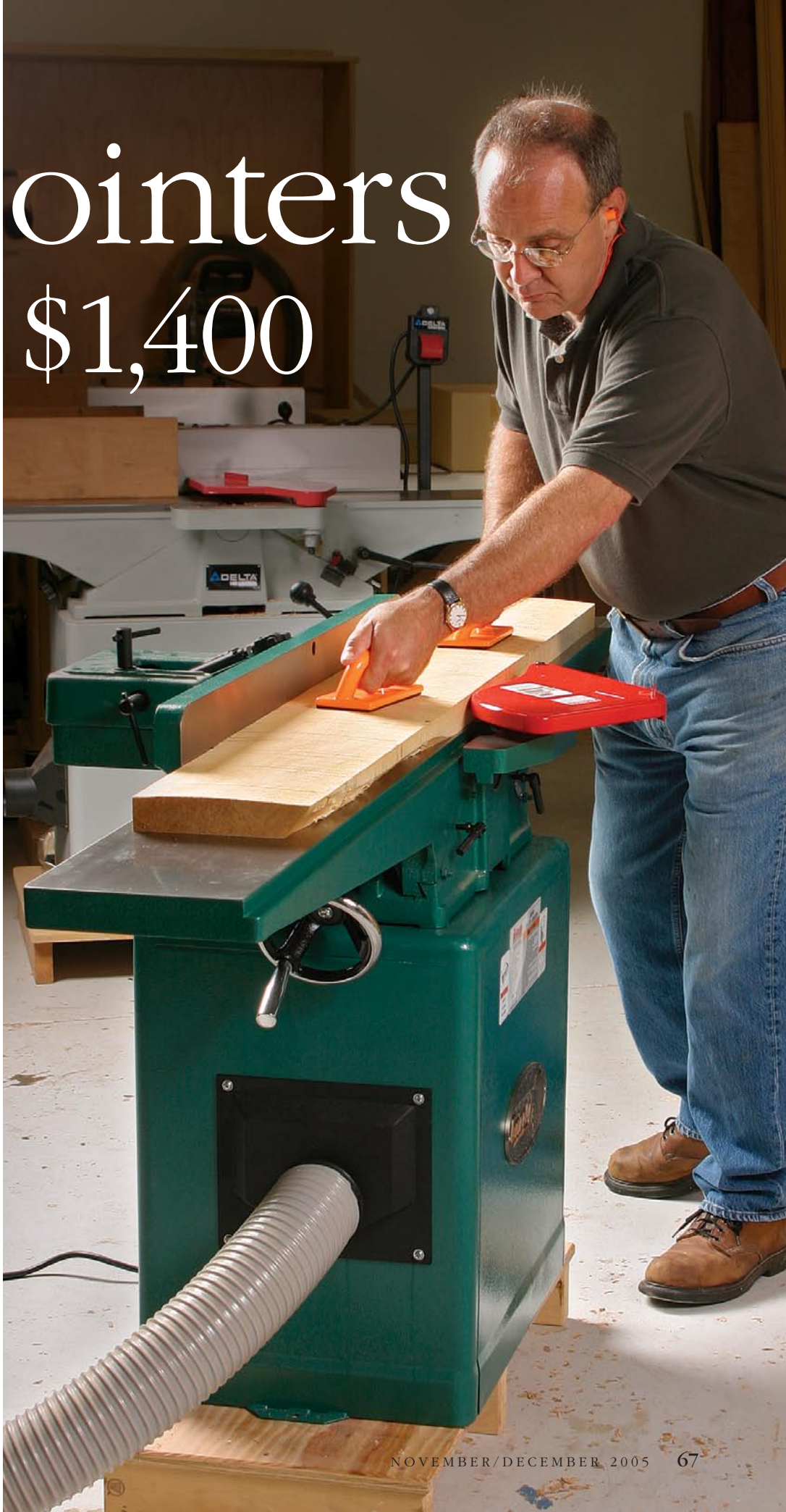
TOOL TEST

8-in. Jointers Under $1,400

These machines have the width to handle almost any workpiece

BY WILLIAM DUCKWORTH



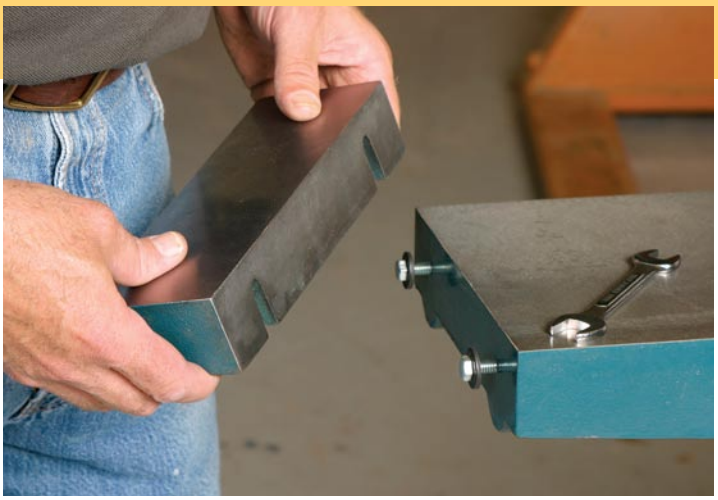
Whether you buy it rough or dressed, solid lumber is rarely flat and straight, and a jointer will flatten surfaces and straighten edges more efficiently than any other tool. After visiting dozens of shops over the years, I'm convinced that the jointer is one of the least understood and most underappreciated machines available to woodworkers.

People new to woodworking often ask me what machines they should purchase and, given limited budgets, in what order. A jointer is No. 2 on my list, right behind a tablesaw. The answer to the follow-up question, "What size do I need?" is simple: Get the biggest one you can afford and fit into your shop. For many woodworkers, an 8-in. jointer fits best into those constraints.

Anyone shopping for an 8-in. jointer won't suffer from a shortage of choices. My search for the most commonly available machines quickly added up to 11, ranging in price from $650 to $1,350. All have either 1½-hp or 2-hp motors. To com-

Photo, this page: Michael Pekovich

EXTENSIONS ADD LENGTH



Two approaches. *At 74¼ in., the Sunhill jointer (above) has one of the longer tables, but first you must bolt an extension to each end of the table. The General (right) uses pull-out roller extensions to add support for long boards.*

pare the jointers, I put each one through a series of inspections and tests.

