

# Who Makes the Best Parallel Clamp?

They seem identical, but a head-to-head test tells a different story

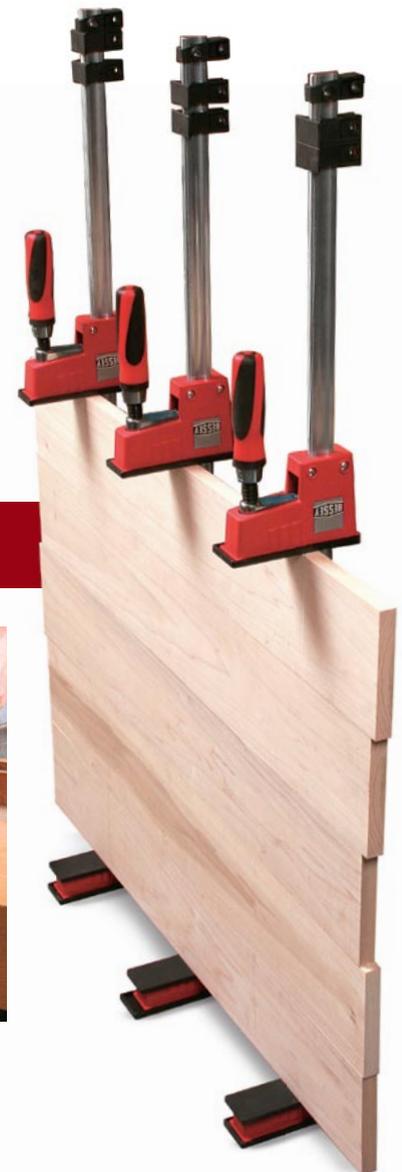
Life in my workshop got a little easier about 15 years ago, on the day Bessey introduced the first parallel clamp, called the K Body. Ever since then, parallel clamps have become my main squeeze for a variety of clamping tasks.

Before the arrival of parallel clamps, I'd reach for a pipe clamp or a steel I-beam clamp when a long clamp was called for. Either one could muscle more than enough pressure. But clamp pads were a must if you wanted to avoid dents from the jaws; and because the jaws weren't

parallel, workpieces often slid out of position. On the other hand, parallel clamps have big jaws, making workpiece denting much less of an issue. And because the jaws are square to the bar and parallel to each other, parts aren't as likely to slide out of alignment when the clamp is tightened. Plus, dried glue is easier to remove from the plastic jaws, so glue buildup isn't much of an issue.

The parallel-clamp manufacturers' club now has six members: Bessey (with a new version of its original), Irwin, Jet, Jorgensen, Woodcraft,

## Why they're so useful



**Parallel has its advantages.** Large, square jaws allow you to assemble a drawer box with only two clamps (left), keep a door frame perfectly aligned (center), and stand an assembly out of the way while the glue dries (right).

and Woodline. To find out if any stood out from the group, I gathered four clamps from each manufacturer and set about testing them in my shop. I wanted to work with 36-in.-long clamps, but learned that some manufacturers don't make that size. In those cases, I worked with the length nearest to 36 in.

When all the testing was finished, I found the overall quality of the clamps to be a mixed bag. Several were disappointments; but a couple stood out as top performers.

### Ease of use is important

Good clamps have a sliding jaw that moves and adjusts easily. The Irwin and Jorgensen clamps had the smoothest sliding jaws—sometimes too smooth. When the clamp is held vertically, the jaws can instantly slide down and whack your hand.

Two of the clamps—the Jet and the Woodline—won't slide unless you squeeze a trigger to release a locking clutch, a safety feature that helps prevent such hand-whacking incidents. The Jet trigger worked well and the jaw slid with ease. But the Woodline sliding jaw was difficult to move and often required two hands.

The original Bessey K Body was a big hit, but there was one common complaint: the skinny handle, which made it difficult to apply full pressure. So Bessey and all of its competitors came back with better handles. Any grip test is somewhat subjective, but I have average-size hands, and I liked the handles on the Irwin, Jet, and Jorgensen clamps. They were comfortable and easy to grab.

Another improvement is the retainer clip on one end. This useful little feature prevents the sliding jaw from sliding off the bar, and acts as a support to keep the clamp parallel to the workbench. In use, almost all of these worked well. The Woodline was the exception. Its retainer was too short, causing the clamp to rock on the bench.

