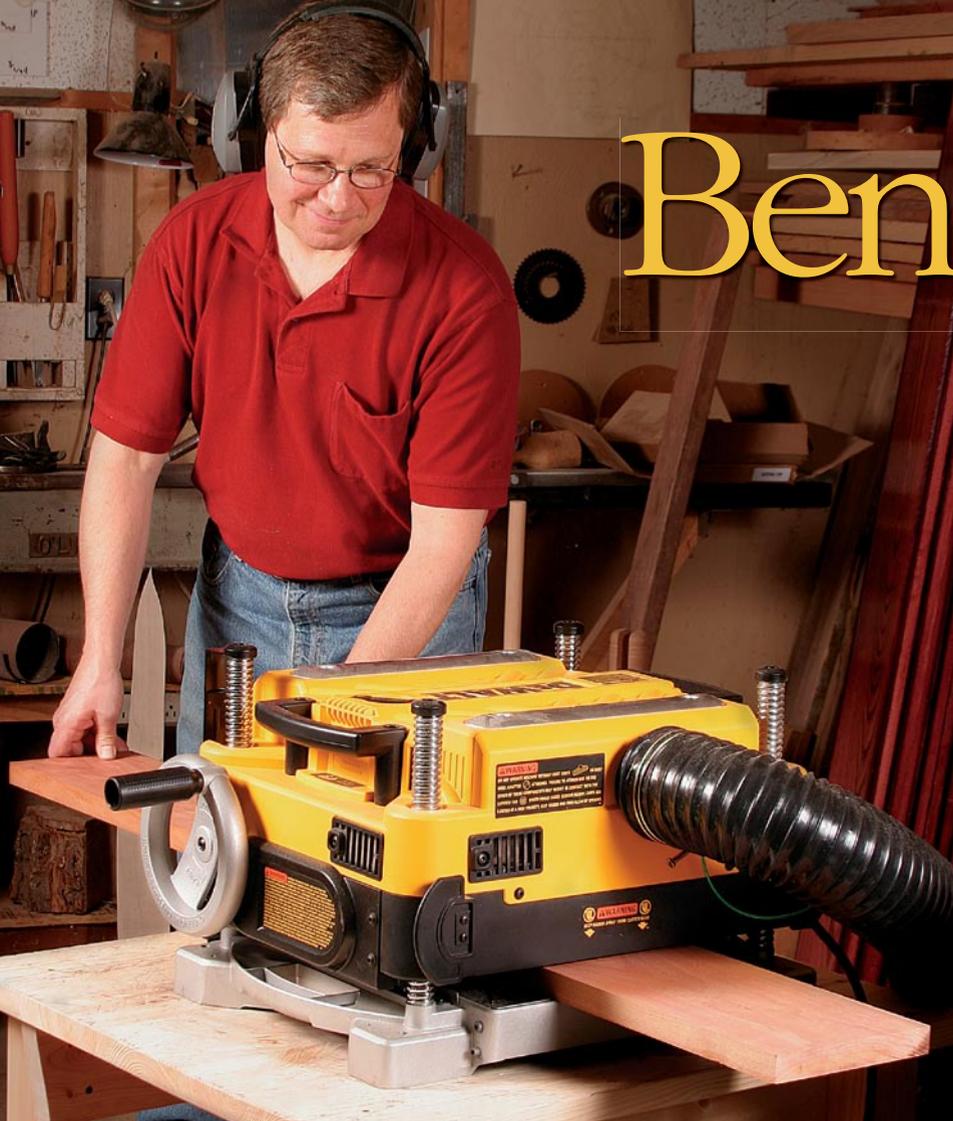
Benchtop Planers

Small machines offer big performance

BY ROLAND JOHNSON

A thickness planer, used in conjunction with a jointer, is a necessary addition to a wood-working shop. While a jointer flattens one side of a board, it's the planer that makes the other side parallel and customizes the thickness.

Planers allow you to mill rough lumber, so there is no need to rely on more expensive presurfaced lumber. Processing rough-sawn lumber also optimizes the yield from each board because you can work around warped or twisted wood. In addition to saving you money when buying lumber, a planer offers you



CRAFTSMAN 21759

AUTHOR'S
BEST OVERALL
CHOICE



This Craftsman is a strong machine that leaves an excellent surface. It has a consistent, repeatable digital depth gauge and impressive dust collection. The turret-style depth stop broke on the first model we tested, but Craftsman provided us with another planer, and the stop didn't break on that one (we tried). In any case, the stops on all the machines were less than accurate, and the Craftsman includes a digital depth gauge, which is very accurate.