I was not able to get the Grizzly G0586 in time for this review. It will be reviewed in a future issue. Also, this review doesn't include the pricier 8-in. machines on the market: The Delta 37-365X ($1,670), General 480-1 ($2,230), Grizzly G9859Z ($2,500), or Powermatic 1610079 ($1,570). Look for them in a future review.

As machines go, jointers are fairly simple in design. The bed consists of a cutterhead flanked by independent infeed and outfeed tables and a fence. The tables are basically wedges that ride up and down on a track of dovetailed ways. The bed rests on a base, which holds a motor that powers the cutterhead with one or more fan belts on pulleys. For the machine to work properly, the two table surfaces must be flat and parallel to each other, both front to back (parallel to the centerline of the cutterhead) and left to right. The outfeed table is flush with the top arc of the cutterhead knives. You adjust the depth of cut by moving the infeed table up and down.

Some assembly required

All the machines require some work before they can be used. You will have to bolt the bed to the base, adjust the motor mount, install the belts, and in many cases, wire the switch to the motor. After that, you'll need to install the fence. Given the weight involved, putting one of these machines together is a task that will require more than one person, unless your shop is equipped with a heavy-duty chain lift.

Some machines come prewired with a plug for either 110v or 220v circuits. Others come without a plug, and in most cases, you can choose the voltage level. If the choice matters to you, check with the manufacturer or dealer when you make the purchase.