### Performance under pressure

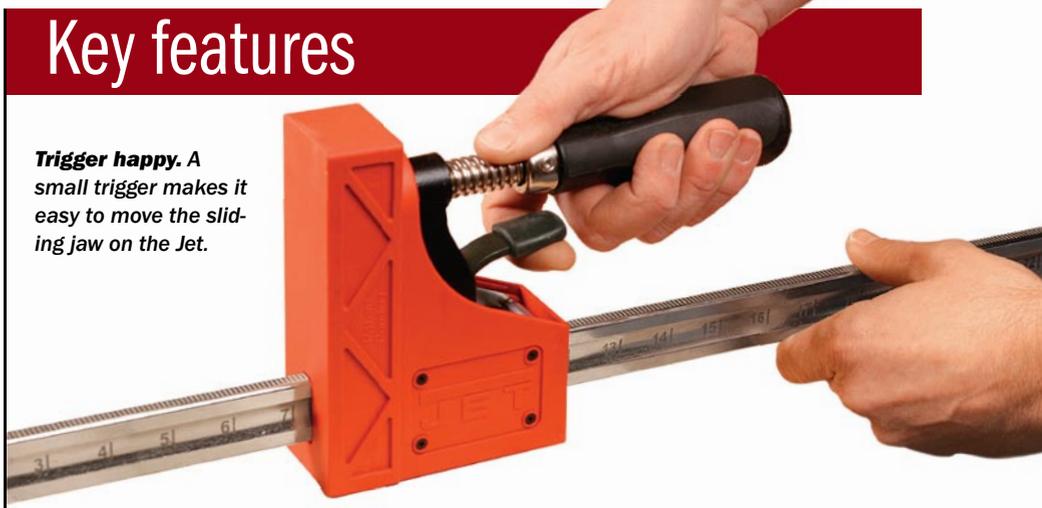
The bottom line with any clamp is how well it clamps. I performed several tests to see if the clamps could apply adequate pressure while living up to their promise to keep parts flat and straight.

#### Clamp-force test shows differences—

To measure clamping force, I tested each of the clamps on a welded clamping fixture using an industrial-weight scale. The

## Key features

**Trigger happy.** A small trigger makes it easy to move the sliding jaw on the Jet.



**Handle is important.** The Jorgensen's large wood handle makes it easy to apply maximum force (left). The Woodline's handle can be pivoted 90° for extra torque, but the coupling is weak and was quickly bent (right).



**Level-headed.** Small retaining clips at the far end keep most of the clamps level when the jaws are together at the other end.

# Testing

## CLAMPING FORCE

**Tortured on the rack.** Albers used the same steel frame and industrial scale from past clamp tests to measure the force each clamp could apply. He tested them one-handed (shown), and also invited a few strong friends to try.



movable bar—the one attached to the scale—runs on drawer slides to reduce friction. I turned each handle one-handed, as I usually do in the shop.

I'd say my clamping strength is about average, but to be sure I took the clamping fixture and clamps to a local millwork shop where the guys use clamps all day long (thanks to the team at Heartwood Milling). I also enlisted the help of a couple of retired gentlemen who work wood. The maximum pressure in the chart is the highest recorded for all the testers.

All the clamps, except for the Woodline, applied a force adequate for most glue-ups. That said, none of them reached the force you can apply with a pipe clamp, and all fell far short of the squeeze you can get from a steel I-beam clamp.

We applied the most force—an average of 700 lb.—with the Irwin clamps.

**Bar deflection under load**—The first thing I did, before any load was applied, was use a good straightedge to check the bars for straightness. All were straight. To determine the amount of bar deflec-

## BAR DEFLECTION



**Stiffness means accuracy.** When the bar deflects, the jaws do, too. The Irwin showed the most flex:  $\frac{3}{32}$  in. at full clamp pressure.

## JAW FLEX



**Not all jaws stay square.** The Woodline's fixed jaw deflected severely under pressure (top), while the Bessey's stayed accurate.

## PANEL FLATNESS

**Toughest test of all.** Albers clamped a test panel at the tip of the jaws, applied full pressure, and measured any bowing with a straightedge and feeler gauges. He repeated the same test with the panel at the base of the jaws.