DEWALT 735

AUTHOR'S
BEST OVERALL
CHOICE



This powerful planer has a compact, low-profile design and leaves a great finish surface. It had no problem cutting $\frac{3}{32}$ in. off an 8-in.-wide white-oak board. The side crank handle for height adjustment is awkward compared to the top-mounted models. There is good access to the knives for changing. Dust collection is quite good, but the hose attaches directly above the center of the outfeed table, which is slightly inconvenient if the hose isn't rigged out of the way.

Snipe



Too much snipe? If snipe is just a couple of thousandths of an inch deep, it can be worked out by sanding and scraping and is not a concern.



Managing snipe. When snipe is too extensive, it can't be corrected with sanding or scraping and must be cut off the end of the board. Some machines, like the DeWalt 734, have cutterhead locks built into the design. These locking devices reduce the amount of snipe.

the flexibility to work with custom thicknesses, which has dozens of benefits, from avoiding factory thicknesses and giving more design flexibility to making tight joints.

What you should expect from a planer

Over the years, benchtop planers have evolved from crude job-site workhorses to tools that can fill the needs of exacting furniture makers. Nowadays, ergonomics plays a role in planer design, blade changes are becoming far easier, innovative dust-collection systems are incorporated, and added gadgets let you preset a depth stop.

RYOBI AP1301

AUTHOR'S
BEST VALUE
CHOICE



Considering the low price, the Ryobi has an impressive amount of power. The lack of extension tables could lead to more snipe than the other machines, but I didn't find excessive snipe while planing an 8-in.-wide by 40-in.-long board. Add reasonably good dust collection (adjusts to blow chips out the back or hooks to a dust collector on the side) and the package becomes a great value for any shop.

Regardless of amenities, a good planer should perform a few tasks well. It should minimize snipe and give you acceptable surface quality, side-to-side uniformity in terms of parallelism, and easy depth-of-cut control. I took a look at the current crop of planers to see how all these features add up.

How much power is enough?

With the exception of the Craftsman 21758 with 12 amps, all of these benchtop machines have motors rated at 15 amps or 2 hp. These machines are designed to run on 120v household current and most are rated at a maximum draw of 15 amps, so they are not designed to take deep cuts on wide boards.

I tested all of the machines by planing 40-in.-long white-oak boards, 5½ in. wide and 8 in. wide, making passes at 1/32 in. and 3/32 in. deep. I measured the amp draw of the motor and the length of time for each pass. Several machines had stops cast into the front edge of the cutterhead carriage that would not allow a 3/32-in. pass on the 8-in.-wide oak; I suppose this is self-preservation.

All of the machines performed well at 1/32-in. depth of cut, and all showed a significant increase in amp draw at 3/32 in. The DeWalt 735, the Makita 2012NB, the Ridgid R4330, and the Steel City 40200 allow full-width passes at the full 3/32-in. depth of cut, but this is abusing the machine. There is no reason to put small motors such as these to such excessive use. A bit more time spent making repeat passes to remove large quantities of wood will result in a longer life for the tool.

Surface quality is important

Obviously, sharp blades are a big part of surface quality, but cuts per inch (cpi) is important, too. Three things factor into cpi: the feed rate of the board past the cutterhead (measured in feet per minute or fpm), the number of knives, and the speed of the rotation of the blade (rpm).

As a board passes the spinning cutterhead, each knife takes a shallow cut, producing a slight scallop with its radius matching the diameter of the cutterhead. The closer these shallow scallops are to each other, the more they overlap and the less obvious they

Quality of cut

Speed settings. The Craftsman 21759, DeWalt 735, Delta, and Steel City planers all feature two feed speeds, which significantly increases the cuts per inch on the lower feed speed, creating a better surface.



become on the surface of the board. Cuts per inch determines how close these cuts are.

To test surface quality, I put a fresh set of blades on each machine and ran a board through at 1/32 in. None of the machines produced a surface that could forgo further cleanup with a sander, handplane, or scraper, although a few came close. In order to assess surface quality, I brought the ridges left by the cutterhead into view by marking across the surface of the boards with the side of a lumber crayon, making it easy to see how much would be taken off with a single swipe of a handplane. Even the poorest surfaces were smoothed in one shallow pass.

Snipe, the big issue

One of the most common complaints about thickness planers is their propensity to produce snipe on either end of a board. Snipe occurs when the board is held down by only one feed roller on either entry or exit and the force of the cutters lifts the end of the board, causing a slightly deeper cut.

Snipe can be exacerbated by not adequately supporting long boards as they move into and out of the machine, creating a lever-and-fulcrum effect that levers the board off the table and into the cutterhead. Long infeed and outfeed tables can help minimize snipe, but the best solution combines stock support with infeed and outfeed roller pressure pinning the stock to the feed table.