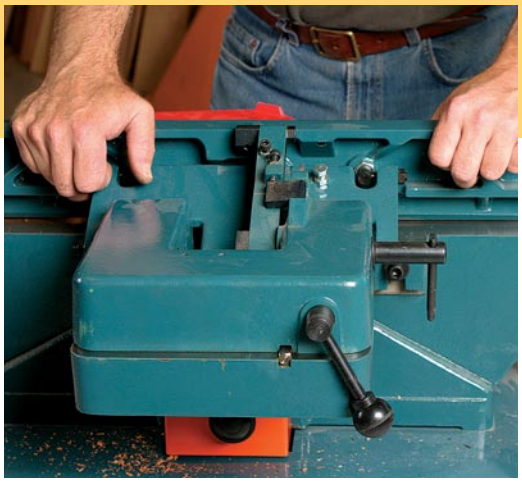
The differences are in the details

The overall quality of these machines is good to exceptional. For the most part, the differences showed up only on close inspection.

The size and quality of the bed matters—Among these machines, the overall

TWO FENCE STYLES TO CHOOSE FROM

Easy-moving fence. *Thanks to a rack-and-pinion gear, the fences on the Delta 37-380 and the Yorkcraft can be moved easily back and forth by turning a knob.*



Nine of the 11 jointers tested use a fence guided by a square steel bar. *Of these, six have a locking handle that regularly gets hung up behind the bed. Craftsman and Grizzly avoid the problem by putting the lever on top.*

length of the bed varies from 66¾ in. to 76½ in. A longer bed is preferable to remove bow, crook, and twist in longer lumber. As a rule of thumb, multiply the bed length by two to determine the maximum length of stock that a jointer can flatten effectively.

The Sunhill jointer achieves extra length with a pair of 3¼-in. extensions. One extension bolts onto each end of the bed, effectively increasing the table length by 6½ in.

The General jointer offers an interesting detail not found on the other machines: pull-out roller extensions on either end of the bed. The rollers can be adjusted to align with the table surfaces, and they come in handy for supporting the weight of long boards.

Table widths vary little on these machines—from 8 in. to 9¼ in.—and the knives on all of them are slightly longer than 8 in., which is the widest board you can surface. One detail on all of the outfeed tables (except the Delta 37-680) that I view as anachronistic is the rabbeting ledge. I've met woodworkers who cut rabbets with handplanes, routers, and dado blades, but I don't know anyone who would use the jointer to cut a rabbet. (I expect to receive letters from all three of you when this article is published.)

As mentioned earlier, it is essential for the two table surfaces to be ground flat and aligned properly to each other. How flat is flat? One manufacturer demands a table surface with no more than a 0.003-in. variation across its width and 0.006 in. along its length. Most of the measurements on these machines fell well within those parameters.

Using a high-quality 36-in. straightedge and feeler gauges, I checked for flatness on the infeed and outfeed tables in seven locations (two places across the length, three across the width, and two across the diagonals). On a few of the machines, I found dips in the ground surface as much as 0.007 in. Is that enough to prevent the jointer from providing an adequately flat surface on a piece of lumber? I doubt it. I calculated an average from the 14 table measurements taken on each machine. The Delta 37-680, General, Grizzly, and