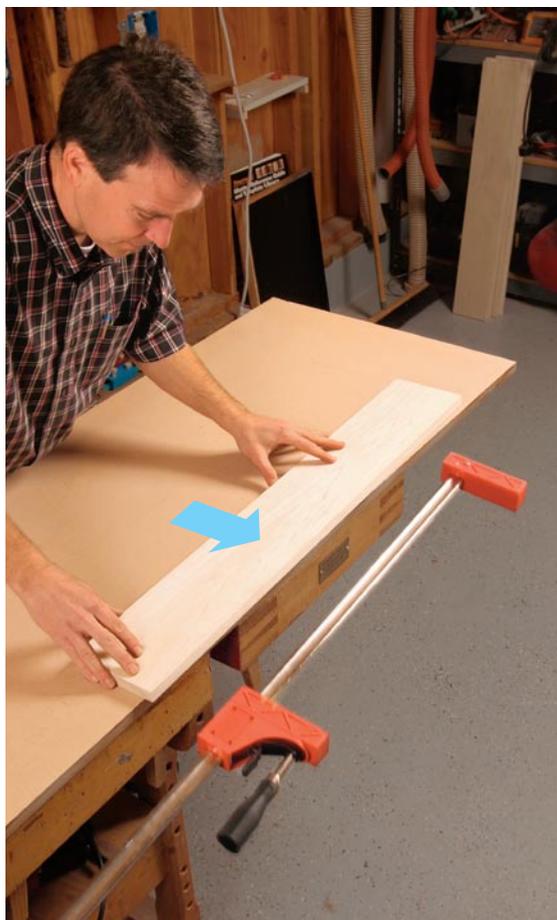


tion with the clamps under pressure, I set them on a flat surface, marked the center of the bar, and measured the distance between the bar and the work surface. I then clamped a 30-in. length of hard maple, approximately 1 $\frac{3}{4}$  in. square, lengthwise between the jaws and tightened the clamps to my maximum clamping pressure. With the clamp tight, I again measured the distance between the bar and the work surface.

All the clamps exhibited deflection within a range of  $\frac{1}{32}$  in. to  $\frac{1}{16}$  in., a relatively minor amount, with the exception of the Irwin, which showed bar deflection of almost  $\frac{1}{8}$  in.

**Jaw deflection under load**—Next, I tried to isolate the jaws to find out how much they deflected. I placed a short block of wood between the jaws and tightened the clamp as much as I could. I used a square to determine how much the jaws deflected, if at all. I did the test with the block at the base of the jaws and at the tips.

To eliminate bar deflection from the test, the block was just long enough to allow room for the square. Interestingly, some of the sliding jaws deflected inward under pressure, but that is still a problem. The



## DURABILITY

**Brutal drop test.** Albers dropped each clamp five times from his benchtop, flat onto a concrete floor. A few were rendered unusable: The Jet's handle broke off, and the casing on the Woodline was shattered.



# Results

Bessey's jaws did especially well, staying dead square.

**Panel provides real-world test**—Finally, to see how the clamps would do in the real world, I clamped five boards, each  $\frac{3}{4}$  in. thick by 6 in. wide by 36 in. long, edge to edge to create a single panel. To be sure the panel wasn't being restrained or affected by the bar, I clamped the test panel at the base of the jaws and also at their tips. I used a straightedge to measure deflection across the width of the panel. A measurement of  $\frac{1}{16}$  in. or less earned a deflection rating of "slight"; one between  $\frac{1}{16}$  in. and  $\frac{3}{16}$  in. was rated as "moderate." The Jorgensen clamps stood out here.

By the way, the Woodline clamps have hard plastic jaws with a rubber insert in the top portion of the jaw. I found that this design applies uneven pressure.

**None of the jaws slipped**—I had no issues with any of the sliding jaws slipping under pressure. But the sliding jaw on the Irwin clamp was difficult to disengage, particularly when the entire jaw was in contact with the work.

## Drop test

Parallel-jaw clamps have plastic jaws, so I wanted to find out how they'd hold up when dropped. The test was brutally simple. I slid each clamp off my 36-in.-tall bench and let it fall to the concrete floor. For consistency, I placed each clamp in the same position on the bench and used a long board as a pusher. Then, in an effort to mimic a clumsy woodworker like myself, I dropped each clamp four more times, for a total of five visits to the floor.