Four machines in this test rely on head locks to help minimize snipe. Locking the cutterhead/feed roller assembly prevents upward movement and can help eliminate snipe. A few of the machines have no locking device; one has down-pressured feed rollers, a system used in big commercial planers.

Also, to help eliminate or lessen snipe, many manufacturers recommend that the tables tilt

up slightly at the outboard ends. The tables will flex just enough to allow the material to be secured to the table by the feed rollers yet provide enough upward pressure on the board to help overcome the leverage and reduce snipe.

The DeWalt 735 excelled at reducing snipe. Without a locking cutterhead, springs located at each corner post supply constant downward pressure, eliminating any mechanical clearance movement in the cutterhead assembly. Other machines that controlled snipe were the Makita, the Steel City, the Delta, and the DeWalt 734.

How deep is your cut?

The Craftsman 21759, Delta, both DeWalts, Ridgid, Steel City, Sunhill, and Woodtek planers have depth-of-cut indicators, a bonus for quickly setting the cutterhead height to the material and seeing how deep the cut will be. Simply crank the cutterhead assembly onto the end of the stock until the depth gauge starts to move and you instantly know how much you will remove with the pass. Makita has a simple indicator that relies on gravity to find the top of the board and give a visual indication of cut depth (see photo, facing page). The Delta has a Blade Zero device. It doesn't give a measurement, but it allows accurate setting of the cutterhead to the thickness of the board; from there you can control the depth of cut by cranking the cutterhead adjustment. On planers without indicators, like the Ryobi and the Craftsman 21758, you must rely on feel, setting the board in the planer and gently cranking the cutterhead onto the board, then lifting it to remove the board only to drop it again for the cut.

How thick is your stock?

Depth-stop devices indicate the thickness of the material (the distance between the blades and bed), not the depth of the cut.

Dust collection



Helpful new features. The chute on the Delta (above) flips to allow the hose to connect to either side. The Craftsman 21759 (right) and DeWalt 735 blow their own chips into almost any container, without a dust collector attached.



Depth of cut



How big a bite? There are different ways to determine how much material will be removed. Delta's "Blade-Zero" device (left) pops up when the cutterhead is even with the top surface of the board; from there the depth of cut is set by turning the crank a measurable amount. On the Makita (center) a loose pin moves with the cutterhead against the top of the stock, giving a visual idea of how deep the cut will be. Other models have depth-of-cut indicators that give an exact measurement (right).



Depth stops are included on the Craftsman 21759, DeWalt 735, Ridgid, Steel City, Sunhill, Woodtek, Delta, and Makita planers, while the Craftsman 21758, DeWalt 734, and Ryobi machines make do without one. After testing the accuracy and repeatability of the stops, the DeWalt 735 had the most consistent results with the Makita and Delta close behind. However, none of these devices would prompt me to go without calipers for critical dimensions.

Knife changes are easy to manage

These days, most machines come equipped with disposable, double-sided knives that are easy to change. The average change-out requires about 10 minutes for a two-knife head, 15 minutes for a three-knife head. I tested only planers that have moved into this realm of user-friendly blade changes. These knives are indexed, can be side-shifted slightly to eliminate planer lines, and cost no more to replace than a couple sharpenings of reusable knives.

The Delta, Ridgid, and Steel City planers have spring-loaded cover plates that allow the screws to remain in the cutterhead during knife changes while the springs automatically lift the plates free of the knife. The Ryobi uses gibs with its disposable blades, and all the other planers require removal of the screws and plates. Incidentally, all the machines have their own easily accessible way of storing blade-changing paraphernalia.

Dust-collection methods vary

Benchtop planers are noisy, messy machines. Not much can be done about the noise, but manufacturers handle the dust in different ways. Typically, a machine can be hooked up to a shop vacuum or dust-collection system, but some planers blow their own chips and hook up to a canister for collection. Two of the planers tested, the Craftsman 21759 and the DeWalt 735, have these built-in blowers, eliminating the need for separate dust collection.

All of these planers come supplied with a chute that allows the machines to be connected to either

Online Extra

To watch Johnson demonstrate how to get your planer to cut safely and smoothly, go to FineWoodworking.com/extras.

a shop vacuum with a 2¼-in. hose or a 4-in. dust-collector hose.

Thickness of material



Digital display, mechanical stops, or a simple scale. All these devices indicate the thickness of the material. The Craftsman 21759 (right) has a digital readout that is extremely accurate. Scales (above) and stops are much less precise.



The standouts

My two picks for best overall are the DeWalt 735 and the Craftsman 21759. Performance results on these two planers were so similar that it was impossible to choose one as the overall champ. Both produce excellent finish surfaces and have lots of power, great dust control, and an overall feeling of robustness. The Delta and Steel City planers were just behind these two leaders.