HANDLES, WHEELS, AND LEVERS

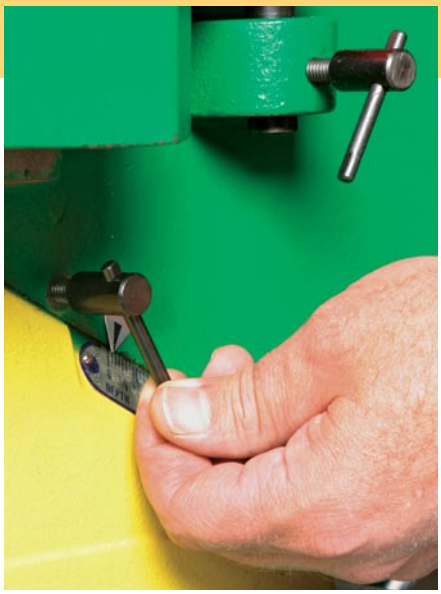


Table-locking handles aren't all the same. *Most of the jointers have table-locking levers too small to be finger friendly (left, Woodtek shown). Grizzly and Powermatic do a better job by making the handle a little bigger. Both Delta jointers and the Yorkcraft (right) have the best handles; the threaded shank is thicker than the others and the handle is more comfortable.*

Table-adjustment options. *When setting table heights, some woodworkers think a wheel (above, left) provides the most precise control. The author prefers the convenience of a lever (left). Powermatic combines both features in a lever with a handle that twists to provide quick micro-adjustment (above).*

finewoodworking.com

Visit our Web site to see the author demonstrate what to look for when buying an 8-in. jointer.

Photos, except where noted: Tom Begnal

Cutterhead options: how they stack up

Three or four knives?

The Bridgewood, Grizzly, and Sunhill machines have cutterheads with four knives; all the rest have three. Is there a difference in the quality of the cut?

Given equal feed rates and equal rpm values, that extra knife translates into one-third more cuts per inch or an additional 1,500 or so cuts per minute on the workpiece. More cuts per minute mean a smoother surface. To find out if the difference is noticeable, I made similar cuts on a three-knife cutterhead and a four-knife cutterhead. I couldn't see or feel a difference in smoothness or quality. An extra knife, however, means extra changing time. And you'll need more time to sharpen the knives or a few more bucks to have them sharpened. That said, a knife on a four-knife cutterhead should last longer between sharpenings, in theory anyway. That's because in a single revolution of the cutterhead, a knife in a four-knife cutterhead cuts less material than a knife in a three-knife head, given a constant feed rate. All things considered, for a home shop or a small, one- or two-man professional shop, I think the distinction between a three- or four-knife cutterhead is a non-issue.

Yorkcraft machines stood out, with nearly perfect tables.

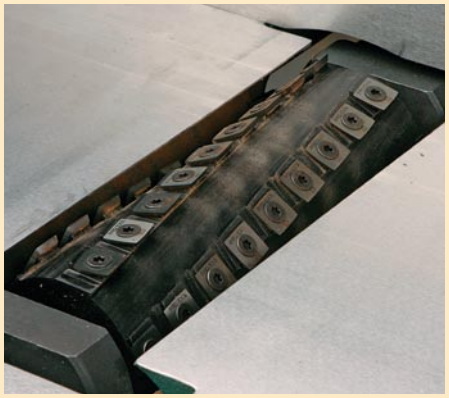
I also used the straightedge to determine whether the infeed and outfeed tables on each machine were parallel (see Table Alignment in chart, p. 73), both front to back (width) and left to right (length). My measurements showed that four of the machines were less than ideal. Some discrepancy can be fixed by shimming the errant table, but if I had just spent $1,000 or more on a machine, I would not be happy about having to correct this problem.

Some machines came with nicked knives—One thing that surprised and disappointed me was that the cut quality on several jointers was less than I expected. Some of the machines (Bridgewood, Craftsman, General, Jet, Sunhill, and Woodtek) left telltale veining marks on the surface, indicating that the knives had slight nicks and needed honing. On a brand-new jointer, you shouldn't have to hone the knives before you use the machine. Once the knives were honed, though, the cut quality on all 11 jointers was very good.

Are upgraded cutterheads worth the money?

For $250 to $400 more, most jointers are available with a cutterhead that produces an angled, or bias, cut. Manufacturers say bias cutterheads produce smoother cuts, run more quietly, and create less tearout in figured woods. Also, those with carbide inserts last longer between sharpenings.