All the clamps suffered to some degree. The Irwin and Jorgensen clamps showed the least amount of damage: Both were completely usable, although some of the plastic on the Jorgensen eventually broke.

The removable pads on the Bessey cracked or broke completely and parts of the clamp jaws broke but were still usable. The plastic jaw casings on the Woodcraft clamps cracked but were usable. The Jet experienced some cracking of the casing, but worse, the handle snapped off on the first drop. The Woodline was destroyed, with all the plastic casing breaking and pins and parts flying across the shop.



MANUFACTURER	STREET PRICE	LENGTH	JAW SIZE (ABOVE BAR)	MAX. FORCE	BAR DEFLECTION
Bessey <a href="http://www.besseytools.com">www.besseytools.com</a>	\$45	40 in.	2 in. by $3\frac{3}{4}$ in.	650 lb.	0.042 in.
Irwin <a href="http://www.irwin.com">www.irwin.com</a>	\$50	48 in.	2 in. by $3\frac{3}{4}$ in.	700 lb.	0.095 in.
<b>AUTHOR'S BEST OVERALL CHOICE</b> Jet <a href="http://www.jettools.com">www.jettools.com</a>	\$48	40 in.	$1\frac{3}{4}$ in. by $4\frac{1}{8}$ in.	690 lb.	0.032 in.
<b>AUTHOR'S BEST OVERALL CHOICE</b> Jorgensen <a href="http://www.adjustableclamp.com">www.adjustableclamp.com</a>	\$40	36 in.	$1\frac{7}{8}$ in. by 4 in.	600 lb.	0.038 in.
Woodcraft <a href="http://www.woodcraft.com">www.woodcraft.com</a>	\$41	40 in.	$1\frac{1}{2}$ in. by $3\frac{3}{8}$ in.	525 lb.	0.035 in.
Woodline <a href="http://www.woodline.com">www.woodline.com</a>	\$37	39 in.	$1\frac{1}{2}$ in. by $3\frac{3}{8}$ in.	325 lb.	0.038 in.

## Glue adhesion

Anyone who's been working wood for more than a few weeks has had to scrape dried glue from clamps. It's not fun. So I let Titebond III dry on the clamp bars and jaws for 24 hours and then tried to remove it. Hands down the best performer was the Jet, where the glue on the bar and plastic jaws just peeled off. Glue also peeled eas-

ily from the plastic jaws on the Jorgensen. The Irwin was the hardest to scrape off.

## Which clamp would I buy?

After completing the testing and reviewing all the data, I felt the Jorgensen and Jet clamps were the best performers in this group. Either model would be welcome in my shop.



JAW DEFLECTION		PANEL FLATNESS	RESISTANCE TO GLUE ADHESION	SLIDING JAW OPERATION	COMMENTS
Force at base Fixed/sliding	Force at tips Fixed/sliding				
Slight/none	Severe/slight	Good	Good	Very good	Very good jaw-deflection scores, but pads fall off easily.
Moderate/ very slight	Moderate/ severe	Fair	Poor	Excellent	Best in drop test, but worst bar deflection.
Moderate/ very slight	Very slight/ slight	Good	Excellent	Good	Great clamp if you avoid severe drops.
Slight/slight	Moderate/none	Very good	Very good	Excellent	Second to Jet only in clamp force.
Slight/slight	Super severe/ slight	Fair	Good	Good	Severe deflection with force at tips of jaws.
Moderate/ moderate	Very severe/ slight	Fair	Good	Poor	Weak clamping force, poor accuracy, and shattered when dropped.

The Jorgensen has big jaws, and they slid especially easily. Clamp force was good. Plus, it was easy to remove dried glue from the bar. On the downside, the handle on the Jorgensen was a little too slick. And the sliding jaw can be a finger pincher.

I like the Jet because it has jaws that remained square under load. Also, the bar showed little deflection and the clamp

force number was excellent. The trigger lock kept the sliding jaw in place, so finger pinching wasn't an issue. And, all components on the clamp worked smoothly. The main negative was the handle that broke during one of the drop tests.

The Bessey is also a good parallel clamp, but I was regularly annoyed by the protective pads, which slid off all the time

and broke easily. Leave them off and the clamp works very well, though the jaws are smaller.

All of these clamps are a bit pricey (though the best are well worth it), so we didn't make a best value award. □

*Tim Albers is a woodworker in Ventura, Calif., and a frequent contributor.*