The best-value award falls to the Ryobi. It's simple, light (easy to stow), has good power and dust collection, and a low price. This planer can fit into nearly every woodworker's budget. □

Roland Johnson is a contributing editor.

CRAFTSMAN 21758



This is a lightweight, entry-level, no-frills planer. No cutterhead lock and short tables are most likely the reasons for some exit snipe. Dust collection is fair on this machine.

DELTA 22-580



The Delta is a good, solid machine with lots of power. It leaves an excellent finish surface, and blade changes are easy.

DEWALT 734



The DeWalt 734 has decent power and a nice, simple depth-of-cut gauge that doubles as an initial thickness indicator for easy setup. Dust collection is good.

| MODEL/SOURCE | STREET PRICE | # OF BLADES | BLADE SIZE | TIMED BLADE CHANGE (MINUTES) | HP/AMPS | INFEEED SNIPE (1/32-IN. CUT) | OUTFEED SNIPE (1/32-IN. CUT) |
|--|--------------|-------------|------------|------------------------------|---------|------------------------------|------------------------------|
| Craftsman 21758 www.craftsman.com | \$250 | 2 | 12½ in. | 8:16 | 12 amp | 0.006 | 0.001 |
| AUTHOR'S BEST OVERALL CHOICE Craftsman 21759 www.craftsman.com | \$530 | 3 | 13 in. | 13:02 | 15 amp | 0.004 | 0.003 |
| Delta 22-580 www.deltaportercable.com | \$430 | 3 | 13 in. | 13:06 | 15 amp | 0.002 | 0.002 |
| DeWalt 734 www.dewalt.com | \$400 | 3 | 12½ in. | 11:29 | 15 amp | 0.002 | 0.001 |
| AUTHOR'S BEST OVERALL CHOICE DeWalt 735 www.dewalt.com | \$550 | 3 | 13 in. | 13:37 | 15 amp | 0.001 | less than 0.001 |
| Makita 2012NB www.makita.com | \$470 | 2 | 12 in. | 9:17 | 15 amp | 0.003 | less than 0.001 |
| Ridgid R4330 www.ridgid.com | \$350 | 2 | 13 in. | 11:38 | 15 amp | 0.003 | 0.003 |
| AUTHOR'S BEST VALUE CHOICE Ryobi AP1301 www.ryobitools.com | \$280 | 2 | 13 in. | 8:29 | 15 amp | 0.008 | 0.005 |
| Steel City 40200 www.steelcitytoolworks.com | \$420 | 3 | 13 in. | 10:25 | 15 amp | 0.001 | 0.003 |
| Sunhill SM-346 www.sunhillmachinery.com | \$350 | 2 | 13 in. | 9:35 | 2 hp | 0.003 | 0.003 |
| Woodtek 115-946 www.woodworker.com | \$350 | 2 | 13 in. | 8:33 | 2 hp | 0.003 | 0.002 |

MAKITA 2021NB



The Makita is a good performer with a lot of power. Blade changes are simple. Unlike the rest of the machines, one revolution of the crank handle does not move the cutterhead $\frac{1}{16}$ in., making it awkward to intuitively change the depth of cut.

RIDGID R4330



The Ridgid is a good machine with a reasonable price tag. Dust collection is adequate and can work with or without a dust collector. Blade changes were fussy because the small gap between the frame and cutterhead made lifting the blade away from the cutterhead difficult.

STEEL CITY 40200



The Steel City planer offers two feed speeds, a three-knife cutterhead, good power, good dust collection, fast and easy knife changes, and moderate weight. All this adds up to a solid performer.

| OUT OF PARALLEL | SURFACE QUALITY RATING |
|-----------------|------------------------|
| 0.005 | Good |
| 0.002 | Excellent |
| 0.001 | Excellent |
| 0.001 | Good |
| 0.002 | Excellent |
| 0.002 | Good |
| 0.002 | Good |
| 0.002 | Good |
| 0.001 | Very good |
| 0.010 | Good |
| 0.002 | Good |

SUNHILL SM 346



I can't vouch for the internals such as motor windings and bearings, but other than color, these machines appeared identical. Both have plenty of power, provide a good surface finish, and allow easy knife changes. The crank handle for depth-of-cut control can be located on the left or right, and dust collection is good. These machines rely on a headlock for snipe control. Rollers on the leading edge of the infeed and trailing edge of the outfeed table add some convenience, but the feed tables are lower than the planer bed where they meet and can't be adjusted flush with the bed although they can be adjusted for tilt. These are a good value, though the Sunhill was too far out of parallel.

WOODTEK 115-946