Bias cutterheads fall into four main types: a chevron pattern with carbide inserts at a right angle (left), a spiral pattern with carbide inserts at a shear angle (center), a spiral pattern with carbide inserts at a right angle (not shown), and a spiral pattern with three high-speed-steel (HSS) knives (right). I made test cuts on several boards, including bird's-eye maple, with the three cutterheads shown below. The HSS knives produced very smooth cuts, but I was disappointed with the quality of cuts made by the carbide inserts. All three ran 5 db. to 10 db. quieter than straight-knife heads. For a shop where the jointer sees occasional use, I'd stay with the less costly straight knives.



Carbide-insert blades. *Both of these cutterhead designs feature more than four dozen individual carbide cutting knives, each with four usable edges. When they get dull, simply loosen each screw and rotate the knife to a fresh edge. Replacement inserts cost $2 to $3 each.*

Spiral knives. *This spiral cutterhead has narrow, high-speed-steel knives. A replacement set of three knives sells for about $30.*

Photos, this page, facing page: Kelly J. Dunton

In addition to the standard straight knives on these machines, some of the manufacturers (at the time of this writing, Bridgewood, General, Grizzly, Sunhill, Woodtek, and Yorkcraft) offer an alternative bias cutterhead. The samples we looked at were of three different designs (see sidebar, facing page).

Knife changing—Sooner or later, depending on use, you will have to sharpen the knives. To do that, the knives must be removed, resharpened, and reinstalled perfectly parallel to the top surface of the outfeed table. The process can be fussy, so any jointer that makes knife changing easier gets a thumbs-up from me.

Most manufacturers include a little jig to help simplify knife installation. The jig rests on the cutterhead at four points, and the knives are raised until they just touch the center of the jig. It works, but only if the cutterhead is perfectly parallel to the outfeed table, which is not always the case. If you use the jig, and the cutterhead and outfeed table aren't parallel, the knives won't be parallel to the outfeed table. I prefer to skip the factory-made jig and make my own (see sidebar, right).

Some of the jointers have a jack-screw system to adjust the knives parallel to the outfeed table; others use a spring. The knife-changing time is about the same.

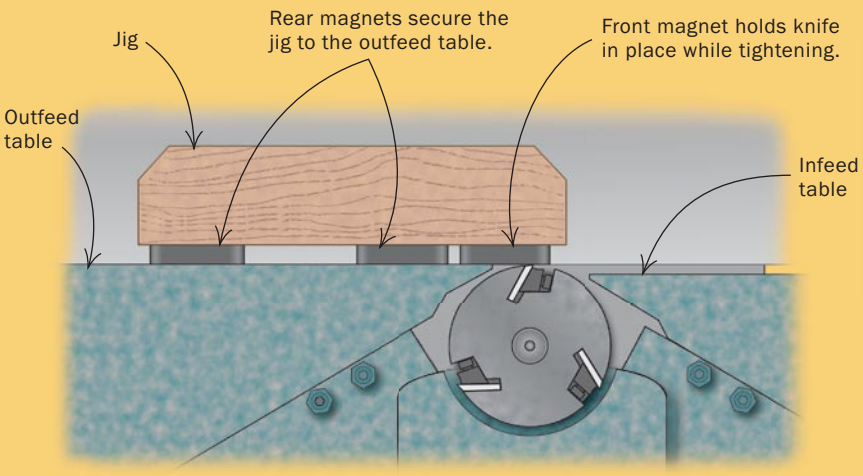
Two basic fence designs—Nine of the jointers (Bridgewood, Craftsman, Delta 37-680, General, Grizzly, Jet, Powermatic, Sunhill, and Woodtek) have similar heavy cast-iron fences that ride front to back on a square steel bar mounted in the bed. You can adjust the fence angle with positive stops for 90° and 45° (or any angle in between), and you can lock in its location above the cutterhead wherever you want it.

The Bridgewood, General, Jet, Powermatic, Sunhill, and Woodtek have a locking lever in the back that locks the fence in place. Often, however, when I wanted to slide the entire assembly forward, the fence wouldn't move because the lever had slipped down and gotten hung up on the back edge of the bed. Craftsman, Delta (on the 37-680), and Grizzly solved the problem and put the locking mechanism on top.

Two machines, the Delta 37-380 and the

Shopmade jig eases blade changes

Several of the jointers include a knife-setting jig that registers off the cutterhead (right), but if the cutterhead isn't parallel to the outfeed table, you won't get an accurate setup. A better option is to use a simple jig (below) to register the knives to the outfeed table. The jig consists of three small bar magnets glued with silicone adhesive to a pair of boards. The magnets secure the jig to the outfeed table and hold the knife in position for tightening.



Drawing: Kelly J. Dunton

BRIDGEWOOD BW-8J

CRAFTSMAN 21703

DELTA 37-380

MODEL/SOURCE	PRICE	NET WEIGHT	BED SIZE	FENCE SIZE	MOTOR SIZE (CLAIMED)	NO. KNIVES	OPTIONAL CUTTER-HEAD
BRIDGEWOOD BW-8J 800-235-2100 www.wilkemachinery.com	$950	388 lb.	9 in. by 67 in.	3⅞ in. by 38¼ in.	1½ hp	4	Yes
CRAFTSMAN 21703 800-697-3277 www.sears.com	$1,150	422 lb.	9¼ in. by 71 in.	4⅞ in. by 40 in.	2 hp	3	No
DELTA 37-380 800-223-7278 www.deltawoodworking.com	$1,050	432 lb.	8⅞ in. by 72½ in.	4⅞ in. by 35 in.	1½ hp	3	No
DELTA 37-680* 800-223-7278 www.deltawoodworking.com	$1,350	490 lb.	8 in. by 76½ in.	4⅞ in. by 35¾ in.	1½ hp	3	Yes**
GENERAL 80-200 819-472-1161 www.general.ca	$1,300	432 lb.	9 in. by 67 in. (not including extensions)	3⅞ in. by 38¼ in.	1½ hp	3	Yes
GRIZZLY G0500 800-523-4777 www.grizzly.com	$875	432 lb.	9¼ in. by 75½ in.	3⅞ in. by 38¼ in.	2 hp	4	Yes
JET JJ-8CS 800-274-6848 www.jettools.com	$1,050	404 lb.	9 in. by 67 in.	3¾ in. by 38¼ in.	2 hp	3	Yes**
POWERMATIC 60B 800-274-6848 www.powermatic.com	$1,150	393 lb.	9 in. by 72¼ in.	4¾ in. by 38¼ in.	2 hp	3	Yes**
SUNHILL CT-204L 800-929-4321 www.sunhillmachinery.com	$795	402 lb.	9 in. by 74¼ in. (including extensions)	3⅞ in. by 38¼ in.	2 hp	4	Yes
WOODTEK 907064 800-645-9292 www.woodworker.com	$920	391 lb.	9 in. by 66¾ in.	3⅞ in. by 38¼ in.	1½ hp	3	Yes
YORKCRAFT YC-8J 800-235-2100 www.wilkemachinery.com	$650	449 lb.	8⅞ in. by 72½ in.	4⅞ in. by 35 in.	1½ hp	3	Yes

*Formerly DJ-20, 37-750A **Available from Byrd Tool, 800-441-2973, www.byrdtool.com

Yorkcraft, have a fence that moves on a rack-and-pinion gear. I prefer this type of fence because it's easier to use. It takes one hand to turn the adjustment knob and effortlessly move the fence back and forth.

Table adjustments—Table adjustment is via a wheel or a lever. Proponents of the wheel argue that it's more accurate if you want to fine-tune a setting. They may be correct, but I prefer the convenience of a lever; I've never had any trouble using one to tweak a table setting 1/64 in. up or down.

The Powermatic jointer provides the best of both options—a lever with a built-in dial that makes it easy to fine-tune the table adjustment.

By the way, to minimize splintering, the Delta 37-680 incorporates a parallelogram design. When you lower the table, it follows the radius of the cutterhead, so the gap never changes.

Screws to tighten table settings—After you adjust the position of the tables, you'll need to lock them into place. On the Bridgewood, Craftsman, General, Jet, Sunhill, and Woodtek, the table can be locked in position with a single 5/16-in. machine screw tapped into the dovetailed way located on the front of the machine. However, the screws are topped with a flimsy little handle that scores low on the comfort scale. The Grizzly and Powermatic have a bigger swivel handle made of round bar stock that's a little easier on the fingers.

The Delta and Yorkcraft jointers feature screws designed with a much more substantial lever that locks the tables in place

DELTA
37-680

GENERAL
80-200

GRIZZLY
G0500

AVG. TABLE FLATNESS	TABLE ALIGNMENT (width/length)	NOISE LEVEL	COMMENTS
0.002 in.	0.000/0.007 in.	85 db.	Handwheel adjustment; knives came nicked; lightest weight; locking lever sometimes hangs up fence
0.002 in.	0.004/0.017 in.	83 db.	Handwheel adjustment; knives came nicked; smallish table-lock lever; longest fence
0.002 in.	0.0025/0.013 in.	79 db.	Lever-infeed, handwheel-outfeed table adjustment; easiest fence to move; sturdy table-lock lever
0.001 in.	0.000/0.008 in.	81 db.	Lever adjustment; parallelogram design a plus; sturdy table-lock lever; longest bed; extralong (42 in.) infeed table
0.001 in.	0.000/0.0025 in.	93 db.	Handwheel or lever adjustment; knives came nicked; locking lever sometimes hangs up fence; smallish table-lock lever
0.000 in.	0.000/0.000 in.	82 db.	Handwheel adjustment; dead-flat and perfectly aligned tables; sharp knives perfectly aligned
0.002 in.	0.001/0.0015 in.	90 db.	Handwheel adjustment; knives came nicked; locking lever sometimes hangs up fence; smallish table-lock lever
0.004 in.	0.000/0.002 in.	90 db.	Lever with dial adjustment; locking lever sometimes hangs up fence; switch conveniently placed
0.003 in.	0.000/0.0015 in.	92 db.	Handwheel adjustment; knives came nicked; locking lever sometimes hangs up fence; smallish table-lock lever
0.002 in.	0.000/0.000 in.	86 db.	Handwheel adjustment; knives came nicked; locking lever sometimes hangs up fence; smallish table-lock lever
0.001 in.	0.002/0.000 in.	82 db.	Lever-infeed, knob-outfeed adjustment; rack-and-pinion gear makes fence easy to move; sturdy table-lock lever

JET
JJ-8CS

POWERMATIC
60B

SUNHILL
CT-204L

WOODTEK
907064

YORKCRAFT
YC-8J

with a ⅝-in.-dia. thread. This table-lock style is not only stronger, but it's also more comfortable to use.

To provide increased locking strength, the Delta 37-380 and the Yorkcraft have an additional screw on the back of each infeed and outfeed table.

Choosing favorites

The Grizzly jointer stood out from the pack as the best-overall choice of the 11 machines I tested. It was shipped in the sturdiest crate and had the best fit and finish and the flattest tabletops. The well-sharpened knives on the cutterhead made smooth cuts right from the get-go.

If I were shopping for an 8-in. jointer on a tight budget, I'd buy the Yorkcraft. It has the lowest price, a sturdy pair of table-locking screws, and a rack-and-pinion fence that I like a lot. Plus, it was the only jointer in this group that included a rolling base. All that made it my choice for best value of the bunch. □

William Duckworth is a contributing editor.